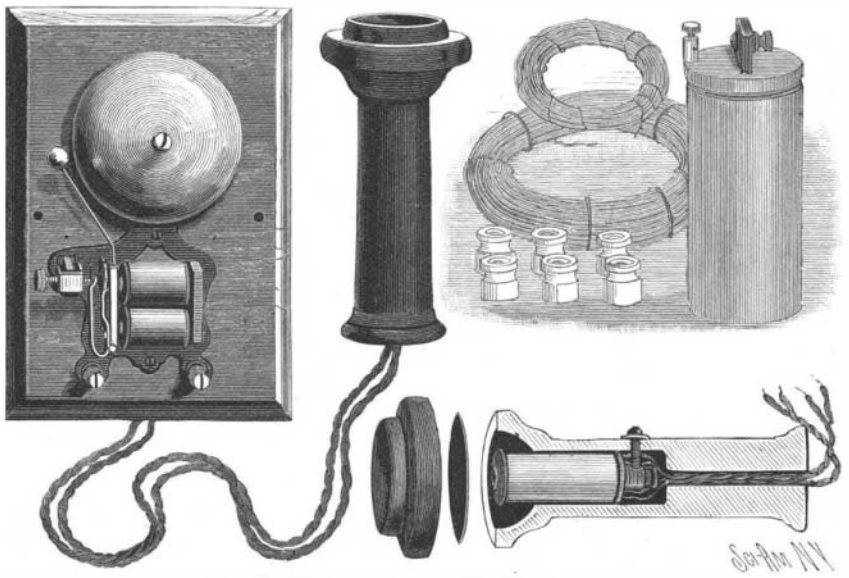
A SIMPLE AND CONVENIENT TELEPHONE.

The expense of rental of telephones has prevented many from making use of these almost indispensable instruments; and while the expiration of the Bell patent throws the way open for competition in a certain way, it has made little or no difference in the rentals. Under these circumstances, an enterprising firm in this city—Messrs. Robert H. Ingersoll & Bro., of 65 Cortlandt Street—have devised a compact, simple, and efficient telephone system, complete for both ends of the line, including two receiver-transmitters, two call bells, two batteries, line wire, annunciators, and insulators, as illustrated, which they sell for $5. This seems a wonderfully small price for the amount furnished.

The telephone is made to act as both transmitter and receiver. The battery, in connection with a bell especially made for this purpose, answers for signaling for any ordinary distauce. The outfit sold for $5 is guaranteed to work satisfactorily on lines of one-fourth mile and under. With additional batteries this distance may be increased. The makers furnish outfits for distances up to ten miles at proportionately low prices.

It is a very simple matter to set up this telephone in position for use. The baseboard is screwed to the wall or other support. Two wires at the bottom of the board are connected with the battery, and two at the top are attached to the line. A button at one side of the baseboard is pressed for giving the signal, and a similar button at the other side is pressed while the talking goes on. It will be observed that no induction coil or special switches are required for this telephone. It is plain, simple, and well adapted for inside use and short lines, or for any use not necessitating any central office system.



AN INEXPENSIVE TELEPHONE OUTFIT.

MARINE STEAM DYNAMO.

We illustrate a combined steam engine dynamo, of which Messrs. E. Scott & Mountain, Limited, of the Close Works, Newcastle-on-Tyne, have just completed two sets for Sir W. G. Armstrong, Mitchell & Co., of Elswick, Newcastle, for the Chilean cruiser Blanco Enclada, two similar sets having previously been supplied for the Japanese cruiser Yoshino. We are indebted to *Engineering* for our illustration and the following particulars. The engines illustrated are of the compound type, with cylinders 8½ in. and 15½ in. in diameter by 8 in. stroke. Steam is admitted to the cylinders by means of a central valve worked by one eccentric from the crankshaft. The engines, as will be seen, are coupled direct to the dynamo, which is compound wound, of the Admiralty type, and capable of giving an output of 400 amperes at an electromotive force of 80 volts when running at a speed of about 300 revolutions per minute. This speed is attained with an initial steam pressure of 100 lb. per square inch in the cylinders. The bed plate is made in three pieces. The engine bed is of cast iron, the dynamo bed of gun metal, and the outer bed plate carrying the outer bearing is of cast iron. The object in making the bed in this way was to enable the machinery to be got readily into position and also to reduce weight, but in any case it would have been necessary to place brass blocks underneath the dynamo, and it was considered that by increasing these blocks to some extent, and forming them into a bed plate, a very satisfactory arrangement would be obtained, an opinion which has proved correct. To insure absolute steadiness and freedom from spring, two stays are fitted from the top of the magnets to the columns of the low pressure engine.

Inland Coast Waterways for Seaboard Defense.

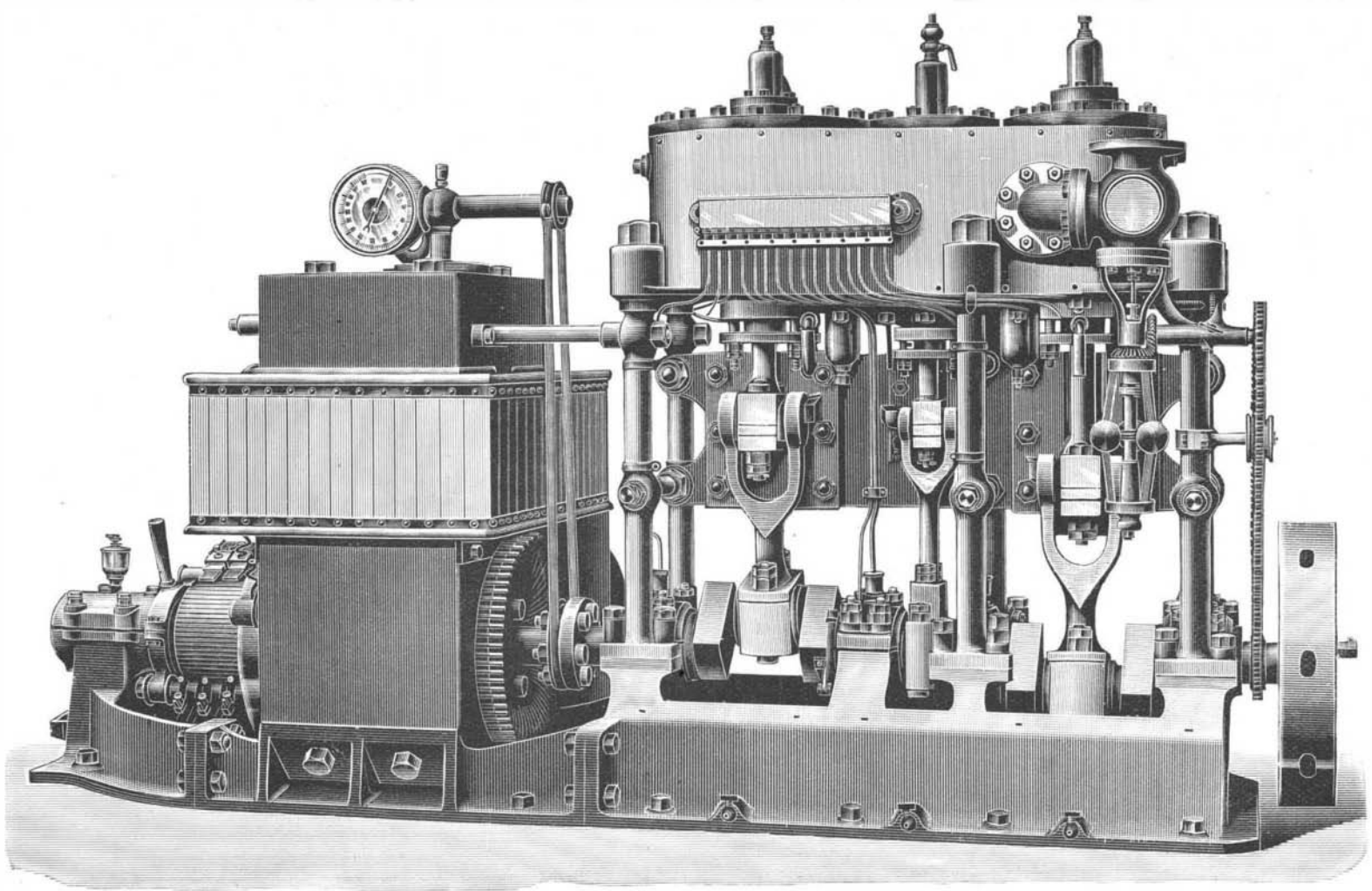
The advantages for seaboard defense afforded by the conformation of the coast line of the United States are very marked. The recent voyage of the torpedo boat Cushing from Washington to New York was made by inland coast waterways. The Cushing steamed down the Potomac to Chesapeake City and there passed through the canal, up the Delaware River, through the Delaware and Raritan Canal and Raritan River to New York Harbor. The vessel carried full weight. The trip of the Cushing demonstrated that with our present system of natural and artificial inland coast waterways we have the power of mobilizing small war vessels on inland waters. The French have made a thorough study of the concentration of torpedo boats and have facilities for transporting them by rail to any part of the coast.

Surveys have been made to test the feasibility of all water communication between Texas and Massachusetts. The northern section of the trip could be managed by cutting a canal through Cape Cod. The route would then be as follows: through Long Island Sound to New York, thence to Chesapeake Bay by the route taken by the Cushing. From Norfolk the trip could be continued by the Dismal Swamp and Drummond Lake to the waters of North Carolina. Between the Neuse and Cape Fear Rivers artificial communications would be required. Thence a bad break occurs, in which the vessels would have to take the ocean or else a very expensive construction would be necessary to furnish a protected waterway. The sounds and bays of South Carolina and Georgia would transport the boat to a canal cut through Florida. The bayous and lagoons of Florida, Alabama, etc., complete the route to Texas.

A Map Six Hundred Years Old.

On the wall of the south aisle of Hereford Cathedral, accessible to the visitor at all times, is preserved the celebrated "Mappa Mundi" (date *circa* 1282-1300). This is the work of an ecclesiastic, who is supposed to be represented in the right hand corner on horseback, attended by his page and greyhounds. He has commemorated himself under the name of Richard de Haldingham and Lafford in Lincolnshire. His real name was Richard de la Battayle or de Bello. He held a prebendal stall in Lincoln Cathedral, and was promoted to a stall in this cathedral in 1305, afterward becoming Archdeacon of Reading. During the troublous times of Cromwell the map was laid beneath the floor of Bishop Audley's Chapel, where it remained secreted for some time. In 1855 it was cleaned and repaired at the British Museum. This is allowed to be one of the most remarkable monuments of its kind in existence, being the largest and most interesting of all the old maps, drawn on a single sheet of stout vellum. The world is here represented as round, surrounded by the ocean. At the top of the map (the east) is represented Paradise, with its river and tree; also the eating of the forbidden fruit and the expulsion of our first parents. Above is a remarkable representation of the Day of Judgment, with the Virgin Mary interceding for the faithful, who are seen rising from their graves and being led within the walls of heaven. The map is chiefly filled with ideas taken from ancient historians. There are numerous figures of towns, animals, birds and fish, with grotesque creatures. The four great cities are made very prominent—Jerusalem, Babylon, Rome and Troy. In Great Britain most of the cathedrals are mentioned.—*Cathedrals, Abbeys and Churches.*

IN HALF A CENTURY.—A statistician has estimated that a man fifty years old has worked 6,500 days, has slept 6,000, has amused himself 4,000, has walked 12,000 miles, has been ill 500 days, has partaken of 36,000 meals, eaten 16,000 pounds of meat and 4,000 pounds of fish, eggs and vegetables, and drunk 7,000 gallons of fluid.



IMPROVED MARINE STEAM DYNAMO.