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THE IRON AGE.

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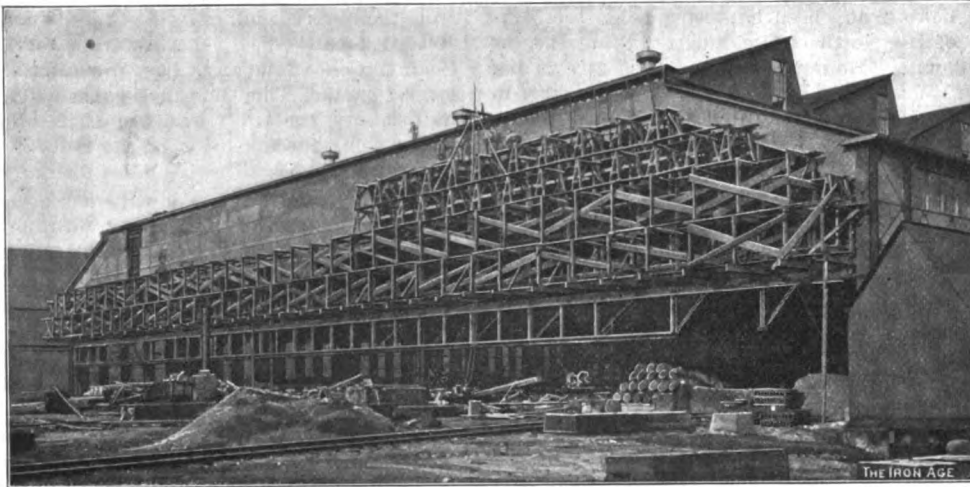
The American Bridge Company's Ambridge Works.

The Largest Bridge Plant in the World.

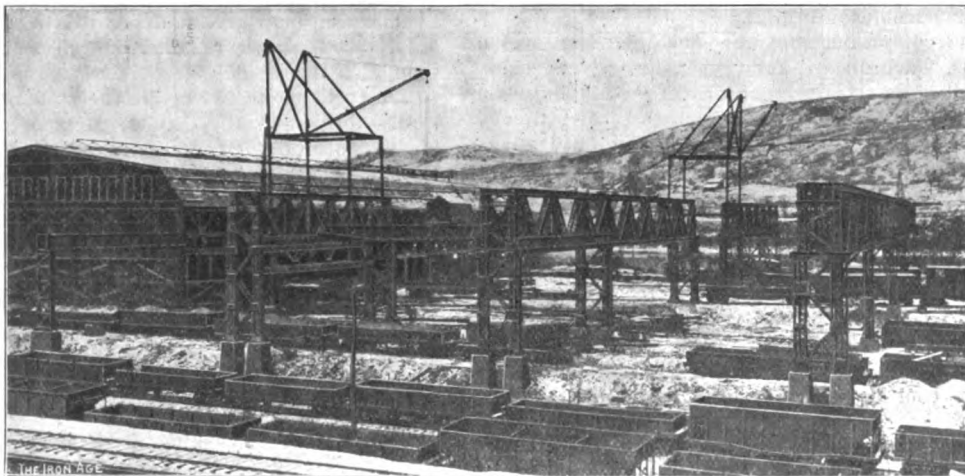
In March, 1900, the Berlin Iron Bridge Company, East Berlin, Conn., of which C. M. Jarvis was president, decided to build a plant in the Pittsburgh district for turning out the heavier kinds of structural work, and in order to be near the source of supply of raw material. After looking at various sites, the company concluded to locate at Economy, Pa., on the line of the Pittsburgh, Fort Wayne & Chicago Railway, about 17 miles from Pitts-

Works in Pittsburgh, Pa., and the Canton and Youngstown plants, in Ohio, have all been removed to Ambridge. Other plants will also be taken there in the future. In addition to the 38 acres originally owned by the Berlin Iron Bridge Company, the American Bridge Company acquired 105 more acres in the lower end of the tract, to be used for manufacturing purposes, and 25 acres above the railroad track, to be used for an office building, which has been completed, and for park purposes. It is also probable that in the near future a railway station will be built adjoining the office building.

The first work turned out in the plant by the American Bridge Company was eye bars, the company having a very large contract for eye bars, without sufficient facili-



The Receiving End of the Main Bridge Shop.



The Loading Yard.

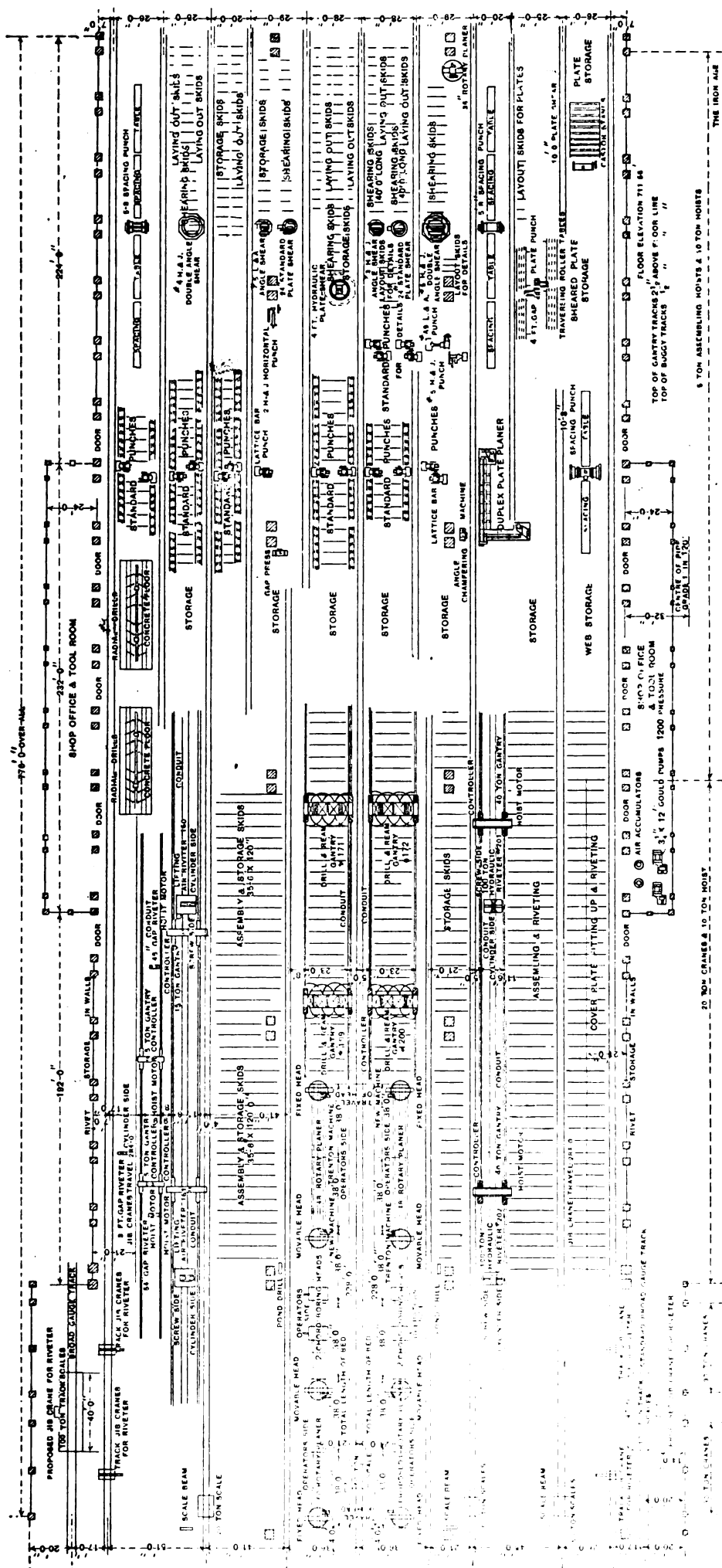
THE AMERICAN BRIDGE COMPANY'S AMBRIDGE PLANT.

burgh. A tract of land containing 38 acres was bought from the Economy Society and the erection of a bridge plant was begun. The first building erected was a templet shop, in which it was intended to fabricate material for the other buildings. A large machine shop was also placed under erection, which was to be 220 by 700 feet in size. Foundations were in for this building and a large engine was installed, but in May, 1900, the Berlin Iron Bridge Company was absorbed by the American Bridge Company, and all work on the new plant was stopped.

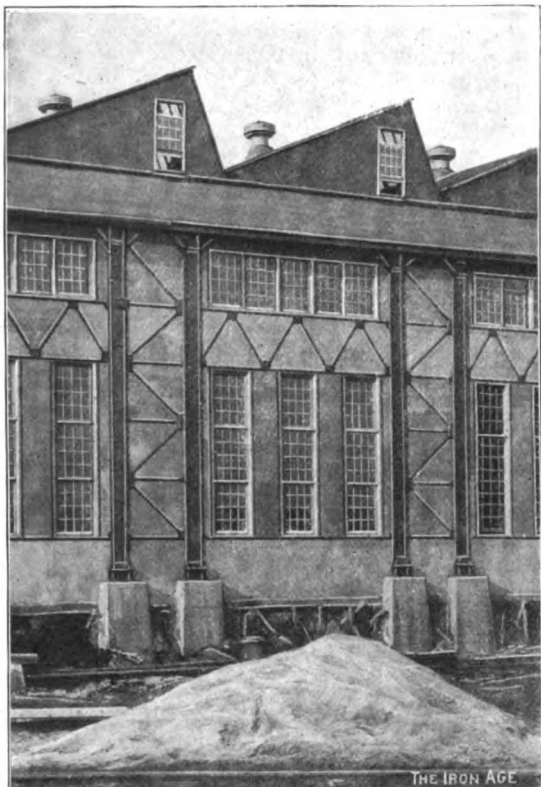
Nothing further was done until early in 1902, when the American Bridge Company took up actively the building of immense bridge shops at this place, the name of which was changed to Ambridge, intending to concentrate the bridge works in Pittsburgh and several other places in one large plant. These plans have been closely followed, and the Pittsburgh Bridge Company Works, the Walker Works, at Homestead, Pa., part of the Keystone

ties for making them. Half of the eye bar shop was fitted up with structural machinery for turning out shapes for their own buildings. The erection of the eye bar shop was begun in April, 1902, and power and boiler houses were undertaken at the same time. The runways in the stock yards, loading yards and between the eye bar shop and the boiler house were begun in July, 1902. The foundations for the forge, bolt, nut and rivet shops were commenced in August, 1902. The main bridge shop was started in October, 1902, and in December of that year the company built 20 dwelling houses for the employees. The templet storage building was started in March, 1903, and also the handsome office building, which is now occupied. The machine and pattern shop was started in March, 1903, and the auxiliary bridge shop, for small work, in May of that year.

The completed portions of the works consist of main bridge shop, eye bar shop, stock yard runways, shipping



PLAN OF MAIN BRIDGE SHOP OF THE AMERICAN BRIDGE COMPANY.

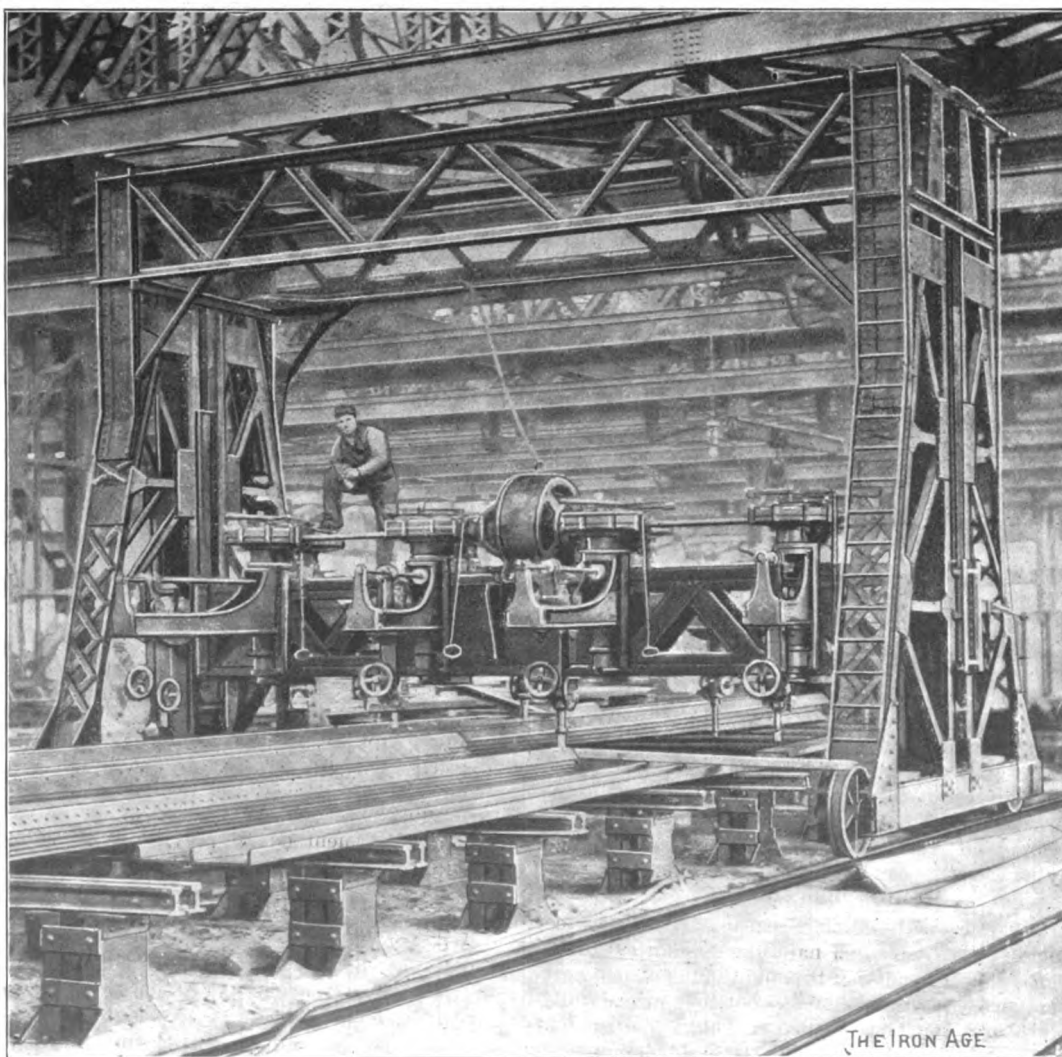


Side of Main Bridge Shop, Showing the Roof Design and the Concrete Curtain Wall.

yard runways, templet storage building, templet shop, bending and forge shop, office, power house, machine shop and two storehouses. The boiler house is also completed and is equipped with modern coal handling appliances. Seventy-five per cent. of the ultimate boiler capacity is installed, while in the power house 60 per cent. of the equipment is completed. The runways for traveling cranes serving the bending and forge and bolt shops, eye bar shop and machine shop are also completed. There has also been built a foot bridge from the office building to the works, which is now in use. The uncompleted portions of the plant are the auxiliary bridge shop for the lighter kinds of work, the bolt, nut and rivet shops, tempering and pattern shop, cleaning department for foundry, pattern storage house and also the iron and steel foundry buildings, with cupolas and open hearth furnaces for serving them.

Enough of the plant has been finished to permit the turning out of about 7000 tons of material per month, but with the ultimate completion of the entire works, which is expected to be about January 1, 1905, this plant will have a capacity for turning out 20,000 tons of miscellaneous structural material per month, making it by far the largest bridge plant in the world. The buildings are substantial and permanent structures, and all the appliances are devised in accordance with the latest experience and are arranged for the most economical handling and production of material.

The ground plan of the plant was published in *The Iron Age* for June 26, 1902, to which reference can be made. The shops are paralleled by a system of standard gauge tracks, which involves all the shops and connects with the Pennsylvania lines of railroad. A 3-foot gauge electric belt line also surrounds the works for the con-



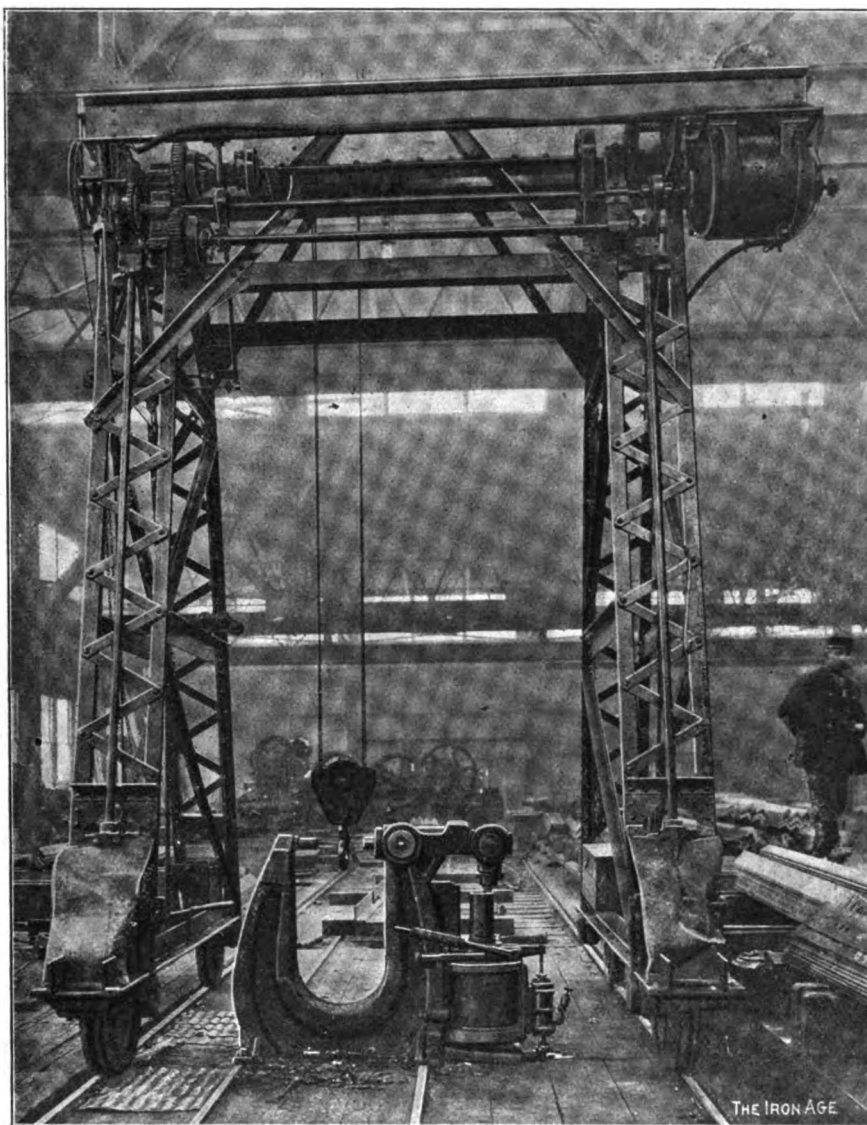
Drill and Ream Gantry in Main Bridge Shop.

THE AMERICAN BRIDGE COMPANY'S AMBRIDGE PLANT.

venient transfer of men and of material in small bulk. At a convenient point is situated the receiving stock yard of the plant, where all the mill material is received and distributed for passage through the shops. This stock yard is covered by a system of traveling cranes extending from the railroad toward the river and at right angles to the direction in which the material moves. Similar cranes of greater capacity for handling and loading the finished product are located at the opposite end of the bridge shops, and at various other points are located parallel similar systems of traveling cranes for the convenience of contiguous shops. These cranes have all the uniform span of 60 feet and are interchangeable

structural members of over 100 tons in weight or over 120 feet in length. Many of the tools in the shop are of special design, such as multiple punches for simultaneously punching standard beam connections and punches with automatic tables or adjustable spacing racks. Multiple radial drills carried on longitudinal moving gantries serve for the usual drilling and reaming. Riveters of special design are carried on gantries or traveling wall cranes. The revolving machinery is electrically driven, no vertical belts being required, thus clearing the whole overhead area for the free use of the electric hoists.

This building is flanked with lateral wings, which serve



The 5-Ton Riveter Gantry in the Main Bridge Shop.

THE AMERICAN BRIDGE COMPANY'S AMBRIDGE PLANT.

on the respective runways. Toward the railroad end they connect with the gantry, which runs parallel with the railroad, by means of which cranes can be transferred from one point to another as convenience requires, or a special heavy crane can be placed on another runway to facilitate the handling of exceedingly heavy pieces. A description of the buildings of this plant starts naturally with the

Main Bridge Shop.

This is a massive building 270 feet wide by 780 feet long, equipped with tools and handling appliances of modern design. A ground plan of this building is shown herewith, together with illustrations of portions of the building and features of its equipment. The whole area of the shop is covered by a system of electric hoists operating transversely. At the lower or discharging end of the shop facilities are provided for handling and machining

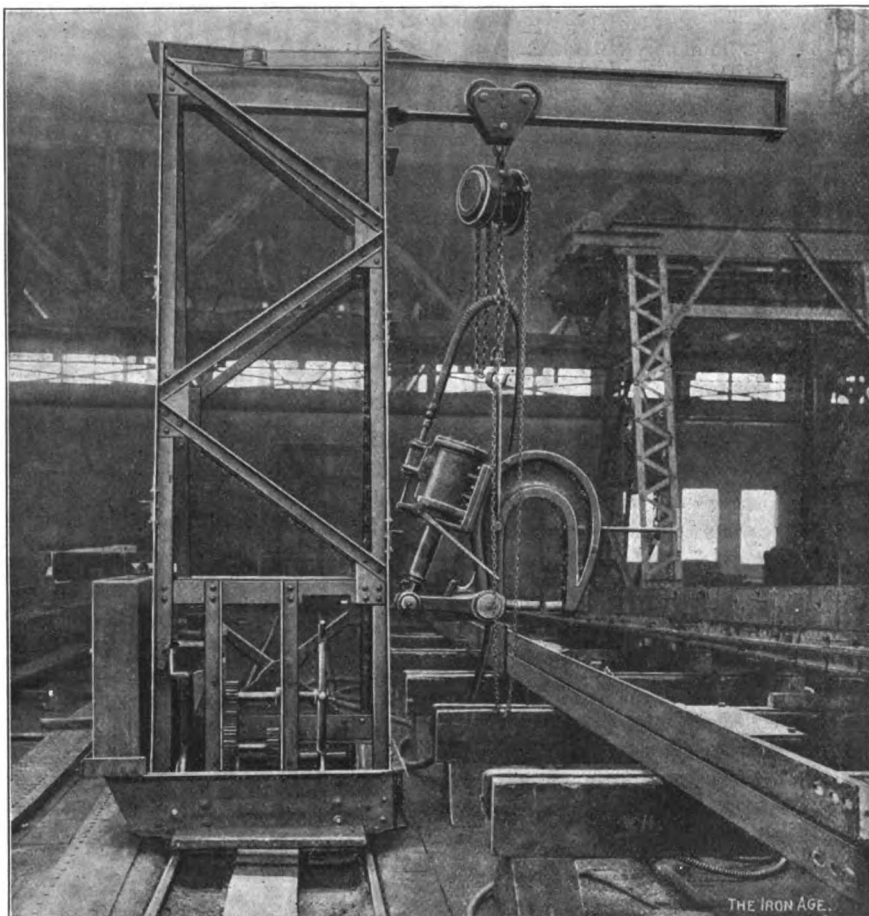
as tool rooms, shop offices for the foremen, &c. The building is amply lighted by high sash around the walls in conjunction with the special area of skylights in the roof. The general construction of this building, as, indeed, of all the shops of the plant, is a skeleton structure of steel, thoroughly braced, and all wall surfaces not of glass are filled with cement concrete. The only combustible material used is wooden plank sheathing for the roof. Longitudinal tracks at suitable intervals extend from the stock yard through the shop to the loading cranes, on which material is carried from power operated cars. Arrangements have been perfected for heating the building in the winter season, and other provisions have been made for the comfort and convenience of the workmen.

The Machine Shop.

The machine shop is also a very large iron and steel building, having a total length of 252 feet, with a center

bay 60 feet wide, flanked on both sides by bays 28 feet wide, giving a total width of 116 feet. The center bay is separated from the side bays by columns spaced 26 feet, supporting a traveling crane runway. The side bay columns are spaced 12 feet, the centers supporting one end of the leanto roof over the side bays, the other end of the truss being supported by a longitudinal girder carried by crane columns. The center bay has a clear height of about 37 feet from the floor to the lower chord of roof truss. The two side bays have a clear height of about 14 feet from the floor to the lower chord of roof truss. In the north end of this building is a foreman's office, 20 feet wide by 15 feet long, which has two floors. The shop is commanded by two 25-ton traveling cranes which run the entire length of the shop, also four 10-ton traveling cranes. The south end of this building has

14 feet. The basement of this building will have a concrete floor, and will be designed as a wash room for both machine shop and foundry employees, and will contain an equipment of lockers, wash basins and lavatories ample for the needs of 500 men. Chutes for the collection of shavings and refuse from the main floor will terminate below the ceiling of the basement, and will be provided with gates, opening within and without the walls, by means of which the contents will be discharged into box trucks for removal. The entire length of the building will be covered by a 2000-pound beam hoist, supported from the chord of roof trusses at center. The roof will have skylights about 8 x 8 feet in alternate panels on each slope, and will be equipped with Star ventilators, which will afford thorough ventilation, and which will be connected with ventilating ducts in the



Track Jib Crane in Main Bridge Shop.

THE AMERICAN BRIDGE COMPANY'S AMBRIDGE PLANT.

been so constructed as to permit ready removal in the event of extension being made.

The machine shop is equipped with a large number of heavy modern iron working tools, while considerable equipment is yet to be added. Among the larger tools are a 72-inch Pond planer, a 60-inch Sellers planer with 16-foot bed, a 48-inch Bement & Dougherty planer with 12-foot bed, a 50-inch New Haven planer with 17-foot bed and a 36-inch Pond planer. There are also numerous shapers, slotters, boring mills, radial drills, milling machines and 44-inch and 72-inch Colburn boring mills, together with many other smaller iron working tools. A considerable part of the equipment has been removed from other works of the American Bridge Company, but a good many of the tools are new.

The Pattern Shop.

Plans have been drawn for the building of a pattern shop 128 feet long by 60 feet in width, the height from level of the basement floor to first floor beams to be 7 feet 6 inches in the clear at the center. From the first floor level to the lower chord of the roof truss will be about

side walls, these ducts to lead from the basement floor. The greatest possible lighting service will be obtained, particularly in the basement, and a minimum amount of combustible material will be used in all the windows. The south end of this building will be bolted in place, to permit of ready removal in the event of extension being made.

The Templet Shop.

The templet shop is 512 feet in length by 60 feet in width. It has a basement with a concrete floor, which serves as a washroom for both the main and auxiliary bridge shops, containing an equipment of lockers, wash basins and other toilet accessories. Like the pattern shop, this building is equipped with chutes for the collection of shavings and refuse from the main and gallery floors, which terminate below the ceiling of the basement and are provided with gates by means of which the contents are discharged into box trucks for removal. The height from the first floor to the level of the gallery floor is 13 feet, and from the gallery floor to the lower chord of the roof truss is 9 feet. The south end of the building

is provided with two doors, each 4 feet wide, and running the total height of the building, about 23 feet, to permit the passage of the beam trolleys. There are galleries for both sides running the entire length of the building, except for about 98 feet from the south end. The space between the galleries for the entire length of the building is covered by two 500-pound beam hoists, supported from the chord of roof trusses. The south end of the building has a clear height of about 23 feet from the main floor to the roof chord and is used for assembling templets and for the temporary storage of finished templets not immediately required in the bridge shop. The roof has skylights about 8 x 8 feet and is equipped with Star ventilators.

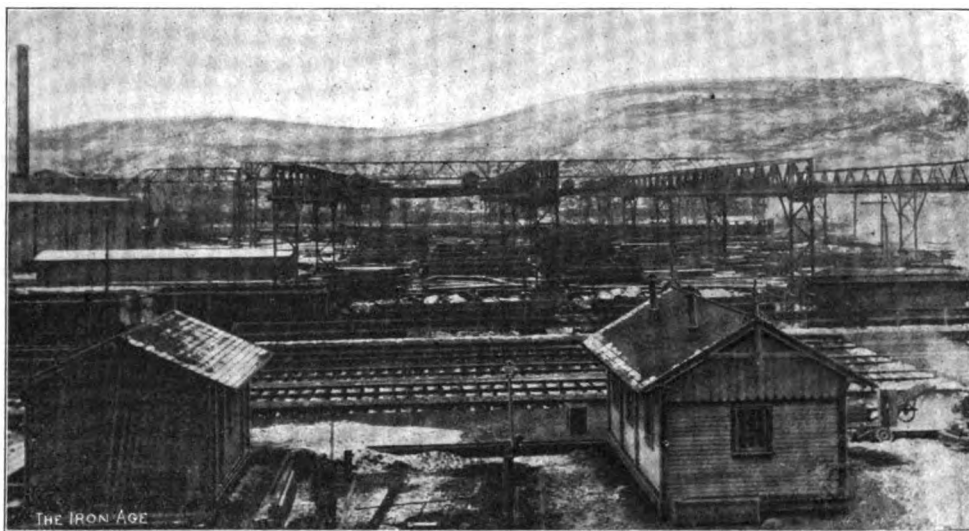
Iron and Steel Foundry.

Work has been started on an iron and steel foundry building, 360 feet long by 116 feet in width, provision having been made for extending this building at either end, if necessary. The iron foundry will be equipped with two cupolas, 80 and 58 inches in size, while the steel foundry will be equipped with two 15-ton open hearth furnaces. These furnaces will be gas fired, but gas producers may be provided in case of failure in the supply of natural gas. The foundry is commanded by two 25-ton

able papers. There are lavatories in the basement and also on the second and third floors. The building is of fire proof construction, with reinforced concrete floors, and is practically fire proof. The lighting for the office building and for all the shops is furnished from the company's own electric plant, while the water used is furnished by a company well. Natural gas, which is found in abundance near the works, is used exclusively for fuel, except for the boilers, which are coal fired. Tanks have been built over the boilers, from which the coal is delivered to the stokers, the ashes being dropped in a tunnel below the ash pits, from which they are removed to a dump at the end of the boiler house.

The output of the plant consists of all kinds of structural steel work, from the heaviest to the lightest, and a new departure recently is the building of steel barges. The American Bridge Company intends to devote considerable attention to the latter product and has already built a number of steel barges from its own designs.

The Massachusetts Steel Casting Company.—This company has been incorporated under Massachusetts laws with a capital stock of \$500,000, to take over and



Pipe Bridge in the Stock Yards.

THE AMERICAN BRIDGE COMPANY'S AMBRIDGE PLANT.

and four 10-ton traveling cranes and 5-ton walking jib cranes in the center bay, also six 3-ton travelers in the side bay.

Other Buildings in the Plant.

The above are the main buildings of the plant, but there are numerous smaller buildings. Among these are the bending and forge shop, 220 x 240 feet; an eye bar shop, 220 x 225 feet; a power house, 84 x 210 feet, bolt, nut and rivet shop, 220 x 240 feet. As noted in the opening of this article, these buildings are completed, with the exception of the bolt shop, which is to be finished about the first of the year.

The Office Building.

The company has completed the erection of an office building, built of fire brick, with slate roof, comprising three stories and a basement, and built in the shape of the letter H. It has a total frontage on the railway side of 202 feet, while the depth of each of the two wings is 161 feet. The first floor is used for plant administration and the general offices of the erecting and mechanical engineering departments of the company. The second floor is used by the resident engineer, Richard Khuen, in charge, the south wing being given to the designing department and the north wing to the detailing drafting rooms, the third floor being given over entirely for the latter purpose. The basement is used for blue printing rooms, the northeast and southeast corners containing the heating and ventilating plant. In the rear basements are vaults for the storage of drawings and valu-

operate the plant of the United States Steel Company at Everett, Mass. The capital is divided into 2500 shares each of preferred and common stock, the preferred stock to be 6 per cent. cumulative dividends, while the common stock is entitled to dividends up to 6 per cent., and any per cent. of earnings above the 6 per cent. on the common stock is to be divided equally between the preferred and common. The voting power of the stock is to be the same for preferred and common. The incorporators are Robert M. Morse, Boston; William G. Richardson, Cambridge, and John M. Graham, Boston. The officers are: President, William G. Henderson; treasurer, Robert M. Morse, and secretary, John Duff. Messrs. Henderson, Morse and Graham constitute the board of directors. The assets of the company were recently sold to the bondholders, and from the bondholders transferred to the new corporation.

The Southern Cotton Corporation has been incorporated, with a capital stock of \$20,000,000, to introduce Daniel J. Sully's new mechanism for ginning cotton and to establish a comprehensive warehouse system which will enable cotton growers to hold their cotton as long as desired. At this time no information can be obtained as to whether the company intends to erect a plant and manufacture its new apparatus. Besides Mr. Sully, Col. S. F. B. Morse, who was formerly passenger traffic manager of the Southern Pacific Railroad, is interested. Both gentlemen are located at 41 Wall street, New York.