

**BOILERS FOR THE NEW CRUISER CINCINNATI.**

The new cruiser Cincinnati is now lying at the Brooklyn navy yard docks, receiving her machinery, which is the production in its entirety by the machine and boiler shops of the Brooklyn yard. The keel of the Cincinnati was laid in January, 1890. Built of steel. Length, 300 feet; beam, 42 feet; depth, 23¾ feet. Displacement, 3,183 tons. To have a main battery of ten 5 inch rifles, one 6 inch rifle. Secondary battery, eight 6 pounders, four 1 pounders, 2 Gatling guns, and a ram. Twin screws of bronze sectionalized and movable for variable pitch. Triple expansion engines in separate compartments, aggregating 10,000 horse power, designed to give the ship a speed of 19 knots per hour. The boilers, three of which we illustrate as they lay upon the dock ready to be swung aboard by the great navy yard derrick, are representative of the best quality of material and workmanship that can be produced. They were designed by the engineering department of the navy and constructed of the toughest American steel under the supervision of Chief Engineer James H. Chasmer, U. S. N. They have been tested at 250 pounds hydrostatic pressure and are to carry 160 pounds pressure. The boiler plant consists of four main double end boilers of 14 feet 4 inches and 13 feet 4 inches diameter respectively by 20 feet 3½ inches in length, with six corrugated furnaces in each boiler, 3 feet 6 inches diameter. Boiler shells of 115-64 inch steel plate.

Two auxiliary boilers 11 feet 4 inches diameter, 9 feet 10¼ inches long, single end with two corrugated furnaces each; boiler shells 1 inch steel plate. The aggregate grate surface of the boiler plant is 518 square feet,

heating surface 18,179 square feet, number of tubes 3,992, 7 feet 4 inches long by 2¼ inches diameter; ratio of grate surface to calorimeter 7 to 1. Ratio of grate surface to heating surface 1 to 33. Pounds of coal burned per square foot of grate surface, 40 under full pressure and speed.

The corrugated furnace shells were welded and rolled at the Continental Iron Works, Greenpoint.

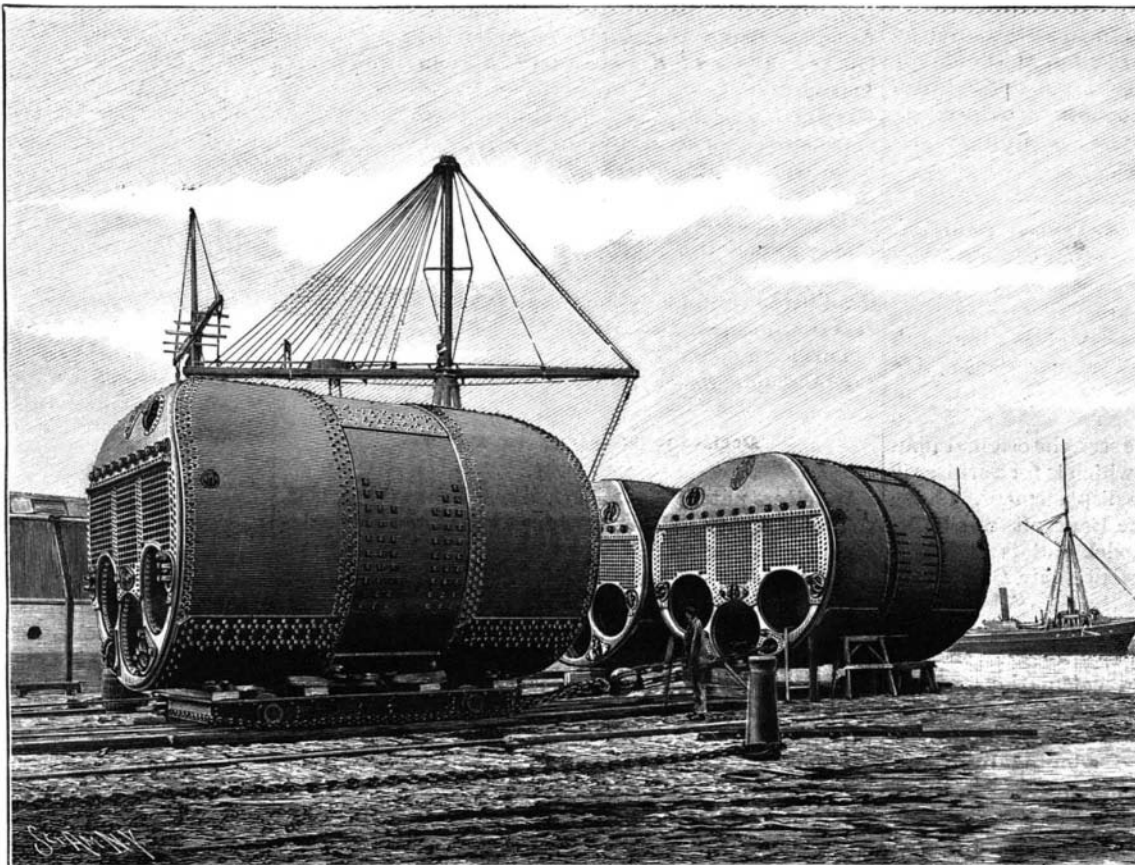
We are indebted to Chief Draughtsman L. E. Bart-

age to Sweden, with Captain Ericsson's body on board. Since that time she has done 48,000 miles of cruising, visiting various European ports, remaining considerable time in the Mediterranean, and finally getting around to the Pacific, where she appeared in time to represent the United States at some of the Chilean ports during the temporary misunderstanding our government had with that power. She has come home now to take part in the great Columbian naval parade

and review, but as a preliminary thereto it was highly essential that she should have her bottom cleaned and painted, for which purpose she was placed in the dry dock at the Brooklyn navy yard. Our engraving is from a photograph, and therefore faithfully represents, without any exaggeration, how completely the entire bottom of the vessel below the water line is covered by barnacles, accumulated during her long cruise. Such an abundant deposit of these crustaceans as had fastened themselves on the hull of the vessel had the effect of materially lowering the speed of the vessel, as always happens in such cases, and for this reason officers of the navy claim that a vessel cruising in southern waters should have her bottom cleaned as often as twice a year. The Baltimore was some twenty days in the dry dock, but after the naval review she will probably receive more extensive repairs.

The Baltimore was com-

pleted in 1889, and developed on her trial trip over twenty knots an hour. She has two horizontal direct-acting triple-expansion engines, with two high pressure cylinders, each 43 inches diameter, two intermediates 60 inches diameter, and two low pressure 94 inches, the piston stroke being 42 inches. She is 335 feet

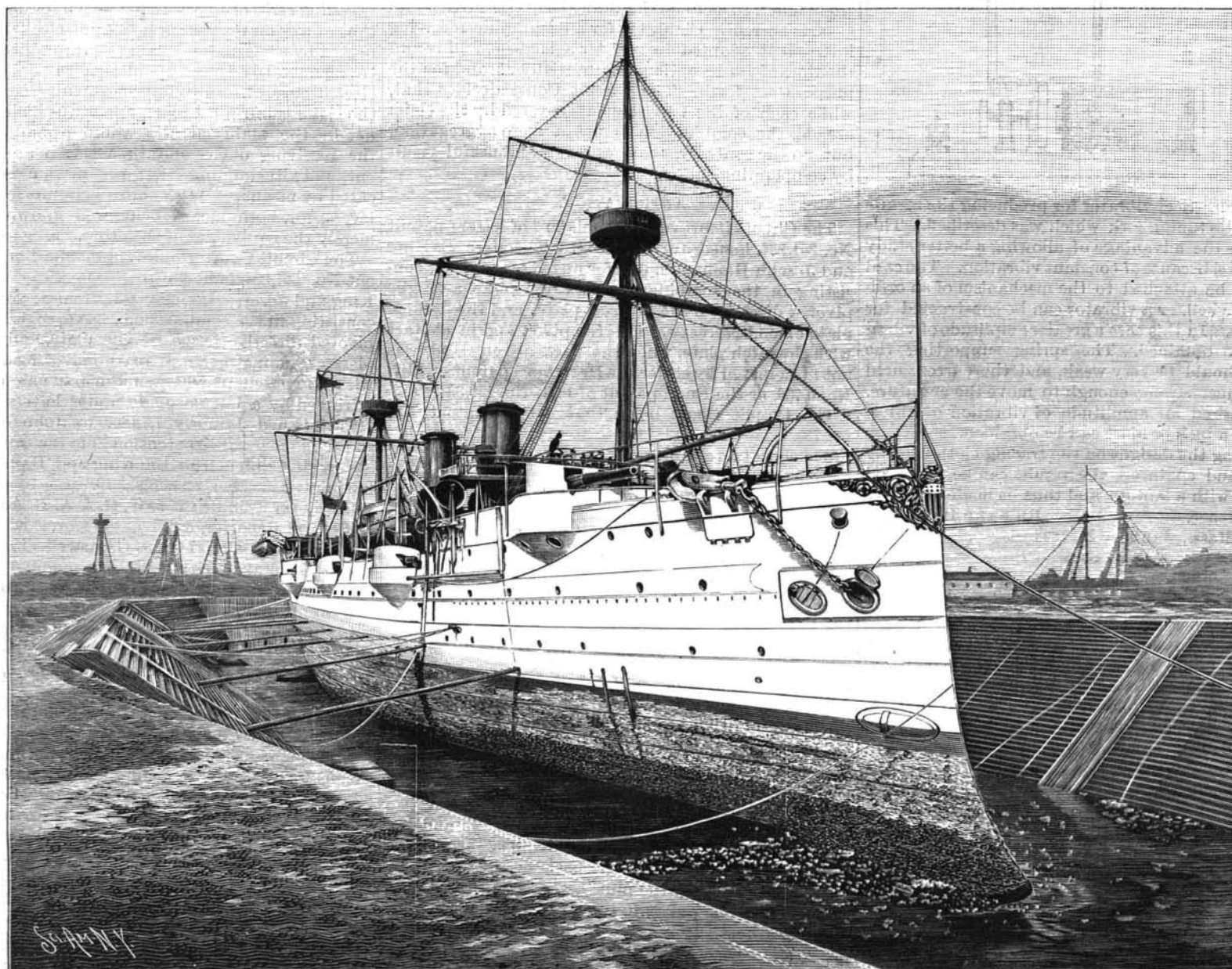


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lett, of the machine department of the Brooklyn navy yard, for details.

**THE CRUISER BALTIMORE IN DRY DOCK.**

It is about two and a half years since the cruiser Baltimore sailed out of New York harbor on the voy-



**THE U. S. CRUISER BALTIMORE IN DRY DOCK, TO REMOVE BARNACLES FROM HER BOTTOM**