pressure governors, pumps and tanks. These turbines are connected to steel penstocks through 60-inch hydraulic valves and work under a static head of 320 feet. Directly coupled to the shafts of these turbines are two Westinghouse alternating current revolving field generators, each 3,750 k.v.a. 3-phase, 60-cycle, 6,600-volt, 514 r.p.m.

One 6,400 horse-power horizontal, Francis type, single discharge turbine, manufactured by the Wellman-Seaver-Morgan Company, complete with N.S. 10 Lombard hydraulic governors, pumps and tanks, etc. This turbine is connected to a steel penstock through a 54-inch hydraulic valve and works under static head of 320 feet.

Direct coupled to the shaft of this turbine is a Westinghouse alternating current, revolving field generator 3,750 k.v.a., 3-phase, 60-cycle, 6,600-volt, 514 r.p.m. The fourth unit under option will be similar in all respects to the 6,400 horse-power Wellman-Seaver-Morgan, Westinghouse set.

Two 24-inch exciter wheels, manufactured by the Platt Iron Works, developing 300 horse-power each, when operating at a speed of 690 r.p.m. under 320-foot head, direct coupled to two 150 kw. Westinghouse direct current generators, 250 volts, 600 amperes, 6 poles, compound wound.

The engineers on this contract are Smith, Kerry and Chase, of Toronto, Canada. The chief engineer is W. P. Brereton; assistant engineer, J. S. Bodkin; chief draftsman, J. R. Carroll.

HISTORY OF AN OLD IRON BRIDGE.

In a recent bulletin of the American Railway Engineering Association Mr. George K. Lowell, general manager of the Detroit, Toledo and Ironton Railway, gives a brief history of the Iron Railroad, together with the original construction of the Iron Bridge, spanning Storms Creek, on the line of the Iron Railroad, two and one-half miles north of Ironton, O.

Construction of the Iron Railroad was originally commenced in the year 1849, and the line was completed to the Vesuvius Mines, about six miles north of Irontown, during the year 1850. The track was laid with strap rail laid on wooden stringers, and the stringers laid on cross-ties spaced six feet apart. John Campbell, John Peters and others, of the Ohio Coal and Iron Company, were the original founders of the Iron Railroad.

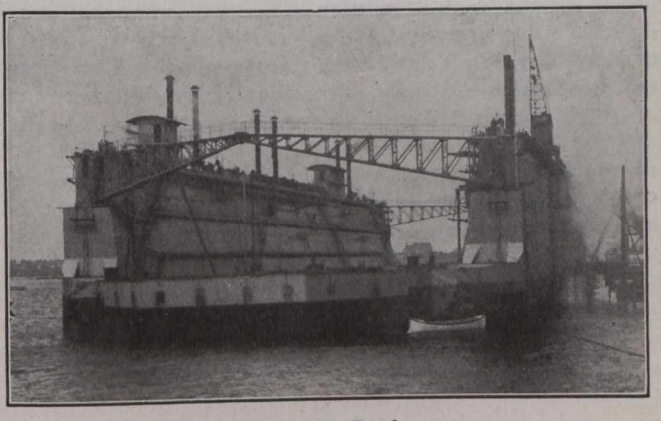
In the construction of the Iron Railroad it became necessary to span Storms Creek, two and one-half miles north of Ironton. In the original construction of the Iron Railroad, Storms Creek was spanned with a wooden trestle bridge, 97 ft. in length, but during the year 1857 the structure was considered insufficient to carry the increased loading of the road's equipment, and it was decided to construct an iron bridge of larger capacity, and more safe for the operation of the railroad. Thomas W. H. Moseley, a civil and constructing engineer, of Kentucky, was called upon to prepare a plan for the construction of a wrought-iron bridge to be placed on the site of the wooden structure spanning Storms Creek. The plans were prepared for what is known as Bowstring Construction Iron Bridge, patented February 8th, 1857, and constructed by Moseley & Company, of Cincinnati, O., in the year 1859, the bridge being constructed for the loading of 2,000 lbs. per linear foot, live load.

In the year 1905, the Detroit, Toledo and Ironton Railway, successors to the Iron Railroad, increased the weight of its locomotives and cars, and it was necessary to strengthen this bridge by placing timber trestle bents under the floor or track system. With this addition, the bridge, as originally constructed, is still in use, and over it passes as heavy tonnage as on any road in this section of the country.

THE MONTREAL FLOATING DOCK "DUKE OF CONNAUGHT."

There has recently been delivered at Montreal the floating dock "Duke of Connaught," which has been built by Messrs. Vickers (Limited), of Barrow-in-Furness, England. In *The Canadian Engineer* of August 15, 1912, we gave some details of the launching of the dock. We are now able to present a more complete description. This dock, one of the largest yet constructed, is capable of accommodating the largest existing vessel of the British navy. It is of the double-sided, self-docking type, and consists of a pontoon, or lifting portion of the dock, and two parallel side walls, built on to and forming part of the same, and the whole length is divided into three complete and separate sections, which, when bolted together, form the complete dock. These sections are so arranged that when the dock is separated into its three parts, any two of them can dock the remaining third between them. For this purpose each section is fitted with its own independent pumping machinery, so that it can also act as an independent unit. The general dimensions of the dock are as follows:

Length over platforms, 600 ft.
Length over pontoons, 550 ft. 6 in.
Width overall, 135 ft.
Depth of pontoon at centre, 17 ft.
Length of side walls, 470 ft. 6 in.
Height of side walls above pontoon dock, 42 ft.
Width of side wall at base, 17 ft. 6 in.
Width of side wall at top, 12 ft. 6 in.
Clear width between roller fenders, 100 ft.
Draught of vessel, 27 ft. 6 in.
Lifting capacity, 25,000 tons.



View of Dock.

The construction of the dock is such as to make it suitable for lifting a modern British battleship, the pontoon dock being specially stiffened to allow it to support a large portion of the weight of the vessel on side or bilge, as well as central keels. The pontoon consists of a rectangular structure plated in all round with the exception of the portion of the deck which comes directly under the walls, and stiffened internally by longitudinal and transverse girders. The two end sections have their outer extremities built in the form of a point or bow terminating in a working platform carried on plate and braced girders. The bottom plating, except under the walls, is arranged to run transversely, and is connected to the plating of the sides and points by chine angles; the top or deck plating, similarly arranged, is connected to the face of the side wall by chine angles. The pontoon is divided into four compartments by three longitudinal intercostal water-tight plate-bulkheads. Transversely the pontoon is divided into 54 bays, 20 in the central section and 17 in each end section, by transverse