

International Marine Engineering

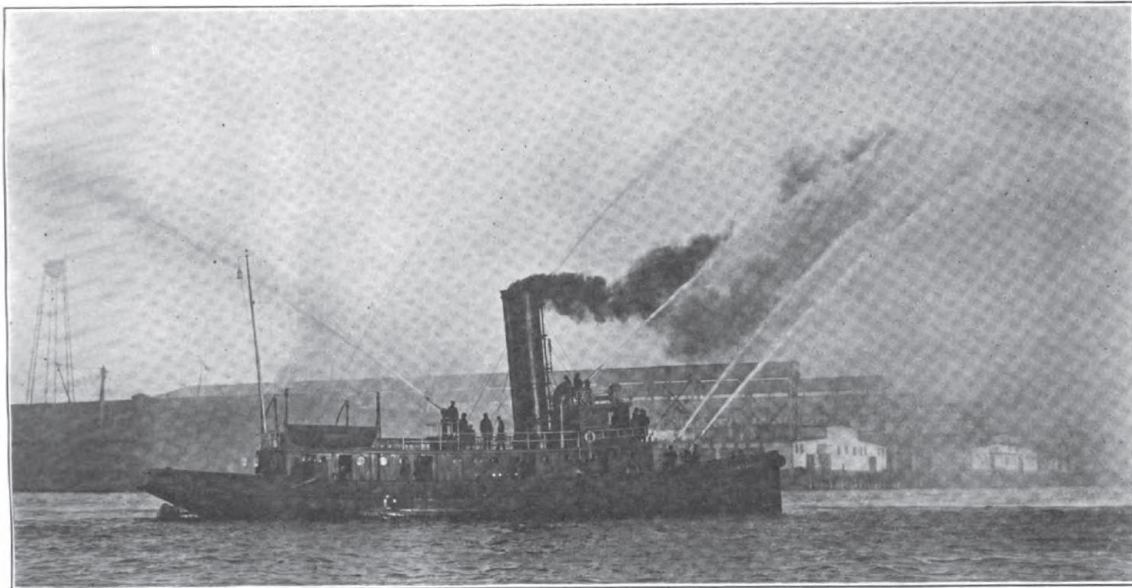
VOLUME XV

JUNE, 1910.

JUNE, 1910.

International Marine Engineering

249



NEW BOSTON FIREBOAT, ENGINE 47, UNDERGOING TEST.

THE NEW BOSTON FIRE BOAT ENGINE 47.

Boston's new fireboat *Engine 47*, is one of the fastest, most powerful and efficient vessels ever built for fire service in America. Her characteristic features were only adopted after a careful consideration of the needs of the water front of the city and a study of the latest types of such vessels built or building for other cities.

In Boston, the number of places demanding protection where the depth of water is limited requires a boat of light draft. The number of drawbridges that have to be passed through, and the presence of heavy ice in the winter season, necessitate a hull of substantial construction to withstand the severe service to which the boat must be subjected. It was with these conditions in mind that it was decided to build the hull

of wood instead of steel. A wooden hull has greater local strength than the thinly plated steel vessel, making it much better adapted to withstand rough treatment at the draw-bridges and wharves and in the ice. Being sheathed with copper over the whole immersed portion of the hull, it also keeps clean indefinitely, while a steel hull would soon foul up in the waters of the harbor. The life of a steel hull would also be very short in service as a Boston fireboat, for the reason that, in touching the first shoal place, the paint on the bottom would be scraped off and the erosive action of the sea water on the mild steel would be rapidly destructive.

The principal dimensions of the hull are as follows:

Length over all.....	113 feet 9 inches
Beam over plank	26 feet 0 inches
Depth	11 feet $\frac{1}{2}$ inch
Draft, fully loaded.....	9 feet 0 inches

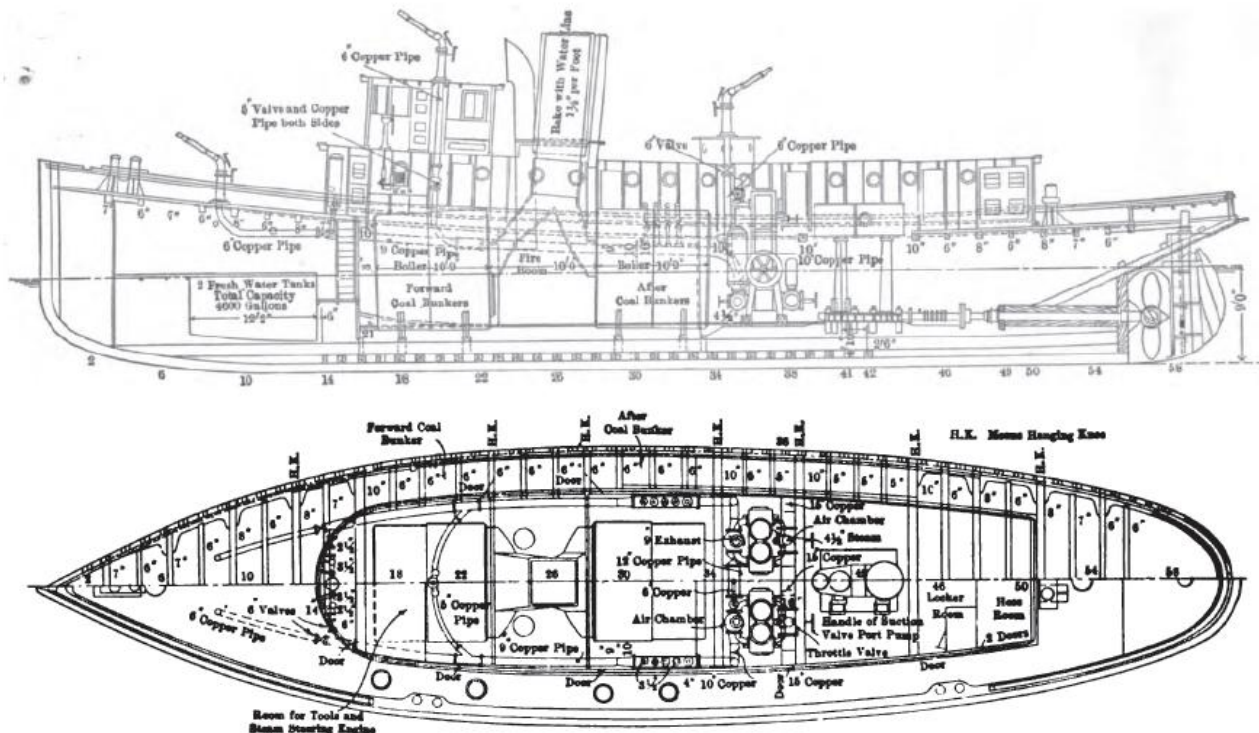
The keel, stem, propeller and rudder posts, rudder, out-board plank, frames, guards and rails are of white oak. The beams, keelsons, ceiling and clamps are of yellow pine, and the deck planks are of Oregon fir. The main deck house is of steel, and the pilot house of wood, the latter being thoroughly fitted with sprinkling arrangements piped to the fire-service pipe and fitted with valves for regulation. The entire bottom of the boat is sheathed with copper.

As the boat must operate on salt water and be independent of any fresh water supply for feeding boilers, the design of the machinery becomes much more complicated than for cities like Buffalo, Chicago and Detroit, where the feed water is pumped from the lake or river directly into the boilers and no condensing apparatus is necessary.

The new boat is as completely equipped with machinery as an ocean liner, as will be evident from the following condensed description:

The main engines are of the the vertical inverted compound type, high-pressure cylinder 17 inches diameter, low-pressure cylinder 36 inches diameter, the stroke of both being 24 inches. It is fitted with steam reversing gear.

The propeller is four-bladed, of the "built-up" type and is entirely of bronze. It is 8 feet diameter and 11 feet 6 inches pitch.



INBOARD PROFILE AND DECK PLAN OF THE BOSTON FIREBOAT.

The fire pumps, two in number, are of the vertical, tandem compound, duplex flywheel type. The steam cylinders are 12 and 22 inches in diameter, the water cylinders are 10 inches diameter, the stroke of all being 11 inches. They are designed for a combined capacity of 6,000 gallons of water per minute, with a pressure of 175 pounds per square inch at the pumps. In other words, the fire pumps can deliver 25 tons of water per minute at 175 pounds pressure.

One surface condenser is used for condensing all the exhaust steam, so that it may be pumped back into the boilers. There are a vertical twin air pump, a centrifugal circulating pump, two feed pumps, a bilge pump, two boiler circulating pumps and a sanitary pump.

There is an electric generating plant of $7\frac{1}{2}$ kilowatts capacity, sufficient to thoroughly light the boat, and also furnish current for a powerful searchlight.

There is a steam steerer of the Hyde type, operated by a small hand wheel in the pilot house.

The boilers are of the Scotch type, two in number, 11 feet in diameter and 10 feet 9 inches long, built for a working pressure of 140 pounds per square inch. Each has two Morrison suspension furnaces 42 inches least internal diameter. The boilers are connected by breeching with a common double smokestack. Forced draft is provided by the closed ash-pit system, the blower being located in the fire room on the port side and discharging through ducts under the fire room floor into the furnaces below the grates. Dampers are provided for shutting the air off each furnace and for regulation.

There are twelve outlets for 3½-inch hose for use at fires some distance from the water front. Three thousand feet of hose are carried.

For fires on wharves or vessels, the boat is equipped with five swivel nozzles (or "guns," as they are called by the crew), two on the forward deck, one on the pilot house, one on the main deck house and one at the top of the smokestack. These are all worked by means of hand wheels, so that one man can easily handle one when working at any pressure.

The use of the smokestack as a water tower is unique, no other boat ever having been fitted up in this manner. It is expected to be particularly valuable for reaching fires by playing over buildings or high piles of lumber that could not be reached in any other way.

The boat was designed by William T. Keough, consulting engineer and naval architect, and has been built under the supervision of Superintendent Eugene M. Byington, of the Boston fire department repair shop.

The contractors for the hull and propelling machinery were the Bertelsen & Peterson Engineering Company, of East Boston, and the fire pumps were built by the George F. Blake Manufacturing Company, of East Cambridge.

At the recent large Lewis Wharf fire, the boat had the first chance to show her real worth. This fire started at night and had gained great headway among a lot of the most inflammable materials, such as resin, cotton, etc., before the alarm was given. The officers of *Engine 47*, with apparently unlimited confidence in the capacity and reliability of the boat, put her right into the slip on the leeward side of the fire and turned all five of the deck guns onto the burning warehouse. In the meantime the older boat (*Engine 44*) had attacked the fire from the other side of the pier. Their combined efforts were of such a high order that the fire, which had threatened to destroy the whole water front, was entirely confined to the pier upon which it started. Officials of the steamship companies who had seen the work of the new boat spoke with unstinted praise of her remarkable performance and the high efficiency of the department.



Published Monthly at
17 Battery Place **New York**
By **MARINE ENGINEERING, INCORPORATED**
H. L. ALDRICH, President and Treasurer
and at
Christopher St., Finsbury Square, London, E. C.
E. J. P. BENN, Director and Publisher
HOWARD H. BROWN, Editor

AMERICAN REPRESENTATIVES

GEORGE SLATE, Vice-President
E. L. SUMNER, Secretary

Subscription Manager, **H. N. Dinamore**, 83 Fowler St., Boston, Mass.
Branch { Philadelphia, Machinery Dept., The Bourse, S. W. ANNEN.
Offices { Boston, 643 Old South Building, S. I. CARPENTER.

Entered at New York Post Office as second-class matter.

Copyright 1910, by Marine Engineering, Inc., New York.

INTERNATIONAL MARINE ENGINEERING is registered in the United States
Patent Office.

Copyright in Great Britain, entered at Stationers' Hall, London.
