

THE ANCHOR, CHAIN, NAIL, SCREW AND RIVET TRADES.

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Introductory.*

The tables on pages 119 to 122 are based on returns received from firms in Great Britain whose business in 1924 consisted wholly or mainly in the manufacture of anchors, chains, nails, screws, rivets and kindred goods. The number of such separate returns was 582. About 190 firms to which schedules were sent did not furnish returns, but these firms for the most part had very small establishments and included a number which had ceased operations before the end of the censal year. On the basis of the information available, it is estimated that they did not employ more than 750 persons in all and that their total net output probably did not exceed £100,000. No production was recorded in Northern Ireland in 1924.

Summary of results.—The following table shows the main results of the Censuses of 1924 and 1907, comparisons between the figures for the two years being subject to the qualifications mentioned in the next paragraph. The information obtained in connexion with

* See also the Notes on pages vii-xv.

the Census of 1912, when details of output were not required from firms employing five persons or less, was not sufficiently complete to warrant its use for purposes of comparison.

Particulars.	Unit.	1924.	1907.
Value of goods made and work done (Gross output)	£'000	13,091	5,641
Cost of materials used	"	6,789	3,276
Paid for work given out to other firms	"	82	51
Net output	"	6,220	2,314
Average number of persons employed (excluding outworkers)	No.	33,639	28,028
Net output per person employed (excluding outworkers)	£	185	83
Mechanical power available :—			
Prime movers	H.P.	23,492	22,998
Electric motors driven by purchased electricity	"	26,472	(not recorded)

Qualifications affecting comparisons.—In considering the above table and the other tables in this report which show figures for different censal years, it should be borne in mind that :—

(1) The comparability of figures relating to value or cost is affected by the changes which have taken place in the general purchasing power of money.

(2) The figures for 1924 cover certain establishments engaged mainly in the manufacture of springs. The value of the gross output of these establishments was £1,467,000 and the average number of employees was 3,054, or about 11 per cent. and 9 per cent. respectively of the total figures shown in the above statement. Springs were not specified as a separate item in 1907, but the output returned on schedules for the Anchor, Chain, Nail, Screw and Rivet Trades was probably small, the main output being probably recorded on schedules for the Iron and Steel (Smelting, Rolling and Founding) Trades.

Production.

Detailed information relating to the output of the Anchor, Chain, Nail, Screw and Rivet Trades in 1924, will be found in Table II on page 119.

In addition to the output dealt with in this report, chains valued, on a cost basis, at £11,000 were produced in 1924 by railway companies.*

Principal products.—The following table shows, for 1924 and 1907, the value and, where recorded, the quantity of the chief classes of output of the Anchor, Chain, Nail, Screw and Rivet Trades, as returned by all trades, distinguishing for 1924 the output returned on schedules for the Anchor, Chain, Nail, etc., Trades.

* Such production falls within the scope of the report on Public Utility Services which forms part of a separate volume.

Kind of goods.	1924.				1907.
	Returned on schedules for				Total.
	The Anchor, Chain, Nail, etc., Trades.		All trades.		
Quantity.	Selling value.	Quantity.	Selling value.	Selling value.	
	Th. tons.	£'000.	Th. tons.	£'000.	£'000.
Anchors and chains of iron or steel :					
Anchors and grapnels	3·67	103	4·71	127	79
Chain cables	19·48	567	20·43	594	
Chains (steel transmission chains, tackle made of chains, etc.) ..	17·00*	1,189	21·38*	2,077	
TOTAL—ANCHORS AND CHAINS	40·15	1,859	46·52	2,798	932
Bolts, nuts and screws of iron or steel :—					
Bolts, nuts and screws (for metal and wood) } <i>Weight stated</i> ..	143·48	4,127	146·46	4,224	2,863‡
Screws and nuts of brass or copper } <i>Weight not stated</i> ..	..	611	..	666	
Screws and nuts of brass or copper ..	..	624	..	629	
TOTAL—BOLTS, NUTS AND SCREWS .. .. .	..	5,362	..	5,519	2,863‡
Nails (other than wire nails), tacks, rivets and washers :—					
Of iron or steel	106·98	2,251	121·20	2,487	2,076
Of brass or copper .. .. .	..	258	..	327	
Of other metals .. .. .	..	20	..	20	
Frost cogs, studs and nails ..	..	15	..	27	
Heel tips, boot protectors, etc. } <i>Weight stated</i> ..	1·82	91	..	91	
Heel tips, boot protectors, etc. } <i>Weight not stated</i> ..	..	99	..	251	
TOTAL—NAILS, TACKS, RIVETS, WASHERS, ETC. .. .. .	..	2,734	..	3,203	2,076
Spring :—					
Laminated } <i>Weight stated</i> ..	19·05	760	42·44	1,666	§
Laminated } <i>Weight not stated</i> ..	—	—	..	67	
Coil	8·59	428	14·10	673	
Coil .. .. .	..	..	..	161	
Not separately distinguished ..	..	86	..	90	
TOTAL—SPRINGS .. .. .	..	1,274	..	2,657	§
Hooks, hinges, tackle and fasteners	..	198	..	229	49
TOTAL VALUE .. .. .	..	11,427	..	14,406	5,920

* Weight partly estimated.

† Including anchors and chains, not separately distinguished, valued at £28,000.

‡ Including screws and rivets, not separately distinguished, valued at £47,000.

§ Not separately recorded.

The output shown in the above table for 1924 is substantially free from duplication.

Manufacturers were asked to classify their output of iron and steel nails in the detail shown below, and the following figures, covering three-quarters of the output returned on schedules for the Anchor, Chain, Nail, etc., Trades, were obtained :—

	Tons.
Cut nails and tin tacks	18,990
Hand-made wrought nails	1,130
Other nails, not of wire	590
Iron and steel rivets	59,770
Total classified	80,480

Firms making brass and copper rivets valued at £112,000 stated that the quantity made was 840 tons, and firms making brass and copper screws valued at £499,000 stated that the quantity made was 4,580 tons.

Other products.—In addition to the goods enumerated in the preceding table, there were returned, on schedules for the Anchor, Chain, Nail, Screw and Rivet Trades, the following goods which, being of kinds mainly produced by other trades, are dealt with in the reports on those trades :—

Kind of goods.	1924.	1907.
	Selling value.	Selling value.
Hardware, etc.	£'000. 80	£'000. 35
Wire nails	51	} 202
Miscellaneous manufactures of iron, steel, brass, copper and other metals	1,280	
Scrap iron and steel	178	32
Other goods made.. .. .	21	—
Total	1,610	269

Repairs and work done for the trade.—The following statement shows, for 1924 and 1907, the amounts returned as received for repair and jobbing work and for work done for the trade :—

Kind of work done.	1924.	1907.
	Amount received.	Amount received.
Work done for the trade :—	£'000.	£'000.
Chain making	18	} 56
Other work	16	
Repair and jobbing work	20	—
Total	54	56

Cost of materials and work given out.—The cost of materials used by firms that made their returns on schedules for the Anchor, Chain, Nail, Screw and Rivet Trades was returned as £6,789,000 in 1924, and £3,276,000 in 1907.

The amount paid to other firms for work given out to them was returned as £82,000 in 1924, and £51,000 in 1907.

Net output.—The net output in 1924 of the firms that made their returns on schedules for the Anchor, Chain, Nail, Screw and Rivet Trades (whose gross output was valued at £13,091,000) was £6,220,000, that sum representing, without duplication, the total amount by which the value, as delivered, of the aggregate output exceeded the cost, as purchased, of the materials used and the amount paid to other firms for work given out to them.

The net output per head of persons employed (excluding out-workers) in the censal year 1924 was £185, as compared with £83 in 1907.

Quantity of iron and steel, etc., used.—Manufacturers were requested to furnish voluntarily a statement of the quantities of iron and steel bars and of copper and brass used by them in the year 1924. The particulars shown below were furnished by firms whose output amounted to £5,613,000, or about 43 per cent. of the total value of the output of all firms in the Anchor, Chain, Nail, etc., Trades :—

	Tons.
Iron bars	43,060
Steel bars	45,380
Iron and steel bars, not separately distinguished	64,880
Total—Iron and steel bars	153,320
Copper	4,230
Brass	2,440
Total—Copper and brass.. .. .	6,670

Owing to the substantial output of goods recorded by value only and without distinction as to the kind of metal of which they were made, it is not possible to state the exact proportion of the total output of goods of iron and steel and of copper and brass respectively, which the output of these firms represents. Estimated on the basis of value, approximately 40 per cent. of the aggregate production of iron and steel goods and 50 per cent. of the goods of copper and brass are covered by these voluntary particulars.

Exports and imports.—The following table, relating to the year 1924, shows the total production of certain of the main classes of anchors, chains, cables, etc., in relation to the exports and imports of similarly described goods.

Kind of goods.	Production.	Exports.	Net Imports.	Available for use in the United Kingdom.	Share of home market held by British-made goods.
	Quantity.	Quantity.	Quantity.	Quantity.	Per cent.
	Tons.	Tons.	Tons.	Tons.	
Iron and steel :—					
Anchors and grapnels	4,710	2,540	160	2,330	93·1
Chain cables	20,430	4,730	100	15,800	99·4
Chains	21,380*	8,940	530	..	..
Nails and tacks (other than wire nails), rivets and washers	121,200	17,400	3,840	107,100	96·4
Screws	†	3,720	1,430	..	..
Bolts and nuts (including screws for metal)		30,700	6,110	..	..

* This figure contains a certain proportion of steel transmission chains which are not included in the export and import figures.

† Quantity not available.

In 1907 exports were :—Anchors, grapnels, chains and cables, 33,112 tons ; nails, screws and rivets, 28,718 tons ; bolts and nuts, 26,224 tons. Retained imports were :—Nails, screws and rivets, 6,118 tons ; bolts and nuts, 4,302 tons.

Wages in 1924.

Under the Census of Production Act, 1906, the powers of the Board of Trade to require information do not extend to particulars of the amount of wages paid, and consequently no information on this head was secured in connexion with the Census of 1924. As a result, however, of the voluntary enquiry undertaken by the Ministry of Labour into wages and hours in the United Kingdom in 1924, information was obtained as to the total wage-bill of a group of firms in the Anchor, Chain, Nail, Screw and Rivet Trades, which made returns both to the Ministry of Labour and to the Census of Production office. According to the Census records this group of firms employed, in the week ended 18th October, 1924, 18,644 operatives, or 61 per cent. of the total of 30,610 operatives for the trades as a whole, and their net output totalled £3,852,000, or 62 per cent. of the aggregate net output of £6,220,000 for the trades as a whole. The total wage-bill of these firms, as returned to the Ministry of Labour, was £1,752,000, representing about 45½ per cent. of their aggregate net output.

Employment.

The detailed information relating to employment in 1924 is summarised in Table III on pages 121 and 122. The following table sets out certain particulars for that year together with those relating to the 1907 Census. For the purpose of this comparison the average number of operatives of each sex returned for 1924 have been divided

between the two age-groups in the proportions shown by the data for the week ended 18th October :—

Average number (excluding outworkers).	Males.		Females.		Males and females.	
	Under 18.	All ages.	Under 18.	All ages.	Under 18.	All ages.
1924.						
Operatives	3,220	18,289	3,706	12,166	6,926	30,455
Administrative, etc. ..	134	2,142	182	1,042	316	3,184
TOTAL	3,354	20,431	3,888	13,208	7,242	33,639
1907.						
Wage earners	3,263	16,485	2,568	9,989	5,831	26,474
Salaried	161	1,350	65	200	226	1,550
TOTAL	3,424	17,835	2,633	10,189	6,057	28,024
Average number of outworkers :—						
1924	302		424		726	
1907	955		614		1,569	

The numbers of operatives recorded month by month in 1924 ranged from 507 above the average, in December, to 713 below the average, in January (see Table IIIB, page 121).

Mechanical Power.

The detailed information relating to mechanical power in 1924 is summarised in Table IV on page 122. The following table sets out the particulars for 1924 and 1907 relating to the capacity and kinds of *prime movers* and the capacity of *electric generators* installed.

Power equipment.	1924.			1907.
	Ordinarily in use.	In reserve or idle.	Total.	Total.
	H.P.	H.P.	H.P.	H.P.
PRIME MOVERS :—				
Reciprocating steam engines ..	7,582	498	8,080	15,682
Steam turbines	3,845	1,340	5,185	—
Gas engines	9,240	566	9,806	7,048
Petrol and light oil engines ..	94	5	99	
Heavy oil engines	227	—	227	268
Water power	95	—	95	
TOTAL	21,083	2,409	23,492	22,998
ELECTRIC GENERATORS :—				
Driven by :—				
Reciprocating steam engines ..	1,349	339	1,688	1,118
Steam turbines	2,802	1,000	3,802	—
Gas engines	276	80	356	340
Petrol and light oil engines ..	4	—	4	
Heavy oil engines	40	—	40	—
Water power	—	—	—	
TOTAL	4,471	1,419	5,890	1,458

The capacity of *electric motors* recorded for 1924 was as shown below :—

Electric Motors.	1924.		
	Ordinarily in use.	In reserve or idle.	Total.
	H.P.	H.P.	H.P.
Driven by :—			
Electricity generated in own works ..	5,597	242	5,839
Purchased electricity	23,896	2,576	26,472

Corresponding information was not required for 1907. The total number of Board of Trade units of electricity purchased for power and lighting purposes in that year was returned as 2,152,000.

TABLES.

I.—Summary of results.

Note.—No production was recorded in Northern Ireland.

Particulars.	Unit.	England and Wales.	Scotland.	Great Britain.
Value of goods made and work done (Gross output)	£'000	11,921	1,170	13,091
Cost of materials used	"	6,025	764	6,789
Paid for work given out to other firms..	"	78	4	82
Net output	"	5,818	402	6,220
Average number of persons employed (excluding outworkers)	No.	31,449	2,192	33,641
Net output per person employed (excluding outworkers)	£	185	183	185
Mechanical power available :—				
Prime movers	H.P.	21,602	1,890	23,492
Electric motors driven by purchased electricity	"	24,016	2,456	26,472

II.—Production.

Goods sold or added to stock and work done.	Unit.	England and Wales.	Scotland.	Great Britain.
Quantity and selling value.				
<i>Iron and Steel :—</i>				
Anchors and grapnels	<i>Th. tons</i>	3·67	—	3·67
	£'000	103	—	103
Chain cables	<i>Th. tons</i>	19·48	—	19·48
	£'000	567	—	567
Chains (steel transmission chains, tackle made of chain, etc.)	<i>Th. tons</i>	*	*	16·08
	£,000	*	*	1,155
Springs :—				
Laminated	<i>Th. tons</i>	*	*	19·05
	£'000	*	*	760
Coil	<i>Th. tons</i>	8·59	—	8·59
	£'000	428	—	428
Not separately distinguished..	£'000	86	—	86
TOTAL—SPRINGS OF IRON AND STEEL	£'000	*	*	1,274
Bolts, nuts and screws (for metal and wood)	<i>Th. tons</i>	123·52	19·96	143·48
	£'000	3,662	465	4,127
	£'000	611	—	611
Nails (not of wire), tacks, rivets and washers (including blank washers)	<i>Th. tons</i>	69·09	37·89	106·98
	£'000	1,673	578	2,251
Wire nails.. .. .	<i>Th. tons</i>	2·11	—	2·11
	£'000	51	—	51
Frost cogs, studs and nails	£'000	15	—	15
TOTAL—BOLTS, NAILS, RIVETS, SCREWS, ETC., OF IRON AND STEEL	£'000	6,012	1,043	7,055

* See note on p. 120.

II.—Production—continued.

Goods sold or added to stock and work done.	Unit	England and Wales	Scotland	Great Britain.
Quantity and selling value.				
<i>Iron and steel—continued.</i>				
Hooks, hinges, tackle, fasteners, swivels, etc.	<i>Th. tons</i>	0·81	—	0·81
	£'000	46	—	46
	Quantity stated	*	*	152
	Quantity not stated			
Heel tips, boot protectors, plates and clog irons	<i>Th. tons</i>	1·82	—	1·82
	£'000	91	—	91
	Quantity stated	92	7	99
	Quantity not stated			
Hardware, etc.	£'000	80	—	80
Scrap iron and steel	<i>Th. tons</i>	46·31	4·79	51·10
	£'000	158	20	178
Other manufactures of iron and steel..	£'000	634	5	639
<i>Non-ferrous metals:—</i>				
Nails and rivets of brass or copper ..	£'000	*	*	258
Screws and nuts of brass or copper ..		624	—	624
Nails, tacks, rivets, etc., of other metals (not iron or steel)		20	—	20
Other manufactures of brass or copper ..		59	†	59
Manufactures of iron, steel, brass, etc., not separately distinguished		582	—	582
Other goods made		21	—	21
TOTAL VALUE OF GOODS MADE ..	£'000	11,867	1,170	13,037
Amount received.				
Repair and Jobbing work	£'000	20	—	20
Work done on commission or for the trade:—				
Chain making		18	—	18
Other work		16	—	16
TOTAL VALUE OF WORK DONE ..	£'000	54	—	54
TOTAL VALUE OF GOODS MADE AND WORK DONE (GROSS OUTPUT)	£'000	11,921	1,170	13,091

* In order to avoid the possible disclosure of information relating to individual firms, figures are given only for Great Britain as a whole.

† Less than £500.

III.—Employment.

A.—NUMBERS EMPLOYED IN WEEK ENDED 18TH OCTOBER, 1924 (EXCLUDING OUTWORKERS).

Kind of staff.	Males.		Females.		Males and females.	
	Under 18.	All ages.	Under 18.	All ages.	Under 18.	All ages.
<i>England and Wales:—</i>						
Operatives	2,932	17,123	3,442	11,410	6,374	28,533
Administrative, etc.* ..	119	2,033	176	999	295	3,032
TOTAL	3,051	19,156	3,618	12,409	6,669	31,565
<i>Scotland:—</i>						
Operatives	309	1,283	275	794	584	2,077
Administrative, etc.* ..	15	109	6	43	21	152
TOTAL	324	1,392	281	837	605	2,229
<i>Great Britain:—</i>						
Operatives	3,241	18,406	3,717	12,204	6,958	30,610
Administrative, etc.* ..	134	2,142	182	1,042	316	3,184
TOTAL	3,375	20,548	3,899	13,246	7,274	33,794

* Administrative, technical and clerical staff.

B.—OPERATIVES EMPLOYED IN ONE WEEK IN EACH MONTH OF 1924 (EXCLUDING OUTWORKERS).

England and Wales. (Annual average: Males, 17,019; Females, 11,396; Total, 28,415.)

Week ended.	Males.	Females.	Total.	Week ended.	Males.	Females.	Total.
Jan. 12th ..	16,761	11,085	27,846	July 19th ..	17,095	11,364	28,459
Feb. 16th ..	16,892	11,151	28,043	Aug. 16th ..	17,080	11,388	28,468
Mar. 15th ..	16,810	11,227	28,037	Sept. 13th ..	17,035	11,374	28,409
April 12th ..	17,125	11,351	28,476	Oct. 18th ..	17,123	11,410	28,533
May 17th ..	16,962	11,560	28,522	Nov. 15th ..	17,156	11,578	28,734
June 21st ..	16,978	11,545	28,523	Dec. 13th ..	17,208	11,723	28,931

Scotland. (Annual average: Males, 1,270; Females, 770; Total, 2,040.)

Jan. 12th ..	1,189	707	1,896	July 19th ..	1,209	724	1,933
Feb. 16th ..	1,253	753	2,006	Aug. 16th ..	1,285	763	2,048
Mar. 15th ..	1,280	782	2,062	Sept. 13th ..	1,315	781	2,096
April 12th ..	1,283	779	2,062	Oct. 18th ..	1,283	794	2,077
May 17th ..	1,292	806	2,098	Nov. 15th ..	1,301	777	2,078
June 21st ..	1,288	805	2,093	Dec. 13th ..	1,263	768	2,031

Great Britain. (Annual average: Males, 18,289; Females, 12,166; Total, 30,455.)

Jan. 12th ..	17,950	11,792	29,742	July 19th ..	18,304	12,088	30,392
Feb. 16th ..	18,145	11,904	30,049	Aug. 16th ..	18,365	12,151	30,516
Mar. 15th ..	18,090	12,009	30,099	Sept. 13th ..	18,350	12,155	30,505
April 12th ..	18,408	12,130	30,538	Oct. 18th ..	18,406	12,204	30,610
May 17th ..	18,254	12,366	30,620	Nov. 15th ..	18,457	12,355	30,812
June 21st ..	18,266	12,350	30,616	Dec. 13th ..	18,471	12,491	30,962

C.—NUMBER OF OUTWORKERS AT TWO SPECIFIED PERIODS IN 1924.

Country.	January.			July.		
	Males.	Females.	Total.	Males.	Females.	Total.
<i>England and Wales*</i> ..	293	420	713	312	428	740

* No outworkers were recorded for Scotland.

IV.—Mechanical Power.

PARTICULARS OF PRIME MOVERS, ELECTRIC GENERATORS AND ELECTRIC MOTORS.

Power equipment.	England and Wales.		Scotland.		Great Britain.	
	Ordinarily in use.	In reserve or idle.	Ordinarily in use.	In reserve or idle.	Ordinarily in use.	In reserve or idle.
	H.P.	H.P.	H.P.	H.P.	H.P.	H.P.
PRIME MOVERS :—						
Reciprocating steam engines	6,552	308	1,030	190	7,582	498
Steam turbines	3,845	1,340	—	—	3,845	1,340
Gas engines	8,610	566	630	—	9,240	566
Petrol and light oil engines	54	5	40	—	94	5
Heavy oil engines	227	—	—	—	227	—
Water power	95	—	—	—	95	—
TOTAL	19,383	2,219	1,700	190	21,083	2,409
TOTAL OF PRIME MOVERS INSTALLED	21,602		1,890		23,492	
	Kw.	Kw.	Kw.	Kw.	Kw.	Kw.
ELECTRIC GENERATORS :—						
Driven by :—						
Reciprocating steam engines	1,059	289	290	50	1,349	339
Steam turbines	2,802	1,000	—	—	2,802	1,000
Gas engines	236	80	40	—	276	80
Petrol and light oil engines	4	—	—	—	4	—
Heavy oil engines	40	—	—	—	40	—
TOTAL	4,141	1,369	330	50	4,471	1,419
TOTAL OF ELECTRIC GENERATORS INSTALLED	5,510		380		5,890	
	H.P.	H.P.	H.P.	H.P.	H.P.	H.P.
ELECTRIC MOTORS :—						
Driven by :—						
Electricity generated in own works	5,279	90	318	152	5,597	242
Purchased electricity	21,823	2,193	2,073	383	23,896	2,576