

## ELECTRICAL MACHINERY, APPARATUS, AND SUPPLIES

[A preliminary report for this industry was issued under date of March 19, 1929]

**Description of the industry.**—This industry embraces establishments engaged primarily in the manufacture of machinery, apparatus, and supplies for employment directly in the generation, storage, transmission, or utilization of electric energy. It does not cover establishments whose principal products are electric-lighting fixtures, electric signs, or motor-driven tools, mechanical refrigerators, washing machines, and other machines and appliances constructed with built-in motors, these being classified for census purposes in other industries. (See Table 19, p. 1065.)

**Detailed statistics of products (Tables 3-18).**—For those classes of products which are manufactured principally in the electrical machinery, apparatus, and supplies industry, the detailed statistics of products cover, in addition to the output of establishments assigned to this industry, electrical equipment made as secondary products (so far as separately reported) by establishments engaged primarily in other lines of manufacture. (See sec. 17a, p. 9.) The most important example of such secondary production is insulated wire and cable, reported for 1927 to the value of \$65,376,376, chiefly by establishments engaged in the manufacture of plain wire.

**TABLE 1.—SUMMARY FOR THE UNITED STATES: 1919 TO 1927**

[Data for establishments with products under \$5,000 in value included for 1919 but not for subsequent years.  
See sec. 10, p. 6]

YEAR OR PERIOD	Number of establishments	Wage earners (average for the year)	Wages	Cost of materials, supplies, fuel, and power	Value of products	Value added by manufacture <sup>1</sup>	Horse-power
1927-----	1,777	241,566	\$336,238,750	\$645,761,099	\$1,637,307,035	\$991,545,336	661,168
1925-----	1,739	239,921	323,834,541	636,692,076	1,540,002,041	903,309,965	589,398
1923-----	1,671	234,892	305,455,263	548,626,673	1,293,001,771	744,375,098	480,268
1921-----	1,333	161,204	194,242,357	344,069,963	833,985,443	489,915,480	(?)
1919-----	1,404	212,374	238,188,852	425,098,211	997,968,119	572,869,903	438,082
PER CENT OF INCREASE							
1925-1927-----	2.2	0.7	3.8	1.4	6.3	9.8	12.2
1923-1925-----	4.1	2.1	6.0	16.1	19.1	21.4	22.7
1923-1927-----	6.3	2.8	10.1	17.7	26.6	33.2	37.7
1919-1927-----	26.6	13.7	41.2	51.9	64.1	73.1	50.9

<sup>1</sup> Value of products less cost of materials, supplies, fuel, and power. (See secs. 18 and 21, pp. 9 and 10.)  
<sup>2</sup> Not called for on schedule.

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TABLE 2.—PRIME MOVERS, MOTORS, AND GENERATORS, BY TYPE, NUMBER, AND RATED CAPACITY, FOR THE UNITED STATES: 1927, 1925, AND 1923

TYPE	1927		1925		1923	
	Number	Capacity	Number	Capacity	Number	Capacity
		<i>Horse-power</i>		<i>Horse-power</i>		<i>Horse-power</i>
Prime movers, total.....	86, 611	661, 168	66, 878	589, 398	52, 410	480, 268
Steam engines.....	155	34, 047	174	53, 768	} 249	} 173, 853
Steam turbines.....	76	200, 427	73	180, 312		
Internal-combustion engines.....	56	5, 204	42	5, 061	60	6, 775
Water wheels and turbines.....	16	1, 635	11	622	25	1, 802
Electric motors driven by purchased current.....	86, 308	419, 855	66, 578	349, 635	52, 076	297, 838
Electric motors, total.....	141, 964	707, 215	127, 778	688, 430	95, 651	531, 257
Driven by purchased current.....	86, 308	419, 855	66, 578	349, 635	52, 076	297, 838
Driven by current generated in establishment reporting.....	55, 656	287, 360	61, 200	338, 795	43, 575	233, 419
Electric generators.....	221	<i>Kilowatts</i> 178, 440	308	<i>Kilowatts</i> 172, 403	( <sup>1</sup> )	<i>Kilowatts</i> ( <sup>1</sup> )

<sup>1</sup> Not called for on schedule.

TABLE 3.—PRODUCTS, BY CLASS AND VALUE, FOR THE UNITED STATES: 1921 TO 1927

CLASS	1927	1925	1923	1921
1. Electrical machinery, apparatus, and supplies industry, all products, total value.....	\$1, 637, 307, 085	\$1, 540, 002, 041	\$1, 293, 001, 771	\$833, 985, 443
2. Electrical machinery, apparatus, and supplies.....	1, 551, 816, 138	1, 435, 470, 008	1, 194, 187, 188	758, 981, 155
3. Other products (not normally belonging to the industry), value, and receipts for repairing.....	85, 490, 897	104, 532, 033	98, 814, 583	75, 004, 288
4. Electrical machinery, apparatus, and supplies made as secondary products in other industries, value.....	116, 288, 827	113, 548, 024	84, 513, 093	50, 608, 749
Electrical machinery, apparatus, and supplies, all industries: Aggregate value (sum of 2 and 4).....	1, 668, 104, 965	1, 549, 018, 032	1, 278, 700, 286	809, 589, 904
Batteries and parts and supplies (see Table 8).....	150, 388, 880	155, 247, 811	118, 065, 613	66, 882, 965
Conduits, interior <sup>1</sup> (see Table 17).....	42, 132, 936	46, 329, 735	<sup>2</sup> 37, 500, 210	<sup>2</sup> 19, 346, 266
Control apparatus (see Table 5).....	34, 180, 804	31, 302, 841	33, 176, 615	19, 550, 522
Electric fans (see Table 7).....	10, 755, 001	10, 895, 769	9, 913, 629	7, 251, 179
Fire-alarm apparatus (see Table 6).....	3, 611, 006	3, 489, 828	2, 639, 919	2, 404, 155
Fuses (see Table 17).....	10, 891, 242	10, 392, 806	9, 245, 283	4, 483, 023
Generators, motor-generator sets, and automotive starter-motors (see Table 4).....	111, 099, 390	110, 185, 015	106, 376, 674	65, 172, 221
Household heating and cooking appliances (see Table 11).....	77, 519, 218	75, 102, 165	63, 914, 840	37, 670, 836
Ignition apparatus for internal-combustion engines (see Table 14).....	35, 123, 296	41, 854, 205	<sup>3</sup> 31, 831, 251	<sup>3</sup> 20, 589, 193
Industrial apparatus and appliances, not including motor-driven tools and devices (see Table 11).....	12, 761, 010	10, 283, 335	6, 788, 157	3, 821, 502
Insulated wire and cable (see Table 15).....	210, 047, 947	210, 617, 310	184, 472, 095	98, 332, 970
Lamps (not including sockets and other fittings), incandescent (see Table 9).....	87, 933, 244	73, 558, 210	71, 966, 225	59, 728, 398
Measuring instruments, relays, and instrument transformers (see Table 12).....	34, 133, 212	31, 650, 355	28, 221, 484	21, 032, 535
Motors (not including starters or controllers) and motor parts and supplies (see Table 7).....	122, 343, 338	113, 109, 577	109, 188, 685	74, 446, 738

<sup>1</sup> Only the conduit made by establishments which purchase steel pipe for use as material; does not include finished conduit made by plants which make their own steel pipe.

<sup>2</sup> Not strictly comparable with figures for 1927 and 1925; includes data for underground conduits.

<sup>3</sup> Not comparable with figures for 1927 and 1925 because the latter include data for timers.

TABLE 3.—PRODUCTS, BY CLASS AND VALUE, FOR THE UNITED STATES: 1921 TO 1927—Continued

CLASS	1927	1925	1923	1921
Electrical machinery, apparatus, and supplies, all industries—Continued.				
Radio apparatus and tubes (see Table 10)	\$198,436,434	\$178,834,697	\$54,000,470	\$10,647,617
Switchboards, circuit breakers, and switches (see Table 13)	71,924,341	69,759,067	57,856,166	36,208,897
Telegraph apparatus (see Table 6)	5,561,362	2,922,163	2,085,854	244,068
Telephone apparatus (see Table 6)	115,451,822	81,510,490	92,398,031	101,902,354
Transformers (except measuring-instrument and radio transformers), induction voltage regulators, current-limiting reactors, synchronous converters, and double-current generators (see Table 5)	66,804,204	62,153,155	59,114,722	42,103,028
Wiring devices (see Table 16)	32,703,331	34,806,452	34,066,232	21,806,416
Miscellaneous electrical machinery, apparatus, and supplies <sup>1</sup> (see Table 18)	234,297,887	195,013,037	164,078,131	95,785,020

<sup>1</sup> Not including electric-lighting fixtures, electric signs, electric refrigerators, nor motor-driven tools, washing machines, cash registers, adding machines, and other machines with built-in motors, these products being classified for census purposes in other industries.

TABLE 4.—GENERATORS, MOTOR-GENERATOR SETS, AND AUTOMOTIVE STARTER-MOTORS—PRODUCTION, BY NUMBER AND VALUE: 1921 TO 1927

[See Table 3, p. 1055]

	1927	1925	1923	1921
Total value	\$111,090,390	\$110,185,015	\$106,376,674	\$65,172,221
Generators, not including motor-generator sets, automotive generators, or self-contained power and lighting outfits, total value	\$22,838,199	\$23,215,976	\$22,743,565	\$18,436,081
Alternating-current—				
Steam-turbine driven—				
Number	483	386	594	577
Kilovolt-amperes	1,848,587	2,054,125	2,266,968	1,693,525
Value	\$3,741,000	\$8,468,376	\$9,317,122	\$6,742,983
Other, including synchronous condensers and frequency changers <sup>2</sup> —				
Number	2,373	1,712	1,381	1,110
Kilovolt-amperes	1,783,904	1,619,895	(3)	1,300,952
Value	\$9,594,410	\$9,431,072	\$9,191,158	\$8,770,431
Direct-current—				
Steam-turbine driven—				
Number	4,770	6,562	2,247	175
Kilowatts	27,301	45,445	20,252	13,672
Value	\$674,859	\$1,514,708	\$762,761	\$217,011
Other—				
Number	11,789	9,410	8,061	5,516
Value	\$3,827,930	\$3,801,820	\$3,472,524	\$2,705,656
Motor-generator sets and dynamotors:				
Total number	17,144	14,309	8,195	5,800
Total value	\$6,764,299	\$8,264,118	\$7,304,064	\$6,311,468
Under 50 kilowatts—				
Number	16,772	13,530	7,170	5,085
Value	\$4,571,236	\$3,724,443	\$2,674,415	\$1,683,936
50 kilowatts and over—				
Number	372	779	1,025	724
Kilowatts	150,195	313,458	278,340	193,153
Value	\$2,193,063	\$4,539,675	\$4,630,549	\$4,627,522
Automotive generators and automotive starter-motors:				
Number	3,366,488	3,879,208	3,730,945	1,422,045
Value	\$58,127,969	\$56,221,356	\$54,007,391	\$27,442,763
Self-contained power and lighting outfits of not over 5-kilowatt capacity, including engine, generator, and control, but excluding storage batteries:				
Number	46,608	43,408	41,816	20,540
Value	\$9,598,119	\$11,142,620	\$7,684,977	\$4,042,956
Parts and supplies, value	\$13,770,804	\$11,340,945	\$14,635,777	\$8,938,963

<sup>1</sup> This total is the sum of the value items in the column beneath, not including underscored totals.  
<sup>2</sup> Figures for synchronous condensers and frequency changers can not be given separately without disclosing the output of individual establishments.  
<sup>3</sup> No comparable data.

TABLE 5.—TRANSFORMERS, INDUCTION VOLTAGE REGULATORS, CURRENT-LIMITING REACTORS, AND CONTROL APPARATUS—PRODUCTION, BY NUMBER AND VALUE: 1921 TO 1927

[See Table 3, p. 1055]

	1927	1925	1923	1921
Transformers, induction voltage regulators, and current-limiting reactors, total value.....	\$66,804,204	\$62,153,155	\$59,114,722	\$42,103,028
Constant-potential transformers (except measuring-instrument and radio transformers)¹—				
Less than 1 kilovolt-ampere—				
Number.....	699,102	1,191,588		
Kilovolt-amperes.....	434,608	(²)		
Value.....	\$1,706,823	\$2,937,598	641,792	338,144
1 to 500 kilovolt-amperes—				
Number.....	226,617	195,671	4,790,163	2,993,715
Kilovolt-amperes.....	5,013,910	3,981,777	\$31,187,794	\$24,220,713
Value.....	\$32,242,869	\$28,766,327		
Over 500 kilovolt-amperes—				
Number.....	3,945	3,369	3,406	1,393
Kilovolt-amperes.....	10,085,470	8,214,441	7,713,719	3,443,520
Value.....	\$22,805,740	\$20,233,693	\$18,506,209	\$9,742,147
Constant-current transformers (except measuring-instrument and radio transformers), current-limiting reactors, induction voltage regulators, synchronous converters, and double-current generators, value.....	\$10,048,772	\$10,215,532	\$9,420,719	\$8,140,168
Control apparatus, total value.....	\$34,180,804	\$31,302,841	\$33,176,615	\$19,550,522
Industrial magnetic control for alternating-current motors—				
Number.....	266,512	135,445	70,552	17,936
Value.....	\$7,013,012	\$5,783,926	\$4,233,099	\$1,456,264
Industrial magnetic control for direct-current motors—				
Number.....	93,985	(³)	(³)	(³)
Value.....	\$8,496,225	\$6,324,568	\$4,002,829	\$3,352,239
Industrial manual control for alternating-current motors—				
Number.....	126,195	157,554	(³)	46,693
Value.....	\$5,825,311	\$6,089,381	\$7,934,089	\$3,392,611
Industrial manual control for direct-current motors—				
Number.....	90,564	(³)	(³)	(³)
Value.....	\$1,936,984	\$1,608,912	\$4,335,781	\$1,700,516
Pressure regulators, float switches, limit switches, phase-failure relays (regulating and protective), electric brakes, and miscellaneous switches, value.....	\$3,273,280	\$4,535,003		
Railway and vehicle controllers, field rheostats, generator voltage regulators, battery-charging rheostats, miscellaneous rheostats, and resistance units (not including radio rheostats nor theater dimmers), value.....	\$7,636,052	\$6,960,151	\$12,070,817	\$9,618,892

¹ For radio transformers and measuring-instrument transformers, see Tables 10 and 12, respectively.

² Data incomplete.

³ No comparable data.

TABLE 6.—TELEPHONE, TELEGRAPH, AND FIRE-ALARM APPARATUS—PRODUCTION, BY VALUE: 1921 TO 1927

[See Table 3, p. 1055]

	1927	1925	1923	1921
Total value.....	\$124,624,190	\$87,922,490	\$97,123,804	\$104,640,578
Telephone apparatus, total value.....	\$115,451,822	\$81,510,499	\$92,398,031	\$101,992,354
Switchboards, central-office and private-branch exchange, value.....	\$68,669,904	\$42,463,527	\$50,552,322	\$63,785,122
Substation instruments—				
Number.....	2,574,055	2,458,730	3,249,802	\$38,207,232
Value.....	\$21,158,295	\$18,401,666	\$22,748,623	
Interior systems, value.....	\$3,351,074	\$4,433,383	\$19,096,586	
Parts for telephone apparatus, value.....	\$22,272,549	\$16,211,923		
Telegraph apparatus (not including wireless):				
Keys, sounders, and relays, all types, value.....	\$516,904	\$519,040	\$2,085,854	\$244,069
Other wire-telegraph apparatus, value.....	\$5,044,458	\$2,403,123		
Fire-alarm apparatus, value.....	\$3,611,006	\$3,489,828	\$2,639,919	\$2,404,155

<sup>1</sup> This total is the sum of the value items in the column beneath, not including underscored totals.

<sup>2</sup> Not comparable with figures for later years because of changes in classification.

TABLE 7.—MOTORS (NOT INCLUDING CONTROLLERS<sup>1</sup> OR AUTOMOTIVE STARTER-MOTORS<sup>2</sup>), MOTOR PARTS AND SUPPLIES, AND ELECTRIC FANS—PRODUCTION, BY NUMBER AND VALUE: 1921 TO 1927

[See Table 3, p. 1055]

	1927	1925	1923	1921
Motors and motor parts and supplies, total value.....	\$122,348,338	\$113,100,577	\$109,188,685	\$74,446,738
Stationary motors, total value.....	\$97,672,987	\$92,647,851	\$84,777,710	\$58,078,493
Fractional horsepower—				
Number.....	3,045,659	2,288,348	1,994,931	992,620
Value.....	\$33,902,719	\$28,249,265	\$23,939,172	\$16,906,738
1 horsepower and over—				
Direct-current—				
Number.....	65,038	77,637	59,256	39,072
Horsepower.....	628,044	635,130	533,394	415,419
Value.....	\$15,627,962	\$15,796,626	\$13,865,447	\$9,357,953
Alternating-current—				
Polyphase induction—				
200 horsepower and under—				
Number.....	355,133	289,916	296,519	168,195
Horsepower.....	3,149,075	(3)	(3)	(3)
Value.....	\$34,684,913	\$34,908,246	\$35,586,235	\$20,752,924
Over 200 horsepower—				
Number.....	1,240	1,246	1,045	1,442
Horsepower.....	410,980	464,316	405,738	470,993
Value.....	\$3,149,659	\$2,713,797	\$1,917,563	\$4,958,476
Single-phase.....				
Number.....	100,192	75,688	53,227	40,650
Horsepower.....	173,605	(3)	(3)	(3)
Value.....	\$5,623,471	\$5,670,586	\$4,417,802	\$2,917,044
Synchronous motors—				
Number.....	2,442	1,985	2,588	707
Horsepower.....	636,753	931,514	(3)	671,470
Value.....	\$4,684,263	\$5,309,331	\$5,051,501	\$3,184,758
Railway and vehicle motors, not including automotive starter-motors, <sup>2</sup> value.....	\$10,528,483	\$7,514,547	\$10,586,043	\$6,974,247
Motor parts and supplies, value.....	\$14,146,868	\$12,947,179	\$13,824,932	\$9,393,998
Electric fans:				
Total number.....	*774,149	845,834	670,074	402,823
Total value.....	\$10,755,001	\$10,895,769	\$9,913,629	\$7,251,179
Desk fans—				
Number.....	*656,565	769,163	610,261	349,369
Value.....	\$7,786,725	\$8,818,952	\$7,933,397	\$5,523,082
Ceiling and column fans—				
Number.....	86,032	63,076	51,538	53,454
Value.....	\$2,565,641	\$1,835,256	\$1,649,215	\$1,728,097
Ventilating fans (desk-fan type)—				
Number.....	30,952	12,695	8,275	(3)
Value.....	\$402,635	\$241,561	\$331,017	(3)

\* Revised.

<sup>1</sup> See Table 5.<sup>2</sup> See Table 4.<sup>3</sup> No comparable data.

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TABLE 8.—BATTERIES AND BATTERY PARTS AND SUPPLIES—PRODUCTION, BY NUMBER AND VALUE: 1921 to 1927

[See Table 3, p. 1055]

	1927	1925	1923	1921
Total value.....	\$150,388,880	\$155,247,811	\$118,065,613	\$66,882,965
Storage batteries:				
Complete batteries, value.....	<sup>1</sup> \$79,673,707	\$88,870,180	\$66,922,291	\$43,242,262
Parts and supplies, value.....	\$18,134,041	\$21,341,597	\$25,921,099	\$5,316,018
Dry cells, 1.5 volts:				
Six-inch—				
Number.....	54,985,815	<sup>2</sup> 63,536,044	<sup>2</sup> 49,423,039	<sup>2</sup> 84,962,130
Value.....	\$9,287,170	\$12,315,834	\$9,054,924	\$10,560,455
Radio Band C—				
Number.....	531,688,457			
Value.....	\$27,455,255			
Flashlight—				
Number.....	135,694,906	<sup>3</sup> 467,460,972	<sup>3</sup> 172,436,795	<sup>3</sup> 30,858,528
Value.....	\$6,182,105	\$24,922,773	\$9,848,345	\$2,768,047
Parts and supplies, value.....	\$5,961,243	\$4,054,169	\$3,776,125	\$3,715,792
Wet primary batteries:				
Complete batteries—				
Number.....	2,411,527	2,776,888	1,883,572	896,630
Value.....	\$3,358,729	\$3,743,252	\$2,542,829	\$1,280,391
Parts and supplies, value.....	\$336,630	( <sup>4</sup> )	( <sup>4</sup> )	( <sup>4</sup> )

<sup>1</sup> The total value of complete storage batteries (\$79,673,707) includes \$61,893,136 for batteries with plates aggregating 247,011,643 pounds in weight. The reporting companies were unable to give the weight of plates for batteries aggregating \$17,870,571 in value.

<sup>2</sup> Reported as "Other dry batteries."

<sup>3</sup> Reported as "Small for flashlight and radio."

<sup>4</sup> Not reported separately; included in value of parts and supplies for "Dry cells."

TABLE 9.—INCANDESCENT LAMPS (NOT INCLUDING SOCKETS AND OTHER FITTINGS)—PRODUCTION, BY NUMBER AND VALUE: 1921 to 1927

[See Table 3, p. 1055]

	1927	1925	1923	1921
Total value.....	\$87,933,244	\$73,558,210	\$71,966,225	\$59,728,398
Large tungsten:				
Vacuum—				
Number.....	174,527,279	204,973,625		
Value.....	\$28,879,712	\$34,540,038		
Gas-filled—				
Number.....	160,078,714	61,488,129	232,699,601	154,971,269
Value.....	\$41,914,184	\$20,352,400	\$54,179,645	\$46,084,138
Miniature tungsten:				
Automobile—				
Number.....	93,336,957	114,800,550	88,243,456	35,951,863
Value.....	\$10,058,720	\$12,432,076	\$11,354,546	\$5,713,647
Other types—				
Number.....	95,428,023	65,946,289	61,008,765	<sup>1</sup> 49,634,294
Value.....	\$5,452,016	\$4,840,733	\$4,860,701	<sup>1</sup> \$6,760,781
Carbon, including miniature types:				
Number.....	6,826,234	7,102,572	7,420,528	<sup>2</sup> 5,998,497
Value.....	\$1,628,612	\$1,392,363	\$1,571,333	<sup>2</sup> \$1,169,832

<sup>1</sup> Includes data for miniature carbon lamps, not reported separately.

<sup>2</sup> Not including data for miniature carbon lamps.

TABLE 12.—MEASURING INSTRUMENTS, RELAYS, AND INSTRUMENT TRANSFORMERS—PRODUCTION, BY NUMBER AND VALUE: 1921 TO 1927

[See Table 3, p. 1055]

	1927	1925	1923	1921
Total value.....	\$34,133,212	\$31,650,355	\$28,221,484	\$21,032,535
Measuring instruments:				
Watt-hour meters—				
Number.....	1,933,976	2,285,089	2,011,486	1,531,403
Value.....	\$16,547,034	\$18,186,206	\$16,987,548	\$12,858,507
Demand meters and ampere-hour meters, value.....	\$1,590,141	\$1,043,936	\$898,591	\$613,391
Graphic recording meters, value.....	\$697,848	\$507,603	\$697,925	\$242,548
Laboratory testing and scientific—				
Number.....	30,768	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )
Value.....	\$2,398,615	\$1,507,995	\$1,769,228	\$1,590,978
Miniature, 3½ inches and under—				
Number.....	2,664,224	4,047,573	( <sup>1</sup> )	( <sup>1</sup> )
Value.....	\$2,852,563	\$2,787,181	\$1,555,137	\$879,008
Portable meters, other than miniature—				
Number.....	114,859	56,231	28,958	28,861
Value.....	\$2,109,934	\$1,460,019	\$810,840	\$791,100
Switchboard indicating instruments—				
Number.....	91,759	99,779	( <sup>1</sup> )	( <sup>1</sup> )
Value.....	\$2,362,202	\$2,412,567	\$1,964,762	\$2,098,739
Instrument and meter transformers:				
Number.....	136,388	114,402	126,442	83,975
Value.....	\$4,713,577	\$1,773,161	\$2,275,943	\$1,492,675
Relay, excluding industrial motor control:				
Number.....	212,439	229,224	83,567	13,088
Value.....	\$861,298	\$1,971,687	\$1,261,510	\$465,589

<sup>1</sup> No comparable data.

TABLE 13.—SWITCHBOARDS, CIRCUIT BREAKERS, AND SWITCHES—PRODUCTION, BY VALUE: 1921 TO 1927

[See Table 3, p. 1055]

	1927	1925	1923	1921
Total value.....	\$71,924,341	\$69,759,067	\$57,856,166	\$36,298,897
Switchboards for light and power, not including panel boards or industrial motor-control panels.	18,933,748	19,135,502	18,775,862	14,664,627
Outdoor switch houses (including switchboards)	1,533,542	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )
Theater switchboards (including dimmers)	1,429,686	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )
Light and power panel boards.....	5,442,653	5,866,628	3,903,898	3,323,696
Oil circuit breakers (not included in switchboards)	14,798,909	17,891,246	12,256,844	5,374,426
Air circuit breakers (not included in switchboards)	3,779,865	2,596,599	2,952,356	1,665,745
Disconnecting switches, single-pole units:				
Indoor.....	1,287,695	1,333,048	1,927,620	1,092,949
Outdoor.....	5,660,456	2,310,233		
Knife switches, not including industrial motor-control:				
Open.....	1,203,687	1,856,979	1,340,263	1,702,180
Inclosed.....	6,619,045	5,925,610	4,413,680	3,032,681
Bus supports.....	1,079,045	1,172,150	12,285,643	5,442,593
Miscellaneous switches and switchboard accessories.....	10,156,010	11,671,072		

<sup>1</sup> Because of changes in classification, no comparable figures can be given.

TABLE 14.—IGNITION APPARATUS FOR INTERNAL-COMBUSTION ENGINES—PRODUCTION, BY NUMBER AND VALUE: 1921 TO 1927

[See Table 3, p. 1055]

	1927	1925	1923	1921
Total value.....	\$35, 123, 296	\$41, 854, 205	<sup>1</sup> \$31, 831, 251	<sup>1</sup> \$20, 589, 193
Spark plugs:				
Number.....	60, 156, 858	62, 576, 387	( <sup>2</sup> )	36, 122, 540
Value.....	\$13, 371, 623	\$13, 878, 282	\$13, 659, 921	\$10, 013, 109
Coils:				
Number.....	6, 996, 838	4, 178, 334	( <sup>2</sup> )	( <sup>2</sup> )
Value.....	\$8, 467, 252	\$7, 836, 656	\$7, 867, 710	\$6, 510, 841
Magneto-generators:				
Number.....	355, 415	466, 060	( <sup>2</sup> )	( <sup>2</sup> )
Value.....	\$7, 707, 883	\$9, 930, 223	\$10, 303, 620	\$4, 065, 243
Timers:				
Number.....	3, 638, 775	3, 572, 489	( <sup>2</sup> )	( <sup>2</sup> )
Value.....	\$5, 576, 538	\$10, 209, 044	( <sup>2</sup> )	( <sup>2</sup> )

<sup>1</sup> Does not include value of timers (not reported separately prior to 1925), and therefore is not comparable with figures for 1927 and 1925.

<sup>2</sup> No comparable data.

<sup>3</sup> Not reported separately.

TABLE 15.—INSULATED WIRE AND CABLE—PRODUCTION, BY VALUE: 1927 <sup>1</sup>

[See Table 3, p. 1055]

	Value		Value
Total.....	<sup>2</sup> \$210, 047, 947	Insulated wire and cable reported by kind of insulation—Continued.	
Insulated wire and cable reported by kind of insulation.....	202, 712, 730	Paper insulated—	
Rubber insulated—		Lighting and power circuit and telephone and telegraph cable (including submarine).....	\$59, 624, 158
Lighting and power circuit—		Varnished-cambic insulated.....	9, 373, 242
Braided.....	46, 538, 820	Magnet—	
Leaded.....	13, 103, 230	Cotton and silk covered.....	14, 093, 786
Telephone.....	8, 863, 020	Enameled.....	6, 132, 838
Flexible cord (rubber-insulated, cotton and silk covered).....	11, 461, 221	Insulated wire and cable not distributed by kind of insulation.....	<sup>3</sup> 7, 335, 217
Rubber insulated, not distributed by class.....	3, 956, 362		
Cotton insulated—			
Weatherproof and non-weatherproof.....	27, 071, 556		
Slow-burning.....	2, 494, 479		

<sup>1</sup> No comparable statistics for earlier years are available, for the reason that at prior censuses considerable proportions of the total values—nearly 30 per cent of the total for 1925—were not reported by kind of insulation. For total values of insulated wire and cable for prior years, see Table 3, p. 1055.

<sup>2</sup> This total is the sum of the value items below except that underscored.

<sup>3</sup> Includes value of asbestos-insulated wire, in order to avoid disclosing the output of individual establishments.

TABLE 12.—MEASURING INSTRUMENTS, RELAYS, AND INSTRUMENT TRANSFORMERS—PRODUCTION, BY NUMBER AND VALUE: 1921 TO 1927

[See Table 3, p. 1055]

	1927	1925	1923	1921
Total value.....	\$34, 133, 212	\$31, 650, 355	\$28, 221, 484	\$21, 032, 535
Measuring instruments:				
Watt-hour meters—				
Number.....	1, 933, 976	2, 285, 089	2, 011, 486	1, 531, 403
Value.....	\$16, 547, 034	\$18, 180, 206	\$16, 987, 548	\$12, 858, 507
Demand meters and ampere-hour meters, value.....	\$1, 590, 141	\$1, 043, 936	\$898, 591	\$613, 391
Graphic recording meters, value.....	\$697, 848	\$507, 003	\$697, 925	\$242, 548
Laboratory testing and scientific—				
Number.....	30, 768	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )
Value.....	\$2, 398, 615	\$1, 507, 995	\$1, 769, 228	\$1, 590, 978
Miniature, 3½ inches and under—				
Number.....	2, 664, 224	4, 047, 573	( <sup>1</sup> )	( <sup>1</sup> )
Value.....	\$2, 852, 563	\$2, 787, 181	\$1, 555, 137	\$879, 008
Portable meters, other than miniature—				
Number.....	114, 859	50, 231	28, 958	28, 861
Value.....	\$2, 109, 934	\$1, 460, 019	\$810, 840	\$791, 100
Switchboard indicating instruments—				
Number.....	91, 759	99, 779	( <sup>1</sup> )	( <sup>1</sup> )
Value.....	\$2, 362, 202	\$2, 412, 507	\$1, 964, 762	\$2, 098, 739
Instrument and meter transformers:				
Number.....	136, 388	114, 402	126, 442	83, 975
Value.....	\$4, 713, 577	\$1, 773, 161	\$2, 275, 943	\$1, 492, 675
Relay, excluding industrial motor control:				
Number.....	212, 439	229, 224	83, 567	13, 088
Value.....	\$861, 298	\$1, 971, 687	\$1, 261, 510	\$465, 589

<sup>1</sup> No comparable data.

TABLE 13.—SWITCHBOARDS, CIRCUIT BREAKERS, AND SWITCHES—PRODUCTION, BY VALUE: 1921 TO 1927

[See Table 3, p. 1055]

	1927	1925	1923	1921
Total value.....	\$71, 924, 341	\$69, 759, 067	\$57, 856, 166	\$36, 298, 897
Switchboards for light and power, not including panel boards or industrial motor-control panels.....	18, 933, 748	19, 135, 502	18, 775, 862	14, 664, 627
Outdoor switch houses (including switchboards).....	1, 533, 542	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )
Theater switchboards (including dimmers).....	1, 429, 686	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )
Light and power panel boards.....	5, 442, 653	5, 866, 628	3, 903, 898	3, 323, 696
Oil circuit breakers (not included in switchboards).....	14, 798, 909	17, 891, 246	12, 256, 844	5, 374, 426
Air circuit breakers (not included in switchboards).....	3, 779, 865	2, 596, 599	2, 952, 356	1, 665, 745
Disconnecting switches, single-pole units:				
Indoor.....	1, 287, 695	1, 333, 048	1, 927, 620	1, 092, 949
Outdoor.....	5, 660, 456	2, 310, 233		
Knife switches, not including industrial motor-control:				
Open.....	1, 203, 687	1, 856, 979	1, 340, 263	1, 702, 180
Inclosed.....	6, 619, 045	5, 925, 610	4, 413, 680	3, 032, 681
Bus supports.....	1, 079, 045	1, 172, 150	12, 285, 643	5, 442, 593
Miscellaneous switches and switchboard accessories.....	10, 156, 010	11, 671, 072		

<sup>1</sup> Because of changes in classification, no comparable figures can be given.

TABLE 14.—IGNITION APPARATUS FOR INTERNAL-COMBUSTION ENGINES—  
PRODUCTION, BY NUMBER AND VALUE: 1921 TO 1927

[See Table 3, p. 1055]

	1927	1925	1923	1921
Total value.....	\$35, 123, 296	\$41, 854, 205	<sup>1</sup> \$31, 831, 251	<sup>1</sup> \$20, 589, 193
Spark plugs:				
Number.....	60, 156, 858	62, 576, 387	(?)	36, 122, 540
Value.....	\$13, 371, 623	\$13, 878, 282	\$13, 659, 921	\$10, 013, 109
Coils:				
Number.....	6, 996, 838	4, 178, 334	(?)	(?)
Value.....	\$8, 487, 252	\$7, 836, 656	\$7, 867, 710	\$6, 510, 841
Magneto-generators:				
Number.....	355, 415	466, 660	(?)	(?)
Value.....	\$7, 707, 883	\$9, 930, 223	\$10, 303, 620	\$4, 065, 243
Timers:				
Number.....	3, 638, 775	3, 572, 489	(?)	(?)
Value.....	\$5, 576, 538	\$10, 209, 044	(?)	(?)

<sup>1</sup> Does not include value of timers (not reported separately prior to 1925), and therefore is not comparable with figures for 1927 and 1925.

<sup>2</sup> No comparable data.

<sup>3</sup> Not reported separately.

TABLE 15.—INSULATED WIRE AND CABLE—PRODUCTION, BY VALUE: 1927 <sup>1</sup>

[See Table 3, p. 1055]

	Value		Value	
Total.....	<sup>2</sup> \$210, 047, 947	Insulated wire and cable reported by kind of insulation—Continued. Paper insulated— Lighting and power circuit and telephone and telegraph cable (including submarine)..... Varnished-cambric insulated..... Magnet— Cotton and silk covered..... Enameled..... Insulated wire and cable not distributed by kind of insulation.....		
Insulated wire and cable reported by kind of insulation.....	202, 712, 730			
Rubber insulated—				
Lighting and power circuit—				
Braided.....	46, 538, 829		\$59, 624, 158	
Leaded.....	13, 103, 230		9, 373, 242	
Telephones.....	8, 863, 029			
Flexible cord (rubber-insulated, cotton and silk covered).....	11, 461, 221			
Rubber insulated, not distributed by class.....	3, 956, 362			
Cotton insulated—				
Weatherproof and non-weatherproof.....	27, 071, 556		14, 093, 786	
Slow-burning.....	2, 494, 479		6, 132, 838	
				<sup>3</sup> 7, 335, 217

<sup>1</sup> No comparable statistics for earlier years are available, for the reason that at prior censuses considerable proportions of the total values—nearly 30 per cent of the total for 1925—were not reported by kind of insulation. For total values of insulated wire and cable for prior years, see Table 3, p. 1055.

<sup>2</sup> This total is the sum of the value items below except that underscored.

<sup>3</sup> Includes value of asbestos-insulated wire, in order to avoid disclosing the output of individual establishments.

TABLE 16.—WIRING DEVICES—PRODUCTION, BY NUMBER AND VALUE: 1927, 1925, AND 1923

[See Table 3, p. 1055]

	1927	1925	1923
Total value.....	\$32,703,331	\$34,806,452	\$34,066,222
Lamp sockets and receptacles:			
Number.....	96,507,671	108,117,878	(1)
Value.....	\$12,393,071	\$14,945,247	\$14,815,915
Snap switches (flush, surface, and pendant), all types:			
Number.....	42,852,389	27,152,098	(1)
Value.....	\$8,310,706	\$7,014,699	\$6,361,393
Attachment plugs and plug receptacles:			
Number.....	55,997,437	45,165,532	(1)
Value.....	\$5,320,857	\$4,294,683	\$4,378,900
Faceplates for wiring devices:			
Number.....	16,816,867	11,365,464	(1)
Value.....	\$1,271,010	\$1,050,596	\$1,190,555
Miscellaneous wiring devices, value.....	\$5,407,687	\$7,501,227	\$8,219,469

<sup>1</sup> No comparable data.

TABLE 17.—FUSES AND INTERIOR CONDUITS—PRODUCTION, BY NUMBER AND VALUE: 1927 AND 1925

[See Table 3, p. 1055]

	1927	1925
Fuses, total value.....	\$10,891,242	\$10,392,806
Inclosed fuses, for voltages under 125:		
Number.....	12,991,176	7,324,607
Value.....	\$303,247	\$244,117
Nonrenewable plug fuses, 125 volts:		
Number.....	33,454,545	61,814,563
Value.....	\$1,993,207	\$1,573,424
Renewable plug fuses, 125 volts:		
Number.....	2,247,039	1,213,025
Value.....	\$88,926	\$154,905
Inclosed renewable fuses, 250 and 600 volts, and renewals therefor:		
Number.....	27,287,934	24,347,653
Value.....	\$2,468,813	\$2,729,512
Inclosed nonrenewable fuses, 250 and 600 volts:		
Number.....	10,686,249	11,903,903
Value.....	\$1,172,355	\$1,593,314
Inclosed fuses for voltages higher than 600 volts:		
Number.....	121,158	117,528
Value.....	\$826,663	\$1,079,214
Other fuses, value.....	\$1,885,493	\$615,177
Fuse blocks, clips, and bases, value.....	\$2,152,538	\$2,403,143
Interior conduits, total value.....	<sup>1</sup> \$42,132,936	<sup>1</sup> \$46,329,735
Rigid steel, and elbows and couplings.....	<sup>1</sup> 16,474,437	<sup>1</sup> 19,839,879
Flexible steel.....	1,076,645	1,197,478
Armored conductors and fittings.....	11,731,032	10,922,375
Nonmetallic.....	2,117,039	3,554,986
Metal raceways for surface wiring, and fittings.....	1,569,351	1,537,260
Outlet boxes.....	6,146,958	6,719,069
Switch boxes.....	1,986,333	1,306,819
Lock nuts and bushings.....	1,031,141	1,250,966

<sup>1</sup> Only the value of conduit made by establishments which purchase steel pipe for use as material; does not include value of finished conduit made by plants which make their own steel pipe.

TABLE 18.—MISCELLANEOUS ELECTRICAL MACHINERY, APPARATUS, AND SUPPLIES—PRODUCTION, BY VALUE: 1921 TO 1927<sup>1</sup>

[See Table 3, p. 1055]

	1927	1925	1923	1921
Total value.....	\$234, 297, 887	\$195, 013, 037	\$164, 978, 131	\$95, 785, 020
Carbons or electrodes for lights and furnaces and carbon brushes and specialties, value.....	\$14, 304, 158	\$13, 955, 483	\$14, 745, 541	\$5, 527, 654
Electric locomotives, <sup>2</sup> value.....	\$9, 857, 881	\$10, 331, 139	\$8, 864, 749	\$9, 397, 441
Electric signaling apparatus, value.....	\$6, 365, 486	\$5, 080, 987	\$7, 142, 304	\$6, 444, 097
Electro-therapeutic apparatus (exclusive of X-ray tubes and motor-driven devices), value.....	\$13, 801, 855	\$9, 788, 358	\$5, 991, 382	\$6, 820, 277
Flashlight cases, value.....	\$4, 006, 891	\$5, 248, 405	\$3, 642, 418	( <sup>1</sup> )
Lightning arresters and choke coils, value.....	\$6, 327, 483	\$5, 961, 111	\$3, 833, 631	\$2, 044, 045
Overhead trolley-line material, value.....	\$5, 445, 814	\$4, 239, 547	\$8, 796, 369	\$2, 691, 124
Railway signals and attachments, value.....	\$22, 339, 768	\$14, 029, 779	\$4, 465, 648	\$1, 020, 351
Searchlights, floodlights, etc.:				
Searchlights—				
Number.....	37, 020	20, 238		
Value.....	\$848, 962	\$521, 144		
Floodlights—				
Number.....	16, 621	18, 692		
Value.....	\$2, 368, 318	\$742, 140		
Motion-picture, photo-engraving, and stage-projector lights—			\$2, 478, 988	\$1, 943, 402
Number.....	20, 624	11, 541		
Value.....	\$387, 117	\$592, 739		
Headlights—Locomotive, street-car, and other (not including motor-vehicle), value.....	\$456, 959	\$945, 033		
Rectifying apparatus, value.....	\$11, 909, 527	\$10, 466, 283	\$4, 251, 495	\$956, 345
Other electrical machinery, apparatus, and supplies, value.....	\$135, 317, 668	\$113, 110, 889	\$100, 765, 606	\$58, 340, 284

<sup>1</sup> Not including electric lighting fixtures, electric signs, nor motor-driven tools, washing machines, cash registers, adding machines, and other machines and appliances with built-in motors, these products being classified for census purposes in other industries.

<sup>2</sup> Total production, including that by establishments classified in other industries.

<sup>3</sup> Not reported separately; included in figures for "Other electrical machinery, apparatus, and supplies."

TABLE 19.—ELECTRICAL PRODUCTS CLASSIFIED IN OTHER INDUSTRIES, BY NUMBER AND VALUE: 1927 AND 1925

[This table shows the total output, in all industries, of the specified electrical products which are normally classified in other industries but are manufactured to some extent as secondary products by establishments in the "Electrical machinery, apparatus, and supplies" industry]

	1927	1925
Portable electric tools:		
Grinders and buffers, value.....	\$2, 732, 603	\$1, 756, 233
Drills and other portable motor-driven tools, value.....	\$4, 701, 560	\$4, 472, 492
Washing machines:		
Number.....	655, 499	( <sup>1</sup> )
Value.....	\$59, 253, 529	( <sup>1</sup> )
Electric signs, value.....	\$15, 684, 703	\$11, 948, 847
Electric-lighting fixtures, value.....	\$80, 399, 661	\$62, 619, 631
Electric refrigerators:		
Electric refrigerating units, with cabinets—		
Number.....	391, 396	
Value.....	\$67, 958, 026	
Electric refrigerating units, without cabinets—		
Number.....	68, 435	( <sup>1</sup> )
Value.....	\$9, 906, 808	
Electric refrigerating units not reported by number, value.....	\$555, 426	

<sup>1</sup> No comparable data.

<sup>2</sup> The value of the units with cabinets and of those without cabinets can not be shown separately without disclosing the output of an individual establishment.

TABLE 20.—GENERAL STATISTICS, BY STATES: 1927

[This table presents statistics for all States for which separate figures can be given without disclosing data reported by individual establishments. Certain of the "Other States," however, reported larger values of products than some of the States shown separately.]

STATE	Number of establishments	PERSONS ENGAGED IN THE INDUSTRY					Horse-power	Salaries	Wages	Cost of materials, supplies, fuel and power		Value of products	Value added by manufacture <sup>1</sup>
		Total	Pro-prietors and firm mem-bers	Selected officers and em-ployees	Wage earners (average for the year)	Wage earners (average for the year)				Materials and sup-ples	Fuel and power		
United States.....	1, 777	300, 968	915	64, 487	241, 566	661, 168	\$148, 248, 997	\$336, 238, 750	\$926, 617, 053	\$19, 144, 046	\$1, 637, 307, 035	\$991, 545, 336	
California.....	115	4, 720	430	941	3, 849	9, 122	2, 055, 057	4, 308, 806	14, 949, 999	293, 624	31, 461, 835	16, 282, 282	
Colorado.....	8	6	3	20	3	57	33, 208	8, 898	14, 167, 437	8, 206	8, 377, 432	8, 664, 780	
Connecticut.....	70	16, 689	8	2, 391	14, 600	41, 762	5, 429, 913	16, 082, 793	38, 791, 501	1, 074, 503	75, 926, 216	41, 127, 152	
Georgia.....	60	46, 600	30	11, 944	34, 626	66, 889	29, 801, 220	52, 609, 588	90, 837, 800	1, 748, 258	231, 089, 307	108, 473, 246	
Illinois.....	283	18, 395	27	2, 313	16, 048	42, 769	4, 753, 523	24, 925, 292	45, 902, 686	1, 263, 716	102, 690, 445	55, 523, 063	
Indiana.....	9	173	8	30	16, 133	131	56, 923	119, 647	337, 437	7, 932	1, 015, 542	55, 620, 143	
Iowa.....	12	733	3	130	600	911	281, 799	649, 471	1, 329, 105	26, 633	3, 904, 849	2, 549, 111	
Kentucky.....	3	43	4	7	32	8	10, 060	49, 720	64, 995	5, 523	131, 510	60, 992	
Louisiana.....	122	30, 817	27	6, 031	24, 759	95, 191	13, 856, 631	33, 903, 793	40, 036, 378	2, 161, 512	139, 348, 725	97, 150, 335	
Massachusetts.....	60	5, 650	26	1, 245	4, 379	7, 524	3, 164, 657	5, 977, 053	16, 270, 326	260, 339	36, 623, 319	20, 092, 654	
Michigan.....	29	1, 253	9	331	913	1, 487	876, 365	1, 145, 040	2, 923, 048	87, 062	6, 699, 351	3, 089, 211	
Minnesota.....	52	8, 215	14	1, 410	6, 791	14, 683	3, 522, 320	8, 575, 253	16, 500, 970	394, 697	43, 871, 941	26, 476, 274	
Missouri.....	6	285	1	32	253	665	65, 460	226, 296	344, 279	8, 578	886, 723	53, 533, 866	
New Hampshire.....	17	29, 510	47	6, 729	22, 734	58, 343	14, 781, 911	31, 083, 657	66, 581, 401	1, 865, 236	173, 932, 303	105, 487, 866	
New Jersey.....	298	47, 960	103	8, 836	39, 021	91, 620	20, 631, 408	55, 820, 625	97, 419, 189	3, 237, 396	243, 209, 371	142, 552, 788	
New York.....	61	288	4	8	49	130	14, 523	42, 852	97, 672	2, 743	188, 763, 978	96, 534	
North Carolina.....	206	30, 288	48	5, 817	24, 423	61, 565	13, 184, 404	32, 386, 890	76, 754, 312	2, 206, 991	188, 763, 978	109, 802, 675	
Ohio.....	10	82	4	18	60	106	34, 771	97, 377	168, 523	6, 819	404, 196	228, 854	
Oregon.....	136	50, 063	50	12, 993	37, 020	141, 728	28, 468, 754	52, 415, 303	91, 106, 707	3, 631, 678	247, 442, 426	152, 704, 041	
Pennsylvania.....	14	1, 692	3	268	1, 431	6, 787	596, 869	1, 914, 088	7, 374, 218	197, 530	13, 854, 654	5, 782, 906	
Rhode Island.....	3	155	1	136	16	265	71, 881	128, 631	165, 560	9, 309	501, 409	328, 500	
Tennessee.....	11	217	10	41	166	329	85, 387	213, 193	477, 830	22, 848	1, 011, 812	511, 139	
Texas.....	5	81	1	9	71	307	15, 969	75, 461	78, 814	10, 418	230, 175	140, 943	
Virginia.....	25	363	11	83	269	646	185, 794	336, 449	597, 029	1, 573, 734	1, 563, 850	951, 087	
Washington.....	10	582	1	99	482	3, 238	270, 162	611, 790	1, 785, 564	124, 977	3, 222, 992	1, 312, 451	
West Virginia.....	10	582	1	99	482	3, 238	270, 162	611, 790	1, 785, 564	124, 977	3, 222, 992	1, 312, 451	
Wisconsin.....	65	9, 461	14	2, 267	7, 150	9, 982	5, 109, 992	8, 749, 295	17, 089, 559	384, 412	48, 027, 662	30, 553, 691	
Other States <sup>2</sup> .....	45	2, 601	29	421	2, 051	5, 058	818, 536	2, 755, 970	3, 322, 245	145, 929	11, 375, 454	7, 907, 280	

<sup>1</sup> Value of products less cost of materials, supplies, fuel, and power. (See secs. 16 and 21, pp. 9 and 10.)  
<sup>2</sup> Alabama, 3 establishments; District of Columbia, 2; Florida, 2; Kansas, 7; Maine, 1; Maryland, 17; Nebraska, 2; Oklahoma, 5; Utah, 5; Vermont, 1.

## ENGINES, TURBINES, AND WATER WHEELS

[A preliminary report for this industry was issued under date of March 8, 1929]

**Description of the industry.**—This industry embraces establishments whose products of chief value fall in any one of the following four classes: (1) Steam engines (other than locomotives) and turbines; (2) internal-combustion engines of all kinds; (3) tractors and traction engines; (4) water turbines and water wheels. Engines made for installation as parts of complete motor vehicles or other machines *manufactured in the same establishments* are not treated as products of the engine industry. The values of traction and portable steam engines include the values of the boilers on which such engines are mounted. The value of steam boilers made for sale as separate units by establishments manufacturing engines or water wheels as their products of chief value is included in that of "Other products (not normally belonging to the industry) and receipts for repair work" (Table 3), but the value of steam boilers made in establishments engaged primarily in the manufacture of products other than engines or water wheels is not included. (Establishments manufacturing boilers as their principal products are classified in the "Foundry and machine-shop products" industry.)

**Detailed statistics of products.**—The detailed statistics presented in Tables 3, 4, and 5 include data for engines, etc., reported as secondary products by establishments classified in other industries. (See "Assignment of establishments to industries," p. 17.) At each census, because of the incompleteness of the records kept by certain manufacturers, the engines reported by them were not distributed by type and by rated capacity. At the censuses for 1921 and 1923 the data lacking were supplied by office estimates. This practice, however, was unsatisfactory and resulted in numerous inconsistencies in the figures for engines manufactured, particularly in the distribution by sizes. At the 1925 census, therefore, it was decided to publish the actual numbers of engines reported by type and by rated capacity, and to show as a separate item the value of engines which were not so reported, and the same plan has been followed in preparing the statistics for 1927. (See Tables 3 and 4.)

TABLE 1.—SUMMARY FOR THE UNITED STATES: 1919 TO 1927

[Data for establishments with products under \$5,000 in value included for 1919 but not for subsequent years. See sec. 10, p. 6]

YEAR OR PERIOD	Number of establishments	Wage earners (average for the year)	Wages	Cost of materials, supplies, fuel, and power	Value of products	Value added by manufacture <sup>1</sup>	Horse-power
1927.....	215	54,341	\$84,790,771	\$165,202,801	\$367,878,588	\$202,675,787	241,788
1925.....	220	51,099	73,584,921	145,783,687	313,587,851	167,804,164	224,194
1923.....	249	48,495	70,877,950	124,543,051	266,997,778	142,454,727	165,137
1921.....	296	35,567	52,004,861	111,698,365	199,498,575	87,800,210	165,137 <sup>(2)</sup>
1919.....	370	77,617	105,435,455	217,550,771	464,774,735	247,223,964	190,005
PER CENT OF INCREASE OR DECREASE (—)							
1925-1927.....	-2.3	6.3	15.2	13.3	17.3	20.8	7.8
1923-1925.....	-11.6	5.4	3.8	17.1	17.4	17.8	35.8
1923-1927.....	-13.7	12.1	19.6	32.6	37.8	42.3	46.4
1919-1927.....	-41.9	-30.0	-19.6	-24.1	-20.8	-18.0	27.3

<sup>1</sup> Value of products less cost of materials, supplies, fuel, and power. (See secs. 13 and 21, pp. 9 and 10.)

<sup>2</sup> Not called for on schedule.

TABLE 2.—PRIME MOVERS, MOTORS, AND GENERATORS, BY TYPE, NUMBER, AND RATED CAPACITY, FOR THE UNITED STATES: 1927, 1925, AND 1923

[The figures in this table refer to prime movers in use in factories engaged in the manufacture of engines, turbines, etc., and not to the engines, turbines, etc., manufactured]

TYPE	1927		1925		1923	
	Number	Capacity	Number	Capacity	Number	Capacity
Prime movers, total.....	14,758	Horse-power 241,788	12,322	Horse-power 224,194	10,196	Horse-power 165,137
Steam engines.....	79	19,527	89	26,229	104	45,078
Steam turbines.....	22	43,700	20	47,048		
Internal-combustion engines.....	134	17,527	119	12,819	138	14,811
Water wheels and turbines.....	4	155	6	250	8	857
Electric motors driven by purchased current.....	14,519	160,879	12,088	137,848	9,946	104,391
Electric motors, total.....	26,082	267,751	23,759	252,460	16,856	172,387
Driven by purchased current.....	14,519	160,879	12,088	137,848	9,946	104,391
Driven by current generated in establishment reporting.....	11,563	106,872	11,671	114,612	6,910	67,996
Electric generators.....	145	Kilowatts 54,729	142	Kilowatts 60,345	( <sup>1</sup> )	Kilowatts ( <sup>1</sup> )

<sup>1</sup> Not called for on schedule.

TABLE 3.—ENGINES, TURBINES, TRACTORS, AND WATER WHEELS—PRODUCTION, BY CLASS, TYPE, AND VALUE: 1921 TO 1927

[The values of the several types of engines, as given in this table, include the amounts shown in footnote 5, Table 4, p. 1070]

CLASS	1927	1925	1923	1921
1. Engines, turbines, and water-wheels industry, all products, total.....	\$367, 878, 588	\$313, 587, 851	\$266, 997, 778	\$199, 498, 575
2. Engines, turbines, and water wheels..	278, 681, 267	220, 573, 810	193, 836, 197	134, 853, 905
3. Parts.....	50, 895, 553	52, 999, 881	43, 471, 030	23, 639, 065
4. Other products (not normally belonging to the industry) and receipts for repair work.....	38, 301, 768	40, 014, 160	29, 690, 551	41, 005, 605
5. Engines, turbines, and water wheels made as secondary products in other industries.....	30, 029, 853	43, 680, 853	28, 732, 533	27, 994, 984
Engines, turbines, and water wheels, all industries:				
Aggregate value (sum of 2 and 5) <sup>1</sup> ....	308, 711, 120	264, 254, 663	222, 568, 730	162, 848, 889
Steam engines, except traction engines, total.....	22, 572, 926	24, 411, 344	26, 765, 304	30, 356, 689
Reciprocating type—				
Marine.....	1, 763, 391	636, 328	1, 169, 702	5, 915, 612
Other than marine.....	5, 405, 454	7, 962, 271	12, 882, 334	8, 774, 918
Turbines.....				
Marine.....	965, 075	( <sup>2</sup> )	( <sup>2</sup> )	2, 320, 809
Other than marine.....	14, 499, 006	14, 054, 879	10, 328, 268	12, 342, 587
Not reported according to type.....		1, 757, 866	2, 385, 000	1, 002, 763
Internal-combustion engines (not including tractors), total.....	141, 161, 281	117, 893, 644	110, 751, 692	74, 698, 921
Diesel and semi-Diesel types—				
Marine.....	7, 001, 862	7, 352, 481	14, 012, 493	8, 273, 359
Other than marine.....	13, 346, 761	15, 875, 164		
Electric-ignition types—				
Aircraft <sup>3</sup> .....	9, 493, 656	( <sup>4</sup> )	( <sup>4</sup> )	( <sup>4</sup> )
Marine, other than outboard....	7, 370, 649	8, 833, 105	8, 492, 273	7, 603, 651
Marine, outboard (detachable)...	5, 558, 216	2, 560, 639		
Motor-vehicle (not including motor cycle) <sup>6</sup> .....	63, 635, 746	7 55, 623, 879	7 59, 074, 243	31, 005, 352
Other electric-ignition engines....	34, 699, 391	27, 648, 376	29, 172, 683	27, 816, 559
Water turbines and water wheels.....	5, 440, 999	5, 338, 066	6, 732, 046	4, 624, 460
Engines and turbines, class and type not reported.....	<sup>10</sup> 413, 999	<sup>11</sup> 13, 706, 781	-----	-----
Tractors and traction engines, total.....	139, 121, 915	102, 904, 828	78, 319, 688	53, 168, 819
Tractors (internal-combustion)—				
Farm, road, and similar types..	136, 022, 354	102, 131, 903	76, 426, 408	53, 168, 819
Garden tractors and motor cultivators.....	814, 096	515, 302		
Truck tractors.....	2, 172, 265	( <sup>12</sup> )	( <sup>13</sup> )	
Traction engines (steam).....	113, 200	257, 623	1, 893, 280	

<sup>1</sup> These aggregates are the sums of all items in the columns beneath except those which are underlined.  
<sup>2</sup> No marine turbines reported for 1925 or for 1923.  
<sup>3</sup> Not including engines built for installation in aircraft manufactured in same establishments.  
<sup>4</sup> Included in figure for "Motor-vehicle" engines to avoid disclosing the output of individual establishments.  
<sup>5</sup> Included in figure for "Other electric-ignition engines" to avoid disclosing the output of individual establishments.  
<sup>6</sup> Not including engines built for installation in motor vehicles manufactured by same establishments.  
<sup>7</sup> Includes data for a small number of aircraft engines for 1925, and a small number of aircraft and motor-cycle engines for 1923.  
<sup>8</sup> Includes data for motor-cycle and aircraft engines.  
<sup>9</sup> Includes data for water motors, not reported separately.  
<sup>10</sup> Includes data for small motors driven by water from street mains.  
<sup>11</sup> Made as secondary products by establishments in other industries; includes value of engines, \$1,842,028, and of steam and water turbines, \$11,703,091.  
<sup>12</sup> Included in figure for "Other products."  
<sup>13</sup> Not called for on schedules for 1921 and 1923.

TABLE 4.—ENGINES, TURBINES, TRACTORS, AND WATER WHEELS—PRODUCTION, BY CLASS, NUMBER, RATED CAPACITY, AND VALUE, FOR THE UNITED STATES: 1927

CLASS	TOTAL			NUMBER, BY HORSEPOWER CAPACITY, RATED OR NORMAL, NOT OVERLOAD												
	Number	Rated horsepower capacity	Value	Less than 5	5 to 9	10 to 19	20 to 29	30 to 39	40 to 49	50 to 99	100 to 499	500 to 999	1,000 to 1,999	2,000 to 4,999	5,000 to 9,999	10,000 and over
Engines, turbines and water wheels, all industries, total value.....			\$308,711,120													
<i>Rated capacity reported</i>																
Steam engines, except traction engines: Reciprocating types—																
Marine.....	182	49,493	1,703,391	4	5	10	4	3	3	17	103	19	5			
Other than marine.....	1,333	137,937	2,379,341	143	299	334	190	80	39	130	621	13	10	4		
Turbines—																
Marine.....	61	63,511	932,198			1		17	7	5	11				2	
Other than marine.....	2,302	2,346,756	14,065,012	774	345	188	96	106	67	236	290	29	2	16	50	21
Internal-combustion engines: Diesel and semi-Diesel types—																
Marine.....	1,067	115,312	7,081,862	2	6	45	157	116	186	261	273	8	7	6		
Other than marine.....	4,178	254,228	13,223,085	3	112	263	218	74	256	519	650	56	19	3		
Electric-ignition types—																
Aircraft.....	1,397	470,770	9,475,693				1				118	1,082	194			1
Marine, other than outboard.....	3,368	414,445	7,348,841			2,457	1,021	981	811	817	1,435	23	2			
Marine, outboard (detachable).....	36,987	182,712	5,565,216	37,858	7,649	2,000										
Motor-vehicle (not including motor cycle).....	324,858	9,841,167	63,635,746													
Other electric-ignition engines: Farm, road, and similar types: Garden tractors and motor cultivators.....	224,200	1,994,419	34,089,223	155,241	23,513	8,709	19,778	4,748	3,319	5,141	1,694	20	31			
Tractors (internal-combustion): Farm, road, and similar types: Garden tractors and motor cultivators.....	195,693	* 4,713,665	135,719,817		1,101	10,156	148,495	32,092	1,112	2,723	14					
	5,591	* 23,052	814,099	4,835	47	684	25									
<i>Rated capacity not reported</i>																
Truck tractors.....	553	( <sup>c</sup> )	2,172,265													
Traction engines (steam).....	44	( <sup>c</sup> )	113,200													
Engines, turbines, and tractors, value Water turbines and water wheels.....	357	( <sup>c</sup> )	* 4,632,731													

1 Not including engines built for installation in aircraft manufactured by same establishments.  
 2 Not including engines built for installation in motor vehicles manufactured by same establishments.  
 3 Belt horsepower.  
 4 Data incomplete.  
 5 Steam engines, \$21,991,786; internal-combustion engines, \$771,090; tractors, \$302,537; water turbines and water wheels, \$201,253; not specified, \$366,065.

TABLE 5 — ENGINES, TURBINES, AND TRACTORS—PRODUCTION, BY TYPE AND BY VALUE, BY STATES: 1921 TO 1927

[This table presents statistics separately for all States for which such statistics can be given without disclosing the production reported by individual establishments, and, in addition, gives combined figures for certain groups of States. In many cases one of the States shown in combination reported a larger value for the specified commodity than some of the States for which separate figures are given; and in a few cases this is true also of States for which the figures are included in the "Other States" items]

TYPE AND STATE	1927	1925	1923	1921
<b>Steam engines (except traction engines), total</b>	\$22,572,926	\$24,411,344	\$26,765,304	\$30,356,689
Pennsylvania	8,142,019	8,703,778	10,102,276	14,291,199
New York	7,657,011	1,232,522	2,436,409	2,231,656
Wisconsin	2,701,925	8,200,260	4,025,969	3,931,790
Minnesota, Washington, and Oregon	1,114,749	(1)	(1)	(1)
Connecticut and Massachusetts	840,975	(1)	(1)	(1)
New Jersey	470,126	429,292	721,253	599,973
Ohio	471,461	756,866	1,308,874	(1)
Illinois	285,170	636,161	655,822	763,164
Michigan	228,071	265,116	405,578	957,539
Other States	562,419	9,187,349	7,109,123	7,131,368
<b>Internal-combustion engines (except tractors), total</b>	141,161,281	117,893,644	110,751,692	74,698,921
Michigan	53,645,857	38,341,951	46,670,002	23,862,142
Wisconsin	21,227,418	21,674,573	17,974,234	12,413,803
Pennsylvania	13,338,450	10,338,869	8,399,949	6,066,044
Ohio	11,799,773	9,384,520	7,077,136	8,672,103
Illinois	9,134,266	8,641,401	5,845,705	3,062,180
New York	7,916,997	7,568,497	6,208,796	5,209,807
Indiana	4,466,142	3,788,389	5,162,985	2,877,434
Connecticut	4,455,105	1,913,496	2,202,480	2,159,532
California	3,672,690	5,211,230	2,841,961	2,063,777
New Jersey	3,404,852	3,242,608	1,765,332	1,892,147
Missouri	2,994,416	3,229,771	3,758,634	2,712,803
Iowa	2,423,403	1,788,640	1,108,374	840,485
Minnesota	1,536,259	811,002	(1)	(1)
Washington	658,928	422,598	(1)	(1)
Other States	487,725	1,535,439	2,236,104	2,866,614
<b>Diesel and semi-Diesel (marine and other than marine), total</b>	20,408,623	23,227,645	14,012,493	8,273,359
Wisconsin	7,556,460	8,090,070	(1)	(1)
New York	3,333,081	3,672,951	4,299,748	2,751,232
Missouri	2,187,489	2,008,131	(1)	(1)
Ohio	2,032,854	2,031,935	888,584	(1)
California	1,625,243	2,532,666	1,588,979	1,195,412
Pennsylvania	1,551,324	2,053,622	(1)	(1)
Connecticut	600,400	583,438	866,088	(1)
Indiana	362,734	496,365	(1)	(1)
Other States	1,158,438	1,693,467	6,569,094	4,326,715
<b>Electric-ignition types:</b>				
<b>Aircraft,<sup>2</sup> total</b>	9,493,656	(3)	(3)	(4)
<b>Marine (including outboard motors), total</b>	12,923,865	11,393,744	8,492,273	7,603,651
Michigan	3,443,369	3,318,125	1,189,857	575,329
Wisconsin	2,087,069	1,426,007	2,228,642	1,329,812
Connecticut	1,249,940	1,181,407	1,374,892	1,559,540
New York	945,640	2,019,581	966,289	1,407,192
California	677,514	741,245	546,599	417,832
Ohio	541,054	719,122	268,978	(1)
New Jersey	252,232	382,721	(1)	(1)
Illinois	23,452	25,822	55,129	(1)
Washington	14,280	31,360	(1)	(1)
Other States	3,689,315	1,547,724	1,861,887	2,313,926

See footnotes at end of table.

TABLE 5.—ENGINES, TURBINES, AND TRACTORS—PRODUCTION, BY TYPE AND BY VALUE, BY STATES: 1921 TO 1927—Continued

[See note at head of this table, p. 1071]

TYPE AND STATE	1927	1925	1923	1921
Internal-combustion engines (except tractors)—Continued.				
Electric-ignition types—Continued.				
Motor-vehicle (not including motor-cycle), <sup>5</sup> total.....	\$63,635,746	<sup>6</sup> \$55,623,879	<sup>6</sup> \$59,074,243	\$31,005,352
Michigan.....	44,947,231	33,448,060	42,948,443	21,392,954
Illinois.....	4,938,849	5,740,264	4,317,724	2,125,110
Other States.....	13,749,666	16,435,555	11,808,076	7,487,288
Other electric-ignition engines, total.....	34,699,391	27,648,376	29,172,683	27,316,559
Ohio.....	7,477,425	4,809,897	4,942,295	3,256,185
Wisconsin.....	7,094,075	7,631,474	10,844,703	8,657,085
Pennsylvania.....	4,228,312	3,935,015	4,718,496	3,532,707
Illinois.....	4,004,211	2,638,875	920,344	815,456
Michigan.....	2,729,621	1,378,451	2,308,752	1,537,836
Iowa.....	2,396,995	1,756,040	1,108,374	749,495
New York.....	1,905,156	962,579	416,529	722,506
Minnesota.....	1,531,803	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )
Missouri and Nebraska <sup>7</sup> .....	1,048,812	1,161,640	684,300	353,046
California.....	776,180	816,484	493,536	380,891
Other States.....	1,506,801	2,557,921	2,735,354	7,811,352
Tractors (internal-combustion) and traction engines (steam), total.....	139,121,915	102,904,828	78,319,688	53,168,819
Iowa and Michigan <sup>8</sup> .....	49,263,865	37,966,997	39,558,902	16,555,124
Illinois.....	39,090,840	18,634,257	10,595,224	11,737,633
Wisconsin.....	29,072,264	19,351,352	11,013,098	9,677,298
Minnesota.....	6,052,411	4,819,999	1,406,389	2,278,129
Ohio.....	5,962,797	2,935,302	3,018,023	4,130,715
Other States.....	9,679,738	19,196,891	12,728,052	8,790,010

<sup>1</sup> Included in figure for "Other States" to avoid disclosing the output of individual establishments.<sup>2</sup> Not including engines built for installation in aircraft manufactured in same establishments.<sup>3</sup> Included in figure for motor-vehicle engines.<sup>4</sup> No comparable data.<sup>5</sup> Not including engines built for installation in motor vehicles manufactured in same establishments.<sup>6</sup> Includes data for a small number of aircraft engines for 1925 and a small number of aircraft and motor-cycle engines for 1923.<sup>7</sup> Data for Missouri and Nebraska are combined for 1927 to avoid disclosing the output of individual establishments; figures for 1925, 1923, and 1921 are for Missouri only.<sup>8</sup> Data for Iowa and Michigan are combined for 1927 to avoid disclosing the output of individual establishments; figures for 1925, 1923, and 1921 are for Michigan only.

TABLE 6.—GENERAL STATISTICS, BY STATES: 1927

This table presents statistics for all States for which separate figures can be given without disclosing data reported by individual establishments. Washington of the "Other States," however, reported larger value of products than one of the States shown separately]

STATE	Number of establishments	PERSONS ENGAGED IN THE INDUSTRY				Horse-power
		Total	Proprietors and firm members	Salaried officers and employees	Wage earners (average for the year)	
United States.....	215	63,433	33	9,050	54,341	241,788
California.....	14	2,586	3	507	1,986	9,902
Connecticut.....	13	1,412	3	203	1,206	3,423
Illinois.....	17	9,014	2	1,244	7,768	31,307
Indiana.....	8	1,180	2	272	906	2,403
Iowa.....	7	2,421	-----	420	2,001	9,420
Massachusetts.....	5	261	-----	54	207	674
Michigan.....	22	16,046	3	1,062	14,981	64,325
Minnesota.....	12	2,392	2	404	1,926	7,185
Missouri.....	6	909	-----	202	707	2,289
New Jersey.....	7	1,046	1	230	815	2,393
New York.....	22	3,049	4	637	2,408	12,444
Ohio.....	23	4,628	1	686	3,941	9,481
Pennsylvania.....	21	7,398	7	1,449	5,942	48,826
Wisconsin.....	18	10,394	-----	1,412	8,982	35,425
Other States <sup>1</sup> .....	15	697	5	127	565	2,291

STATE	Salaries	Wages	Cost of materials, supplies, fuel, and power		Value of products	Value added by manufacture <sup>2</sup>
			Materials and supplies	Fuel and power		
United States.....	\$22,467,103	\$84,790,771	\$158,436,187	\$6,766,614	\$367,878,588	\$202,675,787
California.....	1,458,002	3,127,699	5,941,330	112,907	14,645,190	8,590,953
Connecticut.....	748,207	1,739,118	2,399,960	70,270	7,217,825	4,747,296
Illinois.....	2,511,240	12,032,586	30,047,420	1,156,285	60,471,930	29,268,225
Indiana.....	555,491	1,301,939	2,300,164	109,599	6,402,757	3,992,994
Iowa.....	1,078,500	2,817,220	7,236,384	254,797	21,122,402	13,631,221
Massachusetts.....	131,391	291,562	274,790	9,122	993,263	619,351
Michigan.....	3,013,147	23,118,918	47,651,277	2,368,322	103,133,150	53,113,551
Minnesota.....	1,071,485	2,650,485	5,582,330	139,832	14,984,114	9,261,932
Missouri.....	641,935	963,799	851,774	42,635	2,994,604	2,100,195
New Jersey.....	883,869	1,515,633	1,359,837	65,263	4,941,759	3,516,659
New York.....	1,554,597	4,104,066	5,315,834	250,081	12,861,525	7,295,610
Ohio.....	1,965,150	6,001,832	11,462,443	335,224	25,333,865	13,546,198
Pennsylvania.....	3,875,144	9,011,574	9,120,483	603,037	26,638,815	18,915,295
Wisconsin.....	2,926,718	15,240,802	27,681,230	1,220,828	62,549,223	33,047,165
Other States <sup>1</sup> .....	352,227	873,538	1,220,931	28,392	3,678,465	2,429,142

<sup>1</sup> Kansas, 1 establishment; Kentucky, 1; Maine, 1; Maryland, 1; Nebraska, 1; New Hampshire, 1; Oklahoma, 2; Tennessee, 1; Texas, 1; Washington, 4; West Virginia, 1.

<sup>2</sup> Value of products less cost of materials, supplies, fuel, and power. (See secs. 18<sup>2</sup> and 21, pp. 9 and 10.)

## FOUNDRY AND MACHINE-SHOP PRODUCTS, NOT ELSEWHERE CLASSIFIED

**Description of the industry.**—This industry, as constituted for census purposes, embraces the manufacture of those products of boiler shops, foundries, and machine shops which are not assigned to special classifications. The foundry, as the term is ordinarily defined, is an establishment in which metal is cast into various shapes, and the machine shop is an establishment in which work is done by means of machine tools; that is, power-driven tools used in cutting and shaping metals. Some of the establishments which employ foundry and machine-shop processes, however, specialize in the manufacture of specific classes of products. In cases where a group of establishments thus specialize and manufacture all or the greater part of the total output of a certain commodity or class of commodities, such establishments are assigned, for census purposes, to a specific industry classification designated according to the use or the nature of the products. On the other hand, many foundries and machine shops manufacture a great variety of products. Moreover, while certain establishments employing foundry and machine-shop processes are engaged wholly or mainly in the manufacture of well-defined classes of commodities, large quantities of similar commodities are made by other establishments which also manufacture products wholly different in character. It has been necessary, therefore, in order to avoid excessive overlapping among the industries, to establish a very broad classification, "Foundry and machine-shop products, not elsewhere classified," which embraces, so far as practicable, those lines of manufacture which employ foundry and machine-shop processes but which can not be clearly segregated from one another. Nevertheless, despite its comprehensiveness, a great deal of overlapping occurs between this classification and a number of others.

**Detailed statistics of products.**—Table 3, page 1076, shows separately, so far as is practicable from the returns received from the manufacturers, the values of the major classes of products manufactured in 1927. Industrial and other machinery is the principal product of the industry, the value of the output in 1927 aggregating \$876,926,926. The total production of machinery, including that made in the "Foundry and machine-shop products" and other industries, is treated separately in this report under the title of "Machinery." (See Tables 1 and 2, pp. 1082 and 1087.)

The output of malleable-iron and gray-iron castings manufactured for sale as such is shown by quantity and value for the United States as a whole and for States in Table 4, page 1076. The figures represent only castings produced for sale, and do not include data for the large quantity of castings made in foundry departments of establishments other departments of which use them as material in the manufacture of complete machinery and other products.

FOUNDRY AND MACHINE-SHOP PRODUCTS

1075

TABLE 1.—SUMMARY FOR THE UNITED STATES: 1919 TO 1927

[Data for establishments with products under \$5,000 in value included for 1919 but not for subsequent years. See sec. 10, p. 6]

YEAR OR PERIOD	Number of establishments	Wage earners (average for the year)	Wages	Cost of materials, supplies, fuel, and power	Value of products	Value added by manufacture <sup>1</sup>	Horse-power
1927-----	8,318	397,814	\$591,064,948	\$872,790,346	\$2,259,794,443	\$1,387,004,097	1,538,856
1925-----	8,154	397,838	590,801,237	883,708,235	2,232,985,074	1,349,277,739	1,424,259
1923-----	8,531	448,777	642,431,394	936,231,005	2,337,072,775	1,400,841,772	1,234,326
1921-----	9,013	321,363	412,359,408	653,363,807	1,565,526,944	912,163,137	( <sup>2</sup> )
1919-----	10,934	482,767	622,571,129	948,069,381	2,289,250,859	1,341,181,478	1,040,265
PER CENT OF INCREASE OR DECREASE (—)							
1925-1927----	2.0	( <sup>3</sup> )	( <sup>3</sup> )	-1.2	1.2	2.8	8.0
1923-1925----	-4.4	-11.4	-8.0	-5.6	-4.5	-3.7	15.4
1923-1927----	-2.5	-11.4	-8.0	-6.8	-3.3	-1.0	24.7
1919-1927----	-23.9	-17.6	-5.1	-7.9	-1.3	3.4	47.9

<sup>1</sup> Value of products less cost of materials, supplies, fuel, and power. (See secs. 18 and 21, pp. 9 and 10.)

<sup>2</sup> Not called for on schedule.

<sup>3</sup> Less than one-tenth of 1 per cent.

TABLE 2.—PRIME MOVERS, MOTORS, AND GENERATORS, BY TYPE, NUMBER, AND RATED CAPACITY, FOR THE UNITED STATES: 1927, 1925, AND 1923

TYPE	1927		1925		1923			
	Number	Capacity	Number	Capacity	Number	Capacity		
Prime movers, total-----	126,929	Horse-power 1,538,856	108,134	Horse-power 1,424,259	87,586	Horse-power 1,234,326		
Steam engines-----	1,301	187,435	1,425	198,750	} 1,922	} 277,392		
Steam turbines-----	134	79,650	111	59,292				
Internal-combustion engines-----	682	31,013	795	39,479			996	41,509
Water wheels and turbines-----	229	9,677	283	11,881			228	15,079
Electric motors driven by purchased current-----	124,583	1,231,081	105,520	1,114,857	84,440	900,346		
Electric motors, total-----	151,242	1,523,029	133,583	1,458,607	110,920	1,212,496		
Driven by purchased current-----	124,583	1,231,081	105,520	1,114,857	84,440	900,346		
Driven by current generated in establishment reporting-----	26,659	291,948	28,063	343,750	26,480	312,140		
Electric generators-----	761	Kilowatts 152,338	1,093	Kilowatts 437,133	( <sup>1</sup> )	Kilowatts ( <sup>1</sup> )		

<sup>1</sup> Not called for on schedule.

TABLE 3.—PRODUCTS, BY CLASS AND VALUE, FOR THE UNITED STATES: 1927

[This table covers only products manufactured by establishments classified in the "Foundry and machine-shop products" industry (see "Description of the industry," p. 1074), and does not include data for similar products made by establishments classified in other industries]

CLASS	Value
Total-----	\$2,259,794,443
Boiler-shop products:	
Boilers (industrial)-----	31,989,702
Riveted pipe-----	2,440,524
Smokestacks (iron and steel)-----	3,975,091
Tanks (iron and steel)-----	42,066,525
Other boiler-shop products-----	35,315,873

TABLE 3.—PRODUCTS, BY CLASS AND VALUE, FOR THE UNITED STATES: 1927—Con.

CLASS	Value
Castings:	
Gray-iron <sup>1</sup> .....	\$302,471,692
Malleable-iron <sup>1</sup> .....	83,525,773
Steel <sup>2</sup> .....	8,180,765
Other than iron and steel.....	7,891,504
Rolls (gray-iron or steel) for rolling-mill machinery.....	8,035,070
Machinery <sup>3</sup> .....	876,926,926
Parts and attachments.....	30,005,025
Bearings, ball and roller <sup>4</sup> .....	76,416,501
Flexible metallic tubing and hose.....	3,257,740
Gears (all kinds).....	25,467,603
Industrial burners.....	1,369,837
Other products <sup>5</sup> .....	561,027,689
Receipts for custom work and repairing.....	159,424,894

<sup>1</sup> Castings made in the "Foundry and machine-shop products" industry only. For total production of gray-iron and malleable-iron castings manufactured for sale as such, see Table 4, below.

<sup>2</sup> For total production of steel castings, see Table 3, of the report for the "Steel works and rolling mills industry."

<sup>3</sup> For total production of machinery, by classes, so far as separately reported, see Tables I and 2, pp. 1062 and 1087.

<sup>4</sup> The value of the total output of ball and roller bearings in all industries was \$99,843,765.

<sup>5</sup> Some of the principal items are air and vacuum brakes, automobile steering wheels and jacks, carburetors, chlorine-control apparatus, cold-rolled steel, dumb waiters, electrical machinery, engines and pumps, fabricated pipe and fittings, gauge equipment, gas-plant apparatus, gas compressors, lubricators, piston rings, railroad appliances, fabricated structural steel, and valves, fittings, and hydrants.

TABLE 4.—GRAY-IRON AND MALLEABLE-IRON CASTINGS—PRODUCTION, BY QUANTITY AND VALUE, BY STATES: 1927

[This table presents statistics showing the production of gray-iron and malleable-iron castings manufactured for sale as such by establishments classified in the "Foundry and machine-shop products" industry and all other industries which reported the production of iron castings. It does not cover the large quantity of castings made in foundry departments of establishments which use all or some of their castings in the further manufacture of stoves, furnaces, machinery, and other finished products]

STATE	GRAY IRON		MALLEABLE IRON	
	Tons (2,000 pounds)	Value	Tons (2,000 pounds)	Value
United States, aggregate value.....		\$340,325,788		\$87,339,516
Quantity <i>not</i> reported.....		<sup>1</sup> 11,650,527		874,451
Quantity and value reported.....	4,945,818	328,675,261	613,638	86,465,065
Alabama.....	83,794	4,603,815		
California.....	132,672	9,894,971	5,926	1,033,742
Colorado.....	87,860	2,987,332		
Connecticut.....	68,932	7,960,000	19,020	4,215,548
Georgia.....	75,366	3,524,193	(?)	(?)
Illinois.....	597,084	34,841,323	88,655	12,003,975
Indiana.....	238,013	18,119,912	62,943	8,206,410
Iowa.....	55,819	3,813,510	(?)	(?)
Kansas.....	58,734	2,485,773		
Kentucky.....	17,220	908,611		
Louisiana.....	11,745	1,339,939		
Maine.....	4,672	530,699		
Maryland.....	73,232	4,001,822	(?)	(?)
Massachusetts.....	151,813	14,121,181	(?)	(?)
Michigan.....	637,748	44,317,792	123,673	14,456,523
Minnesota.....	77,698	3,832,904	(?)	(?)
Missouri.....	115,049	6,882,066	(?)	(?)
New Hampshire.....	5,123	579,819		
New Jersey.....	181,553	14,766,252	7,973	1,855,539
New York.....	449,886	29,353,226	71,181	10,855,047
North Carolina.....		638,998		
Ohio.....	608,262	47,385,439	80,932	11,020,268
Oklahoma.....	15,851	1,351,572		
Oregon.....	11,437	1,046,533		
Pennsylvania.....	761,313	40,741,826	46,333	8,592,278
Rhode Island.....	26,575	2,483,299	(?)	(?)
Tennessee.....	52,588	2,707,137	(?)	(?)
Texas.....	81,505	4,239,443	(?)	(?)
Vermont.....	5,496	707,997		
Virginia.....	59,776	2,532,015		
Washington.....	40,734	2,665,168		
West Virginia.....	15,408	1,108,232	(?)	(?)
Wisconsin.....	100,205	9,623,139	77,178	9,378,027
Other States.....	35,750	2,484,309	29,824	4,787,708

<sup>1</sup> Michigan, \$3,731,038; Ohio, \$2,193,521; Illinois, \$1,327,465; and Indiana, \$1,206,023; other States, \$3,192,430.

<sup>2</sup> Included in figure for "Other States" to avoid disclosing the output of individual establishments.

TABLE 5.—GENERAL STATISTICS, BY STATES: 1927

STATE	Num-ber of estab-lish-ments	PERSONS ENGAGED IN THE INDUSTRY					Horse-power	Salaries	Wages	Cost of materials, sup-plies, fuel, and power		Value of prod-ucts	Value added by manu-facture 1
		Total	Proprie-tors and mem-bers	Salaried officers and em-ployees	Wage earners (average for the year)	Total				Materials and sup-plies	Fuel and power		
United States.....	8,318	482,755	4,346	80,595	397,814	1,538,850	\$211,270,022	\$591,064,948	\$828,135,493	\$44,654,853	\$2,259,794,443	\$1,387,004,077	
Alabama.....	56	3,335	44	317	2,974	10,864	714,299	3,665,900	6,056,959	208,274	13,740,983	7,465,750	
Arizona.....	8	164	6	40	118	1,362	48,413	157,878	125,278	26,207	457,554	304,069	
Arkansas.....	32	510	40	68	402	1,861	171,586	514,728	448,495	49,977	1,389,285	890,813	
California.....	568	16,283	423	2,845	13,015	53,727	7,671,018	21,048,181	30,292,267	1,199,170	81,147,093	49,055,656	
Colorado.....	68	1,890	44	410	1,436	6,603	686,455	1,976,850	2,449,991	166,963	8,109,546	5,492,572	
Connecticut.....	175	19,659	80	2,780	16,799	73,754	7,282,801	24,208,125	23,433,642	1,893,502	86,168,291	60,841,087	
Delaware.....	18	1,543	1	280	1,125	7,241	623,473	1,875,286	3,084,361	210,782	6,122,756	2,827,613	
District of Columbia.....	10	684	9	27	697	2,387	67,937	200,690	8,021	616,843	1,411,395	1,809,377	
Florida.....	41	686	21	115	550	2,357	322,295	821,868	1,016,192	47,677	2,873,246	6,993,760	
Georgia.....	65	3,244	25	416	2,803	8,218	1,063,854	3,086,155	4,693,414	157,483	11,844,657	6,988,760	
Idaho.....	11	154	18	22	119	406	44,408	157,974	130,377	16,885	458,657	311,305	
Illinois.....	783	49,288	401	9,404	39,463	126,352	26,117,595	62,248,281	89,835,110	4,342,860	245,148,713	160,870,863	
Indiana.....	304	23,990	143	3,681	19,166	67,834	9,068,313	27,108,959	43,688,145	2,282,461	114,728,757	68,847,551	
Iowa.....	135	4,592	72	802	3,718	12,529	1,786,850	4,919,284	8,167,885	410,284	20,501,200	12,293,051	
Kansas.....	76	3,227	45	399	2,783	9,106	954,644	3,879,901	6,273,745	286,259	13,786,270	9,288,272	
Kentucky.....	52	2,588	15	453	2,120	6,613	1,115,106	2,656,589	4,084,117	164,629	11,144,392	6,045,754	
Louisiana.....	56	1,620	18	224	1,378	6,154	890,594	1,691,523	2,345,550	160,403	6,834,874	3,500,911	
Maine.....	31	1,220	16	156	1,048	3,952	362,091	1,434,311	85,897	4,272,925	6,752,116	3,500,911	
Maryland.....	97	4,905	70	905	3,657	15,939	3,330,000	10,685,540	356,144	68,500,077	12,494,393	12,494,393	
Massachusetts.....	496	24,101	244	3,959	19,599	65,852	10,317,922	30,058,273	28,942,070	1,817,633	94,149,409	63,359,706	
Michigan.....	513	41,513	238	5,639	35,736	112,401	14,876,525	53,951,123	58,168,909	5,686,225	178,948,457	114,293,323	
Minnesota.....	169	6,265	95	1,458	6,002	18,146	2,882,878	6,779,705	11,000,464	5,717,111	20,024,100	18,106,015	
Mississippi.....	23	936	17	108	698	2,500	136,532	361,737	25,144	1,039,707	1,039,707	698,366	
Missouri.....	248	9,378	115	1,905	7,558	24,252	4,748,903	10,736,588	17,627,808	735,430	44,328,592	26,065,354	
Montana.....	10	371	3	40	298	1,534	89,343	516,678	496,464	88,123	1,350,740	706,162	

See footnotes at end of table.

TABLE 5.—GENERAL STATISTICS, BY STATES: 1927—Continued

STATE	Num-ber of estab-lish-ments	PERSONS ENGAGED IN THE INDUSTRY				Horse-power	Salaries	Wages	Cost of materials, sup-plies, fuel, and power		Value of products	Value added by manufac-ture <sup>1</sup>
		Total	Propriet-ors and firm mem-bers	Skarified officers and em-ployees	Wage earners (average for the year)				Materials and supplies	Fuel and power		
Nebraska.....	30	1,005	16	214	776	\$439,348	\$1,089,085	\$1,982,864	\$67,055	\$4,862,088	\$2,812,769	
Nevada and New Mexico.....	4	2,262	17	13	55	34,808	80,170	138,694	7,329	208,140	137,207	
New Hampshire.....	246	24,300	284	399	1,883	730,842	2,082,187	2,584,470	136,804	9,778,307	7,961,222	
New Jersey.....	908	58,025	438	4,153	19,303	12,680,985	30,198,001	49,393,477	2,009,009	112,306,808	79,363,887	
New York.....	56	1,266	42	8,085	43,902	22,218,377	97,710,680	80,813,679	3,767,017	258,074,963	168,304,272	
North Carolina.....	5	74	1	175	1,049	410,276	1,208,437	1,428,709	55,028	4,023,946	2,545,215	
North Dakota.....	831	63,540	287	12	61	30,738	80,910,624	150,900	7,130	343,303	187,674	
Ohio.....	75	2,226	31	10,080	53,202	27,771,977	2,502,412	126,184,488	6,528,302	323,348,309	190,030,277	
Oklahoma.....	87	1,909	36	1,775	1,536	1,116,486	2,462,889	6,709,699	208,284	13,903,102	6,088,110	
Oregon.....	888	66,214	480	337	1,536	803,187	2,407,839	8,547,782	159,009	8,273,239	4,566,448	
Pennsylvania.....	47	2,585	27	53,801	279,900	30,718,855	78,037,139	121,831,251	6,491,501	303,116,526	174,798,774	
Rhode Island.....	20	300	19	2,184	7,922	80,773	3,280,364	4,033,874	230,213	10,463,377	6,127,260	
South Carolina.....	5	41	8	237	584	80,697	263,343	233,035	14,252	10,672,771	425,484	
South Dakota.....	60	3,224	28	6	27	10,942	32,200	58,670	3,090	151,130	89,370	
Tennessee.....	165	7,063	92	525	2,671	944,021	2,971,206	4,526,870	258,707	11,299,591	6,514,014	
Texas.....	14	294	22	5,881	21,111	2,635,209	7,654,915	13,061,040	776,114	37,930,957	24,143,803	
Utah.....	24	835	6	1,612	10,494	102,494	310,569	343,490	31,964	3,962,460	586,630	
Vermont.....	69	1,466	27	704	2,439	276,635	1,081,411	961,678	50,094	3,116,064	2,107,282	
Virginia.....	217	3,439	152	1,245	4,334	487,110	1,414,365	1,951,131	98,912	5,008,850	2,968,807	
Washington.....	65	1,730	37	2,714	13,416	1,324,310	4,336,815	6,183,170	292,498	15,992,368	9,516,691	
West Virginia.....	324	25,579	146	21,081	9,243	888,813	1,932,873	3,993,135	140,691	9,360,630	5,360,834	
Wisconsin.....	5	26	1	4,352	53,253	11,550,187	31,888,882	51,194,699	2,293,410	127,357,554	73,869,445	
Wyoming.....		26		21	209	7,528	34,992	97,329	6,288	182,852,056	78,450	

<sup>1</sup> Value of products less cost of materials, supplies, fuel, and power. (See secs. 18 and 21, pp. 9 and 10.)  
<sup>2</sup> Combined in order to avoid disclosing data reported for individual establishments.

## GAS MACHINES AND GAS AND WATER METERS

[A preliminary report for this industry was issued under date of November 2, 1928]

**Description of the industry.**—This industry embraces establishments engaged in the manufacture of gas meters, regulators, and governors, gas-making machines, acetylene and gasoline-gas generators, meters for the measurement of water and other liquids, and parts and appliances such as valves, stopcocks, seals, swivels and caps, meter fittings, and indexes.

TABLE 1.—SUMMARY FOR THE UNITED STATES: 1919 TO 1927

[Data for establishments with products under \$5,000 in value included for 1919 but not for subsequent years. See sec. 10, p. 6]

YEAR OR PERIOD	Number of establishments	Wage earners (average for the year)	Wages	Cost of materials, supplies, fuel, and power	Value of products	Value added by manufacture <sup>1</sup>	Horse-power
1927-----	58	5,915	\$8,792,364	\$15,590,977	\$36,715,190	\$21,124,213	10,427
1925-----	61	5,514	7,428,842	13,038,272	34,292,059	21,253,787	7,375
1923-----	61	6,127	7,756,779	14,331,863	34,250,414	19,918,551	7,364
1921-----	65	4,280	5,211,331	9,000,272	21,956,424	12,956,152	(2)
1919-----	105	5,589	5,995,877	10,647,402	26,267,074	15,619,672	8,586
PER CENT OF INCREASE OR DECREASE (-)							
1925-1927-----	(3)	7.3	18.4	19.6	7.1	-0.6	41.4
1923-1925-----	(3)	-10.0	-4.2	-9.0	.1	6.7	.1
1923-1927-----	(3)	-3.5	13.4	8.8	7.2	6.1	41.6
1919-1927-----	-44.8	5.8	46.6	46.4	39.8	35.2	21.4

<sup>1</sup> Value of products less cost of materials, supplies, fuel, and power. (See secs. 18 and 21, pp. 9 and 10.)

<sup>2</sup> Not called for on schedule.

<sup>3</sup> Per cent not computed where base is less than 100.

TABLE 2.—PRIME MOVERS, MOTORS, AND GENERATORS, BY TYPE, NUMBER, AND RATED CAPACITY, FOR THE UNITED STATES: 1927 AND 1925

TYPE	1927		1925	
	Number	Capacity	Number	Capacity
Prime movers, total-----	1,322	<i>Horsepower</i> 10,427	988	<i>Horsepower</i> 7,375
Steam engines-----	4	300	6	540
Steam turbines-----	5	325	6	323
Internal-combustion engines-----	1,313	9,302	976	6,512
Electric motors driven by purchased current-----				
Electric motors, total-----	1,340	9,462	1,135	7,201
Driven by purchased current-----	1,313	9,302	976	6,512
Driven by current generated in establishment reporting-----	27	160	159	689
Electric generators-----	2	<i>Kilowatts</i> 617	7	<i>Kilowatts</i> 856

TABLE 3.—PRODUCTS, BY CLASS, NUMBER, AND VALUE: 1927 AND 1925

CLASS	1927	1925
1. Gas machines and gas and water meters industry, all products, total value.....	\$36,715,190	\$34,292,059
2. Gas machines, gas meters, water meters, gas regulators, and parts and appliances.....	\$31,297,089	\$30,347,324
3. Other products (not normally belonging to the industry), value, and receipts for repairing.....	\$5,418,101	\$3,944,735
4. Gas machines, etc., made as secondary products in other industries, value.....	\$3,875,222	\$4,536,656
Gas machines, etc., all industries: Total value (sum of 2 and 4).....	\$35,172,311	\$34,883,980
Gas machines, value.....	\$5,081,837	\$6,241,888
Gas meters: Number.....	1,081,263	940,209
Value.....	\$12,497,432	\$9,462,122
Water meters, value.....	\$11,854,000	\$12,614,910
Gas meters and water meters not separately reported, value.....	\$626,110	\$2,424,813
Gas regulators, value.....	\$1,177,301	\$1,285,976
Parts and appliances, value.....	\$3,935,631	\$2,554,271

TABLE 4.—GENERAL STATISTICS, BY STATES: 1927

[This table presents statistics for all States for which separate figures can be given without disclosing data reported by individual establishments. Certain of the "Other States," however, reported larger values of products than some of the States shown separately]

STATE	Number of establishments	PERSONS ENGAGED IN THE INDUSTRY				Horse-power
		Total	Proprietors and firm members	Salaried officers and employees	Wage earners (average for the year)	
United States.....	58	7,125	4	1,206	5,915	10,427
Indiana.....	4	92	—	21	71	134
New Jersey.....	7	515	—	81	434	593
New York.....	9	2,021	—	220	1,801	3,991
Ohio.....	6	498	1	231	266	239
Pennsylvania.....	11	1,810	2	261	1,547	2,432
Other States <sup>1</sup> .....	21	2,189	1	392	1,796	3,038

  

STATE	Salaries	Wages	Cost of materials, supplies, fuel, and power		Value of products	Value added by manufacture <sup>2</sup>
			Materials and supplies	Fuel and power		
United States.....	\$3,229,073	\$8,792,364	\$15,258,186	\$332,791	\$36,715,190	\$21,124,213
Indiana.....	58,886	76,247	185,163	3,938	444,994	255,893
New Jersey.....	294,156	583,974	1,224,438	33,446	3,026,695	1,768,811
New York.....	700,344	3,080,872	4,264,984	93,748	10,077,689	5,718,957
Ohio.....	548,855	422,632	831,746	9,867	2,436,370	1,594,757
Pennsylvania.....	608,355	2,180,163	4,234,878	108,768	10,045,378	5,701,732
Other States <sup>1</sup> .....	1,018,477	2,448,476	4,516,977	83,024	10,684,064	6,084,063

<sup>1</sup> California, 2 establishments; Connecticut, 1; Florida, 1; Illinois, 6; Kansas, 1; Kentucky, 1; Maryland, 2; Massachusetts, 3; Michigan, 1; Rhode Island, 1; Texas, 1; Wisconsin, 1.

<sup>2</sup> Value of products less cost of materials, supplies, fuel, and power. (See secs. 18 and 21, pp. 9 and 10.)

## MACHINERY

**Scope of report.**—This section is not an industry report (see "Assignment of establishments to industries," p. 17) but is merely a special presentation of statistics for the broad group of products covered by the general designation "Machinery." These products are manufactured principally in the following-named industries: "Agricultural implements"; "Aircraft and parts"; "Cash registers, adding machines, and calculating machines"; "Dairymen's supplies; creamery, cheese-factory, and butter-factory equipment; and poultrymen's and apiarists' supplies"; "Electrical machinery, apparatus, and supplies"; "Engines, turbines, and water wheels"; "Foundry and machine-shop products, not elsewhere classified"; "Gas machines and gas and water meters"; "Locomotives, not made in railroad repair shops"; "Machine tools"; "Refrigerators, mechanical"; "Metal-working machinery"; "Motor cycles, bicycles, and parts"; "Motor vehicles, not including motor cycles"; "Photographic apparatus and materials"; "Pumps and pumping equipment"; "Scales and balances"; "Sewing machines, cases, and attachments"; "Textile machinery and parts"; "Typewriters and supplies"; "Washing machines, wringers, driers, and ironing machines for household use"; and "Windmills and windmill towers."

**Definition of "Machinery."**—The term "Machinery" is here used in its popular rather than in its exact sense. Strictly speaking, the term applies to certain very simple mechanical contrivances, such as a pair of pliers, a rope and pulley, or a windlass, and also to various more complicated devices, such as timepieces and scientific instruments, which are not customarily referred to as machines and which are not included in the machinery covered by the tables herewith. Locomotives, motor-propelled steerable vehicles, and bicycles are included. Railway cars and horse-drawn vehicles are excluded, but the value of the motors used in electric cars is included in the item "Motors (not including electric fans nor starter motors for motor vehicles)," in the "Electrical machinery" group. The item "Engines (steam and internal-combustion), water wheels, and parts" covers, of course, the boilers of traction and portable steam engines, but does not cover steam boilers made for sale as separate units.

**Description of tables.**—Table 1 presents statistics for the values of the principal classes of machinery manufactured in the United States during each of the last four census years, and Table 2 shows, for 1927, the corresponding values for leading States, so far as statistics can be given without disclosing the output of individual establishments. For the years prior to 1927 no comparable data are available for a number of items; and consequently no totals for the earlier census years are shown in Table 1.

The figures in these tables represent the values of complete machines only, except in a few cases where it was impossible to separate the values of complete machines and of parts, and thus there is little duplication due to the inclusion of values of parts made by certain establishments for sale to other establishments which use them as materials in the manufacture of complete machines.

**Differences between values in Tables 1 and 2 and values of products in industry tables.**—The differences between the values of certain classes of machinery—for example, machine tools—as given in Tables 1 and 2, and the total values of products of the industries of which these classes of machinery are the primary

products, are due to the inclusion in these tables and the exclusion from the industry totals of data for the specified classes of machinery made as secondary products by establishments engaged primarily in other lines of manufacture, and to the exclusion from Tables 1 and 2 and the inclusion in the industry totals of data for miscellaneous commodities made as secondary products by establishments classified in the industries in question.

TABLE 1.—MACHINERY—PRODUCTION OF PRINCIPAL CLASSES, BY VALUE, FOR THE UNITED STATES: 1921 TO 1927

CLASS AND CENSUS YEAR	Value	CLASS AND CENSUS YEAR	Value
Total, 1927 <sup>1</sup> .....	\$4,955,192,425	Canning machinery:	
Adding machines:		1927.....	\$7,339,404
1927.....	33,385,964	1925.....	9,765,691
1925 <sup>1</sup> .....	33,829,501	1923.....	9,690,604
Addressing and mailing machines:		1921.....	5,138,964
1927.....	9,787,737	Card punching, sorting, and tabulating machines, 1927 <sup>1</sup> .....	4,850,291
1925.....	9,034,513	Cars and trucks, industrial and mining:	
1923 <sup>1</sup> .....	5,768,936	1927.....	21,741,441
Agricultural machinery, and attachments and parts:		1925.....	24,266,866
1927.....	129,594,937	1923 <sup>1</sup> .....	17,918,300
1925.....	93,221,603	Industrial, 1927.....	13,502,206
1923 <sup>1</sup> .....	82,130,319	Mining, 1927.....	8,239,235
Harvesting and haying machinery—		Cash registers:	
1927.....	72,706,007	1927.....	40,344,677
1925.....	43,843,650	1925.....	42,326,496
1923 <sup>1</sup> .....	41,781,372	1923.....	44,381,645
Machinery for preparing crops for market or use—		1921.....	23,943,697
1927.....	32,328,555	Cement and concrete machinery:	
1925.....	28,488,167	1927.....	20,533,525
1923 <sup>1</sup> .....	30,761,122	1925 <sup>1</sup> .....	23,830,391
Planting and fertilizing machinery—		Cement-making machinery—	
1927.....	24,560,375	1927.....	4,619,269
1925.....	20,889,786	1925 <sup>1</sup> .....	4,146,063
1923 <sup>1</sup> .....	9,587,825	Cement and concrete block machinery—	
Aircraft (airplanes, seaplanes, and amphibians):		1927.....	655,788
1927.....	14,504,999	1925.....	1,460,515
1925.....	8,102,106	Concrete mixers—	
1923.....	9,076,806	1927.....	12,673,978
1921.....	5,099,430	1925.....	12,619,755
Bakers' machinery and equipment:		1923 <sup>1</sup> .....	13,602,453
1927.....	20,015,158	Other cement and concrete machinery—	
1925.....	17,212,093	1927.....	2,584,490
1923.....	14,450,978	1925 <sup>1</sup> .....	5,604,063
1921.....	10,559,928	Change-making machines, taxicab meters, and ticket-counting machines, 1927 <sup>1</sup> .....	3,168,573
Bake ovens—		Check-writing machines:	
1927.....	9,564,092	1927.....	1,779,717
1925 <sup>1</sup> .....	6,855,158	1925.....	2,092,566
Other bakers' equipment—		1923 <sup>1</sup> .....	2,488,714
1927.....	10,451,066	Clay-working machinery (brick, pottery, etc.):	
1925 <sup>1</sup> .....	10,356,935	1927.....	4,307,910
Baling presses:		1925.....	5,298,340
1927.....	1,206,118	1923.....	5,508,454
1925.....	1,196,332	1921.....	3,771,677
1923 <sup>1</sup> .....	1,585,156	Clothing-pressing machines:	
Blowers and fans:		1927.....	9,077,613
1927.....	20,433,489	1925.....	8,408,982
1925.....	16,210,430	1923 <sup>1</sup> .....	6,282,206
1923.....	14,385,684	Coffee roasting and grinding machines:	
1921.....	12,517,507	1927.....	1,825,947
Bookbinding machinery:		1925.....	1,922,492
1927.....	2,789,156	1923 <sup>1</sup> .....	1,336,189
1925.....	3,389,126	Condensers:	
1923 <sup>1</sup> .....	1,591,456	1927.....	5,895,969
Bottling machinery:		1925.....	4,938,030
1927.....	11,583,700	1923 <sup>1</sup> .....	4,588,039
1925.....	10,138,835	Confectionery and ice-cream machinery:	
1923.....	5,969,264	1927.....	5,682,001
1921.....	6,641,731	1925.....	5,143,470
Calculating machines:		1923.....	5,028,882
1927.....	10,613,610	1921.....	5,156,507
1925.....	14,867,762		

See footnotes at end of table.

TABLE 1.—MACHINERY—PRODUCTION OF PRINCIPAL CLASSES, BY VALUE, FOR THE UNITED STATES: 1921 TO 1927—Continued

CLASS AND CENSUS YEAR	Value	CLASS AND CENSUS YEAR	Value
Conveying machinery:		Dredging and excavating machinery, including power shovels—Con.	
1927.....	\$33,528,080	Excavating machinery—Con.	
1925.....	30,688,471	Other—	
1923 <sup>1</sup> .....	26,203,332	1927.....	\$3,651,017
Belt type, 1927.....	10,520,401	1925 <sup>1</sup> .....	2,643,917
Bucket type, 1927.....	10,725,744	Electrical machinery:	
Other types, 1927.....	12,281,935	1927.....	154,644,141
Cotton gins:		1925.....	134,513,423
1927.....	9,542,824	1923.....	128,384,498
1925.....	12,807,969	1921.....	89,800,279
1923.....	7,175,031	Generators 7—	
1921.....	2,721,260	1927.....	22,838,190
Cranes (including hoists and derricks): <sup>6</sup>		1925.....	33,215,976
1927.....	44,453,900	1923.....	22,743,565
1925.....	43,935,663	1921.....	18,436,081
1923.....	42,196,523	Motors (not including electric fans nor starter motors for motor vehicles)—	
1921.....	20,445,484	1927.....	122,348,338
Locomotive—		1925.....	100,162,398
1927.....	13,506,413	1923.....	95,363,753
1925 <sup>1</sup> .....	13,161,678	1921.....	65,052,740
Stationary—		Rotating converting apparatus—	
1927.....	12,340,480	1927.....	9,457,604
1925 <sup>1</sup> .....	11,601,245	1925.....	11,135,049
Traveling—		1923.....	10,277,180
1927.....	18,607,007	1921.....	<sup>8</sup> 6,311,458
1925 <sup>1</sup> .....	19,172,740	Elevators and elevator machinery:	
Dairy, cheese-factory, and butter-factory machinery:		1927.....	43,152,220
1927.....	16,536,241	1925.....	47,429,964
1925.....	15,176,930	1923.....	52,516,091
1923.....	16,485,702	1921.....	40,931,295
1921.....	17,759,261	Freight, 1927.....	12,877,161
Cream separators—		Passenger, 1927.....	30,275,059
1927.....	8,098,306	Engines (steam and internal-combustion), water wheels, and parts: <sup>9</sup>	
1925.....	7,838,900	1927.....	369,605,673
1923 <sup>1</sup> .....	7,726,547	1925.....	317,254,544
Milking-machine units—		1923.....	266,039,760
1927.....	1,339,474	1921.....	180,487,954
1925.....	1,117,762	Fare registers and fare boxes, 1927 <sup>1</sup>	1,163,152
1923 <sup>1</sup> .....	940,753	Flour-mill and grain-mill machinery:	
Other—		1927.....	7,967,086
1927.....	7,098,461	1925.....	7,945,924
1925.....	6,220,268	1923.....	9,083,777
1923 <sup>1</sup> .....	7,818,402	1921.....	8,663,327
Dish-washing machinery:		Foundry machinery, total, 1927 <sup>1</sup>	7,016,948
1927.....	2,017,970	Molding machines.....	2,994,387
1925.....	1,473,500	Sand-blast machines.....	1,102,874
1923 <sup>1</sup> .....	1,066,408	Tumbling barrels.....	291,435
Dredging and excavating machinery, including power shovels:		Other.....	2,628,202
1927.....	51,881,934	Gas machines:	
1925.....	45,841,058	1927.....	5,081,837
1923.....	40,306,037	1925 <sup>1</sup> .....	6,241,888
1921.....	17,848,733	Gas regulators:	
Dredging machinery—		1927.....	1,177,301
1927.....	3,783,863	1925 <sup>1</sup> .....	1,235,976
1925 <sup>1</sup> .....	4,452,520	Glass-making machinery:	
Hydraulic—		1927.....	3,085,384
1927.....	1,380,890	1925.....	2,695,850
1925 <sup>1</sup> .....	2,684,219	1923.....	2,651,308
Other—		1921.....	4,088,121
1927.....	2,402,973	Hat-making machinery:	
1925 <sup>1</sup> .....	1,768,301	1927.....	704,383
Excavating machinery—		1925.....	522,284
1927.....	48,098,071	1923 <sup>1</sup> .....	750,869
1925 <sup>1</sup> .....	41,388,538	Hydraulic machinery (other than for dredging):	
Drag lines or power scrapers—		1927.....	2,908,253
1927.....	8,829,653	1925.....	4,937,916
1925 <sup>1</sup> .....	9,005,506	1923 <sup>1</sup> .....	3,870,666
Power shovels—		Hydraulic rams—	
1927.....	32,105,754	1927.....	450,246
1925.....	26,609,195	1925 <sup>1</sup> .....	217,629
1923.....	23,683,862	Other—	
1921.....	12,857,828	1927.....	2,456,007
Trench excavators—		1925 <sup>1</sup> .....	4,720,287
1927.....	3,511,647		
1925 <sup>1</sup> .....	3,129,920		

See footnotes at end of table.

TABLE 1.—MACHINERY—PRODUCTION OF PRINCIPAL CLASSES, BY VALUE, FOR THE UNITED STATES: 1921 TO 1927—Continued

CLASS AND CENSUS YEAR	Value	CLASS AND CENSUS YEAR	Value
Incandescent-lamp-making machinery:		Motor cycles and bicycles:	
1927.....	\$2,739,577	1927.....	\$13,304,123
1925.....	4,255,464	1925.....	15,906,222
1923 <sup>1</sup> .....	1,534,676	1923.....	20,752,070
Laundry machinery (for commercial laundries only):		1921.....	12,657,100
1927.....	27,203,516	Motor cycles—	
1925.....	24,193,059	1927.....	8,000,683
1923.....	19,077,439	1925.....	8,875,657
1921.....	12,982,709	1923.....	10,025,170
Lawn mowers:		1921.....	6,438,706
1927.....	9,268,728	Bicycles—	
1925.....	8,046,961	1927.....	5,803,440
1923.....	8,258,489	1925.....	7,030,666
1921.....	6,401,192	1923.....	10,726,900
Hand—		1921.....	6,218,364
1927.....	7,290,182	Motor vehicles, except motor cycles:	
1925 <sup>1</sup> .....	7,117,169	1927.....	2,540,714,211
Power—		1925.....	2,946,821,212
1927.....	1,978,546	1923.....	2,611,734,953
1925 <sup>1</sup> .....	929,792	1921.....	1,326,119,062
Leather-working machinery (other than shoe machinery):		Passenger vehicles—	
1927.....	2,000,401	1927.....	2,175,544,770
1925.....	2,222,163	1925.....	2,527,575,450
1923.....	2,574,920	1923.....	2,277,777,450
1921.....	2,525,761	1921.....	1,134,300,475
Locomotives (electric, internal-combustion, and steam):		Business vehicles—	
1927.....	70,508,360	1927.....	258,404,005
1925.....	58,359,274	1925.....	287,243,212
1923.....	164,673,098	1923.....	222,419,517
1921.....	90,110,725	1921.....	99,008,613
Electric—		Government (Federal, State, county, and municipal) vehicles—	
1927.....	9,857,881	1927.....	11,521,291
1925 <sup>1</sup> .....	10,331,139	1925.....	10,486,267
Internal-combustion—		1923.....	10,051,776
1927.....	2,335,097	1921.....	9,457,826
1925 <sup>1</sup> .....	1,726,782	Chassis (passenger, commercial, and bus)—	
Steam—		1927.....	95,214,145
1927.....	58,315,382	1925.....	121,516,283
1925 <sup>1</sup> .....	46,301,353	1923.....	101,486,215
Machine tools:		1921.....	83,262,748
1927.....	107,101,652	Oil-mill machinery (cottonseed and other):	
1925.....	91,459,403	1927.....	4,696,859
Manifolding machines (mimeographs, multigraphs, etc.):		1925.....	4,132,399
1927.....	3,778,842	1923.....	3,036,625
1925 <sup>1</sup> .....	3,883,803	1921.....	1,472,318
Metal-working machinery:		Oil-well machinery:	
1927.....	39,201,236	1927.....	62,128,376
1925.....	10 47,352,746	1925.....	47,269,165
Meters, gas and water:		1923.....	52,158,398
1927.....	24,977,542	1921.....	27,415,031
1925.....	24,501,845	Ore crushers:	
1923.....	23,397,383	1927.....	2,893,137
1921.....	18,181,176	1925.....	3,251,737
Gas—		1923.....	4,861,504
1927.....	12,497,432	1921.....	3,322,306
1925 <sup>1</sup> .....	8,462,122	Packaging machines:	
Water—		1927.....	5,037,587
1927.....	11,854,000	1925.....	4,387,170
1925 <sup>1</sup> .....	12,614,910	1923 <sup>1</sup> .....	3,484,463
Gas and water meters not separately reported by manufacturers—		Packing-house machinery:	
1927.....	626,110	1927.....	5,574,730
1925 <sup>1</sup> .....	2,424,813	1925.....	5,370,212
Mining machinery (other than oil-well machinery):		1923.....	5,441,485
1927.....	35,259,263	1921.....	4,133,174
1925.....	34,827,443	Meat-packing—	
1923.....	47,589,778	1927.....	3,880,818
1921.....	30,290,171	1925 <sup>1</sup> .....	4,249,140
Motion-picture cameras and projectors:		Other packing-house machinery—	
1927.....	8,345,209	1927.....	1,695,012
1925.....	4,620,392	1925 <sup>1</sup> .....	1,121,072
1923.....	2,631,407	Paint-making machinery:	
1921.....	2,869,131	1927.....	947,630
		1925.....	1,212,683
		1923 <sup>1</sup> .....	733,128

See footnotes at end of table.

TABLE 1.—MACHINERY—PRODUCTION OF PRINCIPAL CLASSES, BY VALUE, FOR THE UNITED STATES: 1921 TO 1927—Continued

CLASS AND CENSUS YEAR	Value	CLASS AND CENSUS YEAR	Value
Paper-box machinery:		Refrigerating and ice-making machinery—Continued.	
1927.....	\$4,305,146	Refrigerating machinery (other than ice-making)—	
1925 <sup>1</sup> .....	4,644,800	1927.....	\$8,435,505
Paper-mill and pulp-mill machinery:		1925.....	<sup>12</sup> 47,297,003
1927.....	27,097,643	1923.....	19,297,870
1925.....	21,208,761	1921.....	18,368,252
1923.....	18,735,832	Refrigerating units, electric, complete with cabinets, 1927 <sup>1</sup> .....	68,492,827
1921.....	31,580,944	Refrigerating units, electric, without cabinets, 1927 <sup>1</sup> .....	9,927,433
Paper-mill, 1927.....	20,618,625	Road-making machinery (other than concrete mixers):	
Pulp-mill, 1927.....	5,106,235	1927.....	27,727,585
Other machinery used in the paper industry, 1927.....	1,372,783	1925.....	26,296,964
Pharmaceutical machinery:		1923.....	24,264,375
1927.....	716,562	1921.....	17,858,209
1925.....	<sup>8</sup> 815,091	Road graders—	
1923 <sup>1</sup> .....	820,692	1927.....	15,554,177
Photo-engraving machinery:		1925 <sup>1</sup> .....	12,737,625
1927.....	584,986	Road rollers—	
1925.....	<sup>8</sup> 507,057	1927.....	4,261,656
1923 <sup>1</sup> .....	555,554	1925 <sup>1</sup> .....	4,581,644
Pneumatic machinery (other than pneumatic tools):		Stone crushers—	
1927.....	30,186,024	1927.....	3,386,773
1925 <sup>1</sup> .....	30,582,112	1925 <sup>1</sup> .....	2,436,732
Air compressors—		Other road-making machinery—	
1927.....	29,318,667	1927.....	4,524,979
1925.....	29,472,834	1925 <sup>1</sup> .....	6,540,963
1923.....	27,762,309	Rolling-mill machinery, 1927 <sup>1</sup> .....	11,838,638
1921.....	15,728,629	Rubber-working machinery:	
Other pneumatic machinery—		1927.....	9,950,559
1927.....	867,357	1925.....	10,164,497
1925 <sup>1</sup> .....	1,109,278	1923.....	6,849,343
Printing machinery:		1921.....	8,003,103
1927.....	63,240,424	Scales and balances:	
1925.....	<sup>8</sup> 67,055,974	1927.....	22,166,298
1923.....	68,629,762	1925.....	23,690,827
1921.....	54,870,399	1923.....	21,835,503
Presses—		1921.....	15,884,770
1927.....	33,826,988	Sewing machines, cases, cabinets, attachments, and parts:	
1925.....	<sup>8</sup> 34,872,974	1927.....	43,179,384
1923.....	30,868,907	1925.....	45,130,777
1921.....	22,368,406	1923.....	42,993,312
Typesetting machines—		1921.....	35,608,297
1927.....	20,077,454	Household types—	
1925.....	23,580,512	Electric, 1927 <sup>1</sup> .....	13,034,995
1923.....	27,087,773	Foot and hand, 1927 <sup>1</sup> .....	9,093,731
1921.....	19,650,016	Industrial types—	
Other printing machinery—		Electric, 1927 <sup>1</sup> .....	9,219,257
1927.....	9,335,982	Other, 1927 <sup>1</sup> .....	466,677
1925.....	9,601,693	Not distributed as to types by manufacturers, 1927 <sup>1</sup> .....	732,543
1923.....	10,673,082	Cases and cabinets, 1927 <sup>1</sup> .....	8,254,239
1921.....	12,851,977	Parts and attachments, 1927 <sup>1</sup> .....	2,377,942
Pumps and pumping equipment, including parts and attachments:		Shoe machinery:	
1927.....	129,126,667	1927.....	12,334,063
1925.....	121,209,431	1925.....	11,769,137
1923.....	<sup>11</sup> 92,814,688	1923.....	10,663,081
1921.....	<sup>11</sup> 69,255,176	1921.....	9,481,791
Refrigerating and ice-making machinery:		Slicing machines:	
1927.....	30,117,010	1927.....	4,680,292
1925.....	<sup>12</sup> 62,592,637	1925.....	4,860,190
1923.....	36,541,766	1923 <sup>1</sup> .....	3,539,072
1921.....	33,174,126	Slot vending machines:	
Ice-making machinery—		1927.....	7,058,921
1927.....	21,681,505	1925.....	4,202,106
1925.....	15,295,634	1923.....	3,776,560
1923.....	17,243,896	1921.....	2,465,887
1921.....	14,805,874		

See footnotes at end of table.

TABLE 1.—MACHINERY—PRODUCTION OF PRINCIPAL CLASSES, BY VALUE, FOR THE UNITED STATES: 1921 TO 1927—Continued

CLASS AND CENSUS YEAR	Value	CLASS AND CENSUS YEAR	Value
Stokers, mechanical:		Washing machines, clothes wringers, driers, and extractors; ironing machines and parts and accessories, for household use:	
1927.....	\$10,212,753	1927.....	\$74,659,116
1925.....	9,419,786	1925.....	70,781,240
1923.....	14,095,224	1923.....	57,550,706
1921.....	7,160,807	1921.....	32,443,918
Stone-working machinery:		Washing machines, electric, 1927 <sup>1</sup> .....	59,253,520
1927.....	2,789,744	Washing machines, other power, including hand, 1927 <sup>1</sup> .....	8,097,653
1925.....	1,735,826	Driers and extractors, 1927 <sup>1</sup> .....	565,214
1923.....	1,849,046	Ironing machines—	
Sugar-mill machinery:		1927.....	2,998,897
1927.....	6,600,586	1925.....	3,747,426
1925.....	8,643,232	Wringers (electric, hand, and other power), 1927 <sup>1</sup> .....	2,330,356
1923.....	9,112,029	Parts and accessories, 1927 <sup>1</sup> .....	812,467
1921.....	12,074,591	Welding machines (electric and other), 1927 <sup>1</sup> .....	<sup>11</sup> 7,090,517
Textile machinery and parts:		Well-drilling machinery (other than oil-well machinery):	
1927.....	102,199,860	1927.....	1,545,195
1925.....	109,354,126	1925.....	1,842,821
1923.....	127,406,348	1923.....	1,073,823
1921.....	115,166,967	1921.....	1,353,482
Tobacco-manufacturing machinery:		Windmills and windmill towers:	
1927.....	4,967,976	1927.....	4,555,316
1925.....	3,818,196	1925.....	5,682,127
1923.....	3,647,400	1923.....	4,635,562
Transmission machinery:		1921.....	3,953,012
1927.....	18,246,020	Woodworking machinery:	
1925.....	15,350,289	1927.....	29,569,427
1923.....	11,358,631	1925.....	39,619,735
Typewriters:		1923.....	44,447,167
1927.....	51,941,919	1921.....	25,681,963
1925.....	<sup>4</sup> 50,189,986	Planing-mill machinery, 1927.....	5,576,832
1923.....	<sup>4</sup> 39,520,680	Sawmill machinery, 1927.....	6,506,883
1921.....	<sup>4</sup> 31,971,636	Other woodworking machinery, 1927.....	17,485,712
Portable and bookkeeping-billing, <sup>10</sup> 1927 <sup>1</sup> .....	18,616,352		
Standard, including long-carriage, 1927 <sup>1</sup> .....	31,770,405		
Used and rebuilt—			
1927.....	1,555,162		
1925.....	1,880,607		
Vacuum cleaners:			
1927.....	36,972,292		
1925.....	40,285,149		
1923.....	36,869,603		
1921.....	21,726,271		

<sup>1</sup> No comparable data for prior years. (See "Description of tables," p. 1081.)

<sup>2</sup> Does not include value of fertilizing machinery.

<sup>3</sup> Includes value of card-punching, sorting, and tabulating machines, fare boxes and registers, taxicab meters, etc.

<sup>4</sup> Includes value of parts.

<sup>5</sup> Revised.

<sup>6</sup> Reported as "Cranes, including hoists and derricks" for 1927 and 1925, and as "Cranes" for 1923 and 1921.

<sup>7</sup> Not including automotive generators and generators for self-contained power and lighting outfits.

<sup>8</sup> Motor-generator sets and dynamotors only.

<sup>9</sup> Not including steam boilers made for sale as separate units.

<sup>10</sup> Includes welding machines for 1925.

<sup>11</sup> Not strictly comparable with figures for 1927 and 1925; comprises data for power pumps and equipment only for 1923 and 1921, and for pumps (hand and power) and pumping equipment of all kinds for 1927 and 1925.

<sup>12</sup> Includes value of mechanical refrigerating units for domestic and commercial use and also that of refrigerators for sale complete with mechanical units.

<sup>13</sup> Combined to avoid disclosing the production of individual establishments.

<sup>14</sup> Data for welding machines included with "Metal-working machinery" for 1925.

TABLE 2.—MACHINERY—PRODUCTION OF PRINCIPAL CLASSES, BY VALUE, FOR LEADING STATES: 1927

[This table presents statistics separately for all States for which such statistics can be given without disclosing the production reported by individual establishments, and, in addition, gives combined figures for certain groups of States. In many cases one of the States shown in combination reported a larger value for the specified commodity than some of the States for which separate figures are given; and in a few cases this is true also of States for which no figures are given, either separately or in combination]

CLASS AND STATE	Value	CLASS AND STATE	Value
Total.....	\$4,955,192,425	Blowers and fans.....	\$20,433,489
Adding machines.....	33,385,964	Connecticut, Massachusetts, and New Jersey.....	8,256,900
Addressing and mailing machines.....	9,787,737	Illinois and Wisconsin.....	3,074,322
Agricultural machinery and attach- ments and parts.....	129,594,937	Indiana.....	761,165
Harvesting and haying ma- chinery.....	72,706,007	Michigan and Ohio.....	3,503,544
California and Iowa.....	7,796,434	New York.....	3,322,127
Illinois.....	44,645,879	Pennsylvania.....	746,167
Kansas and Nebraska.....	264,865	Bookbinding machinery.....	2,789,156
Kentucky, Minnesota, and Missouri.....	2,228,326	Connecticut, Maine, and Rhode Island.....	784,109
Ohio.....	348,752	Illinois.....	393,276
Washington.....	85,834	Michigan, Ohio, and Penn- sylvania.....	857,281
Machinery for preparing crops for market or use.....	32,328,555	New York.....	411,839
Georgia, North Carolina, and Virginia.....	429,780	Bottling machinery.....	11,583,700
Illinois.....	8,063,120	Georgia, Maryland, and Penn- sylvania.....	3,598,955
Indiana.....	2,265,831	Illinois.....	3,226,742
Iowa.....	2,095,609	Massachusetts.....	752,219
Minnesota.....	3,718,398	Michigan, Ohio, and Wisconsin.....	2,808,403
Missouri.....	78,738	New York.....	684,649
New York.....	1,623,123	Calculating machines.....	10,613,610
Ohio.....	2,115,865	Canning machinery.....	7,339,404
Pennsylvania.....	1,057,701	California.....	1,506,376
Tennessee.....	312,321	Illinois, Ohio, and Wisconsin.....	1,034,982
Wisconsin.....	5,483,269	Maryland.....	305,558
Planting and fertilizing machin- ery.....	24,560,375	New York.....	2,873,115
Georgia.....	154,746	Washington.....	684,900
Illinois.....	8,838,171	Card punching, sorting, and tabu- lating machinery.....	4,850,291
Iowa.....	451,840	Cars and trucks, industrial and mining.....	21,741,441
Kentucky and North Caro- lina.....	710,536	Industrial.....	13,502,206
Minnesota and Pennsyl- vania.....	845,993	Illinois, Minnesota, and Wis- consin.....	932,150
New York.....	807,991	Indiana.....	106,169
Ohio.....	5,208,098	Massachusetts.....	651,175
Tennessee and Virginia.....	58,878	Michigan.....	2,325,607
Wisconsin.....	3,451,027	New York.....	736,768
Aircraft (airplanes, seaplanes, and amphibians).....	14,504,099	Ohio.....	3,956,742
California.....	999,758	Pennsylvania.....	3,211,730
Illinois and Kansas.....	817,776	Mining.....	8,239,235
Michigan.....	1,063,543	Alabama, Kansas, and Mis- souri.....	380,005
Missouri and Nebraska.....	328,381	Illinois, Kentucky, and Tennessee.....	2,304,810
New York.....	4,993,408	Michigan, Ohio, and Vir- ginia.....	1,442,305
Bakers' machinery and equipment.....	20,015,158	Pennsylvania.....	2,647,130
Bake ovens.....	9,564,092	West Virginia.....	1,107,333
Connecticut and Massa- chusetts.....	518,725	Cash registers.....	40,344,677
Illinois.....	2,367,457	Cement and concrete machinery.....	20,533,525
Michigan, Ohio, and Wis- consin.....	5,243,430	Cement-making machinery.....	4,619,269
Missouri.....	711,895	Cement and concrete block ma- chinery.....	655,788
Pennsylvania.....	101,220	Michigan.....	428,913
Other bakers' equipment.....	10,451,066	Ohio.....	175,277
Illinois, Michigan, and Wis- consin.....	2,411,501		
New Jersey, New York, and Pennsylvania.....	3,232,796		
Ohio.....	3,730,268		
Baling presses.....	1,206,118		

TABLE 2.—MACHINERY—PRODUCTION OF PRINCIPAL CLASSES, BY VALUE, FOR LEADING STATES: 1927—Continued

[See note at head of this table, p. 1087]

CLASS AND STATE	Value	CLASS AND STATE	Value
Cement and concrete machinery—Continued.		Cotton gins.....	\$9,542,824
Concrete mixers.....	\$12,673,978	Alabama, Louisiana, and North Carolina.....	3,618,624
California.....	198,744	Georgia.....	2,011,781
Illinois and Ohio.....	2,685,653	Texas.....	3,266,336
Iowa.....	724,807	Cranes (including hoists and derricks).....	44,453,900
Michigan.....	594,795	Locomotive.....	13,606,413
Pennsylvania.....	226,042	Indiana, Michigan, and Wisconsin.....	4,945,804
Wisconsin.....	6,109,004	Ohio.....	7,901,022
Other cement and concrete machinery.....	2,584,490	Stationary.....	12,340,480
California.....	90,200	California.....	209,159
Illinois, Indiana, and Iowa.....	1,055,994	Connecticut, New Jersey, and New York.....	3,116,370
Massachusetts, New Jersey, and Oregon.....	1,265,289	Illinois, Michigan, and Minnesota.....	3,572,807
Ohio.....	50,638	Iowa.....	298,497
Change-making machines, taxicab meters, and ticket-counting machines.....	3,168,573	Ohio.....	1,956,871
Check-writing machines.....	1,779,717	Pennsylvania.....	1,372,351
Clay-working machinery (brick, pottery, etc.).....	4,307,910	Traveling.....	18,607,007
California, New Jersey, and North Carolina.....	672,534	Illinois, Michigan, and Wisconsin.....	6,137,901
Illinois, Indiana, and Michigan.....	300,247	Maine, New Jersey, and New York.....	3,387,706
Missouri.....	64,379	Ohio.....	6,656,946
Ohio.....	2,404,659	Pennsylvania.....	1,773,914
Pennsylvania.....	799,800	Dairy, cheese-factory, and butter-factory machinery.....	16,536,241
Clothing-pressing machines.....	9,077,613	Cream separators.....	8,008,306
Coffee roasting and grinding machines.....	1,825,947	Milking-machine units.....	1,339,474
Condensers.....	5,898,969	Other.....	7,098,461
New Jersey, New York, and Pennsylvania.....	5,091,289	Dish-washing machines.....	2,017,970
Confectionery and ice-cream machinery.....	5,682,001	Dredging and excavating machinery, including power shovels.....	51,831,694
Illinois.....	614,064	Dredging machinery.....	3,783,863
Indiana, Minnesota, and Ohio.....	1,420,832	Hydraulic.....	1,380,890
Massachusetts.....	1,413,587	Other.....	2,402,973
New Jersey.....	206,300	Excavating machinery.....	48,048,071
New York.....	435,433	Drag lines and power scrapers.....	8,820,653
Pennsylvania.....	673,763	Illinois, Indiana, and Ohio.....	3,526,122
Conveying machinery.....	33,528,080	Wisconsin.....	4,816,247
Belt type.....	10,520,401	Power shovels.....	32,105,754
California.....	218,441	Illinois, Indiana, and Michigan.....	5,655,987
Illinois.....	2,792,317	Ohio.....	11,093,100
Indiana, Minnesota, and Wisconsin.....	1,361,589	Wisconsin.....	7,752,371
Michigan.....	330,507	Trench excavators.....	3,511,647
Missouri.....	91,928	Other excavating machinery.....	3,651,017
New York.....	216,017	Electrical machinery.....	154,644,141
Ohio.....	1,604,144	Generators.....	22,838,109
Pennsylvania.....	345,216	Motors (not including electric fans nor starter motors for motor vehicles).....	122,348,838
Bucket type.....	10,725,744	Rotating converting apparatus.....	9,457,604
California.....	96,193	Elevators and elevator machinery.....	43,182,220
Illinois.....	5,001,757	Freight.....	12,877,161
Indiana, Missouri, and New Jersey.....	472,023	California.....	669,159
Michigan.....	329,061	Illinois.....	2,466,565
New York.....	236,193	Massachusetts.....	687,270
Ohio.....	3,137,053	Missouri.....	151,762
Pennsylvania.....	1,008,608	New Jersey.....	730,680
Other types.....	12,281,935	New York.....	3,244,924
California, Oregon, and Washington.....	402,580	Ohio.....	1,812,892
Illinois.....	1,212,715	Pennsylvania.....	1,035,152
Michigan, Minnesota, and Wisconsin.....	3,971,115	Wisconsin.....	383,542
Ohio.....	1,535,915		
Pennsylvania.....	2,883,680		

TABLE 2.—MACHINERY—PRODUCTION OF PRINCIPAL CLASSES, BY VALUE, FOR LEADING STATES: 1927—Continued

[See note at head of this table, p. 1087]

CLASS AND STATE	Value	CLASS AND STATE	Value
Elevators and elevator machinery—Continued.		Lawn mowers.....	\$9,268,728
Passenger.....	\$30,275,059	Hand.....	7,290,182
California.....	2,045,987	Indiana.....	2,929,656
Illinois.....	6,090,488	Massachusetts, New York, and Pennsylvania.....	2,906,117
Minnesota.....	260,332	Ohio.....	387,597
New Jersey, New York, and Pennsylvania.....	17,827,506	Power.....	1,978,546
Ohio.....	1,968,398	Leather-working machinery (other than shoe machinery).....	2,000,401
Wisconsin.....	381,740	Delaware.....	266,718
Engines (steam and internal-combustion), water wheels, and parts.	369,605,673	Massachusetts.....	1,191,080
California.....	14,578,591	Locomotives (electric, internal-combustion, and steam).....	70,508,360
Connecticut.....	6,698,707	Electric.....	9,857,881
Illinois.....	56,423,601	Internal-combustion.....	2,335,097
Indiana.....	6,433,645	Steam.....	58,315,382
Iowa.....	20,099,195	Machine tools.....	107,101,652
Massachusetts.....	818,650	Ohio.....	31,238,174
Michigan.....	112,051,772	Pennsylvania.....	11,006,943
Minnesota.....	9,749,644	Connecticut.....	10,350,360
Missouri.....	3,426,367	Illinois.....	9,529,608
New Jersey.....	4,897,373	Massachusetts.....	7,294,239
New York.....	18,730,337	Michigan.....	5,820,309
Ohio.....	22,606,801	New York.....	5,749,479
Pennsylvania.....	27,560,215	Wisconsin.....	5,057,499
Washington.....	1,296,892	Vermont.....	5,043,526
Wisconsin.....	62,364,818	Indiana.....	2,938,212
Fare registers and fare boxes.....	1,163,152	New Jersey.....	1,882,963
Flour-mill and grain-mill machinery.	7,967,086	Manifolding machines (mimeographs, multigraphs, etc.).....	3,778,842
Illinois.....	825,085	Metal-working machinery (other than machine tools).....	39,201,236
Minnesota.....	1,340,054	Massachusetts, New Jersey, and New York.....	14,557,237
New York.....	1,011,772	Ohio.....	8,551,110
Ohio and Wisconsin.....	1,657,305	Pennsylvania.....	5,836,660
Pennsylvania.....	1,810,320	Connecticut.....	3,080,792
Foundry machinery.....	7,016,948	Illinois.....	2,418,750
Molding machines.....	2,994,387	Meters, gas and water.....	24,977,542
Sand-blast machines.....	1,102,874	Gas.....	12,497,432
Tumbling barrels.....	291,485	Connecticut, Maryland, and Massachusetts.....	3,270,681
Other.....	2,628,202	New York.....	1,943,529
Gas machines.....	5,081,837	Pennsylvania.....	5,795,600
Gas regulators.....	1,177,301	Water.....	11,854,000
Glass-making machinery.....	3,085,384	Massachusetts, Pennsylvania, and Rhode Island.....	3,351,184
Connecticut and New York.....	199,745	New Jersey and New York.....	7,703,381
Illinois and Indiana.....	959,911	Gas and water meters not separately reported by manufacturers.....	626,110
Ohio.....	1,617,597	Mining machinery (other than oil-well machinery).....	35,259,263
Pennsylvania.....	226,354	California.....	2,023,783
Hat-making machinery.....	704,383	Colorado.....	3,328,787
Connecticut.....	351,506	Illinois.....	1,507,777
New York.....	314,532	Indiana, Kansas, and Wisconsin.....	3,320,274
Hydraulic machinery (other than for dredging).....	2,906,253	Missouri.....	797,830
Hydraulic rams.....	450,246	New Hampshire, New Jersey, and Ohio.....	17,987,017
Other.....	2,456,007	Pennsylvania.....	4,330,720
Illinois, Minnesota, and Wisconsin.....	928,126	Motion-picture cameras and projectors.....	8,345,209
New York.....	228,050	Motor cycles and bicycles.....	13,804,123
Pennsylvania.....	103,037	Motor cycles.....	8,000,683
Incandescent-lamp-making machinery.....	2,739,577	Bicycles.....	5,803,440
Laundry machinery (for commercial laundries only).....	27,203,516		
California.....	201,931		
Illinois.....	6,654,809		
Indiana, Michigan, and Wisconsin.....	2,847,861		
Massachusetts.....	1,407,483		
Missouri.....	307,780		
New Jersey.....	1,540,012		
New York, Ohio, and Pennsylvania.....	13,807,748		

TABLE 2.—MACHINERY—PRODUCTION OF PRINCIPAL CLASSES, BY VALUE, FOR LEADING STATES: 1927—Continued

[See note at head of this table, p. 1087]

CLASS AND STATE	Value	CLASS AND STATE	Value
Motor vehicles, except motor cycles	\$2,540,714,211	Paper-mill and pulp-mill machinery—Continued.	
Passenger	2,175,544,770	Paper-mill—Continued.	
California	38,953,976	New York	\$3,738,173
Indiana	88,053,084	Ohio	4,203,361
Michigan	1,337,010,956	Oregon	137,813
New Jersey	39,025,565	Wisconsin	4,350,209
New York	117,398,242	Pulp-mill	5,106,235
Ohio	210,874,818	Delaware, New Hampshire, and Wisconsin	\$,242,897
Wisconsin	156,132,811	Maine	214,600
Business	258,404,005	Massachusetts	1,139,031
California	15,318,585	New York	421,478
Illinois	9,508,321	Other machinery used in the paper industry	1,372,783
Indiana	21,741,211	Massachusetts	170,440
Michigan	77,754,483	New Jersey	208,117
New Jersey	21,044,634	New York	768,718
New York	17,110,303	Pharmaceutical machinery	716,562
Ohio	49,396,155	Photo-engraving machinery	584,985
Pennsylvania	12,496,894	Pneumatic machinery (other than pneumatic tools)	30,186,024
Wisconsin	11,936,595	Air compressors	20,318,667
Government (Federal, State, county, and municipal) vehicles	11,521,291	California	383,951
Chassis	95,244,145	Illinois, Indiana, and Missouri	3,418,300
California	667,161	New Jersey and New York	15,095,427
Illinois	2,139,761	Pennsylvania	7,347,639
Michigan	37,557,819	Other pneumatic machinery	807,357
New York	20,047,285	Printing machinery	63,240,424
Ohio	6,856,267	Presses	33,826,958
Pennsylvania	12,998,661	Connecticut	4,007,296
Oil-mill machinery (cottonseed and other)	4,696,859	Illinois, Michigan, and Ohio	17,258,366
Oil-well machinery	62,126,376	Massachusetts; New Hampshire, and Pennsylvania	2,490,338
California	14,949,026	New Jersey	4,381,405
Illinois	1,174,218	Typesetting machines	20,077,454
Indiana, Tennessee, and West Virginia	6,946,447	Other printing machinery	9,335,962
Kansas	1,882,284	Connecticut	230,047
Louisiana	755,251	Illinois	534,770
Missouri	548,336	Minnesota and Wisconsin	1,053,810
New York	663,323	New Jersey	1,241,466
Ohio	5,641,409	New York	3,010,266
Oklahoma	4,556,712	Ohio	2,398,728
Pennsylvania	8,856,820	Pumps and pumping equipment, including parts and attachments	129,126,667
Texas	15,830,979	California	12,595,074
Ore crushers	2,893,137	Illinois	9,774,317
Packaging machines	5,037,537	Indiana	16,750,485
Packing-house machinery	5,576,730	Iowa	1,852,987
Meat-packing	3,880,818	Massachusetts	11,033,797
Illinois, Indiana, and Ohio	3,469,710	Michigan	10,911,225
Other packing-house machinery	1,695,912	Minnesota	1,111,570
California, Oregon, and Washington	1,148,288	Missouri	1,195,692
Illinois, Kentucky, and Wisconsin	304,593	New Jersey	9,224,471
Paint-making machinery	947,630	New York	8,217,519
New Jersey, New York, and Ohio	762,480	Ohio	20,094,205
Paper-box machinery	4,305,146	Pennsylvania	12,188,079
Illinois, Michigan and Missouri	155,594	Wisconsin	6,405,778
Massachusetts	450,613	Refrigerating and ice-making machinery	30,117,010
Minnesota and Wisconsin	170,216	Ice-making machinery	21,681,505
New Jersey	904,302	California	751,083
New York	1,158,154	Connecticut, New York, and Pennsylvania	11,691,516
Ohio and Pennsylvania	1,286,331	Illinois	2,841,096
Paper-mill and pulp-mill machinery	27,097,643	Kentucky, Missouri, and Nebraska	1,543,624
Paper-mill	20,618,625	Michigan, Ohio, and Wisconsin	4,390,685
Connecticut and Pennsylvania	2,920,105		
Massachusetts	4,961,408		

TABLE 2.—MACHINERY—PRODUCTION OF PRINCIPAL CLASSES, BY VALUE, FOR LEADING STATES: 1927—Continued

[See note at head of this table, p. 1087]

CLASS AND STATE	Value	CLASS AND STATE	Value
Refrigerating and ice-making machinery—Continued.		Slicing machines.....	\$4,680,292
Refrigerating machinery (other than ice-making)		Indiana and New York.....	4,119,492
California.....	\$8,435,505	Slot-vending machines.....	7,058,921
Illinois.....	628,540	Illinois.....	5,128,968
Kentucky, Missouri, and Nebraska.....	2,485,379	Michigan, Missouri, and New York.....	1,487,523
New York and Ohio.....	2,251,932	Ohio.....	482,315
Pennsylvania.....	1,699,246	Stokers, mechanical.....	10,212,753
	1,192,641	Illinois, Indiana, and Michigan.....	3,226,740
Refrigerating units, electric, complete with cabinets.....	68,492,827	Maryland, Massachusetts, and New York.....	1,622,278
Refrigerating units, electric, without cabinets.....	9,927,433	Pennsylvania.....	3,953,302
Road-making machinery.....	27,727,585	Stone-working machinery.....	2,789,744
Road graders.....	15,654,177	Illinois, Indiana, and Ohio.....	797,149
Illinois, Indiana, and Minnesota.....	11,076,143	New York and Pennsylvania.....	741,065
Massachusetts, New York, and Pennsylvania.....	814,959	Vermont.....	1,019,978
Ohio and Wisconsin.....	3,009,949	Sugar-mill machinery.....	6,000,586
Road rollers.....	4,261,656	Alabama, Georgia, and Missouri.....	2,555,132
Illinois, Ohio, and Wisconsin.....	3,815,134	Connecticut, New Jersey, and New York.....	2,491,856
New York and Pennsylvania.....	405,922	Louisiana.....	141,158
Stone crushers.....	3,380,773	Ohio.....	517,525
Illinois, Iowa, and Wisconsin.....	2,301,555	Pennsylvania.....	279,454
New York.....	169,499	Textile machinery and parts.....	102,199,860
Pennsylvania.....	496,832	Connecticut.....	2,157,483
Other road-making machinery.....	4,524,970	Georgia.....	397,038
California.....	318,793	Massachusetts.....	41,563,311
Georgia, Kansas, and Kentucky.....	445,175	New Hampshire.....	6,921,714
Illinois.....	1,508,436	New Jersey.....	5,904,839
New York.....	550,617	New York.....	1,208,778
Ohio.....	652,513	North Carolina.....	1,896,504
Pennsylvania.....	183,113	Pennsylvania.....	21,263,552
Wisconsin.....	557,963	Rhode Island.....	14,087,391
Rolling-mill machinery.....	11,838,638	South Carolina.....	378,810
Ohio.....	3,910,010	Vermont.....	644,627
Pennsylvania.....	7,555,158	Tobacco-manufacturing machinery.....	4,967,976
Rubber-working machinery.....	0,950,559	Transmission machinery.....	18,246,020
Connecticut, New Jersey, and New York.....	2,394,022	Illinois.....	2,874,626
Illinois.....	500,500	Indiana, Michigan, and Wisconsin.....	5,892,098
Ohio.....	5,053,911	Massachusetts.....	140,451
Scales and balances.....	22,166,298	New Jersey.....	624,101
Connecticut, Massachusetts and Vermont.....	3,835,135	New York.....	1,203,706
Illinois.....	2,657,711	Ohio.....	3,018,185
Kentucky, Michigan, and Ohio.....	11,329,915	Pennsylvania.....	2,258,774
New Jersey.....	1,285,527	Typewriters.....	51,941,919
New York.....	1,080,657	Portable and bookkeeping-billing.....	18,616,352
Sewing machines, cases, cabinets, attachments, and parts.....	43,179,384	Standard, including long-carriage.....	31,770,405
Household types—		Used and rebuilt.....	1,555,142
Electric.....	13,034,995	Vacuum cleaners.....	36,972,292
Foot and hand.....	9,093,731	Illinois.....	2,802,906
Industrial types—		Ohio.....	24,197,445
Electric.....	9,219,257	Washing machines, wringers, driers, and extractors, ironing machines, and parts and accessories, for household use.....	74,659,116
Other.....	466,677	Washing machines, electric.....	59,253,529
Not distributed as to types by manufacturers.....	732,543	Illinois.....	10,578,037
Cases and cabinets.....	8,254,239	Indiana, Iowa, and Minnesota.....	26,491,838
Parts and attachments.....	2,377,942	Michigan.....	1,460,683
Shoe machinery.....	12,334,063	New York.....	12,433,762
Massachusetts, Missouri, and Ohio.....	11,898,970	Ohio.....	5,100,678
		Wisconsin.....	395,215
		Washing machines, other power, including hand.....	8,697,653
		Driers and extractors.....	565,214

TABLE 2.—MACHINERY—PRODUCTION OF PRINCIPAL CLASSES, BY VALUE, FOR LEADING STATES: 1927—Continued

[See note at head of this table, p. 1087]

CLASS AND STATE	Value	CLASS AND STATE	Value
Washing machine, etc.—Continued.		Woodworking machinery—Con.	
Ironing machines.....	\$2,999,897	Planing-mill machinery—Con.	
Wringers (electric, hand, and	2,330,356	Massachusetts, New Jersey,	\$1,433,225
other power).....	812,467	and New York.....	1,250,875
Parts and accessories.....		Ohio.....	633,078
Pennsylvania.....			
Welding machines.....	7,090,517	Sawmill machinery.....	6,506,883
Connecticut, Massachusetts,		Michigan.....	506,766
and Pennsylvania.....	1,379,191	New York.....	341,698
Illinois.....	680,183	North Carolina.....	270,301
New Jersey.....	787,104	Ohio.....	216,885
New York.....	524,107	Oregon.....	234,149
Ohio.....	2,024,393	Pennsylvania.....	423,182
Well-drilling machinery (other than		Tennessee.....	598,124
oil-well machinery).....	1,545,195	Washington.....	1,097,763
California.....	165,282	Wisconsin.....	1,580,214
Iowa.....	209,848		
Ohio.....	982,998	Other woodworking machinery..	17,485,712
Windmills and windmill towers.....	4,555,316	Illinois.....	3,760,682
Illinois.....	2,898,564	Indiana.....	566,783
Indiana and Michigan.....	627,545	Massachusetts.....	1,183,479
Nebraska.....	502,893	Michigan.....	2,216,691
Wisconsin.....	402,238	Minnesota.....	374,038
Woodworking machinery.....	29,569,427	New York.....	2,818,166
Planing-mill machinery.....	5,576,832	Ohio.....	2,197,108
California and Washington	221,866	Pennsylvania.....	783,937
Indiana, Michigan, and		Wisconsin.....	2,630,795
Wisconsin.....	1,450,137		

## MACHINE TOOLS

[A preliminary report on this industry was issued under date of March 29, 1929 ]

**Description of the industry.**—This industry classification embraces establishments engaged primarily in the manufacture of power-driven machines generally covered by the designation "Machine tools." The scope of the classification conforms closely to the definition given in the tariff act of 1922 (approved September 21, 1922), paragraph 372, page 32, namely, "any machine operating other than by hand power which employs a tool for work on metal." Certain types of machines designed for working metal, especially sheet-metal-working machines, welding machines, wiredrawing machines, and wireworking machines, do not come within the terms of this definition and consequently are classified elsewhere. The statistics in the report on metal-working machinery are closely related to those on machine tools (see p. 1098), and therefore the former should be studied in conjunction with the latter.

**TABLE 1.—SUMMARY FOR THE UNITED STATES: 1919 TO 1927**

[Data for establishments with products under \$5,000 in value included for 1919 but not for subsequent years. See sec. 10, p. 6]

YEAR OR PERIOD	Number of establishments	Wage earners (average for the year)	Wages	Cost of materials, supplies, fuel, and power	Value of products	Value added by manufacture <sup>1</sup>	Horse-power
1927.....	355	35,269	\$52,365,692	\$46,114,849	\$159,513,125	\$113,398,276	131,670
1925.....	329	30,831	46,711,302	43,829,151	144,202,483	100,376,332	118,819
1923.....	350	33,373	47,336,800	40,977,024	137,206,098	96,229,074	109,196
1921.....	348	21,307	25,251,735	23,978,248	67,729,362	43,751,114	(2)
1919.....	403	53,111	66,178,969	59,034,308	212,400,158	153,365,850	100,294
PER CENT OF INCREASE OR DECREASE (—)							
1925-1927.....	7.9	14.4	12.1	5.2	10.6	13.0	10.8
1923-1925.....	-6.0	-7.6	-1.3	7.0	5.1	4.3	8.8
1923-1927.....	1.4	5.7	10.6	12.5	16.8	17.8	20.6
1919-1927.....	-11.9	-33.6	-20.9	-21.9	-24.0	-26.1	31.3

<sup>1</sup> Value of products less cost of materials, supplies, fuel, and power. (See secs. 18 and 21, pp. 9 and 10.)

<sup>2</sup> Not called for on schedule.

**TABLE 2.—PRIME MOVERS, MOTORS, AND GENERATORS, BY TYPE, NUMBER, AND RATED CAPACITY, FOR THE UNITED STATES: 1927, 1925, AND 1923**

TYPE	1927		1925		1923	
	Number	Capacity	Number	Capacity	Number	Capacity
Prime movers, total.....	11,764	Horse-power 131,670	9,284	Horse-power 118,819	8,250	Horse-power 109,196
Steam engines.....	100	19,252	96	17,139	115	23,445
Steam turbines.....	18	3,585	24	7,450		
Internal-combustion engines.....	22	832	18	1,086		
Water wheels and turbines.....	13	615	9	1,420	26	1,697
Electric motors driven by purchased current.....	11,611	107,386	9,137	91,724	7	470
Electric motors, total.....	15,487	142,797	13,339	126,396	8,102	83,584
Driven by purchased current.....	11,611	107,386	9,137	91,724	11,699	116,348
Driven by current generated in establishment reporting.....	3,876	35,411	4,202	34,672	3,597	32,704
Electric generators.....	81	Kilowatts 15,660	107	Kilowatts 23,164	(1)	Kilowatts (1)

<sup>1</sup> Not called for on schedule.

TABLE 3.—PRODUCTS, BY CLASS, NUMBER, AND VALUE, FOR THE UNITED STATES: 1927 AND 1925

CLASS	1927		1925	
	Number	Value	Number	Value
1. Machine-tool industry, all products, total value.....		\$159, 513, 125		\$144, 202, 483
2. Machine tools.....		98, 061, 013		(1)
3. Parts and attachments.....		18, 718, 891		(1)
4. Other products (not normally belonging to the industry).....		36, 082, 144		(1)
5. Receipts for contract work and repairs.....		6, 651, 077		(1)
6. Machine tools made as secondary products in other industries, value.....		9, 040, 639		(1)
Machine tools, all industries: Total value (sum of 2 and 6).....		107, 101, 652		91, 459, 403
Bending machines.....	439	368, 643	807	641, 711
Boring machines—				
Horizontal.....	303	1, 675, 719	583	1, 687, 889
Vertical.....	295	1, 076, 075	219	1, 344, 137
Broaching machines.....	255	371, 827	435	540, 063
Cutting-off machines—				
Rotary-cutter type.....	132	259, 727	250	294, 168
Hacksaw type.....	1, 924	342, 707	1, 536	202, 360
Drilling machines—				
Multiple-spindle.....	1, 078	3, 281, 236	1, 211	2, 100, 738
Radial.....	509	1, 495, 437	831	2, 030, 834
Sensitive.....	3, 533	1, 518, 828	3, 577	1, 776, 238
Other vertical (including heavy-duty single-spindle upright).....	1, 771	1, 449, 295	2, 529	1, 119, 883
Forging machines—				
Bolt, nut, and rivet.....	663	1, 829, 707	(1)	(1)
Bulldozers and other.....	75	651, 650	67	559, 510
Gear-cutting machines—				
Formed rotary-cutter type.....	128	368, 742		
Hobbing and other types.....	1, 139	4, 047, 914	1, 271	4, 258, 350
Grinding machines—				
Cylindrical—				
Plain.....	1, 017	2, 942, 504	(2)	3, 136, 075
Universal.....	408	715, 070	330	508, 500
Surface.....	786	1, 550, 857	894	1, 466, 760
Internal.....	932	2, 893, 307	765	2, 005, 273
Cutter, drill, and tool.....	1, 723	908, 473		
Other.....	1, 099	3, 239, 990	(2)	3, 617, 277
Hammers (stationary)—				
Steam, air, and drop.....	208	405, 797		
Power (belt or motor) and other.....	116	154, 062	855	829, 462
Lathes—				
Engine.....	6, 660	6, 407, 401	5, 165	7, 675, 897
Bench.....	1, 215	244, 035	930	397, 627
Turret (including hand-screw machines).....	1, 776	5, 146, 423	1, 567	4, 155, 054
Other.....	1, 416	6, 951, 887	(2)	4, 115, 996
Milling machines—				
Hand-feed.....	252	77, 432	450	207, 855
Power-feed—				
Plain.....	945	2, 214, 037	723	1, 624, 617
Universal.....	713	1, 675, 165	599	1, 360, 884
Vertical.....	319	779, 647	333	860, 080
Lincoln type.....	421	1, 063, 713	374	679, 101
Planer type and other.....	328	2, 735, 131	(2)	1, 756, 059
Pipe cutting and threading machines.....	2, 281	1, 344, 145	2, 637	1, 304, 858
Planers.....	196	1, 867, 449	193	1, 104, 786
Portable tools—				
Drills—				
Electric—				
Reported by number.....	82, 903	3, 291, 896		
Not reported by number.....		450, 747		
Pneumatic.....	11, 627	1, 108, 839		
Hammers, pneumatic (chipping, riveting, calking, etc.).....	30, 513	3, 467, 486	164, 162	11, 896, 325
Grinders, electric—				
Reported by number.....	34, 211	1, 951, 035		
Not reported by number.....		781, 568		
Other types, and those not distributed as to class.....		5, 750, 003		

See footnotes at end of table.

TABLE 3.—PRODUCTS, BY CLASS, NUMBER, AND VALUE, FOR THE UNITED STATES: 1927 AND 1925—Continued

CLASS	1927		1925	
	Number	Value	Number	Value
Machine tools—Continued.				
Presses—				
Hydraulic and other power, for bending, forging, forming, and stamping.....		\$8,770,001		\$7,994,953
Punching machines (stationary).....	638	862,118	1,034	1,910,160
Riveting machines (stationary).....	1,368	673,307	( <sup>2</sup> )	687,519
Screw machines (automatic)—				
Multiple and single-spindle.....	1,810	5,208,702	2,301	5,919,266
Shapers.....	986	1,628,775	1,125	1,614,760
Shears (power).....	1,771	1,308,169	1,892	1,351,204
Slotters.....	36	182,154	62	404,968
Threading machines (except for pipe)—				
Die type.....	538	546,209	153	171,127
Milling type.....	113	482,177	81	344,106
Tapping machines.....	484	584,730	336	324,287
Other machine tools.....		7,398,504		5,460,642

<sup>1</sup> No comparable data.<sup>2</sup> Data incomplete.

TABLE 4.—MACHINE TOOLS—PRODUCTION, BY CLASS, NUMBER, AND VALUE, BY STATES: 1927

[This table presents statistics separately for all States for which such statistics can be given without disclosing the production reported by individual establishments, and, in addition, gives combined figures for certain groups of States. In many cases one of the States shown in combination reported a larger value for the specified commodity than some of the States for which separate figures are given; and in a few cases this is true also of States for which no figures are given, either separately or in combination.]

CLASS AND STATE	Number	Value	CLASS AND STATE	Number	Value
Machine tools, aggregate.....		\$107,101,652	Cutting-off machines, total.....	2,056	\$602,434
Ohio.....		31,288,174	Rotary-cutter type.....	132	259,727
Pennsylvania.....		11,006,943	Hack-saw type.....	1,924	342,707
Connecticut.....		10,350,360	Drilling machines, total.....	6,891	7,744,796
Illinois.....		9,529,608	'Single and multiple spindle (upright), total.....	2,849	4,730,531
Massachusetts.....		7,294,230	Illinois.....	906	744,978
Michigan.....		5,820,369	Ohio.....	1,348	2,339,375
New York.....		5,749,479	Other States.....	595	1,646,178
Wisconsin.....		5,057,490	Radial, total.....	509	1,495,437
Vermont.....		5,043,526	Ohio.....	452	1,388,488
Indiana.....		2,938,212	Other States.....	57	106,949
New Jersey.....		1,882,963	Sensitive.....	3,583	1,518,828
Other States.....		11,140,280	Forging machines, total.....	788	2,431,357
Bending machines, total.....	439	368,643	Bolt, nut, and rivet—		
Illinois and Indiana.....	318	162,953	Connecticut, Michigan,		
Ohio and Pennsylvania.....	69	146,127	and Ohio.....	663	1,829,707
Other States.....	52	59,563	Bulldozers and others—		
Boring machines, total.....	598	3,352,394	Illinois, Ohio, and Wis-	75	651,650
Horizontal, total.....	303	1,675,719	consin.....		
Illinois.....	81	294,297	Gear-cutting machines, total.....	1,267	4,416,656
Ohio.....	117	560,114	Formed rotary-cutter type,		
Pennsylvania.....	20	186,113	total.....	123	368,742
Other States.....	85	635,105	New Jersey.....	70	227,688
Vertical, total.....	295	1,676,675	Other States.....	58	141,054
Illinois.....	91	319,970			
Ohio and Pennsylvania.....	99	806,715			
Other States.....	105	549,990			
Broaching machines.....	255	371,827			

TABLE 4.—MACHINE TOOLS—PRODUCTION, BY CLASS, NUMBER, AND VALUE, BY STATES: 1927—Continued

[See note at head of this table, p. 1095]

CLASS AND STATE	Number	Value	CLASS AND STATE	Number	Value
Gear-cutting machines—Con- Hobbing, and other types.....	1, 139	\$4, 047, 914	Portable tools, total.....	( <sup>1</sup> )	\$16, 801, 574
Grinding machines, total.....	5, 965	12, 250, 201	Drills—		
Cylindrical, total.....	1, 425	3, 657, 574	Electric, total.....	( <sup>1</sup> )	3, 742, 643
Plain.....	1, 017	2, 942, 504	Ohio.....	( <sup>1</sup> )	1, 443, 234
Universal.....	408	715, 070	Connecticut, Illinois, Kentucky, Maryland, New York, and Penn- sylvania.....	( <sup>1</sup> )	2, 299, 409
Surface, total.....	786	1, 550, 857	Pneumatic—		
Massachusetts and Rhode Island.....	674	1, 211, 940	Illinois, Michigan, and Ohio.....	11, 027	1, 108, 839
Other States.....	112	338, 917	Hammers, pneumatic (chip- ping, riveting, calking, etc.)—		
Cutter, drill, and tool, total.....	1, 723	908, 473	Illinois, Maryland, Mich- igan, and Ohio.....	30, 513	3, 467, 486
Connecticut, Massachu- setts, Rhode Island.....	367	346, 879	Grinders, electric, total.....	( <sup>1</sup> )	3, 732, 603
Ohio and Pennsylvania.....	1, 068	290, 386	Maryland and Ohio.....		1, 599, 305
Other States.....	288	271, 208	Michigan and Wisconsin.....		659, 567
Internal.....	932	2, 893, 307	Other States.....		473, 731
Other.....	1, 099	3, 239, 990	Other types, and those not distributed as to class.....		5, 760, 003
Hammers (stationary), total.....	324	500, 459	Presses, hydraulic and other power, for bending, forg- ing, forming, and stamp- ing, total.....	( <sup>1</sup> )	8, 770, 001
Steam, air, and drop—			New Jersey and New York.....		1, 236, 994
New Jersey, Ohio, Penn- sylvania, Rhode Island.....	208	405, 797	Ohio and Pennsylvania.....		5, 940, 145
Power (belt or motor) and other—			Other States.....		1, 592, 862
Illinois, New York, Ohio, Pennsylvania, and Wis- consin.....	116	154, 662	Punching machines (station- ary), total.....	638	862, 118
Lathes, total.....	11, 067	18, 749, 746	Illinois and Indiana.....	286	222, 386
Engine, total.....	6, 660	6, 407, 401	Ohio.....	112	182, 119
New York.....	383	235, 882	Wisconsin.....	121	91, 768
Ohio.....	2, 132	3, 637, 849	Other States.....	119	305, 346
Other States.....	4, 145	2, 533, 670	Riveting machines (station- ary), total.....	1, 368	673, 307
Bench, total.....	1, 215	\$244, 035	Connecticut, Illinois, and New York.....	1, 327	632, 170
Massachusetts.....	416	147, 739	Other States.....	41	41, 137
Other States.....	799	96, 296	Screw machines (automatic, multiple and single spin- dle, total.....	1, 810	5, 208, 702
Turret (including hand- screw machines), total.....	1, 776	5, 146, 423	Connecticut, Rhode Island, and Vermont.....	1, 566	4, 511, 140
Connecticut, Rhode Is- land, and Vermont.....	502	1, 641, 390	Other States.....	244	697, 662
Indiana, Ohio, and Wis- consin.....	1, 274	3, 505, 033	Shapers, total.....	986	1, 628, 775
Other.....	1, 416	6, 951, 887	Connecticut.....	161	324, 939
Milling machines, total.....	2, 978	8, 545, 125	Ohio.....	539	816, 640
Hand-feed.....	252	77, 432	Other States.....	286	487, 196
Power-feed, total.....	2, 726	8, 467, 693	Shears (power), total.....	1, 771	1, 308, 169
Plain.....	945	2, 214, 037	Illinois.....	132	104, 052
Universal.....	713	1, 675, 165	Indiana and Iowa.....	840	270, 218
Vertical.....	319	779, 647	New Jersey, New York, and Pennsylvania.....	382	376, 826
Lincoln type.....	421	1, 063, 713	Ohio.....	258	365, 020
Planer type, and other....	328	2, 735, 131	Other States.....	159	192, 053
Pipe cutting and threading machines, total.....	2, 281	1, 344, 145	Slotters.....	36	182, 154
Planers, total.....	196	1, 867, 449	Threading machines (except for pipe), total.....	651	1, 028, 886
Ohio.....	137	1, 237, 892	Die type.....	598	546, 209
Other States.....	59	629, 557	Milling type.....	113	482, 177
			Tapping machines.....	484	534, 780
			Other machine tools.....		7, 398, 504

<sup>1</sup> Data incomplete.

TABLE 5.—GENERAL STATISTICS, BY STATES: 1927

[This table presents statistics for all States for which separate figures can be given without disclosing data reported by individual establishments. Certain of the "Other States," however, reported larger values of products than some of the States shown separately]

STATE	Number of establishments	PERSONS ENGAGED IN THE INDUSTRY				Horse-power
		Total	Proprietors and firm members	Salari ed officers and employees	Wage earners (average for the year)	
United States.....	355	42,642	98	7,275	35,269	131,670
California.....	5	25	5	2	18	59
Connecticut.....	33	6,050	4	833	5,183	18,505
Illinois.....	37	2,960	11	496	2,453	10,752
Indiana.....	12	1,141	2	235	904	3,473
Massachusetts.....	30	2,676	12	505	2,159	9,036
Michigan.....	32	2,814	8	474	2,332	6,494
Missouri.....	6	168	2	26	140	415
New Hampshire.....	4	96	1	17	78	317
New Jersey.....	12	833	2	163	668	2,279
New York.....	25	2,486	9	533	1,944	7,536
Ohio.....	89	11,117	11	1,971	9,135	31,719
Pennsylvania.....	28	3,075	16	604	2,455	13,791
Vermont.....	5	1,710	-----	333	1,377	8,186
Wisconsin.....	19	2,106	14	379	1,713	5,295
Other States <sup>1</sup> .....	18	5,385	1	674	4,710	13,813

STATE	Salaries	Wages	Cost of materials, supplies, fuel, and power		Value of products	Value added by manufacture <sup>2</sup>
			Materials and supplies	Fuel and power		
United States.....	\$20,086,851	\$52,365,692	\$43,426,954	\$2,687,895	\$159,513,125	\$113,398,276
California.....	1,280	36,719	28,398	1,160	107,115	77,557
Connecticut.....	2,320,065	7,364,245	5,158,472	391,556	19,053,134	13,508,106
Illinois.....	1,504,379	3,857,543	3,565,169	197,071	13,895,799	10,133,559
Indiana.....	648,829	1,115,336	1,102,067	79,027	3,901,785	2,720,691
Massachusetts.....	1,471,604	3,315,305	3,175,228	183,306	10,829,724	7,471,130
Michigan.....	1,376,196	4,191,864	3,195,332	246,299	12,426,002	8,984,371
Missouri.....	81,710	237,435	139,476	12,506	527,373	375,391
New Hampshire.....	45,166	135,333	126,271	4,570	405,856	275,006
New Jersey.....	521,920	1,019,908	678,027	48,021	2,756,638	2,030,590
New York.....	1,458,898	3,182,097	1,927,052	136,520	8,743,619	6,680,047
Ohio.....	5,416,034	13,537,964	11,058,536	701,737	42,561,488	30,801,215
Pennsylvania.....	1,398,880	3,446,954	3,969,307	247,337	13,410,696	9,194,052
Vermont.....	914,388	1,996,770	2,373,747	94,789	7,239,627	4,771,091
Wisconsin.....	1,173,154	2,567,572	2,042,499	117,235	7,450,790	5,291,056
Other States <sup>1</sup> .....	1,754,348	6,360,647	4,887,373	226,692	16,203,479	11,089,414

<sup>1</sup> Delaware, 1 establishment; Iowa, 2; Kentucky, 2; Maryland, 1; Minnesota, 2; Nebraska, 1; Rhode Island, 8; Washington, 1.

<sup>2</sup> Value of products less cost of materials, supplies, fuel, and power. (See secs. 18 and 21, pp. 9 and 10.)

## METAL-WORKING MACHINERY

[A preliminary report for this industry was issued under date of March 29, 1929]

**Description of the industry.**—This industry designation covers establishments engaged primarily in the manufacture of rolling-mill machinery and wiredrawing and wireworking machinery. The statistics also include data for certain types of sheet-metal-working machinery (normally belonging to the machine-tool industry) which were not reported by kind and the data for which are therefore not included in the statistics in Table 3 of the report on "Machine tools." For this reason the figures here given for sheet-metal-working machinery are to be considered as supplemental to those for specific types of metal-working machinery such as shears, punching machines, riveting machines, etc., shown in the report on "Machine tools," p. 1093.

TABLE 1.—SUMMARY FOR THE UNITED STATES: 1927 AND 1925

YEAR OR PERIOD	Number of establishments	Wage earners (average for the year)	Wages	Cost of materials, supplies, fuel, and power	Value of products	Value added by manufacture <sup>1</sup>	Horse-power
1927.....	62	6, 125	\$9, 957, 960	\$10, 861, 388	\$31, 748, 667	\$20, 887, 279	23, 078
1925.....	49	5, 994	9, 220, 508	10, 698, 211	31, 390, 005	20, 691, 794	22, 199
PER CENT OF INCREASE							
1925-1927.....	(?)	2.2	8.0	1.5	1.1	0.9	4.0

<sup>1</sup> Value of products less cost of materials, supplies, fuel, and power. (See secs. 18 and 21, pp. 9 and 10.)  
<sup>2</sup> Per cent not computed where base is less than 100.

TABLE 2.—PRIME MOVERS, MOTORS, AND GENERATORS, BY TYPE, NUMBER, AND RATED CAPACITY, FOR THE UNITED STATES: 1927 AND 1925

TYPE	1927		1925	
	Number	Capacity	Number	Capacity
Prime movers, total.....	1, 792	<i>Horse-power</i> 23, 078	1, 420	<i>Horse-power</i> 22, 199
Steam engines.....	17	3, 375	14	3, 485
Steam turbines.....	5	645	4	395
Internal-combustion engines.....	3	210	10	1, 120
Water turbines.....			1	45
Electric motors driven by purchased current.....	1, 767	18, 848	1, 391	17, 154
Electric motors, total.....	2, 311	25, 054	2, 384	29, 557
Driven by purchased current.....	1, 767	18, 848	1, 391	17, 154
Driven by current generated in establishment reporting.....	544	6, 206	993	12, 403
Electric generators.....	15	<i>Kilowatts</i> 2, 115	33	<i>Kilowatts</i> 4, 101

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TABLE 3.—PRODUCTS, BY CLASS, NUMBER, AND VALUE, FOR THE UNITED STATES: 1927 AND 1925

CLASS	1927	1925
1. Metal-working machinery industry, all products, total value.....	\$31,748,067	\$31,390,005
2. Metal-working machinery.....	29,135,771	(1)
3. Parts and attachments.....	475,312	(1)
4. Other products (not normally belonging to the industry) and receipts for contract work and repairing.....	2,137,584	(1)
5. Metal-working machinery made as secondary products in other industries <sup>2</sup> .....	10,065,465	(1)
Metal-working machinery, all industries: Total value (sum of 2 and 5).....	39,201,236	\$47,352,746
Rolling-mill machinery.....	14,308,624	15,001,162
Sheet-metal-working machinery <sup>3</sup> .....	17,544,636	17,467,548
Wire-drawing machinery.....	1,504,182	670,559
Other metal-working machinery (except machine tools) <sup>4</sup> .....	5,843,794	14,213,477

<sup>1</sup> No comparable data.

<sup>2</sup> Not including metal-working machinery specifically classified in the "Machine tools" industry.

<sup>3</sup> Includes welding machines for 1925.

<sup>4</sup> Not reported in detail. (See "Description of the industry," on opposite page.)

TABLE 4.—METAL-WORKING MACHINERY—PRODUCTION, BY CLASS AND VALUE, BY STATES: 1927

[This table presents statistics separately for all States for which such statistics can be given without disclosing the production reported by individual establishments, and, in addition, gives combined figures for certain groups of States. In many cases one of the States shown in combination reported a larger value for the specified commodity than some of the States for which separate figures are given; and in a few cases this is true also of States for which no figures are given, either separately or in combination.]

CLASS AND STATE	Value
Metal-working machinery (other than machine tools), total.....	\$39,201,236
Massachusetts, New Jersey, and New York.....	14,557,237
Ohio.....	8,551,110
Pennsylvania.....	5,830,660
Connecticut.....	3,080,792
Illinois.....	2,418,750
Other States.....	4,756,687
Rolling-mill machinery.....	14,308,624
Massachusetts and Pennsylvania.....	9,635,964
Ohio.....	4,174,514
Other States.....	498,146
Sheet-metal-working machinery <sup>1</sup> .....	17,544,636
Illinois.....	2,051,438
New Jersey and New York.....	9,097,598
Ohio.....	3,252,937
Other States.....	3,142,663
Wire-drawing machinery.....	1,504,182
Connecticut and Massachusetts.....	946,408
New Jersey, New York, and Ohio.....	542,636
Other States.....	15,048
Other metal-working machinery.....	5,843,794

<sup>1</sup> See note 2, Table 3.

TABLE 5.—GENERAL STATISTICS, BY STATES: 1927

[This table presents statistics for all States for which separate figures can be given without disclosing data reported by individual establishments. Certain of the "Other States," however, reported larger values of products than some of the States shown separately.]

STATE	Number of establishments	PERSONS ENGAGED IN THE INDUSTRY				Horse-power
		Total	Proprietors and firm members	Salaried officers and employees	Wage earners (average for the year)	
United States.....	62	7, 530	21	1, 384	6, 125	23, 078
Connecticut.....	9	657	1	119	537	2, 261
Illinois.....	8	525	2	90	433	595
Ohio.....	9	938	4	127	807	2, 119
Pennsylvania.....	8	733	—	154	579	5, 195
Other States <sup>1</sup> .....	28	4, 677	14	894	3, 769	12, 908

  

STATE	Salaries	Wages	Cost of materials, supplies, fuel, and power		Value of products	Value added by manufacture <sup>2</sup>
			Materials and supplies	Fuel and power		
United States.....	\$4, 124, 563	\$9, 957, 960	\$10, 189, 337	\$672, 051	\$31, 748, 667	\$20, 887, 279
Connecticut.....	349, 122	853, 942	739, 450	43, 976	2, 780, 014	1, 906, 583
Illinois.....	239, 669	725, 136	747, 965	23, 018	2, 379, 645	1, 608, 663
Ohio.....	296, 207	1, 273, 136	1, 048, 429	41, 575	3, 402, 268	2, 312, 254
Pennsylvania.....	507, 226	1, 086, 341	1, 189, 407	92, 691	3, 609, 427	2, 327, 329
Other States <sup>1</sup> .....	2, 732, 339	6, 019, 405	6, 464, 086	470, 791	19, 577, 323	12, 042, 446

<sup>1</sup> California, 2 establishments; Colorado, 1; Iowa, 1; Kentucky, 1; Maryland, 2; Massachusetts, 4; Michigan, 2; Minnesota, 1; Missouri, 1; New Jersey, 3; New York, 5; Oregon, 1; Vermont, 1; Washington, 1; Wisconsin, 2.

<sup>2</sup> Value of products less cost of materials, supplies, fuel, and power. (See secs. 18 and 21, pp. 9 and 10.)

## PUMPS AND PUMPING EQUIPMENT

[A preliminary report for this industry was issued under date of April 29, 1929]

**Description of the industry.**—This industry embraces establishments engaged primarily in the manufacture of hand and power pumps of all kinds, such as water pumps, gasoline pumps, air pumps (except compressors), oil pumps, hydraulic rams, spraying outfits (complete units), spray pumps, and domestic water systems; pump jacks, pump cylinders, and other pumping equipment; and water softeners.

**TABLE 1.—SUMMARY FOR THE UNITED STATES: 1919 TO 1927**

[Data for establishments with products under \$5,000 in value included for 1919 but not for subsequent years. See sec. 10, p. 6]

YEAR OR PERIOD	Number of establishments	Wage earners (average for the year)	Wages	Cost of materials, supplies, fuel, and power	Value of products	Value added by manufacture <sup>1</sup>	Horse-power
1927-----	278	18,671	\$27,118,924	\$52,765,023	\$130,591,191	\$77,826,168	64,763
1925-----	253	17,935	25,278,060	50,328,435	120,148,157	69,819,722	56,470
1923-----	229	14,550	19,990,603	34,464,720	92,930,050	58,465,336	38,286
1921-----	221	12,188	13,969,531	26,803,969	69,962,413	43,158,444	(?)
1919-----	239	16,072	19,731,647	36,069,781	85,401,940	49,332,159	32,441
PER CENT OF INCREASE							
1925-1927-----	9.9	4.1	7.3	4.8	8.7	11.5	14.7
1923-1925-----	10.5	23.3	26.4	46.0	29.3	19.4	47.5
1923-1927-----	21.4	28.3	35.7	53.1	40.5	33.1	69.2
1919-1927-----	16.3	16.2	37.4	46.3	52.9	57.8	99.6

<sup>1</sup> Value of products less cost of materials, supplies, fuel, and power. (See secs. 18 and 21, pp. 9 and 10.)

<sup>2</sup> Not called for on schedule.

**TABLE 2.—PRIME MOVERS, MOTORS, AND GENERATORS, BY TYPE, NUMBER, AND RATED CAPACITY FOR THE UNITED STATES: 1927, 1925, AND 1923**

TYPE	1927		1925		1923	
	Number	Capacity	Number	Capacity	Number	Capacity
Prime movers, total-----	5,790	Horse-power 64,763	4,503	Horse-power 56,470	2,924	Horse-power 38,286
Steam engines-----	55	9,395	57	8,762	} 57	11,004
Steam turbines-----	21	9,546	21	9,496		
Internal-combustion engines-----	17	1,165	20	1,396		
Water wheels and turbines-----	9	1,125	7	1,110	11	1,703
Electric motors driven by purchased current-----	5,697	43,532	4,398	35,706	2,827	23,973
Electric motors, total-----	8,202	70,536	9,251	61,985	4,804	40,219
Driven by purchased current-----	5,697	43,532	4,398	35,706	2,827	23,973
Driven by current generated in establishment reporting-----	2,505	27,004	4,853	26,279	1,977	16,241
Electric generators-----	64	Kilowatts 13,874	83	Kilowatts 14,218	(?)	Kilowatts (?)

<sup>1</sup> Not called for on schedule

TABLE 3.—PUMPS AND PUMPING EQUIPMENT—PRODUCTION, BY CLASS, NUMBER, AND VALUE: 1927 AND 1925

CLASS	1927		1925	
	Number	Value	Number	Value
1. Pumps and pumping-equipment industry, all products, total value.....		\$130,591,191		\$120,148,157
2. Pumps and pumping equipment, including parts and attachments.....		109,865,819		106,240,893
3. Amount received for repair work.....		6,133,312		1,428,047
4. Other products (not normally belonging to the industry).....		14,592,060		12,479,217
5. Pumps and pumping equipment made as secondary products in other industries, value.....		19,260,848		15,103,661
Pumps and pumping equipment, all industries: Aggregate value (sum of 2 and 5).....		129,126,667		121,344,554
Hand pumps, not including gasoline-filling-station pumps, oil pumps, nor spray pumps:				
Air pumps (tire and other).....	3,902,100	1,795,665	5,682,504	2,335,887
Water pumps—				
Pitcher-spout.....	334,704	504,003	308,603	470,341
Other hand water pumps.....	218,735	1,755,698	380,099	2,131,137
Hand pumps, kind and class not specified.....	(1)	1,198,843	(1)	2,258,537
Windmill pumps.....	101,467	787,662	169,568	1,043,899
Power pumps, not including gasoline-filling-station pumps, spray pumps, nor pumps for domestic water systems—				
Air pumps, except compressors—				
Reported by number.....	17,260	1,632,599		
Not reported by number, value.....		145,188	(1)	1,156,611
Oil-well pumps—				
Reported by number.....	46,100	3,290,407		
Not reported by number, value.....		105,764	(1)	2,402,681
Centrifugal pumps, all types—				
Reported by number.....	64,585	18,733,571		
Not reported by number, value.....		833,086	(1)	17,550,765
Steam pumps, reciprocating types.....	24,261	7,384,030	(1)	7,640,085
Rotary pumps—				
Reported by number.....	37,414	2,180,486		
Not reported by number, value.....		627,580	(1)	3,264,677
Turbine pumps.....	1,938	1,427,747	(2)	(2)
Other power pumps.....	(1)	10,234,079	(1)	13,713,287
Hydraulic rams.....	1,195	19,226	(2)	(2)
Spraying outfits, complete <sup>2</sup> —				
Power—				
Reported by number.....	13,699	2,535,982		
Not reported by number, value.....		4,979,487	9,926	1,881,520
Hand (with tank, barrel, knapsack, etc.).....	325,870	1,280,014	247,764	1,410,753
Spray pumps (not included in above)—				
Power.....	3,383	335,350	3,840	261,063
Hand <sup>4</sup> .....	741,621	478,203	82,294	342,333
Gasoline-filling-station pumps (hand and power):				
Pumps complete with tanks.....	14,564	2,757,274		
Pumps without tanks.....	234,135	24,587,459		
Oil pumps, hand—			(1)	35,100,413
Reported by number.....	994,033	5,837,978		
Not reported by number, value.....		863,205		
Domestic water systems, pneumatic (including domestic-water-system pumps for sale separately), total.....	104,705	8,278,052	103,777	9,818,090
Deep-well—				
3 horsepower and smaller.....	14,602	1,614,938	(5)	(5)
Over 3 horsepower.....	800	486,432	(5)	(5)
Shallow-well—				
Under 250 gallons per hour.....	67,701	4,351,304	(5)	(5)
250-499 gallons per hour.....	13,604	1,473,981	(5)	(5)
500 gallons per hour and over.....	2,998	351,397	(5)	(5)
Water softeners.....	16,803	2,365,089	(2)	(2)
Pump jacks.....	38,048	548,043	58,129	487,229
Cylinders, for sale separately.....	174,056	644,913	(2)	(2)
Pumps, class and kind not specified, value.....		4,496,143		(9)
Other pumping equipment, value.....		6,529,822		7,698,578
Parts and attachments, value.....		9,954,019		11,115,718

<sup>1</sup> Data incomplete.

<sup>2</sup> Not called for on schedule.

<sup>3</sup> Data for paint-spraying outfits included in figures for 1927 but not in those for 1925.

<sup>4</sup> Data for small spray guns included in figures for 1927, but not in those for 1925.

<sup>5</sup> Not reported separately.

<sup>6</sup> Included in figure for "Other pumping equipment."

<sup>7</sup> Includes value of hydraulic rams, water softeners, cylinders, and pumps, not specified as to kind or class.

TABLE 4.—PUMPS AND PUMPING EQUIPMENT—PRODUCTION, BY CLASS, NUMBER, AND VALUE, BY STATES: 1927

[This table presents statistics separately for all States for which such statistics can be given without disclosing the production reported by individual establishments, and, in addition, gives combined figures for certain groups of States. In many cases one of the States shown in combination reported a larger value for the specified commodity than some of the States for which separate figures are given; and in a few cases this is true also of States for which the figures are included in the "Other States" items]

CLASS AND STATE	Number	Value	CLASS AND STATE	Number	Value
Hand pumps, not including gasoline-filling-station pumps, oil pumps, nor spray pumps:			Power pumps—Continued.		
Air pumps (tire and other), total.....	3,902,100	\$1,795,665	Centrifugal pumps—Con.		
Indiana, Michigan, and Ohio.....	2,474,464	798,961	Pennsylvania.....	(1)	\$1,011,466
Missouri and Nebraska.....	803,044	414,969	Wisconsin.....	(1)	1,513,068
New York.....	320,002	181,841	Other States.....	(1)	45,259
Other States.....	304,500	399,894	Steam pumps, reciprocating types, total.....	24,261	7,384,030
Water pumps, total.....	553,439	2,259,701	Indiana and Illinois.....	3,113	863,698
Illinois.....	56,823	196,256	Massachusetts and New Jersey.....	10,742	2,795,597
Indiana.....	20,971	84,096	Michigan.....	6,682	1,306,874
Iowa.....	54,629	163,307	New York.....	688	449,498
Maryland, Massachusetts, and Pennsylvania.....	2,282	23,344	Ohio.....	1,233	239,203
Michigan.....	39,824	78,639	Pennsylvania.....	1,716	1,506,457
Missouri, Nebraska, and Wisconsin.....	26,828	129,931	Other States.....	87	222,706
New York.....	157,608	725,223	Rotary pumps, total.....	(1)	2,808,066
Ohio.....	194,474	858,905	California, Iowa, and Washington.....	(1)	861,438
Hand pumps, kind and class not specified.....	(1)	1,198,843	Illinois.....	(1)	51,781
Windmill pumps, total.....	101,467	787,662	Indiana, Missouri, and Ohio.....	(1)	154,472
Illinois.....	10,532	63,275	Massachusetts, New Jersey, and Rhode Island.....	(1)	908,448
Indiana and New York.....	17,894	141,530	Minnesota.....	(1)	475,344
Iowa.....	25,058	130,022	New York.....	(1)	356,583
Michigan, Minnesota, and Nebraska.....	7,123	49,098	Turbine pumps, total.....	1,938	1,427,747
Ohio.....	29,733	328,550	California.....	1,931	1,408,405
Wisconsin.....	11,127	75,187	Other States.....	7	19,342
Power pumps, not including gasoline-filling-station pumps, spray pumps, nor pumps for domestic water systems:			Other power pumps, total.....	(1)	10,234,079
Air pumps, except compressors, total.....	(1)	1,777,787	California.....	(1)	259,627
Connecticut, Massachusetts, and New Jersey.....	(1)	866,682	Colorado, Minnesota, and Washington.....	(1)	59,314
Michigan and Ohio.....	(1)	844,807	Connecticut, Iowa, and Missouri.....	(1)	2,956,538
Other States.....	(1)	66,298	Illinois.....	(1)	375,857
Oil-well pumps, total.....	(1)	3,396,171	Indiana.....	(1)	82,104
California.....	(1)	1,823,873	Massachusetts.....	(1)	1,366,267
Illinois, Michigan, and Pennsylvania.....	(1)	793,944	Michigan.....	(1)	674,301
Oklahoma and Texas.....	(1)	778,354	New Jersey.....	(1)	112,036
Centrifugal pumps, all types, total.....	(1)	19,566,657	New York.....	(1)	1,528,831
California.....	(1)	3,155,254	Ohio.....	(1)	1,086,711
Connecticut and Indiana.....	(1)	828,579	Pennsylvania.....	(1)	890,831
Illinois.....	(1)	3,325,654	Wisconsin.....	(1)	803,794
Louisiana, Missouri, and Tennessee.....	(1)	576,076	Other States.....	(1)	37,868
Massachusetts.....	(1)	323,621	Hydraulic rams.....	1,195	19,226
Michigan.....	(1)	1,467,036	Spray pumps, including complete outfits:		
New Jersey.....	(1)	4,895,964	Power, total.....	(1)	7,850,819
New York.....	(1)	2,225,917	California.....	(1)	347,587
Ohio.....	(1)	198,763	Florida and Georgia.....	(1)	63,300
			Illinois.....	(1)	1,826,836
			Indiana, Iowa, and Missouri.....	(1)	154,533
			Massachusetts.....	(1)	613,395
			Michigan.....	(1)	670,304
			Minnesota, Oregon, and Wisconsin.....	(1)	125,484
			New Jersey.....	(1)	216,090
			New York.....	(1)	802,229
			Ohio.....	(1)	2,852,538
			Pennsylvania.....	(1)	173,529
			Hand, total.....	1,067,491	1,758,217

<sup>1</sup> Data incomplete.

TABLE 4.—PUMPS AND PUMPING EQUIPMENT—PRODUCTION, BY CLASS, NUMBER AND VALUE, BY STATES: 1927—Continued

[See note at head of this table, p. 1103]

CLASS AND STATE	Number	Value	CLASS AND STATE	Number	Value
Spray pumps—Continued.			Oil pumps, hand, total.....	(1)	\$0, 701, 182
Hand—Continued.			Connecticut, Massachusetts, and Pennsylvania.....	(1)	3, 688, 694
California, Colorado, and Oregon.....	14, 817	\$64, 625	Illinois.....	(1)	70, 548
Illinois.....	18, 497	115, 035	Indiana, Kansas, and Nebraska.....	(1)	701, 895
Indiana, Iowa, and Wisconsin.....	4, 514	48, 339	Michigan, Minnesota, and Wisconsin.....	(1)	1, 050, 109
Michigan.....	458, 824	220, 795	Ohio.....	(1)	637, 291
Minnesota.....	103, 403	384, 400	Other States.....	(1)	44, 336
New York.....	393, 475	585, 686	Domestic water systems, pneumatic (including domestic-water-system pumps for sale separately), total.....	104, 705	8, 278, 062
Ohio.....	70, 903	334, 210	California.....	872	416, 538
Other States.....	3, 058	5, 127	Illinois.....	18, 857	1, 128, 335
Gasoline - filling - station pumps, hand and power:			Indiana.....	8, 903	929, 842
Pumps complete with tanks, total.....	14, 564	2, 757, 274	Michigan, Minnesota, and Wisconsin.....	15, 109	1, 263, 023
California.....	7, 589	1, 714, 677	New York and Pennsylvania.....	8, 077	659, 159
Illinois, Indiana, and Iowa.....	2, 092	410, 707	Ohio.....	51, 610	3, 799, 945
Kansas, Missouri, and Texas.....	4, 385	532, 483	Other States.....	1, 217	81, 109
Ohio and Pennsylvania.....	493	99, 407	Water softeners, total.....	16, 803	2, 365, 069
Pumps without tanks, total.....	234, 135	24, 587, 459	Illinois, Indiana, and Pennsylvania.....	5, 273	806, 295
California, Kansas, and Nebraska.....	1, 190	140, 240	Ohio.....	11, 530	1, 498, 791
Illinois, Michigan, and Wisconsin.....	14, 135	936, 387	Pump jacks.....	38, 048	543, 043
Indiana.....	71, 317	11, 712, 311	Cylinders, for sale separately.....	174, 050	644, 913
Massachusetts and New York.....	76, 685	5, 208, 471			
Missouri.....	2, 794	344, 100			
Ohio.....	39, 553	2, 926, 724			
Pennsylvania.....	28, 461	3, 319, 226			

1 Data incomplete

TABLE 5.—GENERAL STATISTICS, BY STATES: 1927

[This table presents statistics for all States for which separate figures can be given without disclosing data reported by individual establishments. Connecticut reported a larger value of products than some of the States shown separately]

STATE	Number of establishments	PERSONS ENGAGED IN THE INDUSTRY				Horse-power
		Total	Proprietors and firm members	Salaried officers and employees	Wage earners (average for the year)	
United States.....	278	24, 609	129	5, 809	18, 671	64, 763
California.....	43	2, 185	25	549	1, 611	4, 404
Illinois.....	31	1, 702	12	404	1, 286	3, 195
Indiana.....	17	3, 013	2	836	2, 175	9, 165
Iowa.....	8	671	5	127	539	1, 513
Massachusetts.....	15	2, 500	5	692	1, 893	7, 869
Michigan.....	17	2, 248	2	341	1, 905	8, 084
Minnesota.....	8	334	5	43	286	473
Missouri.....	10	248	4	32	212	637
New Jersey.....	11	2, 425	5	651	1, 769	8, 048
New York.....	30	2, 179	8	574	1, 597	5, 073
Ohio.....	34	3, 395	44	573	2, 778	5, 760
Pennsylvania.....	20	2, 018	5	560	1, 453	7, 043
Wisconsin.....	4	462	---	115	347	815
Other States <sup>1</sup> .....	30	1, 139	7	312	820	2, 624

  

STATE	Salaries	Wages	Cost of materials, supplies, fuel, and power		Value of products	Value added by manufacture <sup>2</sup>
			Materials and supplies	Fuel and power		
United States.....	\$14, 222, 792	\$27, 118, 924	\$51, 252, 734	\$1, 512, 289	\$130, 591, 191	\$77, 826, 168
California.....	1, 492, 078	2, 398, 361	5, 441, 576	69, 728	13, 237, 860	7, 726, 556
Illinois.....	1, 052, 512	1, 769, 193	3, 377, 067	63, 381	8, 959, 048	5, 518, 600
Indiana.....	1, 880, 214	2, 905, 983	6, 099, 938	183, 103	18, 229, 999	11, 946, 958
Iowa.....	285, 614	683, 682	1, 088, 130	45, 442	2, 511, 521	1, 377, 949
Massachusetts.....	1, 831, 363	2, 992, 157	5, 666, 189	182, 074	12, 608, 670	6, 760, 407
Michigan.....	657, 225	2, 385, 842	4, 714, 324	200, 511	11, 023, 992	6, 109, 157
Minnesota.....	92, 451	318, 832	572, 105	14, 078	1, 398, 304	812, 121
Missouri.....	105, 938	287, 874	577, 705	15, 643	1, 165, 744	572, 306
New Jersey.....	1, 651, 602	3, 281, 441	4, 286, 272	161, 530	13, 178, 052	8, 730, 260
New York.....	1, 223, 069	2, 275, 206	3, 335, 201	133, 056	8, 941, 139	5, 472, 882
Ohio.....	1, 369, 361	3, 863, 086	7, 172, 806	196, 640	18, 280, 718	10, 911, 272
Pennsylvania.....	1, 629, 802	2, 146, 192	5, 145, 273	165, 255	11, 523, 312	6, 212, 784
Wisconsin.....	289, 140	523, 525	768, 713	26, 875	2, 049, 734	1, 254, 146
Other States <sup>1</sup> .....	662, 423	1, 287, 550	3, 007, 435	54, 973	7, 483, 088	4, 420, 680

<sup>1</sup> Colorado, 2 establishments; Connecticut, 2; Kansas, 3; Kentucky, 1; Louisiana, 2; Maryland, 2; Nebraska, 1; North Carolina, 1; Oklahoma, 3; Oregon, 2; South Carolina, 1; Tennessee, 2; Texas, 3; Vermont, 1; Virginia, 1; Washington, 3.

<sup>2</sup> Value of products less cost of materials, supplies, fuel, and power. (See secs. 18 and 21, pp. 9 and 10.)

## REFRIGERATORS, MECHANICAL

[A preliminary report for this industry was issued under date of January 23, 1929]

**Description of the industry.**—This industry embraces establishments engaged primarily in the manufacture of mechanical refrigerators. (The term "mechanical refrigerators" is used to designate not only the motor-driven type, but also those which use heat to actuate the cooling medium; consequently the term covers all types which do not use ice as the refrigerating agent.) The manufacture of mechanical refrigerators was first treated as a separate industry at the census for 1927, and therefore no statistics for earlier years are available.

TABLE 1.—SUMMARY FOR THE UNITED STATES: 1927

(The value of mechanical refrigerators was included in that of "Refrigerating machinery (other than ice-making)" in the section for "Machinery," pages 1033 and 1035, in the report for 1925)

ITEM	Number or amount	ITEM	Number or amount
Number of establishments.....	22	Products, total value <sup>1</sup> .....	\$96,513,649
Salaried officers and employees.....	2,086	Electric refrigerating units with cabinets—	
Wage earners (average for the year).....	11,285	Number.....	388,680
Salaries and wages, total.....	\$23,818,284	Value.....	\$67,278,879
Salaries.....	\$6,106,278	Electric refrigerating units without cabinets—	
Wages.....	\$17,712,006	Number.....	66,639
Cost of materials, supplies, fuel, and power, total.....	\$42,651,262	Value.....	\$9,844,209
Materials and supplies.....	\$42,105,673	Other products, including gas refrigerators <sup>2</sup> and units, value.....	\$19,390,561
Fuel and power.....	\$545,589	Value added by manufacture <sup>3</sup> .....	\$53,862,387
		Horsepower.....	40,084

<sup>1</sup> In addition, mechanical refrigerators and parts were reported as secondary products by establishments engaged primarily in other lines of manufacture, as follows: Mechanical refrigerators (electric), complete with cabinets, valued at \$1,213,948; units without cabinets (electric), \$83,224; and electric-refrigerator parts, \$128,677.

<sup>2</sup> Not shown separately to avoid disclosing the production of individual establishments.

<sup>3</sup> Value of products less cost of materials, supplies, fuel, and power. (See secs. 18 and 21, pp. 9 and 10.)

TABLE 2.—PRIME MOVERS, MOTORS, AND GENERATORS, BY TYPE, NUMBER, AND RATED CAPACITY, FOR THE UNITED STATES: 1927

TYPE	1927		TYPE	1927	
	Number	Capacity		Number	Capacity
Prime movers, total.....	4,773	<i>Horsepower</i> 40,084	Electric motors, total.....	6,393	<i>Horsepower</i> 43,523
Steam engines.....	4	1,450	Driven by purchased current.....	4,768	31,101
Steam turbines.....	1	7,533	Driven by current generated in establishment reporting.....	1,625	12,422
Electric motors driven by purchased current.....	4,768	31,101	Electric generators.....	5	<i>Kilowatts</i> 8,671

## SCALES AND BALANCES

[A preliminary report for this industry was issued under date of April 1, 1929]

**Description of the industry.**—This industry embraces establishments engaged in the manufacture of scales and balances of all descriptions—stationary and portable, light and heavy, spring and beam, counter and platform—and weighing machinery. Many of the scales and weighing machines have automatic computing devices. Coin-operated mechanisms for weighing, laboratory scales and weights, and scale parts are also made by the establishments included in this classification.

**Detailed statistics of products.**—A special schedule, calling for data on the different classes of products manufactured by establishments classified in this industry, was used for the first time at the census for 1927. For this reason no comparable detailed product figures can be shown for 1925.

**TABLE 1.—SUMMARY FOR THE UNITED STATES: 1919 TO 1927**

[Data for establishments with products under \$5,000 in value included for 1919 but not for subsequent years. See sec. 10, p. 6]

YEAR OR PERIOD	Number of establishments	Wage earners (average for the year)	Wages	Cost of materials, supplies, fuel, and power	Value of products	Value added by manufacture <sup>1</sup>	Horse-power
1927 -----	60	3,906	\$5,460,742	\$7,453,927	\$24,655,442	\$17,201,515	8,766
1925 -----	71	4,292	5,782,660	7,348,704	27,237,181	19,888,477	9,771
1923 -----	65	4,245	5,500,085	6,594,483	24,156,982	17,562,499	9,615
1921 -----	65	3,720	4,427,986	4,716,313	15,884,770	11,168,457	(2)
1919 -----	79	5,432	6,533,978	6,993,682	20,641,038	13,647,356	7,441
PER CENT OF INCREASE OR DECREASE (—)							
1925-1927 -----	(3)	-9.0	-5.6	1.4	-9.5	-13.5	-10.3
1923-1925 -----	(3)	1.1	5.1	11.4	12.8	13.2	1.6
1923-1927 -----	(3)	-8.0	-7	13.0	2.1	-2.1	-8.8
1919-1927 -----	(3)	-28.1	-16.4	6.6	19.4	26.0	17.8

<sup>1</sup> Value of products less cost of materials, supplies, fuel, and power. (See secs. 18 and 21, pp. 9 and 10.)

<sup>2</sup> Not called for on schedule.

<sup>3</sup> Per cent not computed where base is less than 100.

**TABLE 2.—PRIME MOVERS, MOTORS, AND GENERATORS, BY TYPE, NUMBER, AND RATED CAPACITY, FOR THE UNITED STATES: 1927 AND 1925**

TYPE	1927		1925	
	Number	Capacity	Number	Capacity
Prime movers, total -----	1,304	Horse-power 8,766	1,180	Horse-power 9,771
Steam engines -----	4	216	6	565
Steam turbines -----	2	240	8	100
Internal-combustion engines -----	4	288	2	345
Water wheels and turbines -----	1,294	8,022	1,163	45
Electric motors driven by purchased current -----	1,325	8,513	1,195	8,716
Electric motors, total -----	1,294	8,022	1,163	8,716
Driven by purchased current -----	31	491	32	404
Driven by current generated in establishment reporting -----	3	Kilowatts 347	2	Kilowatts 319
Electric generators -----	3	Kilowatts 347	2	Kilowatts 319

TABLE 3.—PRODUCTS, BY CLASS, NUMBER, AND VALUE: 1927 AND 1925

CLASS	1927	1925
1. Scales and balances industry, all products, total value.....	\$24,655,442	\$27,237,181
2. Scales and balances, parts, and attachments.....	\$21,505,766	\$23,796,442
3. Other products (not normally belonging to the industry), value, and receipts for repairing.....	\$3,149,686	\$3,440,739
4. Scales and balances made as secondary products in other industries, value.....	\$768,774	\$276,706
<b>Scales and balances, parts and attachments, all industries:</b>		
Total value (sum of 2 and 4).....	\$22,274,530	\$24,073,148
Scales, beam, including steelyards—		
Number.....	161,489	
Value.....	\$4,464,048	
Scales, calculating and computing—		
Number.....	54,161	
Value.....	\$9,475,708	
Scales, coin-operated, value.....	\$1,266,340	1 \$23,690,827
Scales, spring—		
Number.....	347,818	
Value.....	\$2,989,492	
Balances—		
Number.....	48,600	
Value.....	\$1,277,544	
Scales and balances not reported as to type, value.....	\$2,693,166	
Parts and attachments, value.....	\$108,232	\$382,321

<sup>1</sup> Data for the several items for 1925 not strictly comparable with those for 1927.

TABLE 4.—GENERAL STATISTICS, BY STATES: 1927

[This table presents statistics for all States for which separate figures can be given without disclosing data reported by individual establishments. Certain of the "Other States," however, reported larger values of products than some of the States shown separately.]

STATE	Number of establishments	PERSONS ENGAGED IN THE INDUSTRY				Horse-power
		Total	Proprietors and firm members	Salaried officers and employees	Wage earners (average for the year)	
United States.....	60	5,020	32	1,032	3,906	8,766
Illinois.....	11	528	3	97	428	673
Indiana.....	3	16	3	4	9	39
Massachusetts.....	4	90	2	21	67	519
New Jersey.....	8	337	7	63	267	287
New York.....	12	613	6	135	472	548
Pennsylvania.....	4	214	3	31	180	283
Other States <sup>1</sup> .....	18	3,222	8	731	2,483	6,417

STATE	Salaries	Wages	Cost of materials, supplies, fuel, and power		Value of products	Value added by manufacture <sup>2</sup>
			Materials and supplies	Fuel and power		
United States.....	\$2,430,583	\$5,460,742	\$7,163,072	\$290,855	\$24,655,442	\$17,201,515
Illinois.....	236,476	630,634	784,510	28,264	2,758,417	1,945,643
Indiana.....	11,326	10,054	13,909	744	52,421	37,768
Massachusetts.....	53,559	114,049	128,486	7,341	490,545	354,718
New Jersey.....	154,142	357,806	368,747	17,235	1,352,156	966,174
New York.....	355,369	594,266	678,726	27,182	2,151,993	1,446,085
Pennsylvania.....	65,154	272,648	187,910	12,472	700,361	499,979
Other States <sup>1</sup> .....	1,554,557	3,481,285	5,000,784	197,617	17,140,549	11,951,148

<sup>1</sup> Colorado, 1 establishment; Iowa, 1; Kentucky, 2; Michigan, 3; Minnesota, 1; Mississippi, 1; Missouri, 2; Ohio, 4; Vermont, 2; Wisconsin, 1.

<sup>2</sup> Value of products less cost of materials, supplies, fuel, and power. (See secs. 18 and 21, pp. 9 and 10.)

# SEWING MACHINES, CASES, AND ATTACHMENTS

[A preliminary report for this industry was issued under date of November 2, 1928]

**Description of the industry.**—This industry embraces establishments engaged primarily in the manufacture of sewing machines (hand, foot, and power) for home and factory use, including those designed for sewing leather; sewing-machine heads, attachments, parts, and accessories; and sewing-machine cases (cabinet and other).

**Detailed statistics of products.**—A special schedule, calling for data on the different classes of products manufactured by establishments classified in this industry, was used for the first time at the census for 1927. For this reason comparable detailed product statistics for 1925 can not be given in Table 3.

TABLE 1.—SUMMARY FOR THE UNITED STATES: 1919 TO 1927

[Data for establishments with products under \$5,000 in value included for 1919 but not for subsequent years. See sec. 10, p. 6]

YEAR OR PERIOD	Number of establishments	Wage earners (average for the year)	Wages	Cost of materials, supplies, fuel, and power	Value of products	Value added by manufacture <sup>1</sup>	Horse-power
1927.....	41	11,838	\$15,879,006	\$16,781,503	\$45,221,810	\$28,440,313	41,988
1925.....	41	12,121	16,099,725	18,609,724	46,268,336	27,688,012	27,439
1923.....	40	13,435	17,605,201	17,763,532	45,967,282	28,203,750	22,511
1921.....	39	12,569	12,523,182	14,937,035	35,608,287	20,071,262	( <sup>2</sup> )
1919.....	45	19,230	24,494,498	24,402,404	57,938,387	33,535,983	32,017
PER CENT OF INCREASE OR DECREASE (—)							
1925-1927.....	( <sup>3</sup> )	-2.3	-1.4	-9.8	-2.3	2.7	53.0
1923-1925.....	( <sup>3</sup> )	-9.8	-8.6	4.8	.7	-1.8	21.9
1923-1927.....	( <sup>3</sup> )	-11.9	-9.8	-5.5	-1.6	.8	86.5
1919-1927.....	( <sup>3</sup> )	-38.4	-35.2	-31.2	-21.9	-15.2	31.1

<sup>1</sup> Value of products less cost of materials, supplies, fuel, and power. (See secs. 18 and 21, pp. 9 and 10.)

<sup>2</sup> Not called for on schedule.

<sup>3</sup> Per cent not computed where base is less than 100.

TABLE 2.—PRIME MOVERS, MOTORS, AND GENERATORS, BY TYPE, NUMBER, AND RATED CAPACITY, FOR THE UNITED STATES: 1927 AND 1925

TYPE	1927		1925	
	Number	Capacity	Number	Capacity
Prime movers, total.....	1,534	Horse-power 41,988	716	Horse-power 27,439
Steam engines.....	24	5,318	18	4,370
Steam turbines.....	9	23,870	8	18,503
Internal-combustion engines.....	.....	.....	1	150
Water wheels and turbines.....	6	382	6	382
Electric motors driven by purchased current.....	1,495	12,418	683	4,034
Electric motors, total.....	2,749	27,036	2,332	24,901
Driven by purchased current.....	1,495	12,418	683	4,034
Driven by current generated in establishment reporting.....	1,254	14,618	1,649	20,867
Electric generators.....	26	Kilowatts 19,435	23	Kilowatts 19,008

TABLE 3.—PRODUCTS, BY CLASS, NUMBER, AND VALUE: 1927 AND 1925

CLASS	1927	1925
1. "Sewing machines, cases, and attachments" industry, all products, total value.....	\$45,221,810	\$46,298,1
2. Sewing machines, cases, parts, and attachments.....	\$42,416,843	\$44,178,1
3. Other products (not normally belonging to the industry), value, and amount received for repairing.....	\$2,804,973	\$2,119,1
4. Sewing machines, cases, etc., made as secondary products in other industries, value.....	\$762,541	\$992,4
Sewing machines, cases, etc., all industries: Aggregate value (sum of 2 and 4).....	\$43,179,384	\$45,130,1
Sewing machines—		
Total number.....	880,100	981,6
Total value.....	\$32,547,203	\$35,633,6
Household types—		
Total number.....	766,140	(1)
Total value.....	\$22,128,726	(1)
Electric—		
Number.....	312,159	(1)
Value.....	\$13,034,995	(1)
Foot and hand—		
Number.....	453,990	(1)
Value.....	\$9,093,731	(1)
Industrial types—		
Total number.....	99,953	(1)
Total value.....	\$9,685,934	(1)
Electric—		
Number.....	96,928	(1)
Value.....	\$9,219,257	(1)
Other—		
Number.....	3,025	(1)
Value.....	\$466,677	(1)
Sewing machines not reported in detail as to type—		
Number.....	13,998	(1)
Value.....	\$732,543	(1)
Cases and cabinets, value.....	\$3,254,239	\$9,407,21
Parts and attachments, value.....	\$2,377,942	

<sup>1</sup> No comparable data.

TABLE 4.—GENERAL STATISTICS, BY STATES: 1927

[This table presents statistics for all States for which separate figures can be given without disclosing data reported by individual establishments. Certain of the "Other States," however, reported larger values of products than some of the States shown separately]

STATE	Number of establishments	PERSONS ENGAGED IN THE INDUSTRY				Horse-power
		Total	Proprietors and firm members	Salaried officers and employees	Wage earners (average for the year)	
United States.....	41	12,731	15	878	11,838	41,988
Connecticut.....	3	1,850	—	298	1,552	3,000
Illinois.....	5	1,799	2	315	1,482	2,719
Massachusetts.....	8	822	2	53	767	1,779
New York.....	11	239	7	52	180	116
Pennsylvania.....	4	96	2	8	86	307
Other States <sup>1</sup> .....	10	7,925	2	152	7,771	34,058

STATE	Salaries	Wages	Cost of materials, supplies, fuel, and power		Value of products	Value added by manufacture <sup>2</sup>
			Materials and supplies	Fuel and power		
United States.....	\$3,949,679	\$15,879,006	\$16,054,929	\$726,574	\$45,221,816	\$28,440,313
Connecticut.....	590,034	2,076,802	487,487	93,099	3,958,615	3,378,029
Illinois.....	739,824	2,044,956	2,255,846	151,168	7,478,606	5,071,592
Massachusetts.....	135,384	883,982	834,204	34,379	3,185,361	2,316,778
New York.....	136,069	280,893	140,417	11,149	850,702	699,136
Pennsylvania.....	25,319	116,494	182,203	7,560	404,412	214,649
Other States <sup>1</sup> .....	2,322,449	10,475,789	12,154,772	429,219	29,344,120	16,760,129

<sup>1</sup> Indiana, 2 establishments; Missouri, 2; New Jersey, 2; Ohio, 4.

<sup>2</sup> Value of products less cost of materials, supplies, fuel, and power. (See secs. 18 and 21, pp. 9 and 10.)

## TEXTILE MACHINERY AND PARTS

[A preliminary report for this industry was issued under date of December 6, 1928]

**Description of the industry.**—This industry classification covers establishments engaged primarily in the manufacture of the following classes of products: (1) "Fiber-to-fabric" machinery—that is, machinery for working raw stock, and all textile-mill machinery used in subsequent processes in the preparation of yarn for weaving, knitting, etc.; (2) fabric machinery—looms, knitting machines, etc.; (3) machinery for bleaching, dyeing, printing, Mercerizing, finishing, etc.; (4) miscellaneous textile machinery not included in any of the foregoing classes; (5) extra parts, attachments, and accessories for textile machinery.

**Extra parts, attachments, etc.**—The relatively large value of "Extra parts, attachments, and accessories for textile machinery," as shown in Table 3, page 1114—more than one-third of the total value of products for the industry—is accounted for by the fact that some manufacturers ship a considerable proportion of their output, especially that destined for export, in the form of "knocked-down" or partly assembled machines. The records of these manufacturers do not in all cases show the numbers of complete machines represented by such shipments, and accordingly they are necessarily reported as parts.

TABLE 1.—SUMMARY FOR THE UNITED STATES: 1919 TO 1927

[Data for establishments with products under \$5,000 in value included for 1919 but not for subsequent years. See sec. 10, p. 6]

YEAR OR PERIOD	Number of establishments	Wage earners (average for the year)	Wages	Cost of materials, supplies, fuel, and power	Value of products	Value added by manufacture <sup>1</sup>	Horse-power
1927.....	367	26, 154	\$36, 481, 196	\$36, 180, 689	\$116, 921, 130	\$80, 740, 441	64, 53
1925.....	379	27, 869	37, 463, 681	39, 036, 868	121, 653, 324	82, 616, 456	61, 73
1923.....	428	35, 672	46, 022, 545	49, 705, 554	140, 661, 358	90, 955, 804	56, 20
1921.....	421	31, 025	38, 830, 660	44, 903, 788	128, 934, 896	84, 031, 108	(?)
1919.....	432	31, 823	36, 528, 720	45, 636, 623	122, 089, 264	76, 452, 636	41, 744
PER CENT OF INCREASE OR DECREASE (—)							
1925-1927.....	-3.2	-6.2	-2.6	-7.3	-3.9	-2.3	4.5
1923-1925.....	-11.4	-21.9	-18.6	-21.5	-13.5	-9.2	9.7
1923-1927.....	-14.3	-26.7	-20.7	-27.2	-10.9	-11.2	14.6
1919-1927.....	-15.0	-17.8	-1.1	-20.7	-4.2	5.6	54.6

<sup>1</sup> Value of products less cost of materials, supplies, fuel, and power. (See secs. 18 and 21, pp. 9 and 10.)

<sup>2</sup> Not called for on schedule.

TABLE 2.—PRIME MOVERS, MOTORS, AND GENERATORS, BY TYPE, NUMBER, AND RATED CAPACITY, FOR THE UNITED STATES: 1927, 1925, AND 1923

TYPE	1927		1925		1923	
	Number	Capacity	Number	Capacity	Number	Capacity
		<i>Horse-power</i> 64,532		<i>Horse-power</i> 61,738		<i>Horse-power</i> 56,295
Prime movers, total.....	6,602		6,148		5,325	
Steam engines.....	79	11,561	80	12,516	} 100	20,398
Steam turbines.....	9	4,910	8	4,730		
Internal-combustion engines.....	10	415	25	818		
Water wheels and turbines.....	28	2,544	27	2,257	32	2,117
Electric motors driven by purchased current.....	6,476	45,102	6,008	41,417	5,156	32,890
Electric motors, total.....	8,568	64,793	7,869	58,553	6,095	41,924
Driven by purchased current.....	6,476	45,102	6,008	41,417	5,156	32,890
Driven by current generated in establishment reporting.....	2,092	19,691	1,861	17,136	939	9,034
Electric generators.....	50	<i>Kilowatts</i> 9,771	58	<i>Kilowatts</i> 9,323	(1)	<i>Kilowatts</i> (1)

<sup>1</sup> Not called for on schedule.

TABLE 3.—PRODUCTS, BY CLASS, NUMBER, AND VALUE, BY STATES: 1927 AND 1925

[This table presents statistics for all States for which separate figures can be given without disclosing the production of individual establishments]

CLASS AND STATE	1927		1925	
	Number	Value	Number	Value
1. Textile machinery and parts industry, all products, total value.....		\$116,921,130		\$121,653,324
2. Textile machinery and parts.....		100,922,791		108,078,182
3. Amount received for repair work and contract work.....		6,912,347		7,706,506
4. Other products (not normally belonging to the industry).....		9,085,992		5,778,546
5. Textile machinery and parts made as secondary products in other industries, value.....		1,277,069		1,275,944
Textile machinery and parts, all industries: Aggregate value (sum of 2 and 5) <sup>1</sup> .....		102,199,860		109,354,126
Massachusetts.....		41,563,311		45,718,696
Pennsylvania.....		21,263,552		21,159,721
Rhode Island.....		14,087,391		16,782,769
New Hampshire.....		6,921,714		(2)
New Jersey.....		5,904,839		7,385,176
Connecticut <sup>3</sup> .....		2,157,483		(2)
North Carolina <sup>3</sup> .....		1,890,504		1,098,537
New York <sup>3</sup> .....		1,208,778		1,826,949
Vermont <sup>3</sup> .....		644,627		602,278
Georgia <sup>3</sup> .....		397,038		(2)
South Carolina <sup>3</sup> .....		378,810		431,869
Other States.....		5,775,813		14,348,131
Fiber-to-fabric machinery, total.....		22,016,037		19,879,797
Picker machines, total.....	2,555	2,307,454	2,467	2,221,673
Massachusetts.....	1,967	1,688,357	2,276	2,034,991
Other States.....	588	639,097	191	186,682

<sup>1</sup> These aggregates are the sums of all items in the columns beneath except those which are underlined.

<sup>2</sup> No comparable data.

<sup>3</sup> This State was outranked in 1927 by one or more of the "Other States."

TABLE 3.—PRODUCTS, BY CLASS, NUMBER, AND VALUE, BY STATES: 1927 AND 1925—Continued

[See note at head of this table, p. 1113]

CLASS AND STATE	1927		1925	
	Number	Value	Number	Value
Textile machinery and parts, all industries—Con. Fiber-to-fabric machinery, total—Continued.				
Carding machines, total.....		\$3, 615, 213	1, 163	\$1, 762, 630
Massachusetts.....		3, 523, 099	1, 124	1, 660, 584
Other States.....		92, 114	39	102, 046
Combing machines and drawing frames <sup>1</sup> .....	2, 937	750, 895	3, 376	895, 399
Roving machines.....	1, 051	1, 570, 815	1, 119	1, 502, 361
Spinning machines.....	3, 093	3, 453, 461	3, 271	3, 787, 936
Doubling and twisting frames, total.....	1, 644	2, 262, 775	1, 523	2, 418, 873
Massachusetts.....	488	999, 296	614	1, 275, 431
Other States.....	1, 156	1, 263, 479	909	1, 143, 442
Winders—Skein, spool, bobbin, quill, cone, etc.....		5, 979, 913		5, 020, 511
Beaming, warping, and slashing machines, total.....		2, 074, 511		1, 580, 364
Illinois <sup>2</sup> .....				
New Jersey.....		546, 036		832, 107
Massachusetts.....		487, 061		638, 941
Other States.....		1, 041, 414		209, 316
Fabric machinery, total.....		26, 730, 440		31, 063, 595
Looms for weaving, except carpet and rug.....	27, 729	11, 469, 788	28, 264	15, 173, 457
Looms for weaving, carpet and rug.....	384	135, 134	1, 855	542, 879
Knitting machines, total.....		14, 266, 883	30, 370	14, 344, 031
Latch-needle, total.....	16, 635	7, 696, 689	19, 933	8, 356, 820
Pennsylvania.....	4, 470	2, 976, 874	4, 736	2, 892, 675
Other States.....	12, 165	4, 719, 815	15, 197	5, 464, 145
Other knitting machines, including spring-needle and loopers <sup>3</sup> .....		6, 570, 194	10, 437	5, 987, 211
Braiding machines.....	5, 638	768, 950	3, 812	815, 587
Other fabric machines, including lace and net, embroidery, and cordage and rope machines.....		89, 685		187, 641
Machinery for bleaching, dyeing, printing, mer- cerizing, finishing, etc., stock, yarn, and cloth, total.....		7, 643, 731		7, 800, 379
Pennsylvania.....		2, 578, 725		2, 683, 772
Massachusetts.....		2, 144, 057		1, 371, 400
New Jersey.....		2, 000, 020		1, 503, 583
Other States.....		920, 929		2, 241, 624
Other textile machinery, total.....		5, 819, 664		8, 569, 690
Extra parts, attachments, and accessories for tex- tile machinery, total.....		39, 990, 988		42, 040, 665
Massachusetts.....		16, 054, 366		17, 071, 508
Pennsylvania.....		6, 754, 172		5, 109, 536
Rhode Island.....		6, 018, 961		7, 259, 851
New Jersey <sup>4</sup> .....		2, 477, 704		3, 790, 234
Connecticut <sup>5</sup> .....		859, 407		( <sup>6</sup> )
New York <sup>5</sup> .....		688, 632		( <sup>6</sup> )
Illinois <sup>5</sup> .....		492, 083		( <sup>6</sup> )
Other States.....		6, 645, 663		6, 909, 536

<sup>1</sup> No comparable data.<sup>2</sup> This State was outranked by one or more of the "Other States."<sup>3</sup> Combined in order to avoid disclosing the output of individual establishments.<sup>4</sup> The data for Illinois, which leads all other States in the production of beaming, warping, and slashing machines, are included in those for "Other States" in order to avoid disclosing the output of individual establishments.

TABLE 4.—GENERAL STATISTICS, BY STATES: 1927

[This table presents statistics for all States for which separate figures can be given without disclosing data reported by individual establishments. Certain of the "Other States," however, reported larger values of products than some of the States shown separately]

STATE	Num-ber of estab-lish-ments	PERSONS ENGAGED IN THE INDUSTRY						Horse-power	Salaries	Wages	Cost of materials, sup-plies, fuel, and power		Value of products	Value added by manu-facture <sup>1</sup>
		Total	Pro-pri-eto-ri-ors and firm mem-bers	Salaried officers and em-ployees	Wage earners (average for the year)	Materials and supplies	Fuel and power							
											218	4,066		
United States.....	367	30,438	218	4,066	26,154	64,532	\$10,917,207	\$36,481,196	711,706	38,105	2,327,907	1,583,096		
Connecticut.....	13	502	3	47	452	750	154,821	526,979	366,137	13,774	924,801	544,930		
Georgia.....	12	670	14	41	215	192	116,509	211,012	14,314,583	693,835	46,865,937	31,857,519		
Massachusetts.....	119	13,673	7	1,529	12,099	29,009	3,938,941	16,242,087	1,370,285	108,939	7,324,082	5,631,825		
New Hampshire.....	9	1,249	2	194	1,053	3,815	698,496	1,370,285	2,074,995	70,286	6,009,187	3,857,906		
New Jersey.....	49	1,517	27	225	1,265	2,701	653,807	1,738,204	540,870	18,285	1,183,251	1,858,812		
New York.....	15	301	11	45	245	552	171,603	423,403	662,181	18,035	2,230,337	1,550,121		
North Carolina.....	20	425	15	61	349	592	183,423	7,561,833	8,373,205	305,912	25,641,628	16,962,511		
Pennsylvania.....	62	5,665	44	821	4,830	10,705	2,359,393	4,765,669	4,311,981	185,330	15,390,008	10,862,717		
Rhode Island.....	41	4,049	12	612	3,425	7,242	1,544,205	4,101,522	117,958	7,042	378,810	253,780		
South Carolina.....	4	143	9	40	94	225	50,572	273,000	184,491	8,182	677,718	483,035		
Vermont.....	4	216	2	12	202	496	28,562	2,884,240	1,607,625	127,560	7,997,404	6,262,189		
Other States*.....	19	2,458	4	439	2,015	8,252	1,102,971							

<sup>1</sup> Value of products less cost of materials, supplies, fuel, and power. (See secs. 18 and 21, pp. 9 and 10.)

\* Alabama, 1 establishment; Delaware, 2; Illinois, 4; Iowa, 2; Kentucky, 1; Maine, 3; Maryland, 2; Michigan, 1; Ohio, 1; Tennessee, 2.

## TYPEWRITERS AND SUPPLIES

[A preliminary report for this industry was issued under date of October 20, 1928]

**Description of the industry.**—This industry consists in the manufacture and rebuilding of typewriters and the manufacture of typewriter parts, accessories, and supplies. Typewriter accessories and supplies include carbon paper, ribbons, ribbon ink, ribbon spools, adding attachments, rubber keys, tools, etc. While no doubt the great part of the ink-ribbons and carbon paper are used in typewriters, the statistics cover the production of these commodities for other purposes, as, for example, ribbons for adding machines and cash registers and carbon paper for sales books.

**Detailed statistics of products** (Table 3, p. 1117).—A special schedule, calling for data on the different classes of products manufactured by establishments classified in this industry, was used for the first time at the census for 1927.

**TABLE 1.—SUMMARY FOR THE UNITED STATES: 1919 TO 1927**

[Data for establishments with products under \$5,000 in value included for 1919 but not for subsequent years. See sec. 10, p. 6]

YEAR OR PERIOD	Number of establishments	Wage earners (average for the year)	Wages	Cost of materials, supplies, fuel, and power	Value of products	Value added by manufacture <sup>1</sup>	Horse-power
1927	75	16,681	\$20,912,141	\$15,955,837	\$69,111,992	\$53,156,155	17,920
1925	70	14,969	18,803,566	15,157,092	63,079,602	47,922,510	15,568
1923	73	14,963	18,210,199	13,977,459	52,498,404	38,520,945	11,451
1921	75	13,381	14,398,116	10,770,289	41,789,090	31,019,701	(2)
1919	88	15,669	17,009,432	16,143,662	52,737,661	36,593,909	13,054
PER CENT OF INCREASE OR DECREASE (—)							
1925-1927	(3)	11.4	11.2	5.3	9.6	10.9	15.1
1923-1925	(3)	(4)	3.3	8.4	20.2	24.4	36.0
1923-1927	(3)	11.5	14.8	14.2	31.6	38.0	56.5
1919-1927	(3)	6.5	22.0	-1.2	31.0	45.3	37.3

<sup>1</sup> Value of products less cost of materials, supplies, fuel, and power. (See secs. 18 and 21, pp. 9 and 10.)

<sup>2</sup> Not called for on schedule.

<sup>3</sup> Per cent not computed where base is less than .00.

<sup>4</sup> Less than one-tenth of 1 per cent increase.

**TABLE 2.—PRIME MOVERS, MOTORS, AND GENERATORS, BY TYPE, NUMBER, AND RATED CAPACITY, FOR THE UNITED STATES: 1927, 1925, AND 1923**

TYPE	1927		1925		1923	
	Number	Capacity	Number	Capacity	Number	Capacity
Prime movers, total	1,377	Horse-power 17,920	950	Horse-power 15,568	706	Horse-power 11,451
Steam engines	18	4,048	23	4,621	} 22	6,242
Steam turbines	5	3,397	5	3,071		
Internal-combustion engines	4	410	3	55		
Electric motors driven by purchased current	1,350	10,065	919	7,821	680	5,143
Electric motors, total	1,844	15,425	1,418	13,484	1,202	10,566
Driven by purchased current	1,350	10,065	919	7,821	680	5,143
Driven by current generated in establishment reporting	494	5,360	499	5,663	522	5,423
Electric generators	16	Kilowatts 4,041	23	Kilowatts 6,032	(1)	(1)

<sup>1</sup> Not called for on schedule.

TABLE 3.—PRODUCTS, BY CLASS AND VALUE: 1927, 1925, AND 1923

CLASS	1927	1925	1923
1. Typewriters and supplies industry, all products, total value.....	\$69, 111, 992	\$63, 079, 602	\$62, 498, 404
2. Typewriters, typewriter ribbons, carbon paper, parts, and accessories.....	\$67, 493, 634	\$61, 733, 018	\$50, 509, 291
3. Other products (not normally belonging to the industry), value, and receipts for repairing.....	\$1, 618, 358	\$1, 346, 584	\$1, 929, 113
4. Typewriter supplies made as secondary products in other industries, value.....	\$719, 183	\$1, 182, 811	\$1, 333, 493
Typewriters and supplies, all industries: Aggregate value (sum of 2 and 4).....	\$68, 212, 817	\$62, 915, 829	\$51, 902, 784
Typewriters, new— Total number.....	858, 285	741, 701	697, 789
Total value.....	\$50, 386, 757	\$48, 809, 379	\$37, 951, 840
Standard, including long-carriage types— Number.....	555, 021	(?)	(?)
Value.....	\$31, 770, 405	(?)	(?)
Portable and bookkeeping-billing types <sup>2</sup> — Number.....	303, 264	(?)	(?)
Value.....	\$18, 616, 362	(?)	(?)
Rebuilt typewriters, value.....	\$1, 555, 162	\$1, 880, 607	\$1, 568, 840
Carbon paper, value <sup>4</sup> .....	\$7, 946, 684	\$6, 772, 491	\$6, 059, 251
Typewriter and other ink ribbons, value.....	\$5, 587, 183	\$5, 677, 035	\$5, 141, 087
Parts, accessories, and supplies, value.....	\$2, 737, 031	\$376, 317	\$1, 181, 766

<sup>1</sup> Includes value of typewriter parts, not reported separately for 1925 and 1923.

<sup>2</sup> No comparable data.

<sup>3</sup> Combined to avoid disclosing the output of individual establishments.

<sup>4</sup> See "Description of the industry," p. 1116.

<sup>5</sup> Does not include value of typewriter parts. See note 1.

TABLE 4.—GENERAL STATISTICS, BY STATES: 1927

[This table presents statistics for all States for which separate figures can be given without disclosing data reported by individual establishments. Pennsylvania, one of the "Other States," however, reported a larger value of products than some of the States shown separately]

STATE	Number of establishments	PERSONS ENGAGED IN THE INDUSTRY				Horse-power
		Total	Proprietors and firm members	Salaried officers and employees	Wage earners (average for the year)	
United States.....	75	18, 743	22	2, 040	16, 681	17, 920
Connecticut.....	6	9, 199	.....	478	8, 721	6, 064
Illinois.....	11	842	6	142	694	2, 016
New Jersey.....	8	565	.....	107	458	1, 408
New York.....	29	6, 796	6	873	5, 917	7, 519
Other States <sup>1</sup> .....	21	1, 341	10	440	891	913

STATE	Salaries	Wages	Cost of materials, supplies, fuel, and power		Value of products	Value added by manufacture <sup>2</sup>
			Materials and supplies	Fuel and power		
United States.....	\$4, 053, 019	\$20, 912, 141	\$15, 374, 451	\$581, 386	\$69, 111, 992	\$53, 156, 155
Connecticut.....	1, 061, 112	10, 700, 751	4, 992, 033	214, 707	26, 135, 205	20, 928, 465
Illinois.....	258, 276	856, 865	1, 204, 733	37, 439	3, 158, 907	1, 916, 735
New Jersey.....	302, 437	703, 591	1, 292, 286	23, 863	4, 465, 982	3, 149, 833
New York.....	1, 736, 399	7, 585, 080	6, 598, 317	267, 424	26, 018, 490	19, 152, 749
Other States <sup>1</sup> .....	694, 795	1, 065, 854	1, 287, 082	37, 953	9, 333, 408	8, 008, 379

<sup>1</sup> California, 3 establishments; Colorado, 1; Iowa, 1; Massachusetts, 3; Missouri, 1; Ohio, 2; Oregon, 1; Pennsylvania, 8; Wisconsin, 1.

<sup>2</sup> Value of products less cost of materials, supplies, fuel, and power. (See secs. 18 and 21, pp. 9 and 10.)

# WASHING MACHINES, WRINGERS, DRIERS, AND IRONING MACHINES, FOR HOUSEHOLD USE

[A preliminary report for this industry was issued under date of January 18, 1929]

**Description of the industry.**—This industry embraces establishments engaged primarily in the manufacture of washing machines, wringers, driers, and ironing machines, *other than those used in commercial laundries*, whether operated by hand power or by mechanical power.

**Detailed statistics of products.**—A special schedule, calling for data on the different classes of products manufactured by establishments classified in this industry, was used for the first time at the census for 1927. For this reason detailed product statistics for 1925 can not be given in Table 3.

**TABLE 1.—SUMMARY FOR THE UNITED STATES: 1919 TO 1927**

[Data for establishments with products under \$5,000 in value included for 1919 but not for subsequent years. See sec. 10, p. 6]

YEAR OR PERIOD	Number of establishments	Wage earners (average for the year)	Wages	Cost of materials, supplies, fuel, and power	Value of products	Value added by manufacture <sup>1</sup>	Horse-power
1927.....	75	7,789	\$10,950,046	\$34,528,335	\$74,951,338	\$40,423,003	20,697
1925.....	82	7,077	9,989,875	32,748,312	69,598,206	36,819,894	18,028
1923.....	85	6,144	7,839,171	25,741,775	50,372,516	24,630,741	11,415
1921.....	96	4,147	4,898,188	16,621,634	30,198,566	13,576,932	(2)
1919.....	105	5,956	6,431,378	23,388,925	40,771,285	17,382,360	8,816
PER CENT OF INCREASE OR DECREASE (—)							
1925-1927.....	(3)	10.1	9.6	5.4	7.7	9.8	14.8
1923-1925.....	(3)	15.2	27.4	27.2	38.1	49.5	57.9
1923-1927.....	(3)	26.8	39.7	34.1	48.8	64.1	81.3
1919-1927.....	—28.6	30.8	70.3	47.6	83.8	132.6	134.8

<sup>1</sup> Value of products less cost of materials, supplies, fuel, and power. (See secs. 18 and 21, pp. 9 and 10.)

<sup>2</sup> Not called for on schedule.

<sup>3</sup> Per cent not computed where base is less than 100.

**TABLE 2.—PRIME MOVERS, MOTORS, AND GENERATORS, BY TYPE, NUMBER, AND RATED CAPACITY, FOR THE UNITED STATES: 1927 AND 1925**

TYPE	1927		1925	
	Number	Capacity	Number	Capacity
Prime movers, total.....	2,632	Horse-power 20,697	2,118	Horse-power 18,028
Steam engines.....	14	2,750	15	2,946
Internal-combustion engines.....	4	87	3	85
Water wheels.....	—	—	1	20
Electric motors driven by purchased current.....	2,614	17,860	2,099	14,977
Electric motors, total.....	2,766	19,540	2,323	16,832
Driven by purchased current.....	2,614	17,860	2,099	14,977
Driven by current generated in establishment reporting.....	152	1,680	224	1,855
Electric generators.....	6	Kilowatts 1,315	9	Kilowatts 1,828

TABLE 3.—PRODUCTS, BY CLASS, NUMBER, AND VALUE: 1927 AND 1925

CLASS	1927	1925
1. "Washing machines, wringers, driers, and ironing machines, for household use" industry, all products, total value.....	\$74,951,338	\$69,568,206
2. Washing machines, etc., and parts and accessories.....	\$71,722,504	\$66,835,877
3. Other products (not normally belonging to the industry), value, and receipts for repairing.....	\$3,228,834	\$2,732,829
4. Washing machines, etc., made as secondary products in other industries, value.....	\$2,936,612	\$3,925,863
Washing machines, etc., all industries: Aggregate value (sum of 2 and 4).....	\$74,659,116	\$70,761,240
Washing machines for household use— Total number.....	807,241	(1)
Total value.....	\$67,951,182	\$61,861,881
Electric— Number.....	655,499	(1)
Value.....	\$59,253,629	(1)
Other power (including hand)— Number.....	151,742	(1)
Value.....	\$8,697,653	(1)
Driers and extractors for household use— Number.....	9,126	(1)
Value.....	\$565,214	(1)
Ironing machines, value <sup>1</sup> .....	\$2,999,897	\$3,747,426
Wringers (electric, hand, and other power), value.....	\$2,330,356	(1)
Parts and accessories, value.....	\$812,467	<sup>2</sup> \$5,151,933

<sup>1</sup> No comparable data.

<sup>2</sup> Includes both gas-heated and electrically-heated ironers.

<sup>3</sup> Includes value of driers, extractors, and wringers.

TABLE 4.—GENERAL STATISTICS, BY STATES: 1927

[This table presents statistics for all States for which separate figures can be given without disclosing data reported by individual establishments. Certain of the "Other States," however, reported larger values of products than some of the States shown separately]

STATE	Number of establishments	PERSONS ENGAGED IN THE INDUSTRY				Horse-power
		Total	Proprietors and firm members	Salariied officers and employees	Wage earners (average for the year)	
United States.....	75	9,453	29	1,635	7,789	20,697
Illinois.....	13	2,160	4	471	1,685	2,954
Iowa.....	10	2,661	7	328	2,326	6,710
Missouri.....	5	86	2	22	62	120
New York.....	8	1,759	1	293	1,465	4,282
Ohio.....	14	1,092	6	206	880	2,030
Wisconsin.....	3	84	1	19	64	245
Other States <sup>1</sup> .....	22	1,611	8	296	1,307	4,356

STATE	Salaries	Wages	Cost of materials, supplies, fuel, and power		Value of products	Value added by manufacture <sup>2</sup>
			Materials and supplies	Fuel and power		
United States.....	\$3,756,639	\$10,950,046	\$33,971,585	\$558,750	\$74,951,338	\$40,423,003
Illinois.....	1,283,099	2,055,088	8,080,981	108,107	13,924,627	5,726,539
Iowa.....	916,173	4,040,713	11,724,970	178,566	31,915,169	20,013,633
Missouri.....	28,817	88,583	270,504	3,533	486,921	212,879
New York.....	591,680	2,143,251	6,432,529	107,574	13,828,948	7,288,845
Ohio.....	385,154	1,020,577	2,908,296	50,884	6,043,914	3,084,734
Wisconsin.....	43,708	63,084	219,576	4,735	452,463	228,152
Other States <sup>1</sup> .....	508,103	1,532,750	4,325,729	105,346	8,299,290	3,868,221

<sup>1</sup> California, 2 establishments; Connecticut, 1; Indiana, 3; Michigan, 6; Minnesota, 1; Nebraska, 1; Pennsylvania, 7; Rhode Island, 1.

<sup>2</sup> Value of products less cost of materials, supplies, fuel, and power. (See secs. 18 and 21, pp. 9 and 10.)

**SUMMARY FOR WINDMILLS AND WINDMILL TOWERS INDUSTRY  
(GROUP 13), WHICH IS NOT COVERED BY A SEPARATE REPORT,  
BY STATES.**

[No detailed report on this industry has been prepared, but some additional information is given, for 1927 only, for the United States as a whole, in Table II, p. 1316; and summaries for States and large cities, carrying statistics for this industry, in comparison with those for other industries, appear in Tables III and IV, pp. 1330 and 1416. See "General explanations," pp. 3-12; in particular, "Limitation of statistics to establishments reporting products valued at \$5,000 or more," p. 6, "Power equipment," p. 7, "Cost of materials," etc., p. 8, "Value added by manufacture," p. 9, and "State and city statistics," p. 11]

YEAR	Number of establishments	Wage earners (average for the year)	Wages	Cost of materials, supplies, fuel, and power	Value of products	Value added by manufacture	horsepower
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[Principal products: Windmills, accessories, and parts; windmill towers. Some establishments in this industry manufacture water tanks as secondary products]

United States							
1927-----	16	1,355	\$1,881,520	\$3,233,593	<sup>2</sup> \$7,514,149	\$4,230,556	3,608
1925-----	15	1,391	1,830,232	3,375,582	7,984,005	4,608,423	3,378
1923-----	16	1,101	1,430,971	2,592,015	6,311,038	3,719,023	2,732
1921-----	24	1,383	1,580,988	3,459,495	6,529,604	3,070,109	( <sup>3</sup> )
1919-----	31	1,932	2,145,301	4,960,426	9,932,585	4,972,159	4,686

<sup>1</sup> Illinois, 4 establishments; Indiana, 2; Kansas, 1; Nebraska, 4; Ohio, 1; and Wisconsin, 4. Statistics for Wisconsin are given in Table III, beginning on page 1330. In order to avoid disclosing data for individual establishments no statistics are given for Illinois, the leading State in the industry, nor for other States with the exception of the one named in the preceding sentence.

<sup>2</sup> Includes \$3,335,906, value of miscellaneous products, normally belonging to other industries, made as secondary products by establishments engaged primarily in the manufacture of windmills and windmill towers; does not include value of windmills and windmill towers made as secondary products by establishments classified in other industries. The total value of windmills and windmill towers manufactured in 1927, so far as separately reported, regardless of the industry classification of the manufacturers, was \$4,555,316.

<sup>3</sup> Not called for on schedule.

## **Group 14.—TRANSPORTATION EQUIPMENT, AIR, LAND, AND WATER**

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### **THE GROUP AS A WHOLE**

This group embraces those industries which are engaged primarily in the manufacture of aircraft, vehicles for land transportation, locomotives, and water craft. The several classes of products are airplanes and seaplanes; automobiles, motor trucks, motor busses, and motor cycles; bicycles; carriages, wagons, sleighs, and sleds; baby carriages and other vehicles for children; wheelbarrows; locomotives, steam and electric; railway cars, steam and electric; and all types of ships and boats. No changes were made, at the census for 1927, in the group as constituted at the census for 1925.

The repair shops of steam and electric railroads manufacture some cars and locomotives, but the greater part of their work consists in the repairing of cars and locomotives, and some of it has no connection with rolling stock. For these reasons, and because of the fact that the method of valuing their production differs from the methods employed in most other industries, railroad repair shops have been classified as a separate industry, Group 15.

The combined value of products for Groups 14 and 15 for 1927 amounts to \$5,983,666,764, which represents the manufacture of all classes of transportation equipment and the repair of all railroad rolling stock. Comparative figures for 1925, 1923, 1921, and 1919 are \$6,784,432,512, \$6,853,572,126, \$4,285,496,880, and \$6,981,709,084, respectively.

The following table gives summary statistics for the group as a whole and for each industry separately. On pages 1123 to 1167 are the detailed reports which have been published previously in pamphlet form.

## SUMMARY FOR GROUP 14.—TRANSPORTATION EQUIPMENT, AIR, LAND, AND WATER: 1921 TO 1927

INDUSTRY	Census year	Number of establishments	Wage earners (average for the year)	Wages	Cost of materials, fuel, and power	Value of products	Value added by manufacture	Horse-power
Total.....	1927	2,537	494,905	803,298	2,907,949	4,693,972	1,786,022	2,027,686
	1925	2,778	559,578	908,488	3,389,101	5,451,753	2,062,652	1,838,991
	1923	3,873	606,328	963,939	3,394,505	5,333,479	1,938,975	1,624,468
	1921	4,273	405,773	591,334	1,803,011	3,018,154	1,215,143	(?)
Aircraft and parts.....	1927	70	4,422	6,857	7,517	21,162	13,645	6,031
	1925	44	2,701	4,222	2,870	12,525	9,655	3,735
	1923	33	2,901	4,522	3,830	12,945	9,116	5,443
	1921	21	1,395	2,202	2,407	6,642	4,235	(?)
Carriage, wagon, sleigh, and sled materials.	1927	44	764	665	1,555	3,041	1,486	5,213
	1925	81	1,389	1,216	2,659	5,118	2,459	8,689
	1923	109	1,933	1,591	4,004	7,313	3,309	10,647
	1921	141	2,747	2,555	6,135	10,787	4,652	(?)
Carriages and sleds, children's.	1927	89	7,030	7,814	13,895	28,668	14,773	10,309
	1925	86	6,926	7,923	13,553	30,174	16,620	9,853
	1923	100	8,324	8,856	15,936	34,173	18,227	9,376
	1921	89	5,460	5,578	9,517	21,717	12,200	(?)
Carriages, wagons, sleighs, and sleds. <sup>3</sup>	1927	117	3,387	4,212	10,648	19,422	8,774	18,207
	1925	152	4,833	5,792	12,860	24,935	12,075	20,449
	1923	396	8,109	9,319	18,682	37,373	18,691	26,509
	1921	837	8,025	9,903	16,884	33,113	16,230	(?)
Cars, electric and steam railroad, not built in railroad repair shops.	1927	135	38,031	60,625	209,113	312,509	103,396	236,415
	1925	141	50,393	77,247	266,054	390,771	124,718	243,934
	1923	139	80,590	129,178	413,600	604,350	190,690	250,102
	1921	118	48,033	70,945	211,938	340,536	128,598	(?)
Locomotives, not made in railroad repair shops.	1927	17	12,961	17,648	45,688	76,719	31,031	143,971
	1925	18	12,809	18,219	41,717	65,389	23,672	114,200
	1923	19	30,672	51,867	124,262	215,393	91,131	91,214
	1921	22	16,583	20,473	55,412	102,023	46,612	(?)
Motor-vehicle bodies and motor-vehicle parts.	1927	1,213	181,489	291,291	641,307	1,151,426	510,120	551,639
	1925	1,358	228,382	372,721	862,721	1,523,280	660,558	662,255
	1923	2,120	163,530	253,147	504,107	1,013,112	449,005	425,088
	1921	1,974	69,119	96,779	213,965	408,017	194,052	(?)
Motor vehicles, not including motor cycles.	1927	264	187,910	321,604	1,889,426	2,848,443	959,017	725,674
	1925	297	197,728	341,210	2,108,192	3,198,123	1,089,931	509,758
	1923	351	241,356	406,730	2,147,463	3,163,328	1,015,365	435,545
	1921	385	143,658	221,974	1,107,062	1,671,387	564,325	(?)
Motor cycles, bicycles, and parts.	1927	29	3,897	5,442	10,174	21,454	11,280	10,753
	1925	36	4,193	5,662	12,177	24,258	12,081	12,609
	1923	39	6,576	8,010	18,003	32,259	14,250	14,840
	1921	46	4,308	4,981	10,323	23,098	12,775	(?)
Ship and boat building, steel and wooden, including repair work.	1927	559	55,014	87,081	78,626	211,127	132,501	314,474
	1925	565	50,224	74,275	66,299	177,182	110,883	303,470
	1923	567	62,287	90,720	84,558	213,232	128,676	317,712
	1921	640	106,445	155,943	169,368	400,834	231,466	(?)

<sup>1</sup> Each total is the sum, expressed to the nearest thousand, of the individual items expressed in units. For this reason the totals in some cases may differ slightly from the sums of the items as here given.

<sup>2</sup> Not called for on schedule.

<sup>3</sup> Repairing included for 1921 but not for later years.

<sup>4</sup> Revised; revision not carried into group total.

## AIRCRAFT

[A preliminary report for this industry was issued under date of May 23, 1928.]

**Description of the industry.**—The establishments in this industry are engaged primarily in the manufacture of complete aircraft or of aircraft parts other than engines and tires, or in the repair of aircraft. Establishments operated by the Federal Government are not included. Establishments engaged primarily in the manufacture of aircraft engines for sale as such are classified in the "Engines, turbines, and water wheels" industry, and therefore no data for such establishments are included in this report. (The engines for which data are given in Table 3 were made as secondary products by manufacturers of complete aircraft.)

**Comparison with previous years.**—As will be seen by reference to Table 1, the number of establishments in this industry has increased from census to census since 1921. The loss of 10 establishments between 1919 and 1921 was due in some measure to the fact that the production in 1919 included the completion of contracts for the construction of aircraft intended for use in the World War, and was therefore abnormal. A remarkable growth took place in the aircraft industry between 1921 and 1927, the combined production of airplanes, seaplanes, and amphibians having increased by 560 per cent—from 302 in the earlier year to 1,995 in the later.

Detailed statistics for the several census years from 1921 to 1927 are presented in Table 3. The figures for all years except 1926 were compiled from data collected at the regular biennial censuses of manufactures; those for 1926, from the returns made at a special census of aircraft production.

TABLE 1.—SUMMARY FOR THE UNITED STATES: 1919 TO 1927

[Data for establishments with products under \$5,000 in value included for 1919 but not for subsequent years. See sec. 10, p. 6]

YEAR OR PERIOD	Number of establishments	Wage earners (average for the year)	Wages	Cost of materials, supplies, fuel, and power	Value of products	Value added by manufacture <sup>1</sup>	Horsepower <sup>2</sup>
1927-----	70	4, 422	\$6, 857, 014	\$7, 517, 183	\$21, 161, 853	\$13, 644, 670	6, 031
1926-----	44	2, 701	4, 222, 151	2, 869, 967	12, 524, 719	9, 654, 752	3, 735
1923-----	33	2, 901	4, 521, 949	3, 829, 574	12, 945, 263	9, 115, 689	5, 443
1921-----	21	1, 395	2, 202, 307	2, 407, 395	6, 641, 988	4, 234, 503	( <sup>3</sup> )
1919-----	31	3, 543	4, 906, 740	7, 126, 965	14, 372, 643	7, 245, 678	12, 512
PER CENT OF INCREASE OR DECREASE (—)							
1925-1927-----	( <sup>4</sup> )	63. 7	62. 4	161. 9	69. 0	41. 3	61. 5
1923-1925-----	( <sup>4</sup> )	-6. 9	-6. 6	-25. 1	-3. 2	5. 9	-31. 4
1923-1927-----	( <sup>4</sup> )	52. 4	51. 6	96. 3	63. 5	49. 7	10. 8
1919-1927-----	( <sup>4</sup> )	24. 8	39. 7	5. 5	47. 2	88. 3	-51. 8

<sup>1</sup> Value of products less cost of materials, supplies, fuel, and power. (See secs. 18 and 21, pp. 9 and 10.)

<sup>2</sup> Horsepower of prime movers in aircraft factories, not horsepower of engines in aircraft manufactured. (See Table 2.)

<sup>3</sup> Not called for on schedule.

<sup>4</sup> Per cent not computed where base is less than 100.

TABLE 2.—PRIME MOVERS, MOTORS, AND GENERATORS, IN AIRCRAFT FACTORIES, BY TYPE, NUMBER, AND RATED CAPACITY, FOR THE UNITED STATES: 1927, 1925, AND 1923

TYPE	1927		1925		1923	
	Number	Capacity Horse-power	Number	Capacity Horse-power	Number	Capacity Horse-power
Prime movers, total.....	1,292	6,031	655	3,735	569	5,443
Steam engines.....	1	35	1	35	1	25
Steam turbines.....	1	150				
Internal-combustion engines.....	2	75	41	299	1	50
Electric motors driven by purchased current.....	1,288	5,771	613	3,401	567	5,368
Electric motors, total.....	1,296	5,783	626	3,424	568	5,383
Driven by purchased current.....	1,288	5,771	613	3,401	567	5,368
Driven by current generated in establishment reporting.....	8	12	13	23	1	15
Electric generators.....	1	Kilowatts 25	2	Kilowatts 10	(1)	Kilowatts (1)

<sup>1</sup> Not called for on schedule.

TABLE 3.—PRODUCTS, BY NUMBER AND VALUE, FOR THE UNITED STATES: 1921 TO 1927

CLASS	1927	1926	1925	1923	1921
1. The aircraft industry, all products, total value.....	\$21,161,853	<sup>1</sup> \$17,670,405	\$12,524,719	\$12,945,263	<sup>2</sup> \$6,652,981
2. Aircraft, engines, parts, and repair and experimental work.....	20,497,912	17,521,314	12,375,499	( <sup>3</sup> )	( <sup>3</sup> )
3. Other products (not normally belonging to the industry).....	663,941	149,091	149,220	( <sup>3</sup> )	( <sup>3</sup> )
4. Aircraft, parts, etc., made as secondary products in other industries, value.....	452,535	<sup>4</sup> 24,500	<sup>5</sup> 250,462	<sup>5</sup> 107,101	<sup>5</sup> 777,843
Aircraft, engines, parts, etc., all industries:					
Total value (sum of 2 and 4, except for 1923 and 1921).....	20,950,447	17,545,814	12,625,961	13,142,364	7,430,824
Aircraft completed within the year—					
Airplanes—					
Number.....	<sup>6</sup> 1,888	<sup>7</sup> 1,125	711	505	290
Value.....	\$12,224,979	\$7,448,679	\$5,908,335	\$6,166,218	\$3,818,340
Seaplanes and amphibians—					
Number.....	<sup>8</sup> 107	<sup>8</sup> 61	78	32	12
Value.....	\$2,280,020	\$1,422,348	\$765,324	\$1,570,851	\$314,768
Aircraft under construction at close of year—					
Number.....	( <sup>9</sup> )	508	259	281	374
Value of work done during year.....	( <sup>9</sup> )	\$2,377,769	\$1,428,447	\$1,339,737	\$966,322
Other aeronautical products, value <sup>10</sup> .....	\$1,407,929	\$242,045	\$728,970		
Parts and engines <sup>11</sup> for sale as such, value.....	\$5,037,519	\$6,054,973	\$3,794,885	\$4,065,568	\$2,331,394

<sup>1</sup> The census of the aircraft industry for 1926 was a special one, the schedule calling for aircraft production only. The figures differ from those originally published because of the exclusion here and the inclusion in the 1926 report of data for 3 establishments with products valued at less than \$5,000 and of 5 engaged primarily in the manufacture of aircraft engines.

<sup>2</sup> Includes \$10,993 reported by 4 establishments with products valued at less than \$5,000.

<sup>3</sup> Not reported separately.

<sup>4</sup> Value of aircraft made by establishments engaged primarily in the manufacture of engines.

<sup>5</sup> Parts only.

<sup>6</sup> Includes 103 rebuilt and reassembled airplanes and 37 without engines.

<sup>7</sup> Includes 171 rebuilt and reassembled airplanes.

<sup>8</sup> Includes 45 amphibians in 1927 and 54 in 1926, combined with seaplanes to avoid disclosing data for individual establishments.

<sup>9</sup> No data.

<sup>10</sup> Value of airships, balloons, parachutes, kites, and experimental and repair work.

<sup>11</sup> The engines included are only those made as secondary products by manufacturers of complete aircraft.

TABLE 4.—GENERAL STATISTICS, BY STATES: 1927

[This table presents statistics for all States for which separate figures can be given without disclosing data reported by individual establishments. Certain of the "Other States," however, reported larger values of products than some of the States shown separately]

STATE	Num-ber of estab-lish-ments	PERSONS ENGAGED IN THE INDUSTRY				Horse-power <sup>1</sup>	Salaries	Wages	Cost of materials, sup-plies, fuel, and power		Value of products	Value added by manufac-ture <sup>2</sup>
		Total	Pro-prie-tors and firm mem-bers	Salaried officers and employes (this year)	Wage earners (aver-age this year)				Materials and supplies	Fuel and power		
United States.....	70	5,499	13	1,064	4,422	6,031	\$2,293,054	\$6,857,014	\$7,343,650	\$173,633	\$21,161,853	\$13,644,670
California.....	12	479	5	85	389	184	148,360	613,914	455,689	8,115	1,631,253	1,187,449
Illinois.....	5	78	2	11	65	102	17,411	65,406	93,249	3,706	280,776	133,821
Michigan.....	9	405	---	64	341	386	176,456	588,057	592,657	27,834	1,470,255	850,294
Missouri.....	4	80	---	20	60	30	21,174	55,658	107,790	3,822	234,030	124,918
New York.....	16	1,815	---	388	1,427	1,980	851,368	2,340,991	2,680,045	59,726	7,187,475	4,447,704
Ohio.....	5	850	---	158	694	722	321,171	1,050,994	1,107,870	28,485	3,820,108	2,683,753
Pennsylvania.....	3	469	---	77	391	704	235,228	670,576	512,562	11,403	1,769,084	1,245,119
Other States <sup>3</sup> .....	16	1,323	5	263	1,055	1,923	517,886	1,471,418	1,793,788	31,442	4,818,872	2,993,642

<sup>1</sup> Horsepower of prime movers in aircraft factories; not horsepower of aircraft manufactured. (See Table 2.)

<sup>2</sup> Value of products less cost of materials, supplies, fuel, and power. (See secs. 18 and 21, pp. 9 and 10.)

<sup>3</sup> Colorado, 1; Iowa, 1; Kansas, 4; Maryland, 2; Nebraska, 2; New Jersey, 3; Virginia, 1; Washington, 1; Wisconsin, 1.

## CARRIAGES AND SLEDS, CHILDREN'S

[A preliminary report for this industry was issued under date of October 26, 1928]

**Description of the industry.**—The establishments in this industry are engaged primarily in the manufacture of children's carriages and certain other class of children's wheel goods, and children's sleds.

**Comparability of statistics for earlier years.**—The census for 1925 was the first at which a special schedule, calling for numbers and values of the seven classes of products, was used for this industry; therefore no comparative detail product figures for earlier years can be given.

**TABLE 1.—SUMMARY FOR THE UNITED STATES: 1919 TO 1927**

[Data for establishments with products under \$5,000 in value included for 1919 but not for subsequent years. See sec. 10, p. 6]

YEAR OR PERIOD	Number of establishments	Wage earners (average for the year)	Wages	Cost of materials, supplies, fuel, and power	Value of products	Value added by manufacture <sup>1</sup>	Horse power
1927.....	89	7,030	\$7,813,648	\$13,895,086	\$28,668,145	\$14,773,059	10,8
1925.....	86	6,926	7,923,304	13,553,184	30,173,501	16,620,317	9,8
1923.....	100	8,324	8,856,198	15,935,678	34,172,976	18,237,298	9,3
1921.....	89	5,460	5,577,906	9,517,303	21,716,839	12,199,536	(9)
1919.....	103	6,686	6,229,038	11,700,158	24,506,596	12,806,438	6,0
<b>PER CENT OF INCREASE OR DECREASE (—)</b>							
1925-1927.....	(3)	1.5	-1.4	2.5	-5.0	-11.1	4.
1923-1925.....	-14.0	-16.8	-10.5	-15.0	-11.7	-8.9	5.
1923-1927.....	-11.0	-15.5	-11.8	-12.8	-16.1	-19.0	10.
1919-1927.....	-13.6	5.1	25.4	18.8	17.0	15.4	69.

<sup>1</sup> Value of products less cost of materials, supplies, fuel, and power. (See secs. 18 and 21, pp. 9 and 10)

<sup>2</sup> Not called for on schedule.

<sup>3</sup> Per cent not computed where base is less than 100.

**TABLE 2.—PRIME MOVERS, MOTORS, AND GENERATORS, BY TYPE, NUMBER AND RATED CAPACITY, FOR THE UNITED STATES: 1927, 1925, AND 1923**

TYPE	1927		1925		1923	
	Number	Capacity	Number	Capacity	Number	Capacity
Prime movers, total.....	1,289	<i>Horse-power</i> 10,309	1,129	<i>Horse-power</i> 9,853	877	<i>Horse-power</i> 9,371
Steam engines.....	20	2,315	21	2,263	} 25	} 2,811
Steam turbines.....	1	666	1	666		
Internal-combustion engines.....	-2	29	6	279		
Water wheels and turbines.....	7	420	6	390		
Electric motors driven by purchased current.....	1,259	6,879	1,095	6,255	839	6,028
Electric motors, total.....	1,548	8,269	1,372	7,793	1,063	7,694
Driven by purchased current.....	1,259	6,879	1,095	6,255	839	6,028
Driven by current generated in establishment reporting.....	289	1,390	277	1,538	224	1,666
Electric generators.....	14	<i>Kilo-watts</i> 1,116	17	<i>Kilo-watts</i> 1,675	(1)	<i>Kilo-watts</i> (1)

<sup>1</sup> Not called for on schedule.

TABLE 3.—GENERAL STATISTICS, BY STATES: 1927

[This table presents statistics for all States for which separate figures can be given without disclosing data reported by individual establishments]

STATE	Number of establishments	PERSONS ENGAGED IN THE INDUSTRY				Horse-power
		Total	Proprietors and firm members	Salariéd officers and employees	Wage earners (average for the year)	
United States.....	89	7,812	24	758	7,030	10,309
Illinois.....	5	133	-----	18	115	59
Indiana.....	7	626	-----	62	564	811
Massachusetts.....	11	1,584	-----	134	1,450	1,271
Michigan.....	8	727	2	89	636	1,370
New York.....	17	450	10	53	387	1,368
Ohio.....	9	2,236	-----	194	2,042	2,003
Pennsylvania.....	11	752	5	80	667	1,152
Wisconsin.....	7	777	4	60	713	1,018
Other States <sup>1</sup> .....	14	527	3	68	456	1,257

  

STATE	Salaries	Wages	Cost of materials, supplies, fuel, and power		Value of products	Value added by manufacture <sup>2</sup>
			Materials and supplies	Fuel and power		
United States.....	\$1,757,595	\$7,813,648	\$13,518,452	\$376,634	\$28,668,145	\$14,773,059
Illinois.....	38,948	144,116	311,103	5,997	575,475	258,375
Indiana.....	169,484	618,710	1,401,549	40,169	2,812,585	1,370,867
Massachusetts.....	400,442	1,650,641	2,789,790	52,943	6,125,526	3,282,793
Michigan.....	149,248	680,640	1,036,091	38,665	2,436,216	1,261,460
New York.....	109,866	497,228	992,912	30,654	2,091,544	1,067,978
Ohio.....	434,339	2,370,944	4,118,104	139,657	8,374,140	4,116,379
Pennsylvania.....	210,815	694,449	1,087,615	30,042	2,495,389	1,377,732
Wisconsin.....	102,831	694,246	1,067,012	21,137	2,292,678	1,204,529
Other States <sup>1</sup> .....	141,622	462,674	714,276	17,370	1,464,592	732,946

<sup>1</sup> Alabama, 1 establishment; Connecticut, 3; Iowa, 1; Maryland, 2; Minnesota, 2; Missouri, 1; New Hampshire, 1; New Jersey, 1; Vermont, 1; Washington, 1.

<sup>2</sup> Value of products less cost of materials, supplies, fuel, and power. (See secs. 18 and 21, pp. 9 and 10.)

## CARRIAGES, WAGONS, SLEIGHS, AND SLEDS, AND MATERIALS

[A preliminary report for these industries was issued under date of March 11, 1929]

The manufacture of carriages, wagons, sleighs, and sleds, and the manufacture of materials and parts for such vehicles, are treated for census purposes as separate industries. A combined summary for these industries is presented in the table below.

**Duplication in cost of materials and value of products.**—The combined statistics for cost of materials and for value of products include a considerable amount of duplication arising from the fact that in large measure the products of the "Carriage, wagon, sleigh, and sled materials" industry are used as materials in the "Carriages, wagons, sleighs, and sleds" industry, so that the combined cost of materials exceeds the cost of raw and partly manufactured materials produced outside the industries, and the combined value of products is in excess of the total factory value of the finished products in the form in which they reach the final purchaser. (The census schedules call for the selling value, at the factory, of products manufactured during the year.)

### COMBINED SUMMARY FOR THE CARRIAGE AND WAGON INDUSTRIES, FOR THE UNITED STATES: 1919 TO 1927

[This table presents a combined summary for the "Carriages, wagons, sleighs, and sleds" industry and the "Carriage, wagon, sleigh, and sled materials" industry. For separate summary statistics for the two industries, see Table 1, p. 1130, and Table 1, p. 1134. Data for establishments with products under \$5,000 in value included for 1919 but not for subsequent years. See sec. 10, p. 6.]

YEAR OR PERIOD	Number of establishments	Wage earners (average for the year)	Wages	Cost of materials, supplies, fuel, and power	Value of products	Value added by manufacture <sup>1</sup>	Horse-power
1927 <sup>2</sup> .....	161	4, 151	\$4, 876, 125	\$12, 202, 825	\$22, 463, 183	\$10, 280, 358	23, 440
1925 <sup>2</sup> .....	233	6, 222	7, 007, 523	15, 518, 424	30, 052, 430	14, 534, 000	29, 118
1923 <sup>2</sup> .....	505	10, 092	10, 909, 362	22, 686, 669	44, 685, 973	21, 995, 304	37, 114
1921 <sup>2</sup> .....	978	10, 772	12, 458, 563	23, 018, 566	43, 900, 549	20, 881, 983	( <sup>3</sup> )
1919 <sup>2</sup> .....	2, 555	24, 973	25, 331, 608	64, 068, 225	119, 908, 079	55, 839, 854	64, 713
PER CENT OF DECREASE							
1925-1927 .....	-30.9	-33.3	-30.4	-21.4	-25.3	-29.4	-19.6
1923-1925 .....	-53.9	-38.3	-35.8	-31.6	-32.7	-33.9	-21.6
1923-1927 .....	-68.1	-58.9	-55.3	-46.2	-49.7	-63.4	-37.0
1919-1927 .....	-93.7	-83.4	-80.8	-81.0	-81.3	-81.6	-63.8

<sup>1</sup> Value of products less cost of materials, supplies, fuel, and power. (See secs. 18 and 21, pp. 9 and 10)

<sup>2</sup> Data for establishments engaged solely in repair work are included for 1921 and 1919, but not for subsequent years. (See "Exclusion of repair shops," p. 1129.)

<sup>3</sup> Not called for on schedule.

## CARRIAGES, WAGONS, SLEIGHS, AND SLEDS

**Description of the industry.**—The primary products of establishments in this industry are complete horse-drawn vehicles (including sleighs and sleds) of all classes, handcars, pushcarts, and wheelbarrows. At the census for 1925, for the first time, manufacturers of wheelbarrows were classified in this industry, and the statistics for prior years have been adjusted to include data for these establishments. Some establishments manufacture, in addition to complete vehicles, parts and materials for sale as such, but those engaged exclusively or principally in the production of parts and materials are classified separately in the "Carriage, wagon, sleigh, and sled materials" industry.

**Exclusion of repair shops.**—At censuses prior to 1923 carriage and wagon repair shops (establishments engaged solely or principally in the repair of carriages and wagons) were classified in this industry. The canvass for 1923 did not, in general, cover repair shops, although data for a small number were included in the statistics; but all such establishments were omitted from the canvasses for 1925 and 1927. The numbers of repair shops, the numbers of their wage earners, and the values of the work done, as reported at the censuses for 1921 and 1919, are as follows:

	1921	1919
Number of repair shops.....	321	1,156
Number of wage earners.....	1,731	2,454
Value of work done.....	\$7,286,442	\$9,449,899

**Duplication in cost of materials and value of products.**—To the extent to which materials and parts are made by establishments in this industry and sold to other establishments which use them in the manufacture of complete vehicles, the statistics for cost of materials and value of products include duplication. The value of materials and parts made for sale as such is shown under "Repair work and parts (normally belonging to the industry)," Table 3. Materials and parts are, of course, sold for replacement purposes as well as for installation in new vehicles.

**Decrease in number of establishments (Table 1).**—The number of establishments reporting decreased from 152 in 1925 to 117 in 1927, this decrease being the net result of a loss of 37 establishments and a gain of 2. Of the 37 establishments lost, 25 had gone out of business prior to the beginning of 1927, 7 had been engaged primarily in the manufacture of carriages, wagons, sleighs, and sleds in 1925 but confined their work exclusively to custom work and repairing in 1927 (see "Exclusion of repair shops," above), and 5 reported products valued at less than \$5,000 (see sec. 10, p. 6).

TABLE 1.—SUMMARY FOR THE UNITED STATES: 1919 TO 1927

[Data for establishments with products under \$5,000 in value included for 1919 but not for subsequent years. See sec. 10, p. 6.]

YEAR OR PERIOD	Number of establishments	Wage earners (average for the year)	Wages	Cost of materials, supplies, fuel, and power	Value of products	Value added by manufacture <sup>1</sup>	Horse-power
1927 <sup>2</sup> .....	117	3,387	\$4,211,610	\$10,648,271	\$19,422,235	\$8,773,904	18,20
1925 <sup>2</sup> .....	152	4,833	5,791,729	12,859,793	24,934,814	12,075,021	20,44
1923 <sup>2</sup> .....	396	8,109	9,318,763	18,682,274	37,372,825	18,690,551	26,50
1921 <sup>2</sup> .....	837	8,025	9,903,327	16,883,611	33,113,372	10,229,761	( <sup>3</sup> )
1919 <sup>2</sup> .....	2,297	18,464	19,664,837	49,333,552	93,142,763	43,809,211	41,68
PER CENT OF DECREASE							
1925-1927.....	-23.0	-29.9	-27.3	-17.2	-22.1	-27.3	-11.0
1923-1925.....	-61.6	-40.4	-37.8	-31.2	-33.3	-35.4	-22.5
1923-1927.....	-70.5	-58.2	-54.8	-43.0	-48.0	-53.1	-31.3
1919-1927.....	-94.9	-81.7	-78.6	-78.4	-79.1	-80.0	-55.7

<sup>1</sup> Value of products less cost of materials, supplies, fuel, and power. (See secs. 18 and 21, pp. 9 and 10.)  
<sup>2</sup> Data for establishments engaged solely in repair work are included for 1921 and 1919 but not for subsequent years. (See "Exclusion of repair shops," p. 1129.)  
<sup>3</sup> Not called for on schedule.

TABLE 2.—PRIME MOVERS, MOTORS, AND GENERATORS, BY TYPE, NUMBER, AND RATED CAPACITY, FOR THE UNITED STATES: 1927, 1925, AND 1923

TYPE	1927		1925		1923	
	Number	Capacity	Number	Capacity	Number	Capacity
Prime movers, total.....	1,062	Horse-power 18,207	1,165	Horse-power 20,449	1,931	Horse-power 26,509
Steam engines.....	51	8,253	73	12,784	92	14,728
Steam turbines.....	6	2,335				
Internal-combustion engines.....	12	306	11	234	39	707
Water wheels and turbines.....	3	172	3	172		
Electric motors driven by purchased current.....	990	7,141	1,078	7,259	1,795	10,885
Electric motors, total.....	1,401	13,956	1,756	14,080	2,631	19,209
Driven by purchased current.....	990	7,141	1,078	7,259	1,795	10,885
Driven by current generated in establishment reporting.....	471	6,815	678	7,421		
Electric generators.....	40	Kilowatts 4,955	38	Kilowatts 5,724	( <sup>1</sup> )	Kilowatts ( <sup>1</sup> )

<sup>1</sup> Not called for on schedule.

CARRIAGES, WAGONS, SLEIGHS, AND SLEDS

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TABLE 3.—PRODUCTS, BY CLASS, NUMBER, AND VALUE: 1921 TO 1927

CLASS	1927	1925	1923	1921 <sup>1</sup>
1. Carriages, wagons, sleighs, and sleds industry, all products, total value.....	\$19,422,235	\$24,934,814	\$37,372,825	\$33,113,372
2. Carriages, wagons, sleighs, sleds, and wheelbarrows.....	<sup>2</sup> 12,187,919	<sup>3</sup> 19,165,634	<sup>4</sup> 24,795,543	<sup>5</sup> 13,772,497
3. Repair work and parts (normally belonging to the industry).....	3,606,646	2,962,980	9,333,054	14,423,869
4. Other products (not normally belonging to the industry).....	3,567,670	2,806,200	3,244,228	4,917,006
5. Carriages, wagons, sleighs, sleds, and wheelbarrows made as secondary products in other industries, value.....	3,225,432	4,648,419	3,867,468	1,527,258
Carriages, wagons, sleighs, sleds, and wheelbarrows, all industries: Aggregate value (sum of 2 and 5).....	\$15,413,351	\$23,814,053	\$28,663,011	\$15,299,755
Wagons, total value.....	\$8,475,288	\$16,400,406	\$21,130,217	\$9,625,113
Business—				
Number.....	<sup>2</sup> 26,616	<sup>6</sup> 39,635	7 27,398	<sup>5</sup> 21,160
Value.....	<sup>2</sup> \$2,121,548	<sup>6</sup> \$3,285,971	<sup>7</sup> \$5,087,389	<sup>5</sup> \$4,330,220
Farm wagons—				
Number.....	50,810	171,783	196,275	58,402
Value.....	\$4,427,309	\$13,114,435	\$15,999,071	\$5,205,047
Farm trucks—				
Number.....	48,278			
Value.....	\$1,926,431			
Mail and mail carriers' wagons, patrol wagons, etc.—				
Number.....	( <sup>8</sup> )	( <sup>8</sup> )	<sup>9</sup> 299	<sup>9</sup> 232
Value.....	( <sup>8</sup> )	( <sup>8</sup> )	<sup>9</sup> \$43,757	<sup>9</sup> \$39,846
Carriages and buggies—				
Number.....	7,019	20,646	57,669	34,588
Value.....	\$612,311	\$1,894,156	\$4,610,840	\$3,084,443
Sulkies—				
Number.....	614	909	1,421	1,100
Value.....	\$75,088	\$97,120	\$127,883	\$106,961
Public conveyances and ambulances—				
Number.....	162	189	263	161
Value.....	\$39,904	\$44,441	\$142,072	\$49,178
Lunch wagons—				
Number.....	364	276	( <sup>8</sup> )	( <sup>8</sup> )
Value.....	\$2,713,424	\$1,916,017	( <sup>8</sup> )	( <sup>8</sup> )
Sleighs and sleds (including bobsleds)—				
Number.....	5,471	2,680	4,388	5,499
Value.....	\$182,748	\$89,192	\$152,773	\$247,667
Wheelbarrows, value.....	\$3,314,588	\$3,382,721	\$2,499,226	\$1,586,393

<sup>1</sup> Data for establishments engaged solely in repair work are included in the figures for 1921 but not in those for subsequent years. (See "Exclusion of repair shops," p. 1129.)

<sup>2</sup> Includes data for 9,640 handcars and pushcarts, valued at \$135,309, and 4,310 two-wheeled horse-drawn carts, valued at \$146,933.

<sup>3</sup> Includes data for 10,627 handcars and pushearts, valued at \$99,197, and 1,907 two-wheeled horse-drawn carts, valued at \$112,085.

<sup>4</sup> Includes value of handcars and pushearts, \$78,378 (number not reported).

<sup>5</sup> Includes value of pushcarts and hand trucks, \$35,749 (number not reported).

<sup>6</sup> Includes data for 12,651 handcars and pushcarts, valued at \$121,036, and 3,204 two-wheeled horse-drawn carts, valued at \$105,368.

<sup>7</sup> Includes value of handcars and pushearts, \$101,496 (number not reported).

<sup>8</sup> None reported.

<sup>9</sup> Includes data for ambulances, for which separate figures can not be shown.

TABLE 4.—VEHICLES—PRODUCTION, BY CLASS AND BY STATES: 1921 TO 1927

[This table presents statistics for all States for which separate figures can be given without disclosing the output of individual establishments. Two of the States shown in combination, however, reported larger production than some of those shown separately]

CLASS AND STATE	NUMBER				VALUE
	1927	1925	1923 <sup>1</sup>	1921 <sup>1</sup>	1927
<b>WAGONS (BUSINESS AND FARM)</b>					
United States.....	<sup>2</sup> 94,365	<sup>3</sup> 156,570	198,490	67,023	<sup>2</sup> \$6,940,561
Georgia and Iowa <sup>4</sup> .....	2,394	3,933	4,563	1,143	195,975
Illinois.....	38,206	57,271	53,961	22,533	2,261,643
Indiana.....	15,048	16,708	18,943	5,185	717,594
Kentucky and Minnesota <sup>4</sup> .....	9,577	16,065	27,276	5,849	656,812
Missouri and New York <sup>4</sup> .....	6,658	15,379	15,129	5,102	941,450
North Carolina and Virginia <sup>4</sup> .....	11,534	19,521	29,000	10,139	835,563
Pennsylvania.....	1,298	1,931	5,594	4,344	240,785
Tennessee.....	3,241	4,639	7,662	1,887	276,717
Other States.....	6,409	21,123	31,362	10,841	814,032
<b>CARRIAGES AND BUGGIES</b>					
United States.....	6,751	14,789	39,809	34,413	587,568
Georgia.....	1,515	4,176	4,589	719	130,858
Indiana.....	2,178	1,889	4,175	13,077	181,094
Kentucky and Ohio.....	2,512	5,561	17,621	10,317	235,502
Other States.....	546	3,163	13,424	10,300	40,114
<b>SLEIGHS AND SLEDS</b>					
United States.....	5,039	1,868	2,555	5,682	165,105

<sup>1</sup> Figures include data for Government wagons.

<sup>2</sup> Does not include data for 9,640 handcarts and pushcarts, valued at \$135,309, and 4,310 two-wheeled horse-drawn carts, valued at \$146,933.

<sup>3</sup> Does not include data for 10,627 handcarts and pushcarts, valued at \$99,197, and 1,907 two-wheeled horse-drawn carts, valued at \$112,085.

<sup>4</sup> Combined in order to avoid disclosing the production of individual establishments.

TABLE 5.—GENERAL STATISTICS, BY STATES: 1927

[This table presents statistics for all States for which separate figures can be given without disclosing data reported by individual establishments. Certain of the "Other States," however, reported larger values of products than some of the States shown separately]

STATE	Number of establishments	PERSONS ENGAGED IN THE INDUSTRY				Horse-power
		Total	Proprietors and firm members	Salaried officers and employees	Wage earners (average for the year)	
United States.....	117	4,074	48	639	3,387	18,207
Georgia.....	5	91	1	15	75	507
Illinois.....	9	816	2	122	692	5,378
Indiana.....	10	345	2	51	292	1,383
Iowa.....	5	56	3	11	42	207
Kentucky.....	5	402	2	70	330	2,183
Massachusetts.....	6	116	3	15	98	141
Minnesota.....	5	210	...	25	185	1,009
Missouri.....	9	186	2	27	157	660
New York.....	16	410	8	72	330	971
Ohio.....	7	160	1	29	130	671
Pennsylvania.....	7	252	3	30	219	1,019
Tennessee.....	4	126	4	16	106	520
Wisconsin.....	6	255	1	49	205	932
Other States <sup>1</sup> .....	23	649	16	107	526	2,646

STATE	Salaries	Wages	Cost of materials, supplies, fuel, and power		Value of products	Value added by manufacture <sup>2</sup>
			Materials and supplies	Fuel and power		
United States.....	\$1,562,142	\$4,211,610	\$10,308,416	\$339,855	\$19,422,235	\$8,773,964
Georgia.....	25,266	52,055	111,423	4,408	244,904	129,073
Illinois.....	270,041	878,944	2,574,690	92,193	4,036,639	1,369,756
Indiana.....	129,893	345,552	813,277	24,316	1,574,665	737,072
Iowa.....	16,962	47,940	113,022	4,556	266,810	149,232
Kentucky.....	127,923	344,177	566,408	41,701	1,331,914	723,805
Massachusetts.....	35,406	150,940	230,791	6,651	494,358	256,916
Minnesota.....	63,478	216,720	494,990	19,440	951,851	437,415
Missouri.....	62,263	167,043	230,291	9,703	672,656	432,662
New York.....	167,582	665,189	1,999,355	32,415	2,845,457	813,637
Ohio.....	76,649	185,029	393,524	15,727	854,193	444,942
Pennsylvania.....	99,771	270,739	444,859	26,572	1,015,730	544,299
Tennessee.....	34,647	82,195	210,926	9,674	429,284	208,684
Wisconsin.....	155,837	246,876	506,550	15,132	1,168,458	646,776
Other States <sup>1</sup> .....	296,424	551,606	1,618,310	37,361	3,535,316	1,879,645

<sup>1</sup> Alabama, 1 establishment; Arkansas, 1; Delaware, 1; Louisiana, 2; Maryland, 2; Mississippi, 3; New Jersey, 1; North Carolina, 5; Texas, 1; Vermont, 1; Virginia, 4; West Virginia, 1.

<sup>2</sup> Value of products less cost of materials, supplies, fuel, and power. (See secs. 18 and 21, pp. 9 and 10.)

## CARRIAGE, WAGON, SLEIGH, AND SLED MATERIALS

**Description of the industry.**—This industry classification covers establishments whose principal products are materials and parts, except springs (the manufacture of which is separately classified), for carriages, wagons, sleighs, and sleds. These products, which are sold in part for use in the manufacture of new vehicles and in part for replacement purposes, include, among others, bodies, tops, cushions, hubs, felloes, spokes, wheels, whiffletrees, carriage boots and aprons, axles, dashboards, neck yokes, and whip sockets.

**TABLE 1.—SUMMARY FOR THE UNITED STATES: 1919 TO 1927**

[Data for establishments with products under \$5,000 in value included for 1919 but not for subsequent years.  
See sec. 10, p. 6]

YEAR OR PERIOD	Number of establishments	Wage earners (average for the year)	Wages	Cost of materials, supplies, fuel, and power	Value of products	Value added by manufacture <sup>1</sup>	Horse-power
1927-----	44	764	\$664,515	\$1,554,554	\$3,040,948	\$1,486,394	5,213
1925-----	81	1,389	1,215,794	2,658,631	5,117,616	2,458,985	8,689
1923-----	109	1,983	1,590,599	4,004,395	7,313,148	3,308,753	10,647
1921-----	141	2,747	2,555,236	6,134,955	10,787,177	4,652,222	(1)
1919-----	258	6,509	5,666,771	14,734,673	26,765,316	12,030,643	23,672
PER CENT OF DECREASE							
1925-1927-----	(3)	-45.0	-45.3	-41.5	-40.6	-39.6	-40.0
1923-1925-----	-25.7	-30.0	-23.6	-33.6	-30.0	-25.7	-18.4
1923-1927-----	-59.6	-61.5	-58.2	-61.2	-58.4	-55.1	-51.0
1919-1927-----	-82.9	-88.3	-88.3	-89.4	-83.6	-87.6	-78.0

<sup>1</sup> Value of products less cost of materials, supplies, fuel, and power. (See secs. 18 and 21, pp. 9 and 10.)

<sup>2</sup> Not called for on schedule.

<sup>3</sup> Per cent not shown where base is less than 100.

**TABLE 2.—PRIME MOVERS, MOTORS, AND GENERATORS, BY TYPE, NUMBER, AND RATED CAPACITY, FOR THE UNITED STATES: 1927, 1925, AND 1923**

TYPE	1927		1925		1923			
	Number	Capacity	Number	Capacity	Number	Capacity		
Prime movers, total-----	267	<i>Horse-power</i> 5,213	432	<i>Horse-power</i> 8,689	375	<i>Horse-power</i> 10,647		
Steam engines-----	41	3,344	71	5,022	105	7,738		
Steam turbines-----			1	149				
Internal-combustion engines-----			8	235			8	294
Water wheels and turbines-----			2	40			5	205
Electric motors driven by purchased current-----	226	1,869	350	3,243	257	2,410		
Electric motors, total-----	226	1,869	370	3,406	278	2,973		
Driven by purchased current-----	226	1,869	350	3,243	257	2,410		
Driven by current generated in establishment reporting-----			20	163	21	563		
Electric generators-----	2	<i>Kilowatts</i> 18	5	<i>Kilowatts</i> 170	(1)	<i>Kilowatts</i> (1)		

<sup>1</sup> Not called for on schedule.

TABLE 3.—GENERAL STATISTICS, BY STATES: 1927

[This table presents statistics for all States for which separate figures can be given without disclosing data reported by individual establishments. Certain of the "Other States," however, reported larger values of products than some of the States shown separately]

STATE	Number of establishments	PERSONS ENGAGED IN THE INDUSTRY				Horse-power
		Total	Proprietors and firm members	Salaried officers and employees	Wage earners (average for the year)	
United States.....	44	909	32	113	764	5,213
Arkansas.....	6	214	1	29	184	907
Indiana.....	4	62	2	5	55	595
Ohio.....	4	42	2	7	33	530
Pennsylvania.....	8	166	4	18	144	740
Tennessee.....	4	133	2	22	109	865
Other States <sup>1</sup> .....	18	292	21	32	239	1,436

STATE	Salaries	Wages	Cost of materials, supplies, fuel, and power		Value of products	Value added by manufacture <sup>2</sup>
			Materials and supplies	Fuel and power		
United States.....	\$215,059	\$664,515	\$1,504,777	\$49,777	\$3,040,948	\$1,486,394
Arkansas.....	57,906	140,046	581,846	8,075	964,059	374,138
Indiana.....	16,500	43,240	52,440	2,850	160,513	105,223
Ohio.....	10,123	38,382	55,161	5,183	124,944	64,600
Pennsylvania.....	34,803	132,677	206,405	13,416	461,699	241,878
Tennessee.....	28,943	99,870	120,534	1,163	318,256	196,559
Other States <sup>1</sup> .....	66,784	210,300	488,391	10,090	1,011,477	503,996

<sup>1</sup> Alabama, 2 establishments; California, 1; Illinois, 2; Iowa, 1; Kentucky, 2; Louisiana, 1; Maryland, 1; Massachusetts, 1; Michigan, 1; Missouri, 1; New Hampshire, 1; New York, 1; Texas, 1; Washington, 1; Wisconsin, 1.

<sup>2</sup> Value of products less cost of materials, supplies, fuel, and power. (See secs. 18 and 21, pp. 9 and 10.)

## CARS, ELECTRIC AND STEAM RAILROAD

[A preliminary report for this industry was issued under date of March 11, 1929]

**Description of the industry.**—This industry consists in the building, rebuilding, and repair of railroad cars by establishments engaged primarily in such work, not including railroad repair shops. (See Tables 1 to 6.)

**Detailed statistics of products.**—The numbers and values of the several classes and types of cars manufactured are shown in Tables 3, 4, and 5. Table 5 relates only to the industry proper, but the figures in Tables 3 and 4 include also data for cars built in railroad repair shops and by establishments in other industries.

**TABLE 1.—SUMMARY FOR THE UNITED STATES: 1919 TO 1927**

YEAR OR PERIOD	Number of establishments	Wage earners, (average for the year)	Wages	Cost of materials, supplies, fuel, and power	Value of products	Value added by manufacture <sup>1</sup>	Horse-power
1927.....	135	38,031	\$60,624,856	\$209,112,561	\$312,508,598	\$103,396,037	236,415
1925.....	141	50,393	77,246,992	286,053,504	390,771,210	124,717,706	243,934
1923.....	139	80,590	129,178,010	413,660,102	604,350,341	190,690,239	250,102
1921.....	118	48,033	70,944,834	211,938,355	340,536,225	128,597,870	(?)
1919.....	106	55,218	82,416,737	368,143,487	556,664,807	188,521,320	167,180
PER CENT OF INCREASE OR DECREASE (—)							
1925-1927.....	-4.3	-24.5	-21.5	-21.4	-20.0	-17.1	-3.1
1923-1925.....	1.4	-37.5	-40.2	-35.7	-35.3	-34.6	-2.5
1923-1927.....	-2.9	-52.8	-53.1	-49.4	-48.3	-45.8	-3.5
1919-1927.....	27.4	-31.1	-26.4	-43.2	-43.9	-45.2	41.4

<sup>1</sup> Value of products less cost of materials, supplies, fuel, and power. (See secs. 18 and 21, pp. 9 and 10.)

<sup>2</sup> Not called for on schedule.

**TABLE 2.—PRIME MOVERS, MOTORS, AND GENERATORS, BY TYPE, NUMBER, AND RATED CAPACITY, FOR THE UNITED STATES: 1927, 1925, AND 1923**

TYPE	1927		1925		1923		
	Number	Capacity	Number	Capacity	Number	Capacity	
Prime movers, total.....	8,927	<i>Horse-power</i> 236,415	8,086	<i>Horse-power</i> 243,934	8,086	<i>Horse-power</i> 250,102	
Steam engines.....	178	43,890	207	61,996	} 368	109,783	
Steam turbines.....	50	53,110	42	48,884		19	3,181
Internal-combustion engines.....	10	1,935	15	2,402		2	175
Water wheels and turbines.....	1	125	1	100			
Electric motors driven by purchased current.....	8,688	137,355	7,821	130,552	7,697	136,963	
Electric motors, total.....	10,419	246,002	16,406	248,894	15,469	255,023	
Driven by purchased current.....	8,688	137,355	7,821	130,552	7,697	136,963	
Driven by current generated in establishment reporting.....	7,731	108,647	8,585	118,342	7,772	118,060	
Electric generators.....	107	<i>Kilowatts</i> 51,720	127	<i>Kilowatts</i> 55,720	(1)	<i>Kilowatts</i> (1)	

<sup>1</sup> Not called for on schedule.

TABLE 3.—CARS BUILT, BY CLASS, NUMBER, AND VALUE, FOR THE UNITED STATES: 1927 AND 1925

CLASS	1927	1925
1. "Cars, electric and steam railroad, not built in railroad repair shops" industry, all products, total value.....	\$312, 508, 598	\$390, 771, 210
2. Cars built, value.....	205, 144, 809	266, 629, 968
3. Other products, including car parts, value, and receipts for repair work.....	101, 523, 496	110, 368, 884
4. Products not normally belonging to the industry.....	5, 840, 293	13, 772, 358
Secondary production of other industries:		
5. Cars built.....	23, 608, 162	7, 988, 438
6. Car parts and receipts for repair work <sup>1</sup> .....	1, 993, 978	1, 395, 462
Car building and repair work, all industries: Aggregate value (sum of 2, 3, 5, and 6).....	<sup>1</sup> \$332, 270, 445	<sup>2</sup> \$386, 382, 752
Cars, total value.....	\$228, 762, 971	\$274, 618, 406
Steam-railroad cars—		
Total number.....	60, 474	96, 132
Total value.....	\$185, 886, 716	\$247, 180, 664
Passenger service <sup>3</sup> —		
Total number.....	1, 965	2, 121
Total value.....	\$52, 379, 918	\$54, 940, 366
Day coaches—		
Number.....	967	532
Value.....	\$22, 620, 966	\$11, 990, 777
Baggage and express—		
Number.....	265	340
Value.....	\$5, 202, 315	\$5, 676, 023
Chair, parlor, dining and buffet, mail, and sleeping—		
Number.....	545	1, 088
Value.....	\$10, 154, 130	\$34, 146, 172
Other types <sup>4</sup> —		
Number.....	188	152
Value.....	\$5, 402, 498	\$3, 127, 394
Freight service—		
Total number.....	58, 509	94, 011
Total value.....	\$133, 006, 798	\$192, 240, 298
Box—		
Number.....	19, 645	49, 230
Value.....	\$45, 318, 843	\$101, 023, 855
Caboose—		
Number.....	180	242
Value.....	\$717, 132	\$690, 775
Flat—		
Number.....	1, 656	2, 306
Value.....	\$2, 837, 703	\$3, 225, 184
Gondola—		
Number.....	10, 479	21, 402
Value.....	\$20, 023, 065	\$42, 002, 090
Hopper—		
Number.....	8, 734	3, 243
Value.....	\$19, 917, 603	\$5, 869, 778
Refrigerator—		
Number.....	9, 004	4, 704
Value.....	\$25, 633, 161	\$14, 740, 724
Stock—		
Number.....	1, 016	3, 310
Value.....	\$1, 881, 862	\$5, 876, 501
Tank—		
Number.....	5, 455	5, 396
Value.....	\$10, 448, 662	\$10, 701, 728
Other types <sup>4</sup> —		
Number.....	2, 334	4, 178
Value.....	\$6, 228, 767	\$3, 109, 663

<sup>1</sup> Includes, for 1927, 10,562 steam-railroad cars, valued at \$21,600,662; 101 electric-railroad cars, \$913,612; cars not reported by class, number, or type, \$1,093,888, and parts and repairs, \$1,993,978; for 1925, 4,098 steam-railroad cars, valued at \$7,379,450, 53 electric-railroad cars, \$608,988, and parts and repairs, \$1,395,462.

<sup>2</sup> This aggregate is the sum of the value items in the column below, except those underscored.

<sup>3</sup> Includes, for 1927, 141 gasoline and gasoline-electric motor cars for use by steam railroads; for 1925, 131 of these cars were included.

<sup>4</sup> The chief items included, are, for 1927, 1,176 ballast cars, valued at \$2,701,231; 345 sugar-cane cars, \$393,797; 216 dumpcars, \$360,971; 57 milk cars, \$407,340; 278 ore cars, \$679,379; 200 poultry cars, \$679,534; 23 snow plows, \$207,125; for 1925, 456 ballast cars, valued at \$912,800; 2,063 sugar-cane cars, \$3,270,942; 935 ore cars, \$1,698,613; 160 poultry cars, \$535,000.

TABLE 3.—CARS BUILT, BY CLASS, NUMBER, AND VALUE, FOR THE UNITED STATES: 1927 AND 1925—Continued

CLASS	1927	1925
Car building and repair work, all industries—Continued.		
Cars—Continued.		
Electric-railroad cars <sup>1</sup> —		
Total number.....	1,292	1,834
Total value.....	\$19,758,093	\$19,449,394
Passenger—		
Number.....	1,143	1,733
Value.....	\$18,105,781	\$19,030,149
Freight—		
Number.....	50	12
Value.....	\$159,750	\$41,225
Other types <sup>2</sup> —		
Number.....	99	99
Value.....	\$1,492,502	\$377,930
Cars not distributed as to type: <sup>3</sup>		
Number.....	(7)	4,151
Value.....	\$23,608,162	\$7,988,438
Other products, including car parts, value, and receipts for repair work.....	\$103,517,474	\$111,764,346

<sup>1</sup> Includes, for 1927, 51 gasoline and gasoline-electric motor cars for use by electric railroads; for 1925, a few of these cars were included.

<sup>2</sup> See note 1.

<sup>3</sup> Data incomplete.

TABLE 4.—CARS BUILT, BY CLASS, TYPE OF CONSTRUCTION, NUMBER, AND VALUE, FOR ALL INDUSTRIES, FOR THE UNITED STATES: 1927

[The differences between the items in this table and the corresponding items in Table 5 are due to the inclusion in this table and the exclusion from Table 5 of data for cars built by establishments classified in other industries]

CLASS	NUMBER					Value
	Total	All wood	Steel under-frame	Steel body with wood interior	All steel	
Aggregate <sup>1</sup> .....	72,420	351	35,157	6,999	20,922	\$228,752,071
Steam-railroad cars, total.....	71,036	328	35,070	6,511	29,127	206,987,378
Passenger <sup>2</sup> .....	2,321		327	360	1,634	54,604,930
Freight and other types.....	68,715	328	34,743	6,151	27,493	152,982,448
Electric-railroad cars, total.....	1,393	23	87	488	795	20,671,705
Passenger.....	1,226	20	20	488	698	18,917,625
Freight and other types.....	167	3	67		97	1,754,080
Cars not distributed as to number or type of construction.....	( <sup>3</sup> )	( <sup>3</sup> )	( <sup>3</sup> )	( <sup>3</sup> )	( <sup>3</sup> )	* 1,663,888

<sup>1</sup> Includes data for 10,663 cars, valued at \$22,514,274, built chiefly in electric and steam railroad repair shops.

<sup>2</sup> Includes baggage, express, and mail cars.

<sup>3</sup> Data incomplete.

\* Value of cars built by establishments other than those engaged primarily in car building or the operation of railroad repair shops.

TABLE 5.—CARS BUILT, BY CLASS, TYPE OF CONSTRUCTION, NUMBER, AND VALUE, FOR THE INDUSTRY, FOR THE UNITED STATES: 1927

[See headnote, Table 4]

CLASS	NUMBER					Value
	Total	All wood	Steel under-frame	Steel body with wood interior	All steel	
Aggregate <sup>1</sup> .....	61,766	21	28,336	6,418	26,991	\$205,144,809
Steam-railroad cars.....	60,474		28,267	5,958	26,249	185,386,716
Passenger service, total.....	1,955		26	307	1,632	52,379,918
Day coaches.....	967		26	202	739	22,620,966
Baggage and express.....	255			28	237	5,202,315
Chair, parlor, dining and buffet, mail, and sleeping.....	545			7	538	19,154,139
Other types.....	188			70	118	5,402,498
Freight service, total.....	58,509		28,241	5,651	24,617	133,006,798
Box.....	19,645		11,188	5,550	2,907	45,318,843
Caboose.....	186		36		150	717,132
Flat.....	1,656		1,441		215	2,837,703
Gondola.....	10,479		4,678	100	5,701	20,023,065
Hopper.....	8,734		201	1	8,532	19,917,603
Refrigerator.....	9,004		9,004			25,633,161
Stock.....	1,016		1,006		10	1,881,862
Tank.....	5,455		4		5,451	10,448,662
Other types.....	2,334		683		1,651	6,228,767
Electric-railroad cars.....	1,292	21	69	460	742	19,758,093
Passenger.....	1,143	20	18	460	645	18,105,781
Freight.....	50		49		1	159,750
Other types.....	99	1	2		96	1,492,562

<sup>1</sup> Not including cars built by railroad repair shops or by establishments in other industries. (See footnotes 1 and 2, Table 4.)

TABLE 6.—GENERAL STATISTICS, BY STATES: 1927

(This table presents statistics for all States for which separate figures can be given without disclosing data reported by individual establishments. Certain of the "Other States," however, reported larger values of products than some of the States shown separately)

STATE	Num-ber of estab-lish-ments	PERSONS ENGAGED IN THE INDUSTRY			Horse-power	Salaries	Wages	Cost of materials, sup-plies, fuel, and power		Value of products	Value added by manu-facture.
		Total	Skilled officers and em-ployees	Wage earners, (average for the year)				Materials and supplies	Fuel and power		
United States.....	135	44, 275	6, 244	35, 031	236, 415	\$13, 851, 043	\$60, 624, 856	\$204, 440, 380	\$4, 672, 151	\$312, 505, 598	\$103, 306, 037
Delaware.....	3	1, 617	281	1, 336	9, 255	594, 873	2, 051, 763	8, 907, 738	135, 980	7, 513, 254	3, 469, 536
Georgia.....	3	300	50	250	1, 886	57, 767	321, 153	5, 501, 526	10, 069	6, 952, 819	492, 224
Illinois.....	23	10, 142	1, 562	8, 580	43, 698	3, 298, 263	15, 057, 840	49, 533, 020	840, 987	75, 585, 816	25, 191, 809
Indiana.....	11	6, 623	746	4, 877	21, 873	1, 607, 882	7, 927, 789	32, 993, 964	685, 508	47, 835, 304	14, 149, 832
Kansas.....	1	375	33	342	1, 093	102, 902	480, 358	875, 246	28, 658	1, 620, 207	708, 303
Minnesota.....	4	325	31	294	2, 461	90, 749	441, 851	731, 300	22, 379	1, 355, 995	582, 226
Missouri.....	8	3, 498	537	2, 961	13, 756	1, 125, 701	4, 314, 636	15, 339, 107	418, 978	22, 187, 208	7, 429, 123
New York.....	8	2, 806	248	2, 558	15, 751	4, 094, 808	4, 094, 808	11, 315, 363	192, 892	17, 086, 147	5, 577, 862
Ohio.....	10	1, 482	317	1, 165	15, 522	634, 238	1, 711, 726	8, 570, 997	225, 151	12, 130, 480	3, 243, 332
Pennsylvania.....	14	0, 343	1, 269	8, 074	56, 576	2, 807, 887	12, 704, 994	48, 406, 639	1, 210, 793	73, 420, 183	23, 802, 751
Other States <sup>1</sup> .....	44	8, 605	1, 170	7, 435	55, 073	2, 898, 031	11, 517, 938	32, 170, 360	822, 786	51, 782, 185	18, 719, 039

<sup>1</sup> Value of products less cost of materials, supplies, fuel, and power. (See secs. 18 and 21, pp. 9 and 10)

<sup>2</sup> Alabama, 1 establishment; California, 4; Florida, 1; Idaho, 1; Iowa, 3; Maine, 1; Maryland, 1; Massachusetts, 3; Michigan, 1; Nebraska, 2; New Hampshire, 1; New Jersey, 3; North Carolina, 2; Oklahoma, 3; Oregon, 1; Tennessee, 2; Texas, 5; Virginia, 3; Washington, 2; West Virginia, 1; Wisconsin, 2; Wyoming, 1.

# LOCOMOTIVES

[A preliminary report for this industry was issued under date of April 20, 1920]

**Description of the industry.**—The establishments classified in the locomotive industry are those engaged exclusively or chiefly in the manufacture of steam and internal-combustion locomotives. In addition, a number of steam locomotives and a few electric locomotives are manufactured by establishments classified as steam-railroad repair shops.

**Electric locomotives.**—Electric locomotives are manufactured principally by establishments classified in the "Electrical machinery, apparatus, and supplies" industry. The total production of electric locomotives is shown in Table 3.

**Omission of State statistics.**—In order to avoid disclosing the data reported by individual establishments, no statistics for this industry are shown by States.

**TABLE 1.—SUMMARY FOR THE UNITED STATES: 1919 TO 1927**

YEAR OR PERIOD	Number of establishments	Wage earners, (average for the year)	Wages	Cost of materials, supplies, fuel, and power	Value of products	Value added by manufacture <sup>1</sup>	Horse-power <sup>2</sup>
1927-----	3 17	12,961	\$17,648,206	\$45,688,450	\$76,719,403	\$31,030,953	148,971
1925-----	18	12,809	18,218,843	41,717,142	65,389,134	23,671,992	114,209
1923-----	19	30,672	51,866,976	124,261,523	215,392,951	91,131,423	91,214
1921-----	22	16,583	20,472,715	55,411,656	102,923,358	46,611,702	(1)
1919-----	17	26,715	38,798,641	72,375,950	156,269,730	83,893,780	96,504
PER CENT OF INCREASE OR DECREASE (—)							
1925-1927-----	(5)	1.2	-3.1	-9.5	-17.3	31.1	30.4
1923-1925-----	(5)	-58.2	-64.9	-66.4	-69.6	-74.0	25.2
1923-1927-----	(5)	-57.7	-66.0	-63.2	-64.4	-65.9	63.3
1919-1927-----	(5)	-51.5	-54.5	-36.9	-50.9	-63.0	54.4

<sup>1</sup> Value of products less cost of materials, supplies, fuel, and power. (See secs. 18 and 21, pp. 9 and 10.)

<sup>2</sup> Horsepower in locomotive works, not horsepower of locomotives built.

<sup>3</sup> Georgia, 2 establishments; Illinois, 1; Iowa, 1; New York, 2; Ohio, 3; Pennsylvania, 6; Virginia, 2.

<sup>4</sup> Not called for on schedule.

<sup>5</sup> Per cent not computed where base is less than 100.

**TABLE 2.—PRIME MOVERS, MOTORS, AND GENERATORS, BY TYPE, NUMBER, AND RATED CAPACITY, FOR THE UNITED STATES: 1927, 1925, AND 1923**

TYPE	1927		1925		1923	
	Number	Capacity	Number	Capacity	Number	Capacity
Prime movers, total-----	6,031	<i>Horse-power</i> 148,971	4,083	<i>Horse-power</i> 114,209	4,111	<i>Horse-power</i> 91,214
Steam engines-----	86	24,432	80	20,452	} 64	} 27,782
Steam turbines-----	15	13,880	12	13,258		
Internal-combustion engines-----	27	6,608	26	6,558		
Electric motors driven by purchased current-----	5,903	104,051	3,965	73,941	4,038	60,579
Electric motors, total-----	8,648	164,428	7,233	141,093	7,594	121,228
Driven by purchased current-----	5,903	104,051	3,965	73,941	4,038	60,579
Driven by current generated in establishment reporting-----	2,745	60,377	3,268	67,152	3,556	60,649
Electric generators-----	61	<i>Kilowatts</i> 21,728	91	<i>Kilowatts</i> 32,365	(1)	<i>Kilowatts</i> (1)

<sup>1</sup> Not called for on schedule.

TABLE 3.—PRODUCTS—BY CLASS, NUMBER, AND VALUE, FOR THE UNITED STATES: 1927 AND 1925

CLASS	1927	1925
1. Locomotive industry, all products, total value.....	\$76, 719, 403	\$65, 339,
2. Locomotives and parts.....	\$73, 007, 477	\$61, 635,
3. Other products, (not normally belonging to the industry), value, and receipts for repair work <sup>1</sup> .....	\$3, 711, 926	\$3, 754,
4. Locomotives and parts made as secondary products in other industries (chiefly "Railroad Repair Shops" and "Electrical Machinery, Apparatus, and Supplies").....	\$13, 361, 709	\$12, 319,
Locomotives and parts, all industries: Total value (sum of 2 and 4).....	\$86, 369, 186	\$73, 954,
Locomotives— Total value.....	\$70, 508, 360	\$58, 359,
Steam, standard gauge— Number.....	944	1, 1
Value.....	\$56, 922, 420	\$44, 809, 0
Steam, mining and industrial— Number.....	110	1
Value.....	\$1, 392, 956	\$1, 492, 2
Electric, standard gauge <sup>2</sup> — Number.....	44	( <sup>3</sup> )
Value.....	\$4, 931, 073	<sup>4</sup> \$10, 331, K
Electric, mining and industrial <sup>2</sup> — Number.....	798	( <sup>3</sup> )
Value.....	\$4, 926, 208	( <sup>3</sup> )
Internal-combustion, standard gauge and mining and industrial <sup>2</sup> — Number.....	( <sup>3</sup> )	( <sup>3</sup> )
Value.....	\$2, 335, 097	\$1, 726, 78
Parts, value.....	\$15, 860, 826	\$15, 895, 62

<sup>1</sup> Principally repairing and rebuilding, but includes also such miscellaneous products as special parts for machinery and cars, hardware specialties, gray-iron castings, and scrap.

<sup>2</sup> See "Electric locomotives," p. 1141.

<sup>3</sup> Data incomplete.

<sup>4</sup> Statistics for standard gauge and for mining and industrial electric locomotives can not be given separately for 1925 without disclosing the production of individual establishments.

<sup>5</sup> Statistics for standard gauge and for mining and industrial internal-combustion locomotives can not be given separately without disclosing the production of individual establishments.

## MOTOR CYCLES, BICYCLES, AND PARTS

[A preliminary report for this industry was issued under date of June 25, 1928]

**Description of the industry.**—The establishments in this industry are engaged primarily in manufacturing or in assembling complete motor cycles and bicycles, or in manufacturing parts and accessories, other than engines, tires, lamps, and electrical supplies.\* The total value of products for the industry thus includes duplication to the extent to which the products of establishments engaged primarily in the manufacture of parts and accessories are used as materials by establishments manufacturing complete machines. Many of the parts and accessories are, however, sold to dealers or to consumers for use as additional equipment or for replacement.

**Decrease in number of establishments.**—The number of establishments reporting decreased from 36 in 1925 to 29 in 1927, this decrease being accounted for as follows: Four went out of business prior to the beginning of 1927, 1, which had been engaged primarily in the manufacture of bicycles and parts in 1925, reported other commodities as its principal products in 1927 and was therefore transferred to the appropriate industry, and 2 reported products valued at less than \$5,000. (See sec. 10, p. 6.)

**Comparison with preceding census years.**—The production both of motor cycles and of bicycles, which showed pronounced increases for the period 1921–1923, has declined at each succeeding census. The number of motor cycles manufactured decreased from 41,898 in 1923 to 39,350 in 1925 and to 35,197 in 1927; while the number of bicycles produced decreased from 486,177 in 1923 to 303,446 in 1925 and to 255,456 in 1927.

TABLE 1.—SUMMARY FOR THE UNITED STATES: 1919 TO 1927

[Data for establishments with products under \$5,000 in value included for 1919 but not for subsequent years  
See sec. 10, p. 6]

YEAR OF PERIOD	Number of establishments	Wage earners (average for the year)	Wages	Cost of materials, supplies, fuel, and power	Value of products	Value added by manufacture <sup>1</sup>	Horsepower <sup>2</sup>
1927-----	29	3,897	\$5,441,502	\$10,174,092	\$21,454,149	\$11,280,057	10,753
1925-----	36	4,193	5,662,397	12,176,935	24,257,923	12,080,988	12,609
1923-----	30	6,576	8,010,021	18,002,907	32,259,205	14,256,298	14,840
1921-----	46	4,308	4,981,295	10,322,811	23,097,749	12,774,938	(3)
1919-----	51	10,886	12,763,235	25,985,915	53,105,895	27,119,980	14,420
PER CENT OF DECREASE (-)							
1925-1927-----	(4)	-7.1	-3.9	-16.4	-11.6	-6.6	-14.7
1923-1925-----	(4)	-36.2	-29.3	-32.4	-24.8	-15.3	-15.0
1923-1927-----	(4)	-40.7	-32.1	-43.5	-33.5	-20.9	-27.5
1919-1927-----	(4)	-64.2	-57.4	-60.8	-59.6	-58.4	-25.4

<sup>1</sup> Value of products less cost of materials, supplies, fuel, and power. (See secs. 13 and 21, pp. 9 and 10.)

<sup>2</sup> Horsepower of prime movers in motor cycle and bicycle factories, not horsepower of motor cycles manufactured. (See Table 2.)

<sup>3</sup> Not called for on schedule.

<sup>4</sup> Per cent not shown where base is less than 100.

\* Engines, tires, lamps (other than electric), and electrical equipment (including electric lamps) made for sale as such by establishments engaged primarily in the manufacture of these commodities are included as products of the "Engines, turbines, and water wheels," "Rubber tires and inner tubes," "Gas and electric fixtures; lamps, lanterns, and reflectors," and "Electrical machinery, apparatus, and supplies" industries, respectively.

TABLE 2.—PRIME MOVERS, MOTORS, AND GENERATORS, IN MOTOR-CYCLE AND BICYCLE FACTORIES, BY TYPE, NUMBER, AND RATED CAPACITY, FOR THE UNITED STATES: 1927, 1925, AND 1923

TYPE	1927		1925		1923	
	Number	Capacity	Number	Capacity	Number	Capacity
Prime movers, total.....	882	Horse-power 10,753	1,010	Horse-power 12,609	1,080	Horse-power 14,840
Steam engines.....	8	2,090	9	2,100	16	2,986
Steam turbines.....						
Internal-combustion engines.....	1	60	1	60	1	60
Water wheels and turbines.....	4	205	4	205	4	205
Electric motors driven by purchased current.....	869	8,398	996	10,244	1,059	11,589
Electric motors, total.....	1,038	10,093	1,044	11,176	1,173	14,170
Driven by purchased current.....	869	8,398	996	10,244	1,059	11,589
Driven by current generated in establishment reporting.....	169	1,695	48	932	114	2,581
Electric generators.....	3	Kilowatts 395	5	Kilowatts 995	( <sup>1</sup> )	Kilowatts ( <sup>1</sup> )

<sup>1</sup> Not called for on schedule.

TABLE 3.—PRODUCTS, BY CLASS, NUMBER, AND VALUE, FOR THE INDUSTRY, FOR THE UNITED STATES: 1921 TO 1927

CLASS	1927	1925	1923	1921
1. Motor cycles and bicycles industry, all products, total value.....	\$21,454,149	\$24,257,923	\$32,259,205	\$23,097,749
2. Motor cycles, bicycles, and parts.....	18,842,616	22,439,559	29,799,153	20,728,406
3. Other products (not normally belonging to the industry), and receipts for repair work.....	2,611,533	1,818,364	2,460,052	2,369,343
4. Motor cycles, bicycles, and parts made as secondary products in other industries, value.....	559,283	1,061,185	1,101,867	328,390
Motor cycles, bicycles, and parts, all industries: Total value (sum of 2 and 4).....	\$19,401,899	\$23,500,744	\$30,901,020	\$21,056,796
Motor cycles—				
Number.....	35,197	39,350	41,898	26,991
Value.....	\$8,000,683	\$8,875,657	\$10,025,170	\$6,438,706
Bicycles—				
Number.....	255,456	303,446	486,177	216,454
Value.....	\$5,803,440	\$7,030,566	\$10,726,900	\$6,218,334
Motor cycles parts, value.....	\$2,742,375	\$3,191,890	\$3,557,561	\$6,231,849
Side cars, value.....	\$649,350	\$577,641	\$908,318	
Bicycle parts, value.....	\$2,206,051	\$3,824,990	\$5,683,071	\$2,167,847

TABLE 4.—GENERAL STATISTICS, BY STATES: 1927

[This table presents statistics for all States for which separate figures can be given without disclosing data reported by individual establishments. Certain of the "Other States," however, reported larger values of products than some of the States shown separately.]

STATE	Number of establishments	PERSONS ENGAGED IN THE INDUSTRY					Horse-power <sup>1</sup>	Salaries	Wages	Cost of materials, supplies, fuel, and power		Value of products	Value added by manufacture <sup>2</sup>		
		Total	Proprietors and firm members	Salaried officers and employees	Wage earners (average for the year)	Horse-power <sup>1</sup>				Salaries	Wages			Materials and supplies	Fuel and power
United States.....	29	4,508	4	697	3,897	10,753	\$1,542,212	\$5,441,502	\$9,894,490	\$279,602	\$21,454,149	\$11,280,057			
Illinois.....	4	476	---	112	364	1,664	209,257	501,674	1,350,382	23,330	2,180,992	807,280			
Massachusetts.....	6	1,610	---	247	1,363	3,361	503,735	1,661,292	3,471,021	108,676	7,598,435	4,018,738			
New York.....	5	337	2	32	353	939	111,960	479,554	946,496	30,029	2,068,914	1,082,889			
Other States <sup>3</sup> .....	14	2,125	2	306	1,817	4,769	717,252	2,798,982	4,126,591	117,597	9,615,808	5,371,650			

<sup>1</sup> Horsepower of prime movers in motor cycle and bicycle factories; not horsepower of motor cycles manufactured. (See Table 2.)

<sup>2</sup> Value of products less cost of materials, supplies, fuel, and power. (See secs. 18 and 21, pp. 9 and 10.)

<sup>3</sup> Connecticut, 3 establishments; Indiana, 1; Kentucky, 1; Michigan, 2; New Hampshire, 1; Ohio, 4; Wisconsin, 2.

## MOTOR VEHICLES; MOTOR-VEHICLE BODIES AND MOTOR-VEHICLE PARTS

[Preliminary reports for these industries were issued under dates of August 16, 1928, and January 15, 1929, respectively]

The manufacture of motor vehicles and the manufacture of bodies and parts for such vehicles are treated for census purposes as separate industries. Combined statistics for these industries are presented in the table below.

**Duplication in cost of materials and value of products.**—The combined statistics for cost of materials and for value of products include a great deal of duplication due to the fact that in large measure the products of the "Motor-vehicle bodies and motor-vehicle parts" industry are used as materials in the "Motor-vehicles" industry, so that the combined cost of materials greatly exceeds the cost of raw and partly manufactured materials produced outside the industries, and the combined value of products is much in excess of the total factory value of the finished products in the form in which they reach the final purchaser. (The census schedule calls for the wholesale selling value, at the factory, of products manufactured within the year.)

On the other hand, as explained elsewhere (see p. 1155), the bodies-and-parts industry does not include the manufacture of tires and certain other materials and parts, and for this reason the statistics in the table below do not show the total number of persons employed, directly and indirectly, in the manufacture of motor vehicles.

### COMBINED SUMMARY FOR MOTOR VEHICLES AND MOTOR-VEHICLE BODIES AND MOTOR-VEHICLE PARTS INDUSTRIES, FOR THE UNITED STATES: 1919 TO 1927

[Data for establishments with products under \$5,000 in value included for 1919 but not for subsequent years. See sec. 10, p. 6]

YEAR OR PERIOD	Number of establishments	Wage earners (average for the year)	Wages	Cost of materials, supplies, fuel, and power	Value of products	Value added by manufacture <sup>1</sup>	Horse-power
1927-----	1,477	369,399	\$612,955,061	\$2,530,732,811	\$3,999,869,208	\$1,469,136,397	1,277,313
1925-----	1,655	426,110	713,931,334	2,970,913,263	4,721,402,550	1,750,489,293	1,172,013
1923-----	2,471	404,886	650,877,336	2,711,570,577	4,176,440,284	1,404,869,707	866,633
1921-----	2,359	212,777	318,752,665	1,321,026,902	2,079,403,508	758,376,606	(?)
1919-----	2,830	343,115	491,121,373	1,940,678,876	3,080,073,979	1,139,395,103	539,093
PER CENT OF INCREASE OR DECREASE (-)							
1925-1927-----	-10.8	-13.3	-14.1	-14.8	-15.3	-1.61	7.0
1923-1925-----	-33.0	5.2	8.2	9.6	13.0	19.5	36.2
1923-1927-----	-40.2	-8.8	-7.1	-6.7	-4.2	.8	45.6
1919-1927-----	-47.8	7.7	24.8	30.4	29.9	28.9	132.5

<sup>1</sup> Value of products less cost of materials, supplies, fuel, and power. (See secs. 18 and 21, pp. 9 and 10.)

<sup>2</sup> Not called for on schedule.

## MOTOR VEHICLES

**Description of the industry.**—The classification "Motor vehicles" applies to all manufacturing establishments whose principal products are four-wheeled motor-propelled (internal-combustion, steam, or electric) steerable vehicles, or trailers for use with such vehicles.<sup>1</sup> Establishments engaged primarily in the manufacture of motor-propelled fire-department apparatus, street sweepers, road oilers, etc., are also classified in this industry.

**Importance of the industry.**—The motor-vehicle industry, as defined above, in 1927 outranked all other manufacturing industries, on the basis of value of products, with one exception, namely, the "Slaughtering and meat packing, wholesale" industry. In using the number of wage earners to determine the rank, consideration must be given to the fact that the total number of wage earners employed, directly and indirectly, in the manufacture of motor vehicles is greatly in excess of the number reported for the motor-vehicle industry alone. The total number includes the 181,489 wage earners in the bodies-and-parts industry, together with those employed in the manufacture of motor-vehicle engines, electric starting and lighting equipment, etc., in other industries, and those employed in the manufacture of tires and inner tubes. No accurate estimate can be made of the grand total, but the combined number, 369,399, of wage earners employed in the motor-vehicles and motor-vehicle bodies-and-parts industries in 1927 exceeded the number reported for any other industry, according to the census classification, with three exceptions, namely, "Cotton goods" (467,596), "Lumber and timber products, not elsewhere classified" (413,946), and "Foundry and machine-shop products, not elsewhere classified" (397,814).

**Decrease in number of establishments (Table 1).**—The number of establishments reporting decreased from 297 in 1925 to 264 in 1927, this decrease being the net result of a loss of 55 establishments and a gain of 22. Of the 55 establishments lost to the industry, 36 had gone out of business prior to 1927, 12 were idle throughout the year, 6 had been engaged primarily in the manufacture of motor vehicles in 1925 but reported other commodities—bodies and parts, machine-shop products, and engines—as their principal products in 1927 and were therefore transferred to the appropriate industries, and 1 reported products valued at less than \$5,000. (See sec. 10, p. 6)

**Number of manufacturers.**—For census purposes an assembly plant (a plant in which parts made in another plant under the same management are assembled into complete motor vehicles) is treated as a manufacturing establishment, this being necessary in order that each State and each city having 100,000 inhabitants or more may be credited with its due share of the motor-vehicle industry. As a result, the number of *establishments* shown by the census report is somewhat in excess of the actual number of *manufacturers*. The number of such manufacturers reporting at the census for 1927 (counting the General Motors organization as 7) was 209, including 33 manufacturers of trailers. The numbers of manufacturers of the several classes of vehicles were as follows:

Passenger vehicles.....	46	Patrol wagons.....	3
Busses.....	31	Street-cleaning apparatus.....	4
Taxicabs.....	9	Trucks.....	116
Ambulances.....	7	Hearse and undertakers' wagons.....	8
Fire-department apparatus.....	20	Trailers.....	39

<sup>1</sup> The manufacture of motor cycles and bicycles is treated as a separate industry.

The sum of the numbers given above (283) is larger than the net number of manufacturers (209) for the reason that many of the manufacturers produce two or more classes of vehicles. (For example: A manufacturer of passenger cars, of trucks, and of busses has been counted three times in the above statement but only once in assembling the net total of 209.) Of the total of 2,817,306 passenger cars (exclusive of public conveyances) manufactured in 1927, 2,426,402, or 86.1 per cent, were produced by 10 manufacturers (counting individually the manufacturers in the General Motors group).

**Detailed statistics of products (Table 3).**—In the total value of products of this industry some duplication results from the inclusion of the value of bodies and parts made for sale as such by establishments engaged primarily in the manufacture of motor vehicles. (Bodies and parts for sale are made mainly in the bodies-and-parts industry. See pp. 1155-1159.) On the other hand, the value of the complete vehicles, chassis, etc., made during the census year was somewhat less than the net value of the output of the industry, for the reason that the latter includes the value of bodies and parts, and especially parts, produced for sale direct to dealers or individual customers for use as additional equipment or for replacement.

After increasing from 1,596,339 in 1921 to 3,901,710 in 1923 and 4,177,897 in 1925, the number of complete motor vehicles, chassis, and trailers decreased to 3,355,772 in 1927. The production of open cars, after increasing greatly between 1921 and 1923, decreased rapidly from 1923 to 1927; but during the same period the production of closed cars shows great increases from census to census. The rapid increase in the popularity of this type of car is brought out by a comparison of the numbers of such cars made during the last four census years—304,220 in 1921, 1,201,577 in 1923, 2,080,697 in 1925, and 2,407,160 in 1927. The proportion which the number of closed cars formed of the total number of passenger cars reported increased from 21.7 per cent in 1921 to 35.1 per cent in 1923, 58.3 per cent in 1925, and 85.4 per cent in 1927.

The average factory value of closed passenger cars decreased from \$1,082 in 1921 to \$888 in 1923, \$859 in 1925, and \$797 in 1927, and the average value of open passenger cars decreased from \$727 in 1921 to \$535 in 1923 and \$469 in 1925, and then increased to \$561 in 1927. The extent of these decreases and increases in average price is affected somewhat by variations in the proportions of high-priced and low-priced cars from year to year. For example: Since relatively high-priced cars formed a larger proportion of the total output of open cars in 1927 than in 1925, this alone had the effect of increasing the average price, regardless of any increases in prices of individual makes of cars.

**Motor vehicles manufactured, by value and tonnage classes.**—The following statement shows the number of passenger vehicles manufactured in 1927, grouped according to value, and the number of commercial vehicles, grouped according to tonnage:

PASSENGER VEHICLES		COMMERCIAL VEHICLES (including delivery wagons, trucks, and commercial chassis)	
Total number.....	2,817,306	Total number.....	1,447,329
Value up to \$500.....	801,610	¾ ton or less.....	101,324
\$501 to \$750.....	998,122	1 ton.....	190,882
\$751 to \$1,000.....	403,394	Over 1 to 2½ tons, inclusive.....	140,015
\$1,001 to \$1,500.....	389,394	3 to 4½ tons, inclusive.....	11,057
\$1,501 to \$2,000.....	165,501	5 tons.....	3,145
\$2,001 to \$2,500.....	32,752	Over 5 tons.....	1,106
\$2,501 to \$3,000.....	13,721		
\$3,001 and over.....	12,812		

<sup>1</sup> Exclusive of 22 trucks reported by establishments engaged primarily in other lines of manufacture.

**Annual production totals.**—In addition to the biennial statistics, the Bureau of the Census also compiles monthly statistics on the production of motor vehicles. These statistics, which are first issued in the form of press releases and are later published in the Survey of Current Business, are issued as representing production, but as a matter of fact most manufacturers report factory sales instead. For this reason the annual totals of the monthly figures for a given year differ slightly from the corresponding totals shown in reports of the Biennial Census of Manufactures. The following tabular statement presents the annual totals of the monthly figures for all years for which such figures are available:

YEAR	Total	Passenger cars <sup>1</sup>	Trucks and busses <sup>2</sup>
1922.....	2,544,176	2,302,923	241,253
1923 <sup>3</sup> .....	4,034,012	3,651,130	382,882
1924 <sup>3</sup> .....	3,002,540	3,210,005	392,535
1925 <sup>3</sup> .....	4,265,830	3,768,993	496,837
1926 <sup>3</sup> .....	4,301,134	3,819,362	481,772
1927.....	3,401,326	2,946,601	454,725
1928.....	4,358,759	3,827,849	530,910

<sup>1</sup> Light trucks using passenger chassis are here included with passenger vehicles, but in the biennial census statistics the data for such trucks are included with those for trucks with tonnage less than 1 ton.

<sup>2</sup> Busses are here included with trucks, but in the biennial census statistics the figures for busses are separately shown.

<sup>3</sup> Revised.

**Motor-vehicle registration.**—The rapidity of the increase in the use of motor vehicles is best brought out by the annual registration figures, published by the Bureau of Public Roads, Department of Agriculture. The number of registrations during each year, however, includes some duplication due to the scrapping of motor vehicles. The number of cars or trucks scrapped or discarded within the year is included in the total number registered, but not in the total number actually in use at the end of the year. Thus, in order to determine the actual number of motor vehicles in use at the end of the year, it would be necessary to reduce the total number of registrations by subtracting from it the number of vehicles scrapped or discarded during the year. It may be assumed, however, that the variation from year to year in the extent of the duplication due to this cause is not sufficient to have any material effect on the comparability, as between one year and another, of the ratios between the number of motor vehicles and the total population.

The following statement shows the total number of registrations of 4-wheeled motor vehicles during each calendar year from 1913 (the earliest year for which the registration figures have been compiled) to 1927, inclusive, together with the ratio between the number of registrations and the estimated population at the close of the year:

YEAR	Motor-vehicle registrations	Number of registrations to 1,000 population	YEAR	Motor-vehicle registrations	Number of registrations to 1,000 population
1913.....	1,258,062	13	1921.....	10,463,295	96
1914.....	1,711,339	17	1922.....	12,238,375	111
1915.....	2,445,664	24	1923.....	15,000,936	134
1916.....	3,512,996	35	1924.....	17,591,981	154
1917.....	4,983,340	48	1925.....	19,937,274	172
1918.....	6,146,617	59	1926.....	22,001,393	187
1919.....	7,565,446	72	1927.....	23,133,241	194
1920.....	9,231,941	86			

From these figures it will be seen that more than eighteen times as many motor vehicles were registered in 1927 as in 1913, only 14 years earlier, and that the ratio of motor-vehicle registrations to population was nearly fifteen times as large for December 31, 1927, as for December 31, 1913. The ratio for 1913 (disregarding duplication due to the above-mentioned cause) represents 1 motor vehicle to about 77 persons, or 17 families; that for 1927, 1 motor vehicle to 5.2 persons, or 1.2 families.

**Comparison with preceding census year.**—The decrease in the production of passenger vehicles between 1925 and 1927—21 per cent in number and 13.5 per cent in value—was due wholly to the fact that one important manufacturer operated on a normal-production basis during only a part of the year. In fact, the combined production of passenger cars by all other manufacturers showed increases in both number and value.

TABLE 1.—SUMMARY FOR THE UNITED STATES: 1919 TO 1927

[Data for establishments with products under \$5,000 in value included for 1919 but not for subsequent years. See sec. 10, p. 6]

YEAR OR PERIOD	Number of establishments	Wage earners (average for the year)	Wages	Cost of materials, supplies, fuel, and power	Value of products	Value added by manufacture <sup>1</sup>	Horse-power <sup>2</sup>
1927-----	264	187,910	\$321,664,093	\$1,889,426,249	\$2,848,442,843	\$959,016,594	725,674
1925-----	297	197,728	341,210,401	2,108,191,812	3,198,122,533	1,089,930,821	509,753
1923-----	351	241,356	406,730,278	2,147,463,352	3,163,327,874	1,015,864,522	435,545
1921-----	385	143,658	221,973,586	1,107,062,085	1,671,386,976	564,324,891	(3)
1919-----	315	210,559	312,165,870	1,578,651,574	2,387,903,287	809,251,713	282,323
PER CENT OF INCREASE OR DECREASE (-)							
1925-1927-----	-11.1	-5.0	-5.7	-10.4	-10.9	-12.0	37.7
1923-1925-----	-15.4	-18.1	-16.1	-1.8	1.1	7.3	17.0
1923-1927-----	-24.8	-22.1	-20.9	-12.0	-10.0	-5.6	61.1
1919-1927-----	-16.2	-10.8	3.0	19.7	19.3	18.5	148.5

<sup>1</sup> Value of products less cost of materials, supplies, fuel, and power. (See secs. 18 and 21, pp. 9 and 10.)

<sup>2</sup> Horsepower of prime movers in motor-vehicle factories; not horsepower of engines, etc., installed in motor vehicles.

<sup>3</sup> Not called for on schedule.

## MOTOR VEHICLES

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TABLE 2.—PRIME MOVERS, MOTORS, AND GENERATORS, IN MOTOR-VEHICLE FACTORIES, BY TYPE, NUMBER, AND RATED CAPACITY, FOR THE UNITED STATES: 1927, 1925, AND 1923

TYPE	1927		1925		1923	
	Number	Capacity	Number	Capacity	Number	Capacity
Prime movers, total.....	53,077	<i>Horse-power</i> 725,674	40,597	<i>Horse-power</i> 509,758	26,428	<i>Horse-power</i> 435,545
Steam engines.....	207	51,164	185	46,288	224	134,805
Steam turbines.....	149	232,674	101	122,192		
Internal-combustion engines.....	6	351	12	410	27	36,502
Electric motors driven by purchased current.....	52,715	441,485	40,299	340,868	26,177	264,238
Electric motors, total.....	68,888	625,190	62,483	517,920	49,509	409,048
Driven by purchased current.....	52,715	441,485	40,299	340,868	26,177	264,238
Driven by current generated in establishment reporting.....	16,173	183,705	22,184	177,052	23,332	144,810
Electric generators.....	266	<i>Kilowatts</i> 195,304	1240	<i>Kilowatts</i> 1115,532	( <sup>2</sup> )	<i>Kilowatts</i> ( <sup>2</sup> )

<sup>1</sup> Revised.<sup>2</sup> Not called for on schedule.

TABLE 3.—PRODUCTS, BY CLASS, TYPE, NUMBER, AND VALUE, FOR THE UNITED STATES: 1921 TO 1927

SOURCE AND CLASS	1927	1925	1923	1921
	NUMBER			
Complete vehicles, chassis, and trailers, total.....	3,355,772	14,177,897	13,901,710	11,596,339
Made in "Motor-vehicles" industry.....	3,354,805	14,176,169	13,901,325	11,595,608
Made as secondary products in "Motor-vehicle bodies and motor-vehicle parts" industry.....	346	509	269	369
Made as secondary products in other industries.....	621	1,219	116	362
Passenger vehicles (not including public conveyances) complete, total.....	2,817,306	3,565,945	3,419,430	1,404,004
Open.....	409,158	1,485,248	2,215,144	1,099,585
Touring.....	211,278	1,095,186	1,782,992	903,009
Roadsters and runabouts <sup>1</sup> .....	197,880	390,062	432,152	196,577
Closed.....	2,407,160	2,080,697	1,201,577	304,220
Coupés.....	465,157	2,080,697	1,201,577	304,220
Other closed.....	1,942,003			
Other.....	988		2,709	198
Public conveyances (busses and taxicabs).....	8,968	15,295	12,878	2,253
Government (Federal, State, county, and municipal), etc. (complete), total.....	1,599	1,233	1,192	1,131
Ambulances.....	219	129	197	134
Fire-department apparatus.....	1,145	1,020	910	815
Other (patrol wagons, street sprinklers, street sweepers, etc.).....	235	84	85	182
Commercial vehicles (complete), total.....	329,673	341,811	281,477	105,857
Light delivery (less than 1 ton) <sup>2</sup> .....	60,981	35,976	28,042	15,085
Trucks (1 ton and over).....	266,492	303,824	252,563	90,253
Hearses and undertakers' wagons.....	2,200	2,011	872	519
Chassis, total.....	178,487	240,790	175,273	79,325
Passenger, not including bus chassis.....	56,074	87,780	53,256	38,823
Commercial, including bus chassis.....	122,413	153,010	122,017	40,502
Trailers.....	19,739	12,823	11,460	3,769

See footnotes at end of table.

TABLE 3.—PRODUCTS, BY CLASS, TYPE, NUMBER, AND VALUE, FOR THE UNITED STATES: 1921 TO 1927—Continued

SOURCE AND CLASS	1927	1925	1923	1921
	VALUE			
1. "Motor-vehicles" industry, all products, total value.....	\$2,848,442,843	\$3,198,122,033	\$3,163,327,874	\$1,671,380,976
2. Complete vehicles, chassis, and trailers.....	2,546,807,058	2,951,028,408	2,615,680,409	1,327,516,091
3. Other products (not normally belonging to the industry).....	301,635,785	247,094,225	547,647,375	343,869,885
4. Motor vehicles, chassis, and trailers, made as secondary products in other industries.....	1,119,227	729,810	421,181	677,350
Motor vehicles, chassis, and trailers, all industries:				
Aggregate value (sum of 2 and 4).....	2,547,926,285	2,951,758,218	2,616,101,680	1,328,194,341
Passenger vehicles (not including public conveyances) complete, total.....	2,147,562,710	2,483,885,306	2,253,110,199	1,128,605,816
Open.....	229,405,083	697,051,241	1,183,995,749	799,121,315
Touring.....	113,305,562	516,206,235	962,097,097	678,726,036
Roadsters and runabouts <sup>2</sup> .....	116,099,471	180,845,006	221,898,652	120,394,379
Closed.....	1,917,343,812	1,786,834,065	1,066,838,433	329,144,127
Coups.....	353,165,131			
Other closed.....	1,564,178,681	1,786,834,065	1,066,838,433	329,144,127
Other.....	813,865		2,276,017	340,374
Public conveyances (busses and taxicabs).....	27,982,060	43,690,144	24,667,251	5,754,659
Government (Federal, State, county, and municipal), etc. (complete), total.....	11,521,291	10,486,267	10,051,776	9,457,826
Ambulances.....	669,698	527,679	820,209	556,617
Fire-department apparatus.....	9,958,679	9,588,982	8,720,787	8,529,970
Other (patrol wagons, street sprinklers, street sweepers, etc.).....	892,914	369,606	510,780	371,239
Commercial vehicles (complete), total.....	258,404,005	287,243,212	222,419,517	99,008,613
Light delivery (less than 1 ton) <sup>2</sup> .....	33,882,564	24,080,170	17,139,399	10,657,773
Trucks (1 ton and over).....	220,049,809	257,803,815	202,722,744	86,351,023
Hearse and undertakers' wagons.....	4,471,632	5,359,227	2,557,374	1,999,817
Chassis, total.....	95,244,145	121,516,283	101,486,215	83,202,748
Passenger, not including bus chassis.....	27,156,267	39,919,444	25,121,181	18,865,160
Commercial, including bus chassis.....	68,087,878	81,596,839	76,365,034	64,487,588
Trailers.....	7,212,074	4,937,006	4,366,722	2,074,670

<sup>1</sup> Revised.

<sup>2</sup> The statistics for roadsters and light delivery wagons for 1925 are not strictly comparable with those for 1927, because of the fact that a large number of roadsters with slip-on bodies manufactured in 1925 were practically passenger vehicles and were so classified, whereas the roadsters with slip-on bodies reported for 1927 were commercial vehicles and were classified as such.

TABLE 4.—MOTOR-VEHICLE PRODUCTION—PASSENGER VEHICLES, BY CLASS, NUMBER, AND VALUE, AND PUBLIC CONVEYANCES AND COMMERCIAL VEHICLES, BY NUMBER AND VALUE, FOR SELECTED STATES: 1927, 1925, AND 1923

[This table presents statistics for all States for which separate figures can be given without disclosing the output of individual establishments. In the cases of certain classes of products, however, some of the "Other States" outranked some of those shown separately.]

CLASS AND STATE	NUMBER			VALUE		
	1927	1925	1923	1927	1925	1923
Passenger vehicles (not including public conveyances), complete, total.....	2, 817, 306	3, 565, 945	3, 410, 430	\$2, 147, 562, 710	\$2, 483, 885, 306	\$2, 253, 110, 199
Touring cars, total.....	211, 273	1, 095, 186	1, 782, 992	113, 305, 562	516, 206, 235	962, 097, 097
California <sup>1</sup> .....	8, 250	54, 043	( <sup>2</sup> )	3, 527, 736	24, 459, 943	( <sup>2</sup> )
Indiana <sup>1</sup> .....	5, 609	41, 345	100, 501	5, 717, 726	29, 433, 155	65, 655, 692
Michigan.....	52, 281	212, 954	477, 642	46, 045, 225	159, 476, 828	399, 322, 273
New Jersey.....	45, 930	83, 740	( <sup>2</sup> )	16, 695, 954	31, 147, 258	( <sup>2</sup> )
New York <sup>1</sup> .....	17, 578	61, 394	105, 002	7, 125, 119	26, 427, 512	46, 552, 169
Ohio.....	23, 750	108, 860	232, 814	10, 462, 740	48, 133, 763	111, 957, 568
Wisconsin <sup>1</sup> .....	6, 296	39, 764	78, 788	4, 151, 941	20, 549, 700	43, 852, 080
Other States.....	51, 584	493, 086	788, 245	19, 579, 121	176, 578, 076	294, 757, 315
Roadsters and runabouts, total.....	197, 880	390, 062	432, 152	116, 090, 471	180, 845, 006	221, 898, 652
California <sup>1</sup> .....	9, 914	25, 361	18, 698	4, 060, 892	10, 083, 955	6, 637, 223
Indiana <sup>1</sup> .....	5, 221	15, 312	10, 419	4, 112, 238	9, 871, 860	13, 229, 346
Michigan.....	73, 689	73, 772	105, 573	62, 592, 325	57, 129, 521	92, 073, 429
New Jersey <sup>1</sup> .....	7, 667	( <sup>2</sup> )	( <sup>2</sup> )	3, 324, 090	( <sup>2</sup> )	( <sup>2</sup> )
New York <sup>1</sup> .....	13, 107	15, 067	18, 062	5, 535, 391	8, 335, 180	6, 760, 790
Ohio.....	24, 209	31, 608	35, 129	11, 488, 936	14, 240, 215	14, 080, 980
Wisconsin <sup>1</sup> .....	5, 804	16, 798	22, 534	3, 379, 154	10, 132, 553	14, 572, 344
Other States.....	58, 269	212, 144	212, 737	21, 556, 438	71, 051, 722	74, 544, 540
Closed cars, total.....	2, 407, 160	2, 030, 697	1, 201, 577	1, 917, 343, 812	1, 786, 834, 065	1, 066, 838, 433
California <sup>1</sup> .....	60, 271	46, 994	35, 172	31, 365, 348	27, 182, 170	20, 047, 309
Indiana <sup>1</sup> .....	72, 681	82, 304	54, 736	78, 223, 120	84, 956, 140	53, 899, 013
Michigan.....	1, 331, 664	990, 568	423, 005	1, 220, 285, 575	1, 029, 702, 801	521, 781, 499
New Jersey <sup>1</sup> .....	39, 505	( <sup>2</sup> )	( <sup>2</sup> )	19, 005, 521	( <sup>2</sup> )	( <sup>2</sup> )
New York.....	168, 775	100, 812	88, 152	104, 687, 732	78, 022, 063	72, 017, 096
Ohio.....	274, 329	263, 087	138, 011	185, 885, 789	199, 298, 496	120, 898, 566
Wisconsin.....	208, 687	132, 691	54, 822	148, 601, 716	109, 787, 191	46, 198, 726
Other States.....	251, 848	464, 151	408, 679	129, 289, 011	257, 885, 204	231, 965, 984
Other, total.....	988		2, 709	813, 865		2, 276, 017
Public conveyances (busses and taxicabs), total.....	8, 963	15, 295	12, 878	27, 982, 060	43, 690, 144	24, 067, 251
Illinois <sup>3</sup> .....	3, 201	2, 424	3, 214	8, 087, 824	6, 774, 361	6, 899, 304
Ohio.....	852	1, 156	( <sup>2</sup> )	3, 037, 353	4, 993, 177	( <sup>2</sup> )
Other States.....	4, 915	11, 715	9, 064	16, 856, 883	31, 922, 606	17, 767, 947
Commercial vehicles, total <sup>4</sup> .....	329, 673	341, 811	281, 477	258, 404, 005	287, 243, 212	222, 419, 517
California.....	18, 783	7, 442	5, 058	15, 318, 585	6, 244, 846	7, 216, 502
Illinois <sup>1</sup> .....	6, 342	8, 464	12, 755	9, 608, 321	11, 344, 427	10, 970, 421
Indiana.....	19, 944	22, 885	12, 844	21, 741, 211	20, 962, 731	7, 514, 686
Michigan.....	90, 780	125, 542	67, 030	77, 754, 483	110, 436, 329	48, 485, 433
New Jersey.....	57, 580	11, 335	( <sup>2</sup> )	21, 044, 634	6, 235, 594	( <sup>2</sup> )
New York.....	18, 670	13, 114	20, 719	17, 110, 303	11, 352, 218	20, 417, 771
Ohio.....	43, 892	38, 736	43, 183	49, 396, 155	50, 431, 447	66, 010, 454
Pennsylvania.....	8, 005	13, 387	24, 459	12, 496, 894	25, 929, 225	23, 171, 485
Wisconsin.....	16, 277	5, 783	4, 444	11, 936, 595	5, 670, 243	5, 265, 309
Other States.....	49, 400	95, 123	90, 335	22, 090, 824	38, 636, 152	33, 367, 456

<sup>1</sup> This State is outranked for 1927 by one or more of the "Other States."

<sup>2</sup> Included in "Other States" to avoid disclosing the output of individual establishments.

<sup>3</sup> Illinois, which reported a value larger than that reported by any other State for 1927, is included in "Other States" in order to avoid disclosing the output of individual establishments.

<sup>4</sup> Includes data for "Hearses and undertakers' wagons," as follows: For 1927, 2,200, valued at \$4,471,632; 1925, 2,011, \$5,359,227; 1923, 872, \$2,557,374.

TABLE 5.—GENERAL STATISTICS, BY STATES: 1927

[This table presents statistics for all States for which separate figures can be given without disclosing data reported by individual establishments. Certain of the "Other States," however, reported larger values of products than some of the States shown separately]

STATE	Num-ber of estab-lish-ments	PERSONS ENGAGED IN THE INDUSTRY					Horse-power 1	Salaries	Wages	Cost of materials, supplies, fuel, and power		Value of products	Value added by man-ufacture 2
		Total	Pro-rietors and firm mem-bers	Salaried officers and em-ployees	Wage earners (aver- age for the year)	Wage earners (aver- age for the year)				Materials and supplies	Fuel and power		
United States	264	213,970	30	26,030	187,910	725,674	\$71,118,022	\$321,664,093	\$1,871,695,597	\$17,730,082	\$2,848,442,843	\$959,016,594	
California	22	2,592	6	578	2,008	4,740	1,535,582	3,192,148	46,016,700	130,832	58,426,887	12,279,352	
Illinois	25	3,807	2	956	2,810	9,118	3,166,015	4,879,517	21,975,824	229,967	35,631,887	13,459,796	
Indiana	19	18,967	3	2,015	16,940	46,112	4,945,497	26,108,697	80,754,993	1,364,912	143,385,048	55,206,738	
Massachusetts	6	1,426	2	244	1,180	3,076	708,552	1,669,584	5,287,548	86,834	8,344,843	2,970,461	
Michigan	43	128,108	5	14,080	114,023	439,261	34,738,208	206,017,066	1,027,224,872	10,888,022	1,064,727,963	626,614,489	
New Jersey	8	3,063	5	579	2,484	14,493	1,733,915	4,233,380	53,793,372	301,046	66,276,110	12,181,092	
New York	20	10,440	2	2,084	8,346	31,381	4,783,065	14,246,548	124,396,287	618,005	169,509,816	44,489,524	
Ohio	35	23,165	2	2,910	20,253	60,891	8,194,723	32,381,802	214,448,306	1,677,483	299,575,975	83,150,186	
Pennsylvania	14	3,915	1	739	3,128	12,930	2,182,612	4,738,791	28,110,333	229,868	41,359,545	13,019,409	
Wisconsin	15	10,038	1	1,272	8,766	36,774	4,506,832	12,854,868	170,844,406	1,234,091	177,452,567	55,485,070	
Other States 4	57	8,499	9	513	7,907	52,898	4,623,021	11,319,692	142,864,321	784,104	183,757,902	40,130,477	

1 Horsepower of prime movers in motor-vehicle factories; not horsepower of engines, etc., installed in motor vehicles manufactured.

2 Value of products less cost of materials, supplies, fuel, and power. (See secs. 18 and 21, pp. 9 and 10).

3 See first 3 lines in "Value" section of Table 3.

4 Colorado, 2 establishments: Connecticut, 2; Delaware, 1; District of Columbia, 1; Florida, 1; Georgia, 1; Iowa, 4; Kansas, 3; Kentucky, 2; Louisiana, 4; Maine, 2; Mary-land, 1; Minnesota, 4; Mississippi, 1; Missouri, 2; Nebraska, 3; New Hampshire, 1; North Carolina, 2; Oklahoma, 1; Oregon, 1; Tennessee, 2; Texas, 6; Virginia, 1; Washington, 3.

## MOTOR-VEHICLE BODIES AND MOTOR-VEHICLE PARTS

**Description of the industry.**—The establishments in this industry are engaged primarily in the manufacture, for sale as such (or for transfer to motor-vehicle manufacturing establishments located elsewhere, but operated under the same ownership), of motor-vehicle bodies, tops, gears (transmission, differential, and steering), rims, frames, wheels, radiators, windshields, axles, bumpers, bumperettes, shock absorbers, sheet metal for automobiles (such as fenders, dust shields, hoods, or bonnets), and various other assemblies except complete chassis, and parts. The manufacture of certain other assemblies or parts, of which the most important are engines, motors for electric vehicles, tires, springs, ignition apparatus, batteries, and starting and lighting systems,<sup>1</sup> is not, however, included in this industry. Where a manufacturer makes various motor-vehicle parts in his main plant and assembles them into complete vehicles at branches, the main plant, with its wage earners, is classified in the bodies-and-parts industry and the branches in the motor-vehicle industry. Similarly, if a manufacturer builds bodies in one plant and installs them on chassis in another factory, the first plant is classified in the bodies-and-parts industry and the second in the motor-vehicle industry.

Where all the parts, including the bodies, are made and assembled in the same plant, the entire plant is classified in the motor-vehicle industry proper and no separate report is made covering the manufacture of the bodies and parts.

**Comparability of statistics for earlier years.**—The census of manufactures for 1925 was the first at which a special schedule, calling for detailed data on products, was used for this industry. For this reason, no comparable statistics in regard to numbers and values of individual classes or kinds of products are available for years earlier than 1925.

**Decrease in number of establishments between 1925 and 1927.**—The number of establishments decreased from 1,358 in 1925 to 1,213 in 1927, this decrease being the net result of a loss of 280 establishments and a gain of 135. The losses were due to several causes, namely: (1) A considerable number of establishments which reported for 1925 went out of business prior to 1927; (2) others ceased manufacturing and confined their work almost entirely to custom work and repairing; (3) some reported commodities other than motor-vehicle bodies and motor-vehicle parts as their principal products in 1927 and were accordingly transferred to the appropriate industries; (4) a number were idle throughout the year; (5) some reported products valued at less than \$5,000. (See sec. 10, p. 6.)

<sup>1</sup> Establishments engaged primarily in the manufacture of engines, tires, and springs, for sale as such, are classified, respectively, under "Engines and water wheels," "Rubber tires and inner tubes," and "Springs, steel; Railway, vehicle, heavy machine, etc., not made in rolling mills"; and those making motors for electric automobiles or ignition apparatus, batteries, and starting and lighting systems for gasoline automobiles as their products of chief value are classified under "Electrical machinery, apparatus, and supplies."

TABLE I.—SUMMARY FOR THE UNITED STATES: 1919 TO 1927

[Data for establishments with products under \$5,000 in value included for 1919 but not for subsequent years. See sec. 10, p. 6]

YEAR OR PERIOD	Number of establishments	Wage earners (average for the year)	Wages	Cost of materials, supplies, fuel, and power	Value of products	Value added by manufacture <sup>1</sup>	Horse-power
1927-----	1, 213	181, 489	\$291, 290, 968	\$641, 306, 562	\$1, 151, 426, 365	\$510, 119, 803	551, 639
1925-----	1, 358	228, 382	372, 720, 933	862, 721, 451	1, 523, 279, 923	660, 558, 472	662, 255
1923-----	2, 120	163, 530	253, 147, 058	564, 107, 225	1, 013, 112, 410	449, 005, 185	425, 088
1921-----	1, 974	69, 119	96, 779, 079	213, 964, 817	408, 016, 532	194, 051, 715	( <sup>2</sup> )
1919-----	2, 515	132, 556	178, 955, 503	362, 027, 302	692, 170, 692	330, 143, 390	256, 770
PER CENT OF INCREASE OR DECREASE (—)							
1925-1927-----	-10. 7	-20. 5	-21. 8	-25. 7	-24. 4	-22. 8	-16. 7
1923-1925-----	-35. 0	39. 7	47. 2	52. 9	50. 4	47. 1	55. 8
1923-1927-----	-42. 8	11. 0	15. 1	13. 7	13. 7	13. 0	29. 8
1919-1927-----	-51. 8	36. 9	62. 8	77. 1	66. 4	54. 5	114. 8

<sup>1</sup> Value of products less cost of materials, supplies, fuel, and power. (See secs. 18 and 21, pp. 9 and 10.)

<sup>2</sup> Not called for on schedule.

TABLE 2.—PRIME MOVERS, MOTORS, AND GENERATORS, BY TYPE, NUMBER, AND RATED CAPACITY, FOR THE UNITED STATES: 1927, 1925, AND 1923

TYPE	1927		1925		1923	
	Number	Capacity	Number	Capacity	Number	Capacity
Prime movers, total-----	67, 834	<i>Horse-power</i> 551, 639	64, 714	<i>Horse-power</i> 662, 255	37, 063	<i>Horse-power</i> 425, 088
Steam engines-----	138	39, 137	183	73, 516	258	89, 414
Steam turbines-----	54	23, 576	42	119, 331		
Internal-combustion engines-----	16	1, 326	24	1, 125	71	2, 584
Water wheels and turbines-----	9	8, 370	8	495	25	9, 748
Electric motors driven by purchased current-----	67, 617	474, 230	64, 457	467, 788	36, 709	323, 342
Electric motors, total-----	77, 040	559, 575	101, 432	649, 283	48, 162	398, 233
Driven by purchased current-----	67, 617	474, 230	64, 457	467, 788	36, 709	323, 342
Driven by current generated in establishment reporting-----	9, 423	85, 345	36, 975	181, 495	11, 453	74, 891
Electric generators-----	123	<i>Kilowatts</i> 52, 727	188	<i>Kilowatts</i> 130, 080	( <sup>1</sup> )	<i>Kilowatts</i> ( <sup>1</sup> )

<sup>1</sup> Not called for on schedule.

TABLE 3.—PRODUCTS, BY CLASS, NUMBER, AND VALUE, FOR THE UNITED STATES: 1927 AND 1925

CLASS	NUMBER		VALUE		PER CENT OF INCREASE OR DECREASE (—) 1925-1927	
	1927	1925	1927	1925	Number	Value
1. Bodies and parts, all products, total value.....			\$1,151,426,365	\$1,523,279,923		-24.9
2. Bodies and parts.....			1,094,180,682	1,465,366,168		-25.3
3. Other products (not normally belonging to the industry).....			57,239,683	57,913,755		-1.2
4. Bodies and parts made as secondary products in other industries, value.....			18,953,058	17,273,031		9.7
Bodies and parts, all industries: Aggregate value (sum of 2 and 4).....			1,113,139,740	1,482,639,199		-24.9
Bodies—						
Open passenger.....	69,661	(?)	10,033,827	42,376,169		-76.3
Closed passenger.....	1,746,871	(?)	406,832,616	371,773,187		9.4
Truck.....	146,726	(?)	27,575,006	35,929,557		-23.3
Bus, taxicab, etc.....	5,283	(?)	6,621,641	13,900,499		-52.4
Hearse.....	766	(?)	1,074,929	800,230		33.3
Dump, steel.....	19,181	(?)	3,769,465	4,072,812		-7.4
Other.....	(?)	(?)	243,845	366,845		-33.5
Gears—						
Transmission, differential, etc.....	(?)	(?)	57,519,382	49,531,144		16.1
Steering, complete units.....	2,589,485	1,565,841	17,926,266	11,949,939	65.4	50.0
Wheels—						
Disc.....	2,955,018	3,502,168	11,240,216	17,638,009	-15.6	-36.2
Cast-metal spoke.....	651,228	(?)	5,558,033	4,106,912	11.0	-8.3
Wire.....	711,573	1,228,100	4,495,612	10,969,577		-49.3
Wood.....	8,556,522	13,319,287	19,681,933	38,843,284	-35.8	-49.3
Radiators (shells and cores).....	(?)	(?)	38,754,672	41,447,298		-6.5
Bumpers.....	2,574,738	2,725,273	12,977,403	18,600,518	28.0	-7.3
Bumperettes.....	914,896		4,178,947			
Axles—						
Front.....	1,755,089	1,028,054	16,853,268	16,551,023	70.7	1.3
Rear, complete.....	1,400,584	928,874	64,584,255	52,429,145	60.5	23.2
Other, not specified.....	(?)	(?)	1,042,917	(?)		
Rear-axle housings.....	1,227,315	775,994	5,213,524	3,800,025	58.2	37.2
Axle shafts, rear.....	771,114	739,736	1,429,018	1,156,641	4.2	23.5
Shock absorbers.....	4,132,633	2,986,286	12,619,508	11,747,670	38.4	7.4
Windshields.....	1,120,820	1,369,823	8,175,336	11,454,323	-18.2	-28.6
Rims.....	20,794,961	21,330,092	13,931,569	17,762,047	-2.5	-21.6
Frames—						
Assembled.....	2,290,031	2,694,550	25,950,938	29,957,983	-14.7	-13.4
Unassembled (sets).....	897,037	482,337	11,632,789	6,577,039	86.0	76.9
Horns.....	4,803,290	4,270,741	6,333,484	5,389,626	12.5	17.5
Windshield wipers.....	3,764,432	(?)	4,300,287	(?)		
Sheet metal for automobiles, such as fenders, dust shields, hoods, or bonnets, etc., value.....			18,371,024	19,755,115		-7.0
Products not distributed by kind, value.....			1,367,430	17,273,031		-92.1
Parts and accessories (not reported in detail), value.....			292,563,258	630,342,074		-53.6
Contract work on materials furnished by others, value.....			277,362	238,389		16.3

<sup>1</sup> The values of the several classes of products which constitute this item were not separately tabulated, and therefore are not distributed among the several items.

<sup>2</sup> Not called for on schedule.

<sup>3</sup> No data.

<sup>4</sup> Includes data for the output of 3 establishments manufacturing wire wheels, to avoid disclosing their production.

<sup>5</sup> Revised.

TABLE 4.—GENERAL STATISTICS, BY STATES: 1927

[This table presents statistics for all States for which separate figures can be given without disclosing data reported by individual establishments. Certain of the "Other States," however, reported target values of products than some of the States shown separately.]

STATE	Num-ber of estab-lish-ments	PERSONS ENGAGED IN THE INDUSTRY			Horse-Power	Salaries	Wages	Cost of materials, supplies, fuel, and power		Value of products	Value added by manu-facture 1	
		Total	Pro-duc-tors and mem-bers	Sal-ariated officers and em-ployees				Wage earners (average for the year)	Materials and supplies			Fuel and power
United States.....	1,213	200,895	493	18,913	181,489	\$49,437,407	\$291,290,965	\$624,695,532	\$10,611,030	\$1,151,428,365	\$510,119,803	
Alabama.....	6	68	3	7	58	9,353	60,268	40,031	1,716	136,716	94,969	
Arkansas.....	8	705	3	50	652	137,201	523,602	1,363,177	47,009	2,011,780	1,196,594	
California.....	107	2,198	68	331	1,799	752,337	2,828,089	8,963,843	77,886	14,917,055	5,875,326	
Colorado.....	10	132	4	25	103	50,930	170,675	170,135	5,638	480,466	313,683	
Connecticut.....	27	786	18	121	647	345,104	1,017,996	1,229,837	45,665	3,071,794	1,796,292	
Georgia.....	5	121	6	9	106	17,256	141,561	150,601	5,002	405,310	249,707	
Illinois.....	113	4,440	41	699	3,700	1,905,516	5,709,233	9,930,806	351,826	24,222,230	13,939,598	
Indiana.....	69	10,373	13	1,133	9,222	2,757,091	13,324,132	29,813,969	968,739	59,171,724	28,389,016	
Iowa.....	22	466	10	85	371	100,144	421,249	783,405	25,230	2,009,535	1,200,891	
Kentucky.....	6	972	1	104	867	269,593	1,126,871	2,099,876	72,416	4,240,650	2,068,358	
Louisiana.....	7	137	2	22	113	50,084	139,574	273,437	3,974	599,400	322,900	
Maryland.....	11	226	2	25	198	45,477	262,085	221,324	21,808	641,330	398,298	
Massachusetts.....	57	4,787	24	770	3,993	1,221,890	5,878,405	9,892,621	180,265	18,719,575	8,646,069	
Michigan.....	112	102,794	21	7,338	95,435	20,755,224	158,030,985	316,646,320	9,289,731	568,709,760	242,764,709	
Minnesota.....	20	457	15	80	382	128,458	499,228	1,066,910	37,574	2,119,310	1,074,026	
Missouri.....	38	3,314	18	191	1,107	416,148	4,624,302	18,936,083	300,030	28,200,271	9,054,178	
Nebraska.....	10	144	5	22	117	49,319	151,441	265,233	7,022	656,464	384,089	
New Jersey.....	49	5,063	19	826	4,218	1,988,712	7,159,177	12,294,034	342,844	28,030,667	13,413,089	
New York.....	173	18,279	70	2,143	16,066	5,033,531	23,739,773	38,562,214	1,352,033	109,410,852	49,760,943	
North Carolina.....	8	252	3	24	225	69,442	246,205	256,313	7,468	693,172	485,911	
Ohio.....	141	20,726	42	2,098	18,646	5,420,115	29,967,526	79,594,051	1,566,388	141,896,667	60,736,228	
Oklahoma.....	5	54	10	6	38	29,707	32,442	89,860	1,366	181,031	90,675	
Oregon.....	8	75	4	14	57	22,098	66,379	163,354	2,222	330,553	184,977	
Pennsylvania.....	86	10,075	49	1,360	8,666	3,342,915	13,176,447	19,624,293	589,577	47,292,113	27,018,243	

Rhode Island.....	5	79	14	65	233	27,592	89,901	153,907	4,450	327,256	168,869
Tennessee.....	8	639	49	584	6,589	174,896	601,385	1,410,409	57,522	2,612,160	1,144,229
Texas.....	14	276	46	223	620	107,142	249,293	303,760	13,188	917,597	600,649
Utah.....	3	24	9	15	57	16,471	15,523	15,636	1,541	86,674	49,497
Virginia.....	6	307	36	271	354	67,246	240,934	653,770	6,894	1,262,334	601,720
Washington.....	19	242	41	192	358	81,158	351,955	456,706	12,726	1,040,514	571,082
Wisconsin.....	43	12,493	12	11,204	24,471	3,919,045	18,244,594	49,543,737	996,100	87,691,426	37,151,589
Other States <sup>1</sup> .....	17	189	32	149	641	65,202	177,648	281,660	14,371	87,704,448	408,417

<sup>1</sup> Value of products less cost of materials, supplies, fuel, and power. (See secs. 18 and 21, pp. 9 and 10.)

<sup>2</sup> Arizona, 1 establishment; Delaware, 3; Florida, 2; Idaho, 1; Kansas, 3; Maine, 2; New Hampshire, 3; South Carolina, 1; Vermont, 1.

## SHIP AND BOAT BUILDING

[A preliminary report for this industry was issued under date of April 20, 1929]

**Description of the industry.**—The statistics for this industry cover privately owned establishments engaged primarily in the construction or the repair of water craft of any kind. Since 1919 no data have been collected from shipyards operated by the Federal Government, and no data relating to such shipyards are included in this report.

As generally used in this report, the term "ship" or "vessel" refers to craft of 5 gross tons measurement or over, while craft under 5 tons are designated as "boats." (See "Tonnage, gross, net, and displacement.")

**Value of products.**—The value of products for this industry, shown in Tables 1 and 12, so far as it represents new construction, is limited to the value of work done during the year, and therefore does not include the total value of completed vessels except those on which construction was begun and finished within the census year. This total includes the values of certain products other than water craft. (See Table 3, item 3, "Other products.")

**Tonnage, gross, net, and displacement.**—The term "gross tonnage" is applied to the total internal capacity of a vessel expressed in tons of 100 cubic feet. "Net tonnage" refers to the internal cubic capacity remaining after deductions have been made from gross tonnage for space occupied by boilers, machinery, and coal bunkers or oil tanks, for quarters of officers and crew, and for other purposes directly or indirectly connected with the operation of the vessel. In other words, the net tonnage represents that portion of the vessel which is available for passengers and cargo. "Displacement tonnage" refers to the weight of the volume of water displaced, which, of course, is the same as the weight of the vessel itself. It is calculated on the basis of 35 cubic feet (approximately the volume of a long ton of sea water) to the ton. Naval vessels and, in a few cases, other vessels built for the Federal Government have been reported in displacement tonnage; and since in most cases it has been impracticable to reduce such tonnage to gross tonnage, it has been necessary to combine displacement tonnage and gross tonnage in the totals for the United States (see footnote 1, Table 3), although there is a considerable difference between the two units of measure.

**TABLE 1.—SUMMARY FOR THE UNITED STATES: 1919 TO 1927**

[Data for establishments with products under \$5,000 in value included for 1919 but not for subsequent years. See sec. 10, p. 6]

YEAR OR PERIOD	Number of establishments	Wage earners (average for the year)	Wages	Cost of materials, supplies, fuel, and power	Value of products	Value added by manufacture <sup>1</sup>	Horsepower <sup>2</sup>
1927	559	55,014	\$87,081,444	\$78,026,391	\$211,127,067	\$132,500,670	314,474
1925	565	50,224	74,275,019	66,298,964	177,181,960	110,882,996	303,470
1923	567	62,287	90,719,525	84,557,675	213,232,382	128,674,707	317,712
1921	640	106,445	155,943,490	169,368,425	400,834,105	231,465,680	( <sup>3</sup> )
1919	1,075	387,446	597,446,648	710,522,676	1,622,361,261	911,838,585	553,271
PER CENT OF INCREASE OR DECREASE (—)							
1925-1927	-1.1	9.5	17.2	18.6	19.2	19.5	3.6
1923-1925	- .4	-19.4	-18.1	-21.6	-16.9	-13.8	-4.5
1923-1927	-1.4	-11.7	-4.0	-7.0	-1.0	3.0	-1.0
1919-1927	-48.0	-85.8	-85.4	-88.9	-87.0	-85.5	-43.2

<sup>1</sup> Value of products less cost of materials, supplies, fuel, and power. (See secs. 18 and 21, pp. 9 and 10.)

<sup>2</sup> Horsepower of prime movers in use in shipyards, not horsepower of engines, etc., installed in ships.

<sup>3</sup> Not called for on schedule.

TABLE 2.—PRIME MOVERS, MOTORS, AND GENERATORS, IN SHIP AND BOAT BUILDING PLANTS, BY TYPE, NUMBER, AND RATED CAPACITY, FOR THE UNITED STATES: 1927, 1925, AND 1923

[The figures in this table refer to prime movers in use in shipbuilding and boat-building plants, not to the engines, turbines, etc., installed or made for installation in ships and boats]

TYPE	1927		1925		1923	
	Number	Capacity	Number	Capacity	Number	Capacity
Prime movers, total.....	13,461	Horse-power 314,474	12,469	Horse-power 303,470	13,588	Horse-power 317,712
Steam engines.....	388	44,812	384	47,404	} 415	53,382
Steam turbines.....	16	4,175	21	4,293		
Internal-combustion engines.....	246	6,211	210	5,164		
Water wheels and turbines.....	1	5	7	85	1	5
Electric motors driven by purchased current.....	12,810	259,271	11,847	246,464	12,946	260,182
Electric motors, total.....	14,351	285,229	14,441	286,197	14,778	285,969
Driven by purchased current.....	12,810	259,271	11,847	246,464	12,946	260,182
Driven by current generated in establishment reporting.....	1,541	25,958	2,594	39,733	1,832	25,727
Electric generators.....	40	Kilowatts 23,027	97	Kilowatts 25,989	( <sup>1</sup> )	Kilowatts ( <sup>1</sup> )

<sup>1</sup> Not called for on schedule.

TABLE 3.—VESSELS LAUNCHED, DISTRIBUTED ACCORDING TO MATERIAL (STEEL AND WOODEN) AND KIND OF POWER, BY NUMBER AND BY GROSS AND NET TONNAGE; AND VALUE OF WORK DONE, INCLUDING WORK ON VESSELS UNDER CONSTRUCTION; FOR THE UNITED STATES: 1927 AND 1925

MATERIAL AND KIND OF POWER	Census year	Number of vessels launched	TONNAGE		Value of work done during year
			Gross <sup>1</sup>	Net	
Ship and boat building industry, all products, total value.	1927 1925	----- -----	----- -----	----- -----	\$211,127,087 177,181,960
Ship and boat building, repair work, work done on vessels under construction, and miscellaneous products belonging to the industry, value.	1927 1925	----- -----	----- -----	----- -----	163,028,517 163,153,695
3. Other products (not normally belonging to the industry), value.	1927 1925	----- -----	----- -----	----- -----	18,098,550 14,028,265
4. Ship and boat building and repair work, secondary activities of other industries, value.	1927 1925	----- -----	----- -----	----- -----	577,311 390,343
Ship and boat building, etc., all industries: Aggregate value (sum of 2 and 4).....	1927 1925	----- -----	----- -----	----- -----	193,605,828 163,544,038
Ship and boat building, total value.....	1927 1925	----- -----	----- -----	----- -----	57,327,572 52,311,701
Vessels of 5 gross tons and over, total.....	1927 1925	1,347 1,237	443,651 352,409	330,760 257,989	48,436,473 46,137,197
Steel, total.....	1927 1925	587 369	308,941 242,027	208,471 157,086	37,337,463 35,929,130
Steam.....	1927 1925	34 47	130,059 167,733	66,568 93,757	20,378,964 27,589,433
Motor.....	1927 1925	69 31	50,728 6,730	30,635 3,632	6,105,916 2,408,636
Sail, with auxiliary power.....	1927 1925	3 4	156 1,871	107 1,629	129,921 181,500
Sail, without auxiliary power.....	1927	2	17	15	15,700

See footnotes at end of table.

TABLE 3.—VESSELS LAUNCHED, DISTRIBUTED ACCORDING TO MATERIAL (STEEL AND WOODEN) AND KIND OF POWER, BY NUMBER AND BY GROSS AND NET TONNAGE; AND VALUE OF WORK DONE, INCLUDING WORK ON VESSELS UNDER CONSTRUCTION; FOR THE UNITED STATES: 1927 AND 1925—Continued.

MATERIAL AND KIND OF POWER	Census year	Number of vessels launched	TONNAGE		Value of work done during year
			Gross <sup>1</sup>	Net	
Ship and boat building, etc.—Continued.					
Ship and boat building—Continued.					
Vessels of 5 gross tons and over—Continued.					
Steel—Continued.					
Unrigged, total.....	1927	479	127,981	111,146	\$10,706,962
	1925	287	65,693	58,068	5,749,561
Barges, including sloop and schooner barges.....	1927	388	94,371	82,831	6,696,741
	1925	231	48,222	43,263	3,699,878
Canal boats.....	1927	8	2,714	2,714	203,764
	1925	2	859	800	101,074
Lighters, scows, pile drivers, etc....	1927	83	30,896	25,601	3,804,457
	1925	54	16,612	14,005	1,948,609
Wooden, total.....	1927	760	134,710	122,289	11,099,010
	1925	808	110,332	100,993	10,208,067
Steam.....	1927	76	1,881	1,436	680,398
	1925	22	2,124	1,754	395,439
Motor.....	1927	356	16,481	11,290	6,568,623
	1925	344	11,511	7,329	5,690,231
Sail, with auxiliary power.....	1927	41	1,501	1,022	797,566
	1925	133	2,666	1,902	916,362
Sail, without auxiliary power.....	1927	5	166	128	102,328
	1925	7	283	214	54,413
Unrigged, total.....	1927	282	114,681	108,413	2,950,185
	1925	362	93,798	89,704	3,151,622
Barges, including sloop and schooner barges.....	1927	114	45,590	40,400	1,030,612
	1925	134	40,381	38,578	1,343,911
Canal boats.....	1927	12	6,040	6,040	160,260
	1925	15	4,489	4,207	150,600
Lighters, scows, pile drivers, etc....	1927	156	63,051	61,973	1,766,263
	1925	213	48,928	46,919	1,657,111
Boats under 5 gross tons—					
Motor boats.....	1927	2,466	-----	-----	6,272,631
	1925	1,369	-----	-----	4,282,077
Sailboats.....	1927	799	-----	-----	513,450
	1925	743	-----	-----	426,901
Rowboats.....	1927	12,868	-----	-----	1,074,127
	1925	10,940	-----	-----	816,774
Lifeboats <sup>2</sup> .....	1927	433	-----	-----	160,851
Canoes.....	1927	5,960	-----	-----	453,453
	1925	6,508	-----	-----	477,606
Other.....	1927	336	-----	-----	107,442
	1925	( <sup>3</sup> )	-----	-----	170,906
Ships and boats not distributable.....	1927	( <sup>4</sup> )	( <sup>4</sup> )	( <sup>4</sup> )	309,169
Value of work done on vessels under construction but not yet launched, and on those launched prior to 1927 and 1925—					
Steel.....	1927	-----	-----	-----	27,814,551
	1925	-----	-----	-----	16,435,010
Wooden.....	1927	-----	-----	-----	3,789,013
	1925	-----	-----	-----	1,849,264
Amount received for repair work—					
Steel.....	1927	-----	-----	-----	73,425,780
	1925	-----	-----	-----	61,500,748
Wooden <sup>4</sup> .....	1927	-----	-----	-----	28,038,405
	1925	-----	-----	-----	28,012,812
Other products and receipts, <sup>5</sup> value.....	1927	-----	-----	-----	3,209,607
	1925	-----	-----	-----	3,434,443

<sup>1</sup> Includes 41,174 tons for 1927 and 41,356 tons for 1925, reported as "Displacement tonnage" instead of as gross tonnage. (See "Tonnage, gross, net, and displacement," p. 1160.)

<sup>2</sup> Not reported separately for 1925.

<sup>3</sup> No data.

<sup>4</sup> Data incomplete.

<sup>5</sup> Includes amount received for repair work reported by establishments other than those classified in the ship and boat building industry.

<sup>6</sup> Canvas collapsible boats, ship parts, etc., dry-docking.

TABLE 4.—VESSELS LAUNCHED (5 GROSS TONS AND OVER), DISTRIBUTED ACCORDING TO MATERIAL (STEEL AND WOODEN) AND KIND OF POWER, BY TONNAGE GROUPS, NUMBER, AND GROSS TONNAGE, FOR THE UNITED STATES: 1921 TO 1927

MATERIAL AND KIND OF POWER	Census year	TOTAL		LESS THAN 100 GROSS TONS		100 TO 499 GROSS TONS		500 TO 999 GROSS TONS		1,000 TO 2,999 GROSS TONS		3,000 GROSS TONS AND OVER	
		Number	Gross tonnage <sup>1</sup>	Number	Tonnage	Number	Tonnage	Number	Tonnage	Number	Tonnage	Number	Tonnage
Total	1927	1,347	443,651	618	19,706	558	135,441	108	78,632	47	70,053	16	139,819
	1925	1,237	352,409	647	20,415	489	116,200	80	55,211	7	8,896	14	151,687
	1923	816	394,123	267	9,031	396	100,545	107	69,796	22	34,806	24	179,945
	1921	825	1,325,885	251	10,907	275	73,685	96	61,818	59	86,655	144	1,092,820
Steel	1927	587	308,941	100	2,892	400	91,613	45	30,564	26	44,053	16	139,819
	1925	369	242,027	38	1,723	276	57,848	36	24,273	5	6,496	14	151,687
	1923	289	281,316	23	752	201	52,113	21	15,768	20	32,738	24	179,945
	1921	387	1,206,866	43	2,420	133	40,608	38	24,919	29	46,099	144	1,092,820
Steam	1927	34	130,059	5	462	11	3,612			4	8,704	14	117,281
	1925	47	167,733	2	198	17	4,897	11	6,815	3	4,136	14	151,687
	1923	57	208,179			19	6,674	3	2,460	11	19,100	24	179,945
	1921	176	1,116,721	4	220	9	3,578	13	8,220	8	18,433	142	1,035,665
Motor	1927	69	50,728	18	390	39	9,111	1	525	9	18,164	2	22,538
	1925	31	6,730	12	657	17	4,295	2	1,778				
	1923	23	15,097	7	352	5	679	5	4,300	6	9,766		
	1921	17	12,588	6	163	4	700	1	570	4	4,000	2	7,155
Sail	1927	5	173	4	61	1	112						
	1925	4	1,871			1	191	3	1,680				
	1923	1	198			1	198						
	1921	2	583			2	583						
Unrigged	1927	479	127,981	73	1,979	349	78,778	44	30,039	13	17,185		
	1925	287	65,603	24	868	241	48,465	20	14,000	2	2,360		
	1923	208	57,842	16	400	176	44,562	13	9,008	3	3,872		
	1921	192	76,974	33	2,037	118	35,747	24	15,529	17	23,661		
Wooden	1927	760	134,710	518	16,814	158	43,828	63	48,068	21	26,000		
	1925	868	110,382	609	18,692	218	58,352	44	30,938	2	2,400		
	1923	527	112,807	244	8,279	195	48,432	86	54,028	2	2,068		
	1921	438	119,019	208	8,487	142	33,077	58	36,899	30	40,556		
Steam	1927	76	1,881	73	1,211	3	670						
	1925	22	2,124	9	1,666	13	1,958						
	1923	16	2,227	9	484	6	1,175	1	568				
	1921	20	3,342	12	877	6	1,101	2	1,364				
Motor	1927	356	16,481	337	10,884	15	2,520	4	3,068				
	1925	344	11,511	331	8,899	13	2,612						
	1923	176	7,202	164	5,270	12	2,022						
	1921	128	6,500	114	3,282	14	3,218						
Sail	1927	46	1,667	46	1,667								
	1925	140	2,949	137	2,589	3	360						
	1923	46	1,899	42	1,286	4	613						
	1921	36	6,952	26	1,051	7	1,750	1	847	2	3,304		
Unrigged	1927	282	114,681	62	3,052	140	40,629	59	45,000	21	26,000		
	1925	362	93,798	132	7,038	184	53,422	44	30,938	2	2,400		
	1923	280	101,389	29	1,239	173	44,622	85	53,400	2	2,068		
	1921	254	102,225	56	3,277	115	27,008	55	34,688	28	37,252		

<sup>1</sup> Includes 41,174 tons for 1927, 41,356 tons for 1925, 10,322 tons for 1923, and 39,500 tons for 1921, reported as "Displacement tonnage" instead of as gross tonnage. (See "Tonnage, gross, net, and displacement," p. 1160.)

TABLE 5.—VESSELS LAUNCHED (5 GROSS TONS AND OVER), BY NET TONNAGE, BY STATES: 1921 TO 1927

STATE	1927		1925		1923		Number
	Number	Gross tonnage	Number	Gross tonnage	Number	Gross tonnage	
United States.....	1,347	443,651	1,237	352,409	816	394,123	8
Alabama.....	6	1,967	7	768	9	4,620	
California.....	86	24,834	62	8,841	45	21,291	
Connecticut.....	12	394	14	502	6	406	
Delaware.....	57	19,884	27	10,834	18	9,153	
Florida.....	1	100	102	7,994	11	652	
Georgia.....			3	221			
Illinois.....	7	230			1	475	
Indiana.....	56	5,658	31	4,497	13	4,100	
Iowa.....	4	1,276	3	1,050	4	1,250	
Kentucky.....	65	13,975	18	4,885	40	18,843	
Louisiana.....	18	1,929	17	1,480	43	3,427	
Maine.....	22	1,024	67	4,622	23	6,009	
Maryland.....	17	1,484	34	7,466	31	16,299	
Massachusetts.....	41	7,540	43	38,427	40	5,924	
Michigan.....	11	13,565	29	20,868	9	8,810	
Minnesota.....	7	750	9	880	2	765	
Mississippi.....	4	28	2	195	7	925	
Missouri.....							
New Jersey.....	78	44,375	63	54,906	42	22,980	
New York.....	188	85,822	189	58,040	152	101,265	10
North Carolina.....	1	35			2	67	
Ohio.....	81	48,611	72	18,389	31	73,632	
Oregon.....	20	2,313	21	4,700	30	5,595	
Pennsylvania.....	280	100,251	204	40,314	148	59,309	15
Rhode Island.....	2	145	3	72	4	80	
South Carolina.....	1	740	2	575			
Tennessee.....	23	6,279	10	3,300	12	2,420	1
Texas.....	5	1,145	2	235	1	38	1
Virginia.....	14	32,654	56	29,871	9	12,877	1
Washington.....	168	9,950	97	9,906	44	8,945	2
West Virginia.....	56	7,915	11	2,727	18	3,313	1
Wisconsin.....	16	9,178	39	9,744	21	743	2

TABLE 6.—STEAM VESSELS LAUNCHED (5 GROSS TONS AND OVER), BY GROSS AND NET TONNAGE, FOR THE UNITED STATES, 1921 AND BY STATES, 1927

STATE	Number	TONNAGE		STATE	Number	Gross
		Gross	Net			
United States:						
1927.....	110	131,940	68,004	Michigan.....	3	13,000
1925.....	69	169,857	95,511	New Jersey.....	1	8,100
1923.....	73	210,406	130,269	New York.....	5	6,000
1921.....	196	1,120,063	665,944	Ohio.....	73	35,500
Delaware.....	2	1,771	672	Oregon.....	1	3,000
Illinois.....	1	23	23	Pennsylvania.....	4	231,900
Iowa.....	4	1,276	788	Virginia.....	5	31,400
Louisiana.....	4	360	291	Washington.....	2	
Massachusetts.....	1	1,487		West Virginia.....	2	9,000
				Wisconsin.....	2	5,700

<sup>1</sup> Displacement tonnage.

<sup>2</sup> Includes 26,729 tons reported as displacement tonnage.

TABLE 7.—MOTOR VESSELS LAUNCHED (5 GROSS TONS AND OVER), BY NUMBER AND BY GROSS AND NET TONNAGE, FOR THE UNITED STATES, 1921 TO 1927, AND BY STATES, 1927

STATE	Number	TONNAGE		STATE	Number	TONNAGE	
		Gross	Net			Gross	Net
United States:							
1927	425	67,209	41,925	Maryland	7	426	287
1925	375	18,241	10,961	Massachusetts	22	1,376	950
1923	199	22,389	11,176	Michigan	8	554	386
1921	145	19,088	10,829	Mississippi	4	28	20
Alabama	1	15	9	New Jersey	43	19,793	11,436
California	53	16,276	11,318	New York	47	2,898	2,031
Connecticut	8	354	283	North Carolina	1	35	15
Delaware	39	2,813	1,678	Ohio	4	10,079	7,747
Illinois	6	207	135	Oregon	5	125	88
Indiana	1	117	110	Pennsylvania	9	14,920	567
Kentucky	3	213	163	Virginia	6	197	122
Louisiana	5	229	110	Washington	131	5,359	3,814
Maine	8	228	102	West Virginia	3	773	421
				Wisconsin	11	194	133

<sup>1</sup> Includes 4,200 tons reported as displacement tonnage.

TABLE 8.—SAIL VESSELS WITH AUXILIARY POWER LAUNCHED (5 GROSS TONS AND OVER), BY NUMBER AND BY GROSS AND NET TONNAGE, FOR THE UNITED STATES, 1921 TO 1927, AND BY STATES, 1927

STATE	Number	TONNAGE		STATE	Number	TONNAGE	
		Gross	Net			Gross	Net
United States:							
1927	44	1,657	1,129	Maine	14	396	233
1925	137	4,537	3,531	Maryland	2	103	80
1923	42	1,612	942	Massachusetts	11	745	514
1921	29	2,797	2,062	New Jersey	1	80	72
California	8	137	86	New York	1	20	14
Connecticut	3	26	22	Pennsylvania	2	26	23
				Rhode Island	1	112	77
				Washington	1	12	8

TABLE 9.—SAIL VESSELS WITHOUT AUXILIARY POWER LAUNCHED (5 GROSS TONS AND OVER), BY NUMBER AND BY GROSS AND NET TONNAGE, FOR THE UNITED STATES, 1921 TO 1927, AND BY STATES, 1927

STATE	Number	TONNAGE		STATE	Number	TONNAGE	
		Gross	Net			Gross	Net
United States:							
1927	7	183	143	California	1	6	4
1925	7	283	214	Massachusetts	1	12	10
1923	5	485	316	New Jersey	3	121	96
1921	9	4,738	4,116	Rhode Island	1	33	24
				Washington	1	11	9

TABLE 10.—UNRIGGED VESSELS LAUNCHED (5 GROSS TONS AND OVER), BY NUMBER AND BY GROSS AND NET TONNAGE, FOR THE UNITED STATES, 1921 TO 1927, AND BY STATES, 1927

STATE	Number	TONNAGE		STATE	Number	TONNAGE	
		Gross	Net			Gross	Net
United States:				Minnesota.....	7	750	750
1927.....	761	242,662	219,559	New Jersey.....	30	16,193	16,173
1925.....	649	159,491	147,772	New York.....	135	82,212	72,029
1923.....	497	159,231	145,545	Ohio.....	4	2,940	2,940
1921.....	446	179,199	172,595	Oregon.....	14	1,874	1,869
Alabama.....	5	1,952	1,952	Pennsylvania.....	265	<sup>2</sup> 63,330	56,310
California.....	24	8,415	8,011	South Carolina.....	1	740	740
Connecticut.....	1	14	14	Tennessee.....	23	6,279	6,279
Delaware.....	16	15,300	15,300	Texas.....	5	1,145	1,145
Florida.....	1	100	100	Virginia.....	3	965	965
Indiana.....	55	5,541	5,541	Washington.....	33	4,469	4,469
Kentucky.....	62	13,762	13,762	West Virginia.....	51	6,192	6,192
Louisiana.....	9	1,340	580	Wisconsin.....	3	3,274	2,883
Maryland.....	8	955	955				
Massachusetts.....	6	14,920					

<sup>1</sup> Displacement tonnage.

<sup>2</sup> Includes 4,838 tons reported as displacement tonnage.

TABLE 11.—NUMBER OF POWER BOATS BUILT (LESS THAN 5 GROSS TONS), FOR THE UNITED STATES, 1921 TO 1927, AND BY STATES, 1927

STATE	Number	STATE	Number
United States:		Michigan.....	821
1927.....	2,466	Minnesota.....	274
1925.....	1,369	Missouri.....	14
1923.....	939	New Jersey.....	185
1921.....	808	New York.....	255
Alabama.....	4	North Carolina.....	3
California.....	78	Ohio.....	63
Connecticut.....	134	Oregon.....	26
Delaware.....	7	Pennsylvania.....	13
Florida.....	6	Rhode Island.....	3
Illinois.....	11	Texas.....	1
Louisiana.....	3	Virginia.....	3
Maine.....	100	Washington.....	54
Maryland.....	38	West Virginia.....	1
Massachusetts.....	147	Wisconsin.....	222

TABLE 12.—GENERAL STATISTICS, BY STATES: 1927  
 [This table presents statistics for all States for which separate figures can be given without disclosing data for individual establishments. Certain of the "Other States," however, reported larger values of products than some of the States shown separately]

STATE	Num-ber of estab-lish-ments	PERSONS ENGAGED IN THE INDUSTRY						Horse-power <sup>1</sup>	Salaries	Wages	Cost of materials, supplies, fuel, and power		Value of products	Value added by manu-facture <sup>2</sup>
		Total	Pro-prietors and firm mem-bers	Salaried officers and em-ployees	Wage earners (average for the year)	Materials and supplies	Fuel and power							
											59, 331	337		
United States.....	559	60, 331	337	5, 480	55, 014	314, 474	\$14, 606, 986	\$87, 081, 444	\$74, 437, 514	\$4, 188, 877	\$211, 127, 067	\$132, 500, 676		
California.....	52	5, 297	37	489	4, 771	50, 008	1, 319, 642	8, 185, 087	7, 823, 026	325, 051	21, 330, 762	13, 191, 685		
Connecticut.....	19	656	8	70	578	2, 485	150, 422	4, 072, 880	338, 550	296, 474	2, 455, 472	1, 590, 448		
Florida.....	18	693	11	57	636	4, 217	260, 422	749, 401	487, 001	20, 865	1, 854, 036	1, 346, 080		
Georgia.....	4	104	2	10	94	2, 662	23, 730	101, 392	42, 051	6, 189	1, 169, 080	882, 805		
Illinois.....	11	350	15	23	312	3, 737	45, 841	638, 158	358, 368	29, 769	1, 270, 942	574, 439		
Indiana.....	6	239	28	28	211	658	44, 786	210, 829	254, 357	6, 821	3, 306, 089	318, 091		
Louisiana.....	11	1, 017	4	118	895	4, 333	342, 701	1, 488, 749	689, 687	74, 594	3, 306, 089	2, 593, 548		
Maine.....	21	404	16	45	343	3, 931	96, 172	422, 911	1, 437, 666	22, 548	1, 307, 110	2, 593, 547		
Maryland.....	26	1, 727	18	163	1, 541	9, 631	437, 800	2, 136, 657	1, 437, 666	123, 243	3, 285, 535	3, 782, 624		
Massachusetts.....	38	4, 635	36	414	4, 185	16, 725	803, 101	6, 476, 876	4, 119, 876	282, 600	14, 151, 682	9, 749, 156		
Michigan.....	18	1, 475	7	182	1, 286	5, 579	546, 887	2, 280, 865	2, 738, 448	116, 340	6, 853, 786	3, 898, 992		
Minnesota.....	10	142	10	8	124	551	17, 488	219, 139	202, 381	10, 596	578, 101	3, 865, 124		
Missouri.....	3	18	2	15	15	133	1, 500	16, 630	15, 334	90	39, 043	23, 619		
New Jersey.....	47	9, 647	24	968	8, 655	42, 321	3, 185, 703	14, 085, 230	13, 576, 703	604, 371	34, 249, 127	20, 068, 053		
New York.....	88	11, 465	35	1, 034	10, 396	53, 360	2, 837, 764	18, 772, 283	11, 357, 660	763, 852	41, 308, 798	29, 187, 266		
Ohio.....	16	2, 662	6	128	2, 528	16, 826	366, 312	4, 074, 897	2, 631, 698	285, 554	8, 088, 263	5, 841, 001		
Oregon.....	11	161	9	17	135	941	26, 805	232, 304	941, 646	7, 440	8, 088, 263	10, 383, 434		
Pennsylvania.....	21	5, 777	9	414	5, 354	35, 094	1, 146, 342	8, 121, 863	8, 638, 730	485, 500	19, 537, 924	10, 383, 644		
Rhode Island.....	9	693	7	86	600	1, 119	166, 924	839, 785	1, 278, 111	31, 164	2, 492, 694	1, 188, 660		
Texas.....	8	634	5	51	577	2, 791	109, 067	1, 028, 302	728, 548	52, 495	2, 406, 125	1, 627, 082		
Virginia.....	25	6, 910	17	689	6, 194	34, 299	1, 583, 650	8, 229, 208	8, 634, 941	513, 221	21, 513, 738	12, 365, 576		
Washington.....	40	1, 639	43	98	1, 498	6, 863	223, 839	2, 452, 226	2, 111, 572	74, 069	5, 757, 189	3, 571, 548		
Wisconsin.....	17	1, 394	7	115	1, 272	6, 679	348, 919	1, 861, 576	1, 636, 712	182, 187	5, 113, 107	3, 144, 208		
Other States <sup>3</sup> .....	31	3, 092	9	226	2, 857	11, 346	535, 417	3, 622, 486	3, 667, 183	193, 286	9, 908, 616	6, 048, 147		

<sup>1</sup> Horsepower of prime movers in use in shipyards, not horsepower of engines, etc., installed in ships.

<sup>2</sup> Value of products less cost of materials, supplies, fuel, and power. (See secs. 18 and 21, pp. 9 and 10.)

<sup>3</sup> Alabama, 8 establishments; Delaware, 6; Idaho, 1; Iowa, 1; Kentucky, 3; Mississippi, 2; North Carolina, 2; South Carolina, 1; Tennessee, 1; Vermont, 1; West Virginia, 5.

## Group 15.—RAILROAD REPAIR SHOPS

### THE GROUP AS A WHOLE

This group comprises only two industries, "Car and general construction and repairs, steam-railroad repair shops" and "Car and general construction and repairs, electric-railroad repair shops."

The following table gives summary statistics for the group as a whole:

SUMMARY FOR GROUP 15.—RAILROAD REPAIR SHOPS: 1919 TO 1927

INDUSTRY	Cen- sus year	Num- ber of estab- lish- ments	Wage earn- ers (average for the year)	Wages	Cost of mate- rials, sup- plies, fuel, and power	Value of products	Value added by manufac- ture	Horse- power
Total.....	1927	2,309	428,672	648,908	545,492	1,289,695	744,203	1,110,821
	1925	2,363	457,755	668,192	563,646	1,332,679	769,033	942,248
	1923	2,348	523,430	772,968	631,358	1,520,093	838,734	798,005
	1921	2,326	418,285	671,956	506,571	1,237,343	760,771	(?)
	1919	2,368	515,709	726,690	547,829	1,354,446	806,617	644,875
Car and general construction and repairs, electric-railroad repair shops.	1927	515	31,584	48,392	30,421	84,504	54,083	73,357
	1925	521	32,521	48,357	29,738	83,812	54,074	70,479
	1923	547	34,925	49,226	31,982	86,413	54,431	62,370
	1921	560	33,279	47,775	33,560	87,312	53,752	(?)
	1919	624	31,272	39,073	32,025	75,211	43,185	53,805
Car and general construction and repairs, steam-railroad repair shops.	1927	1,794	397,088	600,517	515,070	1,205,191	690,120	1,037,464
	1925	1,842	425,234	619,834	533,908	1,248,897	714,959	<sup>2</sup> 934,839
	1923	1,801	488,505	723,743	599,377	1,433,680	834,303	735,635
	1921	1,766	385,006	624,181	473,011	1,180,030	707,019	(?)
	1919	1,744	484,437	687,617	515,803	1,279,235	763,432	591,070

<sup>1</sup> Each total is the sum, expressed to the nearest thousand, of the individual items expressed in units. For this reason the totals in some cases may differ slightly from the sums of the items as here given.

<sup>2</sup> Not called for on schedule.

<sup>3</sup> Revised; revision not carried into group total.

## ELECTRIC-RAILROAD REPAIR SHOPS

**Description of the industry.**—Repair shops maintained by electric-railroad companies for the purpose of making repairs on rolling stock and equipment are classified under the industry designation "Car and general construction and repairs, electric-railroad repair shops."

**Value of products.**—The value of products shown for the industry represents, in general, the cost of materials plus the amounts of salaries and wages paid to shop employees. In some cases, however, the returns indicate that rent payments, taxes, and small amounts of miscellaneous expenses were included in calculating the values of products.

**TABLE 1.—ELECTRIC-RAILROAD REPAIR SHOPS—SUMMARY FOR THE UNITED STATES: 1919 TO 1927**

[Data for establishments with products under \$5,000 in value included for 1919 but not subsequent years. See sec. 10, p. 6]

YEAR OR PERIOD	Number of establishments	Wage earners (average for the year)	Wages	Cost of materials, supplies, and power	Value of products	Value added by manufacture <sup>1</sup>	Horse-power
1927-----	515	31,584	\$48,391,897	\$30,421,470	\$34,504,448	\$54,082,969	73,357
1925-----	521	32,521	48,357,386	29,738,148	33,812,220	54,074,072	70,479
1923-----	547	34,925	49,225,583	31,981,650	36,412,645	54,430,995	62,370
1921-----	560	33,279	47,775,235	33,560,133	37,312,426	53,752,293	( <sup>2</sup> )
1919-----	624	31,272	39,073,154	32,025,484	75,210,701	43,185,217	53,805
PER CENT OF INCREASE OR DECREASE (—)							
1925-1927-----	-1.2	-2.9	0.1	2.3	0.8	( <sup>3</sup> ) -0.7	4.1
1923-1925-----	-4.8	-6.9	-1.8	-7.0	-3.0	-0.6	13.0
1923-1927-----	-5.9	-9.6	-1.7	-4.9	-2.2	-0.6	17.6
1919-1927-----	-17.5	1.0	23.8	-5.0	12.4	25.2	36.3

<sup>1</sup> Value of products less cost of materials, supplies, fuel, and power. (See secs. 18 and 21, pp. 9 and 10.)

<sup>2</sup> Not called for on schedule.

<sup>3</sup> Less than one-tenth of 1 per cent.

**TABLE 2.—ELECTRIC-RAILROAD REPAIR SHOPS—PRIME MOVERS, MOTORS, AND GENERATORS, BY TYPE, NUMBER, AND RATED CAPACITY, FOR THE UNITED STATES: 1927, 1925, AND 1923**

TYPE	1927		1925		1923	
	Number	Capacity	Number	Capacity	Number	Capacity
		Horse-power		Horse-power		Horse-power
Prime movers, total-----	6,532	73,357	6,076	70,479	5,310	62,370
Steam engines-----	1	10	8	125	19	2,063
Steam turbines-----					5	165
Internal-combustion engines-----	3	65	5	180	1	10
Water turbines-----						
Electric motors driven by purchased current <sup>1</sup> -----	6,528	73,282	6,063	70,174	5,285	60,132

<sup>1</sup> No electric generators or electric motors driven by current generated in the establishment were reported.

TABLE 3.—ELECTRIC-RAILROAD REPAIR SHOPS—DETAILED STATISTICS OF WORK PERFORMED, FOR THE UNITED STATES: 1921 TO 1927

	1927	1925	1923	1921
Aggregate value of work done and products manufactured <sup>1</sup> .....	\$84,504,448	\$33,812,220	\$86,412,645	\$87,312,426
Motive-power and machinery departments:				
Total value.....	\$6,560,241	\$6,210,757	\$7,303,978	\$7,715,044
Electric locomotives built—				
Number.....	( <sup>2</sup> )	14	17	( <sup>3</sup> )
Value.....	( <sup>2</sup> )	\$216,078	\$198,775	( <sup>3</sup> )
Repairs to motors, etc., value.....	\$6,013,623	\$5,525,622	\$6,692,410	\$7,226,905
Work for other corporations, value.....	\$114,434	\$117,000	\$101,754	\$78,472
Other work and products, value.....	\$432,184	\$352,057	\$311,039	\$409,667
Car departments:				
Total value.....	\$74,707,206	\$73,177,906	\$75,070,768	\$75,529,519
Cars built, total value.....	\$913,612	\$608,988	\$3,523,648	\$1,248,267
Passenger—				
Number.....	83	45	209	127
Value.....	\$811,844	\$574,604	\$3,287,447	\$822,398
Freight—				
Number.....	3	2	47	5
Value.....	\$14,774	\$9,633	\$103,738	\$7,200
Other—				
Number.....	15	6	37	45
Value.....	\$86,994	\$24,691	\$132,463	\$418,660
Repairs to cars of all kinds, value.....	\$65,952,673	\$65,392,704	\$65,420,854	\$69,131,544
Work for other corporations, value.....	\$1,156,277	\$1,216,247	\$1,486,380	\$1,249,497
Other work and products, value.....	\$6,684,644	\$5,959,907	\$4,639,886	\$3,900,200
Bridge and building departments (shop work only), total value.....	\$296,057	\$639,619	\$438,624	\$516,942
Repairs and renewals, value.....	\$290,103	\$608,317	\$434,590	\$420,444
Other work and products, value.....	\$5,954	\$31,302	\$4,034	\$96,498
Other work done and products manufactured, not reported in detail, value.....	\$2,940,944	\$3,783,938	\$3,599,275	\$3,550,922

<sup>1</sup> These aggregates are the sums of all value items in the columns beneath except those which are under scored.

<sup>2</sup> Can not be shown separately without disclosing production of individual establishments. Value included in "Other work and products, value."

<sup>3</sup> None reported.

ELECTRIC-RAILROAD REPAIR SHOPS

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TABLE 4.—ELECTRIC-RAILROAD REPAIR SHOPS—GENERAL STATISTICS, BY STATES: 1927

[This table presents statistics for all States for which separate figures can be given without disclosing data reported by individual establishments. Certain of the "Other States," however, reported larger values of products than some of the States shown separately.]

STATE	Num-ber of estab-lish-ments	PERSONS ENGAGED IN THE INDUSTRY			Horse-power	Salaries	Wages	Cost of materials, sup-plies, fuel, and power		Value of products	Value added by manu-facture <sup>1</sup>
		Total	Salaried officers and em-ployees	Wage earners (average for the year)				Materials and supplies	Fuel and power		
United States.....	515	34,137	2,553	31,584	73,357	\$5,249,032	\$48,391,897	\$29,846,725	\$874,754	\$84,504,448	\$54,082,969
Alabama.....	8	193	16	177	789	31,054	222,310	179,618	2,318	485,300	253,364
Arizona.....	3	29	3	18	30	24,513	24,988	18,533	770	49,784	30,481
Arkansas.....	5	116	13	97	220	24,643	108,010	73,093	2,060	208,204	133,053
California.....	21	3,010	148	2,862	6,768	321,421	4,355,465	2,333,071	46,119	7,073,001	4,679,711
Colorado.....	4	248	22	226	564	46,190	376,666	176,883	786	594,474	416,766
Connecticut.....	14	264	70	285	3,061	181,382	454,693	426,443	78	1,065,893	639,372
Florida.....	5	130	10	120	160	29,630	124,540	81,402	3,349	238,321	153,570
Georgia.....	7	220	20	209	641	43,668	233,280	176,154	1,561	454,661	276,046
Illinois.....	35	3,543	328	3,220	8,003	647,758	5,324,598	2,806,524	120,371	9,054,300	6,043,489
Indiana.....	26	1,507	54	1,453	1,530	117,012	1,354,476	1,012,274	23,372	2,331,031	1,495,885
Iowa.....	17	257	25	232	449	49,304	308,287	236,401	10,334	606,430	359,695
Kansas.....	7	112	13	99	160	115,017	78,827	78,827	21,371	138,289	138,289
Kentucky.....	16	222	13	210	627	26,352	272,230	233,874	1,762	536,013	298,682
Louisiana.....	5	196	18	180	631	31,624	277,650	119,426	29	429,128	309,574
Maine.....	10	154	8	146	362	13,715	181,702	126,614	8,604	328,738	195,650
Massachusetts.....	26	1,451	81	1,370	4,125	170,369	2,123,687	1,329,781	31,701	3,716,622	2,355,140
Michigan.....	16	733	45	683	1,600	113,702	1,174,424	678,693	56,141	2,023,050	1,288,216
Mississippi.....	4	94	2	92	50	750	33,040	11,413	86	51,334	39,835
Montana.....	5	52	4	48	283	5,101	87,342	67,311	3,824	170,779	99,744
New Jersey.....	34	1,515	42	1,473	4,778	103,137	2,072,818	1,052,001	19,967	3,253,923	2,181,855

See footnotes at end of table.

TABLE 4.—ELECTRIC-RAILROAD REPAIR SHOPS—GENERAL STATISTICS, BY STATES: 1927—Continued

STATE	Num-ber of estab-lish-ments	PERSONS ENGAGED IN THE INDUSTRY			Horse-power	Salaries	Wages	Cost of materials, sup-plies, fuel, and power		Value of products	Value added by manu-facture <sup>1</sup>
		Total	Salaried officers and em-ployees	Wage earners (average for the year)				Materials and supplies	Fuel and power		
New York.....	45	7,952	717	7,235	11,836	\$1,444,533	\$11,770,556	\$7,175,287	\$75,146	\$20,699,357	\$13,448,924
North Carolina.....	6	70	12	58	95	15,241	62,517	38,765	111	116,634	77,758
Ohio.....	48	2,543	145	2,398	3,180	304,659	3,696,138	2,447,871	85,152	6,540,461	4,007,438
Oklahoma.....	6	177	11	166	224	19,307	229,772	86,365	961	343,205	255,879
Pennsylvania.....	51	3,051	214	2,837	6,011	452,855	4,416,469	2,874,984	248,308	8,018,115	4,894,823
Tennessee.....	6	351	21	330	733	41,450	408,150	297,399	7,255	756,114	451,460
Texas.....	13	684	47	637	989	93,597	695,784	481,969	4,505	1,275,855	789,381
Virginia.....	11	339	27	312	816	48,060	338,378	304,350	718	1,691,506	386,438
Washington.....	13	447	34	413	1,991	70,035	675,076	434,590	5,165	1,184,866	745,111
West Virginia.....	9	220	29	191	488	57,804	296,133	189,701	4,131	547,769	353,937
Wisconsin.....	14	821	92	729	2,301	193,186	1,094,520	1,104,596	42,431	2,438,092	1,291,065
Other States <sup>2</sup> .....	36	3,799	261	3,538	9,731	507,617	5,482,261	2,785,707	67,375	8,845,120	5,992,038

<sup>1</sup>Value of products less cost of materials, supplies, fuel, and power. (See secs. 18 and 21, pp. 9 and 10.)

<sup>2</sup>Delaware, 1 establishment; District of Columbia, 2; Idaho, 1; Maryland, 4; Minnesota, 4; Missouri, 7; Nebraska, 3; New Hampshire, 3; North Dakota, 2; Oregon, 2; Rhode Island, 2; South Carolina, 1; South Dakota, 1; Utah, 3.

## STEAM-RAILROAD REPAIR SHOPS

**Description of the industry.**—Repair shops maintained by steam railroads for the purpose of making repairs on rolling stock and bridges are classified under the designation "Car and general construction and repairs, steam-railroad repair shops." The industry does not cover the operation of roundhouses where incidental repairs are made but no machine-shop work is performed. Locomotives and cars, particularly the latter, are built to some extent in repair shops, but the bulk of the work done in these shops consists in repairing and rebuilding.

**Value of products.**—The value of products shown for the industry represents, in general, the cost of materials plus the amounts of salaries and wages paid to shop employees. In some cases, however, the returns indicate that rent payments, taxes, and small amounts of miscellaneous expenses were included in calculating the values of products.

**TABLE 1.—STEAM-RAILROAD REPAIR SHOPS—SUMMARY FOR THE UNITED STATES: 1919 TO 1927**

[Data for establishments with products under \$5,000 in value included for 1919 but not for subsequent years. See sec. 10, p. 6]

YEAR OR PERIOD	Number of establishments	Wage earners, (average for the year)	Wages	Cost of materials, supplies, fuel, and power	Value of products	Value added by manufacture <sup>1</sup>	Horse-power
1927.....	1,794	397,088	\$600,516,555	\$515,070,275	\$1,205,190,710	\$690,120,435	1,037,464
1925.....	1,842	425,234	619,834,382	533,907,796	1,248,866,850	714,959,063	<sup>2</sup> 934,839
1923.....	1,801	488,505	723,742,539	599,376,833	1,433,650,106	834,303,273	735,635
1921.....	1,766	385,006	624,180,594	473,010,966	1,180,030,133	707,019,167	( <sup>3</sup> )
1919.....	1,744	484,437	687,617,312	515,803,210	1,279,235,393	763,432,153	591,070
PER CENT OF INCREASE OR DECREASE (—)							
1925-1927.....	-2.6	-6.6	-3.1	-3.5	-3.5	-3.5	11.0
1923-1925.....	2.3	-13.0	-14.4	-10.9	-12.9	-14.3	27.1
1923-1927.....	-4	-18.7	-17.0	-14.1	-15.9	-17.3	41.0
1919-1927.....	2.9	-18.0	-12.7	-1	-5.8	-9.6	75.5

<sup>1</sup> Value of products less cost of materials, supplies, fuel, and power. (See secs. 18 and 21, pp. 9 and 10.)

<sup>2</sup> Revised.

<sup>3</sup> Not called for on schedule.

**TABLE 2.—STEAM-RAILROAD REPAIR SHOPS—PRIME MOVERS, MOTORS, AND GENERATORS, BY TYPE, NUMBER, AND RATED CAPACITY, FOR THE UNITED STATES: 1927, 1925, AND 1923**

TYPE	1927		1925		1923	
	Number	Capacity	Number	Capacity	Number	Capacity
Prime movers, total.....	39,098	<i>Horsepower</i> 1,037,464	132,637	<sup>1</sup> 934,839	22,976	<i>Horsepower</i> 735,635
Steam engines.....	1,861	282,242	1,800	286,215	} 2,328	365,839
Steam turbines.....	205	146,830	1,170	<sup>1</sup> 129,334		
Internal-combustion engines.....	142	6,460	142	4,643	149	6,255
Water wheels and turbines.....	4	482	3	32	2	78
Electric motors driven by purchased current.....	37,786	601,441	30,432	514,615	20,497	363,463
Electric motors, total.....	55,830	865,730	47,180	775,553	37,616	634,760
Driven by purchased current.....	37,786	601,441	30,432	514,615	20,497	363,463
Driven by current generated in establishment reporting.....	18,044	264,289	16,748	260,938	17,119	271,297
Electric generators.....	729	<i>Kilowatts</i> 172,310	882	<i>Kilowatts</i> 142,451	( <sup>2</sup> )	<i>Kilowatts</i> ( <sup>2</sup> )

<sup>1</sup> Revised.

<sup>2</sup> Not called for on schedule.

TABLE 3.—STEAM-RAILROAD REPAIR SHOPS—DETAILED STATISTICS OF WORK PERFORMED, FOR THE UNITED STATES: 1921 TO 1927

	1927	1925	1923	1921
Aggregate value of work done and products manufactured <sup>1</sup> .....	\$1,205,190,710	\$1,248,866,859	\$1,433,680,108	\$1,180,030,133
Motive-power and machinery departments:				
Total value.....	\$603,869,975	\$622,344,078	\$720,294,903	\$580,825,114
Locomotives built—				
Number.....	97	119	165	67
Value.....	\$5,172,444	\$4,061,453	\$6,321,692	\$3,079,237
Repairs to locomotives, etc., value.....	\$452,436,474	\$469,035,512	\$555,774,595	\$441,624,821
Work for other corporations, value.....	\$10,276,138	\$10,257,608	\$13,810,112	\$13,382,710
Other work and products, value.....	\$135,984,919	\$138,989,505	\$144,388,504	\$122,738,316
Car departments:				
Total value.....	\$522,599,245	\$540,753,100	\$628,462,929	\$543,629,405
Cars built, total value.....	\$21,600,662	\$6,908,335	\$15,703,831	\$13,588,167
Passenger—				
Number.....	356	10	5	15
Value.....	\$1,625,012	\$207,270	\$77,846	\$527,739
Freight—				
Number.....	10,004	3,351	10,179	4,697
Value.....	\$19,440,260	\$5,912,283	\$14,509,823	\$12,124,614
Other—				
Number.....	202	282	464	304
Value.....	\$535,390	\$788,773	\$1,116,162	\$935,514
Repairs to cars, all kinds, value.....	\$414,878,583	\$451,813,926	\$504,166,172	\$429,382,893
Work for other corporations, value.....	\$17,567,536	\$19,104,030	\$24,354,552	\$21,048,257
Other work and products, value.....	\$68,552,464	\$62,926,809	\$84,238,364	\$77,510,053
Bridge and building departments (shop work only), total value.....	\$4,927,501	\$5,316,408	\$6,959,903	\$4,471,614
Repairs and renewals, value.....	\$4,232,760	\$4,774,126	\$5,782,779	\$3,363,618
Work for other corporations, value.....	\$43,329	\$60,206	\$77,555	\$359,295
Other work and products, value.....	\$651,412	\$482,076	\$1,099,569	\$748,701
Other work done and products manufactured, not reported in detail, value.....	\$73,793,989	\$80,453,273	\$77,062,371	\$52,104,000

<sup>1</sup> These aggregates are the sums of all value items in the columns below except those which are underscored.

TABLE 4.—STEAM-RAILROAD REPAIR SHOPS—GENERAL STATISTICS, BY STATES: 1927  
 [This table presents statistics for all States for which separate figures can be given without disclosing data reported by individual establishments. Certain of the "Other States," however, reported larger values of products than some of the States shown separately]

STATE	Number of establishments	PERSONS ENGAGED IN THE INDUSTRY				Horse-power	Salaries	Wages	Cost of materials, supplies, fuel, and power		Value of products	Value added by manufacture 1
		Total	Salaried officers and employees	Wage earners (average for the year)	Materials and supplies				Fuel and power			
United States	1,794	432,147	35,059	397,088	1,037,464	\$85,366,132	\$600,516,555	\$486,911,931	\$28,188,344	\$1,205,190,710	\$690,120,435	
Alabama	20	8,471	550	7,921	13,866	1,291,517	10,896,299	7,688,754	284,331	20,187,869	12,214,784	
Arizona	12	6,002	111	5,891	1,704	290,450	2,086,527	1,234,129	180,725	3,741,861	2,827,007	
Arkansas	13	5,743	332	5,411	5,885	755,177	4,464,842	3,637,446	204,633	9,362,098	5,220,019	
California	64	14,715	1,062	13,653	34,741	2,651,391	20,287,037	16,043,163	660,201	39,938,975	23,245,611	
Colorado	29	5,135	343	4,792	13,916	822,293	7,631,034	5,140,595	369,742	13,396,090	7,885,753	
Florida	17	4,519	317	4,202	12,473	939,695	5,633,371	5,144,406	379,065	12,193,624	6,670,153	
Georgia	8	8,499	556	7,943	27,373	1,412,705	9,630,623	9,545,634	371,015	21,049,654	11,132,005	
Illinois	10	1,379	106	1,273	10,419	209,564	2,051,568	1,556,240	130,653	4,068,155	2,821,262	
Indiana	142	36,091	2,697	33,394	76,202	7,231,352	50,667,678	40,244,289	2,433,075	101,340,406	58,643,042	
Iowa	84	17,796	1,554	16,242	35,370	3,947,973	25,682,048	17,962,874	1,206,146	48,816,908	29,647,888	
Kansas	61	12,879	1,075	11,804	21,988	2,197,664	17,006,116	10,319,662	1,018,686	30,544,440	19,206,712	
Kentucky	31	9,950	872	9,078	20,040	1,793,675	12,737,324	12,675,664	874,819	29,095,762	15,483,619	
Louisiana	28	14,648	872	13,776	18,995	2,097,026	20,137,654	13,478,848	515,231	36,188,759	22,194,680	
Maine	27	5,261	367	4,894	7,982	875,013	7,269,771	4,326,651	297,436	12,807,859	8,183,772	
Maryland	11	1,389	150	1,239	3,636	324,238	1,871,206	1,685,731	115,838	4,007,015	2,195,446	
Massachusetts	20	8,971	511	8,460	24,965	1,382,536	12,504,182	14,200,379	461,085	28,729,982	14,608,568	
Michigan	16	5,324	401	4,923	13,896	1,251,432	7,842,010	11,346,900	543,961	20,984,303	9,098,442	
Minnesota	50	7,447	821	6,626	18,941	1,352,793	11,352,793	9,345,638	672,388	27,721,975	12,704,659	
Mississippi	65	13,769	953	12,816	29,150	2,289,807	19,001,544	14,401,830	1,161,016	36,943,897	21,291,351	
Other States	16	2,676	212	2,464	7,349	584,133	3,757,511	2,104,003	1,156,527	6,633,614	4,372,084	

See footnotes at end of table.

## SUMMARY FOR GROUP 16.—MISCELLANEOUS INDUSTRIES: 1921 TO 1927

[See "Regrouping of industries and renumbering of groups," p. 19]

[The industries constituting the sections "Musical instruments and phonographs" and "Tobacco manufactures" formerly constituted separate groups. The industry "Fuel, manufactured," formerly included in Group 16, has been transferred to Group 7, Products of petroleum and coal]

INDUSTRY	Census year	Number of establishments	Wage earners (average for the year)	Wages	Cost of materials, supplies, containers for products, fuel, and power	Value of products	Value added by manufacture	Horse-power
Total	1927	14,368	440,966	530,387	1,374,703	3,310,050	1,935,346	840,019
	1925	14,293	440,340	510,122	1,353,006	3,129,654	1,776,648	735,940
	1923	15,502	475,893	529,026	1,429,924	3,005,555	1,575,631	703,780
	1921	15,810	418,175	442,433	1,315,863	2,558,297	1,242,435	(?)
Musical instruments and phonographs.	1927	431	42,985	60,761	90,159	226,362	136,203	102,105
	1925	461	46,980	62,502	98,760	231,687	132,926	97,318
	1923	535	58,329	75,396	123,600	282,532	158,931	90,229
	1921	600	45,113	54,495	94,988	212,989	118,800	(?)
Organs	1927	63	2,770	4,364	4,494	15,439	10,944	4,332
	1925	57	2,460	3,610	3,749	12,283	8,534	3,983
	1923	59	1,855	2,662	2,803	9,603	6,800	2,902
	1921	56	2,346	3,343	3,731	10,185	6,454	(?)
Pianos	1927	124	16,582	23,891	33,899	75,491	41,592	29,725
	1925	142	20,079	28,096	40,296	101,181	51,885	26,912
	1923	160	22,208	30,679	54,179	111,159	56,981	26,859
	1921	185	15,836	18,887	38,652	73,640	34,988	(?)
Piano and organ materials	1927	85	5,399	6,594	9,657	22,245	12,587	14,185
	1925	94	8,618	10,131	15,294	36,836	21,543	15,734
	1923	99	9,672	11,243	17,019	38,839	21,819	15,478
	1921	89	5,569	5,970	8,222	18,597	10,376	(?)
Musical instruments and parts and materials, not elsewhere classified.	1927	99	4,018	5,737	4,641	17,892	13,251	5,356
	1925	100	4,556	6,520	5,575	20,329	14,754	4,907
	1923	106	4,103	5,842	4,349	15,619	11,271	3,830
	1921	116	3,424	4,520	3,325	12,354	9,028	(?)
Phonographs	1927	60	14,216	20,176	37,468	95,296	57,828	48,507
	1925	68	11,267	14,145	24,847	61,057	36,210	45,782
	1923	111	20,491	24,970	45,250	107,311	62,061	41,160
	1921	154	17,988	21,774	41,058	98,213	57,155	(?)
Tobacco manufactures	1927	2,156	129,299	105,251	420,667	1,163,768	743,102	52,385
	1925	2,623	132,132	111,558	425,769	1,091,001	665,232	42,075
	1923	3,672	146,337	120,462	515,865	1,044,192	528,327	43,515
	1921	4,372	149,985	120,903	608,688	1,048,400	439,801	(?)
Cigars and cigarettes	1927	1,997	116,174	94,589	335,356	965,524	630,168	35,819
	1925	2,445	117,108	99,373	331,351	874,815	543,464	24,534
	1923	3,466	130,036	107,724	369,491	821,227	451,736	24,894
	1921	4,146	133,357	108,161	452,212	806,749	354,637	(?)
Tobacco, chewing and smoking, and snuff.	1927	159	13,125	10,661	85,310	198,245	112,934	16,560
	1925	178	15,024	12,185	94,419	216,186	121,768	17,541
	1923	206	16,301	12,739	146,374	222,966	76,592	18,621
	1921	228	16,628	12,742	156,477	241,741	85,204	(?)
Other industries	1927	11,781	268,682	364,375	863,878	1,919,919	1,056,041	686,429
	1925	11,200	261,228	336,062	823,476	1,806,967	978,491	596,547
	1923	11,295	271,227	333,168	790,459	1,678,831	888,372	570,037
	1921	10,838	223,077	267,035	612,187	1,296,819	684,632	(?)
Artificial and preserved flowers and plants.	1927	190	4,715	5,050	7,889	19,576	11,688	541
	1925	187	4,305	4,287	7,265	17,824	10,559	737
	1923	223	4,696	4,502	8,692	19,650	10,958	847
	1921	201	3,883	3,821	5,850	14,188	8,338	(?)
Artificial limbs	1927	130	592	908	720	3,216	2,495	1,001
	1925	123	562	794	627	3,021	2,394	955
	1923	108	493	711	613	2,635	2,022	692
	1921	105	500	725	619	2,451	1,832	(?)

See footnotes at end of table

## SUMMARY FOR GROUP 16.—MISCELLANEOUS INDUSTRIES: 1921 TO 1927—Contd

[See notes at head of this summary, p. 1178]

INDUSTRY	Census year	Number of establishments	Wage earners (average for the year)	Wages	Cost of materials, supplies, containers for products, fuel, and power	Value of products	Value added by manufacture	Horse-power
<b>Other industries—Con.</b>								
Artists' and draftsmen's materials.	1927	61	1, 211	1, 430	3, 772	8, 205	4, 433	3, 250
	1925	62	1, 317	1, 508	3, 802	8, 321	4, 513	2, 982
	1923	61	1, 411	1, 747	4, 355	8, 639	4, 284	4, 902
	1921	55	1, 008	1, 199	3, 990	6, 900	2, 970	(?)
Brooms.....	1927	394	4, 450	4, 275	9, 176	18, 445	9, 269	4, 401
	1925	421	4, 725	4, 054	11, 213	21, 714	10, 501	5, 399
	1923	444	4, 730	4, 482	14, 933	26, 262	11, 329	4, 960
	1921	459	4, 302	3, 872	10, 417	18, 185	7, 771	(?)
Brushes, other than rubber...	1927	302	7, 673	8, 244	22, 553	47, 844	25, 291	12, 093
	1925	302	7, 836	8, 452	22, 021	45, 824	23, 503	11, 220
	1923	306	8, 719	9, 208	25, 570	50, 511	24, 942	10, 276
	1921	277	6, 460	6, 415	18, 065	35, 545	16, 880	(?)
Buttons.....	1927	229	9, 642	9, 436	11, 238	29, 130	17, 893	15, 899
	1925	289	11, 513	10, 893	12, 373	32, 458	20, 086	15, 840
	1923	336	11, 860	11, 229	13, 200	32, 750	19, 551	15, 384
	1921	346	9, 686	8, 511	10, 406	26, 534	16, 128	(?)
Combs and hairpins, not made from metal or rubber.	1927	36	1, 259	1, 249	1, 873	4, 437	2, 564	1, 591
	1925	44	1, 300	1, 293	2, 334	5, 270	2, 936	1, 892
	1923	42	2, 144	2, 267	4, 583	8, 770	4, 187	1, 919
	1921	38	1, 321	1, 277	2, 172	4, 580	2, 408	(?)
Dairymen's supplies; creamery, cheese-factory, and butter-factory equipment; and poultrymen's and apiarists' supplies.	1927	152	5, 091	6, 374	15, 686	36, 824	21, 137	13, 576
	1925	180	4, 844	5, 804	15, 421	37, 263	21, 842	14, 719
	1923	192	5, 783	6, 643	17, 587	39, 463	21, 876	14, 308
	1921	180	3, 841	4, 414	13, 085	27, 644	14, 560	(?)
Dental goods, including dental laboratory work.	1927	342	5, 674	6, 998	21, 928	42, 695	20, 767	4, 341
	1925	326	5, 303	6, 132	21, 124	38, 769	17, 645	4, 366
	1923	283	4, 698	5, 081	17, 160	32, 422	15, 282	3, 731
	1921	264	4, 137	4, 348	13, 499	25, 812	12, 313	(?)
Enameling and japanning.....	1927	111	2, 259	3, 017	3, 299	9, 143	5, 843	6, 893
	1925	95	1, 550	2, 170	2, 250	6, 896	4, 046	3, 775
	1923	83	1, 315	1, 713	1, 822	5, 448	3, 626	2, 727
	1921	64	615	1, 018	1, 060	2, 520	1, 460	(?)
Fancy and miscellaneous articles, not elsewhere classified.	1927	595	16, 965	18, 307	34, 674	83, 006	48, 333	10, 802
	1925	532	14, 552	14, 960	29, 155	69, 769	40, 614	9, 071
	1923	542	13, 522	13, 713	28, 531	63, 208	34, 677	8, 093
	1921	509	11, 534	11, 088	24, 384	51, 406	27, 022	(?)
Feathers, plumes, and manufactures thereof.	1927	38	322	397	534	1, 438	904	103
	1925	70	888	976	1, 881	4, 179	2, 298	334
	1923	131	1, 712	1, 968	3, 400	7, 866	4, 467	410
	1921	135	2, 064	2, 145	4, 298	8, 887	4, 588	(?)
Foundry supplies.....	1927	65	941	1, 200	6, 539	11, 635	5, 096	11, 133
	1925	66	1, 087	1, 360	6, 904	12, 723	5, 819	10, 733
	1923	64	966	1, 162	4, 823	10, 248	5, 425	7, 736
	1921	50	567	676	2, 775	4, 966	2, 191	(?)
Fur goods.....	1927	2, 756	16, 040	37, 671	195, 323	299, 615	104, 292	5, 655
	1925	2, 000	16, 556	35, 164	159, 316	254, 266	94, 950	4, 985
	1923	1, 758	14, 439	27, 923	126, 162	198, 043	71, 880	4, 299
	1921	1, 707	12, 052	22, 421	84, 537	139, 366	54, 829	(?)
Furs, dressed.....	1927	172	5, 540	10, 361	7, 072	27, 681	20, 609	12, 467
	1925	133	5, 056	8, 206	7, 296	25, 423	18, 126	9, 858
	1923	162	5, 203	8, 381	7, 242	25, 467	18, 225	7, 776
	1921	126	4, 420	6, 759	6, 070	19, 187	13, 087	(?)

See footnotes at end of table

## SUMMARY FOR GROUP 16.—MISCELLANEOUS INDUSTRIES: 1921 TO 1927—Contd.

[See notes at head of this summary, p. 1178]

INDUSTRY	Census year	Number of establishments	Wage earners (average for the year)	Wages	Cost of materials, supplies, containers for products, fuel, and power	Value of products	Value added by manufacture	Horse-power
<b>Other industries—Con.</b>								
Hair work .....	1927	69	515	598	830	2,279	1,449	21
	1925	85	864	975	3,046	6,090	3,043	13
	1923	113	1,317	1,352	5,568	11,264	5,696	17
	1921	128	1,222	1,256	6,734	10,952	4,218	(?)
Hand stamps and stencils and brands.	1927	293	2,668	3,842	3,734	14,156	10,422	3,159
	1925	323	2,930	4,015	4,070	15,321	11,250	3,668
	1923	255	2,312	3,035	3,103	11,131	8,028	2,571
	1921	234	2,068	2,657	2,786	9,079	6,293	(?)
Hats, men's straw .....	1927	48	3,263	4,232	11,783	21,718	9,935	1,554
	1925	83	5,920	5,823	15,178	28,154	12,976	3,541
	1923	97	6,812	7,523	16,341	32,509	16,228	3,673
	1921	110	5,924	6,415	14,559	28,617	14,057	(?)
Instruments, professional and scientific.	1927	280	16,414	22,289	28,880	87,783	58,903	25,587
	1925	233	12,129	16,166	20,428	76,339	55,911	17,695
	1923	258	12,275	15,503	18,040	63,074	45,035	16,203
	1921	266	9,384	11,700	13,326	42,132	28,806	(?)
Ivory, shell, and bone work, not including buttons, combs, or hairpins.	1927	22	294	330	328	911	583	599
	1925	29	488	555	728	1,879	1,152	892
	1923	30	603	663	1,121	2,441	1,320	880
	1921	39	674	690	1,144	2,395	1,252	(?)
Jewelry and instrument cases.	1927	107	2,406	2,597	3,294	8,810	5,516	1,440
	1925	125	2,748	2,750	3,833	10,114	6,281	2,400
	1923	111	2,977	2,904	4,417	10,506	6,089	1,662
	1921	107	2,241	2,088	2,713	7,036	4,323	(?)
Lapidary work .....	1927	92	547	1,221	9,133	12,352	3,218	513
	1925	83	589	1,285	7,273	10,123	2,850	515
	1923	87	644	1,280	5,887	9,130	3,243	566
	1921	64	399	738	2,840	4,345	1,505	(?)
Mattresses and bed springs, not elsewhere classified.	1927	838	13,481	16,887	52,182	98,835	46,652	32,937
	1925	1,018	14,403	17,430	62,489	110,717	48,228	32,840
	1923	1,015	14,103	16,473	61,477	107,562	46,085	30,324
	1921	889	11,748	13,546	42,056	74,024	32,508	(?)
Models and patterns, not including paper patterns.	1927	693	5,584	10,545	4,659	23,495	18,836	11,465
	1925	689	5,262	9,420	4,927	22,485	17,587	10,473
	1923	667	5,813	9,766	11,188	30,165	18,977	12,072
	1921	656	3,936	6,027	4,042	15,742	11,700	(?)
Motion pictures, not including projection in theaters.	1927	142	8,415	18,637	34,867	134,343	99,476	32,160
	1925	132	5,873	13,066	33,258	93,636	60,378	29,472
	1923	97	6,408	16,601	30,657	86,418	55,761	15,476
	1921	127	6,259	14,740	31,190	77,397	46,207	(?)
Optical goods † .....	1927	96	7,596	9,561	8,865	32,767	23,892	12,401
	1925	117	8,642	10,439	9,997	33,655	23,658	11,017
	1923	457	12,205	14,338	19,112	54,462	35,350	13,397
	1921	452	11,120	12,723	16,520	44,292	27,772	(?)
Paving materials, other than brick or granite.	1927	592	19,250	25,003	33,008	103,249	65,242	263,760
	1925	604	17,941	22,368	33,435	90,630	57,195	207,469
	1923	627	19,442	22,109	24,842	71,456	46,014	197,290
	1921	653	15,387	17,285	24,474	61,129	36,655	(?)
Pencils, lead .....	1927	27	5,301	5,943	9,931	24,500	14,568	9,832
	1925	25	5,636	6,031	9,199	25,051	15,852	8,209
	1923	20	5,826	5,540	8,659	24,568	15,908	7,288
	1921	14	5,134	5,035	7,260	21,382	14,122	(?)

See footnotes at end of table.

## SUMMARY FOR GROUP 16.—MISCELLANEOUS INDUSTRIES: 1921 to 1927—Contd.

[See notes at head of this summary, p. 1178]

INDUSTRY	Census year	Number of establishments	Wage earners (average for the year)	Wages	Cost of materials, supplies, containers for products, fuel, and power	Value of products	Value added by manufacture	Horse-power
<b>Other industries—Con.</b>								
Pens, fountain and stylographic.	1927	54	3,360	3,943	9,638	23,255	13,617	3,334
	1925	60	3,490	4,055	7,741	24,035	16,295	3,213
	1923	53	3,398	3,659	7,909	20,239	12,330	2,710
	1921	51	2,742	3,044	5,620	12,795	7,175	( <sup>2</sup> )
Photographic apparatus and materials.	1927	122	12,120	18,311	29,020	90,828	61,808	24,838
	1925	118	9,154	13,300	25,779	78,654	52,874	22,806
	1923	111	9,905	13,224	19,253	71,828	52,575	34,791
	1921	136	10,690	13,771	22,836	70,595	47,760	( <sup>2</sup> )
Pipes (tobacco) -----	1927	23	1,807	2,279	2,723	7,274	4,551	1,928
	1925	28	1,970	2,291	2,718	7,299	4,580	2,052
	1923	30	2,402	2,720	3,823	9,705	5,877	2,354
	1921	36	1,765	1,937	2,826	7,124	4,298	( <sup>2</sup> )
Roofing materials, not including wood, slate, burnt tile, asbestos, or metal other than metal shingles and ceilings.	1927	100	7,255	10,713	67,328	123,210	55,883	41,740
	1925	140	8,310	12,145	78,597	123,591	44,994	34,161
	1923	122	7,065	10,826	55,520	84,342	28,822	39,598
	1921	136	6,908	9,213	45,013	76,193	31,180	( <sup>2</sup> )
Sandpaper, emery paper, and other abrasive paper and cloth.	1927	10	917	1,228	5,471	12,232	6,761	2,834
	1925	12	1,230	1,714	7,342	15,623	8,281	4,513
	1923	14	1,176	1,519	6,870	13,753	6,883	3,694
	1921	12	680	868	3,592	6,462	2,870	( <sup>2</sup> )
Signs and advertising novelties.	1927	813	16,907	24,044	30,892	98,481	67,539	15,325
	1925	759	15,128	20,764	25,858	89,669	63,811	12,550
	1923	648	12,988	16,429	22,641	67,224	44,583	11,781
	1921	624	10,373	12,703	18,734	53,271	34,536	( <sup>2</sup> )
Soda-water apparatus -----	1927	48	2,838	4,223	10,391	23,929	13,538	5,042
	1925	60	2,372	3,628	8,632	22,032	13,400	4,180
	1923	66	2,659	3,779	6,712	18,169	11,457	4,238
	1921	62	2,144	3,048	6,496	15,407	8,911	( <sup>2</sup> )
Sporting and athletic goods, not including firearms or ammunition.	1927	188	9,689	11,595	19,394	44,043	25,549	13,484
	1925	181	8,724	10,262	17,875	42,629	24,755	11,550
	1923	170	9,683	10,440	18,493	41,797	23,305	11,091
	1921	152	7,063	7,400	15,401	31,811	16,410	( <sup>2</sup> )
Stationery goods, not elsewhere classified.	1927	194	8,987	9,792	27,016	56,987	29,971	8,891
	1925	217	11,309	12,076	31,108	67,809	36,701	10,970
	1923	225	13,314	14,628	34,714	77,689	42,975	11,639
	1921	221	11,285	12,399	29,606	64,597	34,991	( <sup>2</sup> )
Steam and other packing, pipe and boiler covering, and gaskets, not made in textile mills.	1927	159	5,946	7,905	10,794	43,045	23,250	29,810
	1925	172	6,086	8,072	20,372	43,871	23,499	25,579
	1923	142	5,064	6,432	15,849	32,991	17,142	17,671
	1921	157	4,877	5,329	15,984	29,112	13,129	( <sup>2</sup> )
Surgical appliances -----	1927	205	6,718	7,463	30,043	57,408	27,365	8,661
	1925	180	5,888	6,043	26,187	55,264	29,077	11,572
	1923	178	5,375	5,597	23,662	44,968	21,306	9,290
	1921	190	4,310	4,555	14,458	32,495	18,038	( <sup>2</sup> )
Theatrical scenery and stage equipment.	1927	39	561	1,380	2,330	5,745	3,415	968
	1925	33	391	854	1,520	3,574	2,058	413
	1923	17	210	430	635	1,626	991	162
	1921	18	169	361	492	1,214	723	( <sup>2</sup> )
Toys (not including children's wheel goods or sleds), games, and playground equipment.	1927	397	14,738	15,543	25,805	63,950	38,150	19,028
	1925	352	13,557	13,785	22,179	55,734	33,554	19,038
	1923	411	14,484	13,901	23,829	56,069	32,237	16,111
	1921	362	9,448	8,953	14,569	35,491	20,923	( <sup>2</sup> )

See footnotes at end of table.

## SUMMARY FOR GROUP 16.—MISCELLANEOUS INDUSTRIES: 1921 TO 1927—Contd.

[See notes at head of this summary, p. 1178]

INDUSTRY	Cen- sus year	Num- ber of estab- lish- ments	Wage earn- ers (average for the year)	Wages	Cost of materials, supplies, contain- ers for products, fuel, and power	Value of products	Value added by manufac- ture	Horse- power
<b>Other industries—Contd.</b>								
Umbrellas, parasols, and canes	1927	164	3,308	3,411	14,021	23,156	9,135	2,411
	1925	176	3,731	3,696	16,594	27,299	10,705	3,027
	1923	187	3,776	3,739	18,000	28,305	10,396	2,409
	1921	154	3,149	3,126	16,889	26,008	9,119	( <sup>2</sup> )
Whips-----	1927	7	90	89	176	310	135	252
	1925	9	103	73	132	308	176	158
	1923	12	200	181	302	742	440	334
	1921	14	292	240	428	1,022	594	( <sup>2</sup> )
Window shades and fixtures...	1927	386	4,733	5,856	21,065	37,052	16,016	8,679
	1925	336	5,176	6,203	25,029	41,658	16,628	11,151
	1923	305	5,957	6,826	29,521	47,640	18,119	11,460
	1921	242	3,731	4,421	17,888	29,648	11,750	( <sup>2</sup> )
All other industries <sup>4</sup> -----	1923	5	633	1,013	13,636	15,526	1,890	1,330
	1921	16	1,506	2,077	9,886	16,245	6,359	( <sup>2</sup> )

<sup>1</sup> Each total is the sum, expressed to the nearest thousand, of the individual items expressed in units. For this reason the totals in some cases may differ slightly from the sums of the items as here given.

<sup>2</sup> Not called for on schedule.

<sup>3</sup> The differences between these figures and the totals for Group 16, as published in the report for 1925, are due to the transfer of the "Fuel, manufactured" industry to Group 7 and to the exclusion of data for toy balloons. (See footnote 5.)

<sup>4</sup> Establishments engaged primarily in the manufacture of surveyors', nautical, and similar instruments were classified in "Instruments, professional and scientific" at the census for 1927, but at prior censuses such establishments were classified in "Optical goods." The values of such instruments manufactured in 1927 and 1925, so far as separately reported, were \$3,437,811 and \$3,511,319, respectively.

<sup>5</sup> These figures differ from those published in the report for 1925 because of a change in the classification of certain establishments manufacturing toy balloons as their principal products. Prior to 1927 such establishments were classified in the "Toys, games, and playground equipment" industry, but for 1927 they were classified in the "Rubber goods, other than tires, inner tubes, and boots and shoes" industry. The figures for 1925 have been adjusted by the exclusion of the data for such establishments, but no corresponding adjustment has been made in the statistics for 1923 and 1921.

<sup>6</sup> At the censuses for 1927 and 1925 it was possible to present statistics for every industry covered by the census classifications, but for the preceding census years covered by this table it was necessary to combine the figures for certain unimportant industries in order to avoid disclosing operations of individual establishments.

## BROOMS AND BRUSHES

[Preliminary reports for these industries were published as follows: Brooms, February 1, 1929; Brushes, November 16, 1928]

**Description of the industries.**—The establishments classified in the broom industry are engaged primarily in the manufacture of brooms, whisk brooms, etc., made from broom corn, and street-sweeping brooms made from heavier material; those classified in the brush industry, in the manufacture of brushes, other than rubber, such as tooth, toilet, paint and varnish, household, and industrial brushes. Because of the similarity of the products of the two industries, the commodities which are the primary products of each are made to a considerable extent as secondary products in the other. For this reason, the statistics are presented in combination in Table 1 and in Table 3.

**TABLE 1.—COMBINED SUMMARY FOR THE INDUSTRIES, AND SUMMARY FOR EACH INDUSTRY: 1919 TO 1927**

[Data for establishments with products under \$5,000 in value included for 1919 but not for subsequent years. See sec. 10, p. 6]

YEAR OR PERIOD	Number of establishments	Wage earners, (average for the years)	Wages	Cost of materials, supplies, fuel, and power	Value of products	Value added by manufacture <sup>1</sup>	Horse-power
<b>COMBINED SUMMARY</b>							
1927	696	12, 123	\$12, 518, 720	\$31, 728, 768	\$66, 289, 036	\$34, 560, 268	16, 494
1925	723	12, 561	13, 105, 865	33, 234, 825	67, 538, 409	34, 303, 584	16, 619
1923	750	13, 449	13, 689, 917	40, 502, 488	76, 773, 073	36, 270, 585	15, 236
1921	736	10, 762	10, 287, 236	29, 031, 799	53, 732, 890	24, 651, 091	(2)
1919	1, 413	14, 281	12, 822, 086	36, 963, 242	69, 210, 874	32, 247, 632	13, 344
Per cent of increase or decrease (—):							
1925-1927	-3.7	-3.5	-4.5	-4.5	-1.8	.7	-8
1923-1925	-3.6	-6.6	-4.3	-17.9	-12.0	-5.4	9.1
1923-1927	-7.2	-9.9	-8.6	-21.7	-13.7	-4.7	8.3
1919-1927	-50.7	-15.1	-2.4	-14.2	-4.2	7.2	23.6
<b>BROOMS</b>							
1927	394	4, 450	4, 274, 688	9, 175, 710	18, 444, 912	9, 269, 202	4, 401
1925	421	4, 725	4, 653, 656	11, 213, 381	21, 714, 194	10, 500, 813	5, 399
1923	444	4, 730	4, 481, 645	14, 932, 827	26, 261, 834	11, 329, 007	4, 900
1921	459	4, 302	3, 871, 895	10, 417, 147	18, 188, 376	7, 771, 229	(2)
1919	1, 034	6, 313	5, 708, 835	17, 365, 109	30, 205, 267	12, 840, 158	6, 037
Per cent of increase or decrease (—):							
1925-1927	-6.4	-5.8	-3.1	-18.2	-15.1	-11.7	-18.5
1923-1925	-5.2	-1	3.8	-24.9	-17.3	-7.3	8.9
1923-1927	-11.3	-4.6	-4.6	-38.6	-29.8	-13.2	-11.3
1919-1927	-61.9	-29.5	-25.1	-47.2	-38.9	-27.8	-27.1
<b>BRUSHES, OTHER THAN RUBBER</b>							
1927	302	7, 673	8, 244, 032	22, 553, 058	47, 844, 124	25, 291, 066	12, 093
1925	302	7, 836	8, 452, 209	22, 021, 444	45, 824, 215	23, 802, 771	11, 220
1923	306	8, 719	9, 203, 272	25, 569, 661	50, 511, 239	24, 941, 573	10, 276
1921	277	6, 460	6, 413, 340	18, 664, 652	35, 544, 514	16, 879, 862	(2)
1919	370	7, 968	7, 113, 201	19, 598, 133	39, 005, 607	19, 407, 474	7, 307
Per cent of increase or decrease (—):							
1925-1927	-	-2.1	-2.5	2.4	4.4	6.3	7.8
1923-1925	-1.3	-10.1	-8.2	-13.9	-9.3	-4.6	9.2
1923-1927	-1.3	-12.0	-10.5	-11.8	-5.3	1.4	17.7
1919-1927	-20.3	-3.7	15.9	15.1	22.7	30.3	65.5

<sup>1</sup> Value of products less cost of materials, supplies, fuel, and power. (See secs. 18 and 21, pp. 9 and 10.)

<sup>2</sup> Not called for on schedule.

TABLE 2.—PRIME MOVERS, MOTORS, AND GENERATORS, BY TYPE, NUMBER, AND RATED CAPACITY, FOR THE UNITED STATES: 1927, 1925, AND 1923

TYPE	1927		1925		1923	
	Number	Capacity	Number	Capacity	Number	Capacity
<b>THE BROOM INDUSTRY</b>						
Prime movers, total.....	968	Horse-power 4,401	949	Horse-power 5,399	897	Horse-power 4,980
Steam engines.....	12	770	16	1,170	22	1,047
Steam turbines.....	1	60	1	60		
Internal-combustion engines.....	26	336	31	411	45	312
Electric motors driven by purchased current.....	929	3,235	901	3,758	830	3,501
Electric motors, total.....	998	3,498	944	4,000	845	3,782
Driven by purchased current.....	929	3,235	901	3,758	830	3,501
Driven by current generated in establishment reporting.....	69	263	43	251	15	161
Electric generators.....	5	Kilowatts 341	5	Kilowatts 327	( <sup>1</sup> )	Kilowatts ( <sup>1</sup> )
<b>THE BRUSH INDUSTRY</b>						
Prime movers, total.....	2,117	Horse-power 12,093	1,876	Horse-power 11,220	1,511	Horse-power 10,276
Steam engines.....	30	2,871	33	3,237	38	3,026
Steam turbines.....	1	500				
Internal-combustion engines.....	15	207	15	226	14	252
Water wheels and turbines.....	6	160	5	128	5	180
Electric motors driven by purchased current.....	2,065	8,355	1,823	7,629	1,454	6,318
Electric motors, total.....	2,395	9,385	2,289	9,406	1,874	8,489
Driven by purchased current.....	2,065	8,355	1,823	7,629	1,454	6,318
Driven by current generated in establishment reporting.....	330	1,030	466	1,777	420	1,871
Electric generators.....	13	Kilowatts 802	15	Kilowatts 689	( <sup>1</sup> )	Kilowatts ( <sup>1</sup> )

<sup>1</sup> Not called for on schedule.

TABLE 3.—PRODUCTS, BY CLASS, NUMBER, AND VALUE: 1927 AND 1925

CLASS	1927	1925
1. Broom and brush industries, all products, total value.....	\$66,289,036	\$67,638,409
2. Brooms and brushes.....	\$62,581,136	\$63,905,752
3. Other products (not normally belonging to the industries).....	\$3,707,900	\$3,632,657
4. Brooms and brushes made as secondary products in other industries, value.....	\$3,486,676	\$2,000,064
Brooms and brushes, all industries: Aggregate value (sum of 2 and 4).....	\$66,067,812	\$65,905,816
Brooms, whisk brooms, etc., total value.....	\$19,636,766	\$21,099,694
Brooms (other than whisk brooms) made from broom corn— Dozens.....	3,153,580	( <sup>1</sup> )
Value.....	\$16,677,110	( <sup>1</sup> )
Whisk brooms— Dozens.....	491,931	( <sup>1</sup> )
Value.....	\$1,065,100	( <sup>1</sup> )
Street-sweeping machine brooms— Number.....	2,158	( <sup>1</sup> )
Value.....	\$54,614	( <sup>1</sup> )
Brooms not reported by kind, value.....	\$1,839,933	( <sup>1</sup> )
Brushes, other than rubber, total value <sup>2</sup> .....	\$46,431,046	\$42,806,058
Toothbrushes.....	\$5,100,000	\$7,426,895
Toilet brushes, other than toothbrushes.....	\$5,393,715	
Paint and varnish brushes (including artists' brushes).....	\$17,451,736	\$16,746,465
Household brushes.....	\$6,330,427	\$5,241,990
Industrial brushes.....	\$7,675,558	\$5,797,670
Brushes not reported by kind.....	\$4,479,560	\$7,593,038
Brooms and brushes, undistributed.....		\$2,000,064

<sup>1</sup> No comparable data.<sup>2</sup> Data as to quantities incomplete.

TABLE 4.—GENERAL STATISTICS, BY STATES: 1927  
 [This table presents statistics for all States for which separate figures can be given without disclosing data reported by individual establishments. Certain of the "Other States," however, reported larger values of products than some of the States shown separately]

STATE	PERSONS ENGAGED IN THE INDUSTRY				Horse-power	Salaries	Wages	Cost of materials, supplies, fuel, and power		Value of products	Value added by manufacture	
	Num-ber of estab-lish-ments	Total	Pro-pri-ets and firm-owners	Salaried officers and em-ployees				Wage earners (average for the year)	Materials and supplies			Fuel and power
United States.....	394	5,388	388	550	4,450	4,401	\$1,157,459	\$4,274,688	\$9,009,725	\$165,985	\$18,444,912	\$9,269,202
Alabama.....	8	109	3	16	80	84	28,792	54,141	113,684	1,510	255,133	140,080
California.....	19	195	18	27	160	98	33,360	177,547	355,583	3,431	728,805	369,791
Florida.....	6	80	5	10	75	148	18,600	49,465	77,048	4,292	187,038	105,698
Georgia.....	8	93	5	10	73	59	13,637	58,887	80,118	2,132	221,074	129,824
Illinois.....	32	482	32	52	398	418	117,708	436,176	876,908	16,271	1,939,099	1,043,920
Indiana.....	12	415	9	46	260	397	102,859	304,364	591,969	10,478	1,267,478	664,731
Iowa.....	23	212	26	23	163	295	60,655	168,434	324,196	7,428	743,308	411,684
Kansas.....	7	84	4	9	71	91	16,248	67,221	137,780	3,253	312,286	171,253
Kentucky.....	15	282	14	45	223	144	93,453	156,291	736,349	11,709	1,131,634	383,776
Louisiana.....	6	54	5	4	45	29	6,856	60,917	114,273	810	1,196,888	81,505
Maryland.....	8	397	4	14	379	169	40,920	274,764	649,942	7,021	1,141,839	484,596
Massachusetts.....	12	66	17	4	45	54	5,818	15,171	113,031	2,431	231,419	119,470
Michigan.....	6	66	7	9	50	68	13,473	70,561	110,493	2,583	295,501	149,479
Minnesota.....	12	105	17	12	76	58	19,965	86,648	137,508	3,444	340,200	198,347
Missouri.....	20	189	18	14	127	81	25,440	115,923	224,735	4,460	451,136	221,955
New Jersey.....	5	111	3	9	99	73	27,011	96,660	274,668	2,362	437,015	159,985
New York.....	39	632	38	59	535	524	197,971	629,331	1,116,792	26,247	2,470,597	1,327,558
North Carolina.....	5	45	5	5	32	24	5,573	25,284	93,589	1,286	159,105	64,230
Ohio.....	25	286	19	33	234	237	62,717	232,481	405,334	7,731	862,253	449,188
Oklahoma.....	7	73	4	4	41	41	5,115	59,812	83,048	1,757	239,509	154,704
Oregon.....	5	56	2	7	47	163	11,440	43,777	104,954	2,980	199,487	84,563
Pennsylvania.....	36	396	37	41	318	475	84,544	350,741	785,559	16,459	1,534,420	732,372
Tennessee.....	8	72	10	10	82	48	7,785	41,573	107,207	1,632	204,151	95,312
Texas.....	24	238	23	28	184	211	48,066	183,126	356,043	6,125	790,440	437,279
Washington.....	5	39	7	4	28	21	10,752	61,818	61,573	784	132,500	70,143
Wisconsin.....	11	84	12	7	65	45	12,748	63,041	155,055	2,885	286,381	128,441
Other States.....	29	547	35	48	464	340	90,968	381,545	812,050	13,569	1,743,307	917,748

See footnotes at end of table.

TABLE 4.—GENERAL STATISTICS, BY STATES: 1927—Continued

[This table presents statistics for all States for which separate figures can be given without disclosing data reported by individual establishments. Certain of the "Other States," however, reported larger values of products than some of the States shown separately]

STATE	Num-ber of estab-lish-ments	PERSONS ENGAGED IN THE INDUSTRY				Horse-power	Salaries	Wages	Cost of materials, sup-plies, fuel, and power	Value of products	Value added by manu-facture <sup>1</sup>
		Total		Wage earners (average for the year)	Materials and supplies						
		Pro-duce of firm and mem-bers	Pro-duce of con-tractors and em-ployees								
United States.....	302	9,459	1,584	7,673	12,093	\$3,752,209	\$8,244,032	\$22,125,425	\$427,633	\$47,844,124	\$25,281,066
California.....	8	130	21	115	81	73,000	120,160	293,000	3,133	620,134	323,011
Colorado.....	3	4	6	6	11	2,236	7,860	17,415	866	43,250	24,960
Delaware.....	3	50	40	40	16	10,032	15,230	24,213	588	62,002	38,009
Illinois.....	27	360	69	260	431	176,082	379,372	1,122,603	21,088	2,067,660	923,871
Indiana.....	5	176	53	118	292	102,538	121,959	233,538	7,808	702,821	459,375
Maryland.....	9	924	107	814	1,769	201,712	678,718	2,165,121	20,967	4,276,313	2,090,225
Massachusetts.....	23	1,507	270	1,228	1,376	711,408	1,394,931	3,013,123	76,380	7,651,638	4,557,020
Michigan.....	9	138	17	114	222	50,775	185,571	169,690	8,324	372,608	207,594
Missouri.....	3	46	13	31	22	14,222	38,195	106,713	1,413	189,774	82,648
Nebraska.....	3	45	7	37	41	13,538	51,661	45,792	1,307	89,707	42,518
New Jersey.....	25	935	121	706	649	365,289	934,880	1,873,717	67,083	4,677,027	2,762,179
New York.....	31	1,104	302	1,788	2,076	720,780	1,393,381	4,805,134	84,482	9,579,177	4,981,551
Ohio.....	24	775	10	569	2,346	506,736	683,943	1,721,109	24,121	3,860,634	2,139,344
Pennsylvania.....	25	425	82	395	893	167,586	383,113	974,041	16,605	2,027,300	1,086,654
Rhode Island.....	6	168	11	95	209	73,394	143,736	73,394	2,145	1,117,894	454,748
Wisconsin.....	8	173	26	134	203	73,537	141,507	163,683	6,660	503,359	336,611
Other States <sup>2</sup> .....	40	1,520	261	1,227	1,644	532,370	1,186,576	5,013,668	79,628	10,470,493	5,377,197

THE BRUSH INDUSTRY

<sup>1</sup> Value of products less cost of materials, supplies, fuel, and power. (See secs. 18 and 21, pp. 9 and 10.)  
<sup>2</sup> Arizona, 2 establishments; Arkansas, 2; Colorado, 5; Connecticut, 1; District of Columbia, 1; Maine, 2; Mississippi, 3; Montana, 1; Nebraska, 3; Rhode Island, 1; South Carolina, 1; South Dakota, 2; Virginia, 2; West Virginia, 3.  
<sup>3</sup> Connecticut, 9 establishments; Florida, 2; Georgia, 1; Iowa, 2; Kansas, 1; Maine, 2; Minnesota, 6; New Hampshire, 3; North Carolina, 2; Oregon, 2; Texas, 1; Vermont, 4; Virginia, 1; Washington, 4.

## BUTTONS

[A preliminary report for this industry was published under date of January 21, 1929]

**Description of the industry.**—The establishments classified in this industry are those whose principal products are buttons, parts of buttons, and button blanks and molds.

**Decrease in number of establishments.**—The number of establishments classified in this industry decreased considerably between 1925 and 1927—from 289 in the earlier to 229 in the later year—this decrease being the net result of a loss of 85 establishments and a gain of 25. Of the 85 establishments lost, 46 went out of business prior to 1927, 15 reported commodities other than buttons as their principal products in 1927 and were therefore transferred to the appropriate industries, and 24 reported products valued at less than \$5,000. (See sec. 10, p. 6.) Of the 25 establishments gained, 1 manufactured another class of commodities as its principal product in 1925, 1 which was idle in 1925 had resumed operations before the beginning of 1927, 3 reported products valued at less than \$5,000 for 1925 but more than \$5,000 for 1927, and 20 reported for the first time at the present census.

**TABLE 1.—SUMMARY FOR THE UNITED STATES: 1919 TO 1927**

[Data for establishments with products under \$5,000 in value included for 1919 but not for subsequent years  
See sec. 10, p. 6]

YEAR OR PERIOD	Number of establishments	Wage earners (average for the year)	Wages	Cost of materials, supplies, containers for products, fuel, and power	Value of products	Value added by manufacture <sup>1</sup>	Horse-power
1927-----	.229	9,642	\$9,435,821	\$11,237,579	\$29,130,168	\$17,892,589	15,899
1925-----	289	11,513	10,893,176	12,372,046	32,458,435	20,085,789	15,840
1923-----	336	11,860	11,220,008	13,190,582	32,750,190	19,550,608	15,384
1921-----	346	9,686	8,511,449	10,405,511	26,533,891	16,128,380	(2)
1919-----	557	15,577	13,772,599	16,745,357	41,840,459	25,095,102	15,706
PER CENT OF INCREASE OR DECREASE (—)							
1925-1927-----	-20.8	-16.3	-13.4	-9.2	-10.3	-10.9	0.4
1923-1925-----	-14.0	-2.9	-3.0	-6.3	-9	2.7	3.0
1923-1927-----	-31.8	-18.7	-16.0	-14.9	-11.1	-8.5	3.3
1919-1927-----	-58.9	-38.1	-31.5	-32.9	-30.4	-28.7	1.2

<sup>1</sup> Value of products less cost of materials, supplies, containers for products, fuel, and power. (See secs. 18 and 21, pp. 9 and 10.)

<sup>2</sup> Not called for on schedule.

TABLE 2.—PRIME MOVERS, MOTORS, AND GENERATORS, BY TYPE, NUMBER, AND RATED CAPACITY, FOR THE UNITED STATES: 1927, 1925, AND 1923

TYPE	1927		1925		1923	
	Number	Capacity	Number	Capacity	Number	Capacity
Prime movers, total.....	1, 283	Horse-power 15, 899	1, 157	Horse-power 15, 840	1, 114	Horse-power 15, 384
Steam engines.....	40	4, 681	52	5, 553	50	5, 238
Steam turbines.....					32	679
Internal-combustion engines.....	21	531	20	432	8	386
Water wheels and turbines.....	6	258	7	312		
Electric motors driven by purchased current.....	1, 216	10, 429	1, 078	9, 543	1, 018	9, 081
Electric motors, total.....	1, 245	10, 999	1, 114	10, 234	1, 068	10, 002
Driven by purchased current.....	1, 216	10, 429	1, 078	9, 543	1, 018	9, 081
Driven by current generated in establishment reporting.....	29	570	36	691	50	921
Electric generators.....	4	Kilowatts 622	7	Kilowatts 1, 046	(1)	Kilowatts (1)

<sup>1</sup> Not called for on schedule.

TABLE 3.—PRODUCTS, BY CLASS, QUANTITY, AND VALUE: 1921 TO 1927

CLASS	1927	1925	1923	1921
1. Button industry, all products.....	\$29, 130, 168	\$32, 458, 435	\$32, 750, 190	\$26, 533, 891
Buttons, blanks, parts, etc.....	27, 464, 870	30, 854, 406	30, 467, 576	25, 340, 436
3. Other products (not normally belonging to the industry) <sup>1</sup> .....	1, 665, 298	1, 604, 029	2, 282, 614	1, 193, 455
4. Buttons, made as secondary products in other industries.....	273, 124	286, 457	647, 163	1, 074, 818
Buttons, blanks, parts, etc., all industries, total (sum of 2 and 4).....	\$27, 737, 994	\$31, 140, 863	\$31, 114, 739	\$26, 416, 254
Buttons:				
Total value.....	\$24, 883, 800	\$27, 880, 095	\$27, 690, 156	\$23, 935, 655
Pearl or shell, fresh-water—				
Other than shoe—				
Gross.....	22, 051, 963	21, 688, 298	20, 424, 726	
Value.....	\$7, 940, 798	\$7, 611, 824	\$6, 952, 758	17, 403, 589
Shoe <sup>2</sup> —				
Gross.....	422, 566	1, 816, 789	2, 005, 261	\$6, 596, 626
Value.....	\$133, 049	\$875, 505	\$1, 180, 417	
Pearl or shell, ocean—				
Other than shoe—				
Gross.....	4, 438, 652	4, 708, 417	5, 031, 437	
Value.....	\$3, 829, 594	\$3, 594, 332	\$3, 292, 826	5, 195, 010
Shoe <sup>2</sup> —				
Gross.....	604, 464	1, 437, 025	3, 108, 017	\$4, 903, 534
Value.....	\$518, 856	\$385, 995	\$2, 398, 237	
Vegetable ivory—				
Gross.....	9, 215, 306	11, 092, 988	9, 495, 871	7, 425, 430
Value.....	\$6, 704, 653	\$7, 463, 259	\$6, 336, 743	\$5, 133, 405
Celluloid—				
Gross.....	339, 888	(3)	(3)	(3)
Value.....	\$1, 031, 075	\$1, 322, 796	\$1, 737, 837	\$1, 589, 349
Horn—				
Gross.....	1, 798, 573	1, 921, 661	3, 696, 907	1, 844, 360
Value.....	\$537, 741	\$597, 816	\$1, 038, 081	\$966, 186
Bone—				
Gross.....	(4)	1, 690, 976	1, 617, 299	1, 693, 400
Value.....	(4)	\$296, 343	\$395, 814	\$458, 425

See footnotes at end of table.

TABLE 3.—PRODUCTS, BY CLASS, QUANTITY, AND VALUE: 1921 to 1927—Con.

CLASS	1927	1925	1923	1921
<b>Buttons—Continued.</b>				
Glass—				
Gross.....	129,075	197,335	52,466	69,774
Value.....	\$120,459	\$171,490	\$48,132	\$50,024
Metal (except covered), not including collar and cuff—				
Gross.....	6,356,426	6,105,103	7,623,638	2,466,549
Value.....	\$2,292,927	\$1,734,638	\$1,942,749	\$816,169
Composition—				
Gross.....	( <sup>1</sup> )	7,337,774	5,531,230	
Value.....	( <sup>1</sup> )	\$1,272,579	\$715,764	
Galalith—				
Gross.....	356,514	( <sup>3</sup> )	( <sup>3</sup> )	
Value.....	\$397,706	\$275,918	\$298,173	<sup>3</sup> \$2,005,504
Other (not including shoe), except covered—				
Gross.....	<sup>6</sup> 11,842,985	2,584,009	1,455,985	
Value.....	<sup>6</sup> \$1,623,217	\$506,494	\$179,255	
Covered <sup>7</sup> —				
Gross.....	716,625	1,685,292	1,014,988	1,389,125
Value.....	\$559,414	\$916,614	\$626,554	\$1,095,705
Shoe, other than pearl and shell <sup>2</sup> —				
Gross.....	1,020,960	2,473,039	4,016,423	1,206,462
Value.....	\$194,311	\$349,492	\$495,916	\$290,729
Button blanks and molds, sold as such:				
Gross.....	( <sup>3</sup> )	( <sup>3</sup> )	( <sup>3</sup> )	
Value.....	\$611,770	\$920,637	\$687,653	
Button blanks and molds, transferred to finishing plants under same ownership:				
Gross.....	( <sup>3</sup> )	( <sup>3</sup> )	( <sup>3</sup> )	10,605,935
Value.....	\$2,226,502	\$2,261,262	\$2,394,282	\$2,379,671
Parts of buttons, blanks, etc., sold as such, value.	\$15,922	\$78,869	\$342,645	\$99,928

<sup>1</sup> Snap fasteners and clasps; pearl, metal, and celluloid novelties; ornaments; buckles; crushed shell for poultry; etc.

	Gross	Value
<sup>2</sup> Total shoe buttons, 1927.....	2,107,990	\$846,216
Pearl or shell, fresh-water.....	422,566	133,049
Pearl or shell, ocean.....	664,464	518,856
Other than pearl or shell.....	1,020,960	194,311

<sup>3</sup> Data incomplete.

<sup>4</sup> Included in figures for "Other (not including shoe), except covered," to avoid disclosing output of individual establishments.

<sup>5</sup> Includes value of button blanks and molds made as secondary products in other industries, not distributed by class.

<sup>6</sup> Includes data for "Bone," "Composition," and collar and cuff buttons.

<sup>7</sup> This item represents covered buttons made for sale as such to the trade. It does not, therefore, include data for buttons covered to individual order.

TABLE 4.—GENERAL STATISTICS, BY STATES: 1927

[This table presents statistics for all States for which separate figures can be given without disclosing operations of individual establishments. Certain of the "Other States," however, reported larger values of products than some of the States shown separately]

STATE	Number of establishments	PERSONS ENGAGED IN THE INDUSTRY				Horse-power
		Total	Proprietors and firm members	Salaried officers and employees	Wage earners (average for the year)	
United States.....	229	10,662	131	889	9,642	15,399
Connecticut.....	10	894	6	92	796	1,468
Illinois.....	15	336	10	20	306	196
Indiana.....	5	173	2	7	164	198
Iowa.....	44	2,459	20	122	2,317	2,811
Kentucky.....	4	109	1	10	98	104
Massachusetts.....	7	114	7	8	99	201
Missouri.....	4	166	—	6	160	153
New Jersey.....	37	1,674	18	153	1,503	2,063
New York.....	74	2,999	61	321	2,617	4,470
Pennsylvania.....	11	530	5	52	473	842
Other States <sup>1</sup> .....	18	1,208	1	98	1,109	2,484

STATE	Salaries	Wages	Cost of materials, supplies, containers for products, fuel, and power		Value of products	Value added by manufacture <sup>2</sup>
			Materials, supplies, and containers for products	Fuel and power		
United States.....	\$2,174,699	\$9,435,821	\$10,645,399	\$592,180	\$29,130,168	\$17,892,589
Connecticut.....	177,864	876,100	1,062,233	55,914	2,865,662	1,747,515
Illinois.....	24,039	228,597	152,062	8,098	448,690	288,530
Indiana.....	10,760	122,369	130,961	3,974	289,815	154,880
Iowa.....	375,206	1,837,282	2,493,659	84,822	5,736,369	3,157,888
Kentucky.....	13,898	69,881	84,234	2,679	210,395	123,482
Massachusetts.....	17,795	64,485	117,220	4,839	320,333	198,265
Missouri.....	9,380	125,130	77,443	5,330	276,173	193,400
New Jersey.....	397,122	1,664,589	1,502,901	113,085	4,887,657	3,271,671
New York.....	748,085	2,895,007	3,399,035	189,942	9,390,500	5,801,523
Pennsylvania.....	125,555	494,401	619,989	29,106	1,395,175	746,080
Other States <sup>1</sup> .....	274,995	1,057,980	1,005,653	94,391	3,309,399	2,209,355

<sup>1</sup> Arkansas, 4 establishments; Delaware, 1; Kansas, 1; Maine, 1; Maryland, 1; Michigan, 2; Minnesota, 1; New Hampshire, 1; Ohio, 1; Rhode Island, 1; Tennessee, 1; West Virginia, 1; Wisconsin, 2.

<sup>2</sup> Value of products less cost of materials, supplies, containers for products, fuel, and power. (See secs. 18 and 21, pp. 9 and 10.)

## DENTAL GOODS

[A preliminary report for this industry was issued under date of March 12, 1929]

**Description of the industry.**—The establishments in this industry are engaged primarily in the manufacture of dental goods or in the performance of dental-laboratory work. Their chief products include artificial teeth, dental gold and alloys, filling and plate materials, cements, inlays, impression materials, gold crown and bridge work, rubber-plate work, and suction plates and cups.

**TABLE 1.—SUMMARY FOR THE UNITED STATES: 1919 TO 1927**

[Data for establishments with products under \$5,000 in value included for 1919 but not for subsequent years. See sec. 10, p. 6]

YEAR OR PERIOD	Number of establishments	Wage earners (average for the year)	Wages	Cost of materials, supplies, fuel, and power	Value of products	Value added by manufacture <sup>1</sup>	Horse-power
1927-----	342	5,674	\$6,998,286	\$21,927,898	\$42,695,252	\$20,767,354	4,341
1925-----	326	5,303	6,131,699	21,124,385	38,769,040	17,644,664	4,366
1923-----	283	4,608	5,080,724	17,160,205	32,422,494	15,262,289	3,731
1921-----	264	4,137	4,347,877	13,498,583	25,811,790	12,313,207	(?)
1919-----	319	5,224	4,463,840	16,420,429	20,401,896	12,981,467	2,708
PER CENT OF INCREASE OR DECREASE (—)							
1925-1927-----	4.9	7.0	14.1	3.8	10.1	17.7	-0.6
1923-1925-----	15.2	15.1	20.7	23.1	19.6	15.6	17.0
1923-1927-----	20.8	23.1	37.7	27.8	31.7	36.1	16.3
1919-1927-----	7.2	8.6	56.8	33.5	45.2	60.0	60.3

<sup>1</sup> Value of products less cost of materials, supplies, fuel, and power. (See secs. 18 and 21, pp. 9 and 10.)

<sup>2</sup> Not called for on schedule.

**TABLE 2.—PRIME MOVERS, MOTORS, AND GENERATORS, BY TYPE, NUMBER, AND RATED CAPACITY, FOR THE UNITED STATES: 1927, 1925, AND 1923**

TYPE	1927		1925		1923	
	Number	Capacity	Number	Capacity	Number	Capacity
Prime movers, total-----	3,010	<i>Horse-power</i> 4,341	2,491	<i>Horse-power</i> 4,366	1,929	<i>Horse-power</i> 3,731
Steam engines-----	4	813	5	891	10	2,023
Steam turbines-----	2	766	2	850		
Internal-combustion engines-----	7	65	3	24	2	22
Water wheels-----	1	8				
Electric motors driven by purchased current-----	2,996	2,689	2,481	2,601	1,917	1,686
Electric motors, total-----	3,263	4,281	2,495	3,401	2,096	2,979
Driven by purchased current-----	2,996	2,689	2,481	2,601	1,917	1,686
Driven by current generated in establishment reporting-----	267	1,592	14	800	179	1,293
Electric generators-----	7	<i>Kilowatts</i> 1,167	3	<i>Kilowatts</i> 1,145	(?)	<i>Kilowatts</i> (?)

<sup>1</sup> Not called for on schedule.

TABLE 3.—PRODUCTS, BY CLASS AND VALUE, FOR THE UNITED STATES: 1927 AND 1925

CLASS	1927	1925	Per cent of increase or decrease (-)
1. Dental-goods industry, all products, total value.....	\$42,695,252	\$38,769,049	10.1
2. Dental goods.....	38,399,068	35,922,871	6.9
3. Other products (not normally belonging to the industry).....	4,296,184	2,846,178	50.9
4. Dental goods made as secondary products in other industries, value.....	753,584	686,313	9.8
Dental goods, all industries: Total (sum of 2 and 4).....	39,152,652	36,609,184	6.9
Dental gold.....	13,895,033	11,586,570	19.9
Teeth.....	7,691,972	5,947,729	29.3
Other dental goods <sup>2</sup> .....	17,565,647	18,388,572	-4.5
Undistributed.....		686,313	

<sup>1</sup> Revised.<sup>2</sup> Artificial dentures; bridge and crown work; filling materials and waxes; dental broaches, burs, mandrels, and other equipment, and supplies.

TABLE 4.—GENERAL STATISTICS, BY STATES: 1927

[This table presents statistics for all States for which separate figures can be given without disclosing data reported by individual establishments. Certain of the "Other States," however, reported larger values of products than some of the States shown separately]

STATE	Number of establishments	PERSONS ENGAGED IN THE INDUSTRY				Horse-power
		Total	Proprietors and firm members	Salaried officers and employees	Wage earners (average for the year)	
United States.....	342	7,199	333	1,192	5,674	4,341
California.....	41	214	42	25	147	70
Colorado.....	8	75	9	5	61	22
Georgia.....	4	68	4	13	51	30
Illinois.....	23	448	20	130	298	224
Iowa.....	4	26	3	4	19	7
Kentucky.....	10	53	12	5	36	18
Maine.....	4	22	3	5	14	4
Maryland.....	7	106	10	30	66	14
Massachusetts.....	9	147	6	26	115	85
Michigan.....	6	42	5	10	27	18
Minnesota.....	12	403	11	88	304	162
Missouri.....	11	118	6	28	84	36
New Jersey.....	6	48	5	10	33	38
New York.....	82	1,647	76	380	1,191	2,172
Ohio.....	15	439	10	99	330	161
Pennsylvania.....	49	2,603	50	175	2,378	908
Rhode Island.....	3	22	4		18	4
Washington.....	6	23	7	5	11	2
West Virginia.....	4	15	6		9	5
Wisconsin.....	4	64	1	13	50	11
Other States <sup>1</sup> .....	34	616	43	141	432	380

See footnotes at end of table.

TABLE 4.—GENERAL STATISTICS, BY STATES: 1927—Continued

[See note at head of this table]

STATE	Salaries	Wages	Cost of materials, supplies, fuel, and power		Value of products	Value added by manufacture <sup>2</sup>
			Materials and supplies	Fuel and power		
United States.....	\$2,559,546	\$6,998,286	\$21,684,207	\$243,691	\$42,695,252	\$20,767,354
California.....	32,018	227,695	311,828	3,619	879,562	564,115
Colorado.....	6,979	103,670	123,160	1,369	311,654	187,125
Georgia.....	34,443	57,660	132,879	1,788	288,397	153,730
Illinois.....	282,003	521,580	2,010,504	16,048	3,489,895	1,463,343
Iowa.....	5,869	29,372	36,041	707	93,459	56,711
Kentucky.....	11,963	72,135	92,224	1,074	263,956	170,658
Maine.....	5,479	16,440	15,820	582	60,165	43,763
Maryland.....	39,690	87,369	88,215	2,462	308,610	217,933
Massachusetts.....	75,896	133,342	509,789	4,164	882,851	368,898
Michigan.....	13,807	50,346	49,968	820	179,142	128,354
Minnesota.....	140,256	400,690	751,737	7,571	1,643,718	884,410
Missouri.....	57,278	168,304	506,564	5,279	896,625	384,782
New Jersey.....	19,816	62,256	124,761	2,357	271,620	144,402
New York.....	798,323	1,801,784	9,955,928	99,143	16,186,975	6,131,904
Ohio.....	255,321	381,800	1,043,296	9,724	2,269,429	1,216,409
Pennsylvania.....	410,576	2,225,214	3,097,083	65,028	9,588,847	6,426,736
Rhode Island.....	.....	20,257	22,162	409	59,946	37,375
Washington.....	4,472	21,902	28,356	244	85,257	56,657
West Virginia.....	.....	9,910	20,348	216	50,013	29,449
Wisconsin.....	23,071	88,428	67,084	1,191	207,598	139,323
Other States <sup>1</sup> .....	342,286	517,724	2,696,460	19,896	4,677,633	1,961,277

<sup>1</sup> Alabama, 3 establishments; Arkansas, 2; Connecticut, 2; Delaware, 1; District of Columbia, 3; Florida, 1; Indiana, 1; Kansas, 2; Louisiana, 3; Nebraska, 2; North Carolina, 1; North Dakota, 1; Oklahoma, 1; Oregon, 2; South Dakota, 1; Tennessee, 1; Texas, 3; Utah, 2; Virginia, 2.

<sup>2</sup> Value of products less cost of materials, supplies, fuel, and power. (See secs. 18 and 21, pp. 9 and 10.)

## FUR GOODS

**Description of the industry.**—This industry embraces establishments engaged primarily in the manufacture of fur garments (fur and fur-lined coats and overcoats) and other commodities made entirely or chiefly of fur, such as fur hats and caps, gloves and mittens (except fur-lined), collars and neck pieces, robes, and trimmings, as well as sheep-lined garments. The furs used as materials are in some cases purchased dressed and in other cases are tanned and dressed by the establishments manufacturing the fur goods. Thus some overlapping occurs between the "Fur goods" and "Furs, dressed" industries.

**TABLE 1.—FUR GOODS—SUMMARY FOR THE UNITED STATES: 1919 TO 1927**

[Data for establishments with products under \$5,000 in value included for 1919 but not for subsequent years. See sec. 10, p. 6.]

YEAR OR PERIOD	Number of establishments	Wage earners (average for the year)	Wages	Cost of materials, supplies, fuel, and power	Value of products	Value added by manufacture <sup>1</sup>	Horsepower
1927-----	2,756	16,640	\$37,670,610	\$105,322,988	\$209,615,047	\$104,292,059	5,655
1925-----	2,000	16,556	35,164,292	159,315,093	254,265,708	94,950,015	4,985
1923-----	1,758	14,439	27,923,042	126,162,143	198,042,571	71,880,428	4,299
1921-----	1,707	12,052	22,421,193	84,536,855	139,365,929	54,829,074	(2)
1919-----	1,815	13,639	24,149,212	105,596,605	173,137,739	67,541,134	5,327
PER CENT OF INCREASE							
1925-1927-----	37.8	0.5	7.1	22.6	17.8	9.8	13.4
1923-1925-----	13.8	14.7	25.9	26.3	28.4	32.1	16.0
1923-1927-----	56.8	15.2	34.9	54.8	51.3	45.1	31.5
1919-1927-----	51.8	22.0	56.0	85.0	73.1	54.4	6.2

<sup>1</sup> Value of products less cost of materials, supplies, fuel, and power. (See secs. 18 and 21, pp. 9 and 10.)

<sup>2</sup> Not called for on schedule.

**TABLE 2.—FUR GOODS—PRIME MOVERS AND MOTORS, BY TYPE, NUMBER, AND RATED CAPACITY, FOR THE UNITED STATES: 1927 AND 1925**

TYPE	1927		1925	
	Number	Capacity	Number	Capacity
Prime movers, total-----	10,156	<i>Horsepower</i> 5,655	8,095	<i>Horsepower</i> 4,985
Steam engines-----			1	25
Electric motors driven by purchased current-----	10,156	5,655	8,094	4,960
Electric motors, total-----	10,156	5,655	8,094	4,960
Driven by purchased current-----	10,156	5,655	8,094	4,960

TABLE 3.—FUR GOODS—PRODUCTS, BY CLASS, NUMBER, AND VALUE, FOR THE UNITED STATES AND FOR SELECTED STATES: 1927 AND 1925

CLASS	1927		1925
	Number	Value	Value
1. Fur-goods industry, all products, total value.....		\$290,615,047	\$254,205,708
2. Fur goods.....		295,836,891	252,299,782
3. Other products (not normally belonging to the industry).....		1,708,220	1,579,232
4. Receipts for contract work.....		2,069,936	386,694
5. Fur goods made as secondary products in other industries, value.....		6,281,269	1,424,405
Fur goods, all industries: Aggregate value (sum of 2 and 5).....		302,118,160	253,724,187
Fur and fur-lined coats and overcoats, total.....	1,705,467	160,720,382	193,012,466
California.....	6,550	1,761,965	2,166,676
Illinois.....	33,939	8,712,966	9,515,298
Massachusetts.....	5,553	907,723	2,110,420
Michigan.....	10,140	2,262,256	2,556,650
Minnesota.....	25,920	4,190,263	7,038,564
Missouri.....	4,529	1,128,122	1,270,939
New York.....	1,572,463	132,322,681	155,290,337
Pennsylvania.....	15,486	3,412,671	4,625,176
Wisconsin.....	9,821	2,125,828	1,868,441
Other States.....	21,066	3,895,907	6,569,966
Fur neck pieces, total.....	332,441	14,112,848	10,262,288
California.....	6,005	577,236	21,901
Illinois.....	11,262	390,639	348,357
Michigan.....	8,404	343,792	(1)
New York.....	282,788	11,406,119	9,005,422
Pennsylvania.....	4,935	353,506	153,083
Other States.....	19,047	1,041,506	733,525
Fur robes, total.....	5,461	790,493	
New York.....	4,281	766,813	
Other States.....	1,180	23,680	
Fur trimmings, total.....		87,817,050	
California.....		665,323	
Illinois.....		2,145,782	
Massachusetts.....		452,132	
New York.....		82,682,220	30,903,027
Pennsylvania.....		1,048,095	
Other States.....		823,492	
Other fur and fur-lined goods, total.....		6,183,707	
New York.....		5,859,008	
Other States.....		324,699	
Sheep-lined garments.....	1,974,226	11,361,272	10,646,244
Miscellaneous products, value.....		1,094,999	1,626,251
Amount received for custom work and repairing.....		20,037,409	7,273,911

<sup>1</sup> Included in figure for "Other States" to avoid disclosing the production of individual establishments.

TABLE 4.—FUR GOODS—GENERAL STATISTICS, BY STATES: 1927  
 or all States for which separate figures can be given without disclosing data reported by individual establishments. Certain of the "Other States," however, reported larger values of products than some of the States shown separately

STATE	Num-ber of estab-lish-ments	PERSONS ENGAGED IN THE INDUSTRY				Horse-power	Salaries	Wages	Cost of materials, sup-plies, fuel, and power		Value of products	Value added by manu-facture <sup>1</sup>
		Total	Proprie-tors and firm man-agers	Salari-ed officers and em-ployees	Wage earners (average for the year)				Materials and supplies	Fuel and power		
United States.....	2,756	24,488	3,755	4,063	16,640	5,655	\$10,092,886	\$37,670,610	\$194,678,425	\$644,563	\$299,615,947	\$104,292,059
California.....	61	528	64	89	375	89	198,801	679,807	2,234,231	8,456	4,064,648	1,821,961
District of Columbia.....	10	133	11	38	84	24	70,621	189,906	577,573	6,225	839,057	455,269
Illinois.....	228	1,523	254	300	969	263	832,518	2,206,202	8,765,070	41,666	14,886,093	5,779,357
Indiana.....	8	75	7	63	13	24	18,743	74,086	224,000	3,276	408,542	181,266
Iowa.....	20	211	21	33	137	108	61,170	170,782	463,424	6,416	1,051,355	575,515
Maryland.....	21	130	22	30	78	27	30,344	194,173	360,135	3,894	682,406	318,437
Massachusetts.....	36	624	30	103	491	145	253,536	777,845	2,227,439	9,488	3,856,566	1,619,639
Michigan.....	23	452	20	83	379	243	170,557	592,833	1,657,536	11,839	3,311,565	1,642,190
Minnesota.....	43	939	27	200	712	322	433,383	1,119,531	3,283,251	32,672	6,042,237	2,711,314
Missouri.....	10	318	12	75	231	23	232,371	200,720	1,114,879	8,443	2,043,180	919,558
Nebraska.....	3	57	3	46	8	10	17,453	63,843	179,106	901	368,702	195,695
New Jersey.....	16	303	15	42	246	30	103,863	406,873	1,227,221	6,923	2,101,222	872,079
New York.....	2,029	16,938	3,036	2,687	11,215	3,634	6,895,842	28,486,410	163,837,952	428,433	244,941,302	80,674,917
Ohio.....	37	303	36	46	221	143	103,615	386,945	1,034,556	6,212	2,013,915	473,347
Oregon.....	6	47	5	7	35	9	16,548	44,480	90,229	1,021	221,239	129,999
Pennsylvania.....	106	748	118	162	468	99	264,295	953,724	3,760,695	28,789	6,312,890	2,523,406
Washington.....	24	226	15	50	161	55	104,059	232,360	6,900,951	5,808	1,279,000	670,331
Wisconsin.....	37	551	32	92	427	275	163,037	509,180	2,083,510	28,130	3,515,887	1,400,248
Other States <sup>2</sup> .....	29	352	29	41	282	104	79,816	358,566	1,146,858	10,042	1,973,141	816,241

<sup>1</sup> Value of products less cost of materials, supplies, fuel, and power. (See secs. 18 and 21, pp. 9 and 10.)  
<sup>2</sup> Colorado, 3 establishments; Connecticut, 5; Delaware, 1; Kansas, 1; Kentucky, 1; Louisiana, 1; Maine, 7; Montana, 3; North Dakota, 1; Oklahoma, 1; Rhode Island, 2; Utah, 1; Vermont, 1; West Virginia, 1.

## HATS, MEN'S, STRAW

[A preliminary report for this industry was issued under date of January 14, 1929]

**Description of the industry.**—This industry embraces establishments engaged primarily in the manufacture of men's straw hats, either complete or from purchased shells. They also bleach, shape, and finish Panamá and other straw hats. At prior censuses the "Hats, straw" industry embraced all establishments engaged primarily in the manufacture of men's, women's, and children's straw hats. At the present census, however, the manufacture of women's and children's straw hats has been transferred to the "Millinery" industry. Because of these changes in classification, no comparable statistics for years prior to 1927 can be given.

**TABLE 1.—PRIME MOVERS, MOTORS, AND GENERATORS, BY TYPE, NUMBER, AND RATED CAPACITY, FOR THE UNITED STATES: 1927**

TYPE	1927	
	Number	Capacity
Prime movers, total.....	461	<i>Horsepower</i> 1,554
Steam engines.....	7	625
Water wheels and turbines.....	1	40
Electric motors driven by purchased current.....	453	889
Electric motors, total.....	528	1,226
Driven by purchased current.....	453	889
Driven by current generated in establishment reporting.....	75	337
Electric generators.....	6	<i>Kilowatts</i> 350

**TABLE 2.—MATERIALS USED IN THE MEN'S STRAW HAT INDUSTRY: 1927**

Straw-braids:	Yards	Hat bodies in the rough:	Dozens
Chinese.....	65,892,267	South American.....	106,945
Japanese.....	55,808,803	Italian.....	193,240
Italian.....	2,142,336	Japanese.....	135,394
Other.....	42,886,440	Other.....	1,139,161

TABLE 3.—PRODUCTS, BY CLASS, QUANTITY, AND VALUE, FOR THE UNITED STATES: 1927

CLASS	Dozens	Value
1. Men's straw hat industry, all products, total value.....		\$21, 717, 689
2. Men's straw hats.....		21, 249, 247
3. Other products (not normally belonging to the industry).....		246, 367
4. Receipts for contract work.....		222, 075
5. Men's straw hats made as secondary products in other industries, value.....		5, 402, 906
Men's straw hats, all industries: Total value (sum of 2 and 5).....		26, 652, 153
Straw-braid hats, total.....	769, 081	10, 918, 119
Made complete in the plant.....	523, 639	8, 889, 955
Finished from imported shells.....	245, 442	2, 028, 164
Woven-body hats (except harvest hats).....	269, 401	7, 198, 523
Harvest hats <sup>1</sup> .....	1, 070, 763	3, 132, 605
Straw hats made as secondary products in other industries, value <sup>2</sup> .....		5, 402, 906

<sup>1</sup> The figures include data for 138,939 dozens of women's harvest hats, valued at \$395,090.

<sup>2</sup> Not reported by class.

TABLE 4.—GENERAL STATISTICS, BY STATES: 1927

[This table presents statistics for all States for which separate figures can be given without disclosing data reported by individual establishments]

STATE	Number of establishments	PERSONS ENGAGED IN THE INDUSTRY				Horse-power
		Total	Proprietors and firm members	Salari- ed officers and em- ployees	Wage earners (average for the year)	
United States.....	48	3, 772	11	498	3, 263	1, 554
Maryland.....	4	1, 245		92	1, 153	727
Massachusetts.....	4	255	1	21	233	323
Missouri.....	8	605	1	153	451	121
New Jersey.....	5	269	1	37	231	51
New York.....	19	1, 182	6	167	1, 009	298
Other States <sup>1</sup> .....	8	216	2	28	186	84

STATE	Salaries	Wages	Cost of materials, sup- plies, fuel, and power		Value of products	Value added by manufac- ture <sup>1</sup>
			Materials and supplies	Fuel and power		
United States.....	\$1, 289, 630	\$4, 232, 332	\$11, 644, 816	\$138, 140	\$21, 717, 689	\$9, 934, 733
Maryland.....	338, 559	1, 036, 340	2, 310, 525	36, 607	4, 700, 746	2, 353, 614
Massachusetts.....	78, 312	238, 844	315, 148	29, 772	822, 382	477, 462
Missouri.....	253, 058	642, 510	1, 990, 309	16, 168	3, 988, 694	1, 982, 217
New Jersey.....	67, 110	306, 571	791, 043	19, 578	1, 622, 703	812, 682
New York.....	488, 482	1, 875, 989	5, 070, 511	29, 306	9, 587, 155	3, 887, 338
Other States <sup>1</sup> .....	64, 109	132, 078	567, 280	6, 709	996, 009	422, 020

<sup>1</sup> Connecticut, 1 establishment; Illinois, 1; Ohio, 1; Pennsylvania, 2; Texas, 3.

<sup>2</sup> Value of products less cost of materials, supplies, fuel, and power. (See secs. 18 and 21, pp. 9 and 10.)

## MATTRESSES AND BED SPRINGS

[A preliminary report for this industry was issued under date of January 18, 1929]

**Description of the industry.**—This industry embraces establishments engaged in the manufacture of mattresses and pads filled with hair, cotton, felt, moss, or similar materials; wire springs for use on beds, couches, and cots; and spring cushions.

**Comparability of statistics.**—The statistics for 1925 and earlier years shown in Tables 1 and 2 are not strictly comparable with those for 1927 because of the exclusion for 1927 and the inclusion for earlier years of data for establishments engaged primarily in renovating mattresses. For 1927, 103 such establishments reported mattresses and bed springs manufactured to the value of \$203,421 and \$923,636 received for renovating.

**Detailed statistics of products (Table 3).**—A special schedule calling for detailed data on the several classes of products was used for this industry for the first time at the census for 1927. For this reason no comparable detailed product statistics can be given for earlier years. Some of the manufacturers were not prepared to report their production in the detail required, and therefore supplied estimated figures. This fact should be given consideration in any analytical study of the statistics.

TABLE 1.—SUMMARY FOR THE UNITED STATES: 1919 TO 1927

[Data for establishments engaged primarily in renovating mattresses excluded for 1927 but included for earlier years. See "Comparability of statistics," above]

YEAR OR PERIOD	Number of establishments	Wage earners (average for the year)	Wages	Cost of materials, supplies, fuel, and power	Value of product	Value added by manufacture <sup>1</sup>	Horse-power
1927-----	838	13,481	\$16,886,711	\$52,182,075	\$98,834,558	\$46,652,483	32,937
1925-----	1,018	14,403	17,429,710	62,489,286	110,716,896	48,227,610	32,840
1923-----	1,015	14,103	16,472,666	61,476,696	107,561,684	46,084,988	30,324
1921-----	889	11,748	13,546,457	42,056,162	74,623,976	32,567,814	( <sup>2</sup> )
1919-----	1,041	12,637	12,805,351	49,208,560	83,952,609	34,744,049	23,387
PER CENT OF INCREASE OR DECREASE (—)							
1925-1927-----	-17.7	-6.4	-3.1	-16.5	-10.7	-3.3	0.3
1923-1925-----	.3	2.1	5.8	-1.6	2.9	4.6	8.3
1923-1927-----	-17.4	-4.4	2.5	-15.1	-8.1	1.2	8.6
1919-1927-----	-19.5	6.7	31.9	6.0	17.7	34.3	40.8

<sup>1</sup> Value of products less cost of materials, supplies, fuel, and power. (See secs. 18 and 21, pp. 9 and 10.)

<sup>2</sup> Not called for on schedule.

TABLE 2.—PRIME MOVERS, MOTORS, AND GENERATORS, BY TYPE, NUMBER, AND RATED CAPACITY, FOR THE UNITED STATES: 1927, 1925, AND 1923

TYPE	1927		1925		1923	
	Number	Capacity	Number	Capacity	Number	Capacity
Prime movers, total.....	6, 123	Horse-power 32, 937	6, 162	Horse-power 32, 840	5, 267	Horse-power 30, 324
Steam engines.....	27	3, 203	29	3, 249	} 44	3, 523
Steam turbines.....			1	35		
Internal-combustion engines.....	14	277	22	422		
Water wheels and turbines.....	3	175	9	240		
Electric motors driven by purchased current.....	6, 084	29, 282	6, 101	28, 894	5, 198	26, 207
Electric motors, total.....	6, 625	32, 097	6, 199	29, 355	5, 370	27, 005
Driven by purchased current.....	6, 084	29, 282	6, 101	28, 894	5, 198	26, 207
Driven by current generated in establishment reporting.....	541	2, 815	98	461	172	798
Electric generators.....	9	Kilowatts 1, 365	10	Kilowatts 522	( <sup>1</sup> )	Kilowatts ( <sup>1</sup> )

<sup>1</sup> Not called for on schedule.

TABLE 3.—PRODUCTS, BY KIND AND VALUE, FOR THE UNITED STATES: 1927

KIND	Value
Mattresses and bed springs industry, all products, total value.....	\$98, 834, 558
Mattresses, bed springs, etc.....	82, 937, 673
Other products.....	14, 030, 505
Amount received for custom and contract work.....	1, 866, 375
Mattresses, bed springs, etc., made as secondary products in other industries.....	15, 274, 480
Mattresses, bed springs, etc., all industries, total value.....	98, 212, 153
Mattresses and pads.....	65, 791, 355
Bed springs.....	24, 586, 800
Box springs.....	4, 542, 485
Mattresses and bed springs not separately reported.....	3, 291, 518

TABLE 4.—GENERAL STATISTICS, BY STATES, 1927

[This table presents statistics for all States for which separate figures can be given without disclosing data for individual establishments. Certain of the "Other States," however, reported larger values of products than some of the States shown separately.]

STATE	PERSONS ENGAGED IN THE INDUSTRY						Horse-power	Salaries	Wages	Cost of materials, supplies, fuel, and power		Value of products	Value added by manufacture <sup>1</sup>		
	Num-ber of estab-lish-ments	Total	Pro-prie-tors and mem-bers	Salaried officers and employ-ees	Wage earners (average for the year)	Wage earners (average for the year)				Materials and supplies	Fuel and power			Value of products	
														Value of products	Value added by manufacture <sup>1</sup>
United States.....	838	10,821	615	2,725	13,481	32,937	\$7,003,802	\$16,886,711	\$51,133,130	\$1,048,945	\$98,834,588	\$45,652,463			
Alabama.....	10	211	3	42	166	401	132,710	145,212	461,525	10,052	841,509	469,932			
Arkansas.....	7	153	1	22	130	364	36,981	121,780	432,000	7,267	844,318	404,991			
California.....	48	908	30	168	710	1,527	424,594	996,705	2,897,511	31,977	5,875,619	2,446,131			
Colorado.....	4	169	3	12	154	578	27,425	175,084	488,935	13,026	878,109	376,448			
Connecticut.....	22	153	27	24	107	363	49,210	153,744	584,413	11,410	1,017,863	422,040			
District of Columbia.....	5	82	6	11	65	179	28,091	68,141	229,269	6,375	465,392	199,748			
Florida.....	8	96	3	26	67	289	43,865	81,316	256,500	4,711	479,006	217,795			
Georgia.....	14	698	5	98	593	1,009	296,791	596,109	2,153,063	36,708	4,320,005	2,129,684			
Illinois.....	51	1,870	41	306	1,523	3,374	944,106	2,009,743	5,358,593	106,080	11,960,429	5,919,186			
Indiana.....	19	496	7	69	420	806	109,126	420,722	1,351,252	28,930	2,704,983	1,324,801			
Iowa.....	6	68	1	20	47	209	41,988	55,171	149,441	5,006	842,752	188,305			
Kansas.....	9	132	6	29	87	278	72,484	121,945	372,694	22,920	704,842	308,728			
Kentucky.....	8	331	2	43	286	798	110,461	276,847	1,011,102	18,731	1,074,570	944,737			
Louisiana.....	9	112	2	22	88	291	46,257	78,964	307,708	6,831	527,733	214,194			
Maine.....	4	76	3	10	63	242	19,826	66,799	205,257	3,041	402,754	194,466			
Maryland.....	15	387	10	84	293	675	215,191	389,699	897,829	19,302	2,277,902	1,360,771			
Massachusetts.....	61	1,044	40	188	816	1,759	400,148	988,143	2,899,632	61,377	5,658,139	2,592,130			
Michigan.....	18	339	11	41	287	738	143,908	369,061	1,150,081	23,802	2,195,642	1,021,159			
Minnesota.....	11	402	10	84	308	978	151,841	361,746	1,249,839	97,582	2,281,412	1,093,991			
Mississippi.....	5	67	12	9	46	160	10,653	39,267	127,876	2,709	226,292	95,707			
Missouri.....	24	340	14	44	282	775	97,885	321,840	881,306	18,944	1,730,671	889,421			
Nebraska.....	4	38	6	5	27	100	6,001	32,159	113,791	3,354	234,995	117,790			
New Jersey.....	28	1,004	23	206	775	1,747	485,146	1,381,314	3,673,394	78,749	7,020,271	3,268,138			
New York.....	155	2,470	142	410	1,918	3,246	1,088,163	2,973,172	9,167,976	151,841	17,030,992	7,711,175			
North Carolina.....	17	305	13	41	252	631	1,112,246	221,993	807,411	16,670	1,454,877	630,796			

See footnotes at end of table.

TABLE 4.—GENERAL STATISTICS, BY STATES: 1927—Continued

[This table presents statistics for all States for which separate figures can be given without disclosing data for individual establishments. Certain of the "Other States," however, reported larger values of products than some of the States shown separately]

STATE	Num-ber of estab-lish-ments	PERSONS ENGAGED IN THE INDUSTRY				Horse-power	Salaries	Wages	Cost of materials, supplies, fuel, and power		Value of products	Value added by manu-facture <sup>1</sup>
		Total	Pro- pri- etors and mem- bers	Salaried officers and em- ployees	Wage earners (average for the year)				Materials and supplies	Fuel and power		
Ohio.....	40	862	23	137	702	\$454,585	\$909,448	\$2,715,137	\$54,126	\$5,773,141	\$3,003,878	
Oklahoma.....	14	178	15	20	143	42,883	108,213	613,059	12,561	1,034,913	497,608	
Oregon.....	8	191	4	27	379	68,173	162,594	414,035	6,373	6,867,535	457,385	
Pennsylvania.....	66	1,255	44	182	1,029	459,473	1,369,316	3,452,943	67,412	6,667,534	3,147,177	
Rhode Island.....	5	89	7	12	70	37,612	78,438	237,732	3,615	433,614	197,267	
South Carolina.....	8	64	8	10	46	13,030	34,367	113,791	2,535	198,212	81,886	
Tennessee.....	13	543	3	70	461	279,273	396,180	1,555,440	25,919	2,630,031	1,048,675	
Texas.....	52	468	42	70	358	138,159	331,105	1,196,754	23,663	2,318,825	1,098,408	
Utah.....	6	69	5	9	45	23,417	40,797	124,423	3,785	238,889	110,828	
Virginia.....	16	258	11	43	204	76,711	216,603	766,166	14,087	1,511,794	731,551	
Washington.....	11	144	6	18	120	46,918	142,044	382,867	7,787	726,033	336,279	
West Virginia.....	7	84	1	19	64	46,311	80,410	222,559	4,891	569,787	269,787	
Wisconsin.....	21	562	12	74	476	534,716	534,716	1,578,333	30,446	2,842,307	1,233,528	
Other States <sup>2</sup> .....	11	109	13	11	86	19,005	74,943	232,670	5,800	487,417	1,198,947	

<sup>1</sup> Value of products less cost of materials, supplies, fuel, and power. (See secs. 18 and 21, pp. 9 and 10.)

<sup>2</sup> Arizona, 2 establishments; Delaware, 3; Nevada, 1; New Hampshire, 2; North Dakota, 1; South Dakota, 1; Vermont, 1.

## MOTION PICTURES, NOT INCLUDING PROJECTION IN THEATERS

[A preliminary report for this industry was issued under date of February 21, 1929]

Although the production of motion pictures is not a manufacturing industry, its commercial importance is so great that data in regard to it have been collected and tabulated at the Biennial Censuses for 1921 and subsequent years. No canvass of the industry as a whole was made at prior censuses, but at the census for 1919 the development of exposed films and the printing of projection films were included in the "Photographic materials" industry.

**Description of the industry.**—The "Motion-pictures" industry, as constituted for census purposes, embraces all processes and activities connected with the production of motion pictures, such as the photography of scenes, the development of exposed films, the printing of projection films, and other studio and laboratory work necessary in connection with the preparation of projection films for use. It does not, however, include distribution and projection in theaters.

**Value of products.**—The nature of the industry is such that figures reported for value of products are necessarily arbitrary, being based sometimes on the cost of producing projection films and sometimes on the estimated rental value of such films. Owing to the difficulty of obtaining value figures of any significance, the total cost of production instead of the value of products has been called for on the schedule. Establishments engaged in laboratory work, however, reported as the value of products the amount received for work done during the year.

**Detailed statistics of products.**—The census for 1927 was the first at which product data were supplied by the manufacturers in sufficient detail to permit the publication of separate value statistics for the several classes of products, therefore no comparative detailed product figures are available for earlier years.

TABLE 1.—SUMMARY FOR THE UNITED STATES: 1921 TO 1927

YEAR OR PERIOD	Number of establishments	Wage earners (average for the year)	Wages	Cost of materials, supplies, fuel, and power	Cost of production <sup>1</sup>	Value added by manufacture <sup>2</sup>	Horse-power
1927.....	142	8,415	\$18,637,005	\$34,867,472	\$134,343,360	\$99,475,888	32,160
1925.....	132	5,573	13,065,756	33,258,368	93,636,348	60,377,980	29,472
1923.....	97	6,408	16,601,153	30,656,770	86,418,170	55,761,400	15,476
1921.....	127	6,259	14,740,009	31,190,160	77,397,381	46,207,221	(8)
PER CENT OF INCREASE OR DECREASE (—)							
1925-1927.....	7.6	51.0	42.6	4.8	43.5	64.8	9.1
1923-1925.....	36.1	-13.0	-21.3	8.5	8.4	8.3	90.4
1923-1927.....	46.4	31.3	12.3	13.7	55.5	78.4	107.8

<sup>1</sup> See "Value of products," above.

<sup>2</sup> Cost of production less cost of materials, supplies, fuel, and power. (See secs. 18 and 21, pp. 9 and 10.)

<sup>3</sup> Not called for on schedule.

TABLE 2.—PRIME MOVERS, MOTORS, AND GENERATORS, BY TYPE, NUMBER, AND RATED CAPACITY, FOR THE UNITED STATES: 1927, 1925, AND 1923

TYPE	1927		1925		1923	
	Number	Capacity	Number	Capacity	Number	Capacity
Prime movers, total.....	2, 246	<i>Horsepower</i> 32, 160	1, 896	<i>Horsepower</i> 29, 472	1, 672	<i>Horsepower</i> 15, 476
Steam engines.....	5	400	5	475	5	475
Steam turbines.....					17	1, 210
Internal-combustion engines.....	55	5, 511	39	4, 608		
Electric motors driven by purchased current.....	2, 186	26, 249	1, 852	24, 389	1, 650	13, 791
Electric motors, total.....	2, 325	26, 517	2, 040	24, 712	1, 751	13, 903
Driven by purchased current.....	2, 186	26, 249	1, 852	24, 389	1, 650	13, 791
Driven by current generated in establishment reporting.....	139	268	188	323	101	112
Electric generators.....	9	<i>Kilowatts</i> 700	5	<i>Kilowatts</i> 385	( <sup>1</sup> )	<i>Kilowatts</i> ( <sup>1</sup> )

<sup>1</sup> Not called for on schedule.

TABLE 3.—PRODUCTS, BY CLASS, KIND, AND COST OF PRODUCTION, FOR THE UNITED STATES: 1927

[No comparable statistics for earlier years]

CLASS AND KIND	1927
Total cost of production <sup>1</sup> .....	\$134, 343, 360
Negative films, total.....	96, 663, 279
Theatrical—	
Number.....	1, 247
Cost of production.....	\$92, 593, 732
Educational <sup>2</sup> .....	\$337, 159
News <sup>2</sup> .....	\$2, 499, 660
Advertising <sup>2</sup> .....	\$617, 486
Other <sup>2</sup> .....	\$615, 282
Unfinished productions <sup>2</sup> .....	\$13, 267, 338
Laboratory work:	
Positive films.....	\$12, 491, 088
Receipts for laboratory work done for others.....	\$11, 921, 655

<sup>1</sup> Cost of work done during year. See "Value of products," p. 1203.

<sup>2</sup> Data on number incomplete.

MOTION PICTURES

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TABLE 4.—GENERAL STATISTICS, BY STATES: 1927

[This table presents statistics for all States for which separate figures can be given without disclosing data reported by individual establishments]

STATE	Number of establishments	PERSONS ENGAGED IN THE INDUSTRY				Horse-power	Contract work <sup>1</sup>
		Total	Proprietors and firm members	Salaried officers and employees	Wage earners (average for the year)		
United States.....	142	16,055	42	7,598	8,415	32,160	\$15,476,548
California.....	78	12,852	30	6,208	6,614	27,906	4,945,766
Illinois.....	5	170	1	128	41	95	15,545
Michigan.....	3	47		34	13	30	4,801
New Jersey.....	6	650		96	554	1,035	
New York.....	21	1,907	1	934	972	2,503	10,481,301
Ohio.....	6	74	2	52	20	16	3,472
Other States <sup>2</sup> .....	23	355	8	146	201	575	25,663

STATE	Salaries	Wages	Cost of materials, supplies, fuel, and power		Cost of production	Value added by manufacture <sup>3</sup>
			Materials and supplies	Fuel and power		
United States.....	\$56,298,560	\$18,637,005	\$34,320,696	\$546,776	\$134,343,360	\$99,475,888
California.....	52,110,037	15,513,665	21,273,149	346,974	101,044,521	79,424,398
Illinois.....	318,422	70,909	331,449	6,197	675,793	338,147
Michigan.....	151,092	32,387	170,089	3,579	427,187	253,519
New Jersey.....	198,259	767,205	4,116,818	40,236	5,383,353	1,226,299
New York.....	3,015,305	1,915,056	7,773,577	119,426	25,006,118	17,113,115
Ohio.....	124,435	39,062	55,829	3,920	250,619	190,870
Other States <sup>2</sup> .....	381,010	298,741	599,785	26,444	1,555,769	929,540

<sup>1</sup> Many studios are rented, together with the necessary electric power, stage settings, labor, and minor role actors, to the producing companies. The rentals paid for such studios are included.

<sup>2</sup> Colorado, 1 establishment; Florida, 1; Georgia, 1; Iowa, 2; Louisiana, 2; Massachusetts, 3; Minnesota, 2; Missouri, 2; Oregon, 2; Pennsylvania, 4; Texas, 2; Washington, 1.

<sup>3</sup> Cost of production, less cost of materials, supplies, fuel, and power. (See secs. 18 and 21, pp. 9 and 10.)