

Youngstown Bessemer Plant of the Republic Iron & Steel Company

Skyscraper Inquiry Unit

The Youngstown Bessemer Plant of the Republic Iron & Steel Company.

(With Supplement.)

In order to supply the different mills located in Youngstown which belong to the Republic Iron & Steel Company with slabs, blooms and billets, the management of the company decided the latter part of August, last year, to erect a Bessemer plant on the property of the Brown-Bonnell Works, in Youngstown, in close proximity to the Hannah and Hazelton furnaces of the company.

Among the constituent companies of the Republic Iron & Steel Company are the Springfield Iron Company, Springfield, Ill., and the Union Steel Company, Alexandria, Ind., each of which contained a complete Bessemer plant. The best and most suitable machinery in both was moved to Youngstown, but formed only a small part of the present Bessemer plant. Fully 70 per cent. of the machinery and buildings are new and are modern in design.

The general charge of the building of the works was in the hands of J. A. Campbell, district manager, S. V. Huber & Co. of Pittsburgh, Pa., being appointed consulting engineers and Samuel McDonald, formerly assistant superintendent of the Ohio Steel Company, being made superintendent.

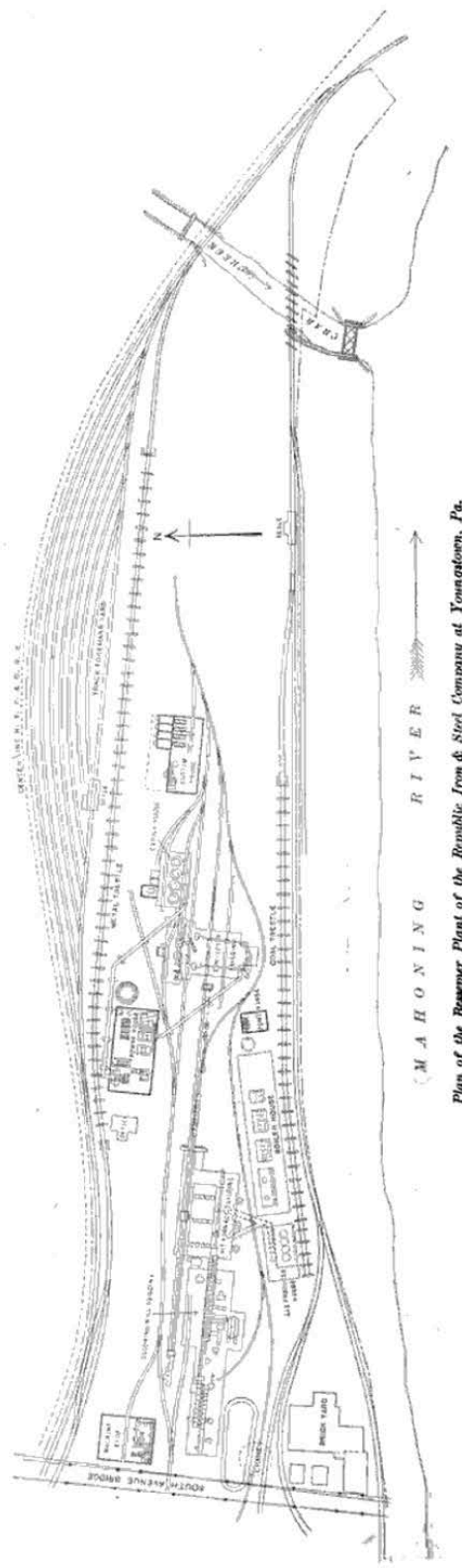
The general arrangement of the plant is shown in the accompanying plan and the photographs which are reproduced in our supplement.

The cupola house is equipped with four cupolas, 24 feet high, special facilities being provided for dropping the cinder, &c., into specially designed cars. One double elevator, driven by a Crane Elevator Company hoisting engine, serves these cupolas. The iron from the cupolas is run into a ladle on a car, which is conveyed by the electric haulage machinery into the converter building. A hydraulic cylinder raises the iron ladle and pours the liquid iron through a runner into the converter. The converters are placed back to back, blowing in opposite directions. They are 5-ton vessels, but provision has been made that they can be replaced by new 8-ton converters. A hydraulic steel ladle crane is located between the two vessels. An electric 5-ton traveling crane covers the floor space from the steel ladle crane to the extreme end of the building. It is used for changing ladles, setting stoppers, &c. A casting platform extends the full width of the building.

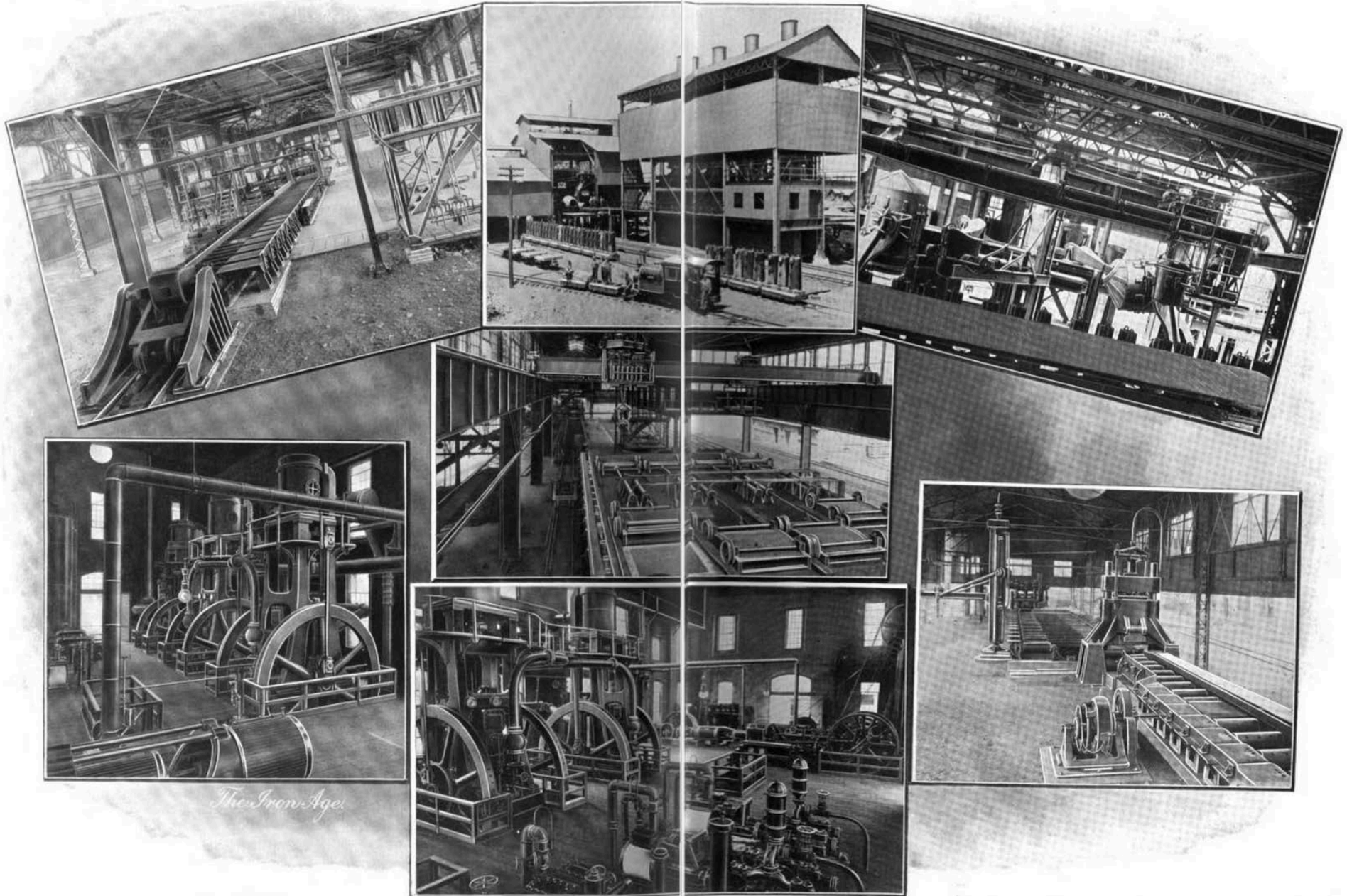
The ingot molds, standing on cast iron ingot cars, are pushed into the converter building by a specially designed hydraulic pusher, which moves the ingot molds in front of the casting platform. After the ingots have been cast, it pushes the cars outside of the converter building. As soon as the metal has set in the molds sufficiently, so that the ingot can be extracted, an electric pusher car takes hold of the ingot cars and brings them down to the ingot extractor, of the vertical Aiken type.

After the ingots have been extracted the electric motor pusher car takes them down into the pit furnace building. The latter is equipped with four-hole soaking pits. Two electric traveling cranes, equipped with automatic tongs, are installed in the pit furnace building and charge the ingots from the ingot cars into the furnace pits. An ingot buggy travels parallel with the pit furnaces. The electric ingot crane draws a hot ingot from the furnace pit and places it into the box of the ingot buggy; by means of the electric haulage machine the latter is moved toward the approach table of the blooming mill and automatically places the ingot on this table. The electric ingot cranes in the pit furnace building were built by the Case Mfg. Company of Columbus, Ohio; the pit furnaces and gas producers were built by Alex Laughlin & Co. of Pittsburgh, Pa.

The blooming mill is a 32-inch mill driven by a pair of 30 x 48 inch engines built by the Southwark Foundry. The foundations for the blooming mill are so arranged that at any time the mill can be displaced by a 38-inch blooming mill. A hydraulic shear built by Lloyd Booth & Co. of Youngstown, Ohio, is placed in line with the blooming mill, and a double table with transfer mechanism is located beyond this shear. In line with the secondary table is located a steam driven shear supplied by McIntosh, Hemphill & Co. of Pittsburgh, Pa. The hydraulic shear will be used for cutting long slabs or 4-inch billets in two. After these pieces have been cut in two they will be transferred sideways onto the shear table in line with the steam driven shear, and will be sheared by same into pieces of suitable length. The blooming mill will roll slabs and 4-inch billets, but as soon as the new billet mill, which is to work in connection with this Bessemer plant, is completed the blooming mill will roll a 7-inch square bloom for the billet mill, which will then reduce this bloom into 4-inch or small billets. This billet mill, which will contain a number of novel features, is



Plan of the Bessemer Plant of the Republic Iron & Steel Company at Youngstown, Pa.



The Iron Age

THE BLOOMING MILL.
THE BLOWING ENGINES.

THE CUPOLA HOUSE.
THE BOILING PIT.
THE ENGINE ROOM.

THE CONVERTER HOUSE.
THE BHEAR.

THE BESSEMER PLANT OF THE REPUBLIC IRON AND STEEL CO., AT YOUNGSTOWN, OHIO.

DESIGNED BY S. V. HUBER & CO., PITTSBURGH, PA.

Source: [The Iron Age, October 11, 1900 page 17 -18](#)

