STEEL

PRODUCTION • PROCESSING • DISTRIBUTION • USE

For forty-eight years—IRON TRADE REVIEW

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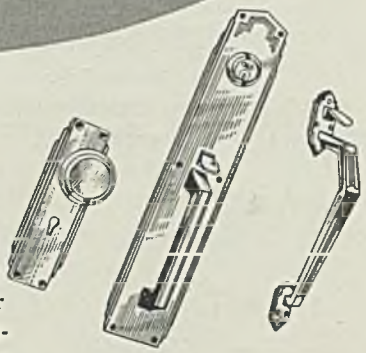
ECONOMICAL

...because they pay

EXTRA DIVIDENDS

in service



A LASTING purchase is thrifty! With solid white bronze—Nickel Silver—fittings, time is turned aside and thrifty buyers reap their reward. Continuous finger traffic, the weather and general wear and tear soon change the appearance of hardware whose beauty is only skin deep. But Nickel Silver resists the rub of fingers and cleaning, the corrosive action of the weather, and the stresses of day to day service. Solid, with no coating to chip or peel, the Nickel Silvers are tough, durable, wear resisting and always beautiful. Their use continually pays dividends in satisfactory lifetime service.

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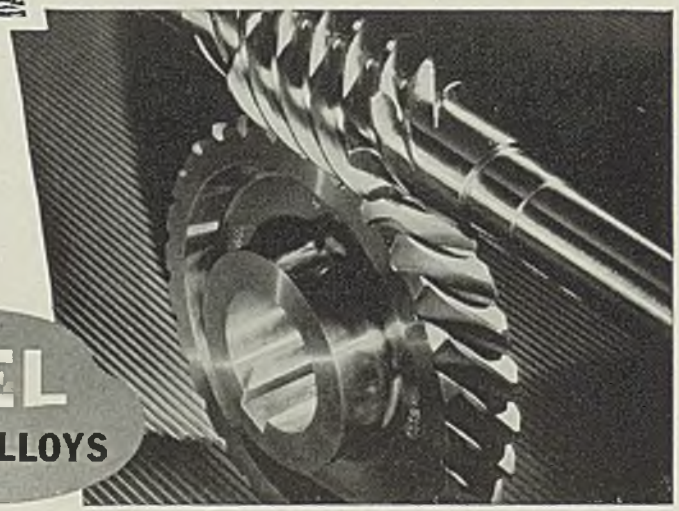
A STEAM condenser is a unit of thrift to conserve boiler water and make it work again and again. Corrosion, erosion, high pressures and temperatures are the constant enemies of condenser life and maintenance. Therefore, many of the world's leading navies and commercial fleets, shore stations and oil refineries are increasingly using thrifty Cupro-Nickel tubes in their condensers to increase reliability and cut down overhaul and maintenance expenses.



THE best materials are thrifty! This worm gear drive with Nickel-Bronze gear and Nickel Steel worm is an excellent example. Eight of these drives were installed 15 years ago on chewing gum mixing machines demanding steady nine-hour per day service under heavy intermittent load with accompanying stresses. Caution prompted a supply of spares for emergency replacement—but they are still in storage, for after 15 years the original drives continue to prove their real worth and low, final cost. We invite consultation on the use of the alloys of Nickel in your equipment.

NICKEL

NON-FERROUS ALLOYS

THE INTERNATIONAL NICKEL COMPANY, INC., NEW YORK, N.Y.

As the Editor Views the News

THROUGH custom which has become increasingly well established in recent years, Labor day marks the end of the summer vacation season and the beginning of the period of fall business activity. It is the dividing point between the interrupted, intermittent operations of dog days and the more consistent effort for the steady drive from Sept. 7 to Dec. 24. Naturally industrialists today are wondering what is in prospect for this 108-day period. Interest in the outlook has been heightened by a bearish tendency which has developed in the last week or two—probably prompted by the behavior of the stock market.

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In general, industrial executives are sanguine over the business outlook for the remainder of the year. The attitude of dozens of them who have been interviewed by STEEL'S editors (p. 25) may be characterized as one of restrained optimism. They balance the obvious need for materials and equipment against the uncertain factors of potential labor trouble and restrictive government meddling. The concensus of opinion is that activity will rise to a point about midway between the summer level and the high point of the second quarter. In short, they look for a satisfactory volume of business during the remainder of 1937.

Look for Rise in Fall

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The fall period will find industry deeply involved in problems relating to relations with employes. Figures of the American Iron and Steel institute, showing that employment in July was 7 per cent above that of June (p. 31), indicates how buoyantly employment snapped back after strike difficulties were cleared away. That employers recognize the importance of training and otherwise preparing the army of employes for their jobs is evidenced by the survey conducted by the National Industrial Conference board (p. 30), which shows that four out of five of a miscellaneous group of 473 manufacturers are conducting definite employe training programs. The timeliness of thorough training during the present period cannot be emphasized too strongly. The more capable an employe is the less likely he is to cause trouble. Men of limited ability are more susceptible to the pleas of irresponsible agitators. Training pays.

Training Pays Good Dividends

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Airplanes weighing more than 40 tons each and capable of carrying 50 to 75 passengers are a far cry from the commercial ships of a decade ago. The six clippers which Boeing is building for Pan American Airways for transatlantic service in 1938 (p. 28) illustrate how engineers are meeting exacting requirements through the use of light aluminum and magnesium alloys and alloy steels. Design and construction of aircraft of this magnitude is still in the pioneer stage. During the next few years the extension of transoceanic air travel probably will bring out radical changes in design. The ensuing rivalry between competing metals which possess the dual essentials of light weight and great strength will be well worth watching.

A New Field For Rivalry

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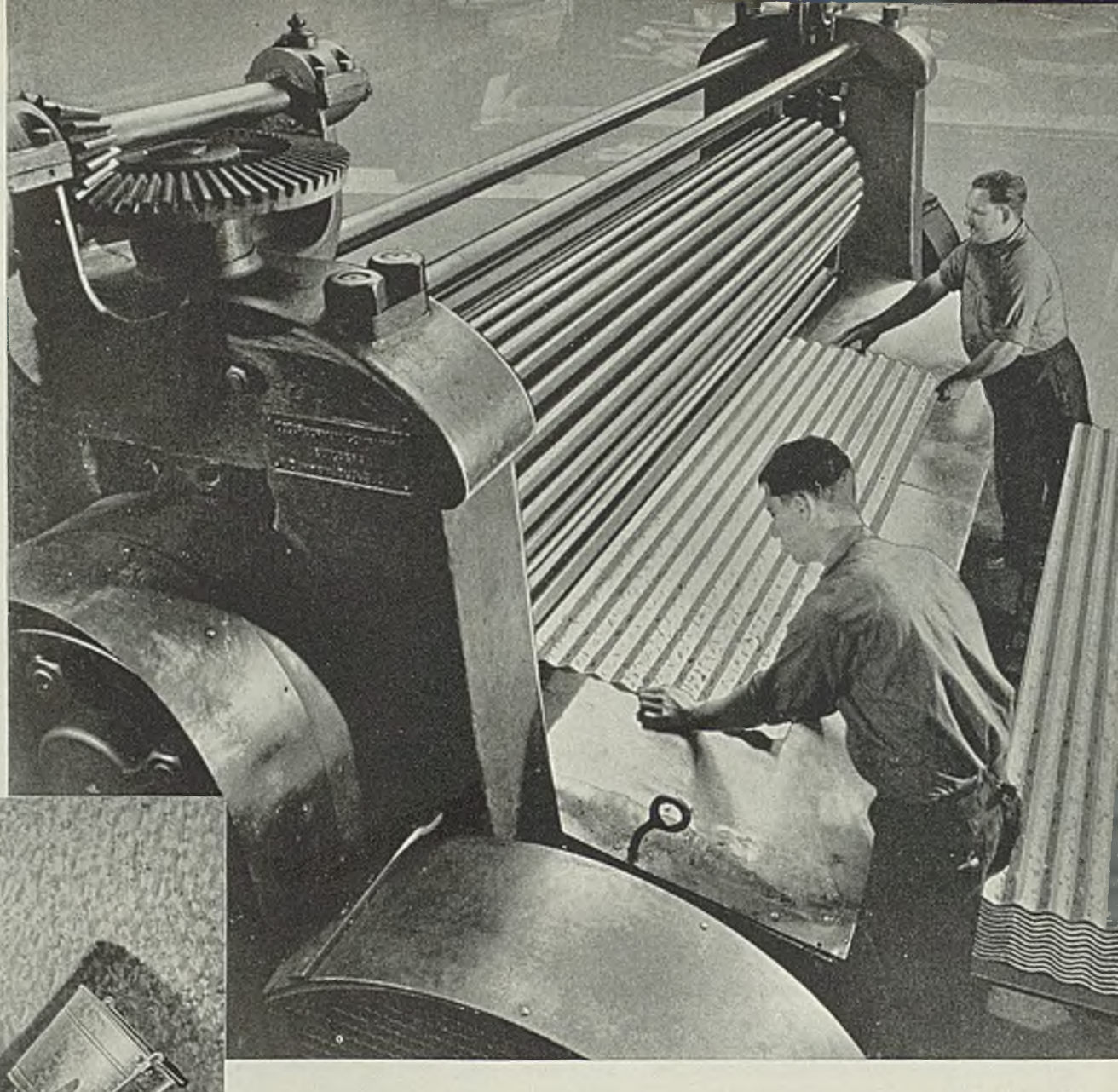
Rapid growth in the acceptance of cutting tools of sintered carbides has elevated the manufacture of this unusual material to a level of importance and stability. A modern plant capable of turning out tools which range in cost from $200 to $400 per pound (p. 52) involves a curious variety of equipment and an extremely distinctive manufacturing routine. . . . An ore handling bridge recently installed near Chicago (p. 59) has a number of unusual features. It embodies a traveling crane 523 feet 6 inches long handling a 20-gross-ton bucket. High-tensile steel was employed in the truss members of the bridge. The structure swings 15 degrees on either side of its normal centerline, making it possible to move one end of the bridge 134 feet ahead of the other.

Employs Novel Routine

E. L. Shaner



Inland Galvanized Sheets Are Setting New Standards

New standards for service life and uniform workability are resulting from Inland's improved methods of producing galvanized sheets. First, the most modern methods and equipment are used in producing the base metal sheets; second, Inland's new equipment and improved method of galvanizing assures a secure bond between steel sheet and coating.

Examine an Inland galvanized sheet. You will find no streaking. Temperature is held uniform during the galvanizing process. While this uniformity of appearance is only a surface feature, it is indicative of the closer bond and longer life of the coating.

You'll find it a safer rule to specify "Inland" wherever galvanized sheet metal is to be used.

INLAND STEEL

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"After Labor Day"; Steelmakers Sum Up Prospects for Balance of Year

LABOR day, the beginning of the fall season, finds steel producers almost unanimous in the opinion that a strong demand over the remainder of the year is assured.

The general belief is that steelworks operations will average somewhere between the recent 83 per cent, and the 90.2 per cent of last April. According to this, the peak for the year was passed in that month—although all indications point to a continuation of a relatively high level up to 1938.

Nothing spectacular and nothing discouraging is expected; if no further disturbing factors creep in, such as another wave of strikes, sellers say they will be satisfied. Steel output so far this year has been within 2 per cent of the production in the comparative period in the banner year, 1929.

In only three of the past ten years has the industry been called on to put forth its greatest productive effort after the spring months. These years were 1928, 1935 and 1936. Peaks were reached in October and November.

Normal balance in steel demand is still lacking. As indicated in the following summaries, the market is moving into a quiet period so far as concerns building construction, this being a seasonal development. Railroad purchases are tapering, and they may not show another strong revival until after questions of wages and freight rates are decided.

In practically all other avenues the outlook is considered favorable. Automotive business and household utilities are expected to be two of the main supports this fall. The machinery, heavy electrical and equipment industries are likely to take steel at the rate of recent months. Agricultural implement buying is most promising, as farm income enables widespread purchasing.

See Improvement This Month

PITTSBURGH

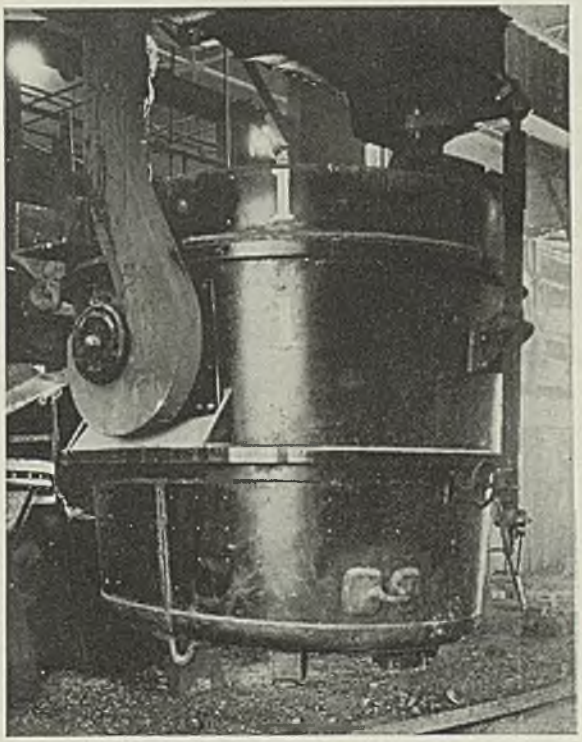
GOOD, consistent demand for steel is expected during the balance of this year by producers in the Pittsburgh district.

While consumers probably will be less inclined to carry large inventories, a fairly steady volume of orders is anticipated.

Mills in this district entered September with backlogs in most lines well depleted, but during the past week incoming business became heavier, indicating that September will be better than the past 60 days.

For one thing ,the automotive industry when it finally gets going on 1938 models will be very active for at least six to eight weeks. Another promising factor is

Pouring Ladles Now "Streamlined"



OVAL-SHAPED and all-welded except for rivets at the trunnion blocks, 15 new open-hearth steel pouring ladles have been constructed for Carnegie-Illinois Steel Corp.'s Ohio works. Through use of rolled steel and welding, former ladle capacity of 100 gross tons is increased to 120 tons. Exclusive of brick lining, weight is only 47,000 pounds, compared with 58,000 pounds for the 100-ton units. Photo courtesy US Steel News

the recent pickup in export inquiry, principally for semifinished steel, wire, sheets and tin plate.

Tubular goods producers, who so far have enjoyed one of the most active periods since the pre-depression era, anticipate an active fall. A continued high rate of tin plate

production is assured well into the fourth quarter.

The recent Presidential approval of 648 allotments for PWA projects, such as schools and other public buildings, waterworks, sewage systems and other projects, will greatly assist the construction industry, but the benefit may not come until late in the year.

EXPECT IMPETUS FROM EARLY MODEL CHANGES

DETROIT

WHILE there has been some disposition to postpone steel purchases until after the Labor day holiday, most steel sellers experienced an unusually good volume of business during August, in some cases far surpassing estimates made earlier in the year.

The bulk of this tonnage is for use in new automobile models, and releases are just now starting in fair volume. The end of the first week in September finds most automobile builders about ready to press the starting switch for final assembly lines, although subassemblies have been in process in some instances since early in August.

Sentiment plays a large part in the outlook for the next few weeks, the feeling being that now with vacations over and hot weather diminishing, industry will move forward to new high ground this fall, presaging a favorable effect on steel purchases.

Scheduling the New York automobile show two weeks earlier this

year has moved production schedules ahead by just this much; hence 1938 models will be rolling to dealers shortly in good volume, which means steel releases for September should feel a stronger upward push this year than last.

The stove and refrigerator industries, both large users of enameling stock, are currently operating at a good rate, and local district offices anticipate a slackening in steel buying for stove manufacture, with possibly a further increase in releases from refrigerator builders.

HEAVY PRODUCTS LESS FAVORABLE

CHICAGO

STEEL demand will recover from the summer dullness, but the relatively unfavorable outlook in the heavy products may result in a moderate decrease in average production during the remainder of the year compared with the rate of the past 60 days, according to Chicago district producers.

No marked slackening in operations is in sight before October because backlogs are sufficient to maintain schedules this month. In the meantime business in the lighter products is counted on to improve to the extent that steelmaking early in the fourth quarter will require less support from backlogs than is true at present. Necessity for re-

plenishing semifinished steel stocks also will be a prop to ingot output.

Uncertainty attached to the outlook for railroad earnings gives a similar status to prospects for heavy steel products at Chicago. Old orders for freight cars will be completed by October in most instances, and at the moment chances for the placing of new business in sufficient time to prevent a lag in shipments of car building material are considered poor.

Probably the most favorable business factor at Chicago is the improved income of agriculture. With farm cash income this year placed at the best level since 1929, a stimulating effect on buying of implements, tractors, wire products and various consumers' goods appears certain to result. Farm equipment builders are rushed to meet demand.

MODERATELY ACTIVE FALL EXPECTED IN EAST

NEW YORK

LEADING steel sellers are anticipating a moderately active fall. No such spurt is expected as characterized the first quarter, when advancing prices stimulated anticipatory buying.

There has been a modification of views with respect to ship work and railroad construction, both of which have an important bearing on tonnage here. The maritime commission's postponement of its program, which involves plans for 95 ships, pending a two months survey of labor conditions, dulls the expectation of much work coming out through the commission this year. On the other hand, local ship yards have ironed out the labor difficulties which have beset them throughout the summer, with much accumulated work now going forward.

The present impasse in railroad buying is expected to be temporary. Unless there is undue delay, according to opinion here, the last two months of the year should see considerable car work placed.

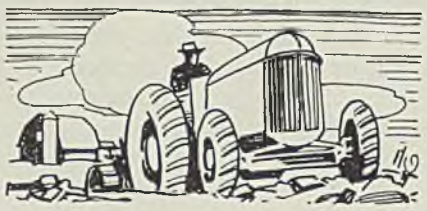
Building construction, a major outlet for steel in this district, is moderately promising. Higher labor costs and mounting taxes have restricted operations so far this year, even though activity has been at a higher rate than in 1936.

BELIEVE BUSINESS WILL BE SATISFACTORY

CLEVELAND

SIGNS of substantial activity for the fall months are noted here. Some improvement is already under way. August bookings were more than double those of June, which was the low month.

Just how long after Labor day a general revival in buying may be expected is a question, and some executives believe its full force will not be felt until late in September. One factor is the existence of comfortable inventories in the hands of many steel users, and lack of price incentive to cause buying of a specu-



lative character. In the opinion of one steelmaker if buying during the final three months is 65 per cent as large as it was in the first quarter, the year will be an unusually satisfactory period. The general expectation is that it will be much higher.

Steelmakers believe the remainder of the year will bring highly satisfactory business. The usual experience at the moment is that nearly all those consumers whose needs are slack are tied up in some way with the automotive situation.

Tungsten Tool Steel Prices Advanced; European Cartel Negotiates for Scrap

WHILE the administration at Washington last week was giving serious consideration to the Far Eastern situation and the possibility of applying the neutrality act, the trade in semifinished and finished steel, as reflected at New York, remained virtually at a standstill.

Tentative inquiries are being figured for Japan, yet relatively little new business has resulted. Japan, still taking large shipments of scrap, does not appear to be concerned regarding finished steel requirements. It was pointed out that the country is virtually self-sufficient in munitions, and would not be materially injured by an American embargo, while China, still dependent on outside supplies, would be severely handicapped.

Offers $2 a Ton More

Incidentally, Sir I. S. L. Elliott, representing the European steel scrap federation, the scrap buying cartel for the leading European countries, arrived in this country and began negotiating for a large tonnage of scrap for export. He is reported to have offered $2 per ton more than paid for the last big purchase by this organization in this country. At Chicago and Pittsburgh last week the scrap market was easier.

Reports that China would impose an embargo on exportation of tungsten ore and other minerals, could not be confirmed by importers. Chinese tungsten ore prices were quoted in London as high as the equivalent of about $35, duty paid, per short ton unit in this country. In one quarter, it is estimated that only 75 tons of tungsten ore is afloat and that this is one of the scattered lots on which London prices are now being tentatively established.

At Cleveland important makers advised customers that all grades of standard high-speed steels (containing tungsten) will be advanced Oct. 1 to 80 cents a pound, base. The 18-4-1 grade of high-speed tool steel, 18 per cent tungsten, now selling at 67 cents, will be 80 cents. Other grades of tungsten steels will be increased in price proportionately. Steels containing 4 per cent tungsten will be up 3 cents; those containing 9 per cent tungsten, up 6 cents, and so on.

Standard alloy tool steels which do not contain tungsten, will remain unchanged, at least for the fourth quarter.

Steel Best Inflation Hedge, Canadian Farmer Declares

A farmer living near Wingham, Ont., Canada, has decided steel is the best hedge against wartime inflation.

Joseph Schmidt recently acquired a 3-ton block of steel to add to the thousands of dollars worth which he has stored on his farm in Bruce county. Schmidt pays no attention to scrap, but insists on buying only quality steel. He believes a European war is imminent and that the price of steel will soar as a result. In his own words:

"Stocks and bonds and all kinds of paper investments can go down to almost nothing, but that doesn't bother me. My money would make small interest in a bank. I have an immovable investment. When I buy steel, I know no one will take it."

New Buildings, Equipment For DeSoto Expansion

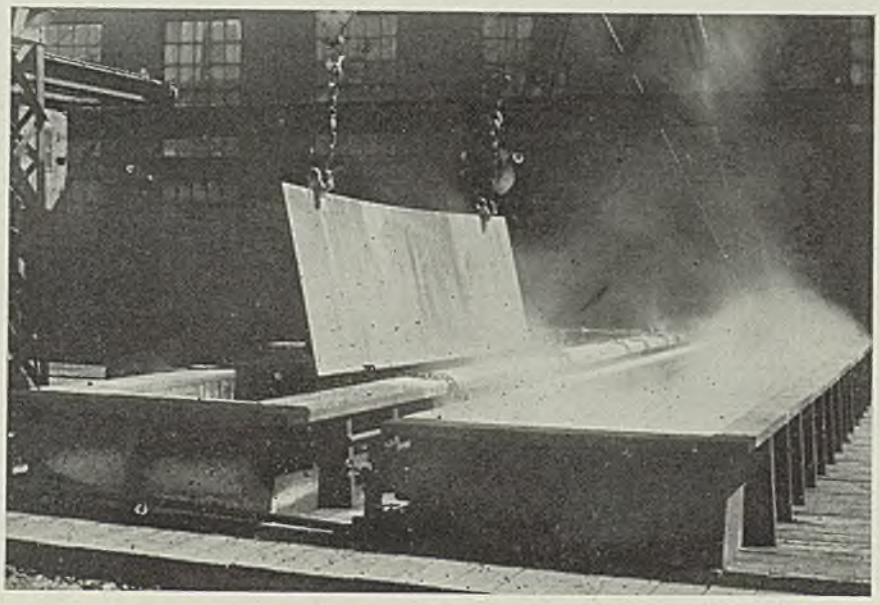
As a part of the extensive expansion program now under way at Chrysler Corp. plants, it was announced last week work has been started on additions to the plant of the DeSoto division on Wyoming avenue, Detroit. Included are a new third story for the assembly building, lengthening of chassis and final assembly lines, and installation of a battery of new presses in the pressed-metal plant.

Additional space in the assembly building, amounting to 100,000 square feet, will be utilized for paint spray equipment and for storage. A new frame-receiving building, covering 6000 square feet, will be erected adjacent to the start of the chassis line.

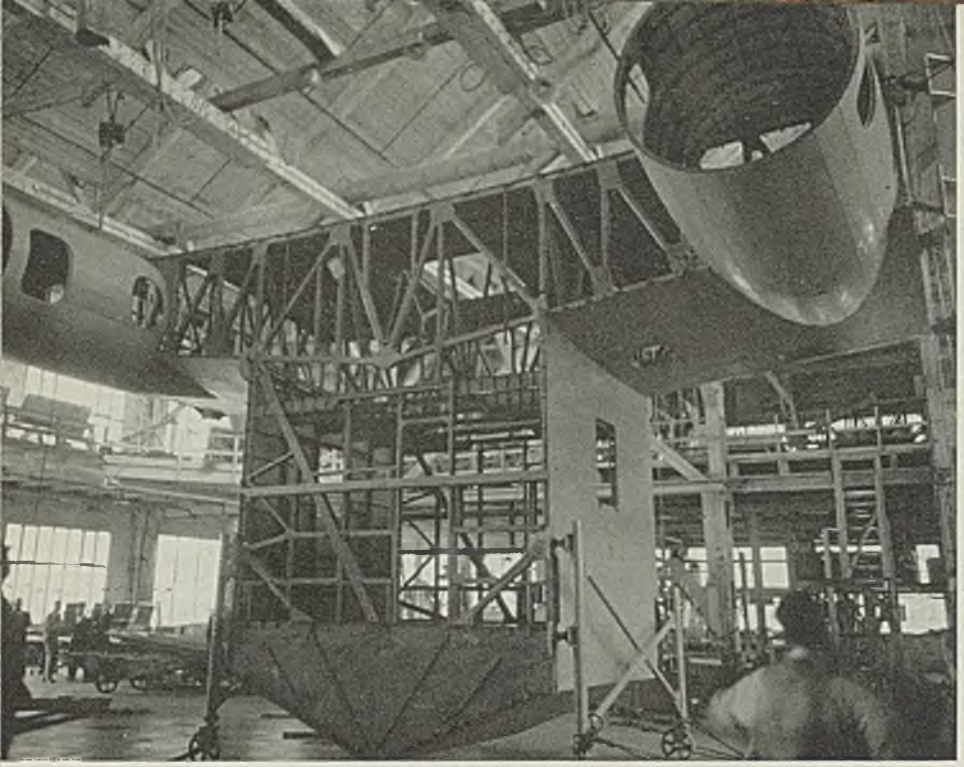
Shipping facilities will be improved with a new head house in which cars are prepared for shipment, and new loading dock equipment. A new personnel building, covering over 9000 square feet, is now nearing completion.

The present DeSoto plant was opened only last fall, and with the new construction will provide 750,000 square feet for manufacturing.

Pickling Steel Plate for Battleships



BRINGING Uncle Sam's navy up to peacetime strength is keeping some shipyards busy. This view in one of the largest shipbuilding plants shows steel plate being cleaned prior to use in a battleship. The large size of the plates necessitates a pickling tank of unusual design. The two tanks were supplied by B. F. Goodrich Co., Akron, O. They are made of heavily reinforced steel and lined with a ¼-inch thickness of Triflex rubber, covered with two courses acid-proof brick jointed with a sulphur base compound. To avoid chipping by contact with the plate, the brick is covered with a cushion of timbers. The tanks are 42 feet long, 5 feet wide and 11 feet deep, inside



CENTRAL portion of the Clipper: This will contain the dining salon, and above it, the center section of the wing structure which will be used for cargo space. On the outer ends of the section are the two inner engine nacelles, 25 feet above the assembly floor. All four engine nacelles will be accessible during flight by way of wing companionways

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Building World's Largest Clippers; Steel Reinforces Light Alloys

SEATTLE

IN THE Boeing Aircraft Co.'s new assembly plant here—itself one of the marvels of factory structures on the Pacific coast—six of the largest Clippers ever built are under construction for Pan American Airways.

All-metal, each to weigh 85,000 pounds, each to cost $500,000, they will inaugurate 24-hour transatlantic flights in 1938.

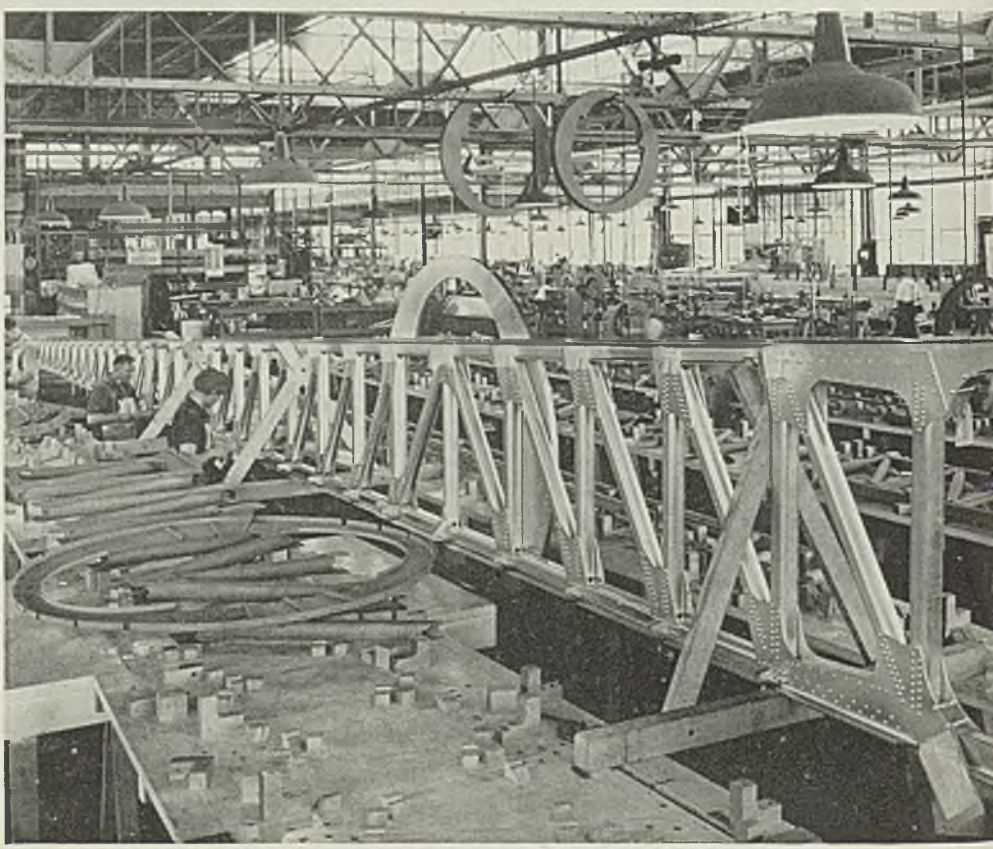
The light aluminum and magnesium alloys, of course, form the greater part of the bodies and wings of these flying ships, but it is to be noted that steel is used for some reinforcing purposes.

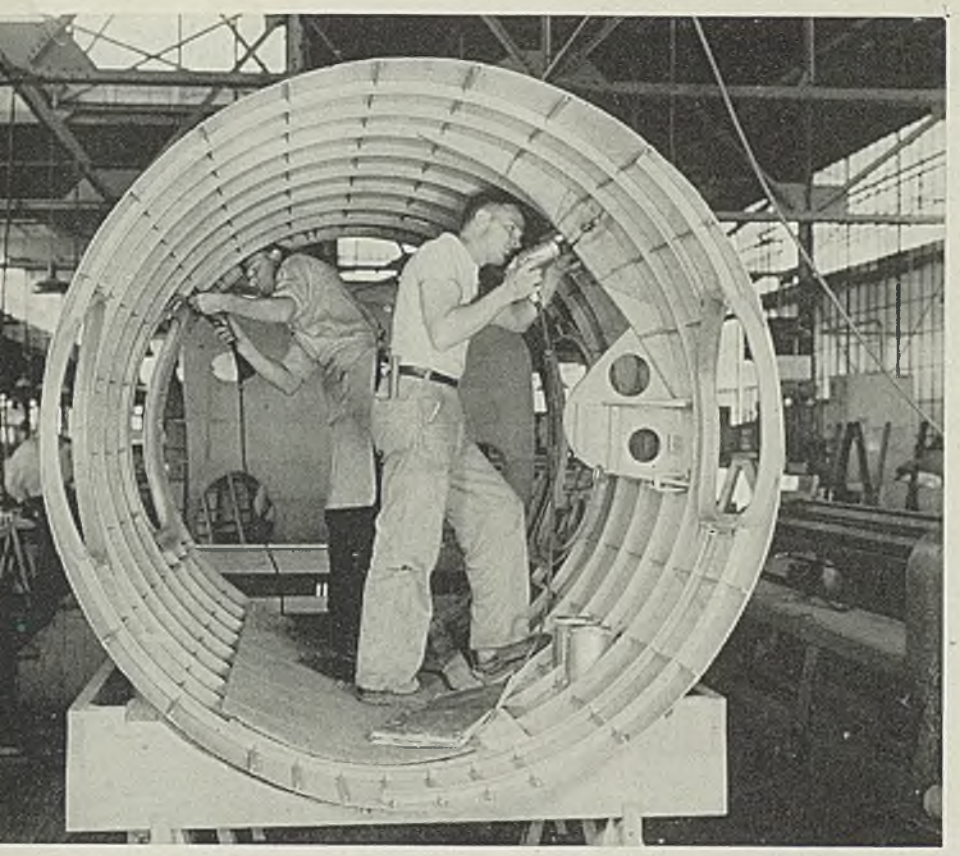
Each will be propelled by four 1500-horsepower Wright Cyclone engines, to supply as much power as two ordinary steam railroad locomotives. Top speed will be 200 miles an hour, cruising speed 150.

The wing spread is 152 feet, and designed to house the crew of ten. The hull is 109 feet long. Each ship will have two decks, with lounge rooms, galley, wash rooms, seats that can be converted into berths, with capacity for 75 passengers. In actual service, however, they will carry only 50 passengers, and 2½ tons of cargo. The first unit is well under way and the hull structure of the second is being assembled.

The Boeing plant is 204 x 304 feet, with a clear height of 35 feet, having an unbroken area of 2,100,000 cubic feet. This permitted simultaneous assembly this year of nine Boeing army bombers, weighing 16 tons each, the largest land planes ever built in this country.

MASSIVE wing spar: Sturdy as a bridge structure, this truss-type wing spar will form part of the framework of the broad wing in Pan American Airways' new 41-ton Boeing transoceanic flying boat. The wing will measure 152 feet from tip to tip





WORKMEN inside one of the four engine nacelles. These nacelles will be mounted on the 152-foot wings of the huge ocean-going craft. The plane's four 1500-horsepower Wright Cyclone engines will furnish as much power as two ordinary railroad locomotives

Giant Press Installed In Airplane Factory

Reported as the largest in the world, a self-contained hydraulic press with a pressure capacity of 5000 tons has been installed in the plant of the Douglas Aircraft Co. Inc., Santa Monica, Calif.

Built by the Hydraulic Press Mfg. Co., Mount Gilead, O., the press is used for 3000 production operations in connection with shaping aluminum alloy parts for Douglas transport planes. Economy and flexibility in the fabrication of parts is expected to result.

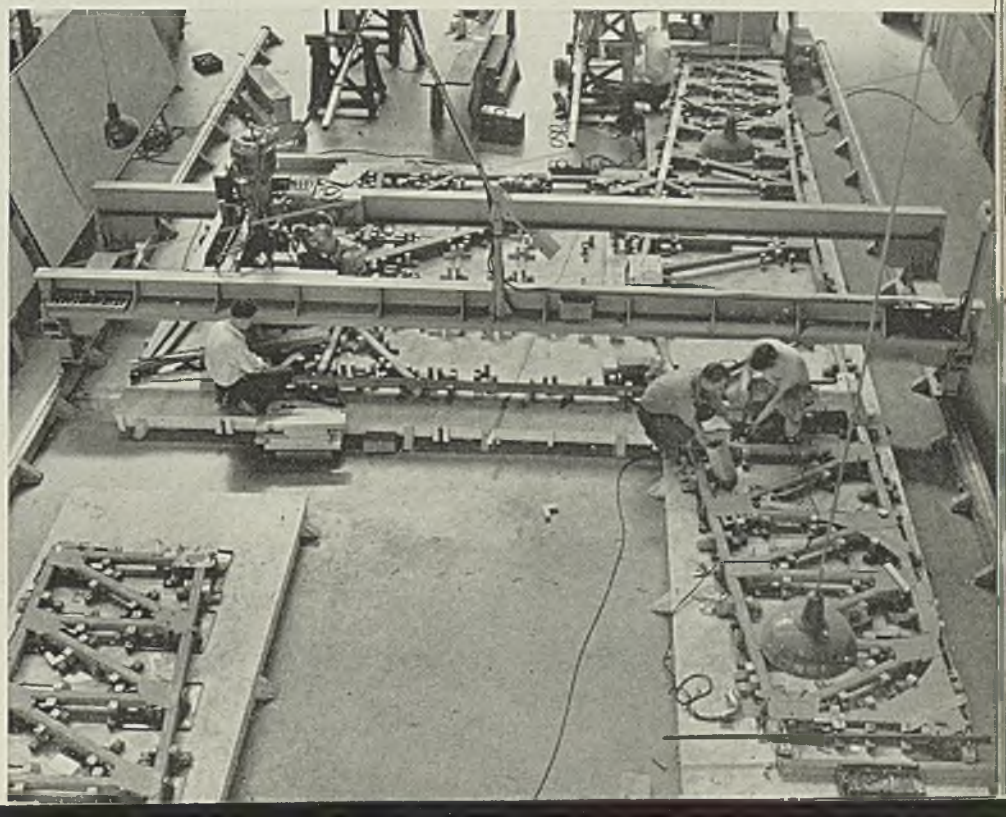
Total weight of the press, which is as tall as a four-story building, is 840,000 pounds, comprising the following parts: Head, 175,400 pounds; platen, 110,000 pounds; bed, 141,510 pounds; ram, 42,380 pounds; each strain rod, 28,080 pounds. The ram is six feet in diameter and is actuated by oil under pressure of 2500 pounds per square inch.

Direct driven by two 150-horsepower electric motors, four radial pumps of the variable reversible delivery type generate the pressure, which is applied directly from the pumps to the press rams without intervening valves.

Decade In Air Travel

A decade of coast-to-coast mail and passenger air transportation was reached Sept. 1, during which time the metal industries have played an integral role in man's conquest of the air. In 1927 planes built almost entirely of wood spanned the continent in 33 hours. Crossing times were reduced gradually to 30 hours in 1930, 20 hours in 1933, and to the 15 hours which United Air Lines ships now require. Present day transports are constructed almost entirely of metal, wood being confined to paneling for cabin interiors.

During the ten years United transports have flown 120,209,435 miles and carried 1,075,359 passengers, for a total of 450,862,210 passenger miles. Air mail has aggregated 42,357,951 pounds and air express, 8,039,927 pounds.



ASSEMBLING one of the center section bulkheads, built partly of steel and partly of aluminum alloy, for the Pan-American fleet of "Atlantic Clippers." The left part of the assembly is framework for the hull; to the right is the center section of the wing spar. A massive "drill jig" rolls on rails over the entire layout to facilitate accurate construction

Four Out of Five Industrial Companies Training Employes

FOUR out of five of a miscellaneous group of 473 companies, employing 626,668 persons, in various industries throughout the country have definite employe training programs, a National Industrial Conference board survey disclosed last week. Only 13 per cent of the companies report no training.

The industries include: agricultural implement, automotive, chemicals, electrical manufacturing, iron and steel, leather, lumber, machines and machine tools, other metal products, paper, printing, rubber, textile, public utilities and miscellaneous.

High-lights of the survey:

Training on the job is given by 98.5 per cent of the companies; only 8.5 per cent have vestibule schools.

Training is given to mature as well as young learners.

Compensation of persons in training is at least 50 per cent of the regular rate in 91 per cent of the companies, and 80 per cent of the regular rate or more in about 32 per cent.

Training Period Varies Widely

Time required for training ranges from one week to more than five years. More than 60 per cent of the companies were able to give necessary instruction in six months or less.

Definite policies for training employes for versatility are in effect in 47 per cent of the companies.

Regular systematic apprentice training is reported by 272, or 57.5 per cent of the firms covered.

A large proportion of these plans is in the metalworking industries.

The number of apprentices in these companies is 7322, or 1.1 per cent of their aggregate employment.

About 55 per cent of the companies reporting apprentice training provide all the instruction given; about 45 per cent utilize outside facilities, usually for providing the school room instruction.

More than a third of the companies make no definite provision for school-room instruction.

Four years is the most common length of apprentice-training courses.

Average compensation of apprentices ranges from 33.2 cents per hour in the first six months of training to 57.4 cents in the last half of the fourth year.

The usual minimum hiring age is 18 years.

The following table gives the number of companies included in the survey, the number of their employes, and the apprentices they are training. In addition to these apprentices many companies have training courses for higher classes of workers.

Industry	Firms	Employment	Apprentices in Training
Agricultural implements	11	56,041	99
Automobiles and parts	28	50,548	540
Chemicals	1	1,700	...
Electrical manufacturing	55	119,949	991
Iron and steel	19	50,061	292
Leather and products	4	1,442	...
Lumber and products	3	2,345	14
Machines and machine tools	146	110,522	2,302
Metal products, other	159	142,084	1,685
Paper and products	7	4,910	32
Printing	4	1,379	18
Rubber	3	3,650	...
Textiles	13	30,029	562
Miscellaneous	14	119,983	346
Public utilities	6	32,025	351
TOTAL	473	626,668	7,322

"To maintain and raise the standard of living, continued increase in the productive capacity and output of American industry will be necessary," says the board. "This increase must be very large to compensate for the rapidly growing burdens and wastes of government.

"It will require not only greater . . . investment . . . but great improvement in the productive capacities of the working population.

"The opinion advanced at one time that intensive and progressive mechanization was reducing the need for highly skilled labor has not been borne out by events. While a less comprehensive mechanical training than formerly may give adequate preparation for many occupations, a high degree of specialized skill is necessary to secure best results from elaborate and intricate machines. Such skill can be built satisfactorily only on a sound foundation of the fundamentals of machine operation.

"The cost of a training program can not properly be regarded as an extraneous or gratuitous expense that properly can be escaped . . . every company should participate in proportion to its size and ability."

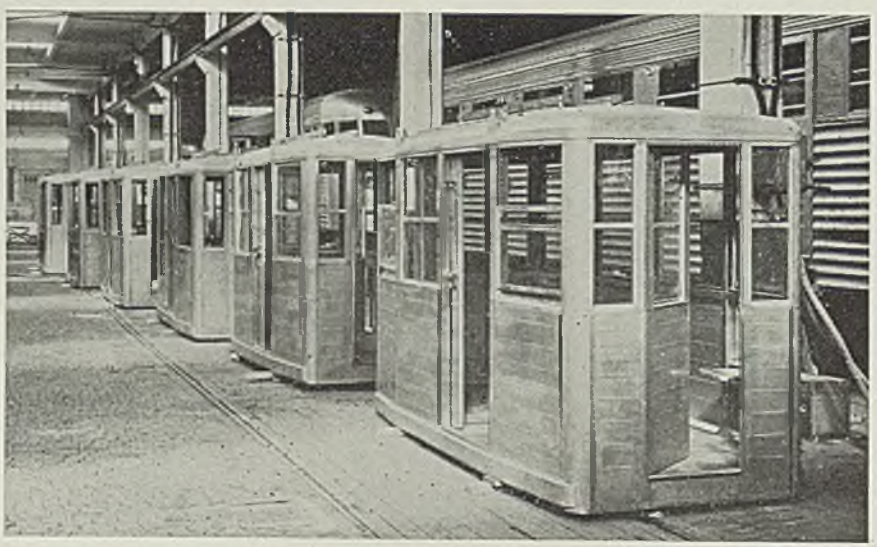
Tennessee's Battery of Coke Ovens Completed

A battery of 73 coke ovens was completed recently by the Koppers Co., Pittsburgh, for Tennessee Coal, Iron & Railroad Co., Birmingham, Ala., United States Steel Corp. subsidiary.

It is designated as No. 2 unit. No. 1, also comprising 73 ovens, to be built by Koppers, will be ready for operation in the fall. They are parts of a broad expansion program in the South, which includes a new tin plate mill, now under construction.

Into the new battery can be charged 1590 tons of coal daily, producing 1110 tons of furnace coke; 20,263,000 cubic feet of gas; 14,771 gallons of tar; 17.7 tons ammonium sulphate; 5207 gallons light oil; and 3123 gallons motor benzoil.

Weight Reduced in Steel Alpine Cable Cars



THESE 16-passenger stainless steel cable cars, part of a 30-car order, weigh only 660 pounds each, or 56 per cent less than the type formerly used in the Italian Alps. They will haul skiers and mountain climbing tourists. The cars are being built by the "shotweld" method in the shops of Piaggio & Co., Genoa, Italy, licensee of the Edward G. Budd Mfg. Co., Philadelphia

Labor

STEEL'S JULY EMPLOYMENT AT 594,000, NEAR RECORD

RECOVERING from the effects of strikes in June, employment in the steel industry in July increased to 594,000 according to the American Iron & Steel institute. This figure was only one-fourth of 1 per cent below the record total of 595,000 employes in May, despite the fact that during July operations were nearly 12 per cent below May. Total July payrolls were $90,550,000, about 2.5 per cent under May.

The July employment figures represent a 7 per cent gain over the average of 556,000 in June. July payrolls also increased substantially over the total of $87,520,000 paid in June.

Wage earning employes in July numbered 533,000, compared with 495,000 in June and 533,500 in the record month of May. Average hourly earnings in July were 86.3 cents. The work-week averaged 37.3 hours, compared with 39.2 in June and 38.6 in May.

WITNESSES DENY REPUBLIC INFLUENCED CIVIC GROUP

Prominent citizens testified last week at Canton, O., that Republic Steel Corp. did not bring pressure on them to form a citizens' committee to combat the Steel Workers Organizing committee in the recent steel strike.

Following conclusion of testimony by union members in Cleveland, Youngstown, and Canton on charges that the company violated the Wagner act, Republic began its defense before the labor relations board's trial examiner, John T. Lindsay. Defense witnesses included industrialists, clergymen, and bankers.

All declared formation of the citizens group was spontaneous, and said they had heard Police Chief Stanley Switter say that guns, tear gas, and ammunition had been "stolen" from Republic's main offices. A motion by Republic to dismiss charges against it was denied by Lindsay.

BETHLEHEM FOURTH TO BE ACCUSED BY LABOR BOARD

Complaint charging unfair labor practices has been filed against Bethlehem Steel Co. by the national labor relations board, based on allegations made by the CIO. A hearing is scheduled to begin Sept. 8 at Franklin Boro, Pa., on a petition requesting determination of collective bargaining representatives.

The board alleges the company has dominated and contributed financially to employe representation plans at 14 plants, and at three has "engaged in other unfair labor practices with the intention of denying employes the right to organize and bargain collectively."

The board brought similar actions against Weirton Steel Co., Republic Steel Corp., and Inland Steel Co.

SWOC TO SEEK EXPIRATION OF ALL STEEL PACTS MARCH 1

Attempts will be made to terminate simultaneously all contracts with steel producers next March 1, the Steel Workers Organizing committee said last week. New contracts will then be sought at the same time with all signatory steel companies.

Negotiations with Carnegie-Illinois Steel Corp. are to start Feb. 8. SWOC claims 399 contracts with iron and steel and metalworking companies employing more than 510,000 men.

Wire Company To Build Mountain Tramway

American Steel & Wire Co. has signed a contract with the state of New Hampshire for constructing a 5200-foot aerial tramway at Franconia extending from Franconia Notch near Echo lake up the side of Cannon mountain to a point just below the peak. The tramway will be the first of its type in North America, although similar ones have been used in Europe for some years.

Cost of the project is about $250,000. The Wire company's fee for construction of the tramway is to be $191,975 while an additional amount of approximately $55,000 has been authorized by the state to provide ground for a landing platform and other incidental expenses. John W. Childs is engineer in charge.

Ludlum Offers Trophy For Air Speed Record

Ludlum Steel Co., Watervliet, N. Y., has offered the Ludlum trophy and a $2000 cash award to the pilot winning the Thompson trophy race at the National air races in Cleveland, Sept. 6, providing a new speed record is established. If no new record is established, the award will be held over and made next year or when a new speed mark is set.

Ludlum has been active in developing improved steels for use in aeronautical and automotive industries, Hiland G. Batcheller, president, pointed out in announcing the award. Silcrome valve steel, developed by the company in the early 1920's, today has become standard in many airplane engines.

The Thompson trophy race from the West coast to Cleveland affords a severe test for materials and design of competing planes.

Financial

NEW FINANCING PROPOSED BY SHEET & TUBE

YOUNGSTOWN SHEET & TUBE CO.'s board of directors has called a special meeting of shareholders for Oct. 19 to consider new financing to provide working capital, from which large expenditures have been made for plant improvements and betterments, increase inventories and receivables, and facilitate further improvements contemplated in the Youngstown and Chicago districts.

No definite plans for the financing have been made. Any new securities issued will be offered first to present common shareholders pro rata. While the amount has not been determined, it is expected to be approximately $30,000,000.

The action to be taken by shareholders includes approval of an increase in the authorized common shares from 2,000,000 to 2,500,000 shares, the release of pre-emptive rights of common shareholders on not exceeding 400,000 shares, and authorization to the board to issue securities convertible into common shares. Only holders of common shares will be entitled to vote at the meeting.

FOLLANSBEE SUBSCRIPTION DATE EXTENDED TO SEPT. 27

Date for the expiration of subscription warrants for the purchase of bonds and common stock of Follansbee Steel Corp. has been extended from Aug. 30 to Sept. 27.

This step was taken by the United States court for the western district of Pennsylvania on petition of the company. Delays were met in preparation and submission of necessary petitions, auditors' statements, and exhibits preliminary to obtaining action by the "blue sky" commissions of various states in connection with the qualifications of the bonds and common stock of the corporation. The Guaranty Trust Co., New York, will continue to issue and transfer the warrants up to Sept. 27.

DIVIDENDS DECLARED

Directors of American Rolling Mill Co., Middletown, O., declared the first quarterly dividend of $1.12½ a share on its 4½ per cent accumulative convertible preferred stock, and a regular quarterly dividend of 50 cents a share on its common stock. Both dividends are payable Oct. 15 to stock of record Sept. 15.

Bliss & Laughlin Inc., Buffalo, declared an extra dividend of 50 cents a share and a regular quarterly dividend of like amount on common, both payable Sept. 30 of record Sept. 18.

Production

WITH only fractional changes at Chicago and Pittsburgh and shifts at other centers largely balancing, the national steelworks operating rate last week held at 83 per cent. Observance of Labor Day this week will cause some reduction in production though many steelmakers will minimize the idle period.

Youngstown, O.—Unchanged at 73 per cent, with 63 open hearths, three bessemers and 21 blast furnaces active. Labor Day will cut heavily into this week's schedule with all but Republic's 17 open hearths and one bessemer to close Monday and virtually all finishing mills to be idle. Republic will operate its steelmaking departments but close its finishing mills Monday.

Birmingham—Down 5 points to 91 per cent, one Republic open hearth being down for repairs, leaving 18 open hearths active.

Chicago—Down half a point to 86 per cent, slightly below the best rate for the year to date. Schedules are expected to hold at about this level for September.

Detroit—Down 5 points to 95 per cent, one open hearth being off for repairs.

New England—Up 10 points to 70 per cent. Two producers will slightly reduce operations this week, bringing the rate to 60-65 per cent.

Pittsburgh—Down 0.4 point to 83 per cent. The leading producer is at about 84 per cent and National Tube Co. is again operating three furnaces at McKeesport, Pa.

Wheeling—Up 1.5 points to 91 per cent of capacity.

Central eastern seaboard — Unchanged at 65 per cent. A slight recession is noted by one producer, but not sufficient to affect the average. Most plants will operate through Labor Day, a few going down Sunday to Monday night.

Cleveland—Down 1.5 points to 78 per cent. National Tube Co. set an all-time record at its Lorain, O., plant in August, producing 87,800 tons from its open hearths, to top the previous record of 83,331 tons in May, 1929. The blast furnace division produced 92,965 tons, exceeding the previous record of 60,964 tons in May, 1937.

St. Louis—Down 7 points to 77 per cent of capacity, several furnaces being down for repairs.

Cincinnati—Off 4 points to 89 per cent, one open hearth being taken off for repairs.

Buffalo—Unchanged at 86 per cent of capacity. A new record for Bethlehem Steel Co.'s continuous strip mill was set during August, with a production of 90,100 gross tons, compared with the previous mark of 75,000 tons.

District Steel Rates

Percentage of Open-Hearth Ingot Capacity Engaged in Leading Districts

	Week ended Sept. 4	Change	Same week 1936	Same week 1935
Pittsburgh ..	83	—0.4	70	45
Chicago	86	—0.5	72½	57
Eastern Pa...	65	None	48½	32½
Youngstown..	73	None	29	60
Wheeling	91	+1.5	98	84
Cleveland ...	78	—1.5	82	56
Buffalo	86	None	75	32
Birmingham..	91	—5	64	45½
New England	70	+10	80	70
Detroit	95	—5	100	94
Cincinnati....	89	—4	80	†
St. Louis.....	77	—7	†	†
Average ...	83	None	71½	52

†Not reported.

World Tin Production Up; U. S. Leads in Consumption

World tin consumption in the first half of 1937 increased 14,944 gross tons over the first six months of 1936 to 94,863 tons. Production increased 9415 tons to 92,303 tons, according to the International Tin Research and Development council.

In the year ended in June world production totaled 187,779 tons while apparent consumption increased 12.7 per cent over the preceding year to 177,384 tons. United States used nearly half, 83,376 tons, an increase over the preceding year of 19.6 per cent. Russia's consumption showed the greatest gain, 52.1 per cent to 11,768 tons; Japan used 8288 tons, 30.5 per cent more than in the year before.

World tin plate production in the year ended in June increased 22 per cent over the preceding year to 4,038,000 tons. United States output in July was 195,000 tons, compared to 190,000 tons in June.

Canada Doubles Mine And Pump Purchases

Canada during first half of 1937 bought from the United States 96 per cent more mining, well and pumping equipment than in the same period of 1936. Figures compiled by the machinery division of the department of commerce show that in first half Canada bought from the United States nine times as much petroleum and gas well drilling equipment and more than twice as much other petroleum well and refining equipment as in first half of 1936.

Canadian purchases of pneumatic portable tools and air compressors from this country in first half were approximately double those of first half, 1936, and pump imports were 72 per cent over 1936. Increases of sales to Canada showed increases of smaller amounts in ore crushing and sorting equipment, rock drills, concentrating and smelting machinery and other types of mining and quarrying machinery.

Electromet Plans Carbide Plant In Wilson Dam Area

Plans for a new plant for Electro Metallurgical Co., New York, in the Wilson dam area on the Tennessee river were disclosed in Birmingham last week. The Tennessee Valley Authority announced it had signed a contract with the company, a unit of Union Carbide & Carbon Corp., to furnish as much as 40,000 kilowatt hours of power by 1941, should that amount be required.

Such a maximum, TVA pointed out, would net it approximately $750,000 annually. The proposed plant will produce calcium carbide. Precise location and initial expenditure were not announced.

New Steel Reinforcing Code Pamphlet Issued

Including the latest standards, a pamphlet entitled the "Code of Standard Practice and Specifications for Placing Reinforcing Materials" has been issued by the Concrete Reinforcing Steel institute, Chicago. The contents were first developed about ten years ago and formed portions of the handbook, "Reinforced Concrete," now out of print. The code is a reference in matters relating to the use and application of reinforcing materials, of value to specifiers, buyers and sellers.

Lukens Fingerprinting Aids In Employe Identification

Lukens Steel Co., Coatesville, Pa., has started a free fingerprinting service for employes, in co-operation with the Civilian bureau at Washington. Fingerprints will be kept at the bureau as a permanent record of identification, and will be entirely separate from the criminal file. Company officials and workmen have endorsed the plan.

More than 40 per cent, or 32,019, of the employes of General Electric Co. have worked with the company for ten or more years, according to a recent survey, and 42,785 have been employed more than five years.

Iron Output Best in Eight Years; 191 Stacks Active

UNHAMPERED by labor disturbances and reflecting the high total of active capacity, production of coke pig iron in the United States in August increased moderately and reached a level which was the best since August, 1929. The strength was well sustained through the month, for on Aug. 31 active blast furnaces numbered 191, compared with 192 on July 31.

Average daily production in August was 116,676 gross tons, this being a gain of 3729 tons, or 3.3 per cent, over the 112,947-ton rate of July. This was the highest recorded since August, 1929, with 120,845 tons per day. The daily rate in August, a year ago, was 87,475 tons.

Total production in August was 3,616,954 tons, which compared with the 3,501,359 tons of July, was an improvement of 115,595 tons, or 3.3 per cent. This was the best since the 3,746,198 tons in August, 1929. Total output for the corresponding month of last year was 2,711,726 tons.

For the eight months ended in August, pig iron output has aggregated 26,888,648 gross tons, an increase of 42.4 per cent, or 8,001,129 tons, over the 18,887,519 tons made in the first eight months of 1936. In 1935, the eight-month total was 13,110,056 tons, thus the 1937 figure is more than double.

Relating production to capacity, operations in August were at the rate of 85.7 per cent, based on the American Iron and Steel institute's revised capacity figure as of June 30. This rate compares with 82.9 per cent in July, 76.6 per cent in June and 84.3 per cent in May. In August, 1936, the percentage was 64.3 per cent.

During the month, the net loss in active blast furnaces was one stack.

Five steelworks or nonmerchant furnaces resumed operation and six were blown out or banked. No stacks of merchant classification were blown in or blown out.

Stacks blowing in during August were: In Ohio: Hamilton No. 2, Hamilton Coke & Iron Co.; Ohio No. 5, Carnegie-Illinois Steel Corp. In Pennsylvania: Cambria G, Bethlehem Steel Co. In New York: Buffalo No. 2, National Steel Corp. In Illinois: South Chicago No. 4, Youngstown Sheet & Tube Co.

Furnaces blowing out or banking were: In Ohio: Youngstown No. 5, Republic Steel Corp. In Pennsylvania: One Aliquippa, Jones & Laughlin Steel Corp.; Isabella No. 3, Carnegie-Illinois Steel Corp. In Maryland: Maryland E, Bethlehem Steel Co. In Illinois: South Chicago No. 3, Youngstown Sheet & Tube Co. In Colorado: Minnequa A, Colorado Fuel & Iron Co.

MONTHLY IRON PRODUCTION

Gross Tons

	1937	1936	1935
Jan.	3,219,741	2,029,304	1,478,443
Feb.	3,020,006	1,838,932	1,614,905
March	3,470,470	2,046,121	1,770,990
April	3,400,636	2,409,474	1,671,556
May	3,545,180	2,659,643	1,735,577
June	3,115,302	2,596,528	1,558,463
July	3,501,359	2,595,791	1,520,340
Aug.	3,616,954	2,711,726	1,759,782
Tot. 8 mo.	26,888,648	18,887,519	13,110,056
Sept.		2,728,257	1,770,259
Oct.		2,991,794	1,978,379
Nov.		2,949,942	2,066,293
Dec.		3,125,192	2,115,496
Total		30,682,704	21,040,483

AVERAGE DAILY PRODUCTION

Gross Tons

	1937	1936	1935	1934
Jan.	103,863	65,461	47,692	39,537
Feb.	107,857	63,411	57,675	45,385
March	111,951	66,004	57,120	52,438
April	113,354	80,316	55,719	57,873
May	114,360	85,795	55,986	66,370
June	103,843	86,551	51,949	64,563
July	112,947	83,735	49,043	39,630
Aug.	116,676	87,475	56,767	34,199
Sept.		90,942	59,009	29,969
Oct.		96,509	63,818	30,689
Nov.		98,331	68,876	31,930
Dec.		100,813	68,242	33,161
Ave.	110,652	83,832	57,694	43,774

AUGUST IRON PRODUCTION

	No. in blast last day of Aug.	July	Total tonnage Merchant	Nonmerchant
Ohio	43	42	143,718	686,617
Penna.	64	65	138,527*	1,006,042*
Alabama	18	18	115,601	129,711
Illinois	16	16	96,224	250,782
New York	14	13	76,508	183,886
Colorado	2	3		
Indiana	15	15	18,027*	540,257*
Maryland	5	6		
Virginia	1	1		
Kentucky	2	2		
Mass.	1	1		
Tenn.	0	0		
Utah	1	1	26,951	204,103
West Va.	3	3		
Michigan	4	4		
Minnesota	2	2		
Missouri	0	0		
Total	191	192	615,556*	3,001,398*

*Includes ferro and spiegeleisen.

Lucy Furnace, Started In 1870's, Dismantled

Carnegie-Illinois Steel Corp. is dismantling its original Lucy blast furnace in Pittsburgh. Built in 1871 and blown in May 18, 1872, the stack has been idle since April 30, 1929.

One of the first operating units of the early Kloman, Carnegie & Co., Lucy furnace was built at Fifty-first street at the same time its rival, Isabella furnace, was being constructed directly across the Allegheny river. Keen rivalry on output featured their early operation. Both had a capacity of 50 tons daily. Production was gradually increased to provide the original Lucy with an annual output of 54,400 tons at the time it was abandoned.

Named for the wife of Thomas M. Carnegie, one of the founders of the present company, the furnace was known as Lucy No. 1 after a second Lucy furnace was blown in Sept. 27, 1877. Lucy furnace No. 2 has been idle since September, 1930, and also is being dismantled.

RATE OF OPERATION

(Relation of Production to Capacity)

	1937[1]	1936[2]	1935[3]	1934[4]
Jan.	76.6	48.2	34.2	28.3
Feb.	79.5	46.6	41.4	32.5
March	82.5	48.5	41.0	37.5
April	83.7	59.1	40.0	41.4
May	84.3	63.1	40.2	47.5
June	76.6	63.6	37.2	46.3
July	82.9	61.5	35.2	28.4
Aug.	85.7	64.3	40.7	24.5
Sept.		66.9	42.5	21.5
Oct.		71.0	45.8	22.1
Nov.		72.3	49.5	22.8
Dec.		74.2	49.0	23.7

[1]First half based on capacity of 49,512,737 gross tons, Dec. 31, 1936—second half on capacity of 49,727,737 tons, June 30, 1937; [2]capacity of 49,777,893 tons, Dec. 31, 1935; [3]capacity of 50,845,741 tons, Dec. 31, 1934; [4]capacity of 50,975,561 tons, Dec. 31, 1933. Capacities by American Iron and Steel Institute.

Westinghouse Starts Flood Prevention Project

The first major flood prevention project to reach the construction stage in the Pittsburgh district was announced recently by Westinghouse Electric & Mfg. Co. The Turtle creek valley in which lie the Westinghouse works and other large industries will be protected by the project, to cost $500,000.

Men of Industry

THOMAS M. GALBREATH and David B. Carson have been elected vice presidents, Sharon Steel Corp., Sharon, Pa. Mr. Galbreath, general manager of sales since 1934, will continue in that capacity in addition to his new duties. Mr. Carson, manager of stainless steel division since 1933, will also continue to devote his time to that division.

A graduate of Yale university in 1915, Mr. Galbreath served in the aviation division of the army during the World war and upon returning joined Sharon. After several years in the mills and general office he was made manager, Philadelphia sales office; was in charge of Cleveland district office; in 1928 returned to Sharon, Pa., as assistant general manager of sales, and in 1934 became general manager of sales.

Mr. Carson, a graduate of Ohio State university in 1913, was associated with Carbon Steel Co., Pittsburgh, before serving for two years in the ordnance department of the army. After the war he returned to the Carbon company, resigning in 1920 to become Cleveland district sales manager of Tacony Steel Co. In 1923 he became assistant general manager of sales, Central Steel Co., and following consolidation with United Alloy, was in charge of all research development and stainless steel sales. He joined Sharon in 1933, following dissolution of Associated Alloy Steel Co., of which he was vice president and general manager.

♦ ♦ ♦

Julian L. Schueler, formerly superintendent, steel and wire division, Continental Steel Corp., Kokomo, Ind., has been promoted to general superintendent.

♦ ♦ ♦

William Enders, heretofore superintendent at the main plant of Snap-On Tools Inc., Kenosha, Wis., has been placed in charge of the new branch factory in Mt. Carmel, Ill.

♦ ♦ ♦

Harvey D. Stalnaker, prominent for many years in the Pittsburgh iron and steel scrap market, has opened a new office at 1030 Grant building, Pittsburgh. The company's name is Stalnaker Steel Co.

♦ ♦ ♦

Clark M. Robertson has been elected president, Federal Steel Sash Co., Waukesha, Wis. He succeeds the late Charles J. McIntosh. R. E. Huppert, secretary and treasurer, has also been made general manager.

Thomas M. Galbreath

♦ ♦ ♦

Chauncey Williams, foreman of machine shop No. 1, in charge of heavy production machinery, Four Wheel Drive Auto Co., Clintonville, Wis., has been promoted to superintendent, to succeed the late Curran C. McConville.

♦ ♦ ♦

Richard Seipt, associated with the sales department of Laminated Shim Co. Inc., Long Island City, N. Y., for the past two years, has been named sales manager. Previously he was identified with John Wood Mfg. Co. as a sales engineer.

♦ ♦ ♦

Paul B. Zimmerman has been named vice president in charge of sales, Norge division of Borg-Warner Corp., with headquarters in Detroit. Heretofore he had been sales manager of the appliance and merchandise department, General Electric Co., Cleveland.

♦ ♦ ♦

Frank F. Slick, general superintendent, Edgar Thomson works, Carnegie-Illinois Steel Corp., Braddock, Pa., has been granted an extended leave of absence due to failing health. He has been with the company 42 years, all of which time was spent at the Edgar Thomson works, except for a four-year period, from 1902 to 1906 when he was assistant engineer of ordinance in the city office at Pittsburgh.

Frank F. Slick

♦ ♦ ♦

Raymond H. Dauterich, 1205 East Twenty-fifth street, Baltimore, has been appointed direct factory representative for the High Speed Hammer Co. Inc., Rochester, N. Y. His territory will comprise Maryland, Delaware, Washington and a section of Pennsylvania.

♦ ♦ ♦

Ray A. De Vlieg, widely known automotive engineer, has been appointed general works manager, Nash Motors division, Nash-Kelvinator Corp., in charge of manufacturing at Kenosha, Racine and Milwaukee, Wis. Since August, 1936, he has been an engineering executive of Kelvinator Corp. at Detroit.

♦ ♦ ♦

Max H. Schachner has been appointed assistant sales manager, Winton Engine Co., General Motors subsidiary, Detroit. He will direct sales of the new Winton two-cycle diesel engine. In previous years he had been active with Continental Motors Corp., Detroit, and Caterpillar Tractor Co., Peoria, Ill.

♦ ♦ ♦

Myron C. Taylor, chairman, United States Steel Corp., returned early last week from Florence, Italy, where he had been spending a vacation. He saw no immediate prospect for any financing by his company and when questioned by ship reporters concerning rumors about his retirement replied: "Well, that wouldn't be a subject for a gangplank discussion."

♦ ♦ ♦

Frederick R. Ward has been appointed assistant district manager at Chicago for Republic Steel Corp. His first position was as a chemist for the former Corrigan, McKinney Steel Co., Cleveland. He left to become chief chemist for American Manganese Co. In 1919 he became superintendent for Tennessee Manganese Co.; in 1922 he was made superintendent of operations for Graham Furnace Corp.; in 1923 he went with Jones & Laughlin Steel Corp. as superintendent of bar mills at the Pittsburgh works. Mr. Ward went to the Chicago district of Republic in July, 1936, as assistant superintendent of the finishing mills and special process division.

♦ ♦ ♦

F. T. Carpenter, for many years superintendent of construction for the American Gas Construction Co. and its successor, the C. I. Tenney

Engineering Co., is now associated with the Detroit office of the Philgas department of Phillips Petroleum Co., marketer of liquefied petroleum gases for domestic, industrial, gas manufacturing and sundry uses.

♦ ♦ ♦

W. A. Neill, formerly manager of Worthington Pump & Machinery Corp.'s air tool and portable compressor division at Harrison, N. J., has been appointed manager of engineering and sales activity at the company's recently reopened plant at Holyoke, Mass. He has been associated with Worthington since 1934.

♦ ♦ ♦

E. T. Butler, who joined the Ore & Coal Exchange, Cleveland, last April as assistant to the manager, has been named manager, succeeding Herman M. Griggs, who retired Aug. 1. A. P. McGrath, secretary of the railroad operating committee, has been appointed secretary of the exchange, assuming duties formerly performed by Mr. Butler.

♦ ♦ ♦

George P. Burks has been appointed chief chemist for blast furnaces, open-hearth furnaces and rolling mills at Gary works, Carnegie-Illinois Steel Corp. Mr. Burks, a graduate of Wabash college with an A.B. degree in chemistry and biology, has been associated with Carnegie-Illinois since 1921. He served as assistant chief chemist from 1922 until his latest appointment.

♦ ♦ ♦

Emil H. Breidenbach, known on the Pacific coast as the "iron hardware man," retired Aug. 1, at the age of 76, as manager of the San Francisco branch of Ducommun Metals & Supply Co., Los Angeles. He became identified with the trade in 1882 when he joined the organization of Waterhouse & Lester, San Francisco. Later for a period of 14 years, he was appointed manager of the iron and steel department of the Union Hardware & Metal Co., Los Angeles.

♦ ♦ ♦

Russell H. Lauderdale, Carl R. Bloomquist, Robert P. Graham and John E. Dorn have been appointed by Battelle Memorial institute, Columbus, O., to serve as research associates for the year 1937-38. Mr. Lauderdale will study certain phenomena in the grain growth characteristics of steel; Mr. Bloomquist will study fundamental problems involving the heats of wetting at solid-liquid interfaces as an associate in the ore concentration division; Mr. Graham, reappointed for a second year as research associate in ceramics, will continue the study of base exchange phenomena, and Mr. Dorn, also reappointed, will continue studies of the solid solubilities of metals and alloys.

Died:

WILLIAM E. ACOMB, 57, for the past 21 years superintendent of American Steel & Wire Co. plants at Waukegan, Ill., in that city, Aug. 28. His association with the company began in March, 1905, when he was employed as assistant to the superintendent of the Allentown works.

♦ ♦ ♦

Edward F. Pink, president, Cambridge Wire Cloth Co., Cambridge, Md., in Cambridge, Aug. 23.

♦ ♦ ♦

Matthew Schon, development engineer and manager of metals division, Crown Cork & Seal Co., Baltimore, in that city, Aug. 29.

♦ ♦ ♦

A. B. Aldridge, 57, president, Alabama Mining institute, and prominent in industrial circles of Alabama, in that city, Aug. 30.

♦ ♦ ♦

Frederick C. Irvine, 58, Denver representative of Joseph T. Ryerson & Son Inc., Chicago, in Denver recently. He had been associated with Ryerson since 1897, going to Denver in 1914.

♦ ♦ ♦

Horace Willard Hooker, 61, vice president, treasurer and director, Hooker Electrochemical Co. of New York, Niagara Falls, N. Y., and Tacoma, Wash., at his summer home in Canandaigua, N. Y., Aug. 30.

♦ ♦ ♦

Ernest V. Shackleford, 70, vice president, Ewald Iron Co., Louisville, Ky., maker of engine bolts and staybolt iron, in St. Paul, recently. He was manager of the company's branch office in St. Paul.

♦ ♦ ♦

E. J. Parker, 58, for the past 30 years district manager at New York for Morgan Engineering Co., Alliance, O., at his home in Forest Hills, Long Island, Aug. 24. He had been with the company 43 years.

♦ ♦ ♦

Edmund H. Jones, 74, retired general manager, fireproof products division, Milcor Steel Co., Milwaukee, Aug. 29. In 1917 he resigned as general manager, Northwestern Expanded Metal Co., Chicago, to join Milcor, retiring late in 1936.

♦ ♦ ♦

George F. Machlet, an inventor, and associated many years with American Gas Furnace Co., Elizabeth, N. J., in Elizabeth, Aug. 22. He is credited with numerous patents, including an automatic controller for regulating high temperatures in industrial plants.

♦ ♦ ♦

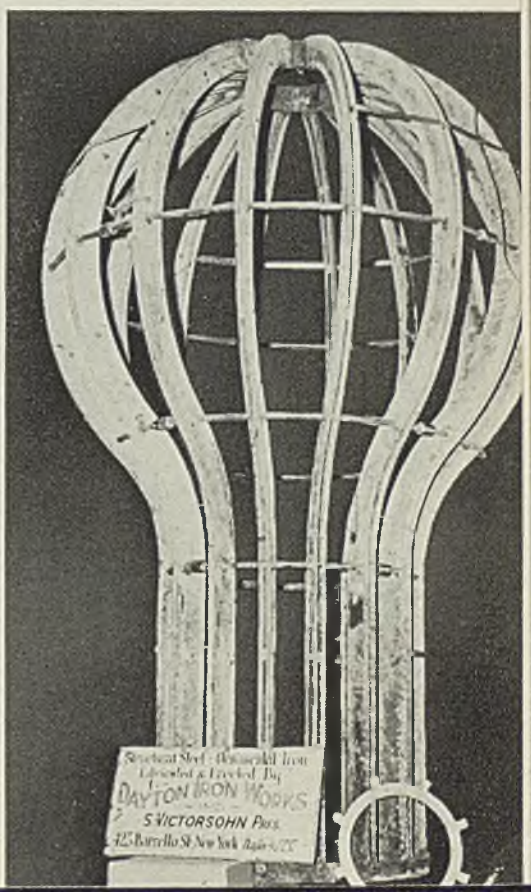
Oscar Textor, 77, retired founder and president, Textor Chemical Laboratories Co., Cleveland, in that city, Aug. 31. Before founding the Textor laboratories in 1895, he served as chief chemist for Cleveland Rolling Mill Co., which later merged with American Steel & Wire Co.

♦ ♦ ♦

C. Adolph Schreiber, 56, consulting engineer, in Detroit, Aug. 16, from injuries received in an automobile accident. He had been associated with a number of automobile companies, in engineering and sales capacities. In later years he devoted his time to consulting work.

Steel-Framed Light Bulb For Edison Monument

THIS 6000-pound steel skeleton, 15 feet high, shaped like an electric light bulb has just been completed at the Dayton Iron Works, Bronx, New York. The frame will be shipped to Corning, N. Y., where it will be encased in glass. It will be mounted on the tower of the Edison Memorial Monument, Menlo Park, N. Y. Wide World photo



Meetings

GAS CONVENTION PAPERS WILL DEAL WITH METALS

PROGRAM for the nineteenth annual convention of the American Gas association in Cleveland, Sept. 27-Oct. 1, includes three days of sessions sponsored by the industrial gas section, during which the use of gas in the metal industry will be given major attention. Several papers dealing with ferrous and nonferrous metallurgy have been announced.

Robert G. Guthrie, chief metallurgist, Peoples Gas, Light & Coke Co., Chicago, and chairman of the section's ferrous metals committee, will discuss "What Industrial Gas Men Should Know About Steel." "Modern Methods of Applying Gas to Large Power Boilers," is the title of a paper to be read by L. S. Reagan, vice president, Webster Engineering Co., Tulsa, Okla., and vice chairman of the section's steam generating committee.

Frank H. Adams, vice president and general manager, Surface Combustion Corp., Toledo, will speak upon "Serving American Industry"; and Adam Steever, plant superintendent, Columbia Tool Steel Co., Chicago Heights, Ill., will contribute a paper on "Advanced Applications of Gas to Forging."

An industrial gas and equipment symposium will be led by L. B. Crossman, sales manager, industrial department, Boston Consolidated Gas Co., Boston, with a paper "Liquid Heating with Immersion Gas." This is to be followed by a forum on "Convection Heating with Gas" led by Karl Emmerling, assistant general superintendent, East Ohio Gas Co., Cleveland.

AUTOMOTIVE ENGINEERS TO HOLD AIRCRAFT MEETING

Society of Automotive Engineers will conduct its second annual national aircraft production meeting in Los Angeles, Oct. 7-9. The army and navy, builders of aircraft and engines, transport companies, suppliers of raw materials, and the national advisory committee for aeronautics are to contribute papers based upon theory and experience.

Among the materials which will be considered in papers and discussion are stainless steel, steel castings, magnesium castings, die castings, aluminum alloys and molded plastics. Other subjects include hydropress operations, factory equipment and tooling, and production tools for airplanes.

MANY SPEAKERS LISTED ON MINING CONGRESS PROGRAM

Many papers and addresses dealing with economic and mining subjects will be presented at the annual metal mining convention of the American Mining congress to be held in Salt Lake City, Utah, Sept. 7-10, under auspices of the organization's western division. More than 75 companies manufacturing machinery, equipment and supplies for the metal mining industry will be represented in the exposition to be held during the meeting.

Among scheduled addresses are the following: "Dust Elimination in Mines," by Donald E. Cummings, field director, Saranac Laboratory, Saranac Lake, N. Y.; "Developments in Mechanical Loading," by W. E. Romig, general superintendent, Climax Molybdenum Co., Climax, Colo.; "What's on the Worker's Mind Today," by Whiting Williams, industrial relations consultant, Cleveland; "Federal Finance and Taxation," by Ellsworth C. Alvord, counsel, American Mining congress, Washington; and "Rewriting the Revenue Laws," by Morrison Shafroth, chief counsel, bureau of internal revenue, Washington.

SOUTHWESTERN FOUNDRYMEN PLAN REGIONAL CONFERENCE

St. Louis chapter of the American Foundrymen's association and Missouri School of Mines and Metallurgy, Rolla, Mo., are jointly sponsoring a regional foundry conference at the school, Oct. 8-9. The program provides for technical sessions Friday morning and afternoon and Saturday morning; a luncheon Friday noon and dinner and entertainment in the evening.

Subjects will be sands, refractories, metallography, nonferrous, gray irons and alloys, and steel foundry. Nineteen papers will be presented.

NAMED TO PRESENT A.F.A. EXCHANGE PAPER IN 1938

Dr. James T. MacKenzie, chief metallurgist, American Cast Iron Pipe Co., Birmingham, Ala., has been selected by the American Foundrymen's association to present the association's official exchange paper before the 1938 meeting of the Institute of British Foundrymen. The paper will review chemical changes of cast iron in cupola melting, a subject on which he is an authority.

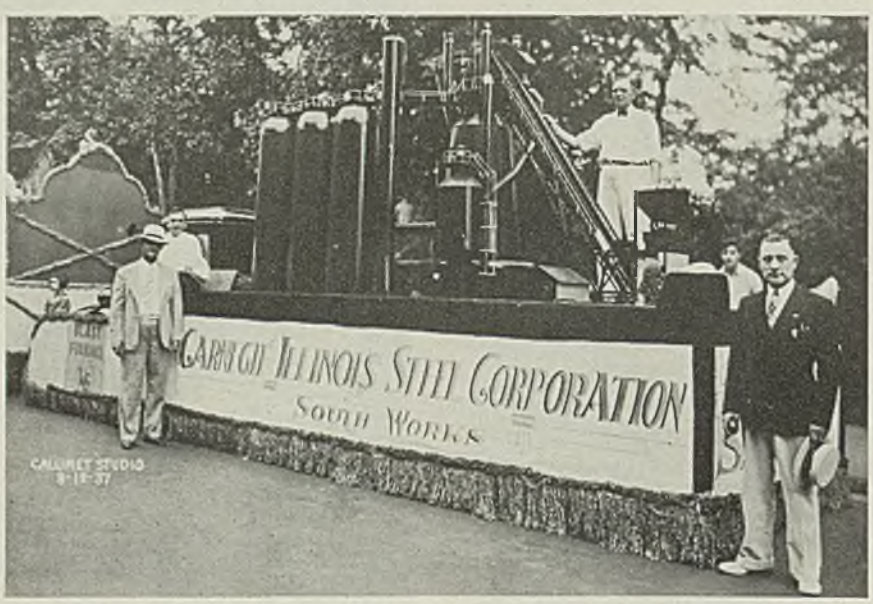
At its convention last May, American Foundrymen's association awarded Dr. MacKenzie the J. H. Whiting gold medal for important and practical work in the advancement of gray iron foundry practice.

The paper of Dr. MacKenzie will be one of a series instituted in 1920 to promote exchange of foundry knowledge between members of various national associations of America and Europe. Some 300 papers have so far resulted from this.

HARDWARE GROUPS TO HOLD 1938 MEETING IN PITTSBURGH

The next triple convention of the American Supply and Machinery Manufacturers' association, National Supply and Machinery Distributors' association and Southern Supply and Machinery Distributors' association will be held in Pittsburgh in May, 1938.

Stirring Public Interest in Iron, Steel Industry



When Illiana drive, connecting Chicago with cities in Indiana, was opened recently, Carnegie-Illinois Steel Corp.'s South Works was represented in the celebration with this float, carrying a model of a blast furnace

Activities of Steel Users and Makers

BLAW-KNOX CO., Pittsburgh, has purchased the assets and business of R. M. Gordon & Co., manufacturers of grease lubricating systems for the steel industry. The activities of this Gordon Lubricator division will be expanded into additional fields.

♦ ♦ ♦

Continental Machine Specialties Co., Minneapolis, has moved its sales and sales promotion office to Chicago. L. A. Wilke, president, is in charge with headquarters at 631 West Washington street, Chicago.

♦ ♦ ♦

Hammond Machinery Builders Inc., Kalamazoo, Mich., has appointed the B. & H. Sales Co., St. Louis, as its representative in St. Louis for the sale of grinders to the foundry and other metalworking trades.

♦ ♦ ♦

American Engineering Co., Philadelphia, manufacturer of Taylor stokers and Lo-Hed hoists, has appointed Sabin Engineering Co., Cleveland, as its representative in that territory for the sale of Lo-Hed hoists.

♦ ♦ ♦

Standard Steel & Rail Co., dealer in iron and steel scrap, and new relaying rails, has opened an office at 614 Grant building, Pittsburgh. S. W. Platt, for many years active in Pittsburgh scrap circles, is district manager.

♦ ♦ ♦

Republic Steel Corp., Cleveland, has appointed the following new distributors for its tubular products: Bluefield Supply Co., Bluefield, W. Va.; Ormand Plumbing Supply Co., San Antonio, Tex.; J. Gaber Co., Houston, Tex.; Morgan's Inc., Savannah, Ga.

♦ ♦ ♦

Union Mfg. Co., New Britain, Conn., has appointed Higgins & Linde Inc. as its representative in the Chicago territory. The latter will carry a stock of chucks and face plate jaws, hand chain hoists and trolleys at its new headquarters, 564 West Randolph street, Chicago.

♦ ♦ ♦

Apex Electrical Mfg. Co., Cleveland, has purchased the Zephyr air conditioning division of Savage Arms Corp., and will specialize in the field of home air conditioning. Machinery will be moved from Utica, N. Y., to Cleveland and will be set up in the Apex company's plant.

♦ ♦ ♦

General Electric Co., Schenectady, N. Y., has established a laboratory at its Schenectady plant, where experiments will be concentrated for the development of electric heat treating equipment. An important service of this unit will be to demonstrate developments in electric heat treatment.

♦ ♦ ♦

Lincoln Electric Co., Cleveland, manufacturer of arc welding equipment, has established a new sales-engineering office at 400 North street, Bluefield, W. Va. William H. Schuster, for the past year assistant welding instructor in the Lincoln welding school at Cleveland, will be in charge of the new office.

♦ ♦ ♦

Thomas Truck & Caster Co., recently organized, has started manufacturing in a plant at Commercial and K streets, Keokuk, Iowa. The company has acquired the Jak-Tung line of trucks, formerly made by Link-Belt Co., and also will build a complete line of floor trucks. J. Faulkner Thomas is general manager.

♦ ♦ ♦

National Bearing Metals Corp., Pittsburgh, has opened a new bronze foundry in the Clearing district, Chicago. Equipped to manufacture mill bearings, bushings, sticks and types of miscellaneous bronze castings, the new plant, known as the Clearing division, is under the direction of William E. Cartwright, vice president. William W. Murray has been appointed manager, and sales are in charge of H. A. White, sales manager, Pittsburgh district.

♦ ♦ ♦

Pittsburgh Tool-Knife & Mfg. Co., Pittsburgh, has moved into its newly equipped plant at 75-81 Sycamore street, Pittsburgh. A new office building has been erected adjoining, and the main two-story plant is entirely devoted to the production of metal cutting saws, rivet sets, paper knives, chisel blanks and inserted tooth saws.

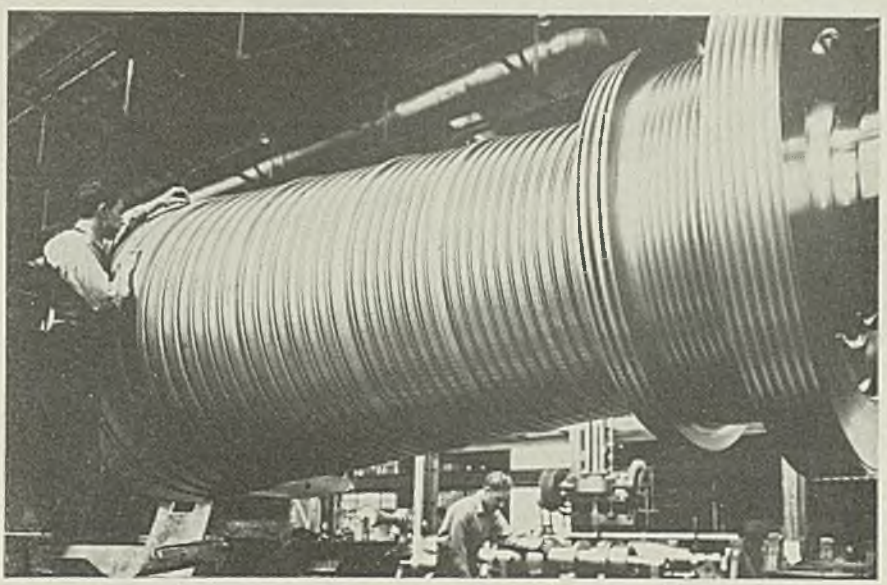
♦ ♦ ♦

McKay Co., Pittsburgh, manufacturer of tire and industrial chains and metal furniture, has established a new division for making shielded-arc welding electrodes. A new plant has been built, equipped and put into production at York, Pa. L. E. Faulkner is chief chemist at this plant. M. J. Van Dreser is sales engineer in charge of electrode sales and service staff, and T. J. McKay Jr. is in charge of sales promotion.

♦ ♦ ♦

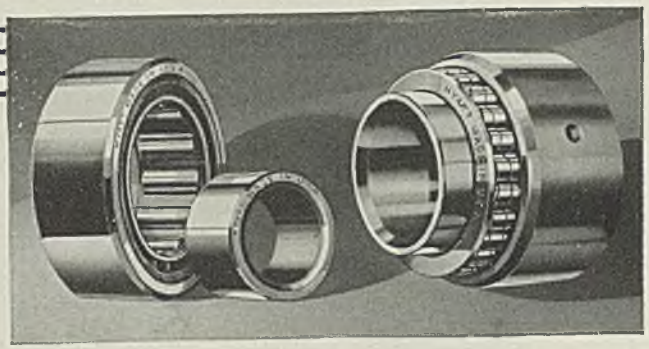
Texas Steel Co., Fort Worth, Tex., is extending its foundry building and adding machine tools in the oil well supply department, partially to replace obsolescence and partially to increase output. The total building program for 1937-38 probably will be approximately $250,000, two-thirds for replacements and one-third expansion.

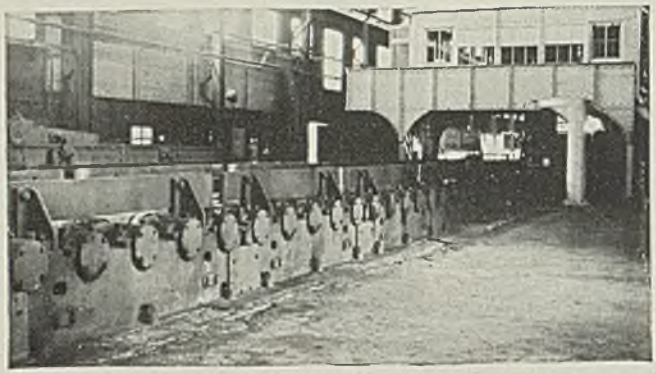
Huge Rotor Made From 293,000-Pound Ingot

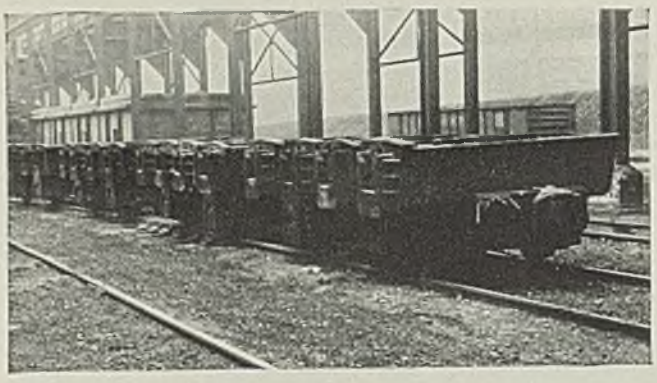


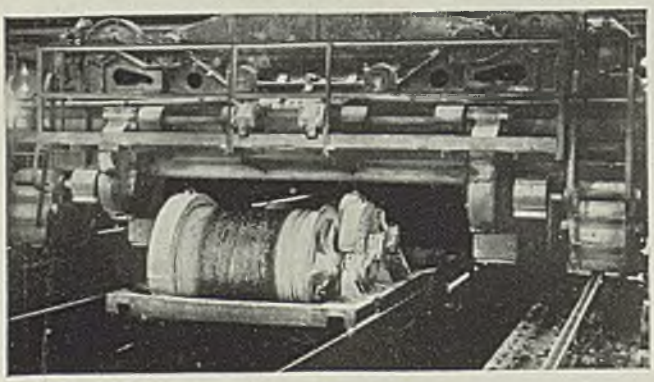
A GIANT hub of solid forged steel, over 20 feet long and about 5½ feet in diameter is this turbine rotor being built for the Quindaro power station, Kansas City, Mo., at Westinghouse Electric & Mfg. Co.'s South Philadelphia works. The forging, made by Bethlehem Steel Co., required a 92-inch ingot weighing 293,000 pounds. Rough machined the rotor weighed 109,000 pounds; and now ready for blading, 100,000 pounds. Thousands of blades will be inserted in circumferential grooves cut into its surface, to spin the rotor at 1800 revolutions per minute. It is the heaviest single piece turbine rotor yet made by Westinghouse

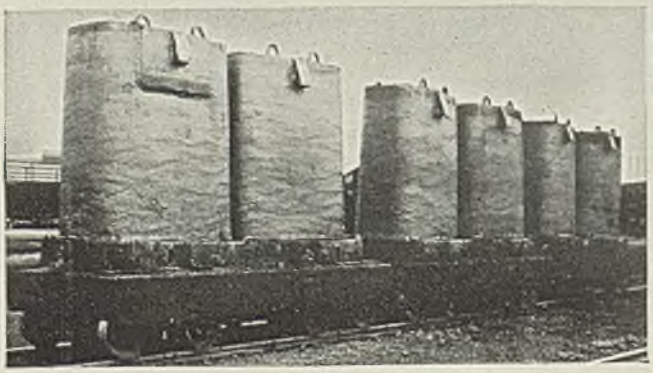
HYATT *Roller Bearings*











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● No matter what new equipment you may be contemplating or what changeovers you may have under way, Hyatt Roller Bearings are available—also the services of our engineers. Hyatt Bearings Division, General Motors Corporation, Newark, Detroit, San Francisco. Hyatt Roller Bearing Sales Company, Chicago and Pittsburgh.

MIRRORS OF MOTORDOM

DETROIT

APPARENT incongruity in the current automotive scene is the rush of business flooding local tool and die shops. Because changes in new models are minor in character, and because car builders were assumed to be about tooled up for 1938 production, it is strange to find the die interests working day and night to keep up with the influx of new business. One old-line shop reports more boring work now on the floor than ever has been experienced before. Another large die shop recently booked an automotive die order amounting to several hundred thousand dollars.

Several explanations are possible. One is that automobile plants are tooled up only for standard models, and now are rounding out their lines and ordering dies for other models such as special coupes, convertibles and the like.

A second version might be that in anticipation of more labor troubles locally this fall car builders are rushing through duplicate tools and dies for plants outside the Detroit area, with the hope that by spreading production around the country it may be possible to circumvent disturbances here.

May Plan Early Shift Next Year

A third suggestion is that certain units of the industry may be planning on starting off on 1938 models which are practically continuations of the 1937 line, and then making an early shift to revised designs next year. This hardly seems probable in view of the expense involved and the confusion to the merchandising end of the business. But a surprise move by one producer in this direction might persuade others to do the same.

A fair share of work in local die shops is for shipment outside Detroit, and some of this business is for accounts other than automotive —such as refrigerators. Reports are heard of a new type electric refrigerator developed in Cleveland,

BY A. H. ALLEN
Detroit Editor, STEEL

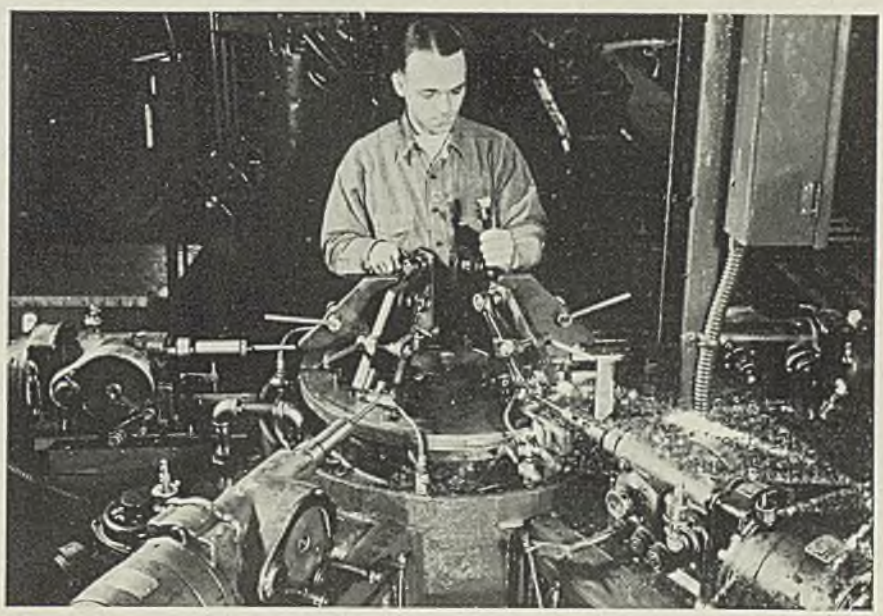
promoters of which have been canvassing die shops here for figures on the job. Local shops have considerable experience on sheet metal dies for refrigerators, and are consulted as authorities on this work.

LOOK for some interesting battles on the sales fronts next year among builders of cars priced above the level of the volume producers. One three-cornered fight will be waged by Packard, Cadillac- La Salle and Lincoln Zephyr; all three have been greatly pepped up over sales records achieved this year, and accordingly have set goals for next year approximately 25 per cent higher. The Zephyr probably will present the most marked change in appearance, with a completely new front end and other innovations not so readily apparent.

Among the independents, Nash, Studebaker, Graham, Hudson and Hupmobile will vie for buyers' favors. Of these five, Graham and Hupmobile are in the weakest position but are hopeful of a good break on new models.

The new Hupp presents nothing radical as far as appearance goes. Headlamps are streamlined into the hood contour, three parallel strips of bright metal extending from the front of the lamp to the rear edge of the hood. Grilles are made up of 23 horizontal strips of bright

"Drilling for Oil"



DRILLING oil holes in four connecting rods simultaneously, this special type of cam-feed drill is operated in the Plymouth plant in Detroit. Cycle is fully automatic; after loading the four fixtures, the operator trips the drills with a pedal, they move ahead the proper distance and return to the starting position. The machine was designed and built by engineers in the plant

MIRRORS OF MOTORDOM

metal extending back from the center strip, graded in length, so that, viewed from the side, the grille narrows down at the bottom. Profile of the grille is slightly curved. A strip of molding extends from the front of the hood straight back across the hood and doors to the rear deck. Fenders have deep skirts, contour of front and rear fenders being similar. Wheels are pressed steel, with large dished chrome-plated hubcaps. A divided windshield is used, and front windows incorporate a ventilating system.

Considerable excitement surrounds the imminent unveiling of the new Graham, original design of which was worked out by the late Amos Northrup who created this year's Willys. Headlamps are worked into a supplementary streamline panel which sweeps back from the front, between hood and fenders, partially across the side of the body. The top of the grille juts forward as in this year's Chrysler Royal line, creating the impression of forward motion of the car.

Studebaker is featuring smoothed-up exterior lines, a new type of frame with curved side members, a grille similar to the 1937 Pontiac, no hood louvres, and the Evans vacuum-powered gearshift as optional equipment. The latter comprises a short shift lever attached to the dash which is operated in the conventional manner, clearing the front floorboards of all obstructions. Minor improvements have been made in the six and eight powerplants, and the transmission has been turned over on its side to eliminate any hump in the floorboard.

Hudson is reported to have developed designs for 1938 which will insure a greater distinction between the Hudson and Terraplane lines.

WITH working forces now being recruited preparatory to resumption of full-steam production, serious thought again is being given to the labor situation, and developments of recent weeks are being weighed and interpreted for their effect on assemblies this fall.

The annual convention of the United Automobile Workers in Milwaukee was characterized by fist fights, name calling and general uproar. Little was accomplished which would lead the observer to believe the UAW is taking itself more seriously. Homer Martin, president, surrounded himself with bodyguards in the last stages of the convention and was able to muster enough votes to sustain his direction and policies for the next two years.

On this score, manufacturers are breathing more easily, for Martin is considered to be at least a little inclined to disavow "wildcat" strikes and other rash acts, and to be willing to acknowledge the necessity for some semblance of responsibility.

However, his first statement after the convention was to the effect the UAW would at once proceed to demand a 100 per cent closed shop from General Motors Corp. If the corporation should accede to this, and it is not at all likely to do so, the next step would be the checkoff system of dues collection.

During its convention, the UAW was reported to have acted favorably on a proposal to appropriate $400,000 for a campaign to unionize Ford workers. The drive probably will take the form of increased distribution of literature to workers, house-to-house canvassing by organizers, and concentrated attempts to bore from within the Rouge plant. The latter probably will be followed up by the usual filing of complaints with the national labor relations board. UAW members are being taxed with a special assessment to finance the Ford drive.

Decision of the labor board in the case of the UAW against Ford, concluded here several weeks ago, will not be handed down by John T. Lindsay, examiner who handled the case. Lindsay has reported to the board which is now studying the findings preparatory to releasing its decision, and probably several weeks more will elapse before it is announced. Postponement of the decision will delay the UAW drive against Ford possibly until the first of the year.

The NLRB could make any one of three decisions—sustain the charges, modify them, or dismiss them altogether. In view of past actions, it is almost a certainty the complaint will be sustained. Ford then probably will challenge the board's power, and the case will be sent into federal courts.

Charges UAW with Son's Suicide

Suit against the UAW, asking damages of $85,000, was entered at circuit court here last week by Jesse Briggs who claimed that his son, Robert Briggs, an employe of Bohn Aluminum & Brass Corp., was driven to suicide as a result of intimidation by UAW members in the plant during a 10-day sitdown strike last January. The father charged repeated threats of bodily harm to his son, who was forced against his will to remain in the plant during the strike, led to a mental breakdown which culminated in suicide.

Another CIO affiliate, the Gas and By-Product Coke Workers union, has been giving city officials here the jitters with threats to call a strike of employes of the Detroit City Gas Co. While the union controls only a minority of workers, its leaders have been making bold claims of trying to shut off the gas supply if their demands are not met.

The Mechanics Educational Society of America, an organization which two years ago brought the first union scare to Detroit, has been active lately in handcuffing production at the Detroit Gasket & Mfg. Co. Calling a sitdown strike about two weeks ago, the union stationed 40 men in the plant which normally employs about 1200. A court order evicting the sitdowners was obeyed, but pickets continued to mill around the plant. Last Monday, a group of nonunion workers attempted to return to their jobs, and a fight with pickets ensued, a score being injured. Later production was resumed under police protection.

Automobile Production

Passenger Cars and Trucks—United States and Canada
By Department of Commerce

	1935	1936	1937
Jan.	300,335	377,244	399,634
Feb.	350,346	300,810	383,698
March	447,894	438,943	519,177
April	477,059	527,625	553,415
May	381,809	480,518	540,357
June	372,085	469,368	521,139
July	345,297	451,206	456,775
7 mos.	2,674,825	3,045,714	3,374,195
Aug.	245,075	275,934	.....
Sept.	92,728	139,820	.....
Oct.	280,316	230,049	.....
Nov.	408,550	405,799	.....
Dec.	418,317	518,958	.....
Year	4,119,811	4,616,274	.....

Estimated by *Ward's Automotive Reports*

Week ended:	
Aug. 7	78,736
Aug. 14	103,250
Aug. 21	93,339
Aug. 28	83,310
Sept. 4	64,200

	Week-ending Sept. 4	Aug. 28
General Motors	26,600	29,100
Ford	26,000	26,000
Chrysler	5,800	23,950
All others	5,800	4,260

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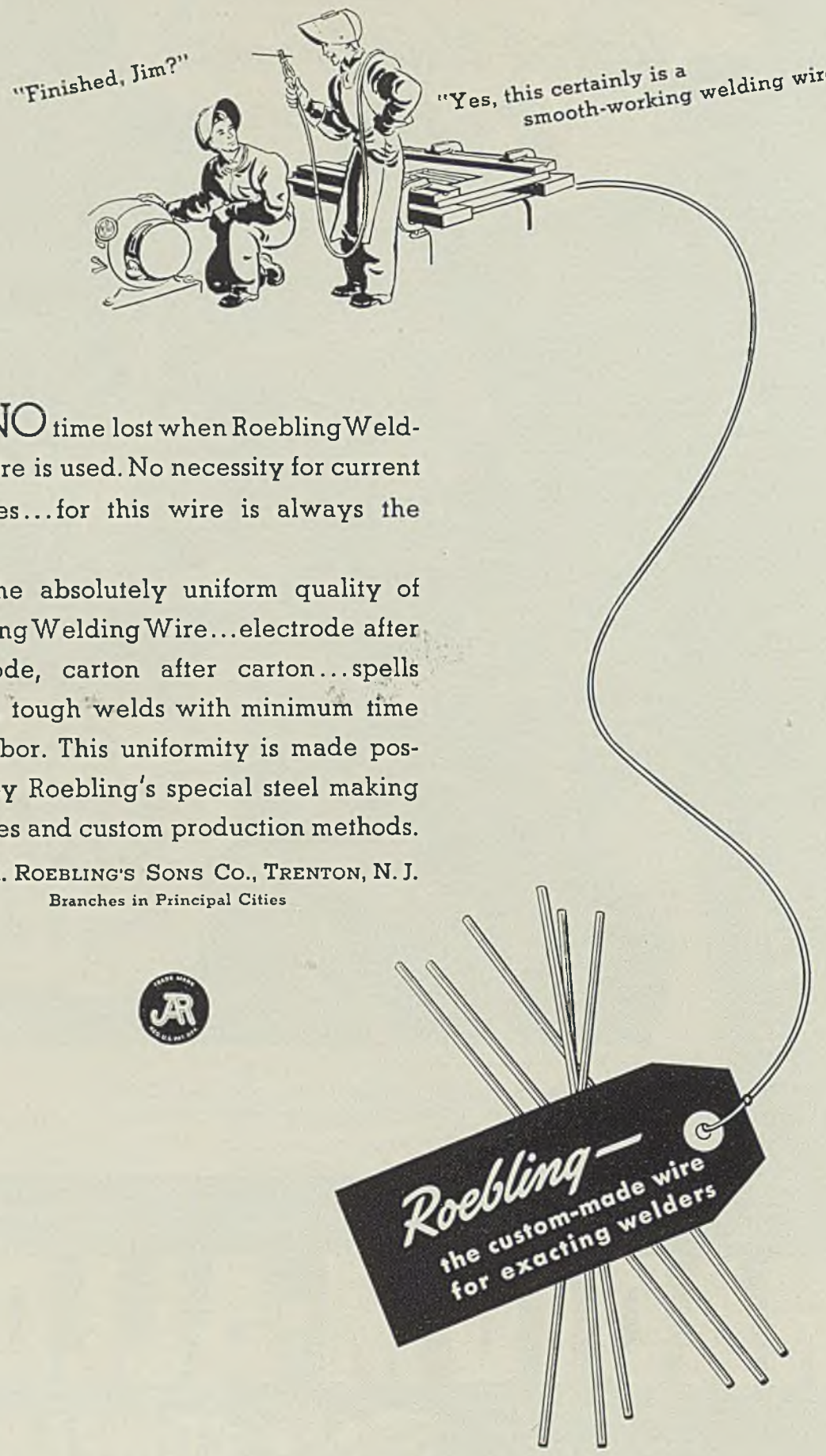
VANADIUM-ALLOYS STEEL COMPANY

LATROBE, PA.



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WINDOWS OF WASHINGTON

BY L. M. LAMM
Washington Editor, STEEL

WASHINGTON

PRELIMINARY work on federal tax law revision will be started by a special subcommittee of the house ways and means committee within the next several weeks. The survey, which will be presented to congress when that body reconvenes, will be carried on coincidentally with the study by treasury experts, who have been at work for several months.

Chairman of the special committee is Representative Vinson of Kentucky. Other members are: Democrats, McCormack of Massachusetts, Cooper of Tennessee, Disney of Oklahoma, Buck of California, Duncan of Missouri; Republican, Treadway of Massachusetts, ranking minority party member of the committee, and Crowther and Reed of New York.

Congress has evidenced its intention to give the tax laws a thorough overhauling at the next session and Vinson is getting an early start so that, if an extra session is called, his committee will be ready or nearly ready to present its recommendations to the house.

Special authorization to hold hearings during the recess was granted the committee. None has been scheduled yet but it is probable they will be after some of the pending material has been digested by the subcommittee.

Aim at Flexible Tax Plan

Special attention will be directed to effects of the undistributed corporate earnings tax, the capital gains and losses taxes and some of the so-called nuisance levies, according to committee officials. However, all other federal tax provisions also are expected to be scrutinized.

Meantime, treasury department experts apparently are making good progress with their investigations. At the time they were working with the ways and means committee during the session just ended, trying to plug loopholes, the committee was informed the treasury recommendations would be ready for the January session. In view of the possibility of an earlier session, it is reported the department is hurrying the survey.

Some kind of business taxes which will be sufficiently flexible, not unduly burdensome during depressions but at a maximum during good business periods, reputedly is the aim of the treasury men. A pretty tough job—but the experts say they can do it. Treasury work is being supervised by Undersecretary Roswell Magill.

CLAIM IMPORT-EXPORT BANK FAILS IN ORIGINAL PURPOSE

Considerable dissatisfaction with the present working of the government-owned import-export bank, organized to help foreign commerce, may be heard from some government officials interested in foreign trade. They hint the bank is doing many things, but few to help foreign commerce.

George N. Peek, manufacturer, for many years known as a close friend of the President, headed the bank for several years. He was succeeded by Warren Lee Pierson, about whom one seldom hears, as whenever the bank is mentioned it is associated with Jesse H. Jones, RFC head. The latter has some kind of supervisory association with it, although just what no one seems to know.

The bank was organized by an executive order of the President in February, 1934, to aid "in financing and to facilitate exports and imports and the exchange of commodities between the United States and any of its territories and insular possessions and any foreign country or the agencies or nationals of it."

Present complaint is that, according to such figures as are available, it is lending money for many purposes, all according to law, of course, but only a minute amount of which is for helping foreign trade. Recently the bank loaned money for manufacturing American locomotives for China. As this is written the deal still is on, although it certainly is going to be difficult to make delivery. One bank official became indignant when asked if the deal still would go through and called attention to the fact American manufacturers would be left holding the bag if it did not.

Capital stock is fixed at $21,000,000. The common capital stock of $1,000,000 is held for the United States government by the secretary of state, the secretary of commerce and the individual members of the board of trustees. Preferred stock of $20,000,000 is owned by the RFC which may explain why Jesse Jones has so much to say about the bank and its doings. Be that as it may, foreign trade-minded officials insist the bank is not living up to its original purposes.

TOTAL FOREIGN TRADE UP; HULL PRAISED FOR POLICY

State department officials have announced United States total foreign trade for the first half this year was 38.8 per cent greater than for the corresponding period last year Naturally they claim this results from the trade agreement policy of Secretary Hull. Of course, this is disputed for many reasons and by many sources.

They claim: Trade with "trade agreement countries" rose 37.2 per cent, exports 41 per cent and imports 34 per cent; exports to "no agreement countries" rose 28.6 per cent while general imports, reflecting increases in imports of raw materials, such as tin, rubber, etc., jumped 52.1 per cent.

Congress gave President Roosevelt three more years, or until June 12, 1940, in which to continue the trade agreements.

Some government officials, who for obvious reasons refuse to be quoted, believe the world's chief hope for peace lies in elimination of

trade barriers. This has been Hull's policy ever since his appointment. Without reference to existing conditions, these same officials claim restrictions on free commercial intercourse among the nations have prompted the unsettled conditions of the past several years.

INCREASED DEMAND FOR DOCUMENTS PLEASES ROPER

Increased interest in the commerce department's activities is reflected in sales of the department's documents, said Secretary Roper at a press conference last week. This pleases him.

Sales of such documents last year totaled $550,000. One of the "best sellers" was entitled "Stories of American Industry" and included a story on the steel industry. All were broadcast throughout the country. These are being sold at a rate of 1000 a week.

Mr. Roper also cited increased applications for patents as evidence of business recuperation. Filed in the first six months this year were 33,423, an increase of 4.6 per cent over the same period in 1936.

BRITISH DEMAND FOR SCRAP IRON, STEEL STILL HIGH

Despite the large quantities of scrap iron and steel imported by Great Britain from the United States, demand there has not been satisfied. American Consul Carlson, London, reported to the commerce department that demand for scrap recently prompted the British Iron and Steel Federation and the National Federation of Scrap Merchants to launch a national drive for collection of scrap for British manufacturers. He said the campaign is designed to gather old iron and waste from factories and houses throughout the United Kingdom.

The active demand is caused largely by Britain's rearmament program. Diversion of supplies to other countries has complicated further the situation.

KNOWS DEFINITELY GRADY WILL RESIGN

With the forthcoming resignation of Edward F. McGrady, assistant secretary of labor, there will pass out of Washington life one of its most picturesque figures. No one probably will ever know just how much trouble shooting he has done for the present administration.

That McGrady will resign is now definitely known. He will become chief of the labor relations department of the Radio Corp. of America. The story is that this connection was negotiated through his good friend General Hugh S. Johnson, with whom he was so closely associated during the old NRA days.

McGrady, in his position as assistant secretary, has been a bulwark of strength to the administration during its many labor troubles and he was always to be found in the forefront of the fight. It was reported on numerous occasions that he would resign to accept a more lucrative position, but each time there was one of those inside stories to the effect that he had been promised the position of secretary of labor. This latter idea, it is believed, would have carried if the President's government reorganization plan had worked out—but it didn't. There was a set-up for a welfare department and it was said Miss Perkins would head that department.

As pointed out in this column several times the President is rather on the spot as regards Miss Perkins. She is a friend of long standing of the President and Mrs. Roosevelt.

McGrady has made many friends in Washington. He has always promised his friends among the Washington newspaper "boys" that when he came to resign he would make it public to them first. Imagine his chagrin then when he woke up one morning a few days ago to see that the "story" had broken in New York—and not of his own doing either. In fact, at the time the story was printed he had not tendered his resignation to the President.

McGrady was born in Jersey City, N. J. in 1872. He was educated in the public schools and high schools of that city, later taking a business course in the English high school in Boston. He began work as a newspaper pressman. At present his only club is the National Press club, Washington.

NLRB AND FEDERAL COURT IN OPPOSING DECISIONS

One of the most bewildering labor situations in the nation, the case of the National Electric Products Co. at Ambridge, Pa., appeared headed toward the high courts last week, after the company found itself jammed tightly between a national labor relations board order and a federal court decision.

The labor board here last week declared invalid the company's closed shop with an A. F. of L. union, and ordered an election within 15 days to determine the proper bargaining agency for its 1800 workers.

Previously, the United States district court in Pittsburgh held the contract was valid and ordered its enforcement.

The company would be in contempt of federal court by obeying the labor board, and it would be defying the labor board and the Wagner act by obeying the district court.

Following validation of the Wagner act by the Supreme Court, the company's employe representative plan was dissolved. The federation affiliate proved to the company that it had obtained a majority of the workers as members and thereupon obtained a signed contract as the exclusive bargaining agent.

The majority claim was disputed by the CIO, which had not applied formally for recognition as a bargaining agent. The CIO filed charges before the labor board, alleging collusion between the federation union and the company. The federation then took the contract to court where its contract was upheld.

In the latter part of May the company closed its plant for several weeks due to the controversy. On June 20 the CIO removed its pickets and the plant was reopened on agreement of the company to permit everyone back to work regardless of union affiliation.

The labor board hearings began Aug. 2 and ended Aug. 7.

Counsel for the company announced that an appeal would be filed from the federal court ruling. Only the company or the labor board could carry the case to a higher court, since the federation union was not a party to the labor board's case.

VOLUNTARY CENSUS PLAN APPROVED BY PRESIDENT

The President last week signed the Byrnes bill providing for voluntary registration of the unemployed, making no formal comment. Long hostile to such a census, his attitude was tempered to one of indifference in the face of strong backing for the plan at the recent session of congress. He had bigger and much hotter irons in the fire. But he remained flatly opposed to a door-to-door census.

The bill is designed to ascertain the number of jobless, possibly keeping this information current at intervals, and will cover collection of data on partial employment and job opportunities.

Administering agency will be composed of the secretaries of commerce and labor, the works progress administrator, the director of the census bureau and the head of the central statistical board. Registration is to be completed by April 1.

MARKET RESEARCH HANDBOOK LISTING DEADLINE SEPT. 20

Last call to organizations engaged in domestic marketing research who wish to be listed in the commerce department's "Market Research Sources, 1938" has been announced by the marketing research division of the department of commerce.

To give additional opportunity to all eligible research bodies who have not yet supplied data suitable for inclusion, the time limit for listings has been extended to Sept. 20.

Editorial

Anticipating Buying Habits Is Spur To Merchandising

PROGRESSIVE improvements in the quality of steels in recent years have brought significant changes in merchandising and at the same time have created new problems to harass both buyer and seller.

To metallurgists must go the lion's share of credit for improvement in steel quality. They have recognized that performance characteristics of a heat of steel are not governed by analysis alone, but to an important degree by such control factors as pouring temperature, rolling temperature, inclusion rating, grain size and some other factors. Two heats with identical chemical analysis may show forging qualities, for example, far removed from each other.

For this reason, it has been the practice of metallurgical departments of most large steel producers to ascertain the ultimate use and treatment of every pound of steel booked by the sales department. At first, buyers, when asked what they intended to do with a certain lot of steel which they had ordered, were inclined to reply, "None of your business. Just send us that tonnage of S.A.E. 1020 and never mind what we are going to do with it."

Seller Had Problem in Diplomacy Toward Buyer; Steel Now Closely Fitted to Fabricator's Needs

In a situation of this sort, the salesman had to develop special finesse to placate both his customer and his metallurgists. He had to explain to buyers that his only reason for seeking to know the disposition of the steel was to insure furnishing the best quality material for that purpose, that he was not trying to ferret out secrets of his customer's trade, and that he was being impelled by the purest of altruistic motives. Did the customer propose to bend, twist, hammer, machine and grind the steel, or did he plan only to give it a few taps with a Bradley hammer? The answer made considerable difference, if the customer demanded a steel which would be guaranteed free from defects after fabrication.

Gradually, steel buyers became educated to the importance of going beyond mere specifications on analysis when ordering steel. Today very little steel is ordered solely on analysis.

Changed buyer concepts have meant changes in the price structure. For example, a few years ago, three grades of hot-rolled bars were available from steel producers—commercial quality bars, forging quality bars and "special requirement" bars—ranging upward in price in that order. Today, there are only two grades—standard, or what corresponds to the former forging quality and the special requirement classification. More exacting demands of users and improvements in steelmaking practice have spelled the end of commercial quality bars.

Apropos the subject of steel quality, the question has been asked: Are not some grades of steel *too* good for their intended use? This was the basis of a recent editorial in STEEL, and since its publication there has appeared further evidence bearing on the question.

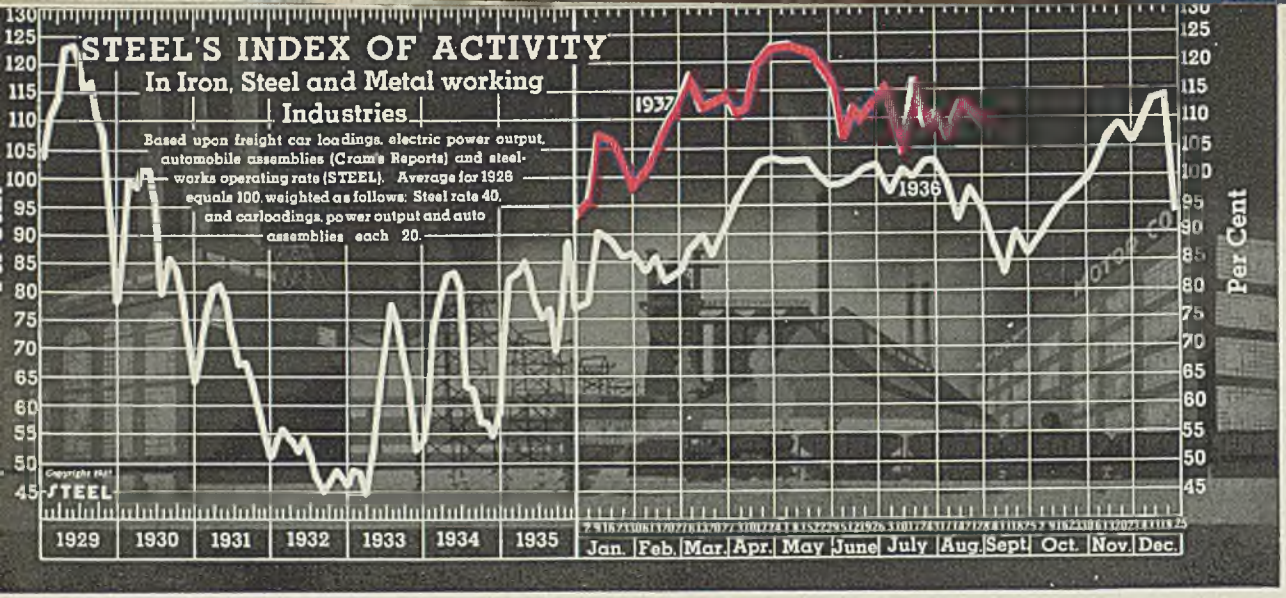
Consider a case which has occurred more than once in the cold-drawn steel field. A large user of cold-drawn bars railed against paying the premium for cold-drawn material which in his case amounted to about $20 per ton. He claimed, and rightly so, that he did not require the high surface finish and carefully processed material which a cold-finished steel mill offered, but yet did need a cold-drawn steel for his product, which happened to be nuts and bolts. In other words, he wanted a steel which would machine easily, but a flawless surface finish and precision size were not essential.

Sellers Must Be Alert to Anticipate Consumer Requirements; Constant Change in Steel Styles

He solved the problem by buying hot-rolled bars at the base price and sending them to an outside source for pickling, drawing and straightening, at a considerable saving over what he would have paid for cold-drawn bars. At present, this practice is not confined to this single user. A fair business has sprung up in various sections of the country in taking steel on consignment from customers for cold drawing. Companies doing this work cannot be considered suppliers of cold-drawn steel, since all they charge for is the service involved in handling the material, processing it and shipping to the customer, who buys the hot-rolled bars from the mills.

A somewhat similar situation was created when certain buyers of narrow strip steel discovered that they could install slitters, purchase wide strip and slit it to the desired widths, thus avoiding certain extras.

Every change in buying habits of this kind affects part of the steel producing industry adversely at the same time that it favors another branch. It is a constant reminder that no established market is absolutely secure and that constant vigilance is necessary on the part of sellers to anticipate the buyers' requirements.



STEEL'S index of activity declined 1.7 points to 108.6 in the week ending August 28:

Week ending	1937	1936	1935	1934	1933	1932	1931	1930
June 19	110.3	101.0	77.3	81.8	73.9	51.9	70.9	95.0
June 26	112.8	101.9	78.4	79.4	77.0	51.6	70.6	94.0
July 3	115.3	97.5	64.1	52.3	71.4	49.2	64.1	75.C
July 10	103.8	100.9	76.5	67.8	79.1	41.7	69.4	86.9
July 17	115.7	99.9	79.8	68.1	79.4	46.9	70.0	79.1
July 24	108.0	102.1	80.8	66.4	78.8	51.5	69.7	78.7
July 31	109.1	102.5	78.4	64.6	75.8	46.1	68.9	79.2
Aug. 7	107.3	98.7	73.4	64.6	74.7	45.1	67.0	85.6
Aug. 14	113.8	92.6	77.5	61.4	74.2	44.6	67.4	86.2
Aug. 21	110.3†	97.7	77.0	60.3	71.6	44.9	67.3	88.5
Aug. 28	108.6*	94.0	77.3	55.1	70.3	45.2	66.5	87.4

†Revised. *Preliminary.

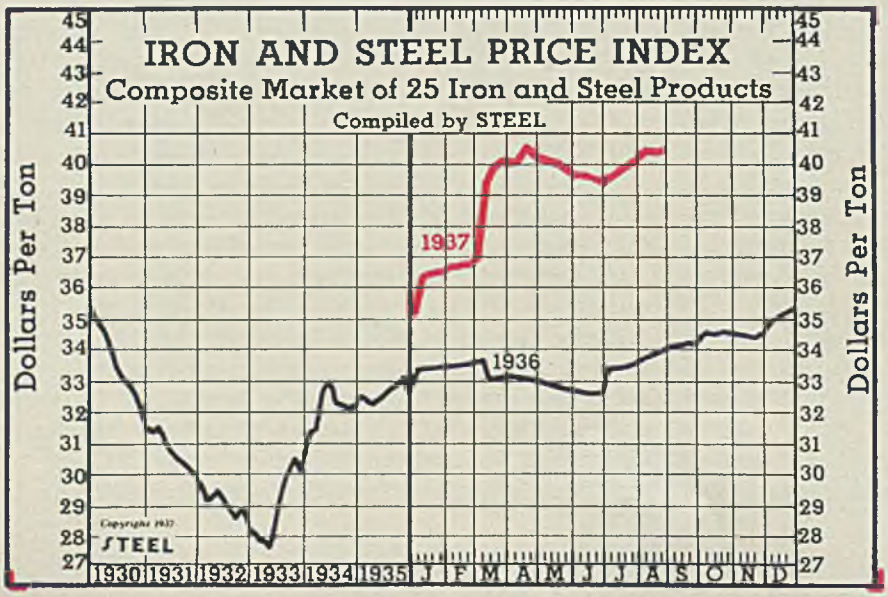
Index Dips in Anticipation Of Labor Day Interruption

REFLECTING additional shutdowns in the automobile industry for retooling and a slight easing generally throughout the metalworking industries in anticipation of the long Labor day weekend, STEEL'S index of activity for the week ending Aug. 28 receded moderately to 108.6 from 110.3 in the previous week. In recent years a slight slowing in the rate of activity has been recorded in one or two weeks immediately preceding the September holiday.

Automobile output declined from 93,339 to 83,310 and electric power output dropped moderately after having established new all-time records in each of the two preceding weeks.

The weight of these recessions more than offset gains in steelworks operations and freight traffic. The rate of steelmaking advanced from 81 to 83 per cent of capacity and revenue railroad freight car loadings were up by a narrow margin.

The Labor day interruption usually is reflected in the records of two calender weeks. Therefore STEEL'S index probably will be depressed in the weeks ending Sept. 4 and 11. The rebound in the first unaffected week following the holiday usually is a fair indicator of the extent of recovery in September and October from summer levels. Thus the index for the week ending Sept. 18 will have more than usual significance.

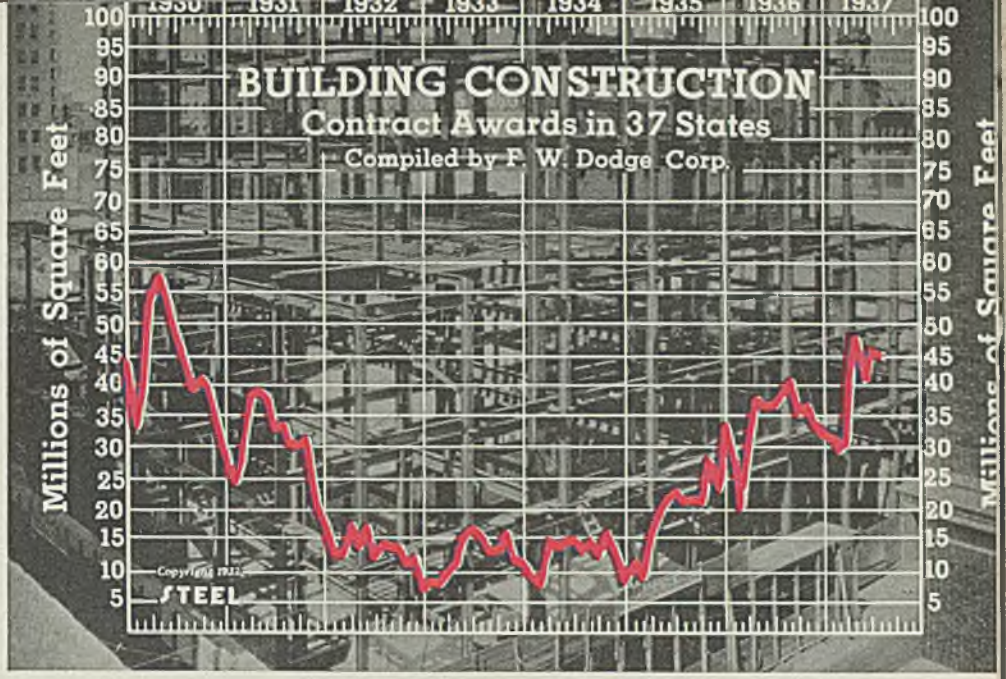


	1937	1936	1935
Aug. 28	$40.36	$34.03	$32.78
Aug. 21	40.36	33.94	32.72
Aug. 14	40.32	33.88	32.68
Aug. 7	40.32	33.82	32.64
July 31	40.27	33.72	32.59
July 24	40.11	33.51	32.55
July 17	40.04	33.49	32.42
July 10	39.89	33.48	32.40
July 3	39.83	33.48	32.39
June 26	39.78	32.79	32.39
June 19	39.80	32.77	32.40
June 12	39.84	32.77	32.41

BUSINESS TREND

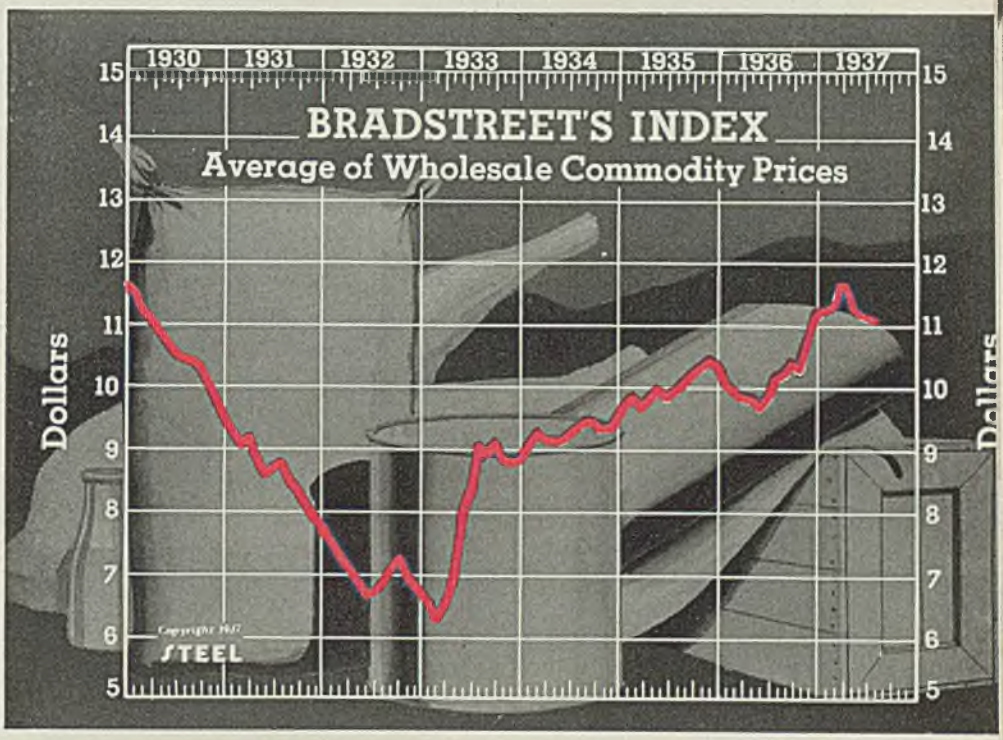
July Building Awards Register Slight Loss

	Square Feet		
	1937	1936	1935
Jan....	33,470,000	27,053,300	11,245,100
Feb....	29,942,100	20,856,700	9,670,300
Mar.	41,567,800	31,257,900	15,845,300
Apr....	48,396,100	37,490,200	19,917,300
May...	40,287,900	36,362,100	22,276,200
June .	46,393,100	36,883,900	22,878,000
July...	45,812,600	38,762,500	21,565,900
Aug.	.....	40,285,100	21,545,400
Sept...	.....	35,448,000	21,365,700
Oct...	.....	36,718,900	27,775,900
Nov..	.....	34,947,500	24,120,700
Dec..	.....	33,632,600	33,441,900



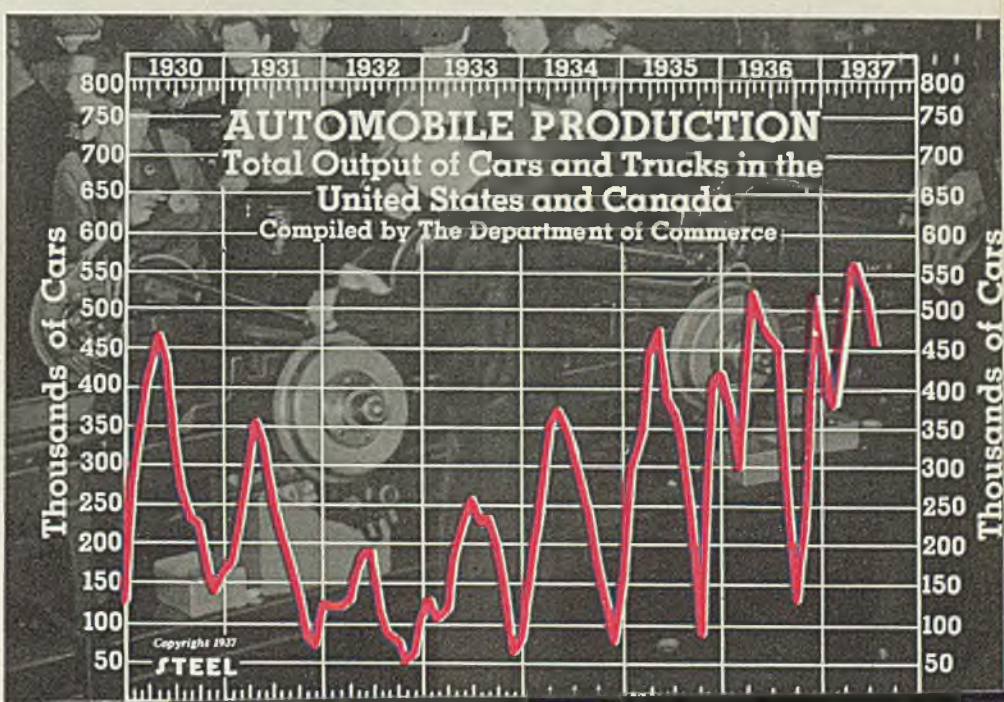
Commodity Price Index Shows Slight Loss on August 1

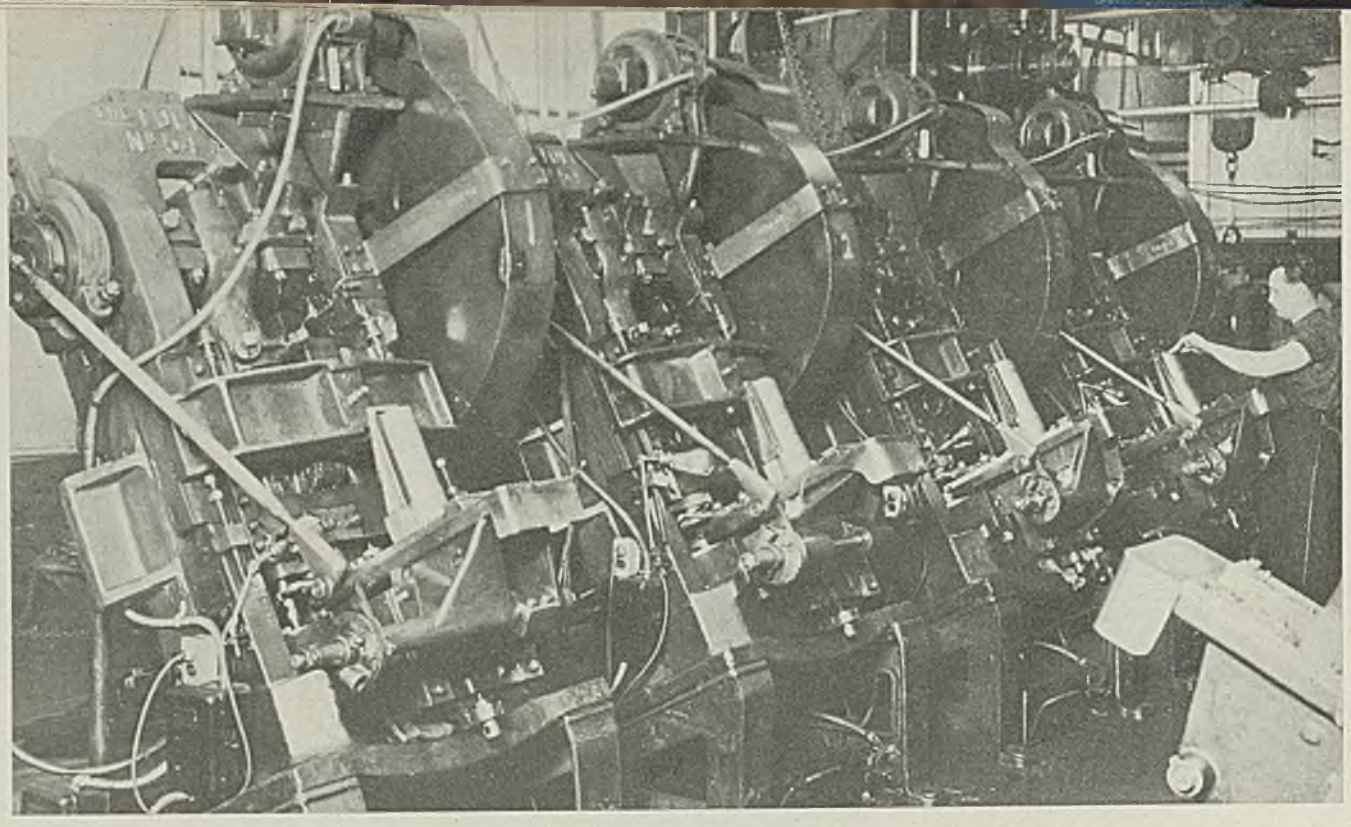
	1937	1936	1935	1934
Jan. 1.....	$11.13	$10.36	$9.49	$9.01
Feb. 1.....	11.23	10.02	9.78	9.26
Mar. 1.....	11.34	9.92	9.79	9.17
Apr. 1.....	11.81	9.85	9.66	9.16
May 1.....	11.51	9.81	9.79	9.14
June 1.....	11.33	9.73	9.90	9.24
July 1.....	11.27	9.85	9.84	9.32
Aug. 1.....	11.19	10.14	9.91	9.48
Sept. 1.....	....	10.19	10.00	9.45
Oct. 1.....	....	10.27	10.17	9.27
Nov. 1.....	....	10.22	10.28	9.29
Dec. 1.....	....	10.78	10.40	9.49



July Automobile Production Continues Downward Trend

	1937	1936
January	399,634	377,244
February	383,698	300,810
March	518,977	438,943
April	553,415	527,625
May	540,357	480,571
June	521,139	469,868
July	456,775	451,474
August	.....	275,951
September	.....	159,785
October	.....	229,989
November	.....	405,702
December	.....	519,132





THIS bank of presses, provided with automatic feed, repunches rotor laminations from plain blanks. A similar bank of presses stamps out the stator punchings

Manufacturing Small Motors

Mass production methods are applied to build small motors economically and profitably

BY FRED B. JACOBS

FRACTIONAL horsepower motors first were introduced about a half century ago for running electric fans. These crude motors designed for operation on direct current proved that the fractional horsepower motor had possibilities and since that time progress in their design and manufacture has been steady.

Some 30 years ago fractional horsepower motors were applied to such portable machine shop tools as grinders and drills. Later electrically driven household appliances gradually came on the market. This business has experienced a steady, healthy growth. From two to four of these small motors can be found in the average household today driving the washing machine, the ironer, the vacuum cleaner, the food mixer and other units, while small motors for operating oil burning and automatic stoking appliances for household heating are becoming common. Although not everyone realizes it, the craze for home workshops has also created a demand for small motors. Further, business equipment such as dictating, adding, cancelling, addressing and many other machines have influenced the sale of small motors. Dental lathes are electrically driven and so are numerous scientific instruments.

Thus an industry which had its inception in small beginnings about 50 years ago has grown by leaps and bounds so that today the manufacture of fractional horsepower motors represents big business. Competition in this line is very keen so that the successful manufacture of this product calls for intensive production schedules. In this article are illustrated and outlined a few important production operations followed in the manufacture of fractional horsepower motors at the Fort Wayne, Ind., works of the General Electric Co., a pioneer manufacturer in this line.

In this article the discussion is limited to motors designed for the domestic stoker field, the largest requirement for which is the 60-cycle, single-phase, fractional horsepower motor while odd frequency, polyphase, and direct current motors are used in the same field. This is true since most domestic stokers are operated from lighting circuits. Various types of single-phase induction motors now are

being used, all of the induction type. These are of the high torque capacitor type, the repulsion start type and, on some anthracite stokers, the split phase type.

The capacitor motor is made up of a wound stator, a capacitor unit, squirrel cage rotor, end shields and base. The stator has two windings, a running and a starting winding. The capacitor unit is mounted on the stator and is connected at the factory in series with the starting winding. The starting winding circuit of the capacitor start type is opened by a simple centrifugally operated switch while it is coming up to speed.

Making the Stator Core

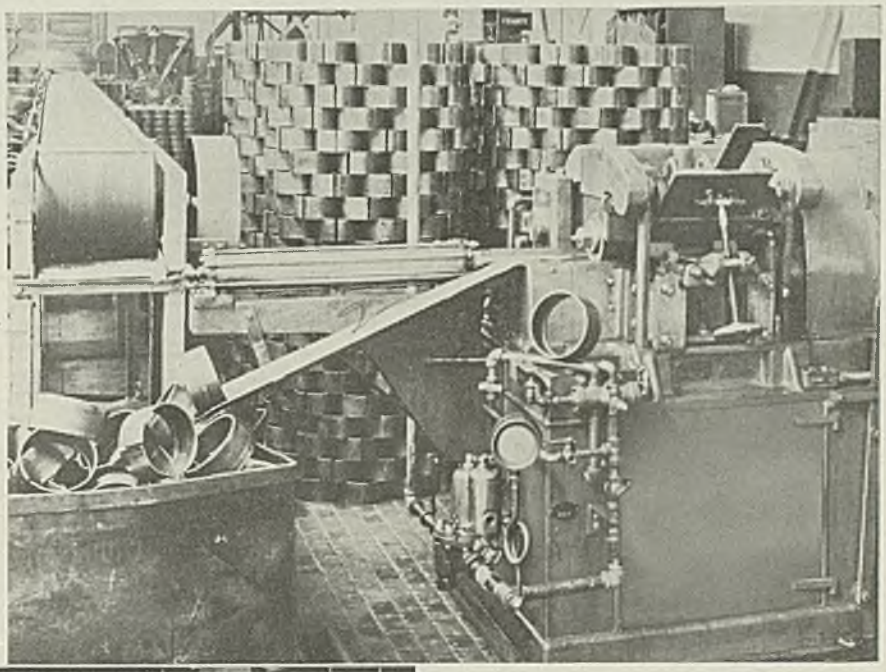
The stator windings produce a rotating magnetic field similar to that of a 2-phase motor. These windings are laid in insulated slots on a stator core made up of high grade, silicon steel laminations held in a fabricated steel frame or shell. The laminations are punched from flat sheets and then subjected to a repunching operation. Blanks are stacked in a pile in a special fixture from whence they are fed automatically under the dies. The presses are inclinable to facilitate disposing of the punchings as they come from the dies from which they are carried on a blast of air onto the conveyor belt at the back of the battery of punches.

An ingenious method is followed in making the shell which houses the stator laminations. This shell is formed from flat stock. First the stock is put through a series of six rollers on a special forming machine. The stock, ⅛-inch thick, comes from the rolls with the two edges folded over at an angle of 180 degrees thus forming a reinforcement at each edge of the stock. Next the flat stock is rolled into circular shape. The shell is tightly wrapped about the stator laminations in a hydraulic press and the joint electrically welded. The unit thus formed is a solid piece and due to its construction possesses the added feature of light weight when compared to the old style cast iron construction.

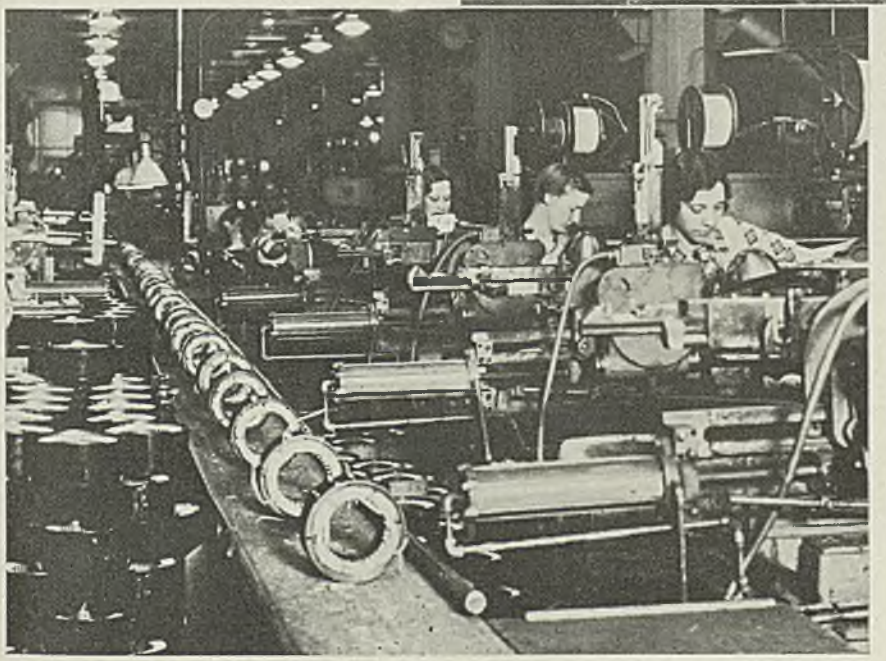
Next comes winding. This is accomplished on special winding machines of the internal turret type. These machines, developed by the General Electric Co., are almost human in operation. The frame is located in the machine and automatically controlled arms feed the wire and lay it in place. After the requisite number of coils are in place the operation stops. These special machines eliminate hand winding which is costly. Both cotton wound and varnish insulated wire are used.

An interesting operation consists of turning a rabbet in each end of the stator to locate the end shields. The machine used is a special lathe popularly known as a stub lathe.

STATOR frames or shells, shown in finished form at left, are formed in this machine from heavy sheet steel. These shells are wrapped tightly around the stator laminations and the ends electrically welded together

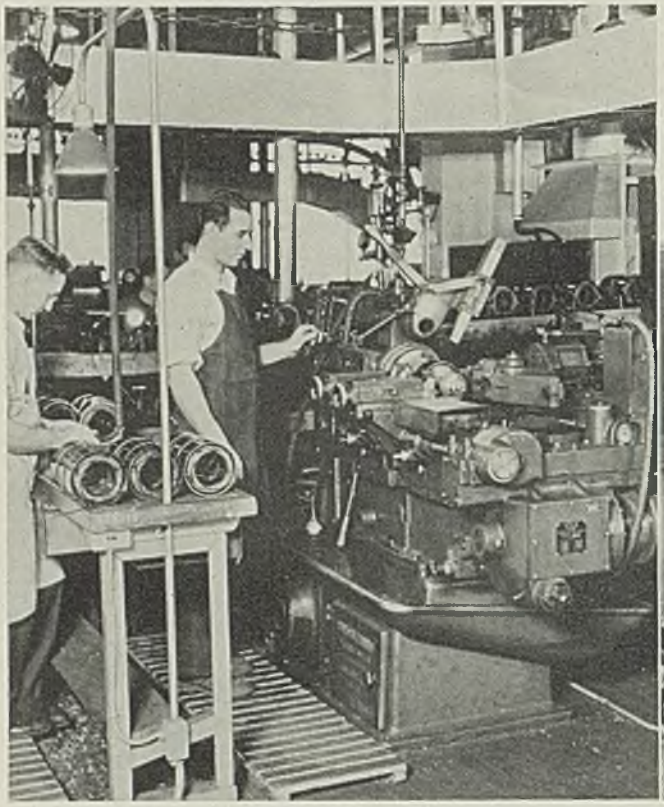


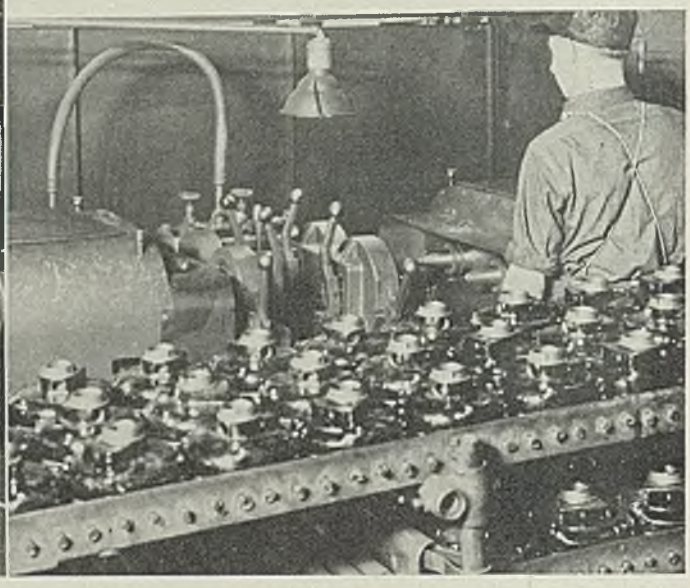
HIGHLY efficient, automatic, stator winding machines place the specified number of turns in the slots of the stator core, producing stators of uniform quality



The work is located on an expanding arbor which is air operated to save time. As this arbor is concentric with the lathe spindle axis, and as the work is located from the inner surfaces of the laminations, it is obvious that the rabbets will be concentric with the bore, which condition is quite essential in maintaining a close air gap between the stator and rotor. The turning operation in itself is quite simple and is performed with carboloy tools located in the two tool slides.

The motor end shields usually are of totally enclosed construction to protect the motor interior against dust and other foreign matter. Aside from protecting the windings, the end shields serve as bearing supports. The end shields are machined on vertical automatic lathes. As the rabbets and holes for the





RABBETS which maintain the close air gap alignment necessary for quiet, efficient operation and long life are turned accurately in a stub lathe, left, with an expanding arbor. After the bearing has been placed, it is accurately finished, inside and outside, in this high speed, automatic boring machine, below, so arranged as to insure absolute concentricity

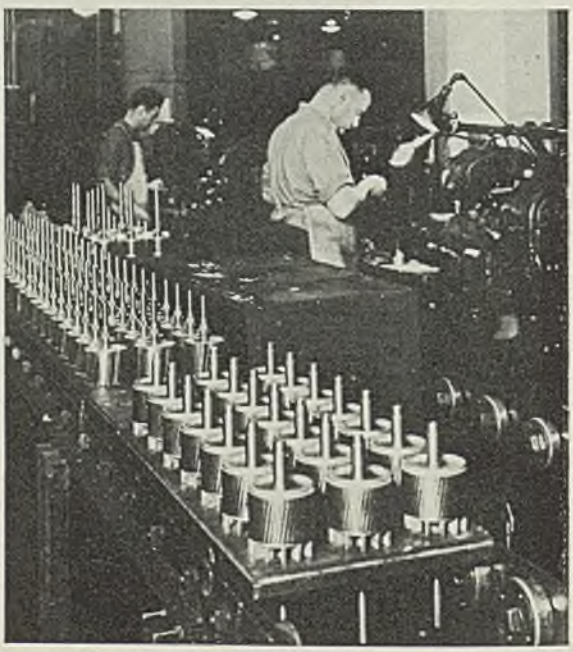
bearings are finished at one setting of the work it is apparent that they will be concentric, which condition is desired. The bearings in many motors are steel, lined with babbitt metal. After the bearing is forced in place it is finished accurately by high-speed boring. The work is held in special holders and single-point carboloy tools are fed through the holes at a speed of 3500 revolutions per minute. In this operation the outside portion of the bearing also is turned with carboloy tools. As the work is located from its rabbet and as the bore and outer portions are turned at one setting they will be concentric. Further, the seat on the fixtures in which the work is located from the rabbets were bored concentric with the machine spindles after the fixtures were set in place so that concentricity is assured.

Making Rotors

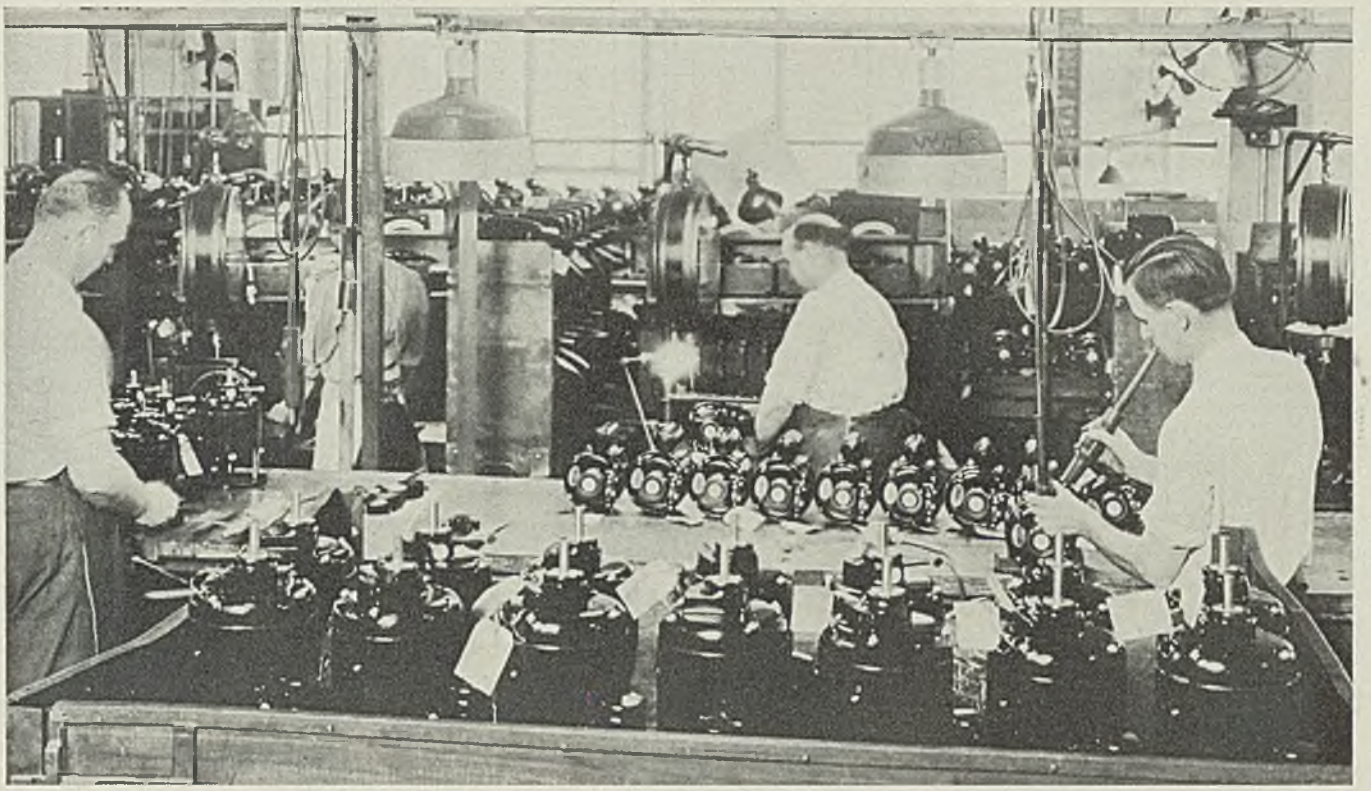
The rotor or rotating member consists of a rotor core, short circuited squirrel cage winding and the shaft. The shaft is alloy steel accurately finished by grinding. A typical shaft has five diameters, as follows: 3½ inches long, ½-inch diameter; ¼-inch long, ⅝-inch diameter; 4¼ inches long, ¾-inch diameter; ¼-inch long, ½-inch diameter and 1 5/16 inches long, ½-inch diameter. The first and second diameters are finished by plunge-cut grinding, the third by traverse grinding and the fourth and fifth by plunge-cut grinding. The grinding wheel is used with an attachment for oscillating the work slightly for breaking up the wheel marks during the plunge-cut operations. All diameters except the third mentioned, which forms a seat for the rotor laminations, are finished after the rotor is in place. The outer diameter of the rotor is turned to size with carboloy tools.

In the type of motor under discussion the rotor currents are induced magnetically in a short circuited winding so that no brushes or commutator are necessary. An interesting process is followed in installing the winding which is cast aluminum. The hot metal after it is poured in place is subjected to hydraulic pressure. Thus the core and windings are practically an integral unit. Mention also may be made of the fact that the fan is cast in place in this operatioin so it also is integral with the winding.

In the final test and inspection, each motor is individually tested and inspected. This is of the utmost importance inasmuch as mo-



AFTER the shaft has been assembled in the rotor core the shaft journals are finish ground to insure close fit with the bearing. Finished diameters are checked individually



A PORTION of the final test and inspection line. Each motor is measured for starting, accelerating and maximum torques, with rejections if minimum requirements are not met. Current and power inputs are held within maximum limits with the motor fully loaded. A mechanical inspection and a high potential ground test complete the inspection

tors of this type are expected to function for comparatively long periods with little or no attention. Starting, accelerating and maximum torques all are measured and rejections are made in cases where minimum requirements are not met. Current and power inputs are held within maximum limits when the motor is under full load. A mechanical inspection and a high potential ground test complete the inspection.

British Steel Institute Lists Meeting Papers

Twelve technical papers covering a wide range of subjects are scheduled for presentation at the autumn meeting of the British Iron and Steel institute, Sept. 14-17. The meeting is to be held in Middlesbrough, Yorkshire. Titles of papers and authors are as follows:

"Reports Upon Blast Furnace Field Tests. I—An Investigation of a Blast Furnace Smelting Principally Lincolnshire Ores at the Frodingham Works of the Appleby-Frodingham Steel Co. Ltd.," by blast furnace reactions research subcommittee of the Iron and Steel Industrial Research council.

"Foamed Blast Furnace Slag," by T. W. Parker. Report of the slag tests panel to blast furnace committee of Iron and Steel Industrial Research council.

"Some Experiments in a Small-Scale Cupola," by H. E. Blayden, W. Noble and H. L. Riley.

"Influence of Carbonizing Conditions on Coke Properties. Part I—Mechanical Pressure," by H. E. Blayden, W. Noble and H. L. Riley.

"Mechanism of Nitride Hardening," by M. S. Fisher and Z. Shaw.

"Hot Metal Practice in Five Melting Shops on the North East Coast," by W. Geary.

"The Thomas-Gilchrist Basic Process, 1879-1937," by Frank Harbord.

"Variation in Thickness of Tin Coating on Tin Plate," by W. E. Hoare.

"Some Alloys for Use at High Temperature. Part IV—Constitution of the Alloys of Nickel, Chromium and Iron," by C. H. M. Jenkins, E. H. Bucknall, C. R. Austin and G. A. Mellor.

"Further Experiments on the Nitrogen Hardening of High-Chromium and Austenitic Steels," by B. Jones.

"A New Method for Judging the Behavior of Iron Ores During Reduction," by N. J. Klarding.

"Some Notes on Recent Experiments in Connection with the Spraying of Steel by the Wire-Fed Metal Spraying Pistol," by Richard R. Sillifant.

Research Grants Offered

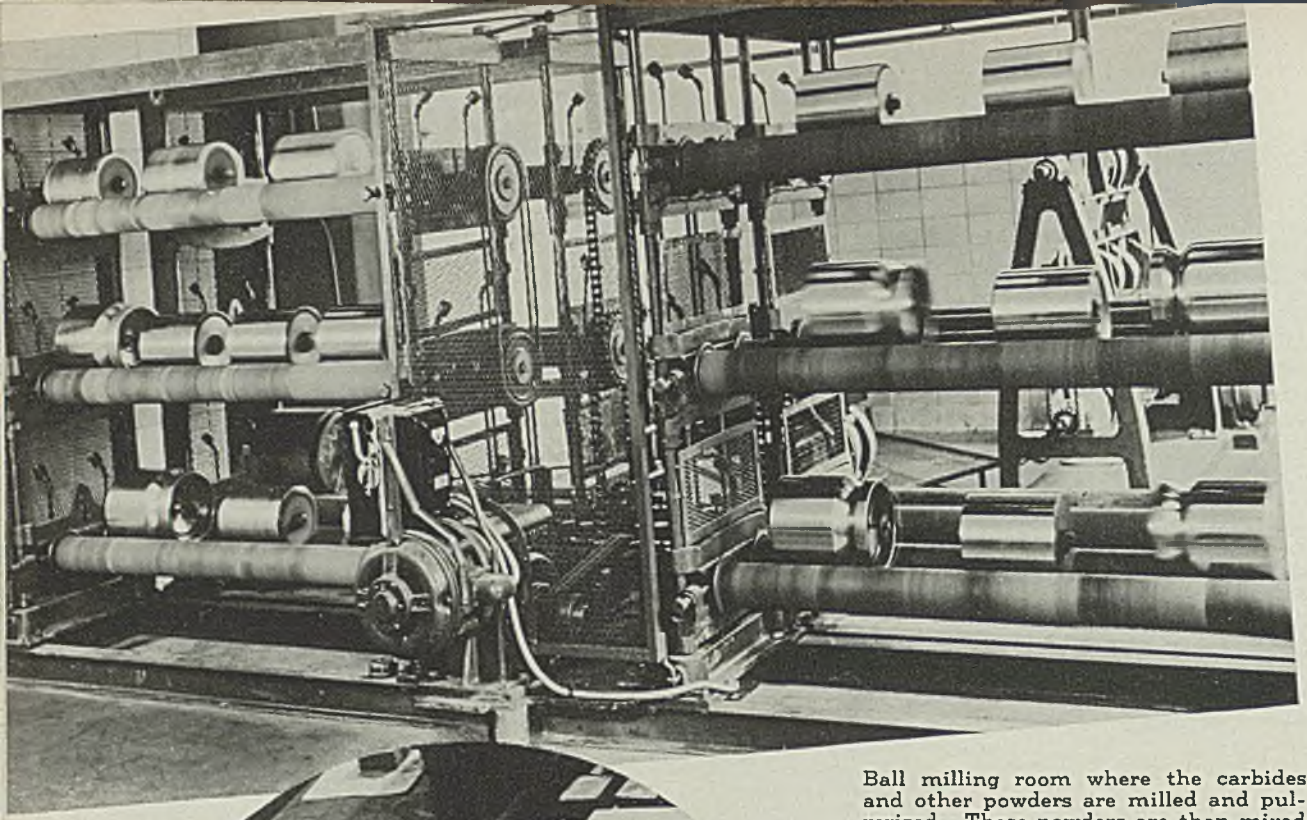
British Iron and Steel institute is preparing to make its annual awards of grants from the fund founded by Andrew Carnegie in aid of metallurgical research work. Purpose of the grants is to enable students who have passed through a college curriculum or have been trained in industrial establishments to conduct researches on problems of practical and scientific importance relating to the metallurgy of iron and steel and allied subjects.

Maximum grant in any one year usually does not exceed £100. Candidates must be under 35 years of age and must apply before Sept. 30 on a special form to be obtained from K. Headlam-Morley, secretary of the institute, 28, Victoria street, London, S. W. 1.

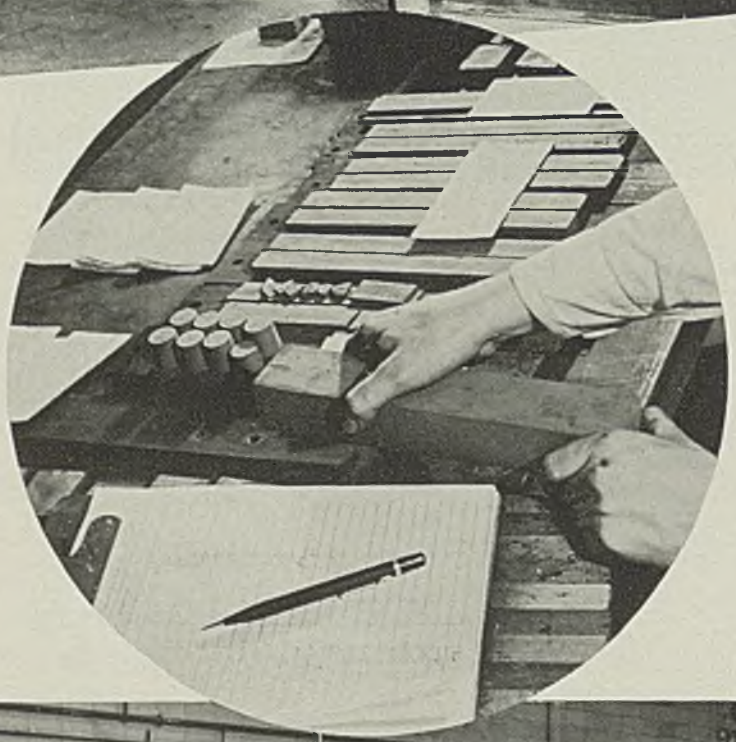
Addition Agents for Acid Electro-tin Baths Studied

Although acid baths for electrodeposition of tin are attractive because of their high efficiency and the fact that they can be worked at room temperature, they suffer from the disadvantage that they are unstable solutions and the deposits tend to be patchy and in loosely adherent needles. To some extent addition agents enable these drawbacks to be overcome. Further research to improve these addition agents has been carried out on behalf of the International Tin Research and Development Council which has just published the results in *Technical Publication Series A, Number* 56.

Copies of the publication may be obtained free of charge from the International Tin Research and Development Council, L. J. Tavener, U. S. Representative, 149, Broadway, New York.



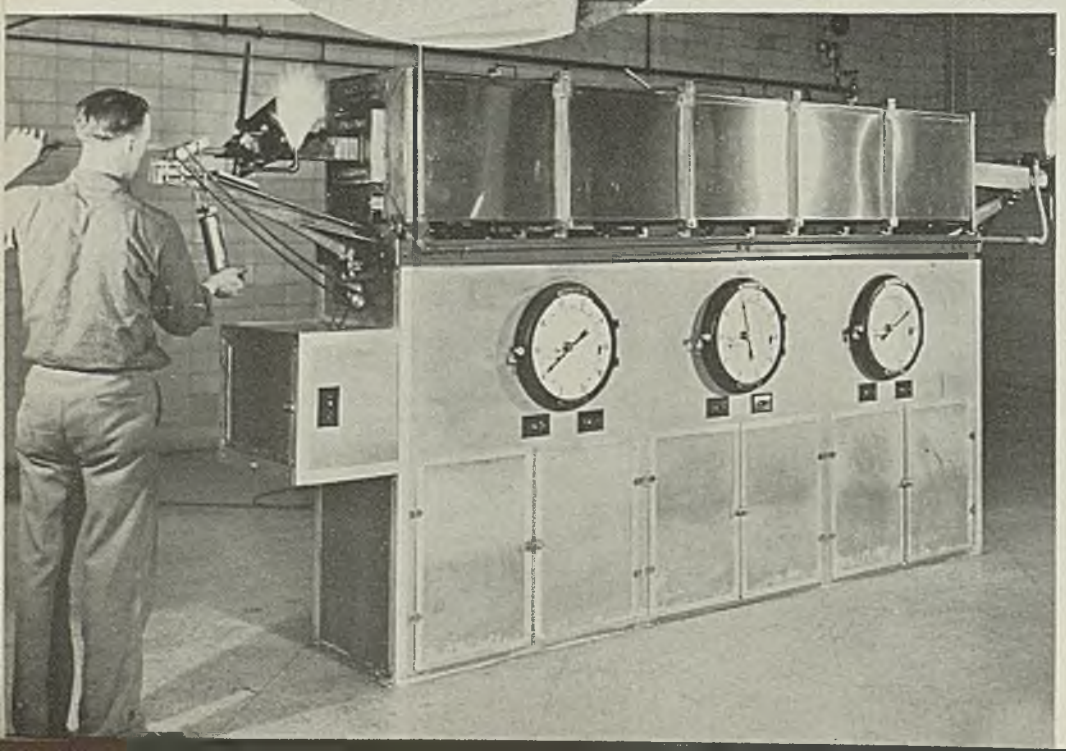
Ball milling room where the carbides and other powders are milled and pulverized. These powders are then mixed and distilled water added



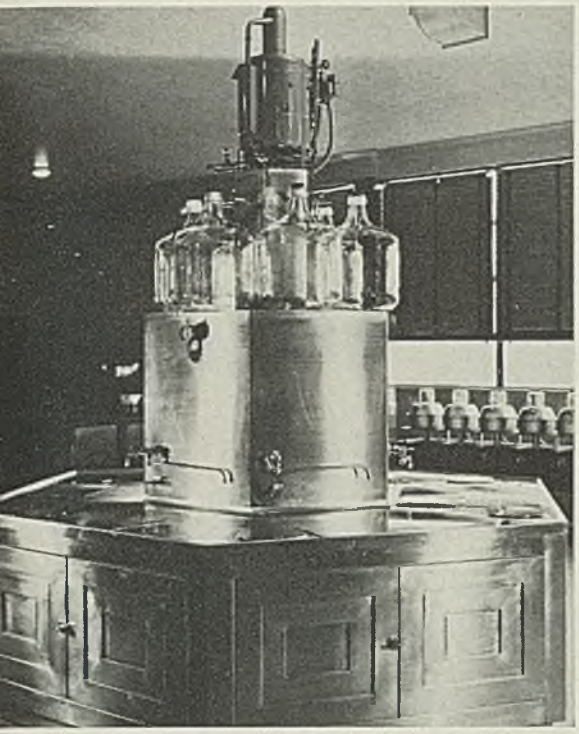
Compacted billets are placed upon graphite slabs preparatory to charging into the pre-sintering furnace

Manufacture of

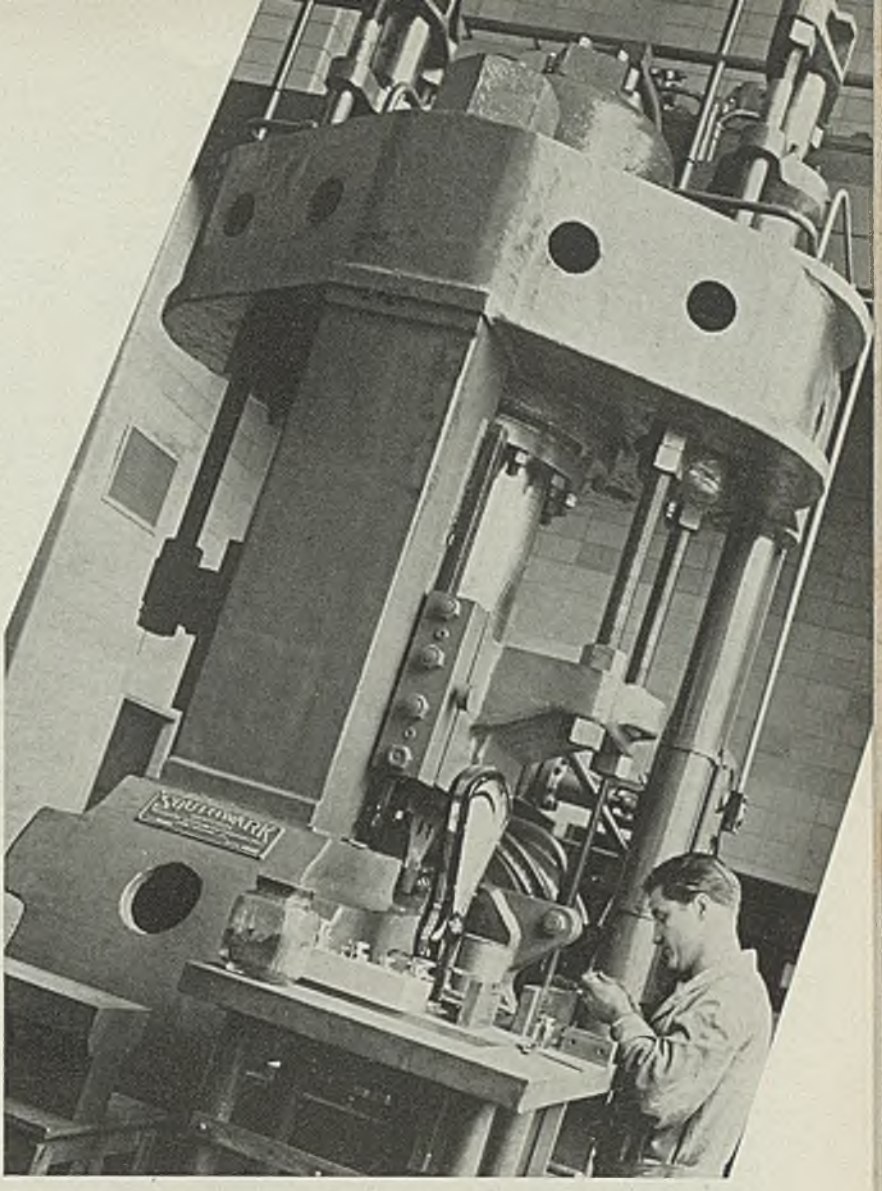
LESS than ten years ago the manufacture of sintered carbides was an insignificant industry and, at that time, not thought of by many as having an important future. Today in McKeesport, Pa., a large modernistic building houses one of the largest plants in the



Pressed billets are charged into this low temperature pre-sintering furnace having a hydrogen atmosphere. A chalklike hardness is given the billets. Dial pyrometers indicate the temperatures



Stainless steel filtering tank in which all water is filtered from the mixed powders

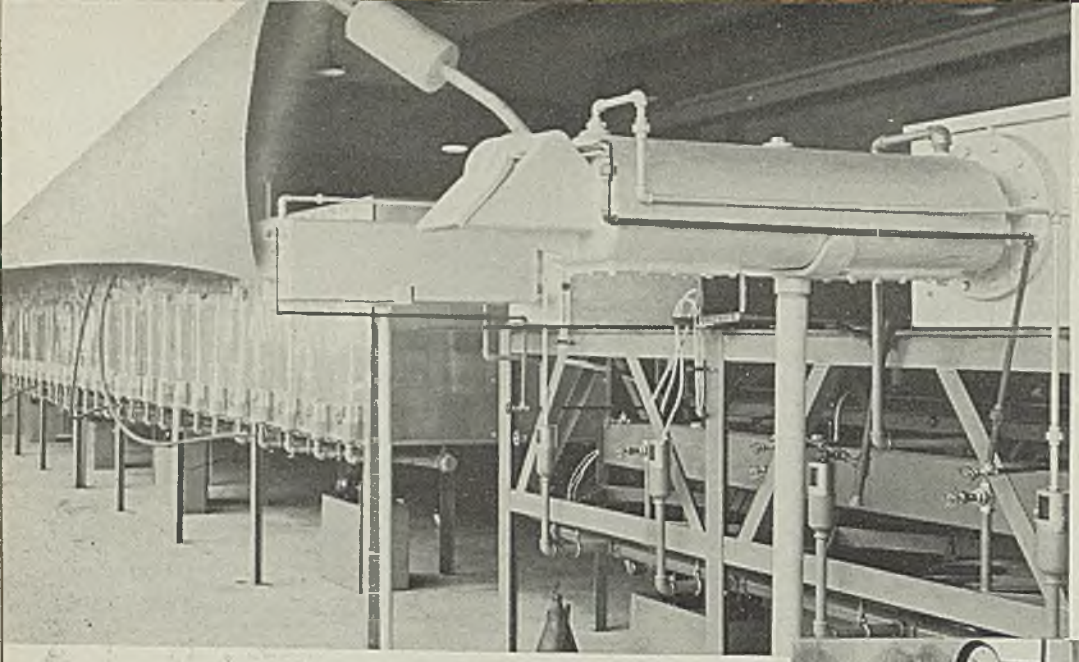


After further milling and complete drying the powder mixture is pressed in a 400-ton two way press into cylindrical or rectangular blanks. Pressures range from 4000 to 60,000 pounds per square inch, and about 20 per cent allowance for future shrinkage is made

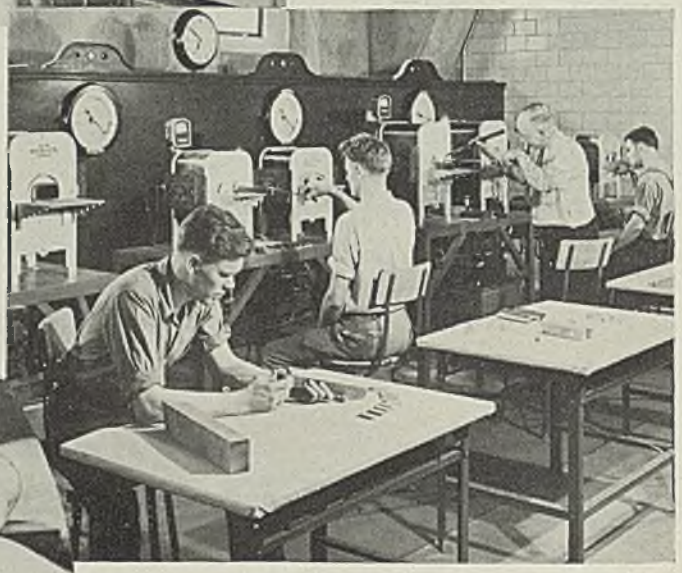
Sintered Carbides

world devoted to the manufacture of sintered carbides. Owned and operated by the Firth-Sterling Steel Co., the plant is busily producing this unusual form of metal. Selling for from $200 to $400 a pound, sintered carbides represent the last word in modern tool production.

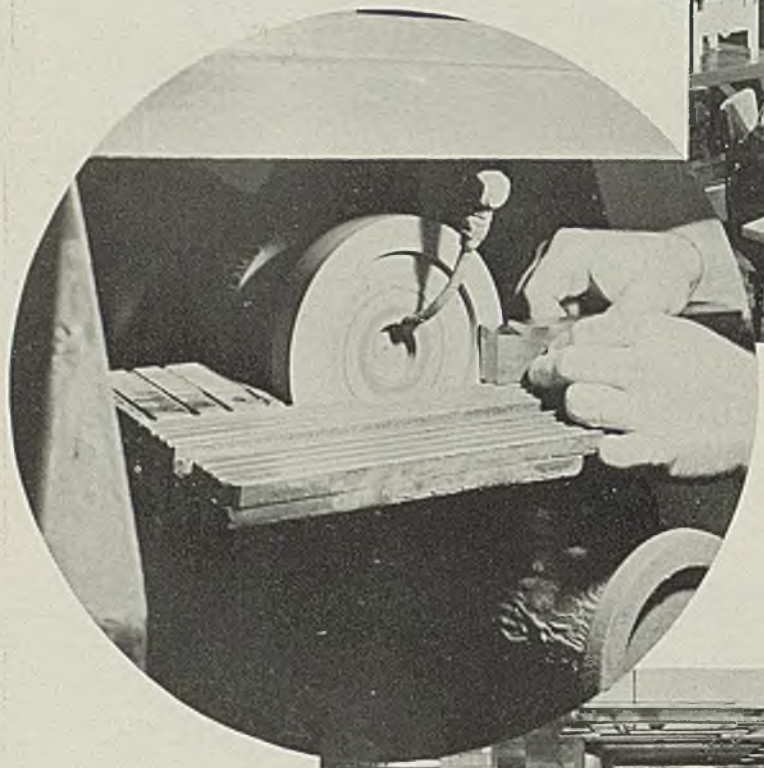
After they have been cooled, the pieces receive the final shaping in the shaping room. All machines in this room are equipped with exhaust fans to remove dust and small particles from the atmosphere



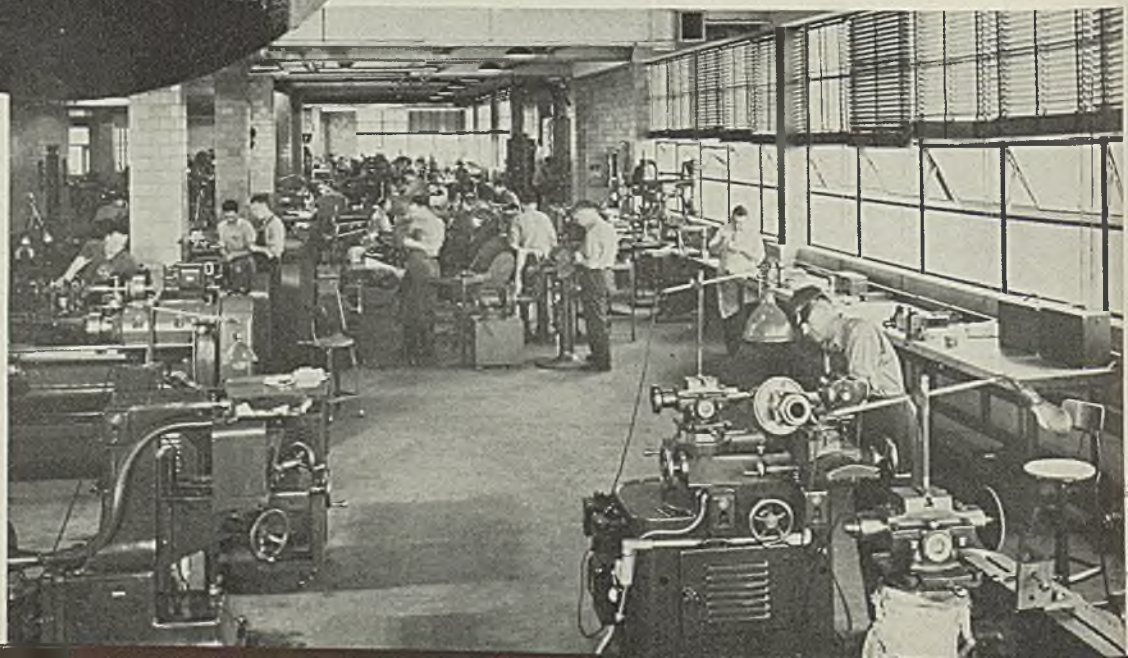
Hydrogen atmosphere sintering furnace in which the pieces receive their final hardness at high temperatures. Pieces are charged in these furnaces in carbon "boats" containing carbon powder. All temperature control is automatic



In the brazing department the finished carbide nib is secured to a holder or casing by brazing with copper or, in some cases silver solder. Hydrogen atmosphere furnaces having a temperature of 2050 degrees Fahr. are used

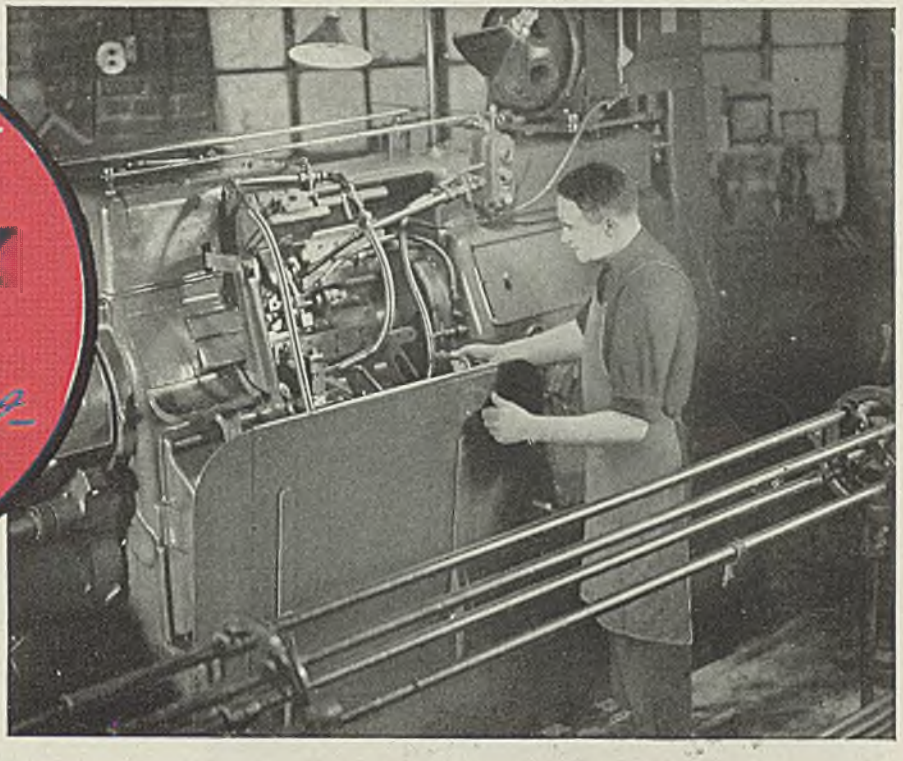


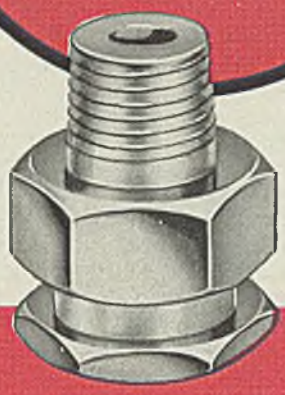
The final touches are given the complete tool on a grinding wheel consisting of crushed diamonds bonded with bakelite



Finished carbides are made into individual tools of all kinds in this Firthite tool shop

BETTER QUALITY PARTS *at lower cost*





WITH J&L COLD FINISHED IMPROVED BESSEMER SCREW STEEL

AS an example of the superior machinability of J&L Cold Finished *Improved* Bessemer Screw Steel, consider this hose connector made by Butch & Rhodes, Philadelphia. This part is produced on a four-spindle automatic . . . formed, recessed, drilled, given interior thread and cut off . . . all within 90 seconds. A high degree of free machining is necessary to clear the hole of chips and to give a true surface when tapped at this speed.

Many manufacturers similarly report that J&L *Improved* Bessemer Screw Steel improves production and increases quality and profits. In this *improved* steel, there is no change in chemistry or physicals. Increased machinability results from an exclusive method of manufacture. And this increased machinability can save you money through greater cutting speeds . . . less tool wear . . . lower power consumption . . . smoother surface and higher quality of finished products.

J&L *Improved* Bessemer Screw Steel is available in SAE 1112 or SAE X1112 (Special High Sulphur) grade, cold finished or hot rolled, in mill shipments and from distributors' stocks in principal cities. Investigate the machining possibilities of this improved steel. Increase your profits . . . specify and buy J&L.

Get the facts on J&L *Improved* Bessemer Screw Steel. Write today, on your business letterhead, for your copy of this bulletin on Bessemer Screw Steel.

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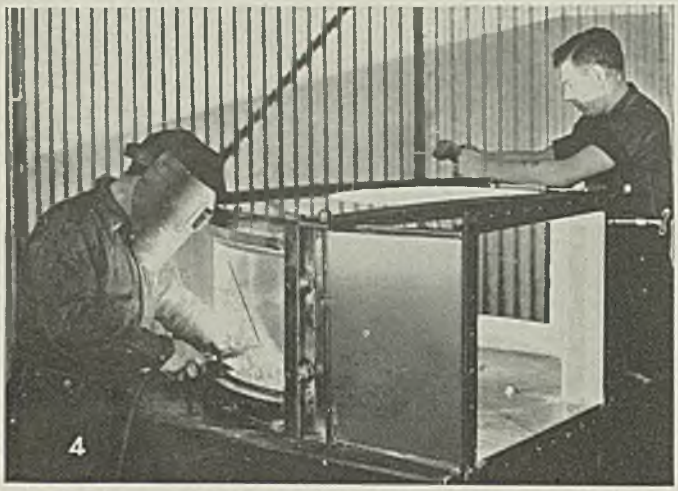
INCREASE YOUR PROFITS WITH J&L STEEL

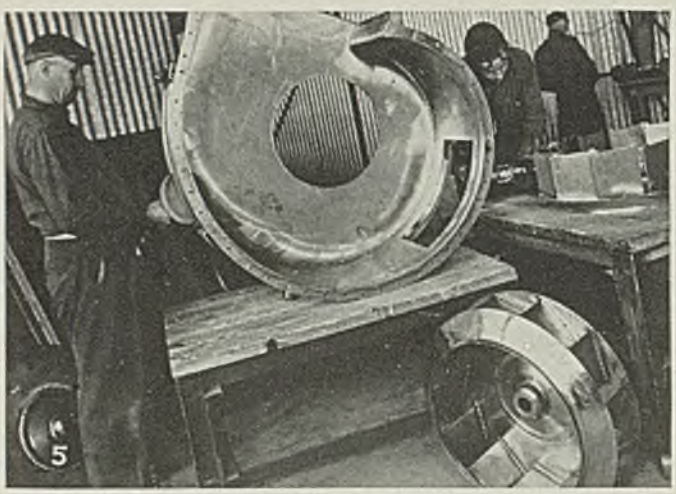
JONES & LAUGHLIN STEEL CORPORATION

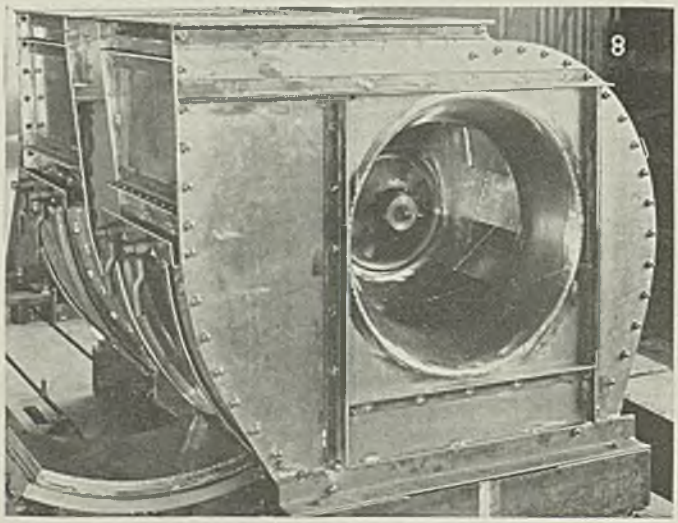
PITTSBURGH, PENNSYLVANIA

MAKERS OF HIGH QUALITY IRON AND STEEL PRODUCTS SINCE 1850

Thousands of Feet of Welding Required In Construction of Special Fan Units







CONSTRUCTION of 36 fan units required over two miles of welding—approximately 14,500 feet. These fans are 4 x 4 x 8 feet in size and were made by Clarage Fan Co., Kalamazoo, Mich.

With the exception of certain outside frame members, all parts were fabricated from Monel plate, sheet, bar and rod stock and joined entirely by welding and bolting. Each unit consists of two fans mounted on a single shaft and, when complete, comprises 320 different pieces, of which 140 pieces are different shapes or sizes.

Monel sheathing will be used on non-Monel frame parts when the units are installed, according to K. W. Hooth, assistant superintendent, Clarage Fan Co. The fans will be used to circulate completely conditioned air in a large chemical plant where every possible precaution is taken to prevent contamination, even by tiny particles of rust.

Special equipment was devised and made for handling construction, assembly and for testing for perfect fit and alignment of the finished units.

Main steps in fabrication are building of the wheel, building of the housing and assembly of the various parts into a complete unit. Clamps and jigs for assembling the blades and rim and for holding them during the welding operations are of heavy cast iron construction, because extreme accuracy is required, and to withdraw the heat from the welding area and dissipate this heat, preventing warpage.

Illustrated are men working on a housing assembly that is almost completed. The inlet side sheet is located in the steel base plate and the scroll bar is bolted to this plate. The scroll sheet, likewise, is held in place during welding.

The secure clamping and the use of proper heat transmission materials are essential in the assembling of the housing. Much of the welding is done on parts of different gages and cross sections, which necessitates careful adjustment of welding currents and proper control to prevent distortion.

Central illustration shows a completed wheel in the foreground and a partly finished wheel on the table at the right. The workman in the center is cleaning the welds on part of the wheel assembly. Flux is removed with a Monel wire brush and the welds inspected to make certain that all flux is gone. Any flux particles remaining are picked out with special "K" Monel heat treated tools made for this purpose to prevent the introduction of ferrous splinters which might later cause rust. Excessive depressions are filled in by welding and high spots in the weld are cut down by grinding.

TOP view shows housing assembly almost completed, center shows completed wheel in foreground and flux removing operations, bottom shows complete fan unit ready for crating and shipping. Photos courtesy International Nickel Co., New York

MATERIALS HANDLING

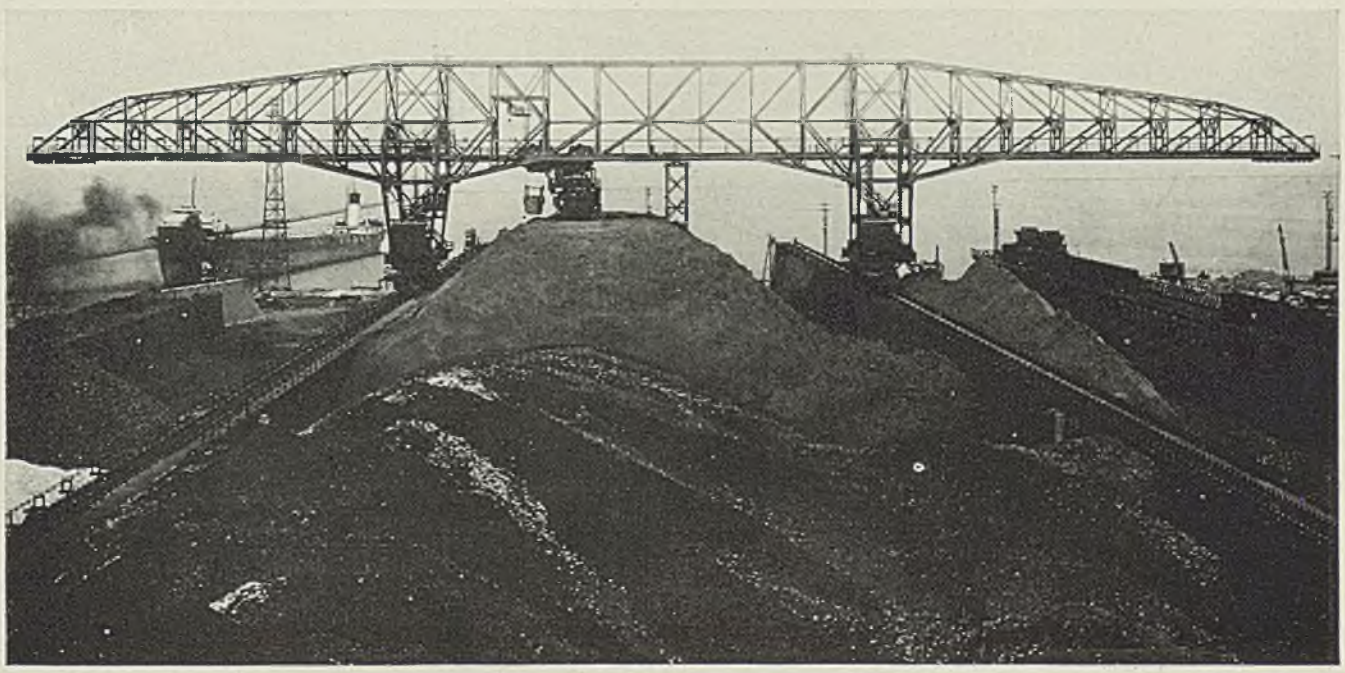
New Ore Bridge at South Chicago Features Innovations in Design

NEW developments in design and construction of an ore handling bridge are incorporated in bridge No. 4 which Carnegie-Illinois Steel Corp. completed recently at its South Works, Chicago. The unit is located on the north vessel dock for blast furnaces Nos. 5 to 10. Because of local conditions, bridges on this dock are cantilever structures of rather unusual dimensions. The new bridge is light but sturdy; viewed from a distance, it has a streamline appearance.

Unit No. 4, shown in the accompanying illustrations, is a traveling crane 523 feet 6 inches long operating a 20-gross ton ore bucket. Usual bucket capacity for this kind of bridge is 10 to 15 tons. The south cantilever is 181 feet long, center span 188 feet and north cantilever 155 feet long. The base of rails of trolley is 55 feet above base of rails of trucks. Trusses are spaced 26 feet on centers and the base of the towers 32 feet on centers. Towers of the bridge are mounted on turntables with expansion rollers at one tower and the whole assembly is carried by two trucks spaced 188 feet apart, each having 32 spring-supported wheels, and travels on standard gage tracks. Height from base of rail to top chord of the bridge is 94 feet.

The ore-bucket operates at a maximum speed of 175 feet per minute; trolley speed is 850 feet per minute, and the bridge at 75 feet per minute. The bridge also swings 15 degrees on either side of its normal centerline, making it possible to move the

GENERAL view of the new ore bridge looking east. To effect a saving in weight and thus insure economical operation, high-tensile steel was used for the truss members



MATERIALS HANDLING

extreme end of one cantilever 134 feet ahead of the other. The bridge is electrically operated on 230-volt direct current and controlled by one man located in the trolley cage. The whole structure is propelled by four motors mounted on the trucks, and the power is transmitted to all the wheels through double-spur gear reducer units and two lines of floating shafts connected with geared couplings to worm gear speed reducers, which are fastened, in alternate positions, to the wheel axles.

Safety Devices Provided

Motors are mounted, one on each end of both trucks. Each motor drives 8 axles and 16 wheels, or one-half the wheels under each truck. Two brakes are used for each unit, one applied on the motor armature shaft and one on the first spur gear shaft. The bridge is equipped with eight spring set safety clamps each gripping the track rails with a force of 100,000 pounds each. The safety clamps are operated with four separate motors and reduction gears mounted on the top of the trucks. To prevent over-skewing, the bridge has two automatic limit switches, one set for 13 degrees and one for 15 degrees on either side of the normal position of the bridge. Anemometers shut off the current when wind velocity exceeds 25 miles per hour.

Trolley, cage and bucket is a unit traveling the full length of the bridge, and loaded with ore this unit weighs about 330,000 pounds. It is carried by ten spring-supported wheels and operated by four motors, two for the bucket and two for the trolley. The trolley has magnetic rail sanders, automatic slowdown and stopping controls. Ends of the bridge also are equipped with draft gear spring trolley bumpers compressing about 21 pounds before closing, and capable of withstanding the impact, due to full load and speed of trolley.

Superstructure of the bridge is unique in design. The heavy concentrated load of the trolley unit produces high stresses in the bridge due to the long cantilevers; considerable sway and torque stresses are added when the bridge is operated. The problem was to design a structure strong and rigid and not too heavy for economical operation. High-tensile steel therefore was used in the truss members to save weight, and the center to center of chords varied according to stress intensity. The bottom chord of the trusses, being a compression member, was placed in the plane of the track stringers, except for the five panels at each tower, and held in place by the stringer bracing and cross trusses. A K-web system was adopted for the trusses because of its more efficient distribution of shearing stresses, and being short, adds to the stiffness of the bridge.

Track stringers were made continuous over their supports to prevent loose rivets at their end connections and reduce the deformation of the track. To provide more efficiency for sway and torque loads, two systems of lateral bracing are used, one at the top chord and one at the middle intersection of the truss diagonals, above the trolley clearance. The chord components of the stresses in the lower lateral system are transmitted through truss diagonals to the top and bottom chords of the bridge, and as there is a cross bracing at all panel points between the two systems, the bridge will resist torque stresses in addition to a better distribution of the lateral stresses.

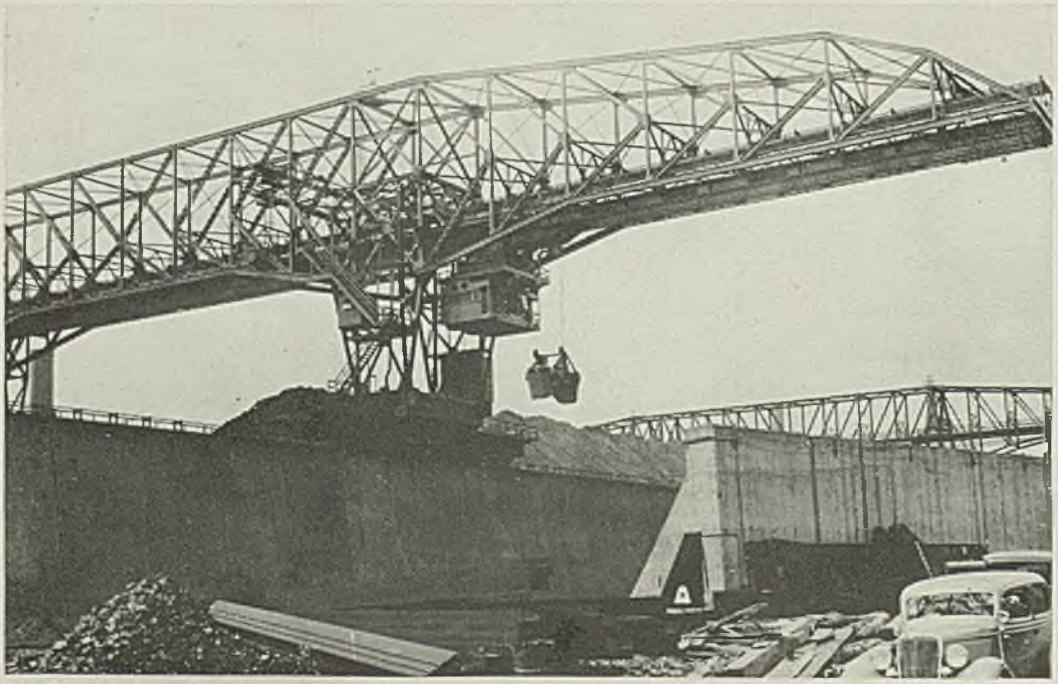
Steel Castings Are Used

Bents of the towers supporting the bridge were figured as two hinged arches because they are open crosswise from floor to top trolley clearance. Tower legs are supported by box-loading girders.

Each turntable assembly consists of two cast-steel bearing castings 15 feet long planed top and bottom for roller bearing. They are firmly braced and the assembly held in place by a bronze bushed steel casting placed over a 7½-inch diameter pin which is connected to the truck girders below.

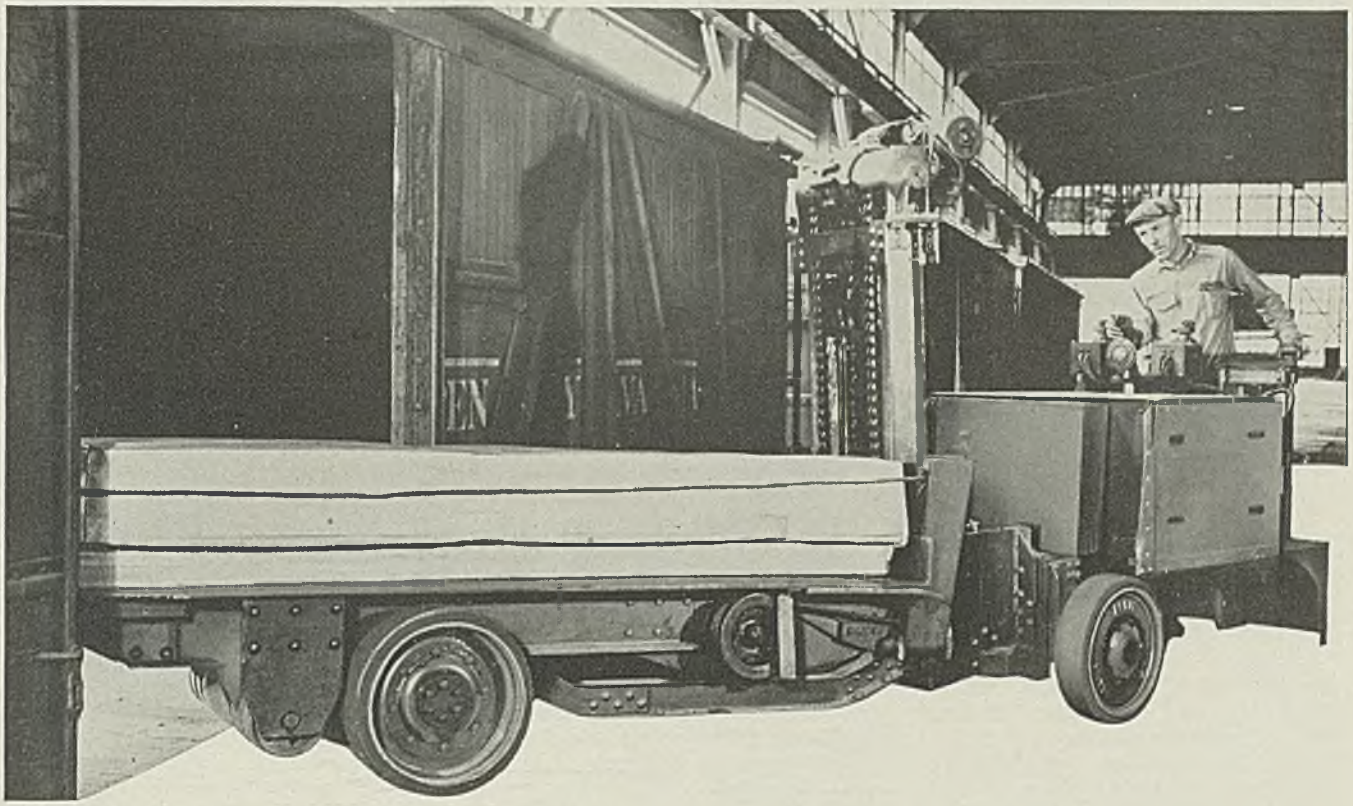
The two expansion roller nests at the south tower consist of 24 8-

(*Please turn to Page* 81)



HERE is shown the 155-foot north cantilever arm of the ore bridge. The south cantilever is 181 feet long and the center span 188 feet, making an overall bridge length of 524 feet. The ore bucket, which operates at a maximum speed of 175 feet per minute, has a capacity of 20 gross tons

FIGHT COSTS!



NEW HIGH SPEED equipment . . . continuous mills . . . faster production schedules naturally demand modern, efficient handling, quicker loading. And plant after plant, depending on Baker modern Industrial Trucks, is reporting speedier work and substantially lowered costs. Maintenance records, too, show these savings held through years of economical operation, an important factor in fighting today's high costs.

In all handling problems you'll find the facts and suggestions of the Baker Materials Handling Specialist practical and helpful. His accurate case records of performance and costs enable you to determine the value of Bakers in solving your own handling problems. Write today to the INDUSTRIAL TRUCK DIVISION *of the Baker-Raulang Company,* 2167 W. 25th Street, Cleveland, Ohio.

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TRADE-MARK REG. U. S. PAT. OFF.
OF ELECTRIC VEHICLES

POWER INDUSTRIAL TRUCKS FOR EVERY PURPOSE

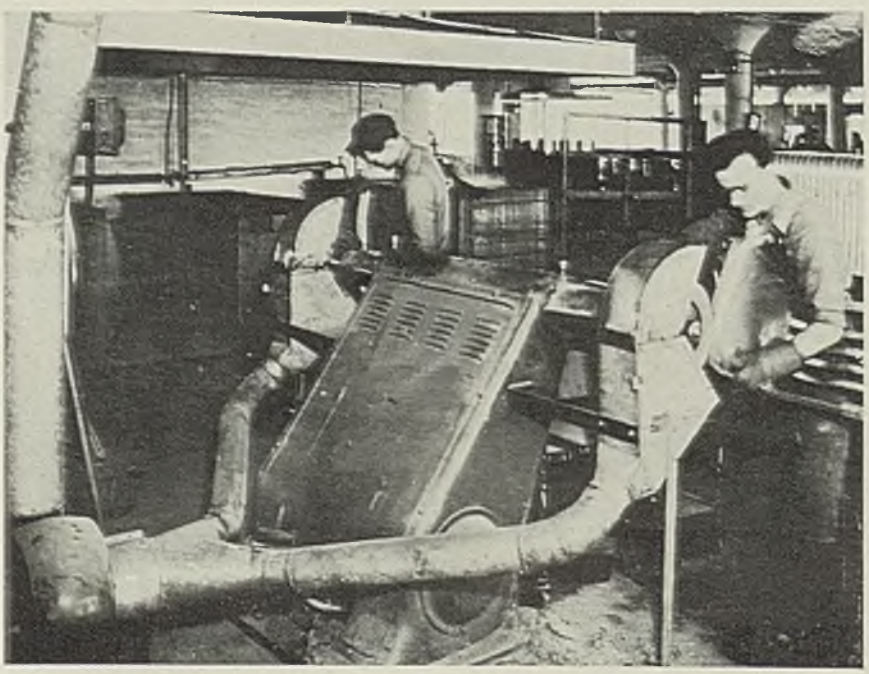
SURFACE TREATMENT AND FINISHING OF METALS

Wide Variety of Finishing Operations Are Required in Metal Furniture Plant

SYNTHETIC enameling, anodic treatment, cleaning, dipping and spraying—these are only a few of the finishing operations required in the manufacture of metal furniture and office equipment at the plant of General Fireproofing Co., Youngstown, O.

Products which must stand up in appearance under the stiffest abuse present a fine field for the finishing experts. Chairs and tables which must maintain a smart appearance in the most up-to-date restaurants and hotels in the country yet stand up under that type of abuse present problems in finishing which must be answered to maintain sales appeal. Department store showcases—vital elements in proper display of merchandise for sale—which must not only remain attractive under ordinary wear and tear but also be prepared to withstand the ravages of flood waters are built and finished by this company with complete success.

Looking behind the scenes where these and similar problems are met and solved, it is easy to see that inventiveness in devising the finishing operations and thoroughness in their application are the keys to the solution. A complete range of metal finishing is represented in the plant, both chemical and mechanical.



BRIGHT finish on aluminum chairs is obtained by buffing the entire surface as shown here. Clear synthetic enamel is applied to preserve the surface and prevent tarnishing

Conveyor Systems Are Used

Most important operation is enameling. In the majority, parts are sprayed. However, in the case of internal parts which will not show in the final assembly or parts where a fine finish is not necessary as in the case of storage shelving, dip tanks are used. These enameling operations are completely conveyorized, the parts being carried through the spray booths or dip tanks, into the drying oven, and thence to the unloading station.

These conveyors are all timed to insure the parts being in the baking ovens over the correct period. All ovens are placed above the buildings to keep out heat and lower the fire hazard. Over all dip tanks are suspended foam-type fire fighting devices on pivots for ready operation in case of fire.

Spray booths are equipped with injector type fans to eliminate the

METAL SHOW ISSUE

• • OCTOBER 11, 1937 • •

Information

GENERAL

The National Metal Congress and Exposition, sponsored by the American Society for Metals, will be held at the Atlantic City Auditorium, Atlantic City, N. J., October 18-22. The following technical societies, will participate:

American Society for Metals
American Welding Society
Iron & Steel Division, A.I.M.E.
Iron & Steel Division, A.S.M.E.
Institute of Metals Division, A.I.M.E.
Machine Shop Practice Division, A.S.M.E.
Wire Association

STEEL, with its interests so closely interwoven with those of the participating societies, is co-operating wholeheartedly in order that the Nineteenth Annual National Metal Congress may reach a new high in achievement. The October 11 issue will carry complete advance details of the convention and exposition, and will be in the hands of readers just a week before the convention opens—ample time to make plans.

In addition to the usual valuable pre-convention data, plus values will be found in a well illustrated portion devoted to heat treatment, welding, metals and alloys. Various articles will be written by well known leaders in their respective fields. They will be informative, authoritative and comprehensive.

This issue will serve to bring the Exposition to those who cannot attend.

PUBLICATION

A feature of the October 11 issue of STEEL will be a combined editorial and advertising section devoted to the same interests as the National Metal Congress.

Those advertisers desirous of appealing to these same interests will find unusual value in being properly represented in the special section of this issue.

Additional advertising values are afforded by the articles on heat treatment, welding and metals written by various authorities. Advertisements in this section will be placed effectively before the right people.

This interest value is not confined to the readers of STEEL who attend the Exposition, but extends in even larger measure to those similarly interested who do not attend, thereby depending more largely upon STEEL to bring the Exposition to them.

COLOR

Two colors will be used—red and black—printed on India tint coated stock.

RATE

Including color and insert position—$175 a page for regular advertisers—$200 per page one time.

BLEED-OFF

$25.00 additional for one page.
$40.00 additional for a two page spread.
(Bleed-off plates, 8¾ x 11⅞ inches.)

CLOSING DATES

Final forms will close Thursday, September 30. Reservation and copy requiring composition should be in Cleveland not later than Wednesday, September 15.

need for constant cleaning of the fan blades. This feature also eliminates the noise and hazards which accompany the open fan type spray and fume eliminators. Ovens used for baking these enamel finishes are oil fired.

An interesting set-up is used in connection with the large conveyor where contract work and special jobs are finished. Since these jobs are of widely varying types and sizes, the conveyor is equipped with both dip tank and spray booth. The dip tank is so arranged that it may be moved from one side of the conveyor to the other on a track, powered by an electric motor. This enables the operators to place it under the conveyor when parts are to be dipped, or remove it when spray work is to be sent through the ovens. All pieces are inspected as they come out of the ovens for defects in the finish.

Parts to be finished must be cleaned prior to finishing. In plating operations, parts are pickled, while steam and chemical cleaning are both used in preparing pieces for enameling. Interior non-structural parts such as channels for supporting file drawers are plated on a continuous conveyor type plating machine, while decorative exterior parts including aluminum hardware and trim are finished by an anodic process. Brass and copper parts are buffed and coated with clear lacquer to protect the finish and prevent tarnishing.

In the metal furniture division, several interesting operations are used in simulating wood finishes. Four methods are used—hand graining, decalcomania, offset work from rubber rolls and graining from the wood itself. In the last named operation, thin sheets of plywood are wrapped around rolls and the metal sheets are imprinted directly from these.

An interesting special operation is rough polishing of bronze and brass leg cups for steel desks. These parts are stampings and are brought from the press to a continuous belt buffing machine. The cups are placed on work locating fixtures on a continuous belt, which carry them past polishing wheels, polishing the four sides. Corners are then finished by hand and the pieces are finished by buffing.

Aluminum chairs are furnished in natural finish. Either buffing or sand blasting is used, depending on whether a bright or a dull finish is required. Clear synthetic enamel is then applied to preserve the surface and to prevent oxidation.

Matches Automobile Body and Fabric Colors

USE of the color wheel for matching in exact degree certain shades of color has been extended to the automobile field for fabric and body colors. The wheel comprises a disk on which component colors are applied, each color occupying a sector of a definite number of degrees. When the wheel rotates at high speed, the colors fuse into the shade desired. The device is used widely by style scouts and its use in the automobile industry is an innovation. Edgar Teeter, Studebaker engineer, has introduced the wheel for matching fabric and body colors, and for furnishing a lasting record of the various colors used on Studebaker automobiles. Shades chosen for fabric and body colors on new models can be wired to paint and upholstery companies and reproduced exactly on color wheels operated by the latter organizations

Handbook Covers Castings For Porcelain Enameling

A handbook known as "Production of Castings for Porcelain Enameling," has just been published by the Porcelain Enamel Institute.

The booklet, which has been undergoing preparation by the committee on cast iron practice of the Institute's technical research section for more than a year, is the result of co-operation between expert foundrymen and representatives of the porcelain enameling industry.

Included in the booklet are a number of illustrations showing improper and proper designs of castings. It is divided into easily understood sections, some of which follow: blistering, warping, influence of design, influence of molding practice, influence of melting and pouring, influence of iron composition and influence of raw materials. Sample copies of the booklet may be obtained from the Porcelain Enamel Institute, 612 North Michigan avenue, Chicago.

Air Drying Lacquer Enamel Produces Blackboard Finish

A new air-drying lacquer enamel, which finishes wood, fiber, wall board, cardboard, pressed paper, and other materials with a surface resembling slate, has been developed by Maas and Waldstein Co., Newark, N. J.

This new finish, known as "Slatite," takes chalk-marks like slate, and the marks can readily be removed with an ordinary blackboard eraser, according to the manufacturer. The finish is washable and durable, and, when it becomes worn, can readily renewed by spraying on another coat of Slatite.

Slatite is being used for the production of toy blackboards and slates, and also for inexpensive light-weight and portable blackboards, for the use of schools, colleges, lecture rooms, engineering and business offices, and stores.

Color Trend Shifting in Metal Office Furniture

There is a distinct trend developing among manufacturers of metal office furniture to get away from the familiar olive green finish and turn to a neutral gray. The reason for the change is the fact that olive green does not harmonize with office surroundings such as walls, wood trim and the like. The change is necessarily gradual since each manufacturer must sell equipment which matches existing units.

LIKE POURING OIL DOWN THE SEWER!

Unsuitable cylinder oil cost this company thousands of dollars—until Shell stepped in and solved the problem!

STEAM engines driving the mill trains in a Pittsburgh steel mill were constantly failing. Tonnage costs were increasing . . . the situation threatened a new low in production, and after trying twenty different lubricants, the problem was *still* unsolved.*

Shell was called in. A careful analysis of the operating conditions disclosed that while the cylinder oil then in use was being fed in excessive amounts, it failed to resist the washing effect of the condensate and provide the necessary lubricating film on frictional surfaces. The result was frequent stalling under heavy loads. At Shell's recommendation, a Shell Lubricant designed to meet these unusual conditions was applied.

The results were immediate. Tonnage costs, maintenance costs and oil consumption were all reduced. And during the period immediately following the application of the Shell Lubricant, *a new plant production record was established.*

The manner in which Shell solved this plant's problem is characteristic. Shell's "Invisible Element," the ingenuity and resourcefulness born of long experience, is applied to *every* industrial lubrication problem. This *plus* in lubrication is always available to you. Simply write or phone your nearest Shell office.

**An actual case history from Shell's files*

SHELL *STEEL MILL* LUBRICANTS

SHELL

PROGRESS IN STEELMAKING

Rolls Used in Sheet Galvanizing

BY J. A. SUCCOP
Chief of Research, Heppenstall Co., Pittsburgh

A ROLL is seldom forged perfectly round; consequently, it is necessary to rough turn an eccentric removing more metal from one side than from the other. This uneven removal of metal sets up a strain in the roll which is not uniformly distributed. All rolls should be given a strain relieving heat treatment after the rough turning operation. The lack of this treatment, as shown later, may cause warped rolls.

Rolls are turned by the user before being placed in service and are infrequently completely machined by the roll manufacturer. This machining operation by the consumer should be a fine feed with a sharp pointed tool, followed with a light cut, giving the surface of the roll a smooth machined finish. Gouges and sharp tool marks should be avoided as these may be the nuclei of failure in the form of cracks on the exit roll and "scaling" of the bottom roll. When the spiral groove is turned in the exit roll, care should be given to the grinding of the lathe tool to obtain a bottom in the groove that is well rounded and does not contain any sharp angles. This is important. Too rough a machined roll will cause a heavy and uneven coating of zinc on the sheets, while a ground finished roll will develop excessive fiber lines on the surface due to attack of zinc, and tend to mark the surface of the sheets.

There are several methods employed to preheat a roll before installing it in the zinc pot and possibly the open furnace method is as satisfactory as the lead bath method; regardless of what method is employed, several objectives should be clearly kept in mind:—

First: Do not permit rolls to develop an excessive amount of oxide on the surface when rolls are heated in the air.

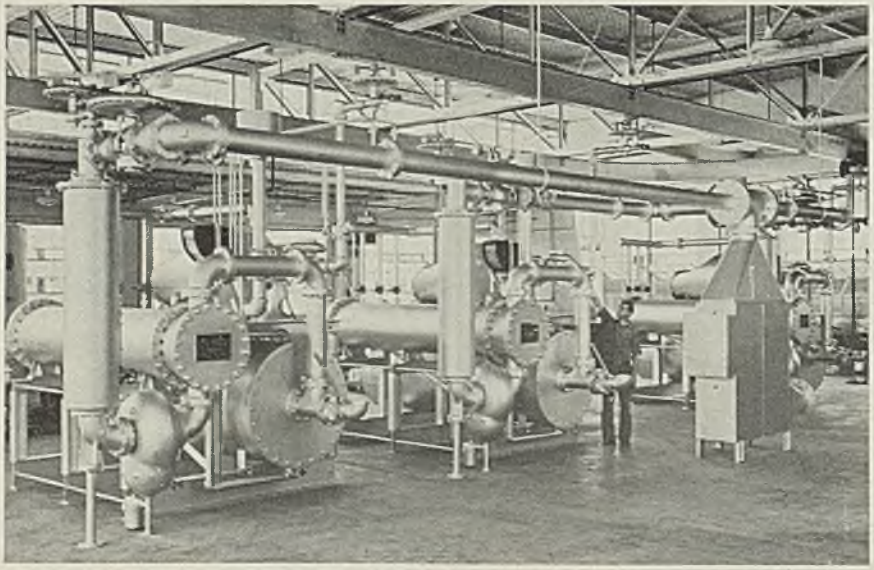
Second: Heat the rolls uniformly and under no circumstances permit them to absorb the heat from one side only.

Preheat Before Installing

If the rolls were strained by either the fabrication of the roll or by service, the unequal heating will relieve the strains uniformly and warpage will result. Once warpage has taken place, the only means of correction is re-machining and relieving strains uniformly before taking the last machine cut.

Preheating of the rolls before installing in the machine in the bath is certainly to be recommended. Once the exit rolls are installed, they should be made to revolve and continue to revolve in the bath until

Will Condition Natural Gas



THREE Atmos-Gas producers will be used at Republic Steel Corp.'s Corrigan-McKinney division, Cleveland, for conditioning natural gas for bright annealing operations. They are shown here assembled prior to shipment from the plant of the manufacturer, C. M. Kemp Mfg. Co., Baltimore

they are removed. If a shut down is necessary and the delay is likely to be of short duration, the rolls should continue to revolve in the bath to prevent the exit rolls from cooling on the top surface, and thus avoid uniform cooling. If the delay is excessive, the exit rolls should be removed from the bath and permitted to cool in a uniform manner.

Zinc and iron are capable of forming alloys in which the two metals are present in all proportions. Owing to the relatively high melting temperature of iron, and the comparatively low temperature at which galvanizing is done, only one compound of zinc and iron, namely, $Fe\ Zn_7$, is of serious concern in the galvanizing operation. The activity of the attack largely depends upon the temperature of the bath. Using a constant time and permitting the temperature only to vary, the dissolving power of iron in zinc is shown in the following table:

Temperature of bath	Unit dissolved
800° F.	1.00
850° F.	1.00
900° F.	1.6
950° F.	14.7
1000° F.	10.4
1100° F.	9.7
1300° F.	24.5
1500° F.	24.3

It has been proven that at a normal galvanizing temperature, for instance below 850 degrees Fahr., a zinc-iron alloy ($Fe\ Zn_7$) is found on the surface of the iron or steel articles in the bath and this alloy is stable, with respect to zinc, and remains firmly attached to the iron or steel surface.

Avoid Iron Oxide

The steel surface must be clean, that is, free from iron oxide, before a coating will be obtained, since the presence of iron oxide will prevent "wetting" of the steel by the zinc. The continued activity of the attack of the zinc on the steel rolls depends upon the subsequent behavior of this zinc-iron alloy. Below 900 degrees Fahr. it will, to a great extent, protect the steel beneath the coating from further action of the molten zinc, as the zinc can only penetrate to attack the underlying steel by diffusion of the zinc-iron compound. As the attack persists, the layer will thicken and offer greater resistance to the passage of the zinc through it. However, as the temperature increases, this protective coating becomes discontinuous, and does not offer resistance to penetration by molten zinc, so that the attack will continue indefinitely at the same rate. At a temperature of approximately 932 degrees Fahr., the layer gradually changes from nonporous to porous, and from protective to nonprotective. We learn from Daniel's work that 896 degrees Fahr. becomes a critical temperature in the life of iron and steel rolls in a zinc bath.

Metallographic examination of specimens obtained by permitting a roll to go cold in a bath of molten zinc, shows that the zinc has reacted with the surface of the roll, and to considerable depth, to form a layer of zinc compound, which is, for all practical purposes, the compound of $Fe\ Zn_7$. If the zinc bath contains aluminum, tin or antimony, the rate of attack on the iron roll will increase. Cadmium, which alone is without attack on the iron, will, when combined with zinc in small percentages, cause the $Fe\ Zn_7$ layer to become granular and non-protective, so that small amounts of cadmium permit the zinc to penetrate the compound and further attack the iron base. Cadmium in larger percentages retards the formation of $Fe\ Zn_7$ and develops a "patch" effect so that as the compound forms, it spreads in a very irregular manner, forming patches rather than an even film of the compound.

Long time immersion causes an increased attack of the zinc on the metallic rolls. Since it is a fact that the $Fe\ Zn_7$ crystals are not connected with one another, comparatively large channels will develop through which the zinc can penetrate and further attack the iron base.

Presence of alloying elements in the steel roll, such as nickel and chrome, will also cause increased dissolution in molten zinc by a breaking up of the $Fe\ Zn_7$ layer, similar to that produced by different elements in the molten zinc.

This zinc-iron reaction, obviously the underlying cause of most galvanizing troubles, is a necessary evil, for, unless a roll does become coated, we do not produce a satisfactory zinc coated sheet. A vitreous roll is useless since it is not attacked by the zinc; a cast iron roll is impractical, because the zinc attacks it too readily; therefore, the ideal roll is one that takes the attack of the zinc just sufficiently to produce a good "wet" surface and minimizes the extent of the attack.

Rolls of proper analysis, manufactured and prepared by standard accepted practice, fail in service in a number of different ways. The most serious failure is transverse cracking of exit rolls. Since transverse cracking is not encountered in all galvanizing shops, and since the same roll giving this trouble in one shop gives satisfactory performance when transferred to another shop, as do also rolls made from the same heat of steel, forged and heat treated together, it would appear that this type of cracking is somewhat a local problem and is due to factors peculiar to the shop where it prevails.

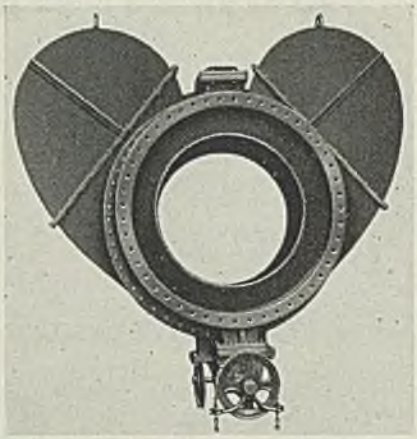
Reflecting back to the explanation of the attack of the zinc on the iron, we remember that a zinc-iron compound is formed as a coating on the surface of the roll and this coating may become extremely brittle. Unless the compound cracks, we cannot get a further attack of the zinc. Therefore, there must be some underlying cause for the cracking of the compound and permitting the local attack of the zinc. Expansion and contraction of the exit rolls as they revolve partly in the molten bath and partly in the air, especially if the roll is stopped during a shutdown, is a theory advanced as one of the probable causes. The grooves in the roll would localize the stresses, permitting cracks to develop in the bottom of the zinc corroded grooves.

Rolls Half-Satisfactory

We have recently seen rolls that were cracked on one-half of the circumference of the exit roll only. Whether the rolls were permitted to remain stationary in the molten bath, or whether some mechanical condition developed stresses on only one-half of the roll, we do not know, as unfortunately, the story of the working conditions of the roll is always lost. Does it not seem a rather remote possibility that one-half of a roll should be satisfactory and the other half, circumferentially, contain defective steel?

Frequently, the tension on rolls is fixed for a certain gage, but sheets of any gage are passed through, just so the gripping effect is sufficient to pass the sheet along. Heavy sheets are passed between the rolls, creating high stresses or bending moments on the rolls. The melting temperature of zinc-iron alloy ($Fe\ Zn_7$) is about 1472 degrees Fahr. Therefore, as

No Gas Escapes



AMERICAN type goggle valve, 24 x 20 inches, which is totally enclosed to prevent the escape of gas while the plates are being swung into position. This valve, manufactured by the William M. Bailey Co., Pittsburgh, will be displayed by Ashmore, Benson, Pease & Co. Ltd., London, at the exhibit of the Iron and Steel institute to be held in conjunction with the annual meeting, Sept. 14-17

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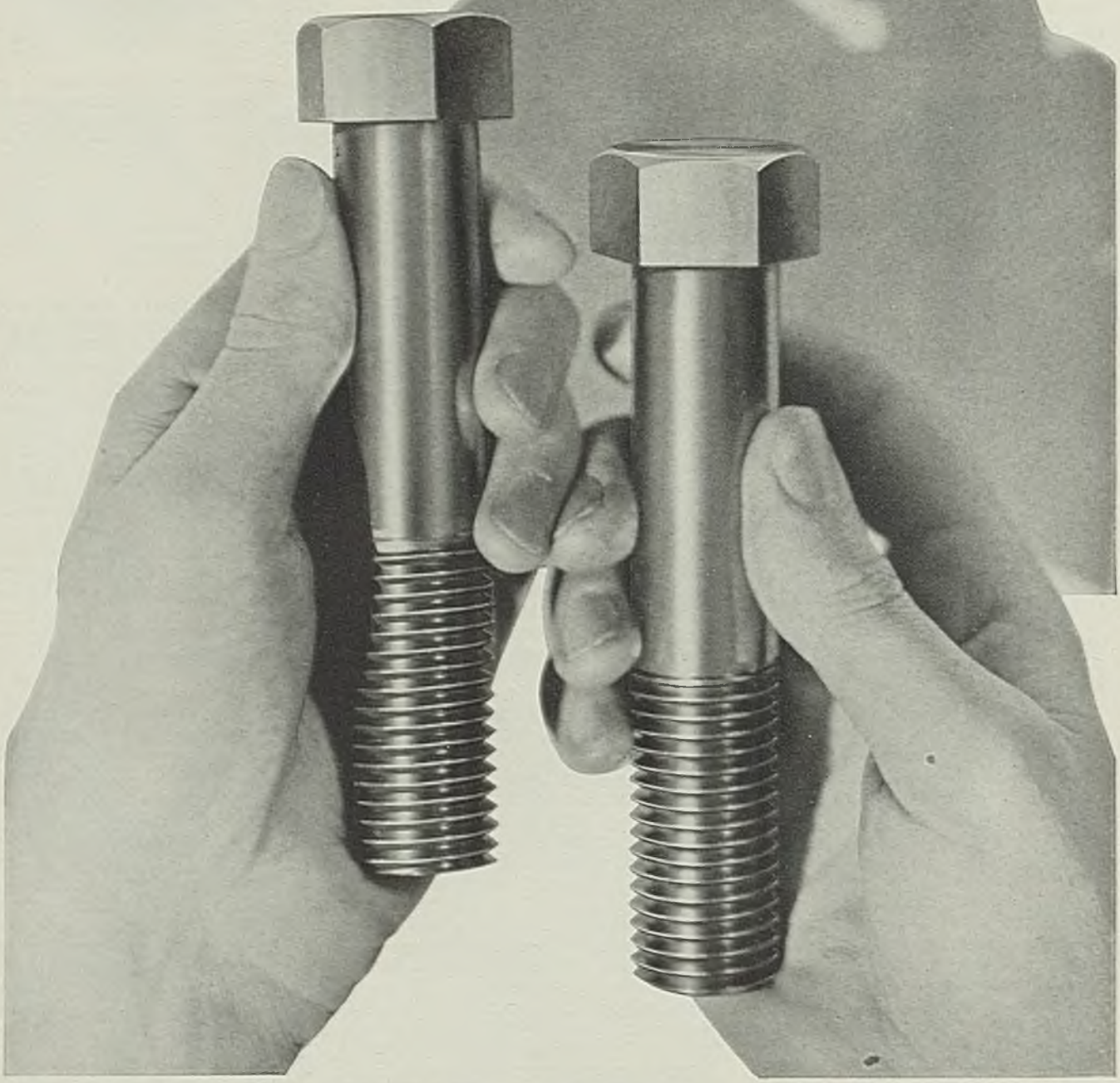

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this alloy adheres to the roll, it is solid and extremely brittle, and as such, it is subject to inter-crystalline fatigue. The stresses developed by continuous deflection of the rolls causes a fatigue break in the protective coating, permitting the active molten zinc to attack the iron beneath the coating. Naturally, the grooves in the roll provide the stress raisers to concentrate the fatigue crack in the protective coating and the natural result is the cracking of the rolls in the root of the spiral groove. Once the crack has developed, a continuous fatiguing of the zinc iron coating will take place and always at the weakest location, or at the area of the greatest stress. These cracks are filled to the bottom with zinc iron compound and it is reasonable to believe that the molten zinc causes the attack, since $Fe\ Zn_7$ acts as a protective coating.

Excessive Heat Cracks Roll

Another theory, advanced as the cause of roll cracking, is the influence of excessive temperature. Imhoff reports that he has measured the temperature of the galvanizing bath, reported by the operator to be running at the desired temperature (below 850 degrees Fahr.), and found a difference between the top temperature and the bottom temperature of 460 degrees Fahr. If the temperature exceeds 900 degrees Fahr., the dross that is formed is the hard zinc-iron alloy which has excessive expansive qualities, due to its crystalline formation, and when this alloy forms in the roll groove it acts as a very powerful wedge and has a tendency to crack the surface of the roll. Once a crack starts, its magnitude is purely a function of the time the roll is permitted to remain in the zinc bath.

Warpage of rolls is carelessness either on the part of the roll manufacturer or the consumer. It is purely an uneven relieving of internal strains and the correction of this annoyance is entirely one of uniform heating and uniform cooling. The roll manufacturer must play his part by forging uniformly, machining concentrically and strain relieving after rough turning. The consumer must also play his part by observing the "don'ts," if rolls are to be used

If a roll works satisfactorily upon its first installation and warps in service, the warpage is generally considered to be caused by the consumer. A few ways in which rolls become warped in the consumer's shop are:

1—Mechanical bending by improper removal of the roll from the machine, permitting the roll to strike the floor while hot, especially on the neck of the roll.

2—Placing a hot roll on the cold floor without protection, instead of placing the roll on skids to permit uniform cooling. Good practice is to place the roll on skids sufficiently high from the floor to permit free circulation of air, free from draughts.

3—Cooling a roll in water after removal from the zinc bath is very inducive of warpage, as well as other troubles such as cracking.

4—Charging a cold roll into the hot bath or charging the machine into the bath with cold exit rolls in position. This practice produces very irregular heating.

Warpage may be summarized as the resultant deflection brought about by the unequal development or unequal relieving of stresses by either thermal or mechanical operation.

Lists Suggestions

The following is a list of suggestions to the user of galvanizing rolls to enable them to obtain greater life and more economic production.

1—Properly machine the rolls, being certain to provide a radius at the bottom of roll grooves.

2—Pre-heat before installation of the roll in the bath. If pre-heated in lead, the roll should be completely submersed; if pre-heated over a gas flame, the roll should be turned periodically to produce a uniform temperature.

3—When installing a machine, the exit rolls should not be installed until after the machine is placed in the bath and the zinc completely re-melted, and then the rolls should be installed only after pre-heating.

4—The exit rolls should be kept revolving during a shut down, and if necessary to stop for long duration, the exit rolls should be removed from the bath.

5—When removing a roll, do not permit it to strike the floor, especially on the neck.

6—Permit hot rolls to cool slowly and uniformly; never quench or pickle hot rolls, or permit them to cool flat on the floor; a high skid is recommended.

7—Do not over-pickle a roll. Use an inhibitator in the pickle bath to minimize the absorption of hydrogen gas.

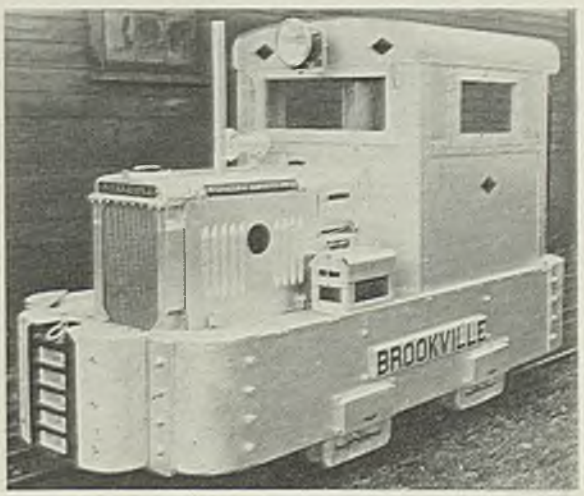
8—Care should be exercised to keep as uniform a temperature as possible in the entire zinc bath. The bath should be kept at as low a temperature as is in keeping with good practice. A low temperature will develop a slushy soft dross which is much less harmful than hard zinc-iron alloy, which causes trouble because of its very powerful expansion force, when formed on a roll, especially in the grooves. Hot spots in the bath should be avoided; it is important to furnish sufficient heat for production, but the total heat must be properly distributed.

9—Composition of the bath in the pot is a local plant condition, but a low percentage of tin or cadmium, although slightly increasing the attack on the iron, will tend to thin the bath and permit a lower working temperature which will minimize roll cracking, due to the formation of a soft zinc-iron. Pure zinc, due to its alloying attack on the iron, necessitates a closer check on working temperatures.

10—Rolls should never be cleaned

(*Concluded on Page 82*)

Indestructible Frames Are Rolled Cast Steel



BROOKVILLE 3½-ton locomotive is powered by International Harvester engine using gasoline, kerosene, or No. 1 distillate. Designed for high speeds over rough, crooked and uneven track, unit has four speeds both forward and reverse. Frames throughout are indestructible and of rolled cast steel

WELDING, ETC.

BY ROBERT E. KINKEAD

Behind the Scenes In Marine Welding

ENTHUSIASTIC endorsement of welding practice of Sun Shipbuilding & Dry Dock Co. was given by members of the Society of Naval Architects and Marine Engineers at an inspection and meeting at Chester, Pa., on June 22nd. (STEEL, August 16, 1937, p. 75).

Few welding applications have ever received such enthusiastic interest as was manifested at this meeting. Leading naval architects and representatives of marine insurance companies had little hesitation in forecasting welding as the coming method of fabricating ships.

To the public this may come as a startling new technical development, but to the welding fraternity it is merely the logical outcome of many years of study and development.

Thomas M. Jackson, chief electrical and welding engineer of Sun Shipbuilding & Dry Dock Co., one of the ablest welding men in the country, has spent at least fifteen years of study and development to reach the point where the naval architects could be invited to witness the process of building ships by welding and gives their unqualified endorsement.

No small part of the success of Sun Shipbuilding & Dry Dock Co. practice is due to the development of the Unionmelt process by Linde Air Products Co. Few processes have ever received as much attention, both financial and technical, as the Unionmelt process.

It was developed by a large group of technical personnel probably having the best metallurgical and welding experience available. The development has been characterized by an ultra-conservative public attitude which is now justified by the endorsement of competent naval architects upon actual inspection of the process in shipbuilding.

It seems, in the interest of public policy, to sketch in brief outline the enormous amount of technical work that is back of the brilliant achievements that have been made in welding.

IN this column, the author, well-known consulting engineer in welding, is given wide latitude in presenting his views. They do not necessarily coincide with those of the editors of STEEL

No Damage to Welding

WHILE being cleaned out with live steam, this petroleum tank was struck, not by a shower of box cars, but by a mere cold rain, with the sucked-in effect shown at left. In the shell of the tank, lap joints had been used throughout, vertical seams being 100 percent welded on both sides, horizontal seams 100 percent welded on outside and seal welded inside. Yet, when restored to somewhat of its original glory by water pressure, it was reported that no damage had been done to any of the welds, although the parent metal had been split in several places and had to be repaired by welding. Photo courtesy National Electrical Mfrs. Assn., Pittsburgh

• • •

Steel Ingot and Electrode Production

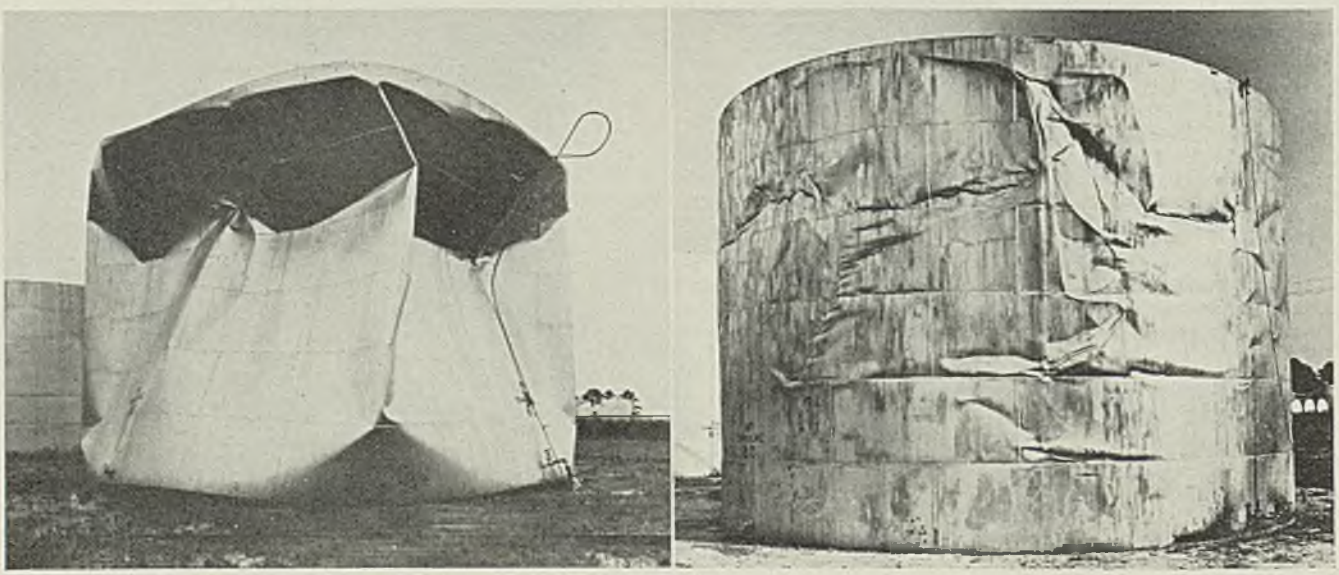
FROM 1932 to 1936 production of steel ingots increased from 13.3 to 46.9 million tons per year and during the same period welding electrodes increased from 18.8 to 111.0 millions of pounds.

In other words, the consumption of welding electrodes increased more than twice as much as the production of steel. The most obvious reason for this condition lies in the fact that manufacturers of welding electrodes and welding equipment spent from 30 per cent to 50 per cent of their total selling effort developing new uses for welding.

From the business point of view, this practice has been amply justified.

The welding industry was probably the first in the technical group to come out of the depression. Not more than 50 per cent of the total business of the welding industry is dependent upon current production of steel; the remainder comes from new uses of welding.

Far sighted leaders in the welding industry spent millions of dollars in developing new uses for their products, results of which return after several years in the form of increased volume of production, which, to a considerable extent is independent of the fluctuations of business cycles.



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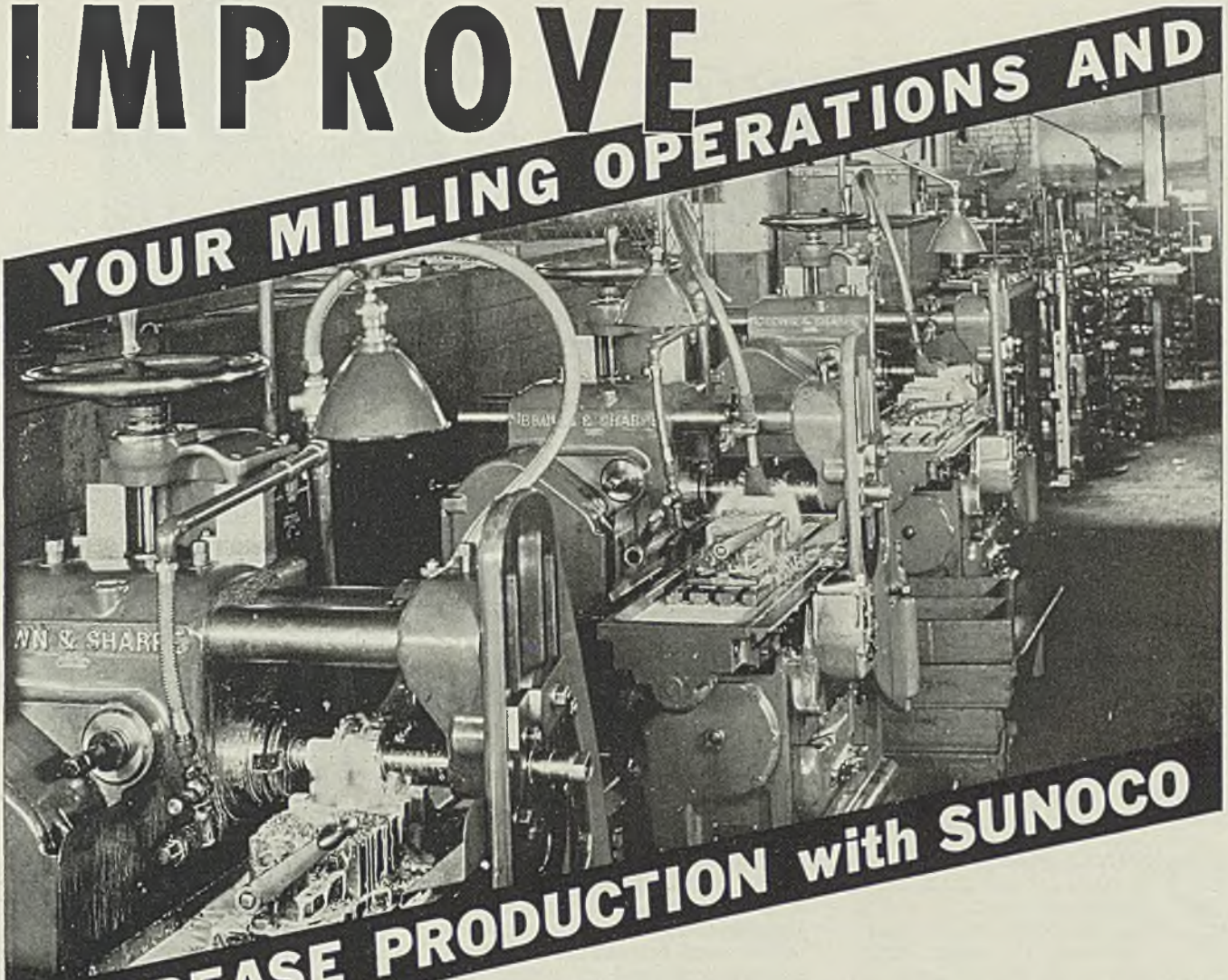

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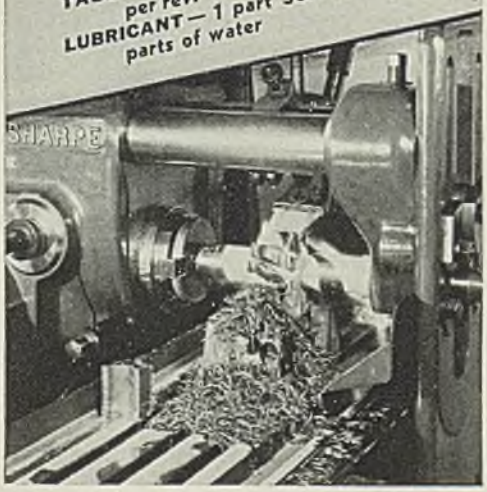
MATERIAL—Cold Rolled Steel
MACHINE—Brown & Sharpe #12 Electrically controlled Plain Milling Machine
CUTTER—Formed 4" Dia. Spindle Speed 85 R.P.M. Surface Speed of cutter—89' per minute
TABLE FEED—1⅝" per minute .019" per rev.
LUBRICANT—1 part SUNOCO to 25 parts of water



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SUNOCO

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Slip Ring Starters Facilitate Smooth Acceleration of Inertia Loads

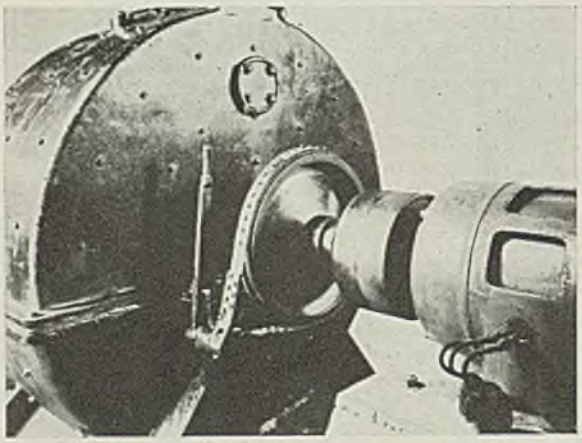
ON MANY types of loads, such as large exhaust fans, heavy grindstones of large diameter, centrifugal machines, heavy rotating cylinders and other equipment with high inertia loads at starting, the power required to start may be several times the running load.

A motor with ample power to start, including its overload characteristics, will operate on such drives at considerably below its normal full-load rating.

For example, in one nail making plant a battery of 6 large diameter grindstones were belted to a lineshaft driven by a 40-horsepower motor operating at 900 revolutions per minute. To start the battery of grindstones required an 80-horsepower current input to the motor, or 200 per cent of normal full load. Because the motor quickly came up to full speed, belts to the grindstones frequently slipped off before overcoming the inertia of the massive stones.

When the lineshaft and stones got up to full speed, the running load on the 40-horsepower motor was only 6½ horsepower. Thus during the day the motor operated at only about 16 per cent of full load rating. Under these conditions a motor of the induction type would operate throughout the day at low efficiency and at extremely low power factor.

The solution adopted in this case was to install a pulley type slip ring starter with a maximum torque capacity of 17½ horsepower driven by a 10-horsepower, 900-revolutions per minute, induction motor. The 10-horsepower motor is started across the line and reaches full speed in about 2 seconds. Due to the action of the slip ring starter the grindstones accelerate slowly and reach full speed in about 35 seconds. With this drive the motor operates at about 62½ per cent of full load with low, but considerably improved, power factor.



A 20 - horsepower motor replaced a 40 - horsepower high-torque motor on this heavy centrifuge with 19-horsepower running load by using a Bethlehem slip ring starter. Photo courtesy J. P. Madden, distributer, Bethlehem, Pa.

Operates As Clutch Pulley

The special slip ring starter operates somewhat on the order of a clutch pulley except that the actuating force is centrifugal action, which provides automatic operation as the speed increases. The slip ring clutch used on this drive consists of a steel spider keyed to the motor shaft and provided with expanding arms faced with asbestos brake-band lining. At full speed these arms expand centrifugally and contact the inside of the clutch shell or drum attached to the pulley.

Operation is somewhat similar to that of an expanding automobile brake except that one end of the circular arm is attached to the spider and the other is free to fly outward against the shell by centrifugal action instead of being forced out, or expanded, mechanically. When the motor starts these

arms fly out and the friction lining drags on the drum until the load is slowly picked up and brought up to full speed.

Amount of torque applied depends upon the speed, number, diameter and weight of the brake arms. Although this clutch can be designed for low speeds the size and weight limitations give most practical operation with speeds between 600 and 1800 revolutions per minute. The slip ring starter may be used with pulley, gear or chain drive or to take the place of a flexible coupling. With the latter the spider is keyed to the motor shaft and the shell or drum is attached to the load.

Such a drive naturally has a torque limit beyond which the arms will slip. This is an advantage and useful in many cases where sudden running overloads may occur, especially where operation is of such a nature as to stall the motor for example, as on conveyor drives or other equipment where foreign material may become lodged and stop the machine. Ordinarily the slip ring starter is designed to transmit a maximum of 150 to 200 percent of the motor rating. Above this rating the arms slip, allowing the motor to continue in operation until the electrical overload relay has had time to function and take the motor off the line. This prevents burning out motors.

Prevents Belt Slippage

The slip ring starter provides smooth starting and acceleration without jerk or jar, thus tending to prevent belt slippage or damage to chains or gears under excessive inertia loads. The slow start also permits "inching" the machine or equipment where careful positioning is necessary, as to position the outlet to a rotating cylinder or mill for filling or discharge.

Friction surface, which is ordinary automobile brake band lining, is readily accessible and easily replaced. With ordinary service the bands should not need relining more often than every 3 or 4 years, according to the manufacturer, as the service is not as severe as on the automobile brake. With frequent starting and stopping and when subjected to overloads in operation, the life, naturally, is shorter. It is stated that the starter transmits the load for which it is designed, at any time and under all conditions, even when overheated and approaching a burned or worn-out condition.

♦ ♦ ♦

Control by Magnetic Clutch

INSTANTANEOUS clutch operation by remote control from any of a number of positions often is a necessary feature of modern high speed machines designed to perform continuously a cycle of operations. One way of doing this is through push-button control of the operation of a magnetic clutch.

In the machine for making expanded metal lath, shown in an accompanying illustration, a magnetic clutch on the main drive controls the operation of the machine through start and stop buttons located at various points along the machine. This machine cuts openings in a 9-inch, 22-gage strip of steel with the enclosed rotary cutter in the foreground, and expands to 27 inches wide and levels the strip in the mechanism at the opposite end at the rate of 250 feet per minute or 5000 yards per hour.

Magnetic clutch is placed in the main drive and transmits the full torque load. As the machine will stop quickly, due to the heavy load and the instantaneous release of the clutch, no brake, either mechanical or magnetic, is necessary for a quick stop. Acceleration, due to the action of a magnetic clutch, is smooth and even and picks up the load without jar or jerk to the machinery coupled.

The magnetic clutch is connected in the shaft between the first silent chain reduction and a gear reduction to the main shaft of the rotary cutter. The expanding unit is connected to the cutting section by a long-center, silent chain drive. The leveling rolls are driven by a multiple roller chain on relatively long centers. In this way the operating speeds of the different sections of the entire unit are synchronized by positive drive connections.

Control of the operation is through a type E magnetic clutch manufactured by Stearns Magnetic Mfg. Co., Milwaukee, on a metal lath machine designed by L. E. Curtis and built by Davis & Thompson Co., Milwaukee, for a Chicago concern.

♦ ♦ ♦

Motor or other bearings with an oil reservoir, when oiled while in motion, are likely to receive too much lubricant and overflow when stopped. This not only wastes lubricant but increases the possibility of oil creeping on the winding or product.

♦ ♦ ♦

When inspecting or oiling bearings, be careful to replace the housing cover and see that it fits tightly over the opening.

♦ ♦ ♦

Oil leakage from sleeve bearings usually is due to overlubrication or improper grooving.

♦ ♦ ♦

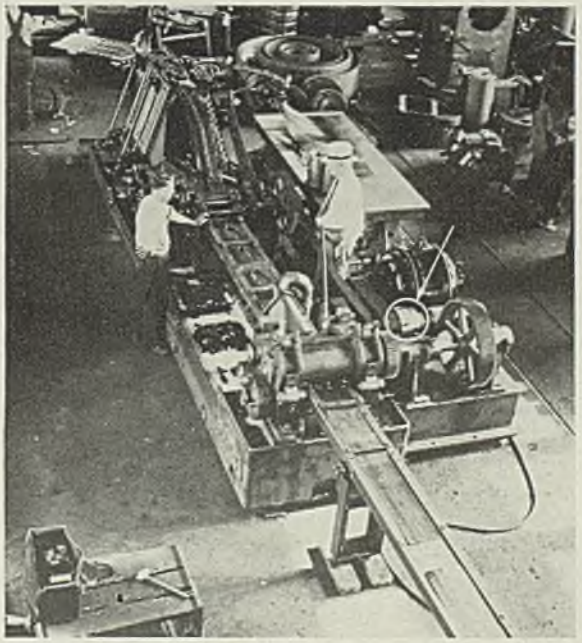
Nothing upsets production so much as equipment failures. Proper inspection and servicing of drives and equipment will prevent most of the unanticipated stoppages.

♦ ♦ ♦

A neatly worded sign, "Prevention Is Better Than Cure," is an excellent motto to place in the maintenance shop.

♦ ♦ ♦

Advantage should be taken of short shutdowns of equipment operated continuously to inspect and service all electrical and mechanical elements of the drive. Co-operation of the operating department in notifying electrical and mechanical departments of such temporary shutdowns is necessary. Such inspections will aid in preventing many interruptions at times when the equipment cannot be idle without interfering with plant operation or production.



REMOTE control for starting and stopping this metal lath machine is obtained through a magnetic clutch in the main drive and conveniently located start and stop buttons. Photo courtesy Milwaukee Journal.

Flywheel Chuck Is New Development

AUTOMOBILE engine flywheel assemblies, made up of a cast iron flywheel with an applied heat-treated steel starter ring gear, are a common example of the type of assembly which can be finished to advantage in a new chuck and by a new method, althoug the application is also suited to use in the heavy machinery field where hardened gears are pressed on cast or soft inserts, flanges and the like.

This precision, pitch line control Gear Chuck has been developed by the Garrison Machine Works, Inc., Dayton, Ohio for accurately chucking assemblies of various kinds by the pitch line of the teeth of the applied gear so that final finishing operations performed on the assembly will be true and concentric with the teeth of the applied gear.

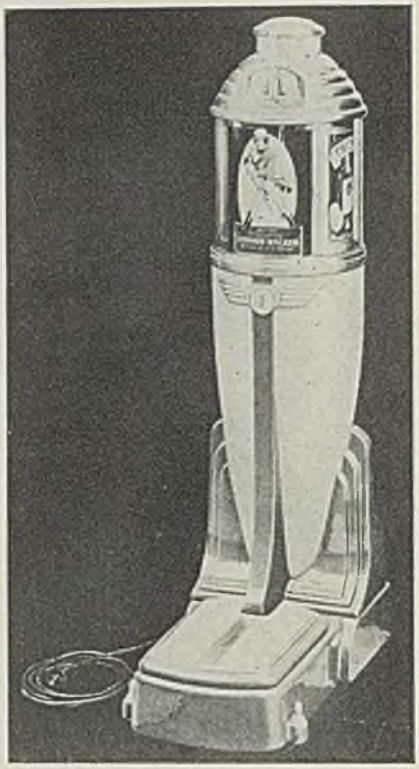
Standard practice in the past was to finish completely the heat-treated steel ring gear and then press it on a cast iron flywheel, insert, flange or hub which had also been finished completely. The assumption was that these two component parts of the assembly were perfect, and the assembly itself would naturally be perfect. But it is not possible to make perfect ring gears and inserts or flywheels even under the best production conditions. The ring gears are necessarily thin and subject to cutting errors and distortion in heat treating which might not occur in gears with a solid center section. The gears also change at times when stretched while being pressed on the flywheel or insert. There are also errors in the machining of the flywheel or insert regardless of the care that is exercised. As a natural consequence, commercially perfect ring gears and flywheels or inserts have errors which are negligible in themselves but which, when assembled together, will cause an accumulation or "build-up" in the assembly which renders a percentage of the assemblies unsatisfactory in plants where standards of quality are very high and final inspection extremely critical. Since the component parts of the assembly are commercially perfect within the closest tolerances feasible, the only solution to the problem is through some operation that will "average-out" the errors existing in the assembly itself.

The "averaging-out" of errors in the assembly is accomplished by chucking the complete assembly by locating from the teeth of the gear and finishing some major control surface such as the crankshaft flange seat, in the case of automobile engine flywheels. It is also possible to finish machine other portions of the assembly and in these cases the chuck is probably mounted on a lathe. It can be mounted on a drill press and a piloted tool used if only the bore or the crankshaft seat of the assembly is to be finished by reaming, fly cutting, etc. The gear is located in the chuck by chuck members spaced at intervals around the body. The chucking principle is such that the assembly is located in a manner approximating actual use if one considers any of the chuck members as the pinion or gear mating with the applied gear of the flywheel when it is in actual service. In short, the assembly is finished "in place," so to speak—which is the best assurance that it will run quietly, transmit power smoothly and uniformly, and be free of excessive wear.

FLYWHEEL assemblies can be finished to advantage in the Garrison chuck

New Scale Has Dual Source of Revenue

A NEW scale designed for earning revenue from two sources, shown in the accompanying illustration has been placed in production by O. D. Jennings & Co., 4309 West Lake street, Chicago. Principal income is obtained from the sale of advertising space in the scale column. There is room for four such displays surrounding the weighing mechanism. The displays are on parchment paper illuminated by an electric light inside the cylinder. The advertising unit is rotated constantly by an electric motor which stops momentarily to attract the attention of passersby. The second revenue consists of the 1-cent pieces inserted by those using the scale. Developed by Lawrence Blazey, Designers for Industry Inc., Terminal Tower, Cleveland, the scale has an ornate appearance. Base and lower portion of the column are of cast iron decorated with porcelain enamel in two tones of green. The top of the column is of sheet steel finished by chromium plating.



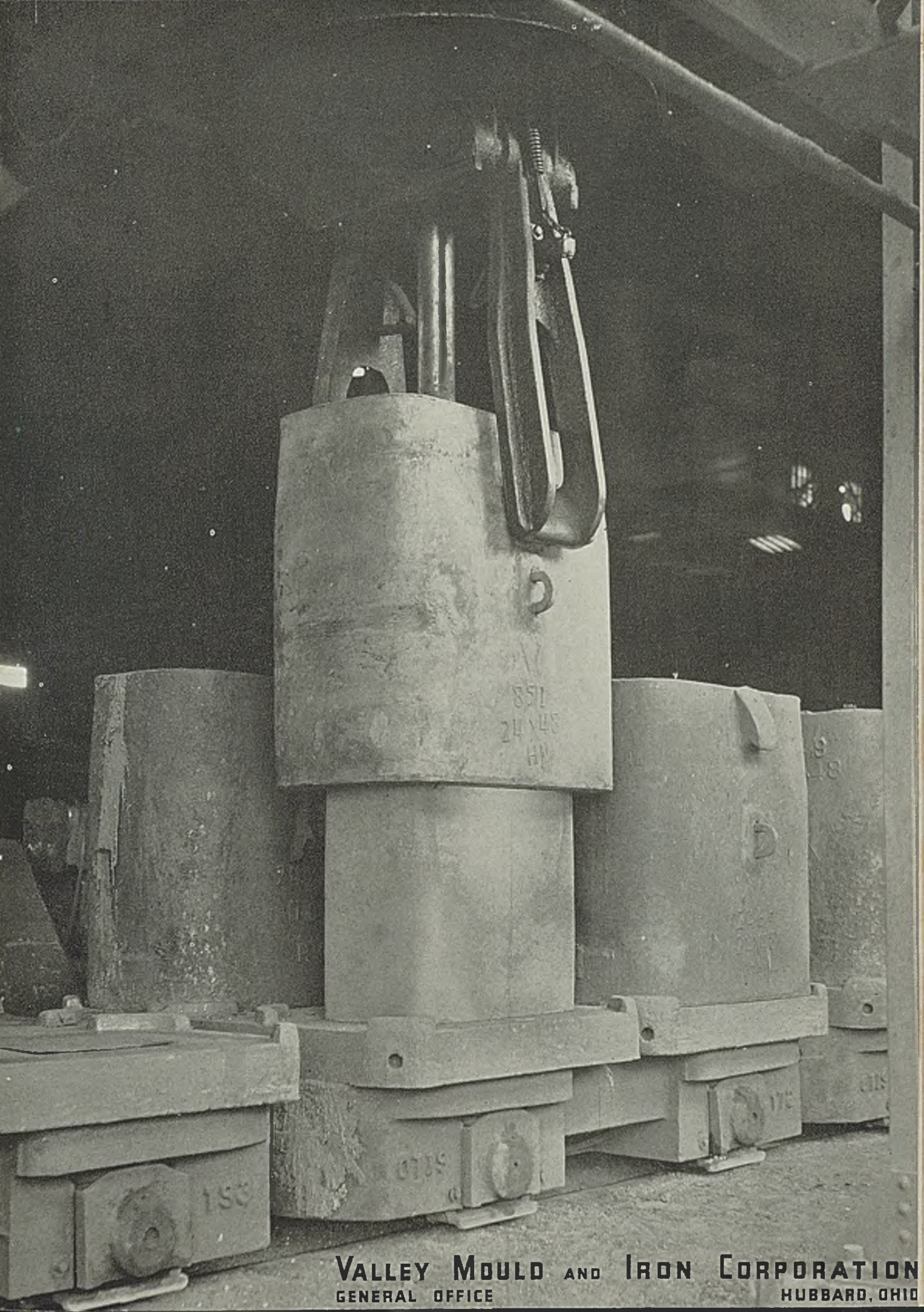
ORNATE scale earns two revenues, the principal one being derived from the sale of advertising space in the scale column

First Aid Kit Made Especially for Burns

A first aid kit especially for the treatment of burns is being marketed by Davis Emergency Equipment Co., 55 Van Dam street, New York City and is for use in any location where workers are in danger of serious bruns.

The kit is furnished in bright red enamel and conspicuously labeled. It contains 12 gauze compresses which can be opened up in progressively larger sizes for use in covering small or large areas; 12 six-yard lengths of 4-inch bandage for holding dressings in place; 6 five-ounce tubes of a tannic acid jelly; and three packages of wooden applicators for the jelly.

The jelly contains 5 per cent tannic acid and is known as Tannoid. It was especially developed by the manufacturers of the kit to keep for indefinite periods, since an ordinary 5 per cent tannic acid solution is impractical after it has lost its freshness.

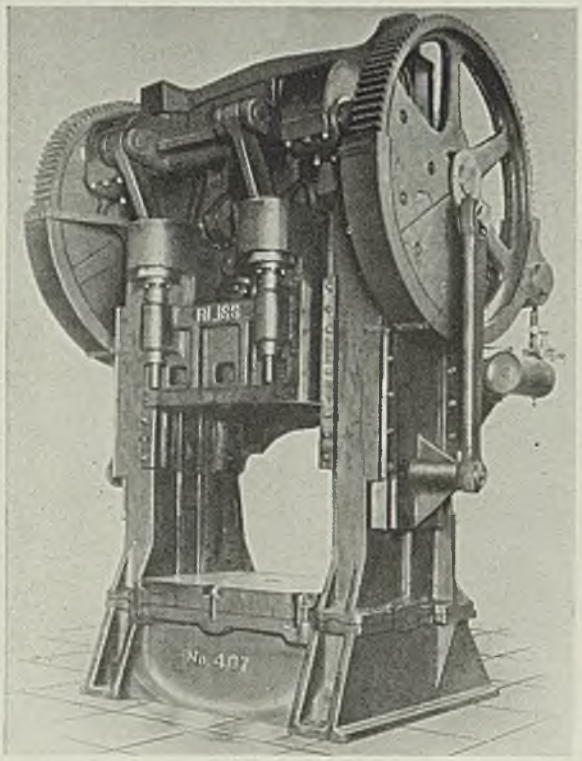


VALLEY MOULD AND IRON CORPORATION
GENERAL OFFICE HUBBARD, OHIO

NEW EQUIPMENT

Toggle Drawing Press—

E. W. Bliss Co., 1420 Hastings street, Toledo, O., has developed a toggle double-action press with advantages in positive gripping for stretching jobs with draw beads and in power economy on deep draws. It can draw a shell 10 inches in depth and also can be converted from a double-action into a triple-action press by the addition of Marquette drawing cushions in the bed. The Bliss No. 407 double-crank, double-action, straight-sided, toggle drawing press illustrated is a long stroke model. Frame is made of four separate castings held together by extra-heavy steel tie rods which are shrunk in. A 35-horsepower electric motor drives the flywheel through V-belts, which in turn drives the double-geared twin drive train of gears. The control is completely electric, with push buttons to start, stop, or inch the press. The ability to inch is valuable in die setting. The clutch is a full automatic, air-operated, combined friction clutch and brake with the clutch mounted in the flywheel. The flywheel is mounted on Timken roller bearings. Diameter of crankshaft at bearings is 7 inches; at pins, 8 inches; plunger stroke is 21 inches; blank-holder stroke, 14 inches; shut height bed to blank-holder, stroke down adjustment up, 34 inches; bolster, 6 inches thick. The crankshaft and the intermediate shaft have renewable bronze bushings while the driveshaft is mounted on renewable Timken roller bearings. The bed is completely arranged for the addition of air cushions.

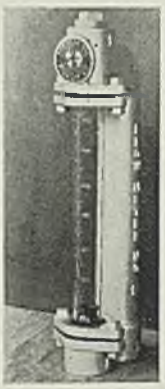


Bliss toggle drawing press is a long stroke model

• • •

Flow Meters—

American Gas Furnace Co., Elizabeth, N. J., is manufacturing Flow Meters for measuring the flow of air and gases to obtain better control of gas burning operations and carburizing. In these meters a float rides in a transparent, calibrated, tapered tube. The flow of the gases supports the float at some position in the tube, depending upon the quantity of air or gas passed. The position of the float indicates the flow and permits direct reading of the volume in cubic feet per hour. The entire flow of air or gas is thus measured and possibility of error is eliminated. The Pyrex glass tube, which has been carefully calibrated in conjunction with the float provided with it, is mounted in a vertical position in a casting with standard pipe thread. Installation is made directly in the line, using an inlet at the bottom and outlet at the top, or alternative outlet at the bottom. The flow meters are calibrated to read directly in cubic feet of gas per hour and, unless otherwise specified, are calibrated for 0.60 specific gravity city gas at a pressure of 4 to 6-inch water column. Correction factors for other pressures and other specific gravities are supplied with each unit or Flow Meters can be calibrated for gases of a given specific gravity.



Flow meters measure flow of air and gases

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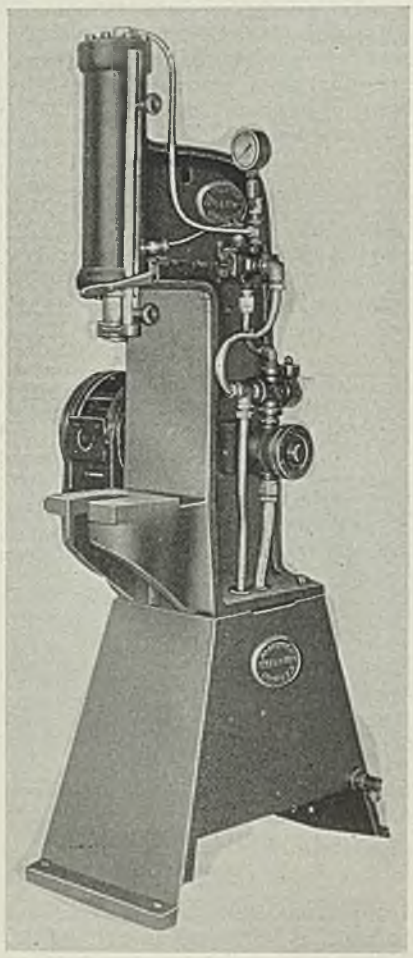
Hydraulic Presses—

Greenerd Arbor Press Co., Nashua, N. H., is manufacturing

new high speed, self-contained, 2 and 4-ton hydraulic arbor presses. These machines are cast of special hydraulic semi-steel and are equipped with a 3½-inch steel piston with three cast iron piston rings. The rams, which are made of alloy steel with a plug the same size as the ram, are packed with chevron type packing and the glands are equipped with bleeder pipe to take care of any surplus seepage on the ram. The motor and hydraulic pump are mounted on opposite sides of the main housing and the pump is connected between a 16-gallon sump in the base and a pair of hydraulic valves which are mounted on the side of the frame. The ram is put into motion by hand lever and pressure will remain on work until lever is released, which will automatically return ram up to power stop which may be set at any predetermined point within the 16-inch stroke of the ram. Each press has an adjustable stroke from 1 to 16 inches and the size of the ram is 2 inches in diameter. Pressure may be set at any point between ½-ton and full capacity of the press. Each press has a machined working table 8 x 8 inches with a 2¾-inch slot. Height from floor to table is 34 inches. All machines are self-contained units and are equipped with a 3-horsepower motor, except for one 4-ton press which is equipped with a 5-horsepower motor.



Greenerd arbor presses are high speed, self-contained units and are made in 2 and 4-ton models

♦ ♦ ♦

Illuminated Push-Button—

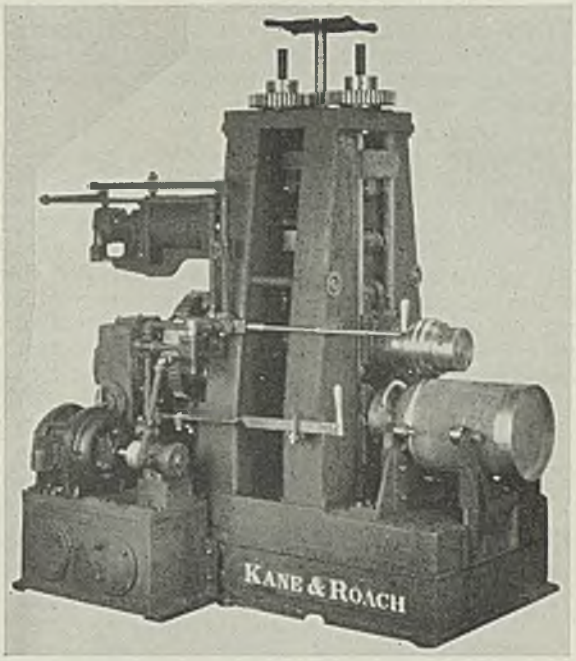
General Electric Co., Schenectady, N. Y., has developed a new small, standard-duty, push-button station with an indicating lamp in the center of the translucent button. Through the combination of the push-button and indicating lamp in a single, compact unit, the new station needs only about one-half the space required by the two devices when they are mounted separately. It is available with buttons in six colors: white, green, blue, red, clear and amber. The indicating lamp is operated through a small control transformer which, because of its diminutive size, can be mounted readily in or on a machine. An idea of the compactness of the push-button station can be gained from the fact that it is but 2⅝ inches high, 1¼ inches wide, and 2⅝ inches thick.

♦ ♦ ♦

Bending Roll—

Kane & Roach Inc., Syracuse, N. Y., is manufacturing the No. 17-AH wrapping type bending roll, a machine employed for bending motor frames and handling a range of selections from ¼-inch square to 8-inch inside diameter, to 7/16-inch thick by 10⅛-inch face to 11 9/32-inch outside diameter. Being of the wrapping type, the machine is provided with a separate top or master roll for each diameter circle. The design is such as to give a complete bend to the end, and a true circle, as to diameter. An air cylinder is provided for raising and lowering the top roll through toggle joint mechanism. The drive is taken direct from the motor, coupled to worm reduction gear box, enclosed and running in oil. Secondary reduction drive and drive to top roll shaft are through cut steel gears suitably guarded. The unit is operated by a 20-horsepower, two-speed motor, 900 and 1800 revolutions per minute, giving a production of 25 to 50 lineal feet per minute.

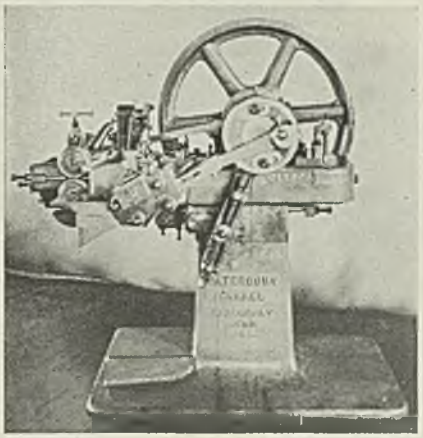
Wrapping type bending roll, as adapted to perform two operations on milk cans



♦ ♦ ♦

Rivet Headers—

Waterbury Farrel Foundry & Machine Co., Waterbury, Conn., is now offering its ⅛-inch and 3/16-inch standard solid die, double stroke, toggle headers equipped for making tubular rivets having a depth of hole limited to about one-inch diam-



Waterbury Farrel rivet header has a production of 100 per minute with either belt or individual motor drive

eter. A patented tool arrangement is employed, which can also be applied to existing headers of this style and capacity. One set of tools is used for making the head in two blows and an additional set for forming the tubular portion, both sets working simultaneously on successive rivet blanks. By spring fingers the rivets are carried from the regular heading die to the auxiliary die in which the tubular end is formed. It is claimed that the use of these machines will eliminate the usual subsequent drilling operation and metal loss, and consequently offer an economical means of manufacture. Production is 100 per minute, either belt or individual motor drive.

• • •

Conveyor Roller—

Mathews Conveyer Co., Ellwood City, Pa., has developed a new roller to meet the demand for heavy duty roller conveyors in industry. The new roller incorporates 3½-inch outside diameter seamless steel tubing, 5/16-inch wall, 0.30-0.40 carbon. The bearing applied is newly designed and has steel inner and outer labyrinth seals, hardened inner and outer ball races, and thirteen 9/16-inch diameter hardened steel balls assembled within a pressed steel jacket. The assembled roller has an average rated capacity of 2200

Mathews heavy-duty conveyor roller has an average rated capacity of 2200 pounds

pounds. A hexagon axle is applied in this roller, providing a positive means of locking the inner ball race and the axle, preventing wear between these parts. The axle is drilled at the ends and grease fittings applied, making period lubrication simple. Cotter keys hold the roller firmly in the frames. This roller can be furnished in lengths from 6 inches up to 48 inches and can be spaced in the frames on centers from 4 inches on up. Channel or angle frames are generally used in the construction of conveyors incorporating this roller. When the rollers are placed low in the structural frame, the top of the frame functions as a guard rail for the commodities being conveyed.

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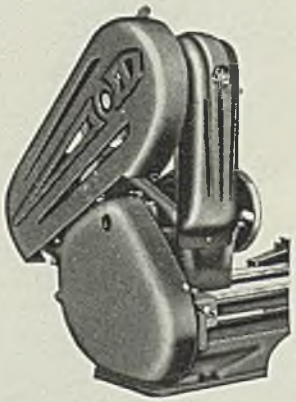
Safety Belt Guards—

Atlas Press Co., Kalamazoo, Mich., has announced new belt shields now available for any Atlas Series 9 or 10 lathes with self-contained crankshaft. The complete transmission



Atlas belt guards are aluminum castings with pin-hinges for quick raising and speed changes

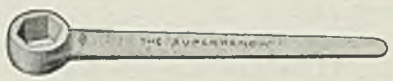
of any Atlas lathe is fully enclosed after these belt guards are added. Both guards are aluminum castings with pin-hinges for quick raising and speed changes. It is not necessary to remove guards to change belts.

The left guard covers the motor-to-countershaft belt and has a special inner guard for the pulley on the countershaft. The right guard covers belt from countershaft to lathe spindle. The entire assembly is ready tapped for easy installation.

♦ ♦ ♦

Wrenches—

J. H. Williams & Co., 75 Spring street, New York city, has announced some new, heavy pattern Hex-Box wrenches designed for severe service.



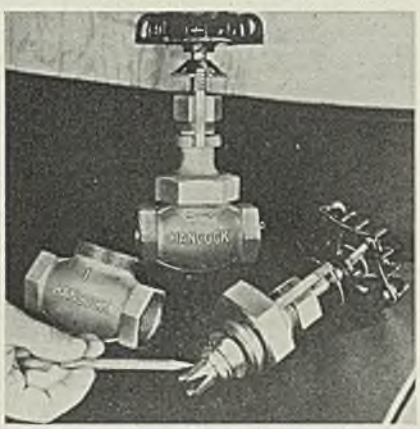
Williams Hex-Box wrenches have heads the same thickness as the nuts they fit

The new tools provide extra strength, full bearing, and heads are approximately the same thickness as the nuts they fit. Their comparatively thin head walls are particularly efficient in close quarters. Openings range from 1¼ to 3⅛-inches. There are two lines of these drop-forged wrenches—carbon steel and chrome-molybdenum Superenches. The carbon wrenches are finished in baked-on black enamel with bright heads, and the superproduct is chrome plated with heads brightly buffed.

♦ ♦ ♦

Control Valves—

Manning, Maxwell & Moore Inc., Hancock Valve division, Bridgeport, Conn., has announced a redesigned line of Hancock Bronze Flocontrol valves that combine a flow instrument and shutoff valve. As a wear-



Hancock Flocontrol valves combine a flow instrument with a shutoff valve

resisting feature these valves incorporate superhard stainless steel valve seats and disks of 500 Brinell hardness made on diamond boring machines. It is claimed that the new seats and disks will crush nails, pipe turnings ,welding chips and boiler scale without a trace of damage to themselves. Valves have a body of union bonnet type instead of inside screw bonnet formerly used, and are efficiently used for temperature control for gas fired, oil fired, or steam heated processes; proportional blending of liquids; water softening systems.

♦ ♦ ♦

Electrical System—

Bull Dog Electric Products Co., Detroit, has announced universal type Trol-E-Duct, a flexible and mobile electrical distribution system designed for general lighting and light duty power applications. Universal type Trol-E-Duct consists essentially of section lengths of formed steel duct enclosing copper bus bars partially wrapped in insulating material. Movable current-carrying trolleys and stationary twistout plugs to which lights, tools and appliances can be wired are inserted in a narrow continuous slot extending along one side of the duct. Weight supports also can be inserted in the duct to support lamp fixtures, portable tools and other equipment.

RECENT PUBLICATIONS OF MANUFACTURERS

Copies of any of the literature listed below may be obtained by writing directly to the companies involved, or by addressing STEEL, in care of Readers' Service Department, 1213 West Third Street, Cleveland

Drilling Machine — High Speed Hammer Co., 313 Norton street, Rochester, N. Y., has published a circular giving important details concerning the improved High Speed sensitive, precision drilling machine.

Waterproofing—Truscon Laboratories, Detroit, has issued a bulletin dealing with Truscon Super-Por-Seal, a new development in transparent damp-proofings for exterior concrete stucco and masonry.

Flow Meters—American Gas Furnace Co., Elizabeth, N. J., mails a bulletin page describing Flowmeters for measuring the flow of air and gases of all kinds to obtain control of gas burning operations and carburizing.

Switchgear—Allis-Chalmers Mfg. Co., Milwaukee, has released bulletin No. 1187 on modern, indoor-type, cubicle switchgear and giving outstanding advantages, applications and details of construction as well as complete dimensions.

Gearing—Boston Gear Works Inc., North Quincy, Mass., has issued catalog No. 101 dealing with Boston Ratiomotors, motorized speed reducers, and with Reductors, speed reducers, and listing 14 different types of each.

Pipe, Fittings—Haveg Corp., Newark, Del., has completed a data bulletin on standard size Haveg pipe, fittings, valves and fume duct. In addition to giving complete mechanical details it also includes a table of chemical resistance properties.

Alloy—Revere Copper & Brass Inc., 230 Park avenue, New York, has published a 64-page catalog dealing with Herculoy, copper-silicon tin and copper-silicon manganese alloys, describing the forms and giving charts of physical properties.

Electrodes—Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., has printed a catalog section, dealing with crucible weld electrodes for alternating-current welding, which describes the three available grades and sizes and their application.

Tools and Blanks — Vanadium Alloys Steel Co., Vascoloy-Ramet division, North Chicago, Ill., has issued a new catalog of tools and blanks, containing useful data for tool makers using carbide blanks or machine shops using tools tipped with these blanks.

Welding Stainless Steel—Republic Steel Corp., Cleveland, has printed a booklet discussing the electric arc, gas, spot and projection, seam, flash, and atomic hydrogen welding of Enduro stainless steels and also dealing with brazing and silver soldering.

Steel—Darwin & Milner, Inc., 1260 West Fourth street, Cleveland, has printed a bulletin dealing with Cobalterom PRK33, a cobalt-chromium steel.

South Chicago Ore Bridge Has Design Innovations

(*Concluded from Page* 60)

inch diameter bronze-bushed rollers each held in place by angle frames. The maximum travel of the south tower at right angles to the track, due to skewing the bridge, is about 7 feet. The tower above is held in place for lateral motion by four 24-inch diameter rollers fastened to the turntable below and running on the edge of the track plates on the loading girders above.

Turntable roller nests on both towers are 35 feet diameter each consisting of 32 8-inch conical rollers 2 feet long. They are all bronze bushed and each roller adjustable for radial position. They are held in place with a channel frame connected at the rotating centers with bronze-bushed cast steel bearings to the 7½-inch diameter king pins. The roller nests rest on radial tread plates connected to the cross girders of the trucks.

Trucks Accurately Aligned

Main trucks are structural steel, consisting of two plate girders about 90 feet long and spaced 6 feet 6 inches on centers, with necessary cross girders, king pin frame and machinery supports. No bottom lateral bracing was used, but cross frames at each axle transmitted the lateral force to a horizontal girder placed on top of the trucks. This horizontal girder is riveted to the girder flanges and prevents dirt from accumulating on the machinery below. Trap doors give access to the machinery. Because it was necessary that the trucks be true to alignment, they were riveted up complete in the shop and the bottom flange milled for bearing of the wheel castings.

The bridge is provided with a 10-ton electric repair hoist and has stairs, walks and ladders to all places necessary for operation and inspection of the bridge. To prevent dirt and ore dust from accumulating, which would cause corrosion of the steel, the bridge was made self-cleaning. All members are accessible for painting.

The bridge was designed under the direction of J. F. Brown, chief engineer, South Works, and W. S. Hall, chief engineer, Carnegie-Illinois Steel Corp., Chicago District. The structural steel was fabricated and erected by the American Bridge Co.

Rolls Used in Sheet Galvanizing

(*Concluded from Page* 69)

by burning off the zinc iron alloy at high temperatures. Zinc-iron alloy will not oxidize below 1100 degrees Fahr., and this temperature might cause cracks to develop on the surface of the roll.

Bottom rolls seldom develop the serious troubles encountered with exit rolls, but, not infrequently, a condition, called "scaling," develops. This trouble is the result of the zinc-iron alloy cracking off from the bottom roll and adhering to the underside of the sheet. It is, generally, thought that mechanical conditions cause a roll to scale. However, there are other causes, such as, the temperature at the bottom of the pot, percentage and type of elements alloyed with the zinc, which tend to influence the formation of zinc-iron alloy. The mechanical causes of "scaling" are:

Too tight an adjustment of the roll, causing the zinc-iron alloy to crack and flake off when gripping the sheet in its travel through the bath, and vibration of the pinions driving the rolls. Poorly sheared edges on the sheets tend to cut the scale and, eventually, cause the scale to part from the roll surface.

It would appear, from a careful study of the scaling of rolls, that the low carbon (below 20 carbon) steels, especially ingot iron, have a greater tendency to scale than the low or medium carbon steels and, where this trouble is excessive, two types of rolls are employed; low carbon iron for the exit roll, in order to minimize surface cracking, and medium carbon steel for the bottom roll, in order to minimize scaling.

Publication Delayed

Publication of the article describing progress made in direct rolling of molten metals to strip which was to have started in this issue has been delayed. The article, which will appear in four installments, is scheduled to begin in an early issue.

Reader Comments

(*Concluded from Page* 19)

turers may be to see to it that they do not knowingly depart from price and discount structures, they may, nevertheless, find themselves targets for suits brought in the hope of obtaining a settlement of some sort. Fighting litigation to a finish is costly, even if victorious.

The cheapest way from a tax standpoint to create reserves for contingencies, especially when they may not be translated into actual losses until several years have elapsed, is through insurance or indemnity contract method. Such reserves are not subject to undistributed profits or undue accumulation of surplus taxes. Moreover it may take many years of self insurance to create a reserve which insurance or indemnity contracts will create immediately.

No insurance policies as such are yet available to cover third-party claims under the Robinson-Patman acts but contracts for payment of legal expenses and the cost of judgment or settlement have actually been made available under certain conditions to responsible manufacturers willing to make certain representations concerning the fundamentals of their price and discount policies. The risks are too great and should not have to be borne entirely by legitimate business maintaining price structures believed to be in strict conformity with the act, but which may, in the eyes of the court, be interpreted otherwise.

S. A. Coykendall Jr.
Vice President,
S. A. Coykendall & Co.,
New York.

Steelmaking Steady as Autumn Revival Nears

Scrap Prices Down;

Pig Iron in Gain;

New Record for Ore

MARKET IN TABLOID

DEMAND *. . Gradual improvement in general buying.*

PRICES *. . . . Steady, scrap at lower level.*

PRODUCTION *. . Operations unchanged at 83 per cent of capacity.*

SHIPMENTS *. . . Steady, with deliveries easier.*

IN SPITE of light buying steel production is holding fairly steadily at the excellent rate prevailing through late July and August. Producers apparently are not troubled at the small current volume of bookings and are actively seeking to clear their books of backlogs, which are heavy in some products, though light in others.

Buying is increasing in volume each week, though the change is gradual. Some automotive tonnage has been booked, though not in the volume expected later. General demand shows some signs of increased needs by miscellaneous consumers. Export inquiry is being received for various types of steel but prices are not attractive in most instances and little is being booked.

The scrap market is weak in the face of absence of buying by tonnage consumers but negotiations for purchase of a large tonnage for export to Europe by the scrap buying cartel, offering a $2 advance over the last export purchase, are an element of strength if the business is closed.

Steel production last week held at 83 per cent of capacity, changes in rates at various centers being small and virtually cancelling each other. Pittsburgh receded 0.4 points to 83 per cent, Chicago 0.5 point to 86. Cleveland dropped 1.5 points to 78, Birmingham 5 points to 91, Detroit 5 to 95, Cincinnati 4 to 89 and St. Louis 7 points to 77. Wheeling gained 1.5 points to 91, and New England 10 points to 70. No change was made at Youngstown, 73, Eastern Pennsylvania, 65, Buffalo, 86.

American Steel & Wire Co. has announced a quantity plan for sales of nails, staples, merchant wire, barbed and barbless wire and woven wire fencing, superceding the jobber-dealer basis in use previously. A dealer and jobber functional allowance is made on goods purchased for resale and quantity deductions are provided. The purpose is stated to protect legitimate jobber-dealer interests.

Pig iron production in August broke all records since August, 1929. The daily rate was 116,676 tons, compared with 120,845 tons in August, 1929. The daily rate was 3.3 per cent greater than in July. Total tonnage in August was 3,616,954 tons, compared with 3,746,954 tons in August, 1929. For eight months total production was 26,888,648 tons, an increase of 42.4 per cent over the corresponding period of 1936.

Because of interruption of Chinese tungsten ore shipments prices of tool steels containing tungsten are to be advanced Oct. 1 from 67 cents to 80 cents a pound, base, for the grade containing 18 per cent tungsten.

Shipments of iron ore from the Lake Superior region continue to break records. Total tonnage moved to Sept. 1 this year is 45,438,131 tons, compared with 43,717,797 tons in the corresponding period of 1929, the banner year. The August movement was 10,811,381 tons which compares with 10,806,967 tons in August, 1929, and with 10,704,457 in July of this year.

Continued shortening of automobile production as plants become idle for change of models is evident in the decline to 64,200 units last week. General Motors produced 26,600 cars, compared with 29,100 the previous week; Ford 26,000 unchanged; Chrysler 5800 compared with 23,950 and all others 5800, compared with 4260.

Uncertainty as to the fate of its request for higher rates and the outcome of arbitration on wages is holding the railroad industry back from committing itself for cars and rails. In August 1475 cars were contracted for domestic use. This brings the eight months total to 48,490 cars. This compares with 35,563 bought in the first eight months of 1936. Last year 23,450 were placed in December, indicating the probability of better business late in the year.

With quotations on steelmaking scrap largely nominal prices have weakened and are about $1 per ton lower at Pittsburgh and Chicago, while in the East they show better resistance. As a result the composite of steelmaking scrap declined 75 cents last week, to $19.75, wiping out practically all the gain made during August. The weakness of scrap has brought the iron and steel composite down 9 cents to $40.27. The finished steel composite is steady at $61.70.

COMPOSITE MARKET AVERAGES

	Sept. 4	Aug. 28	Aug. 21	One Month Ago Aug., 1937	Three Months Ago June, 1937	One Year Ago Sept., 1936	Five Years Ago Sept., 1932
Iron and Steel	$40.27	$40.36	$40.36	$40.34	$39.82	$34.15	$28.93
Finished Steel	61.70	61.70	61.70	61.70	61.70	53.10	47.50
Steelworks Scrap ..	19.75	20.50	20.50	20.41	17.15	16.18	7.04

Iron and Steel Composite:—Pig iron, scrap, billets, sheet bars, wire rods, tin plate, wire, sheets, plates, shapes, bars, black pipe, rails, alloy steel, hot strip, and cast iron pipe at representative centers. Finished Steel Composite:—Plates, shapes, bars, hot strip, nails, tin plate, pipe. Steelworks Scrap Composite:—Heavy melting steel and compressed sheets.

A COMPARISON OF PRICES

Representative Market Figures for Current Week; Average for Last Month, Three Months and One Year Ago

Finished Material

	Sept. 4, 1937	Aug. 1937	June 1937	Sept. 1936
Steel bars, Pittsburgh	2.45c	2.45c	2.45c	1.95c
Steel bars, Chicago	2.50	2.50	2.50	2.10
Steel bars, Philadelphia	2.74	2.74	2.74	2.26
Iron bars, Terre Haute, Ind.	2.35	2.35	2.35	1.95
Shapes, Pittsburgh	2.25	2.25	2.25	1.90
Shapes, Philadelphia	2.45½	2.45½	2.45½	2.11½
Shapes, Chicago	2.30	2.30	2.30	1.95
Tank plates, Pittsburgh	2.25	2.25	2.25	1.90
Tank plates, Philadelphia	2.43½	2.43½	2.43½	2.09
Tank plates, Chicago	2.30	2.30	2.30	1.95
Sheets, No. 10, hot rolled, Pitts.	2.40	2.40	2.40	1.95
Sheets, No. 24, hot ann., Pitts.	3.15	3.15	3.15	2.50
Sheets, No. 24, galv., Pitts.	3.80	3.80	3.80	3.20
Sheets, No. 10, hot rolled, Gary	2.50	2.50	2.50	2.25
Sheets, No. 24, hot anneal., Gary	3.25	3.25	3.25	2.90
Sheets, No. 24, galvan., Gary	3.90	3.90	3.90	3.50
Plain wire, Pittsburgh	2.90	2.90	2.90	2.40
Tin plate, per base box, Pitts.	$5.35	5.35	5.35	5.25
Wire nails, Pittsburgh	2.75	2.75	2.75	1.95

Semifinished Material

Sheet bars, open-hearth, Youngs.	$37.00	$37.00	$37.00	$30.00
Sheet bars, open-hearth, Pitts.	37.00	37.00	37.00	30.00
Billets, open-hearth, Pittsburgh	37.00	37.00	37.00	30.00
Wire rods, No. 5 to ⅜-inch, Pitts.	47.00	47.00	47.00	38.00

Pig Iron

	Sept. 4, 1937	Aug. 1937	June 1937	Sept. 1936
Bessemer, del. Pittsburgh	$25.26	$25.26	$25.26	$20.8132
Basic, Valley	23.50	23.50	23.50	19.00
Basic, eastern del. East Pa.	25.26	25.26	25.26	20.81
No. 2 fdy., del. Pittsburgh	25.21	25.21	25.21	20.3132
No. 2 fdy., Chicago	24.00	24.00	24.00	19.50
Southern No. 2, Birmingham	20.38	20.38	20.38	15.50
Southern No. 2, del. Cincinnati	23.69	23.69	23.69	19.44
No. 2 X eastern, del. Phila.	26.135	26.135	25.26	21.68
Malleable, Valley	24.00	24.00	24.00	19.50
Malleable, Chicago	24.00	24.00	24.00	19.50
Lake Sup., Charcoal, del. Chicago	30.04	30.04	30.04	25.2528
Gray forge, del. Pittsburgh	24.17	24.17	24.17	19.6741
Ferromanganese, del. Pittsburgh	107.29	107.29	107.29	80.13

Scrap

Heavy melting steel, Pittsburgh	$21.25	$21.85	$18.40	$17.75
Heavy melt. steel, No. 2 East Pa.	17.25	18.00	15.25	14.00
Heavy melting steel, Chicago	21.75	19.75	16.00	16.15
Rail for rolling, Chicago	21.75	21.75	19.50	16.75
Railroad, steel specialties, Chicago	21.75	22.25	19.50	17.65

Coke

Connellsville, furnace ovens	$4.45	$4.50	$4.65	$3.90
Connellsville, foundry, ovens	5.25	5.30	5.30	4.25
Chicago, by-product foundry, del.	11.00	11.00	11.00	9.75

Steel, Iron, Raw Material, Fuel and Metals Prices

Except when otherwise designated, prices are base, f.o.b. cars.

Sheet Steel

Prices Subject to Quantity Extras and Deductions (Except Galvanized)

Hot Rolled No. 10, 24-48 in.

Pittsburgh	2.40c
Gary	2.50c
Chicago, delivered	2.53c
Detroit, del.	2.60c
New York, del.	2.73c
Philadelphia, del.	2.69c
Birmingham	2.55c
St. Louis, del.	2.63c
Granite City, Ill.	2.60c
Pacific ports, f.o.b. dock	2.95c

Hot Rolled Annealed No. 24

Pittsburgh	3.15c
Gary	3.25c
Chicago, delivered	3.28c
Detroit, delivered	3.35c
New York, del.	3.48c
Philadelphia, del.	3.44c
Birmingham	3.30c
St. Louis, del.	3.38c
Granite City, Ill.	3.35c
Pacific ports, f.o.b. dock	3.80c

Galvanized No. 24

Pittsburgh	3.80c
Gary	3.90c
Chicago, delivered	3.93c
Philadelphia, del.	4.09c
New York, delivered	4.13c
Birmingham	3.95c
St. Louis, del.	4.03c
Granite City, Ill.	4.00c
Pacific ports, f.o.b. dock	4.40c

Tin Mill Black No. 28

Pittsburgh	3.30c
Gary	3.40c
St. Louis, delivered	3.53c
Granite City, Ill.	3.50c

Cold Rolled No. 10

Pittsburgh	3.10c
Gary	3.20c
Detroit, delivered	3.30c
Philadelphia, del.	3.39c
New York, del.	3.43c
St. Louis, del.	3.33c
Granite City, Ill.	3.30c
Pacific ports, f.o.b. dock	3.70c

Cold Rolled No. 20

Pittsburgh	3.55c
Gary	3.65c
Detroit, delivered	3.75c
Philadelphia, del.	3.84c
New York, del.	3.88c
St. Louis	3.78c
Granite City, Ill.	3.75c

Enameling Sheets

Pittsburgh, No. 10	2.90c
Pittsburgh, No. 20	3.50c
Gary, No. 10	3.00c
Gary, No. 20	3.60c
St. Louis, No. 10	3.13c
St. Louis, No. 20	3.73c

Tin and Terne Plate

Gary base, 10 cents higher.

Tin plate, coke, (base box), Pittsburgh	$5.35
Waste-waste, 2.75c; strip	2.50c
Long ternes. No. 24, unassorted, Pitts.	4.10c

Corrosion and Heat-Resistant Alloys

Pittsburgh base, cents per lb.

Chrome-Nickel

	No. 302	No. 304
Bars	24.00	25.00
Plates	27.00	29.00
Sheets	34.00	36.00
Hot strip	21.50	23.50
Cold strip	28.00	30.00

Straight Chromes

	No. 410	No. 430	No. 442	No. 446
Bars	18.50	19.00	22.50	27.50
Plates	21.50	22.00	25.50	30.50
Sheets	26.50	29.00	32.50	36.50
Hot strip	17.00	17.50	23.00	28.00
Cold stp.	22.00	22.50	28.50	36.50

Steel Plate

Pittsburgh	2.25c
New York, del.	2.53c
Philadelphia, del.	2.43½c
Boston, delivered	2.65c
Buffalo, delivered	2.50c
Chicago or Gary	2.30c
Cleveland, del.	2.44½c
Birmingham	2.40c
Coatesville, base	2.35c
Sparrows Pt., base	2.35c
Pacific ports, f.o.b. cars, dock	2.80c
St. Louis, delivered	2.52c

Structural Shapes

Pittsburgh	2.25c
Philadelphia, del.	2.45½c
New York, del.	2.50½c
Boston, delivered	2.63½c
Bethlehem	2.35c
Chicago	2.30c
Cleveland, del.	2.45c
Buffalo	2.35c
Gulf Ports	2.65c
Birmingham	2.40c
Pacific ports, f.o.b. cars, dock	2.80c
St. Louis, del.	2.52c

Bars

Soft Steel
(Base, 3 to 25 tons)

Pittsburgh	2.45c
Chicago or Gary	2.50c
Duluth	2.60c
Birmingham	2.60c
Cleveland	2.50c
Buffalo	2.55c
Detroit, delivered	2.60c
Pacific ports, f.o.b. cars, dock	3.00c
Philadelphia, del.	2.74c
Boston, delivered	2.85c
New York, del.	2.78c
Pitts., forg. qual.	2.80c

Rail Steel
To Manufacturing Trade

Pittsburgh	2.30c
Chicago or Gary	2.35c
Moline, Ill.	2.35c
Cleveland	2.35c
Buffalo	2.40c
Birmingham	2.45c

Iron

Terre Haute, Ind.	2.35c
Chicago	2.40c
Philadelphia	2.64c
Pittsburgh, refined	3.50-8.00c

Reinforcing

New billet, straight lengths, quoted by distributors

Pittsburgh	2.55c
Chicago, Gary, Buffalo, Cleve., Birm., Young	2.60c
Gulf ports	2.65c
Pacific coast ports, f.o.b. car docks	2.95c
Philadelphia, del.	2.84c

Rail steel, straight lengths, quoted by distributors

Pittsburgh	2.40c
Chicago, Buffalo, Cleveland, Birm., Young	2.45c
Gulf ports	2.80c

Wire Products

Prices apply to straight or mixed carloads; less carloads $5 higher; less carloads fencing $5 over base column.

Base Pitts.-Cleve. 100 lb. keg.

Standard wire nails	$2.75
Cement coated nails	$2.75

(Per pound)

Polished staples	3.45c
Galv. fence staples	3.70c
Barbed wire, galv.	3.40c
Annealed fence wire	3.20c
Galv. fence wire	3.60c
Woven wire fencing (base column, c. l.)	$74.00
Single loop bale ties, (base column, c. l.)	63.00

To Manufacturing Trade

Plain wire, 6-9 ga.	2.90c

Anderson, Ind. (merchant products only) and Chicago up $1; Duluth and Worcester up $2; Birmingham up $3.

Spring wire, Pitts. or Cleveland	3.50c

Do., Chicago up $1, Worc. $2.

Cold-Finished Carbon Bars and Shafting

Pittsburgh	2.90c
Chicago	2.95c
Gary, Ind.	2.95c
Detroit	2.95c
Cleveland	2.95c
Buffalo	2.95c

Subject to quantity deductions and extras. List dated Aug. 26, 1935; revised Oct. 1, 1936.

Alloy Steel Bars (Hot)

(*Base, 3 to 25 tons*)

Pittsburgh, Buffalo, Chicago, Massillon, Canton, Bethlehem	3.00c

Alloy	Diff.	Alloy	Diff.
S.A.E.		S.A.E.	
2000	0.35	3100	0.70
2100	0.75	3200	1.35
2300	1.55	3300	3.80
2500	2.25	3400	3.20
4100 0.15 to 0.25 Mo.			0.55
4600 0.20 to 0.30 Mo. 1.50-2.00 Ni.			1.10
5100 0.80-1.10 Cr.			0.45
5100 Cr. spring			0.15
6100 bars			1.20
6100 spring			0.85
Cr. N., Van			1.50
Carbon Van.			0.85
9200 spring flats			0.15
9200 spring rounds, squares			0.40

Piling

Pittsburgh	2.60c
Chicago, Buffalo	2.70c

Strip and Hoops

(Base, hot rolled, 25-1ton)

(Base, cold-rolled, 25-3 tons)

Hot strip to 23⅞-in. Pittsburgh	2.40c
Chicago or Gary	2.50c
Birmingham base	2.55c
Detroit, del.	2.60c
Philadelphia, del.	2.69c
New York, del.	2.73c
Cooperage hoop, Pittsburgh	2.50c
Chicago	2.60c
Cold strip, 0.25 carbon and under, Pittsburgh, Cleveland	3.20c
Detroit, del.	3.40c
Worcester, Mass.	3.40c

Carbon	Cleve. Pitts.	Worcester, Mass.
0.26—0.50	3.20c	3.40c
0.51—0.75	4.45c	4.65c
0.76—1.00	6.30c	6.50c
Over 1.00	8.50c	8.70c

Rails, Track Material

(Gross Tons)

Standard rails, mill	$42.50
Relay rails, Pittsburgh, 20—100 lbs.	32.50-35.50
Light rails, billet qual., Pittsburgh, Chicago	$43.00
Do., rerolling quality	42.00
Angle bars, billet, Gary, Pittsburgh, So. Chicago	2.80c
Do., axle steel	3.35c
Spikes, R. R. base	3.15c
Track bolts, base	4.35c
Tie plates, base	$46.00

Base, light rails 25 to 60 lbs.; 20 lbs. up $2; 16 lbs. up $4; 12 lbs. up $8; 8 lbs. up $10. Base railroad spikes 200 kegs or more; base tie plates 20 tons.

Bolts and Nuts

Pittsburgh, Cleveland, Birmingham, Chicago. Discounts to legitimate trade as per Dec. 1, 1932, lists:

Carriage and Machine

½ x 6 and smaller	65-5 off
Do. larger, to 1-in.	60-10 off
Do. 1⅛ and 1¼-in.	60-5 off
Tire bolts	50 off

Plow Bolts

All sizes	65-5 off

Stove Bolts

In packages with nuts attached 72½ off; in packages with nuts separate 72½-5 off; in bulk 80 off on 15,000 of 3-inch and shorter, or 5000 over 3-inch.

Step bolts	50-10-5 off
Elevator bolts	50-10-5 off

Nuts

S. A. E. semifinished hex.: ½ to ⅞-inch	60-10 off
Do., 9/16 to 1-inch	60-5 off
Do., over 1-inch	60 off

Hexagon Cap Screws

Milled	50-10 off
Upset, 1-in., smaller	60 off

Square Head Set Screws

Upset, 1-in., smaller	75 off
Headless set screws	75 off

Rivets, Wrought Washers

Structural, Pittsburgh, Cleveland	3.60c
Structural, Chicago	3.70c

⅞-inch and smaller, Pitts., Chi., Cleve. 65-5 off

Wrought washers, Pitts., Chi., Phila. to jobbers and large nut. bolt mfrs. l.c.l. $5.40; c.l. $5.75 off

Cut Nails

Cut nails, C. L., Pitts. (10% disc. on all extras)	$3.60
Do., less carloads, 5 kegs or more, no discount on any extras	$3.90
Do., under 5 kegs no disc. on any extras	$4.05

Welded Iron, Steel Pipe

Base discounts on steel pipe, Pitts., Lorain, O., to consumers in carloads. Gary, Ind., 2 points less. Chicago, del. 2½ less. Wrought pipe, Pittsburgh.

Butt Weld

Steel

In.	Blk.	Galv.
½	59½	49
¾	62½	53
1—3	64½	55½

Iron

¾	26	8
1—1¼	30	14
1½	34	16½
2	33½	16

Lap Weld

Steel

2	57	47½
2½—3	60	50½
3½—6	62	52½
7 and 8	61	50½
9 and 10	60½	50

Iron

2	26½	10
2½—3½	27½	12½
4	29½	16
4½—8	28½	15
9—12	24½	10

Line Pipe

Steel

1 to 3, butt weld	63½
2, lap weld	56
2½ to 3, lap weld	59
3½ to 6, lap weld	61
7 and 8, lap weld	60
10-inch, lap weld	59½
12-inch, lap weld	58½

Butt Weld

Iron

	Blk.	Galv.
¾	25	7
1 and 1¼	29	13
1½	33	15½
2	32½	15

Lap Weld

1½	23½	7
2	25½	9
2½ to 3½	26½	11½
4	28½	15
4½ to 8	27½	14
9 to 12	23½	9

Boiler Tubes

Carloads minimum wall seamless steel boiler tubes, cut lengths 4 to 24 feet, f.o.b. Pittsburgh, base price per 100 feet subject to usual extras.

Lap Weld

Sizes	Steel	Charcoal Iron
1½" OD x 13 Ga.	$10.45	$23.71
1¾" OD x 13 Ga.	11.89	22.93
2" OD x 13 Ga.	13.31	19.35
2" OD x 11 Ga.	15.49	23.36
2¼" OD x 13 Ga.	14.82	21.68
2¼" OD x 11 Ga.	17.38	26.02
2½" OD x 12 Ga.	17.82	26.57
2¾" OD x 12 Ga.	18.86	29.00
3" OD x 12 Ga.	19.73	31.36
3½" OD x 11 Ga.	24.89	39.81
4" OD x 10 Ga.	30.81	49.90
5" OD x 9 Ga.	47.57	73.93
6" OD x 7 Ga.	73.25	.....

Seamless

	Hot Rolled	Cold Drawn
1" OD x 13 Ga.	$ 8.41	$ 9.46
1¼" OD x 13 Ga.	9.96	11.21
1½" OD x 13 Ga.	11.00	12.38
1¾" OD x 13 Ga.	12.51	14.09
2" OD x 13 Ga.	14.02	15.78
2¼" OD x 13 Ga.	15.63	17.60
2½" OD x 12 Ga.	17.21	19.37
2½" OD x 12 Ga.	18.85	21.22
2¾" OD x 12 Ga.	19.98	22.49
3" OD x 12 Ga.	20.97	23.60
4½" OD x 10 Ga.	40.15	45.19
3½" OD x 11 Ga.	26.47	29.79
4" OD x 10 Ga.	32.83	36.94
5" OD x 9 Ga.	50.38	56.71
6" OD x 7 Ga.	77.35	87.07

Cast Iron Water Pipe

Class B Pipe—Per Net Ton

6-in. & over, Birm.	$46.00-47.00
4-in., Birmingham	49.00-50.00
4-in., Chicago	57.00-58.00
6 to 24-in., Chicago	54.00-55.00
6-in. & over, east fdy.	50.00
Do., 4-in.	53.00

Class A Pipe $3 over Class B

Stnd. fitgs., Birm., base $100.00

Semifinished Steel

Billets and Blooms

4 x 4-*inch base; gross ton*

Pitts., Chi., Cleve., Buffalo, Young., Bham.	$37.00
Philadelphia	42.30
Duluth	39.00

Forging Billets

6 x 6 *to* 9 x 9-*in., base*

Pitts., Chicago, Buffalo	43.00
Forging, Duluth	45.00

Sheet Bars

Pitts., Cleve., Young., Sparrows Point	37.00

Slabs

Pitts., Chicago, Cleveland, Youngstown	37.00

Wire Rods

Pitts., Cleve., No. 5 to ⅜-inch incl.	47.00
Do., over ⅜ to 41/64-inch incl.	52.00

Chicago up $1; Worcester up $2.

Skelp

Pitts., Chi., Young., Buff., Coatesville, Sparrows Pt.	2.10c

Coke

Price Per Net Ton

Beehive Ovens

Connellsville, fur.	$4.35- 4.55
Connellsville, fdry.	5.00- 5.50
Connell. prem. fdry.	6.00- 6.50
New River fdry.	6.50- 6.75
Wise county fdry.	5.75- 6.00
Wise county fur.	4.75- 5.00

By-Product Foundry

Newark, N. J., del.	10.85-11.30
Chi., ov., outside del.	10.25
Chicago, del.	11.00
Milwaukee, ovens.	11.00
New England, del.	12.50
St. Louis, del.	11.00-11.50
Birmingham, ovens.	7.25
Indianapolis, del.	10.50
Cincinnati, del.	10.50
Cleveland, del.	11.00
Buffalo, del.	10.50
Detroit, del.	11.10
Philadelphia, del.	10.60

Coke By-Products

Spot, gal. Producers' Plants

Pure and 90% benzol	16.00c
Toluol	30.00c
Solvent naphtha	30.00c
Industrial xylol	30.00c

Per lb. f.o.b. Frankford and St. Louis

Phenol (200 lb. drums)	14.75c
do. (450 lbs.)	14.00c

Eastern Plants, per lb.

Naphthalene flakes and balls, in bbls. to jobbers	7.25c

Per ton, bulk, f.o.b. oven or port

Sulphate of ammonia	$28.50

Pig Iron

Delivered prices include switching charges only as noted. No. 2 foundry is 1.75-2.25 sil.; 25c diff. for each 0.25 sil. above 2.25; 50c diff. for each 0.25 below 1.75. Gross tons.

Basing Points:

	No. 2 Fdry.	Malleable	Basic	Bessemer
Bethlehem, Pa.	$25.00	$25.50	$23.50	$26.00
Birdsboro, Pa.	25.00	25.50	24.50	26.00
Birmingham, Ala.‡	20.38	.....	19.38	25.00
Buffalo	24.00	24.50	23.00	25.00
Chicago	24.00	24.00	23.50	24.50
Cleveland	24.00	24.00	23.50	24.50
Detroit	24.00	24.00	23.50	24.50
Duluth	24.50	24.50	.....	25.00
Erie, Pa.	24.00	24.50	23.50	25.00
Everett, Mass.	25.75	26.25	25.25	26.75
Hamilton, O.	24.00	24.00	23.50	.....
Neville Island, Pa.	24.00	24.00	23.50	24.50
Provo, Utah	22.00	.....	.....	.....
Sharpsville, Pa.	24.00	24.00	23.50	24.50
Sparrows Point, Md.	25.00	.....	24.50	.....
Swedeland, Pa.	25.00	25.50	24.50	26.00
Toledo, O.	24.00	24.00	23.50	24.50
Youngstown, O.	24.00	24.00	23.50	24.50

‡Subject to 38 cents deduction for 0.70 per cent phosphorus or higher.

Delivered from Basing Points:

	No. 2 Fdry.	Malleable	Basic	Bessemer
Akron, O., from Cleveland	25.26	25.26	24.76	25.76
Baltimore from Birmingham	25.58	.....	24.46	.....
Boston from Birmingham	26.37	.....	25.87	.....
Boston from Everett, Mass.	26.25	26.75	25.75	27.25
Boston from Buffalo	26.25	26.75	25.75	27.25
Brooklyn, N. Y., from Bethlehem	27.27	27.77	.....	.....
Brooklyn, N. Y., from Bmghm.	27.05	.....	.....	.....
Canton, O., from Cleveland	25.26	25.26	25.76	25.76
Chicago from Birmingham	24.22	.....	24.10	.....
Cincinnati from Hamilton, O.	24.07	25.01	24.51	.....
Cincinnati from Birmingham	23.69	.....	22.69	.....
Cleveland from Birmingham	24.12	.....	23.62	.....
Mansfield, O., from Toledo, O.	25.76	25.76	25.26	25.26
Milwaukee from Chicago	25.00	25.00	24.50	25.00
Muskegon, Mich., from Chicago, Toledo or Detroit	26.90	26.90	26.40	27.40
Newark, N. J., from Birmingham	26.01	.....	.....	.....
Newark, N. J., from Bethlehem	26.39	26.89	.....	.....
Philadelphia from Birmingham	25.38	.....	25.26	.....
Philadelphia from Swedeland, Pa.	25.76	26.26	25.26	.....
Pittsburgh district from Neville Island	∫ Neville, base plus 63c, 76c, ⌋ and $1.13 switch'g charges			
Saginaw, Mich., from Detroit	26.25	26.25	25.75	25.75
St. Louis, northern	24.50	24.50	24.00	.....
St. Louis from Birmingham	†24.12	.....	23.82	.....
St. Paul from Duluth	25.94	25.94	.....	26.44

†Over 0.70 phos.

Low Phos.

Basing Points: Birdsboro and Steelton, Pa., and Standish, N. Y., $28.50, Phila. base, standard and copper bearing, $29.63.

Gray Forge

Valley furnace $23.50
Pitts. dist. fur. 23.50

Charcoal

Lake Superior fur. $27.00
do., del. Chicago 30.04
Lyles, Tenn. 26.50

Silvery†

Jackson county, O., base: 6-6.50 per cent $28.50; 6.51-7—$29.00; 7-7.50—$29.50; 7.51-8—$30.00; 8-8.50—$30.50; 8.51-9—$31.00; 9-9.50—$31.50; Buffalo $1.25 higher.

Bessemer Ferrosilicon†

Jackson county, O., base: Prices are the same as for silveries, plus $1 a ton.

†The lower all-rail delivered price from Jackson, O., or Buffalo is quoted with freight allowed.

Manganese differentials in silvery iron and ferrosilicon, 2 to 3%, $1 per ton add. Each unit over 3%, add $1 per ton.

Refractories

Per 1000 f.o.b. Works, Net Prices

Fire Clay Brick

Super Quality

Pa., Mo., Ky. $64.60

First Quality

Pa., Ill., Md., Mo., Ky. .. 51.30
Alabama, Georgia 51.30
New Jersey 56.00

Second Quality

Pa., Ill., Ky., Md., Mo. .. 46.55
Georgia, Alabama 41.80
New Jersey 51.00

Ohio

First quality 43.70
Intermediate 39.90
Second quality 35.15

Malleable Bung Brick

All bases $59.85

Silica Brick

Pennsylvania $51.30
Joliet, E. Chicago 59.85
Birmingham, Ala. 51.30

Ladle Brick

(Pa., O., W. Va., Mo.)

Dry press $30.00
Wire cut $28.00

Magnesite

Imported dead-burned grains, net ton f.o.b. Chester, Pa., and Baltimore bases (bags) .. $45.00
Domestic dead-burned grains, net ton f.o.b. Chester, Pa., and Baltimore bases (bags) .. 43.00

Base Brick

Net ton, f.o.b. Baltimore, Plymouth Meeting, Chester, Pa.

Chrome brick $49.00
Chem. bonded chrome .. 49.00
Magnesite brick 69.00
Chem. bonded magnesite 59.00

Fluorspar, 85-5

Washed gravel, duty paid, tide, net ton $24.00
Washed gravel, f.o.b. Ill., Ky., net ton, carloads, all rail $20.00
Do., for barge $22.00
No. 2 lump 22.00-23.00

Ferroalloys

Dollars, except Ferrochrome

Ferromanganese, 78-82%, tidewater, duty pd. ... $102.50
Do., Baltimore, base .. 102.50
Do., del. Pittsburgh .. 107.29
Spiegeleisen, 19-21% dom. Palmerton, Pa., spot .. 33.00
Do., New Orleans 33.00
Do., 26-28%, Palmerton 39.00
Ferrosilicon, 50% freight allowed, c.l. 69.50
Do., less carload 77.00
Do., 75 per cent. ... 126-130.00
Spot, $5 a ton higher.
Silicoman., 2½ carbon .. 106.50
2% carbon 111.50; 1%, 121.50
Ferrochrome, 66-70 chromium, 4-6 carbon, cts. lb. del. 10.50
Ferrotungsten, stand., lb. con. del. cars ..... nom.
Ferrovanadium, 35 to 40% lb., cont. 2.70-2.90
Ferrotitanium, c. l., prod. plant, frt. all., net ton 142.50
Spot, carlots 145.00
Spot, ton lots 150.00
Ferrophosphorous, per ton, c. l., 17-19% Rockdale, Tenn., basis, 18%, $3 unitage 63.50
Ferrophosphorus, electrolytic, per ton c. l., 23-26% f.o.b. Anniston, Ala., 24% $3 unitage 80.00
Ferromolybdenum, stand. 55-65%, lb. 0.95
Molybdate, lb. cont. 0.80
†Carloads. Quan. diff. apply

Nonferrous

METAL PRICES OF THE WEEK

Spot unless otherwise specified. Cents per pound

	Copper: Electro, del. Conn.	Copper: Lake, del. Midwest	Copper: Casting, refinery	Straits Tin, New York: Spot	Straits Tin, New York: Futures	Lead N. Y.	Lead East St. L.	Zinc St. L.	Aluminum 99%	Antimony American Spot, N. Y.	Nickel Cathodes
Aug. 28	14.00	14.12½	13.75	58.50	58.12½	6.50	6.35	7.25	20.00	15.25	35.00
Aug. 30	14.00	14.12½	13.75	58.25	58.00	6.50	6.35	7.25	20.00	15.75	35.00
Aug. 31	14.00	14.12½	13.75	58.75	58.50	6.50	6.35	7.25	20.00	15.75	35.00
Sept. 1	14.00	14.12½	13.75	58.60	58.12½	6.50	6.35	7.25	20.00	15.75	35.00
Sept. 2	14.00	14.12½	13.75	58.37½	58.10	6.50	6.35	7.25	20.00	15.75	35.00
Sept. 3	14.00	14.12½	13.75	58.62½	58.25	6.50	6.35	7.25	20.00	15.75	35.00

MILL PRODUCTS

F.o.b. mill base, cents per lb. except as specified. Copper brass products based on 14.00c Conn. copper

Sheets

Yellow brass (high) 19.75
Copper, hot rolled 21.87½
Lead, cut to jobbers 10.00
Zinc, 100-lb. base 12.25

Tubes

High yellow brass 22.50
Seamless copper 22.62½

Rods

High yellow brass 16.25
Copper, hot rolled 18.62½

Anodes

Copper, untrimmed 19.12½

Wire

Yellow brass (high) 20.00

OLD METALS

Nom. Deal, buying prices

No. 1 Composition Red Brass

New York 9.00- 9.25
Cleveland 9.25-9.50
Chicago 9.50-9.75
St. Louis 9.00-9.25

Heavy Copper and Wire

New York, No. 1 ..... 11.25-11.50
Cleveland, No. 1 ..... 11.00-11.25
Chicago, No. 1 ..... 11.25-11.50
St. Louis, No. 1 ..... 11.00-11.25

Composition Brass Borings

New York 8.50-8.75

Light Copper

New York 9.00-9.25
Cleveland 9.00-9.25
Chicago 9.25-9.50
St. Louis 9.25-9.50

Light Brass

Cleveland 5.25-5.50
Chicago 6.25-6.50
St. Louis 5.75-6.00

Lead

New York 5.75
Cleveland 5.00
Chicago 5.50-5.62½
*St. Louis 5.00-5.25

Zinc

New York 3.75- 4.00
Cleveland 3.00-3.25
St. Louis 3.75-4.00

Aluminum

Borings, Cleveland .. 9.75-10.00
Mixed cast, Cleve. .. 12.75-13.00
Clips, soft, Cleve. .. 14.75-15.00
Mixed cast, St. L. .. 12.75-13.00

SECONDARY METALS

Brass, ingot 85-5-5-5, lcl, 14.25
Stand. No. 12 alum. 18.50

Warehouse Iron and Steel Prices

Cents per pound for delivery within metropolitan districts of cities specified

STEEL BARS

Baltimore	4.00c
Boston††	4.05c
Buffalo	3.90c
Chattanooga	4.21c
Chicago (j)	3.85c
Cincinnati	4.05c
Cleveland	3.75c
Detroit	3.93½c
Houston	3.10c
Los Angeles	4.30c
Milwaukee	3.96c-4.11c
New Orleans	4.20c
New York‡ (d)	4.12c
Pitts. (h)	3.80c
Philadelphia	4.00c
Portland	4.50c
San Francisco	4.20c
Seattle	4.45c
St. Louis	4.09c
St. Paul	4.10c-4.25c
Tulsa	3.35c

IRON BARS

Portland	3.50c
Chattanooga	4.21c
Baltimore*	3.25c
Cincinnati	4.05c
New York‡ (d)	3.65c
Philadelphia	4.00c
St. Louis	4.09c
Tulsa	3.35c

REINFORCING BARS

Buffalo	3.10c
Chattanooga	4.21c
Cleveland (c)	2.55c
Cincinnati	3.75c
Houston	3.25c
Los Angeles, c.l.	2.975c
New Orleans*	3.24c
Pitts., plain (h)	2.55c
Pitts., twisted squares (h)	3.95c
San Francisco	2.97½c
Seattle	2.975c
St. Louis	3.99c
Tulsa	3.25c
Young	2.30c-2.60c

SHAPES

Baltimore	3.90c
Boston††	3.92c
Buffalo	3.80c
Chattanooga	4.11c
Chicago	3.75c
Cincinnati	3.95c
Cleveland	3.86c
Detroit	3.95c
Houston	3.10c
Los Angeles	4.30c
Milwaukee	3.86c
New Orleans	4.10c
New York‡ (d)	3.97c
Philadelphia	3.90c
Pittsburgh (h)	3.70c
Portland (i)	4.25c
San Francisco	4.05c
Seattle (i)	4.25c
St. Louis	3.99c
St. Paul	4.00c
Tulsa	3.60c

PLATES

Baltimore	3.90c
Boston††	3.93c
Buffalo	3.80c
Chattanooga	4.11c
Chicago	3.75c
Cincinnati	3.95c
Cleveland, ¼-in. and over	3.86c
Detroit	3.95c
Detroit, ⅜-in.	4.15c
Houston	3.10c
Los Angeles	4.30c
Milwaukee	3.86c
New Orleans	4.10c
New York‡ (d)	4.00c
Philadelphia	3.90c
Phila. floor	5.25c
Pittsburgh (h)	3.70c
Portland	4.25c
San Francisco	4.05c
Seattle	4.25c
St. Louis	3.99c
St. Paul	4.00c
Tulsa	3.60c

NO. 10 BLUE

Baltimore	3.95c
Boston (g)	4.00c
Buffalo, 8-10 ga.	3.97c
Chattanooga	4.16c
Chicago	3.85c
Cincinnati,	4.00c
Cleveland	3.91c
Det. 8-10 ga.	3.93½c
Houston	3.45c
Los Angeles	4.50c
Milwaukee	3.96c
New Orleans	4.35c
New York‡ (d)	4.07c
Portland	4.25c
Philadelphia	4.00c
Pittsburgh (h)	3.75c
San Francisco	4.30c
Seattle	4.50c
St. Louis	4.39c
St. Paul	4.10c
Tulsa	3.80c

NO. 24 BLACK

Baltimore*†	4.50c
Boston (g)	4.75c
Buffalo	4.80c
Chattanooga*	4.06c
Chicago	4.45c-5.10c
Cincinnati	4.75c
Cleveland	4.66c
Detroit	4.68½c
Los Angeles	5.05c
Milwaukee	4.56c-5.21c
New York‡ (d)	4.82c
Philadelphia	4.65c
Pitts.** (h)	4.75c
Portland	5.15c
Seattle	5.35c
San Francisco	5.15c
St. Louis	4.84c
St. Paul	4.75c
Tulsa	4.85c

NO. 24 GALV. SHEETS

Baltimore*†	4.70c
Buffalo	5.45c
Boston (g)	5.30c
Chattanooga*	4.76c
Chicago (h)	5.10c-5.75c
Cincinnati	5.40c
Cleveland	5.31c
Detroit	5.40c
Houston	4.50c
Los Angeles	5.75c
Milwaukee	5.21c-5.86c
New Orleans*	5.75c
New York‡ (d)	5.47c
Philadelphia	5.30c
Pitts.** (h)	5.40c
Portland	5.90c
San Francisco	5.85c
Seattle	5.90c
St. Louis	5.49c
St. Paul	5.40c
Tulsa	5.20c

BANDS

Baltimore	4.20c
Boston††	4.25c
Buffalo	4.22c
Chattanooga	4.41c
Cincinnati	4.25c
Cleveland	4.16c
Chicago	4.10c
Detroit, ⅛-in. and lighter	4.185c
Houston	3.35c
Los Angeles	4.80c
Milwaukee	4.21c
New Orleans	4.75c
New York‡ (d)	4.32c
Philadelphia	4.10c
Pittsburgh (h)	4.00c
Portland	5.00c
San Francisco	4.80c
Seattle	4.95c
St. Louis	4.34c
St. Paul	4.35c
Tulsa	3.55c

HOOPS

Baltimore	4.45c
Boston††	5.25c
Buffalo	4.22c
Chicago	4.10c
Cincinnati	4.25c
Detroit, No. 14 and lighter	4.185c
Los Angeles	6.55c
Milwaukee	4.21c
New York‡ (d)	4.32c
Philadelphia	4.35c
Pittsburgh (h)	4.50c
Portland	6.50c
San Francisco	6.50c
Seattle	6.30c
St. Louis	4.34c
St. Paul	4.35c

COLD FIN. STEEL

Baltimore (c)	4.50c
Boston*	4.65c
Buffalo (h)	4.35c
Chattanooga*	4.86c
Chicago (h)	4.30c
Cincinnati	4.50c
Cleveland (h)	4.30c
Detroit	4.30c
Los Ang. (f) (d)	6.85c
Milwaukee	4.41c
New Orleans	5.10c
New York‡ (d)	4.57c
Philadelphia	4.53c
Pittsburgh	4.15c
Portland (f) (d)	7.10c
San Fran. (f) (d)	6.80c
Seattle (f) (d)	7.10c
St. Louis	4.54c
St. Paul	4.77c
Tulsa	4.80c

COLD ROLLED STRIP

Boston	3.845c
Buffalo	3.79c
Chicago	3.87c
Cincinnati	3.82c
Cleveland (b)	3.60c
Detroit	3.43c
New York‡ (d)	3.92c
St. Louis	4.54c

TOOL STEELS

(Applying on or east of Mississippi river; west of Mississippi 1c up.)

	Base
High speed	69c
High carbon, Cr.	45c
Oil hardening	26c
Special tool	24c
Extra tool	20c
Regular tool	16c
Water hardening	12½c

Uniform extras apply.

BOLTS AND NUTS

(100 pounds or over)

	Discount
Chicago (a)	55 to 60
Cleveland	60-5-5
Detroit	70-10
Milwaukee	60 to 65
New Orleans	60
Pittsburgh	65-5

(a) Under 100 lbs., 50 off.

(b) Plus straightening, cutting and quantity differentials; (c) Plus mill, size and quantity extras; (d) Quantity base; (e) New mill classif. (f) Rounds only; (g) 50 bundles or over; (h) Outside delivery, 10c less; (i) Under 3 in.; (j) Shapes other than rounds, flats, fillet angles, 0.15c higher.

On plates, shapes, bars, hot strip and blue annealed quantity extras and discounts as follows: Under 100 lbs., add $1.50; 100 to 399 lbs., add 50c; 400 to 3999 lbs., base; 4000 to 9999 lbs., deduct 10c; over 10,000 lbs., deduct 15c. At Cleveland, under 400 lbs., add 50c, with $1 minimum invoice.

‡Domestic steel; *Plus quantity extras; **One to 9 bundles; *† 50 or more bundles; †New extras apply; ††Base 10,000 lbs., extras on less.

Current Iron and Steel Prices of Europe

Dollars at Rates of Exchange, Sept. 2

Export Prices f. o. b. Ship at Port of Dispatch—(By Cable or Radio)

	British gross tons U. K. ports £ s d	Continental Channel or North Sea ports, metric tons Quoted in dollars at current value	**Quoted in gold pounds sterling £ s d
PIG IRON			
Foundry, 2.50-3.00 Silicon	$29.76 6 0 0	$23.96	3 0 0
Basic bessemer	19.47 3 18 6	23.57	2 19 0
Hematite, Phos. .03-.05	35.96 7 5 0*	.....	.....
SEMIFINISHED STEEL			
Billets	$39.06 7 17 6	$26.96	3 7 6
Wire rods, No. 5 gage	53.69 10 16 6	42.92	6 2 6
FINISHED STEEL			
Standard rails	$50.22 10 2 6	$45.92	5 15 0
Merchant bars	2.43c 11 0 0	2.16c to 2.26c	6 0 0 to 6 5 0
Structural shapes	2.35c 10 12 6	1.94c	5 7 6
Plates, †¼ in. or 5 mm.	2.56c 11 11 3	2.57c	7 2 6
Sheets, black, 24 gage or 0.5 mm	3.32c 15 0 0	3.17c	8 15 0††
	4.14c 18 15 0	4.07c	11 5 0
Sheets, gal., 24 gage, corr.	3.03c 13 15 0	2.35c	6 10 0
Bands and strips	4.31c 19 10 0	2.53c	7 0 0
Plain wire, base	5.25c 23 15 0	3.17c	8 15 0
Galvanized wire, base	4.09c 18 10 0	2.89c	8 0 0
Wire nails, base	$ 6.45 1 6 0	.....	.....
Tin plate, box 108 lbs.			

British ferromanganese $102.50 delivered Atlantic seaboard, duty-paid.

Domestic Prices at Works or Furnace—Last Reported

		£ s d		French Francs		Belgian Francs		Reich Marks
Fdy. pig iron, Si. 2.5	$25.05	5 1 0(a)	$18.89	505	$27.80	825	$25.31	63
Basic bessemer pig iron	24.80	5 0 0(a)	.....	.....	.....	.....	27.92 (b)	69.50
Furnace coke	8.80	1 15 6	5.91	158	7.25	215	7.63	19
Billets	39.06	7 17 6	27.12	725	32.35	960	38.76	96.50
Standard rails	2.24c	10 2 6	1.79c	1,050	1.88c	1,250	2.38c	132
Merchant bars	2.53c	11 9 0	1.63c	960	1.65c	1,100	1.98c	110
Structural shapes	2.44c	11 0 6	1.59c	935	1.65c	1,100	1.93c	107
Plates, †¼-in. or 5 mm.	2.59c	11 14 3	2.03c	1,195	2.06c	1,375	2.29c	127
Sheets, black	3.48c	15 15 0§	2.47c	1,450‡	2.36c	1,575‡	2.59c	144‡
Sheets, galv., corr., 24 ga. or 0.5 mm	4.31c	19 10 0	3.66c	2,150	2.85c	1,900	6.66c	370
Plain wire	4.31c	19 10 0	2.52c	1,480	2.49c	1,650	3.11c	173
Bands and strips	2.70c	12 4 0	1.84c	1,080	2.33c	1,550	2.29c	127

*Basic. †British ship-plates. Continental bridge plates. §24 ga. ‡1 to 3 mm. basic price. British quotations are for basic open-hearth steel. Continent usually for basic-bessemer steel a del. Middlesbrough. b hemetite. ††Close annealed.

**Gold pound sterling carries a premium of 64 per cent over paper sterling.

Iron and Steel Scrap Prices

Corrected to Friday night. Gross tons delivered to consumers, except where otherwise stated; † indicates brokers prices

HEAVY MELTING STEEL

Birmingham†, No. 1	16.00-17.00
Birmingham†, No. 2	15.00-16.00
Bos. dock No. 1, exp.	18.00-18.50
N. Eng. del. No. 1..	17.25
Buffalo, No. 1	20.00-20.50
Buffalo, No. 2	18.00-18.50
Chicago, No. 1	18.50-19.00
Cleveland, No. 1 ..	19.50-20.00
Cleveland, No. 2 ...	18.00-18.50
Detroit, No. 1	17.00-17.50
Eastern Pa., No. 1	19.50-20.00
Eastern Pa., No. 2.	17.00-17.50
Federal, Ill.	15.50-16.00
Granite City, R. R.	17.50-18.00
Granite City, No. 2	15.50-16.00
New York, No. 1.:.	†16.50
N. Y. dock No. 1 exp.	17.00
Pitts. No. 1 (R. R.).	23.00-23.50
Pitts., No. 1 (dlr.)..	21.00-21.50
Pittsburgh, No. 2 ..	19.00-19.50
St. Louis, R. R.	17.50-18.00
St. Louis, No. 2	15.50-16.00
Toronto, drs. No. 1	11.00-12.00
Toronto, No. 2	10.00-11.00
Valleys, No. 1	21.00-22.00

COMPRESSED SHEETS

Buffalo, dealers....	18.50-19.00
Chicago, factory ...	18.00-18.50
Chicago, dealer	17.50-18.00
Cleveland	19.00-19.50
Detroit	18.00-18.50
E. Pa., new mat...	19.00-19.50
E. Pa., old mat.	14.50-15.00
Pittsburgh	21.00-21.50
St. Louis	14.00-14.50
Valleys	20.50-21.00

BUNDLED SHEETS

Buffalo	13.50-14.00
Cincinnati, del.	14.00-14.50
Cleveland	14.00-14.50
Pittsburgh	19.00-19.50
St. Louis	13.00-13.50
Toronto, dealers	8.00

SHEET CLIPPINGS, LOOSE

Chicago	13.25-13.75
Cincinnati	12.50-13.00
Detroit	13.25-13.75
St. Louis	11.50-12.00

STEEL RAILS, SHORT

Birmingham	17.00-18.00
Buffalo	24.00-25.00
Chicago (3 ft.)	21.00-21.50
Chicago (2 ft.)	22.00-22.50
Cincinnati, del.	22.50-23.00
Detroit	22.50-23.00
Pitts, 3 ft. and less	26.50-27.00
St. Louis, 2 ft. & less	20.00-20.50

STEEL RAILS, SCRAP

Boston district ....†15.50-15.75	
Buffalo	21.50-22.50
Chicago	18.50-19.00
Cleveland	21.00-21.50
Pittsburgh	23.00-23.50
St. Louis	21.00-21.50

STOVE PLATE

Birmingham	10.00-10.50
Boston district ....†11.50-12.00	
Buffalo	15.50-16.50
Chicago	11.00-11.50
Cincinnati, dealers..	11.00-11.50
Detroit, net	12.25-12.75
Eastern Pa.	16.00-16.50
New York fdry. ..†12.00-12.50	
St. Louis	12.50-13.00
Toronto, deal'rs, net	9.50-10.00

SPRINGS

Buffalo	23.00-23.50
Chicago, coil	23.50-24.00
Chicago, leaf	22.00-22.50
Eastern Pa.	26.00-26.50
Pittsburgh	27.00-27.50
St. Louis	22.00-22.50

ANGLE BARS—STEEL

Chicago	21.00-21.50
St. Louis	20.00-20.50

RAILROAD SPECIALTIES

Chicago	21.50-22.00

LOW PHOSPHORUS

Buffalo, billet and bloom crops	23.00-23.50
Cleveland, billet, bloom crops	24.50-25.00
Eastern Pa., crops..	25.50
Pittsburgh, billet, bloom crops	27.00-27.50
Pittsburgh, sheet bar crops	26.50-27.00

FROGS, SWITCHES

Chicago	18.50-19.00
St. Louis, cut	19.00-19.50

SHOVELING STEEL

Federal, Ill.	15.50-16.00
Granite City, Ill. ..	15.50-16.00
Toronto, dealers....	9.00- 9.50

RAILROAD WROUGHT

Birmingham	13.50-14.00
Boston district ....†10.00-10.25	
Buffalo, No. 1.....	17.50-18.00
Buffalo, No. 2.....	20.00-20.50
Chicago, No. 1 net.	16.00-16.50
Cincinnati, No. 2..	17.50-18.00
Eastern Pa., No. 1..	21.00-21.50
St. Louis, No. 1	15.50-16.00
St. Louis, No. 2	17.50-18.00
Toronto, No. 1 dlr...	15.00

SPECIFICATION PIPE

Eastern Pa.	17.00-17.50
New York .....†12.50-13.00	

BUSHELING

Buffalo, No. 1.....	18.00-18.50
Chicago, No. 1	17.00-17.50
Cincin., No. 1, deal..	15.00-15.50
Cincinnati, No. 2...	8.50- 9.00
Cleveland, No. 2...	13.50-14.00
Detroit, No. 1 new	16.50-17.00
Valleys, new, No. 1	19.50-20.00
Toronto, dealers....	9.00

MACHINE TURNINGS

Birmingham	6.00- 7.00
Buffalo	12.50-13.00
Chicago	10.50-11.00
Cincinnati, dealers.	11.00-11.50
Cleveland	13.00-13.50
Detroit	12.50-13.00
Eastern Pa.	14.00
New York.....†10.00-10.50	
Pittsburgh	15.25-15.75
St. Louis	10.00-10.50
Toronto, dealers....	8.00- 8.50
Valleys	15.50-16.00

BORINGS AND TURNINGS

For Blast Furnace Use

Boston district	†8.50
Buffalo	13.00-13.50
Cincinnati, dealers	10.50-11.00
Cleveland	14.00-14.50
Detroit	13.00-13.50
Eastern Pa.	12.50-13.00
New York	†9.50-10.00
Pittsburgh	15.50-16.00
Toronto, dealers ...	8.00- 8.50

CAST IRON BORINGS

Birmingham	8.00- 8.50
Boston dist. chem...	†10.00
Bos. dist. for mills.	†10.00
Buffalo	13.00-13.50
Chicago	12.00-12.50
Cincinnati, dealers.	10.50-11.00
Cleveland	13.50-14.00
Detroit	13.00-13.50
E. Pa., chemical....	14.50-15.00
New York	†9.50-10.00
St. Louis	9.00- 9.50
Toronto, dealers....	9.00

PIPE AND FLUES

Cincinnati, dealers.	12.00-12.50
Chicago, net	13.50-14.00

RAILROAD GRATE BARS

Buffalo	14.00-14.50
Chicago, net	12.00-12.50
Cincinnati	11.00-11.50
Eastern Pa.	15.50-16.00
New York .....†12.00-12.50	
St. Louis	12.50-13.00

FORGE FLASHINGS

Boston district	12.75-13.00
Buffalo	18.00-18.50
Cleveland	17.50-18.00
Detroit	15.50-16.00
Pittsburgh	18.00-18.50

FORGE SCRAP

Boston district	†9.50-10.00
Chicago, heavy	21.50-22.00

ARCH BARS, TRANSOMS

St. Louis	20.00-20.50

AXLE TURNINGS

Boston district ....†11.00-11.50	
Buffalo	16.00-16.50
Chicago, elec. fur...	18.00-18.50
Eastern Pa.	18.00-18.50
St. Louis	14.00-14.50
Toronto	9.50

STEEL CAR AXLES

Birmingham	19.00-20.00
Buffalo	22.00-22.50
Boston district ....†24.00-25.00	
Chicago, net	25.50-26.00
Eastern Pa.	26.00-26.50
St. Louis	24.00-24.50

SHAFTING

Boston district ....†19.25-19.50	
New York .....†19.50-20.00	
Eastern Pa.	25.50-26.00
St. Louis	19.50-20.00

CAR WHEELS

Birmingham	18.00-19.00
Boston dist., iron...†15.00-15.25	
Buffalo, iron	23.00-23.50
Buffalo, steel	23.00-24.00
Chicago, iron	19.50-20.00
Chicago, rolled steel	21.50-22.00
Cincinnati, iron ...	18.00-18.50
Eastern Pa., iron ..	20.50-21.00
Eastern Pa., steel..	26.00-26.50
Pittsburgh, iron ...	21.00-21.50
Pittsburgh steel ...	27.00-27.50
St. Louis, iron.....	20.00-20.50
St. Louis, steel.....	22.00-22.50

NO. 1 CAST SCRAP

Birmingham	15.50-16.00
Boston, No. 1 mach.†15.00-15.50	
N. Eng. del. No. 2	17.00
N. Eng. del. textile.	18.50
Buffalo, cupola	18.00-18.50
Buffalo, mach.	19.00-20.00
Chicago, agri. net..	13.50-14.00
Chicago, auto	14.50-15.00
Chicago, mach. net.	15.00-15.50
Chicago, railr'd net	14.00-14.50
Cincin., mach. cup..	16.50-17.00
Cleveland, mach. ..	19.50-20.50
Eastern Pa., cupola.	20.50-21.00
E. Pa., mixed yard..	18.00
Pittsburgh, cupola..	20.50-21.00
San Francisco, del..	13.50-14.00
Seattle	8.00- 9.00
St. Louis, No. 1....	14.00-14.50
St. L., No. 1, mach.	15.00-15.50
Toronto, No. 1, mach., net	16.00-17.00

HEAVY CAST

Boston dist. break..	†14.50
N. Eng. del.	15.00-15.25
Buffalo, break.	16.00-16.50
Cleveland, break. ..	17.00-18.00
Detroit, break.	14.50-15.00
Detroit, auto net..	16.00-16.50
Eastern Pa.	19.50
New York, break..†14.50-15.00	
Pittsburgh	17.50-18.00

MALLEABLE

Birmingham, R. R...	12.50-13.50
New England, del...	20.00
Buffalo	20.50-21.00
Chicago, R. R.	20.00-20.50
Cincin., agri. del....	17.50-18.00
Cleveland, rail.....	21.50-22.00
Detroit, auto	17.00-17.50
Eastern Pa., R. R...	20.00-20.50
Pittsburgh, rail	21.50-22.00
St. Louis, R. R.....	20.00-20.50

RAILS FOR ROLLING

5 feet and over

Birmingham	19.00-20.00
Boston	†17.50-18.00
Chicago	21.50-22.00
Eastern Pa.	22.00-22.50
New York	†18.50-19.00
St. Louis	21.00-21.50

LOCOMOTIVE TIRES

Chicago (cut)	22.00-22.50
St. Louis, No. 1....	19.50-20.00

LOW PHOS. PUNCHINGS

Buffalo	23.00-23.50
Chicago	21.50-22.00
Eastern Pa.	25.50-26.00
Pittsburgh (heavy)	25.00-25.50
Pittsburgh (light) .	23.50-24.00

Iron Ore

Lake Superior Ore

Gross ton, 51½%

Lower Lake Ports

Old range bessemer.....	$5.25
Mesabi nonbess.	4.95
High phosphorus	4.85
Mesabi bessemer	5.10
Old range nonbess.	5.10

Eastern Local Ore

Cents, unit, del. E. Pa.

Foundry and basic 56.63% con.	9.00-10.00
Cop.-free low phos. 58-60%	nominal

Foreign Ore

Cents per unit, f.a.s. Atlantic

Foreign manganiferous ore, 45.55% iron, 6-10% man.	*17.00
No. Afr. low phos..	20.00
Swedish low phos.	nominal
Spanish No. Africa basic, 50 to 60%	*16.00
Tungsten, Nov.-Dec. sh. ton, unit, duty pd.	nominal
N. F., fdy., 55%....	7.00
Chrome ore, 48% gross ton, c.i.f...	$25.50-26.50

*Nominal asking price for spot.

Manganese Ore

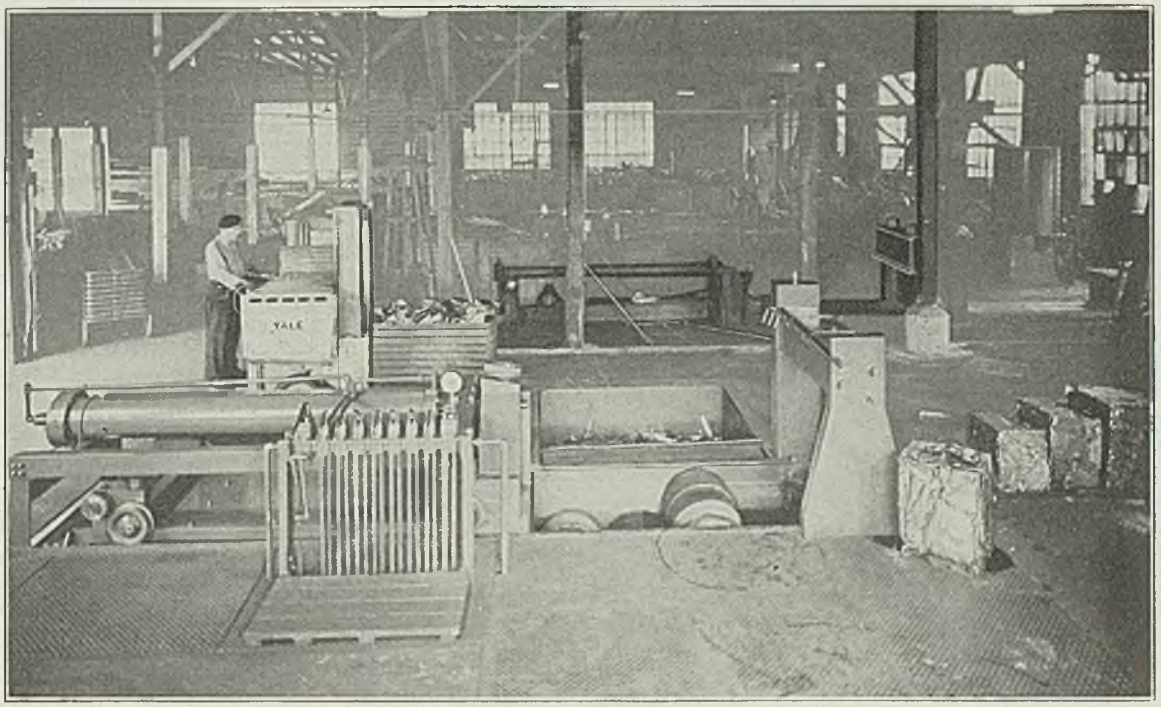
(Nominal)

Prices not including duty, cents per unit cargo lots.

Caucasian, 50-52%..	non. 52.00 to 53.00
So. African, 50-52%	non. 52.00 to 53.00
Indian, 50-52%	Nominal

LOGEMANN

Metal Baling Presses



Steel mills, automobile manufacturers, stamping plants and scrap yards bale their sheet scrap in LOGEMANN scrap metal presses. Baled scrap pays substantial dividends . . . . saves space . . . . can be more economically handled and loaded . . . . is practically free from corrosion and saves much heat in remelting . . . . can be held for favorable price periods.

LOGEMANN scrap metal presses are built in many sizes and several types, to meet specific conditions. The illustration shows two LOGEMANN installations in a prominent automobile plant . . . . in the background a two-ram unit for ordinary scrap . . . . a triple-compression press with special large box in foreground for bulky scrap, drums and large forms.

The LOGEMANN line includes baling presses for all materials . . . . high pressure pumps . . . . hydraulic straighteners . . . . hydraulic presses and fittings. Write for descriptive bulletins.

LOGEMANN BROTHERS COMPANY

3126 W. Burleigh St. Milwaukee, Wis.

Sheets

Sheet Prices, Page 84

New York—Sheet buying is spotty, although demand is being well sustained in certain lines, such as alloy and electrical sheets. The proposed schedules on galvanized sheets, to be effective Oct. 1, has aroused little interest as yet among jobbers who stand to lose their functional discount of $2 a ton. Some buyers doubt if schedules will become generally effective Oct. 1, as certain mills are offering tonnage at present prices to be delivered after the end of this month at their own convenience. In other words, these sellers are not insisting on specifications so that shipments be made by Sept. 30. Some, in fact, are so well booked ahead that they can do nothing but follow this policy. Deliveries generally are improving but still tight with respect to the lighter gages of hot-rolled annealed sheets, with some booked up to the end of the year. As a partial result of this situation, one consumer is now asking bids on tonnage for shipment in February and March for asphalt and tar containers.

Pittsburgh—While sheet producers entered September with backlogs much lighter than a month ago, the volume of ordering has shown improvement recently and is expected to gain materially in the next few weeks through automotive requirements. Stove, refrigerator and washing machine manufacturers have shown little slackening in their high rate of activity. Operations of common black mills and galvanized mills have been around 75 per cent; jobbing mills around 59 per cent. Hot-rolled delivery promises range from six to ten weeks, while hot-rolled annealed is more extended.

Cleveland—Deliveries continue to improve with backlogs now only two or three weeks in some instances. However, most mills expect to remain at the unusually high pace for this time of the year, until the anticipated revival in fall activity once more bolsters backlogs.

Chicago — Heavier bookings of cold-rolled sheets for the automotive industry have halted the decline in backlogs but new business in hot-rolled is insufficient to offset shipments. Backlogs continue to support near-capacity production and good operations are in prospect for 60 days. Seasonal improvement in sheet demand from industries other than the automotive still is awaited but better activity is looked for around the middle of this month.

Boston—Slight improvement in demand for sheets is expected this month from industrial fabricators and jobbers, fill-in supplies for early delivery and light covering for fourth quarter needs. Consumption, except by range builders, refrigerator producers and some interests connected with the heating industry, is light with buying dull. Shipbuilders are specifying moderately with navy yard inquiry heavier, notably for Portsmouth, N. H. Apollo Steel Co., Apollo, Pa., was awarded the recent large navy tonnage, part of which comes to New England, at $101,016.95.

Philadelphia—Additional specifications for both hot and cold-rolled grades are noted on the part of a large autobody builder preparing to swing into full production on new models. Heintz Mfg. Co., is now operating a second shift with over 600 men back at work. Miscellaneous demand for sheets has proved disappointing. Domestic oil storage tank makers, who should be active at this season, are taking little additional tonnage. Some consumers are said to be working off material

bought before the last price advance.

St. Louis — Sheet buying holds about steady with August. Deliveries have improved, and the pressure which existed in June and July has relaxed noticeably.

Birmingham, Ala.—Continued activity in sheets was noted during the past week with most demand, as usual, from drum manufacturers and the roofing trade. Mills have particularly large backlogs in sheets.

Strip

Strip Prices, Page 85

Pittsburgh—New strip business in the last two weeks has shown a gain over early August. Partly this is caused by certain consumers' desire to get on mill books ahead of the expected bulge in automotive buying. Partsmakers' releases for narrow cold-rolled have been received, but otherwise the greatest volume of automotive business has still to make its appearance. Prompt deliveries can be obtained from most producers. On the national scale hot strip mills are down to around 56 per cent; cold strip mills around 61 per cent. Prices are steady.

Cleveland — Most producers continue to operate at a high rate, despite the fact backlogs have reduced considerably during August. Recent requirements center around electrical equipment manufacturers, more particularly from refrigerator and radio cabinet makers. Deliveries can be made in two or three weeks in most instances and perhaps sooner on some grades of hot-rolled.

Chicago—Strip demand has shown a slight improvement the past few weeks. Backlogs of producers are light and better bookings will be necessary to forestall reduced operations.

Boston — With buying centered mostly on fill-in requirements for quick shipment on a day-to-day basis, most sellers of narrow cold strip report a slight easing in incoming business. Rerollers are especially in a good position to expedite shipment and most mills taking volume around Sept. 10 will be able to deliver this month.

New York—Narrow cold strip demand is slack, incoming volume being spotty for fill-in needs. Buying by users connected with the automotive industry has not been heavy. Quick delivery is wanted on practically all specifications. Most sellers estimate August specifications from 80 to 85 per cent of shipments. Backlogs are depleted.

Philadelphia—Little improvement is noted for either hot or cold-rolled grades in narrow widths. A gain is expected as the month advances, although it is conceded that warehouses with slitting facilities have taken a considerable share of this business.

Semifinished

Semifinished Prices, Page 85

Export inquiry for semifinished steel has been in good volume recently and activity has improved markedly from the situation at the start of August, when producers were able to promise fairly quick delivery and were building up their stocks which had been greatly depleted since the spring peak. Principal difficulty in the export business is the desire of buyers to obtain material under domestic prices. On one lot of 1000 tons of billets foreign interests recently offered to pay as low as $30 per ton. Billets

and blooms, sheet bars, and slabs are quoted $37 per gross ton, Pittsburgh; forging billets, $43; wire rods, $47 and $52, and skelp, 2.10c.

Plates

Plate Prices, Page 84

New York—Plate sellers submitted bids Sept. 3 on steel for the proposed steamer for the United States Lines, giving protection as requested until Nov. 1. There is some doubt, as a matter of fact, if action will be taken before that time, pending the two months' survey of the maritime commission of labor conditions in the marine field. Approximately 11,000 tons of plates will be required for the hull, or about two-thirds of the total amount of hull steel needed.

Meanwhile, ship specifications are coming out better from local yards now that their labor troubles have been largely adjusted. Two oil refinery projects are being actively figured and more than 20,000 tons for oil storage tanks are reported placed for export.

Pittsburgh—Plate producers are active against previous bookings, but new business has been light recently. A large export inquiry made its appearance last week. Tank fabricators report a material slackening in business and barge shops continue to note a dearth of inquiries.

Cleveland — Deliveries have improved somewhat as shipments continue to exceed specifications. Sellers await the expected fall revival in miscellaneous requirements to bolster backlogs which have declined to four or five weeks. Small structural jobs have been an encouraging factor in an otherwise dull market.

Chicago—Plate orders are coming principally from tank and structural fabricators and miscellaneous users. Some small lots are being placed for car repair work but absence of active buying of new railroad equipment continues to restrict plate bookings. Backlogs still are substantial, however and heavy production is assured for at least the next four to six weeks.

Boston—While plate buying is light, the outlook for tonnage volume in plates is the best of the heavier steel products. With most shipyards well filled with work, boiler shops are booking more orders. Several hundred tons are also being figured for tanks for an oil terminal at South Boston. The navy closes Nov. 7 on a 9000-ton destroyer tender and an 8300 ton seaplane tender, taking 12,000 tons of steel, about 7000 tons being plates.

Philadelphia—Buying and shipments are off, with most specifications not generally available within two to three weeks except from one producer where deliveries are somewhat more extended. Usual large buyers, such as oil and shipbuilding industries and railroads, are largely out of the market. Railroad prospects are dimmed by threat of a wage advance. Some miscellaneous business is noted but the aggregate is not large. One plate mill, which went down for repairs at the end of last week may not resume until about Sept. 16.

Birmingham, Ala. — No appreciable gain is noted in demand for plates which several weeks ago showed a considerable decline. Backlogs are sufficient to assure continued operations for several weeks.

Seattle — Three pulp and paper plants are arranging finances for proposed extensions involving new equipment during the coming winter. Several cities are planning water system improvements including steel storage tanks. Bids for a 400,000-gallon steel water tank have

Behind the Scenes with STEEL

Finished

NEW note in surface treatment and finishing of metals was struck last week in Boston where some citizens imbued with civic pride attacked the huge statue of Admiral Farragut on the Strandway and coated it lovingly and generously with a luscious pink coat of paint. The bronze statue was blackened with years of exposure to the elements, and undoubtedly its appearance was greatly improved. In our mind's eye, if we had a mind which had an eye, we could see the horrified look on the faces of scads of brass and bronze men to think anything so ageless as bronze should be desecrated with paint.

• • •

Retribution

READERS' Service department of STEEL feels we owe them an apology for even hinting that there was anything they were unable to accomplish. It is a matter of policy with this department not to apologize to the Readers' Service department at any time, but in order to make their vice president in charge of prestige feel a little bit better, we have consented to present at the very bottom of this week's stint the likenesses of their three newest servicemen. These attractive young lads are the field men of the RS dept. and are now on their way to visit thousands of executives in the iron, steel and metalworking industries to find out what are their likes and dislikes, their needs and pleasures as far as STEEL is concerned. If any of you readers need servicing in the field, just drop a line to the RS dept. and one of the vice-presidents will be only too happy, to coin a phrase, to send one of the boys out if he is in the neighborhood. Reading from west to east in the crowd below, the gang is Ken Koontz, Tom Melvin and Frank Burns.

• • •

Benevolent Union

BASKING here in the heat, we have been serenaded during the past few days by bands from the Loyal Order of Moose, who are foraging in the district. Even these benevolent organizations are not without their share of difficulties. Outside the hall where the noble Moose are convening walks a solitary woman picket, bearing a large sign, "Investigate before you join the Moose. My husband has been a member for 19 years and we have been on relief for the past seven." Wonder how long it will be until some agile mind decides to organize the pickets into one big union, to demand collective bargaining with the heads of the unions. Sort of looks like this organization thing could go on forever.

• • •

Add Ads

BEAUTIFUL is the expression on Anaconda's old duffer's face—page 14; the How-How pow-wow on NIAA's page 16.

—SHRDLU

been rejected by Pasco, Wash., and new tenders will be invited.

Plate Contracts Placed

1705 tons, 31 tanks, Aluminum Co. of America, Mobile, Ala., to Chicago Bridge & Iron Co., Chicago.

240 tons, 30-inch 10-gage welded steel pipe, Metropolitan water district, Los Angeles, to Southern Pipe & Casing Co., Los Angeles.

115 tons, 33 tanks, U. S. Industrial Alcohol Co., Baltimore, to Birmingham Tank Co., Birmingham, Ala.

Plate Contracts Pending

7400 to 9000 tons, welded steel or precast reinforced concrete pipe, Metropolitan water district, Los Angeles; bids opened.

250 tons, 500,000-gallon tank and tower, Pasco, Wash.; bids rejected.

180 tons, two derrick barges, for United States engineers, New Orleans; St. Louis Shipbuilding & Steel Co., St. Louis, low bidder.

160 tons, 500,000-gallon elevated tank, Willis, Tex.; bids in.

Bars

Bar Prices, Page 84

Pittsburgh—Hot-rolled bar bookings began to show some signs of life in the last week of August and there are indications that September will be a better month. After the recent dull period, producers entered September with backlogs almost gone. Principal impetus in the next few weeks is expected to be provided by the automotive industry, which recently has been buying only lightly. The railroad field continues inactive.

Cleveland — Shipments on most grades of forging, cold-drawn and alloy steel bars can be made within a week or two weeks, reflecting light demand from auto partsmakers. Farm equipment manufacturers have been active.

Chicago — Except for moderate improvement in automotive demand, bar sales show little change. Farm equipment manufacturers continue to lead in specifications and will continue heavy operations into fourth quarter. Bar shipments still are in excess of new business, with deliveries generally less than 30 days.

Boston—Commercial steel bar demand, light for several weeks, has slackened further. Although far from active, forging and alloy bar buying continues relatively better than for soft steel. Deliveries are prompt on most specifications.

Philadelphia—General bar demand is quiet although scattered orders are noted from miscellaneous sources. Deliveries are available from most makers in two weeks or less. Some replacement business is noted from warehouses.

Pipe

Pipe Prices, Page 85

Pittsburgh—In most quarters it is generally felt fall will be active for tubular goods, although degree of activity cannot be predicted definitely. Producers so far this year have enjoyed one of the most active periods since the pre-depression era, largely due to unslackened heavy demand for oil country products. Backlogs in seamless range from eight to 12 weeks. Standard pipe has been quiet but may show gains later due to winter heating requirements. Prices are steady.

Cleveland—Steel pipe distributors are well supplied in preparation for the anticipated revival in fall activity from industrial and domestic sources. Aggregate tonnage sold through these channels during August declined slightly in comparison with July. Cast pipe producers report a slight improvement in in-

quiries, although awards over the last 30 days have been limited to small tonnages. Outstanding among pending projects is the 1055 tons, PWA project, for feeder mains, Akron, O.

Chicago—Cast pipe orders continue small and pending business points to little change in bookings during September. Business includes only moderate lots from industrial plants and most municipal work is confined to smaller cities. Prices generally are steady.

New York—Closing Sept. 8, New York city will purchase 6200 tons for borough yard stocks, material to be cement lined, 6, 8 and 12-inch. This is the largest cast pipe inquiry in the immediate district this year. Also being figured, with bids expected shortly, are approximately 4500 tons for water line extensions, mostly Westchester county. With few exceptions, however, buying and inquiry are for small lots with shipments against contracts fairly active. Practically all cast pipe shipments to this district are by truck with delivery frequently made from stock in 24 hours from the time of release.

Boston—Outlook for cast iron pipe inquiry during the remainder of the year is not bright, uncertainty as to WPA policy being a factor. Also most municipalities have purchased for 1937. Steel pipe inquiry shows irregular improvement.

Birmingham, Ala.—Pipe inquiries and awards are light and one plant is operating on a four-day week. Production is estimated slightly under 60 per cent.

San Francisco—Inquiries for cast iron pipe, with two exceptions, are confined to lots of less than 100 tons. Los Angeles has opened bids on two projects, one calling for 153 tons of 4 and 6-inch pipe on which United States Pipe & Foundry Co. is low and the other for 2200 tons of 6 and 8-inch pipe on which the United States Pipe & Foundry Co., is low on 1900 tons and American Cast Iron Pipe Co., on 300 tons.

Cast Pipe Placed

280 tons, 12-inch, Lincoln, Mass., to Warren Foundry & Pipe Co., Everett, Mass.
Unstated tonnage, 48-inch, Boston, to Warren Foundry & Pipe Co., Everett, Mass.

Cast Pipe Pending

6200 tons, 6, 8 and 12-inch, yard stocks, five boroughs, New York City; bids Sept. 8, department of purchase; material to be delivered, stacked for storing. Inquiry also includes 185 tons of fittings.
2200 tons, 6 and 8-inch, Los Angeles, specification X 104; United States Pipe & Foundry Co., Burlington, N. J., low on 1900 tons, and American Cast Iron Pipe Co., Birmingham, Ala., low on 300 tons.
1055 tons, 30, 24 and 16-inch, PWA project, feeder mains, Akron, O.
275 tons, 12-inch, Newton, Mass.; bids in.
153 tons, 4 and 6-inch cast iron or transite pipe, Los Angeles, specification X 105; United States Pipe & Foundry Co., Burlington, N. J., low.
125 tons, 6 and 8-inch, Willis, Tex.; bids in.
104 tons, including fittings, water works extension, Sugar Grove, O.; bids in.

Transportation

Track Material Prices, Page 85

Domestic freight car awards in August involved 1475 cars, bringing the total for the first eight months up to 48,490, against 35,563 in the corresponding period last year, 7033 in the first eight months of 1935 and 23,383 in the same period in 1934.

The August record, enhanced by the placing of 800 cars by the Cambria & Indiana, noted in last week's issue, was the best since May, when 4782 cars were placed for domestic operation. Further comparisons follow:

	1937	1936	1935	1934
Jan.	17,806	2,050	24	152
Feb.	4,972	6,900	806	19,725
March	8,155	632	0	30
April	9,772	4,427	350	800
May	4,732	8,900	2	717
June	548	5,200	5,151	1,835
July	1,030	7,229	500	19
Aug.	1,475	225	200	105
8 mos.	48,490	35,563	7,033	23,383
Sept.	.....	1,750	875	7
Oct.	.....	2,210	1,250	75
Nov.	.....	1,550	100	254
Dec.	.....	23,450	10,050	110
Total	.....	64,643	19,308	23,829

Car inquiry is at possibly the lowest ebb this year, with the carriers marking time pending decision with respect to their petition of a few months ago for higher freight rates, a decision which many believe will be rendered by the interstate commerce commission this month. While certain wage demands now confronting the carriers came after the filing of their petition for higher rates, it is generally thought that the commission will consider the possible increase in payroll.

Consequently, some believe that the present lag in railroad inquiry, which not infrequently comes at this season, will not be unduly prolonged.

Meanwhile, car repair work is expected to become more active. Several railroad shops in the East after having been operating at a low rate throughout August, are expected to resume normal schedules this week.

Rail Orders Pending

12,229 tons, United States engineer, Fort Peck, Mont.; bids Sept. 7, circultr 74.

Car Orders Placed

Utah Copper Co., three caboose cars, to Pacific Car & Foundry Co., Seattle.

Car Orders Pending

Egyptian State Railways, 20 flat cars and twenty 30-ton low side gondolas; A. S. Robby, chief mechanical engineer, Cairo, Egypt.

Locomotives Placed

Minneapolis & St. Louis, two steel snow plows, to the Russell Snow Plow Co., Ridgeway, Pa.

Wire

Wire Prices, Page 85

Pittsburgh—Jobbers' orders have improved and new specifications in manufacturers' wire have gained despite lack of large releases from the automotive industry. Fence already is beginning to move out of jobbers' stocks. In some quarters export inquiry is reported active. Producers are following the leading interest in establishing the new functional discount of 10 cents per 100 pounds for jobbers or dealers.

Cleveland—Sellers report a slight improvement in specifications. Shipments can be had within three to four weeks, and appear to be going into immediate consumption.

Chicago—Wire demand continues to show small gains, with a more substantial pickup in prospect. The moderate recovery in bookings during August was insufficient to add materially to producers' backlogs and prompt delivery can be given in most instances.

Boston—Wire buying is maintained, the improvement which appeared about mid-August having leveled off. Demand is for diversified products. Most mills have built up better stocks of rods and the tight situation in semi-finished material has been greatly relieved.

New York—Demand for wire and wire products is widespread at about the rate of the last half of August when a mild upturn took place. Practically all incoming orders are for shipment this month.

Birmingham, Ala.—Continued improvement, although slow, is reported in demand for wire products, but the seasonal fall demand has not yet materialized in the measure expected. Sales are currently not much above 50 per cent of shipments.

Cold-Finished

Cold Finished Prices, Page 85

Pittsburgh—Specifications in the last half of August were considerably better than during the first half, due to automotive buying, but backlogs are depleted and prompt delivery easy to obtain. Some jobbers have been ordering more heavily to rebuild stocks. While export inquiry has been good, little of this business has actually been booked recently.

Shapes

Structural Shape Prices, Page 84

New York—James Stewart & Co., New York, is low on 7503 tons, superstructure, Canal-Duane street section, West Side elevated highway, closing Sept. 2. Inquiry is slightly heavier in other directions, largely public work, including 1400 tons for three New York city schools, closing Sept. 8.

Boston—Structural contracts and inquiries have declined. Bids on a 650-ton enginering building, Northeastern University, Boston, are in. Small bridges, about a dozen in several states, take close to 500 tons while 330 tons for the reconstruction of a bridge, Fall river, Mass., are included in new awards. Most structural shops have fair backlogs, a few being heavily booked, including the Berlin, Conn., shop.

Philadelphia—State of Pennsylvania is finally getting the $65,000,000 building program under way with announcement that bids will be taken Sept. 14 on three buildings for Laurelton State Village and State College building at State College, Pa. Initial projects will not take much steel, but office building at Harrisburg, Pa., due late in September, is expected to take 5000 tons. Present volume of both private and public building is disappointing to both structural mills and fabricators, while order backlogs are being rapidly depleted.

Cleveland—Structural awards continue fairly active, although most are well under 100 tons. Larger fabricators have substantial tonnage

Shape Awards Compared

	Tons
Week ended Sept. 4	21,387
Week ended Aug. 28	25,878
Week ended Aug. 21	24,660
This week, 1936	11,129
Weekly average, 1936	16,332
Weekly average, 1937	25,712
Weekly average, August	21,801
Total to date, 1936	817,756
Total to date, 1937	925,626

Includes awards of 100 tons or more.

on the books, although this is not the case in some of the smaller shops. Mills are able to make deliveries in three to four weeks, although in some instances backlogs are still further extended.

Chicago—Structural market continues slow and except for the placing of 150 tons by Allis-Chalmers Mfg. Co., awards are limited to lots of less than 100 tons.

Birmingham, Ala., — While miscellaneous business continues to reflect gratifying production figures, one of the largest orders of several months was placed with Tennessee Coal, Iron & Railroad Co., by Steel Construction Co., Birmingham, 10,625 tons, for Mississippi river bridge, Baton Rouge, La. Additional tonnage, 1875 tons, went to Carnegie-Illinois Steel Corp. Ingalls Iron Works, Birmingham, will fabricate the steel. Some accumulated business is yet to be cleaned off the books.

San Francisco—Less than 1000 tons of structural shapes were placed during the week and so far this year 120,224 tons have been booked, compared with 131,523 tons last year. Tonnage required for the construction of the drydock at Mare Island, Calif., ranging from 1500 to 9000 tons of sheet piling and shapes, will not be placed until the general contractor, Geo. Pollock Co., San Francisco, has decided upon the method of construction and has been formally notified of the actual award.

Seattle — Several fair-sized contracts are pending but no new jobs of importance have come out for

Unit Steel Bids to Massachusetts Department Public Works

Reconstruction Slade's Ferry bridge, Fall River-Somerset, Mass., tenders Aug. 11 at Boston

Material	Unit	A	B	C	D	Lowest Total
Structural Steel, lbs.	660,000	$0.094	$0.11	$0.1025	$0.1217	$62,040
Reinforcing, concrete structures, lbs.	62,000	0.0425	0.05	0.045	0.05	2635
Steel grid floor for fixed beams S. F.	16,300	1.00	0.95	1.45	1.40	15,485
Machinery, lbs.	23,000	0.35	0.40	0.50	0.477	8050
Bascule gratings S. F.	2475	1.60	2.00	1.77	1.80	3960

A—Coleman Bros. Corp., Boston, low and contract at $224,490; B—T. Stuart & Son Co., Watertown, Mass., second, $234,860; C—V. Barletta Co., Boston, third, $243,001.50; D—M. F. Gaddis, Inc., Boston, fourth, $300,771.

figures. Allocation of additional federal funds to this section is expected to hasten the development of a number of proposed projects. Awards of 1000 tons for trash racks, stoplogs, etc., for Bonneville dam have not been announced. For the same project bids have been called Sept. 24 for construction of a 115-kilovolt switching and bus structure at the powerhouse, involving 185 tons of galvanized shapes.

Shape Contracts Placed

12,500 tons, Mississippi river bridge, Baton Rouge, La., state project 2606, F. A. project 366-A, split as follows: 1875 tons, to Carnegie Illinois Steel Corp., and 10,625 tons to Tennessee Coal, Iron & Railroad Co., Birmingham, Ala., to be fabricated by Ingalls Iron Works, Birmingham, Ala.; Steel Construction Co., Birmingham, Ala., general contractor, $1,634,563.40, contract 4, Barry B. Henderlite, Louisiana state highway engineer.

1500 tons, plant extension, Allis-Chalmers Mfg. Co., Milwaukee, to American Bridge Co., Pittsburgh.

1350 tons, superstructure, south unit, Flushing river bridge, New York, to Bethlehem Steel Co., Bethlehem, Pa.; National Excavation Corp., New York, general contractor at $418,221.10; bids Aug. 10, department of plants and structures, New York.

700 tons, supplementary building, Republic Steel Corp.'s new plant, Cleveland, to Bethlehem Steel Corp., Bethlehem, Pa.

465 tons, pier, Beach Channel river, Rockaway, Long Island, N. Y., to Harris Structural Steel Co., New York; A. M. Hazel Inc., New York, general contractors.

450 tons, viaduct, Pennsylvania railroad, Montour Falls, N. Y., to Bethlehem Steel Co., Bethlehem, Pa.; A. S. Wickstrom, Bound Brook, N. J., general contractor.

400 tons, postoffice, Paducah, Ky., to Bethlehem Fabricators Inc., Bethlehem, Pa.; Algernon Blair, Montgomery, Ala., general contractor.

360 tons, state highway bridge, Cairo, W. Va., to Pan American Bridge Co., New Castle, Ind.

300 tons, bridge WPGH 124-D, Garfield county, Oklahoma, to George C. Chrisopher & Son, Wichita, Kan.

300 tons, warehouse, Owens Illinois Glass Co., Newark, O., to Indiana Bridge Co., Muncie, Ind.

280 tons, sheet piling, bulkhead, Manasquan, N. J., for U. S. army engineers, to Bethlehem Steel Co., Bethlehem, Pa.

260 tons, plant, Linde Air Products Co., Duquesne, Pa., to Fort Pitt Bridge Works, Pittsburgh; through Austin Co., Cleveland.

260 tons, beam framing, Fisher Body division, General Motors Corp., Flint, Mich., to R. C. Mahon Co., Detroit.

250 tons, show room and office building, Emanuel Ornstein, New York, to Schacht Iron Works, New York.

240 tons, bridges and track depressions, Central Railroad of New Jersey, Elizabeth, N. J., to Bethlehem Steel Co., Bethlehem, Pa.; Franklin Contracting Co., Westfield, N. J., general contractor.

225 tons, procurement division, U. S. treasury department, general storehouse annex, Second avenue, Brooklyn, N. Y., to American Bridge Co., Pittsburgh.

195 tons, floodlight towers, Lincoln tunnel, Weehawken, N. J.-Manhattan, N. Y., to Integral Steel Fabricating Co., New York.

155 tons, hangar extension, bureau of yards and docks, navy department, Anacostia, D. C., to Lehigh Structural Steel Co., Allentown, Pa.; W. F. Martons, Newport News, Va., general contractor.
145 tons, addition, Washburn-Crosby Co., Buffalo, to Buffalo Structural Steel Co., Buffalo.
145 tons, warehouse, Chrysler Corp., Jefferson avenue plant, Detroit, to R. C. Mahon Co., Detroit.
135 tons, underpass, Smithfield, N. C., to Southern Engineering Co., Charlotte, N. C.
135 tons, erecting shop, Vulcan Copper & Supply Co., Cincinnati, to Jones & Laughlin Steel Corp., Pittsburgh.
120 tons, bridge 1574, Manchester, Ind., to Central States Bridge & Structural Co., Indianapolis.
117 tons, shapes and bars, state highway project, Morris and Litchfield, Conn., to Harris Structural Steel Co., New York, and Hunter & Havens, New Haven, Conn.; C. W. Blakeslee & Sons, New Haven, general contractor.
100 tons, shapes and bars, state aid bridge, Richmond, Vt., to Vermont Structural Steel Co., Burlington, Vt., and Truscon Steel Co., Youngstown, O.; D. W. Overocker Inc., Burlington, general contractor.
100 tons, addition, Beld Bros. store, Charlotte, N. C., to Southern Engineering Co., Charlotte; J. A. Jones Construction Co., Charlotte, general contractor.
100 tons, building, Charles Lennig Co., Philadelphia, to Frank M. Weaver Co., Philadelphia.
100 tons, shapes and bars, Hop Vine bridge, Royalton, Vt., to Vermont Structural Steel Co., Burlington, N. J., and Concrete Steel Co., Boston; through O. W. Miller Inc., Lurlow, Mass.

Shape Contracts Pending

7503 tons, including 7210 tons structural structural steel, superstructure, West side elevated highway with ramp, West and Marginal streets, from Canal to Duane streets, New York; James Stewart & Co., New York, low, bids Sept. 2. Work also takes 100 tons cast steel and 212 tons cast iron.
4000 tons, court house, Kansas City, Mo.; Swenson Construction Co., Kansas City, low, bids Aug. 31.
2500 tons, upper deck, administration building and toll booths, Henry Hudson bridge, New York; readvertised, bids Sept. 9, Henry Hudson parkway authority.
1400 tons, public school 252, Brooklyn; public school 142, addition, Queens, and public school 160, Queens; bids Sept. 8, steel work, fabrication and erection direct, to board of education, New York.
1200 tons, steel for Maxwell breaker, No. 20 colliery, Ashley, Pa.
1000 tons, building, Johns-Manville Corp., Los Angeles.
1000 tons, bridge, Hazard, Ga.
700 tons, state highway bridge, FAGM-72, Ames, Iowa.
675 tons, bridge, Derby, Tex.
650 tons, miscellaneous steel for pipe factory, Keasby & Mattison, St. Louis.
650 tons, building, Inland Mfg. division, General Motors Corp., Cranford, N. J.
600 tons, research and development building, Proctor & Gamble, Ivorydale, O.
550 tons, public school 26, addition, Bronx, N. Y.; Harris Structural Steel Co., New York, low, $53,259; bids Sept. 2, on steel work direct, fabricating and erecting, board of education, New York.
550 tons, bridge, Big Blue river, Kansas City Terminal railway, Kansas City, Mo.
500 tons, apartment, 3-5 East Sixty-ninth street, New York; taking figures.
500 tons, bridge, Stearns, Ky.
450 tons, miscellaneous steel, Peoria dam, U. S. government, Peoria, Ill.
400 tons, building, Westinghouse Elevator Co., Jersey City, N. J.
400 tons, high school, Wilmington, Del.; bids Sept. 13.
370 tons, power house, Ternstedt Mfg. Co., Trenton, N. J.; bids in.
350 tons, temporary bulkhead framing, Pickwick Landing dam, Tennessee valley authority.
300 tons, womens activities buildings, Pennsylvania State College, State College, Pa.; bids Sept. 15.
300 tons, building, Fidelity Investment association, Wheeling, W. Va.
250 tons, post office, West New York, N. J.; Auf Der Heide-Aragon, Inc., West New York, low, bids Sept. 1.
235 tons, building, E. I. duPont de Nemours & Co., Carneys Point, N. J.
228 tons, plain material for stock, city of Chicago; bids Sept. 9.
225 tons, post office, Muskegon, Mich.; James I. Barnes Construction Co., Culver, Ind., low, bids Aug. 31.
220 tons, grade separation bridge, FAGH-X1, Grand Rapids, Mich.
220 tons, ore spouts, Great Northern railway, St. Paul.
200 tons, high school, Drexel Hill, Pa.; bids Sept. 15.
185 tons, bus structure, Bonneville power house; bids to United States engineer, Bonneville, Sept. 24.
175 tons, grade crossing, Mundelein, Ill.
150 tons, highway and bridge, Pittsfield, Mass., Lane Construction Co., Meriden, Conn., low, $101,913.90, bids Aug. 24, Boston.
105 tons, two span I-beam bridge, Gihon river, Johnson Village, Vt.; bids Sept. 10, H. E. Sargent, commissioner of highways, Montpelier; also 20 tons reinforcing bars.
104 tons, reconstruct Gehring bridge, Pierce county, Washington; bids Sept. 8.
100 tons, shapes and bars, treatment building No. 1, veterans' hospital, Reno, Nev.; Schuler & McDonald, Inc., Oakland, Calif., low, bids Aug. 31.
100 tons, post office, Maywood, Calif.; James Barnes, Springfield, Mo., general contractor.
100 tons, roof sections, three buildings, Laurelton State Village, Laurelton, Pa.; bids Sept. 14.
100 tons, tool house, Delaware river bridge, Philadelphia; bids Sept. 22.

Reinforcing

Reinforcing Bar Prices, Page 85

Pittsburgh—The price situation in concrete reinforcing bars has aroused increased interest recently, due to spotty conditions in certain parts of the country. In the Pittsburgh area prices have been well maintained generally. Inquiries continue to appear in encouraging tonnages.

Cleveland—Estimated tonnage of reinforcing bars in Northern Ohio from private sources during August totaled 252 tons, compared with 458 tons in July. The estimated tonnage of joists for August, 104 tons, exceeded that of July when only 94

tons were reported. Mills continue fairly active, although deliveries can be made within a week in most instances.

Chicago—Concrete bar backlogs have been reduced by excess of shipments over new business the past 30 days. While inquiries are fairly numerous, most take lots of less than 100 tons.

Boston—Reinforcing steel prices to contractor-buyers continue to be shaded on the more attractive inquiries. Small-lot buying is well sustained, while close to 300 tons additional for a Connecticut highway project, Stamford-Greenwich is outstanding among awards.

New York—Reinforcing steel contracts are fewer, with a drop in tonnage, although the number of small-lot awards is well sustained. Inquiry is slightly heavier. Part of 1500 tons of highway steel for Connecticut and New York state is being closed. In the south 2500 tons for a bridge, Baton Rouge, La., has been placed with a Birmingham, Ala., interest.

Philadelphia—Reinforcing bar tonnage is generally light, although state construction, which eventually will take considerable tonnage is now becoming active. Private jobs are still few with keen competition noted for work available.

San Francisco—Reinforcing market was most active one of the week with 2966 tons placed, bringing aggregate for the year to 69,585 tons, compared with 174,207 tons in 1936.

Seattle—Prospects are improved with the granting of PWA funds for 27 general projects and 38 proposed school buildings in Washington state. These jobs require small tonnages of concrete bars, but the total will reach fair proportions. Several state highway tonnages are pending.

Reinforcing Placed

3200 tons, addition to Bradford hospital, to E. L. Van Sickel Co., Bradford, Pa.

2500 tons, substructure approaches, Mississippi river bridge, Baton Rouge, La., to Tennessee Coal, Iron & Railroad Co., Birmingham; Uvalde Construction Co., Dallas, Tex., general contractor.

1504 tons, viaduct, San Francisco terminal, San Francisco-Oakland bridge, to Soule Steel Co., San Francisco.

530 tons, Kentucky state highway department underpass Greenup county, Kentucky, to Pollak Steel Co., Cincinnati; through Codell Construction Co., Winchester, Ky., general contractors.

325 tons, building, Dunbarton College, Washington, to Rosslyn Steel & Cement Co., Rosslyn, Va.

300 tons, Chrysler Motors, Detroit, to Bethlehem Steel Co., Bethlehem, Pa. Reported in STEEL, Aug. 30, as awarded to Truscon Steel Co.

240 tons, bureau of reclamation, invitation A-42m314-A, Calexico, Calif., to Northwest Steel Rolling Mills, Seattle.

150 tons, H-piles, for Huntington avenue underpass, Boston, erroneously reported in the Aug. 23 issue as awarded to Concrete Steel Co., New York. This company does not quote or sell H-piles.

140 tons, 3-story apartment, Odessa, Tex., to Austin Bros., Dallas, Tex.; J. T. Taylor Inc., Forth Worth, Tex., general contractor.

100 tons, building, for F. & M. Schafer Brewing Co., Brooklyn, N. Y., to Bethlehem Steel Co., Bethlehem, Pa.

Reinforcing Pending

800 tons, mesh, two sections, Merritt parkway, Connecticut; New Haven Roads Construction Co., New Haven, Conn., general contractor, two contracts.

800 tons, galvanized welded wire fabric, Unleed States engineer, New Orleans; bids Sept. 10.

800 tons, Mellon art museum, Washington.

800 tons, bridge, Soledad, Monterey county, California.

485 tons, grading, foundations and substructures, Northern boulevard grade separation and Flushing river bridge, Queens approach to Bronx-Whitestone bridge, Queens, N. Y., contracts WB-17A and WB-17B; bids Sept. 9 to Triborough bridge authority, New York. Bids may be submitted on either or both projects. Work also takes several hundred tons of piling.

477 tons, superstructure and ramps, west side elevated highway, Canal to Duane streets, New York; James Stewart & Co., New York, low; bids Sept. 2.

450 tons, subway, Huntington avenue extension, Boston.

390 tons, Richmond-Sunset sewage treatment plant, San Francisco; Clinton Construction Co., San Francisco, general contractor.

375 tons, building, Wisconsin Malting Co., Manitowoc, Wis.

350 tons, four New York state highway bridges; bids Sept. 13.

344 tons, crossing, Greenville, Alameda county, California; bids Sept. 15.

335 tons, feed mill and warehouse, Poultry Producers of Central California, Petalume, Calif.; bids opened.

300 tons, hospital, Norristown, Pa.; bids late September.

283 tons, wire mesh, warming-up apron, Hickman Field, T. H.; Chester R. Clarke, Honolulu, low on general contract at $290,000.

275 tons, highway widening, route 29, section 4A, Scotch Plains, N. J.; bids Sept. 14, Trenton, N. J.

275 tons, municipal water works, Milwaukee.

275 tons, building, Allis-Chalmers Mfg. Co., West Allis, Wis.

175 tons, administration building, Shell Development Co., Emeryville, Calif.; bids opened.

162 tons, building, Stecher-Traung Lithograph Co., San Francisco; bids opened.

150 tons, officers quarters, Government air depot, Sacramento, Calif.; bids postponed until Sept. 10.

150 tons, buildings, Johns-Manville Corp., Los Angeles.

150 tons, three buildings, Laurelton State Village; bids Sept. 14.

120 tons, Seattle light department building; bids in.

111 tons, bridges, in Mendocino and Humboldt county, California; bids opened.

100 tons, addition, Lincoln high school, Los Angeles; bids opened.

100 tons, post office, Maywood, Calif.; bids Sept. 17.

100 tons, womens activities building, State College, Pa.; bids Sept. 15.

100 tons, high school, Wilmington, Del.; bids Sept. 13.

Unstated, four passes and bridges, Montana state projects; bids in.

Concrete Awards Compared

	Tons
Week ended Sept. 4	8,539
Week ended Aug. 28	2,458
Week ended Aug. 21	14,094
This week, 1936	3,935
Weekly average, 1936	6,005
Weekly average, 1937	6,303
Weekly average, August	9,495
Total to date, 1936	254,130
Total to date, 1937	226,890

Includes awards of 100 tons or more.

Pig Iron

Pig Iron Prices, Page 86

Boston—Pig iron buying for third-quarter delivery is slightly more active with a moderate covering on fourth-quarter needs, although the latter movement is not general. While most larger consumers have substantial stocks, several have indicated this reserve will be kept intact. An increase in melt is expected within the next two weeks and a more widespread interest in future needs is likely. A shipment of 3000 tons recently went to England, New York iron, while Sweden also has placed additional tonnage.

New York—Pig iron sellers anticipate an improvement after Labor Day. Much speculation prevails as to the possibility of a price advance later, but the current thought seems to be that such increase, if it comes, will not be made effective before some time in the fourth quarter. Recent activity includes some routine contracting for the next quarter, but in general buying has lagged.

Philadelphia—In view of unchanged prices pig iron consumers are not pressing to place additional contracts for fourth quarter. In fact, some are asking for extension of deliveries scheduled for third quarter. However, prospects for fall busines are said to be fairly bright in view of the continued active rate of operations. It is rumored that the fourth quarter price advance, if it comes, is not expected to be made until late in the quarter unless an unusual volume of export business develops. Present foreign inquiries are for only moderate tonnages.

Cleveland—Producers expect little improvement in buying until mid-September when auto foundries will resume active schedules. Most foundries have shown little interest in fourth quarter, despite incentive of a possible price adjustment in November or December.

Chicago—Pig iron shipments are fairly steady and while foundry operations are tending upward, the improvement has been small and has necessitated only a mild expansion in iron deliveries. New business continues fairly active and producers have accumulated sizable bookings for delivery over the balance of the year. Automotive castings producers gradually are increasing output, while smaller shops, including jobbing foundries, still are operating on a restricted basis, they report prospects of a large melt within the next several weeks. Pig iron continues strong at $24, furnace for No. 2 foundry and malleable.

Cincinnati—Fourth quarter contracting in pig iron indicates melters' belief that demand for castings is due for an early rise. Most important needs are covered, without any evidence of speculative tonnage to be carried over into the new year.

Buffalo—New buying is confined to immediate requirements, and producers report a continuation of the usual seasonal lull. A pickup is expected shortly as substantial bookings are reported with the extension of prices. Foundry operations are maintained at a fairly steady rate with stocks on hand still of moderate proportions.

St. Louis—Shipments of pig iron during August made a remarkable

showing, the aggregate being the highest for the month since 1930. Despite the heavy movement, backlogs of sellers are still heavy, and have been added to noticeably since the current price was extended into fourth quarter.

Birmingham, Ala.—Pig iron production dropped few points this week with one furnace going down for relining. Tennessee Coal, Iron & Railroad Co. is operating seven furnaces; Sloss-Sheffield Steel & Iron Co. four; Republic Steel Corp. two at Birmingham and one at Gadsden, and Woodward Iron Co. three. Melters report considerable fourth quarter business being booked, although there is a slight decrease, believed temporary, in contract buying.

Toronto, Ont.—Merchant pig iron sales are improving. Iron sales for the past week reached the highest level since June with awards totaling approximately 1700 tons. Foundry iron continues most active while better demand is developing for malleable. Basic continues to move slowly. Melters covered by contract are taking schedule delivery while a number of spot buyers have placed orders recently for supplies to carry them to the end of this quarter. Prices continue firm and unchanged.

Tin Plate

Tin Plate Prices, Page 84

Pittsburgh—Faced with the problem of completing certain shipments by Sept. 30, tin plate producers in this district are operating at highest possible rate. Most mills are booked heavily for October and accepting business for November. Inventories of canmakers are small as a result of the exceptionally active canning season. Export inquiry has been improved recently.

Scrap

Scrap Prices, Page 88

New York—Negotiations for purchase of a large tonnage of scrap for export by the European steel scrap federation, the scrap-buying cartel, representing the heaviest consuming European countries, is under way. Sir I. S. L. Elliott, representing the cartel, is reported to have offered $2 per ton higher than paid for the last large purchase, with some broker shippers reported reluctant to close on steelmaking grades for domestic shipment reflects the large tonnage involved. The mixed situation in steelmaking grades for domestic shipment reflect the influence of these negotiations; with some brokers quoting several grades lower, although for export prices are strong. Better than the quoted $17 is reported paid for No. 1 melting steel, dock delivery, with prices of steelmaking grades in Northern New Jersey especially strong for boat loading.

Pittsburgh—The Pittsburgh scrap market was purely nominal last week. Pending outcome of railroad lists, there was no activity, and in addition, the leading interest placed an embargo on shipments to certain of its mills. While clarification is awaited, No. 1 heavy melting steel is down $1 to $21 to $21.50.

Cleveland—Only routine sales and shipments of scrap are noted here. Restrictions on shipments continue in the case of consumers. The market awaits information as to prices on recent railroad lists. Quotations are largely nominal.

Chicago—Heavy melting steel is off $1 a ton here on a sale at $19 while most other grades have weakened 50 cents to $1. Consumer buying is quiet but offerings also are somewhat restricted. Steel foundry consumption is heavy but reduced operations are in prospect within 30 days as a consequence of curtailed railroad purchases.

Boston — Heavy melting steel scrap for dock delivery continues firm at unchanged prices with No. 1 machinery cast and textile strong on a limited volume of domestic buying. Supplies of the latter grades are coming out slowly. Prices on some grades are mixed with a downward tendency predominating. Buying for export is steady and still accounts for most activity.

Philadelphia—The scrap market shows increasing signs of weakness with several grades marked down about 50 cents per ton. No. 1 heavy melting steel has resisted the weakening tendency, due to scarcity. Dealers are covering contracts of this grade at about $19.50. Steelmakers are turning more to the heavier grades. One mill, for instance, has dropped the use of machine turnings in the open hearth, but this move is said to be temporary. The monthly accumulation of about 3000 tons of new compressed sheets by a local autobody maker sold at $18.50 to a local mill, the delivery involving only 50 cents freight.

Buffalo—Sentiment is mixed over prices of steel and iron scrap, with mills continuing to bid $1 a ton below two weeks ago. Only a few minor sales are reported to have been made at the reduced level of $20 to $20.50 for No. 1 heavy melting steel. Dealers generally expect the current stalemate to be broken within the next ten days. Scrap supplies, while ample to meet demand for current contracts, are not too plentiful. Dealers report little scrap being shipped down the lakes, except on old contracts.

Detroit — Quotations on borings, turnings, No. 2 busheling and plate scrap are off 50 cents in face of current weakness, which appears to be concentrated in blast furnace grades.

Cincinnati—Weakness in iron and steel scrap, evident 10 days ago has brought lower bids, with heavy

melting steel down $1. Offerings of yard stocks are in greater volume.

St. Louis—An easier tone has developed in iron and steel scrap, the influencing factors being scant buying and falling off in orders by mills, heavier dealer offerings and reduction in ingot production. For the most part quotations were unchanged, but more sales were made at the lower end of the quoted range on the several items than heretofore.

Birmingham Ala. — Considerable easing up in scrap is noted with approximately $1 a ton lower on No. 1 and No. 2 heavy melting in prospect for the next week or 10 days. Large buyers attribute this situation to action of small dealers who have been holding for higher prices in turning loose considerable tonnage.

Toronto, Ont.—Higher prices for iron and steel scrap have gone into effect although some dealers continue to issue old lists. Demand is active and mills are taking all the steel scrap offered. Automobile scrap is still piling up, with substantial tonnages being exported. Foundries are asking for machinery cast and stove plate, but supplies are light and it is stated that not all dealers are in a position to meet demands. The higher prices are expected to bring out accumulations.

Warehouse

Warehouse Prices, Page 87

Pittsburgh—A pickup in volume of warehouse business was shown late in August after first part of the month had been slow. In many quarters a fairly good fall is expected. Delivered in Allegheny county, track spikes, base per 100 pounds, 1 to 24 kegs, are $3.75; over 24 kegs, $3.50; less than one keg, $4.75. Rail splices and angle bars are higher. Floor plates are down from $5.60 to $5.30.

Cleveland — Warehouse distributors report aggregate tonnage shipped during August on a par with July. Most distributors anticipate a gradual improvement in order volume and aggregate tonnage through September. With the exception of a slight adjustment in floor plates, prices remain firm and unchanged.

Chicago — August sales showed only a moderate decrease compared with July but an upturn in demand is not looked for before the middle of this month. Prices are steady and in most cases will be extended into fourth quarter.

New York—Contrary to the usual experience prior to Labor Day a perceptible lift is noted for steel out of warehouse by most interests. The buying is well diversified and is taken to indicate better business ahead.

Buffalo—A mild pickup was noted in the last few days. This is general and believed due to replenishing of inventories. While July and August were quiet, sales were well above same periods last year.

Detroit — This being the off-year for sweeping changes in tools and dies for automobile plants, demand for steel out of warehouse for tool and die shops is not up to the level of last year. However sufficient new business has developed to fill the gap in automobile buying and warehouses are inclined to be optimistic over fall bookings.

St. Louis—Preliminary reports of warehousemen indicate that August business was above expectations, and only slightly below the July volume. Sales represented the largest total for any August since 1930, and in the case of one representative interest business was the heaviest for any August of record.

Iron Ore

Iron Ore Prices, Page 88

Cleveland—Shipments of iron ore from the upper lake ports during August amounted to 10,811,381 tons, largest monthly total on record. The highest prior figure was 10,806,967 tons, in August, 1929. Lake shipments for the year to Sept. 1 also set an all-time high of 45,438,131 tons, exceeding the previous record of 43,717,797 tons in 1929 by over 1,700,000 tons.

Shipments for the season to Sept. 1 in 1936 and 1937, as tabulated by the Lake Superior Iron Ore association, follow:

Port	To Sept. 1 1936	To Sept. 1 1937
Escanaba	1,219,293	2,177,952
Marquette	2,613,602	3,534,986
Ashland	2,726,251	4,029,076
Superior	9,731,425	15,836,513
Duluth	6,744,354	12,547,250
Two Harbors	3,146,592	7,312,354
Total	26,281,517	45,438,131

Steel In Europe

Foreign Steel Prices, Page 87

London — (*By Cable*) — Pig iron supplies in Great Britain are easier except in the case of foundry grades. The outlook for the steel trade is for full activity to the end of the year with works operating at capacity. Deliveries on current bookings are being extended into 1938. Arrivals of Continental billets are improving slightly but still are insufficient to fill needs of rerollers. Exports of galvanized sheets are expanding slowly. The threatened wage strike of tin plate annealers has been averted.

The Continent reports export trade quiet with accumulated orders sufficient to keep works busy until the expected fall revival.

Bolts, Nuts, Rivets

Bolt, Nut, Rivet Prices, Page 85

New York—Bolt and nut manufacturers look for improved rail-

road buying shortly. While the railroads are disturbed over demands for higher wages and therefore are not entering the market with important equipment lists, it is believed that they will start work soon on some rather extensive repair programs which will prove beneficial to the bolt and nut manufacturers.

Metallurgical Coke

Coke Prices, Page 85

Ovens in the Connellsville, Pa., beehive region were given the customary heavy charges over the Labor Day holiday. Operators report not much change has been shown recently in demand, spot requirements continuing light. Some by-product plants have built up stocks pending increased demand in the late fall and winter. Estimated United States production of beehive coke for the calendar year to Sept. 1 was 2,293,400 net tons, compared to 862,000 tons in the comparable 1936 period, and 4,424,500 net tons in the 1929 period.

Ferroalloys

Ferroalloy Prices, Page 86

New York—An improvement in the movement of ferromanganese is anticipated this month. Should an advance for fourth quarter be announced about the middle of the month the improvement would undoubtedly be pronounced; however, there is no definite assurance that there will be an advance, with some trade opinion leaning to the side that existing quotations will be reaffirmed. The current market is $102.50, duty paid, Atlantic and Gulf ports.

The market on ferrotungsten continues nominal for the time being, while producers await the outcome of the Sino-Japanese crisis, which has unsettled the tungsten ore market. They are waiting to see what the replacement value of their ore is going to be before accepting further business.

Nonferrous Metals

Nonferrous Metal Prices, Page 86

New York—Unfavorable developments last week, including weak stock markets and tension on two war fronts, delayed further the expected upturn in metal values abroad and the resumption of heavier buying here. Around midweek prices slumped sharply on the London Metal Exchange but recovered part of the losses by the weekend. Some interests believe the trend now will be upward.

Copper—After slipping to 13.55c, c.i.f., export copper reacted and closed at 13.70c, c.i.f. Electrolytic copper held firm in the domestic market at 14.00c, Connecticut, although the sales volume tapered.

Zinc—Normal conditions prevailed in the zinc market for the first time in several weeks. Sales dropped to around 3000 tons, shipments held steady at around 5000 tons, and the large order backlog has begun to recede. Continued importations of foreign metal has had no effect on the firmness of the market with prime western holding at 7.25c, East St. Louis.

Lead—Demand for lead was quiet but satisfactory in view of the fact that consumers are rather fully covered on September and fairly well on October needs. Prices were firm at 6.35c, East St. Louis, and 6.50c, New York.

Tin—Consumers bought actively on a declining market. Straits spot slipped to a low of 58.25c on Thursday but closed higher at 58.62½c. August statistics were considered favorable although world visible supplies increased 265 tons to 21,019.

Antimony—Chinese spot antimony soared to 17.50c, duty paid New York, reflecting the scarcity of metal here and a possible embargo of shipments from China. American spot advanced to 15.75c, New York.

Peck, Stow & Wilcox Co. Traces Genealogy to 1785

Genealogy of Peck, Stow & Wilcox Co., Southington, Conn., has been traced back to 1785, making it one of the oldest firms of its kind. Origin of the business was a small tool shop founded in 1785 by Elias Beckley Jr. at Berlin, Conn., which in 1844 was absorbed by Lyman Wilcox, manufacturer of snip and bench shears.

The Peck branch of the business dates back to 1819 when Seth Peck was granted a patent for a machine for manufacture of tinware. Starting in 1834 Solomon Stow erected a small plant at Southington where he made brass gear wheels and other parts of machinery for Peck.

In 1870 the Peck, Stow and Wilcox companies were merged into the present concern and since all the company's operations have been consolidated at Southington. Company manufactures a complete line of mechanics' hand tools, machines and tools for sheet metal work and general hardware.

Scrap Dealers Win Contest

Bassow Bros. Inc., New York, won first place in the first accident prevention contest conducted in New York state by the Institute of Scrap Iron & Steel, in conjunction with the state insurance fund, according to Benjamin Schwartz, institute director general. Empire Waste Material Co., Poughkeepsie, took second place and Charles J. King Inc., Brooklyn, third place. The three companies completed the contest Aug. 1 without any reportable injuries to their employes.

Wire Sales Put On Quantity Basis

Effective Sept. 2 American Steel & Wire Co. announces a new sales plan applying on nails, staples, barbed and barbless wire, annealed and galvanized merchant quality wire, woven wire fences of all kinds (exclusive of lawn fence), and bale ties, superseding the jobber-dealer basis long in vogue.

In future these products will be sold on a quantity plan which is being sent out to the trade.

The quantity plan for merchant products, covering nails, staples, barbed and barbless wire, annealed and galvanized merchant quality wire, woven wire fences of all kinds (exclusive of lawn fence), and bale ties, is as follows: mixed carloads, 40,000 pounds or more: Base.

Less than Carload Extras:

Following quantity extras apply on all individual LCL orders for shipment for producing mill warehouse stocks. Total weight determines LCL extras: 20,000 pounds to carload 10c per 100 pounds or 2 columns; 5000 pounds to 19,999 pounds 15c per 100 pounds or 3 columns; 1000 pounds to 4,999 pounds 30c per 100 pounds or 6 columns; less than 1000 pounds 50c per 100 pounds or 10 columns.

From the prices applying to less than carloads, straight or mixed carloads or more, purchased for resale, there is granted dealers and jobbers a functional allowance of 10 cents per 100 pounds. In addition, the new plan incorporates quantity deductions applying to all purchases.

These deductions apply to quantity of product or products of any one group ordered by one purchaser released for shipment at one time to one destination. The deductions range from 5 cents to 15 cents per hundred pounds on nails and staples, and on fence wire, merchant quality, annealed and galvanized, wire and brace wire. Quantity discounts also apply on barbed wire and on fencing, cribs and cribbing, square mesh field and poultry.

In event a sufficient quantity of a product or products of any of the groups carrying quantity deductions is purchased to secure deduction, products of other groups may be included and will take the deductions of the same tonnage bracket.

Single loop bale ties in mixed carloads of 40,000 pounds or more take present base price. Less than carload extras are as follows: 20,000 to 39,999 pounds, 2 column; 5000 to 19,999 pounds, 3 column; 1000 to 4999 pounds, 6 column; less than 1000 pounds, 10 column. Quantity deductions: 40,000 to 59,999 pounds, 2 column; 60,000 to 79,999 pounds, 3 column; 80,000 or more pounds, 4 column.

Functional Allowance

From the prices applying to less than carload, straight or mixed carload or more, purchased for resale there is granted to dealers and jobbers a functional allowance of 10 cents per 100 pounds.

Abandonment of the jobber-dealer method of selling by the American Steel & Wire Co. results after due deliberation of the problem had convinced the company that continuation of the plan was not in the interest of either the company's customers or the company.

The company further points out that there has been a noticeable change in the distribution of merchant products and in the adoption of the quantity plan of selling it is effecting a means of protecting its legitimate jobber-dealer interests from the many forms of distribution which have disturbed the market situation in many localities.

The new quantity plan does not apply to such products as posts, American lawn fence, gates, poultry netting, or any other products except those mentioned.

This method of selling has been in effect in territories normally served by the Tennessee Coal, Iron & Railroad Co. over recent months and has proved satisfactory. The plan of the American Steel & Wire Co. follows closely that of the Tennessee Coal, Iron & Railroad Co. with the exception that the first bracket of the TCI is based on the railroad minimum and not on 40,000 pounds, as is the case with the American Steel & Wire Co.

Ore Imports Heavy

Philadelphia—Arrival of 17,889 tons here during the week ended Aug. 28 marked the heaviest importation of foreign ores at this port in some time. Of this total 10,600 tons were manganese ore, of which 9500 tons were received from British India, 1000 tons from Russia and 100 tons from England. The remainder was chrome ore, 4789 tons from Cuba and 2500 tons from the Philippine islands.

Steel importations comprised 108 tons of steel tubes, 53 tons of forgings, 26 tons of wire rods and 65 tons of steel bars, all from Sweden; 61 tons of bands, 20 tons of bars and 63 tons of structural shapes, all from Belgium; and six tons of structural shapes from France.

A shipment of 195 tons of pig iron came in from British India.

Crucible Steel Co. of America, New York, reports for the six months ending June 30 net income of $3,099,796 after all charges excluding surtax on undistributed profits. This equals $5.03 a share on the 450,000 common shares outstanding. In the first half last year net income was $1,262,512, or 95 cents a share.

Equipment

Chicago — August brought a decrease in machine tool and plant equipment sales, but despite unfavorable comparison with July gains were shown over some previous months. Inquiries also have slumped recently, pointing to a continuation of quieter demand.

Seattle—Lumber industry strikes have reduced volume of business from that source but electrical equipment, pumping machinery and road-building items continue in good demand.

Construction and Enterprise

Ohio

ALGER, O. — Village is considering construction of sewage disposal plant estimated to cost $35,000. Aid may be sought from WPA. Fred Harrington is mayor and Morris Schadley is clerk.

BLOOMVILLE, O. — Village has been granted $30,000 by PWA toward planned construction of waterworks system, to include pumphouse and elevated steel tank. Estimated total cost is $50,000. E. J. Earick is mayor and Mrs. Rose Hackenburg is clerk. Engineer is Champe, Finkbeiner & Associates, 1025 Nicholas building, Toledo. (Noted STEEL, Aug. 16.)

BUCYRUS, O. — City has been granted $63,080 by PWA for construction of sewage disposal plant whose cost will be around $140,000. A $75,000 bond issue was authorized two years ago. George M. Birk is mayor and R. L. Hertzer is service director. (Noted STEEL, Aug. 30.)

CINCINNATI — Globe-Wernicke Co., Carthage avenue Northwest, plans to construct a factory addition costing $100,000.

CINCINNATI — General Spring Co., 125 East McMicken avenue, plans to build a plant costing $60,000. Frankenberger & Batson, 4122 Davis lane, are architects.

CIRCLEVILLE, O. — City will be ready for bids about Sept. 20 for construction of sewage disposal plant costing $136,500, for which PWA has granted $61,363. J. F. Mairs is service director and Floyd G. Browne, Marion, O., is engineer. (Noted STEEL, Aug. 2.)

CLEVELAND — Ferbert-Schorndorfer Co. has acquired two acres adjacent to its plant on Elmwood avenue Northwest, and will build a new factory for making synthetic resins.

CLEVELAND — Variety Machine & Stamping Co., Elmwood avenue Northwest, will build a heat treating plant on an acre adjoining its plant.

CLEVELAND — Overly-Houtz Co., Madison avenue Northwest and West 114th street, will build a sheet metal fabricating plant of 12,000 square feet on Elmwood avenue Northwest.

CLEVELAND — Marquette Metal Products Co., 129 Taft avenue, plans to build a plant addition costing $100,000, and machinery and equipment will cost another $100,000. A stock issue probably will finance the work.

CLEVELAND — Cleveland Chain Co., Broadway and Henry streets, plans to build an $80,000 factory. H. W. Maurer, 3126 Scarboro road, is architect.

CLEVELAND — Precision Casting Co., J. R. Millspaugh, general manager, plans to build a 1-story, 60 x 130-foot factory addition at 12600 Berea road. Architect is H. E. Shimmin, 1720 Euclid avenue. Estimated cost is $40,000.

CLEVELAND — Ohio Spring Co., East Fortieth street and Carnegie avenue, plans to build a 1-story, 30 x 150-foot plant addition to cost $40,000. Architect is M. P. Halperin, 604 Prospect avenue.

CLYDE, O. — Village will ask bids about Sept. 10 for improvements to light plant. C. A. Steiff is clerk and Froehlich & Emery, Second National Bank building, Toledo, is engineer.

COLDWATER, O. — Village is considering construction of a water softening plant, and a bond issue of $15,000 probably will be placed before voters Nov. 2. A. T. Schoch is mayor and Carl Z. Hess is clerk.

CUYAHOGA FALLS, O.—Falls Stamping & Welding Co. will take bids for construction of a 1-story, 60 x 80-foot plant addition, to cost $40,000.

DAYTON, O. — War department, Air Corps, materiel division, Wright field, will take bids until 10 a. m. Sept. 9 for 233 electric portable drills, specification 50243, 66 portable drills, ⅜-inch capacity, specification 50074, and 25 portable drills, ½-inch capacity, specification 50075, all for use on universal current, 110 volts. Bids will be taken until 10 a. m. Sept. 13 for 4000 pounds of 3-pound aluminum ingots, grade C, specification QQ-A-451.

EDON, O. — Village plans to build waterworks plant and has been allocated $19,636 by PWA. A $23,000 bond issue was approved at recent election. E. C. Bingaman is mayor and Carl Simon, Van Wert, O., is engineer. Estimated total cost is $43,600.

GALION, O. — City has been allocated $40,905 by PWA toward remodeling of sewage disposal plant estimated to cost $91,000. Voters approved a bond issue of $60,000 at last election. L. Cline is service director and P. A. Uhlman, 2083 Dayton street, Columbus, is engineer.

MONROEVILLE, O. — City is preparing plans for construction of water softening and purification plant north of municipal electric power plant. Estimated cost is $32,000, of which PWA has granted $8000. Clarence H. Zipfel is mayor and Champe, Finkbeiner & Associates, 1025 Nicholas building, Toledo, are engineers. (Noted STEEL, Aug. 9.)

NILES, O. — Youngstown Steel Car Corp. plans to construct a 1-story, 80 x 200-foot factory addition, costing $40,000.

ORRVILLE, O. — City plans to build a water softening plant costing $64,000. C. C. Hommon, 140 Twenty-second street Northwest, Canton, O., is engineer.

SANDUSKY, O. — Pennsylvania Railroad, foot of King street, will take bids soon for construction of a 3500-foot dock and installation of a modern coal loader. Total cost is estimated at $4,000,000. J. D. Moffat is assistant chief engineer, Western division, Chicago, and will be in charge of work.

WELLSVILLE, O. — City has revised plans for waterworks improvements and has been allocated $73,682 by PWA. C. Fred Gluth is service director and R. M. Hunter, Wooster, O., is engineer. A filtration plant of 2,000,000 gallons capacity will be built, and total cost is estimated at $164,000. (Noted STEEL, May 31.)

WEST ALEXANDRIA, O. — Village plans construction of a sewage disposal plant and distribution system costing $94,000, with WPA aid. Village will is-

sue $25,000 bonds. J. A. Craven, 212 Central avenue, Dayton, is engineer.

WEST UNITY, O. — Village plans construction of waterworks system, including elevated steel tank and tower, pumphouse with pumps and motors, and piping and valves. Total cost is estimated at $76,700. Engineer is Champe, Finkbeiner & Associates, 1025 Nicholas building, Toledo. PWA has granted $34,510.

Connecticut

HARTFORD, CONN. — G. F. Heublein & Brother Co. has acquired the plant formerly occupied by the SKF Industries Inc., comprising approximately 200,000 square feet of space.

New York

ITHACA, N. Y. — Lincoln Enterprises plans to build a factory for manufacturing electric meters. Architect is A. N. Gibb, 300 East State street.

NEW YORK — Beadleston & Moerz, care of Whitehead Metal Products Co. of New York, 304 Hudson street, subsidiary of International Nickel Co., 67 Wall street, plans to construct a 3-story factory at West Tenth and Washington streets. Estimated cost is $400,000.

NORTH BELLMORE, N. Y. — Perfectoloid Co., 424 New Bridge road, plans to build a factory costing over $40,000.

Pennsylvania

AMBRIDGE, PA. — Borough is considering recommendations and estimates of costs made by engineer, Peter F. Loftus, Oliver building, Pittsburgh, for waterworks improvements. Estimated total cost will be $282,000. S. L. Card is borough secretary.

ERIE, PA. — Penn Brass & Copper Co., 1130 West Eighteenth street, is taking bids for construction of a 1-story, 150 x 350-foot plant on Powell avenue.

MARTINSBURG, PA. — Borough plans to construct a sewage disposal plant at an estimated cost of $40,000.

Michigan

LANSING, MICH. — Motor Wheel Co., East Saginaw street, plans to install conveyors, electric hoists, motors and controls, and other handling equipment in two new 1-story plant additions which will comprise 90,000 square feet. Cost is estimated at $250,000. (Noted STEEL, Aug. 23.)

Illinois

CHICAGO — Visking Co., 6733 West Sixty-fifth street, plans to install motors and controls, conveyors, transformers, and other materials handling equipment in new 1- and 2-story addition to cellulose materials plant, to cost over $400,000.

EVANSTON, ILL. — Kwickon Co., 626 West Jackson boulevard, Chicago, rejected bids recently received for construction of a factory, and probably will ask bids again in several months. Estimated cost is $70,000. S. Minchin, 4339 North Claremont avenue, is architect.

Indiana

CRAWFORDSVILLE, IND.—City plans to expand and improve electric power plant and will install a new 5000-kilowatt turbogenerator, boilers, and other equipment. Cost is estimated at $285,000.

KENDALLVILLE, IND. — Plant of Newman Foundry Co. was damaged recently by fire. It probably will be repaired immediately. C. E. Howe is manager.

Maryland

BALTIMORE, MD. — Carr Lowrey Glass Co., 2201 Kloman street, will let contract soon for construction of a 2-story addition to its factory. Estimated cost is $100,000. Amsler-Morton Co., Fulton building, Pittsburgh, is architect.

Mississippi

NATCHEZ, MISS. — City will vote on $250,000 bonds for construction of tire manufacturing plant, city to purchase site and direct work. W. J. Byrne is mayor.

North Carolina

OCRACOKE, N. C. — Ocracoke Power & Light Co. plans to build electric light plant and distribution system, for which Charles Scarborough, Ocracoke island, has general contract.

Louisiana

AMITE CITY, LA. — City plans construction of $57,000 waterworks extensions, for which PWA has granted $26,650. Additional equipment will be installed.

LAKE CHARLES, LA. — City has received PWA allocation of $102,960 for construction of sewage disposal plant to cost $230,000, and has $160,000 bonds available. J. M. Fourmy is engineer, Hammond, La.

NEW ORLEANS — Southern Steel Barrel Co., Roy E. Hurd, president, 1115 South Liberty street, will install $35,000 worth of machinery in its plant.

NEW ORLEANS — Harry Brothers Co. of Louisiana, sheet metal producer, plans to build a $50,000 addition to its plant at 3505 South Carrollton avenue.

RUSTON, LA. — Arkansas-Louisiana Gas Co. plans to construct a gasoline absorption plant costing $300,000.

WISNER, LA. — Town plans construction of waterworks costing $44,000, and has PWA grant of $20,000 and loan of $24,000. Swanson-McGraw, Balter building, New Orleans, is engineer.

Tennessee

CHATTANOOGA, TENN. — City has received $4,300,000 loan and grant from PWA for construction of municipal electric light distribution system, to use power from TVA.

NASHVILLE, TENN. — Tennessee Electric Power Co., J. C. Gould Jr., president, 605 Church street, has been authorized by Tennessee Public Utilities commission to build a steam generating plant at Bordeaux, near Nashville.

West Virginia

CLARKSBURG, W. VA. — Harrison County Rural Electrification association plans to build a power plant and has started work on erection of 196 miles of transmission lines. Louis T. Klauder, Lincoln-Liberty building, Philadelphia, is engineer.

HUNTINGTON, W. VA. — Appalachian Electric Power Co., Roanoke, Va., plans to build a new power substation in Huntington and will extend transmission lines. Cost will be near $450,000 and work will start soon.

WHEELING, W. VA. — City has engaged Carl J. Simon, Van Wert, O., engineer, to make surveys and estimates of cost of construction of electric power station. Harry Humphrey is city manager.

Virginia

BELLEWOOD, VA. — Old Hickory Chemical Corp., affiliate of E. I. duPont de Nemours & Co., Wilmington, Del., plans to construct a carbon disulphide plant at Bellewood in Chesterfield county. Cost is estimated at $750,000. Albert K. Missimer, DuPont service superintendent, is in charge.

PORTSMOUTH, VA. — Bureau of yards and docks, Navy department, is taking bids for a diesel engine electric unit of 325 horsepower and a 200-kilowatt direct current generator for a floating crane at Norfolk navy yard. Specification 8545.

VIRGINIA BEACH, VA. — City has

been granted $76,090 for construction of sewage disposal plant at a total estimated cost of $169,000.

Missouri

BUCKLIN, MO. — City plans to build waterworks plant costing $65,000, and will install two 75-gallon per minute pumps, a chlorinator, 75,000-gallon elevated steel tank, and other equipment. PWA has granted $29,250.

EAST PRAIRIE, MO. — City plans to build sewage disposal plant and system at an estimated cost of $36,363. Grant of $16,363 and loan of $20,000 has been received from PWA.

ST. LOUIS — Socony-Vacuum Oil Co. Inc., 26 Broadway, New York, and H. T. Ashton, general manager, Lubite division, 4140 Lindell boulevard, St. Louis, will ask bids soon for construction of two additions to its gasoline cracking and bulk plant at the foot of President street. One addition will be 1- and 2-story, 150 x 175 feet, the other 1-story, 75 x 150 feet. Estimated cost is $200,000. M. F. Marks, Ambassador building, is engineer.

Oklahoma

TEXHOMA, OKLA. — Stanley Marsh Jr., Amarillo, Tex., has been granted permit by utilities commission to construct a 60,000,000-cubic-foot carbon black plant costing $40,000.

Wisconsin

LANCASTER, WIS. — Grant county board has appropriated $45,000 for a new steam heat and light plant at county institutions. Bids close Sept. 7 on structural contracts. Alonzo Aupperle is county clerk.

MERRILL, WIS. — City plans construction of a sewage disposal plant and A. E. McMahon Engineering Co., Menasha, Wis., is engineer.

MILWAUKEE — Fred Holtz, president-treasurer, Generating Gear Co., 2738 South Twenty-ninth street, has formed a new company called F. E. Holtz Inc. to manufacture and deal in gears, machines, tools, etc. G. L. Light and F. Russell Holtz are also affiliated.

MILWAUKEE — Atlas Metal Parts Co., 3240 North Thirty-first street, stampings and hardware manufacturer, has increased capital stock and may expand production facilities. William A. Schendel is president-treasurer.

WAUSAU, WIS. — Ben Alexander and C. C. Yawkey, local timber and sawmill operators, plan to start early construction of a new saw and planing mill plant costing about $250,000 at Prinville, Oreg.

Minnesota

MINNEAPOLIS, MINN. — General Metalware Co. plant was damaged by fire recently.

Texas

MARSHALL, TEX. — Portex Oil Co., Portland, Oreg., plans to construct a gasoline extraction plant in northeast Shelby county.

PORT ARTHUR, TEX. — City plans to build a $150,000 waterworks plant. M. D. Gates is city engineer.

Iowa

WAVERLY, IOWA — City plans to build a $160,000 addition to the municipal electric plant to house diesel engines and generators. Young & Stanley Inc., Muscatine, Iowa, is engineer. (Noted STEEL, July 26.)

Nebraska

ALLIANCE, NEBR. — City council has approved proposal for construction of municipal power plant to house a 30,000-pounds-per-hour high pressure boiler and turbine generator, to cost $24,700. Council will ask bids as soon as bonds are issued. H. A. Fricke is mayor. (Noted STEEL, Aug. 16.)

BEAVER CROSSING, NEBR. — City will build a waterworks plant costing $25,800, and PWA has allotted $16,110. Guy T. Bell is village clerk and Scott & Scott, 522 Bankers Reserve building, Lincoln, Nebr., is engineer.

CORTLAND, NEBR. — City has received allotment of $12,812 from PWA to finance construction of a waterworks plant to cost $28,470. Victor Pawloski is chairman of the village board of trustees. H. H. Henningsen Engineering Co., 326 Union State Bank building, Omaha, is engineer.

DWIGHT, NEBR. — City plans to construct a waterworks plant costing $26,000, and received allocation from PWA of $11,686. Walter Johnson is chairman of board of trustees. H. H. Henningsen Engineering Co., 326 Union State Bank building, Omaha, is engineer.

HAIGLER, NEBR. — Village plans to build an electric light and power plant costing $40,950, and has received grant of $16,900 from PWA. Charles Roach is chairman of the village board of trustees, and Robert Fulton, 2327 South Nineteenth street, Lincoln, Nebr., is engineer.

Idaho

CLEARWATER, IDAHO — Valley Light & Power association will take bids until Sept. 9 for construction of 233 miles of power lines. T. C. Smith, Seattle, is supervising engineer.

Arizona

GLOBE, ARIZ. — Emsco Asbestos Co. is building a 50-ton mill for sorting and cleaning asbestos fibers. Earl V. Draper is plant superintendent.

Pacific Coast

LOS ANGELES — Lane Wells Co., manufacturer of oil well supplies, plans to build a new factory at 5610 South Soto street, at a cost of $100,000. Ground has been broken.

SEATTLE — Aluminum Co. of Washington has been incorporated by E. V. Maltby and associates, 111 Boren avenue.

SOUTH GATE, CALIF. — Armstrong Cork Co., 1206 Maple avenue, Los Angeles, and Lancaster, Pa., plans to build a plant estimated to cost $1,000,000.

CROOKED RIVER, OREG. — Inland Power & Light Co., Public Service building, Portland, plans to make dam and hydro-electric power plant improvements at the Cove plant on Crooked river. Engineering division of Electric Bond & Share Corp., 2 Rector street, New York, is in charge.

GLENDALE, OREG. — Ingraham Lumber Co. plant was recently damaged by fire, units including five dry kilns and a planing mill. A rebuilding program probably will be started.

KLAMATH FALLS, OREG. — Enterprise Irrigation district will take bids soon for construction of a $68,000 power plant, with PWA furnishing $20,000.

Canada

WINNIPEG, MAN. — Pine Falls Pulp & Paper Co. Ltd. plans extensions to its plant, to raise capacity 300 tons daily. Cost will be $813,000.

OSHAWA, ONT. — Duplate Glass Co., Prospect street, will build a plant addition. Architect is Allward & Gouinlock, 47 Bloor street West, Toronto.

ST. LAURENT, QUE. — Continental Can Co. Inc., 100 East Forty-second street, New York will take bids soon for construction of a container plant costing $350,000.

Comments

Readers are invited to comment upon articles, editorials, reports, prices or other editorial material appearing in STEEL. The editors cannot publish unsigned communications, but at their discretion may permit a writer to use a pseudonym when a bona fide reason exists for withholding his identity. Letters should be brief—preferably not exceeding 250 words.

Uses STEEL'S Operating Data

To the Editor:

Included in STEEL we find each week a schedule of district steel rates for the current week in contrast to the same week in 1936 and 1935. This is the first breakdown of such data by districts which we have encountered and we find it to be of extreme interest to us in that we may plan production in our territory.

C. V. BEATON
Shell Union Oil Corp.,
New York.

EDITOR'S NOTE—The official rate of steel operation as determined by the American Iron and Steel institute for August was 83.55 per cent of capacity. The average of STEEL'S weekly estimates in August was 83.6 per cent.

Picture Story Popular

To the Editor:

We thoroughly believe that the pictorial story of the manufacture of tractors, (STEEL, Aug. 30), is decidedly superior to a long, drawn out article on this subject.

We have found this to be true in our own case, as about a year and a half ago we produced a brochure entitled "Bearings in The Making" which has proved most popular wherever it has been shown.

P. F. BANNISTER
Fafnir Bearing Co.,
New Britain, Conn.

Giving Real Value

To the Editor:

The writer has carefully noted the tractor article (STEEL, Aug. 30), made up so largely of pictures. One of the difficult things in business is to place yourself in the other fellow's shoes. For example, as we prepare our advertising we strive to give the prospective customer something which he can use to his own advantage.

We believe you have accomplished this in the tractor article in respect to your readers. This kind of a resume in the writer's opinion is much easier digested by busy executives then the usual lengthy editorial material. The only objection, in the writer's opinion, is that you have to some extent upset the continuity of the article by injecting advertisements in between. These should have been placed either before or after the complete article.

W. J. RAMSEY
Advertising Manager,
Mathews Conveyer Co.,
Ellwood City, Pa.

Winner Must Study

To the Editor:

It would appear from the majority of the publicity in print today, (STEEL, June 21, July 12), that college men are the only men who are being extended a fair opportunity for future advancement. It is true, of course, that colleges are turning out increasingly large numbers of graduates as compared to a number of years ago. In other words, there is a much higher percentage of college trained men today. Years ago a college education was much more difficult to obtain. Boys found it necessary to go to work immediately after high school and many didn't even finish grade school; many others attended the old country schools and did not have the advantages of our more modern schools.

It is only natural that young men from colleges today would be eager to learn more. Many are so minded because they are endeavoring to justify their expense and effort for an education and really make a serious drive for jobs upon completion of their education.

The high school boy who goes into the factory or mill too often does not continue his education. Many, of course, get married, and with additional responsibilities find it impossible to further outside education. Many, of course, do not take advantage of their spare time, especially in the evenings and are too intent upon having a good time. As a result, this high school boy is in many cases lacking in fundamental education. So often he uses poor English and spelling. Many of these boys do not make any particular effort to excel on the job or show a desire to learn anything in addition to the particular job he may be doing. In other words, the high school boy so often, because of these deficiencies, is not in a position to offer an employer a bill of goods comparable to the college man who is endeavoring to forge ahead and always willing to study.

Of course many high school boys have abundant ambition but never seem to get the proper opportunity. These boys should have an opportunity because many times they excel the college boy in natural abilities. Our corporation honors these factors and has always been mindful of the training of young men up through the ranks. As a result, a number of apprentice courses have been in constant operation which are especially adaptable to boys who have not had an opportunity to gain a college education.

A young man who wants to make a success in the operating end of the

(*Please turn to Page* 107)

BALANCED electrical characteristics! Fairbanks-Morse insists on them—not merely in occasional "control" inspections, but for *each* motor bearing the F-M trademark. Inspectors gauge the wire in *each* phase winding, balance it against the master winding, and make certain that all are identical in cross-section, length of wire, and copper content.

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