

A 20-TON TRAVELING ELECTRIC CRANE.

We reproduce herewith a photograph of a 20-ton traveling electric crane, which has been designed, built, and erected by Messrs. George Russell & Co., shipbuilders and engineers of Motherwell, Glasgow, for placing on board vessels the lighter portions of machines, etc. The working load is 20 tons, lifted at a radius of 42 feet 6 inches, and 15 tons at 50 feet radius. The derricking gear varies the radius from 25 to 60 feet. When at 42 feet 6 inches the height of the jib pulley is 62 feet above the wharf. The lifting hook has a vertical range of 84 feet. The carriage is mounted upon eight wheels, with two at each corner, and has compensation balance levers to equally distribute the weight. The gage is 23 feet center to center. The 20-ton load is lifted at 25 feet per minute, and slewed at 150 feet per minute. The crane travels along the wharf at 60 feet per minute. The electric motors, of which there are three, were supplied by British Thomson-Houston Company. One 48 horse power for hoisting and derricking; one 12 horse power for slewing; and one, also 12 horse power, for propelling the crane along the wharf; all the movements and gearing are independent of each other.

The crane is supplied with power by means of a flexible cable, fed from junction boxes placed at intervals along the wharf. The cables pass through the center of the post, from which the current is taken to the rotating part. Four slip rings are also provided for transmitting the current to the traveling motor, which, with the others, is controlled from the craneman's house.

News of Goubet's Submarine.

As M. Goubet, the inventor of the submarine boat which bears his name, has failed to dispose of his craft to the French government, he has sold the two boats already constructed by him, and all of his inventions relating to submarine navigation, to an English syndicate, which is going to establish yards upon the Thames for the construction of vessels of this type. The inventor, together with his son and an expert engineering assistant, have also disposed of their services to the new company.

M. Goubet has devoted several years research to the perfection of his vessel, and has made repeated overtures to the French Admiralty to purchase the invention for utilization in the navy. The first vessel the French government refused because it was not sufficiently large to carry the Whitehead torpedo.

The inventor thereupon set to work upon a second vessel, of such dimensions as to meet all the requirements of the French Naval Department. Before, however, he had completed the "Goubet No. 2," the French government had decided that the sub-

marine vessels to be adopted for their navy were the "Gustave Zédé" and "Gymnote" types. M. Goubet immediately repeated his representations to the French government, but the authorities turned a deaf ear to his requests. At this juncture a syndicate was formed in London to purchase M. Goubet's idea, lock, stock and barrel, and the inventor closed with the offer. The syndicate comprises several naval experts of the English navy, and the price paid to M. Goubet was \$20,000 down, and a third share of the profits.

Already orders have been secured by the new syndicate for the construction of a number of vessels for one leading European nation, and a South American State. The British Admiralty also instructed their ex-

The latest Goubet design carries two Whitehead torpedoes, and has accommodation for a crew of three men. Another recommendation in its favor is its small cost. A Goubet boat can be built for \$30,000, as compared with \$150,000, the price of a Holland boat. It is propelled by electricity, rises and sinks upon an even keel, and can remain submerged for eight hours.

For naval purposes the Goubet boat is intended essentially as an auxiliary to big warships, being carried on board, and in action, dropped over the side by means of a crane or davit. It is also peculiarly adapted from its small dimensions for purposes of coast and harbor defense with great effect, and in river work for destroying bridges.

Among the most interesting trials to which the "Goubet" has been subjected was a series of experiments at Cherbourg. The submarine maneuvered for two and a half hours under water absolutely unnoticed, during which time it recovered the anchors of a number of buoys, setting them at liberty, cut the moorings of other buoys and boats, discharged blank torpedoes, affixed sham explosives to vessels at anchor and in motion, and then rose to the surface with its crew as little affected by their experience as though they had been above water all the time.

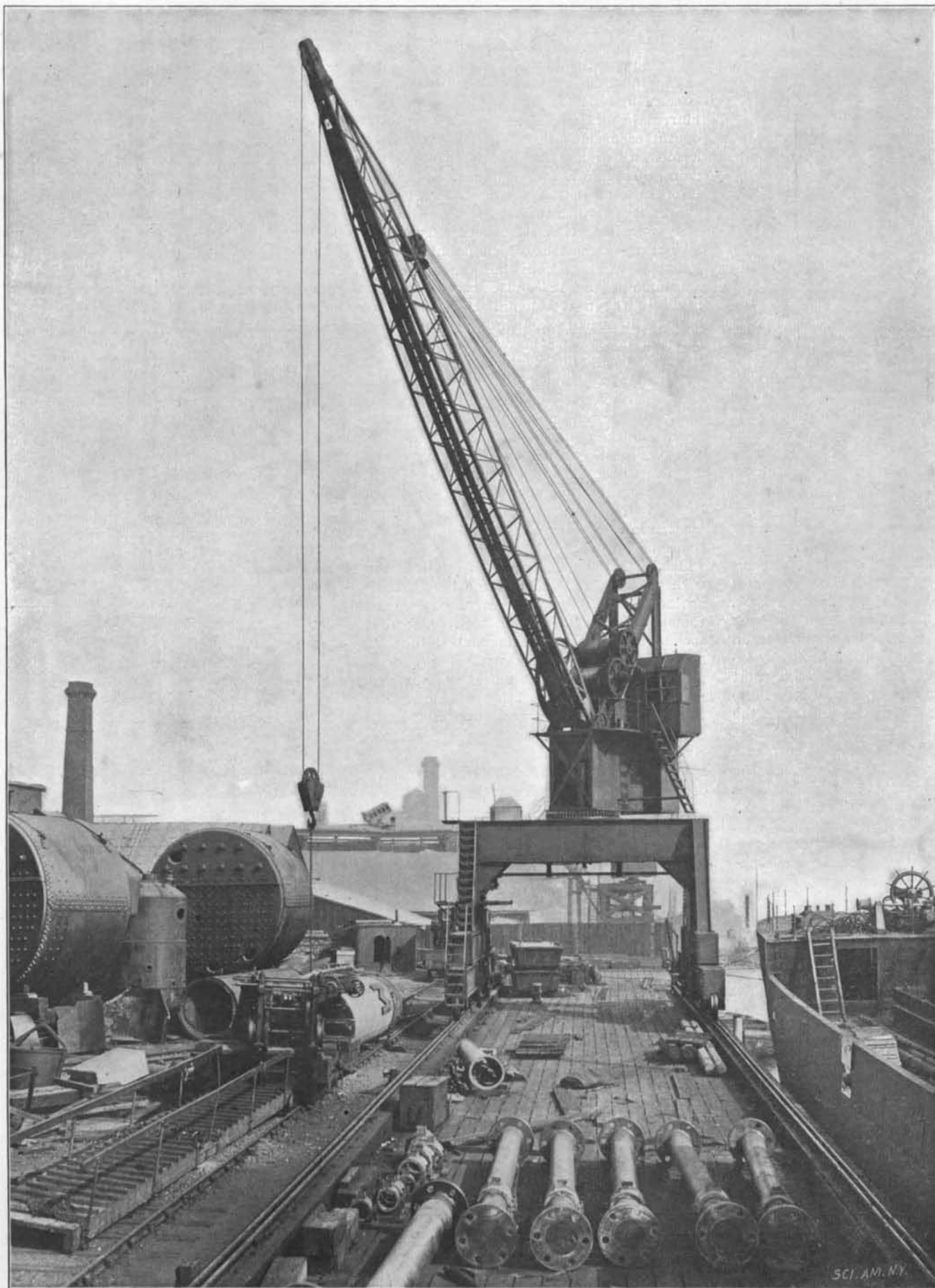
The English company which has acquired the patents are building a new boat of the newest design to be called the "Goubet No. 3," which will be exhibited to the officials of the British and foreign governments.

Following another recent wreck upon the Manacle Rocks off Falmouth in the south of England — where the "Paris" and "Mohegan" were stranded—and petitions from the Falmouth Chamber of Commerce, the British Board of Trade and the Trinity House have arranged to place a gas-lighted buoy at the Manacles, in place of the existing bell buoy. Since the wreck of the "Paris" the local authorities have spared no effort to have a lighthouse built upon the spot, but the Trinity

Brethren refuse to accede to any such proposition, claiming that such a lighthouse is unnecessary and would prove confusing, as this part of the Channel is already freely lighted.

A New Cooling Machine.

Prof. Willis L. Moore, Chief of the United States Weather Bureau, has invented a cooling machine which is intended to reduce the temperature of buildings in hot weather. The machine is said to have a capacity for cooling about 20,000 cubic feet of space during the hottest weather. The fact that foreign patents are still to be obtained renders it difficult to obtain full particulars of the invention.



TWENTY-TON ELECTRIC CRANE AT WALLSEND-ON-TYNE.

perts to investigate the claims of the Goubet vessel, and as the report upon the subject is favorable a number of boats are to be ordered for the British navy. One clause of the agreement stipulates that in the event of the French government's deciding upon any Goubet boats, the vessels shall be built in France, and already negotiations have been completed with a French shipbuilding firm for the completion of any such orders emanating from the French Naval Department.

The most salient characteristics of the Goubet boat as compared with other submarine types are its lightness and small dimensions. As a matter of fact it is really portable, for it only weighs 11 tons complete.