

THE AZALEA.

1890

GENERAL DESCRIPTION.

There will be one right-handed cast-iron screw-propeller, of about 8 feet diameter and suitable pitch, driven by an inverted-cylinder surface-condensing two-cylinder fore-and-aft compound engine, the cylinders to be 19 inches and 36 inches in diameter, with a stroke of 28 inches.

BOILER.

There is to be one cylindrical boiler, 11 feet 9 inches diameter outside of the smallest course of shell, and 11 feet 4 inches long from outside to outside of ends.

There are to be two Fox's patent corrugated furnaces, 40 inches in diameter; inside corrugations to extend from the front end to the back tube-head and secured thereto by means of a single seam of rivets of diameter and pitch to suit the thickness of the plates.

The back-connection will be $29\frac{1}{2}$ inches long at the bottom and 26 inches at the top, increased in a direction parallel with the length of the boiler, and the side sheets are to be carried eccentric to the shell, so that the distance between the shell and said side-sheet will be about $5\frac{1}{2}$ inches in the clear at the bottom, increase upward to a distance, in the clear, of about $7\frac{1}{2}$ inches, increased diametrically at the height of the top row of the tubes. The crown-sheet is to be horizontal and stayed by means of wrought-iron girders, properly spaced, and formed at the ends to have bearings on the front, back, and crown plates, and have a clear space of not less than $1\frac{1}{2}$ inches between the crown-sheet and the bottom of the girders.

The shell of the boiler will be made in two lengths of shell, longitudinally, the smaller course toward the front, or firing end, and suitable thickness to meet the requirements of the United States steam-boiler inspection for a working pressure of 110 pounds per gauge. The circumferential seam will be a double lap-riveted seam, and the longitudinal seams are to be properly spaced to clear all fittings, and are to be riveted and strapped to suit the requirements of the United States steam-boiler inspection for a working pressure as stated above. The end plates shall be made in not more than two plates in each end plate, the seam joining the plates to be horizontal, and situated at a proper height above the tops of the tubes; seams to be double-riveted zigzag, with the calking edge upon the outside. There are to be one hundred and sixty-six $3\frac{1}{2}$ inches outside diameter American lap-welded charcoal-iron boiler-tubes; the distance between the tube-sheets, from inside to inside, to be about 8 feet, spaced not less than $4\frac{1}{4}$ inches horizontally and vertically; a vertical-space of about $7\frac{1}{2}$ inches, in the clear, to be left between the tubes in the center of the boiler. Stay-tubes to be put in in a sufficient number, and to the satisfaction of the representative of the Light-House Board. The stay-tubes are to be proportioned at the ends for cutting suitable threads; the back-end thread to be minus and the front-end thread plus, so that the tube will pass freely through the front head. Each stay-tube to be fitted with a flat-cheek hexagonal nut, the other tubes to be expanded and beaded in the very best manner. Tubes, etc., to be arranged according to working drawing furnished by the Light-House Board.

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The scantlings of the boiler to be as follows: Shell-plate, $\frac{1}{8}$ inch in thickness; front and rear tube-head, $\frac{3}{8}$ inch; back-head of back-connection, $\frac{1}{2}$ inch; side sheets of back-connection, $\frac{7}{16}$ inch; crown-sheet of back-connection, $\frac{1}{8}$ inch; upper part of end plates, $\frac{9}{16}$ inch; furnace, $\frac{1}{2}$ inch. The back-connection will be stayed to the shell in a substantial manner, and in accordance with the rules of the Board of Supervising Inspectors governing the construction of marine boilers to be used in salt-water. The strain on the stays shall not exceed 5,000 pounds per square inch of section at the bottom of the thread. The front and back ends will be provided with stays extending from outside to outside of shell, with hexagonal-nut washers outside, and nuts and castings inside to stiffen the end plates properly. A pair of 3 by 3 by $\frac{1}{8}$ inches angle-iron are to be securely riveted to the inside of the end plates, one on each side of the stay, and about $\frac{1}{2}$ of an inch farther apart than the diameter of the stay. The angle-irons are to extend horizontally across the ends a sufficient distance beyond the outside stays to insure good work. The stays are to be spaced far enough apart to admit a man to pass between them to inspect the boiler. These stays are to be proportioned to stand not more than 6,000 pounds per square inch of section at the root of the thread.

BOILER-FITTINGS.

An independent stop and safety-valve will be fitted to the boiler; the safety-valve is to be on the shell of the boiler at the up-take end, and an exhaust-pipe of copper, with a properly designed end of ornamental pattern, and branch-pipe to lead steam up and out, properly attached in a substantial manner, and carried to such height as may be directed. The safety-valve is to be of such spring safety-valve pattern as is suitable for marine purposes, and of such size as is required by law. The stop-valves are to be of an approved form, and will be attached to the end of the boiler nearest the engine; they are to be furnished complete with hand-wheels, stuffing-box, and bonnet. A 5-inch diameter wrought-iron pipe will extend from this valve inward along the top of the boiler, one end being made so as to prevent steam from entering, and the other end screwed into the valve-body. The pipe will be properly fastened to the inside of the boiler, about 3 inches from the upper side; two rows of $\frac{1}{2}$ -inch diameter holes shall be drilled through the top side of said pipe, so that the sum of the area of said holes shall be 50 per cent. in excess of the area of the pipe; 11 by 15 inch elliptical man-holes and 5 by 7 inch elliptical hand-holes are to be cut through the boiler, in such position and number as may be directed, and these openings are to be properly re-enforced and fitted complete, with good hinges between the plates and boiler to insure tight joints and strength. The plates, bolts, and bridge-bars are to be of the best quality of material and workmanship.

The furnaces are to be fitted complete with bridge-walls, grate-bars, bearing-bars, front castings, firing and ash-pit doors, in a substantial and complete manner; the bridge-walls to be furnished with soapstone shapes to suit the diameter of furnace. The boiler is to be furnished complete with bottom and surface blow-valves and pipe, feed-pipe and valves, foam-pipe, glass and cock gauges, 6-inch dial-gauges, and all fittings necessary to place them in complete working order, such as sea-connections, firing-tools, and all necessary fittings. The boilers are to be securely strapped to the cradles and chocked in a substantial and neat manner, to prevent any movement endwise or athwartship on the cradles. The smoke-box will be constructed as shown on the drawing, and will be built double up to within 4 inches of the top of sheet-iron casing fitted to deck; the passages are not to be reduced in area to less than one-fifth of the grate area at any point. The front of the smoke-box will slope outward, and will be framed so that the openings for doors will admit of the tubes being removed without deranging any of the structure.

These doors are to be hinged at the top edge and swing vertically, and are to be finished complete, with hinges, clamps, eye-bolts, baffle-plates, and lifting-chains, with pulley-leaders and lines leading to some accessible and convenient point. The

material of smoke-box and funnel is to be of sufficient strength for first-class work, and must be finished complete, in place, with bearings for properly supporting the weight, stays, stay-band, umbrellas, drip and shield plates, and all fittings necessary to complete the work, to meet the requirements of the United States inspector of steam-vessels. All valves to be of the best material and workmanship, properly attached and fitted in place. The engine and boiler rooms are to be fitted complete with wrought-iron platforms, ladders, and floor-plates, as shown on the drawings, or as may be directed during construction, to render every part of engine and boilers accessible and convenient.

When the boiler has been properly tested, etc., asbestos and felt, or other approved covering, shall be put on by the contractor, to the satisfaction of the representatives of the Light-House Board.

MATERIAL.

All the material of the boilers is to be Siemens-Martin mild-steel, excepting the tubes, with a tensile strength of not under 60,000 pounds nor more than 65,000 pounds per square inch of original cross-section, and an elongation of 23 per cent. in 8 inches. Rivets are to be of the very best quality of steel, of 50,000 to 55,000 pounds tensile strength per square inch, and an elongation of 30 per cent. in 8 inches.

TRIAL-TRIP.

In addition to the necessary trials of the machinery at the dock, a trial-trip is also to be made, of about twelve hours' duration, or as may be directed by the Light-House Board, at the expense of the contractor, and the engine must develop the required 400 indicated horse-power when the engine is making 107 revolutions per minute, with a coal-consumption as hereinbefore specified, and a cut-off in the high-pressure cylinder of one-half the stroke, links in full-gearing and steam, per gauge, at 100 pounds pressure per square inch.

All bearings, journals, crank-pins, and other parts of the engine to show no tendency to heat or grip, but to run smoothly, the engine to pass its centers without shock or noise. The machinery must work on this trial-trip to the entire satisfaction of the representative of the Light-House Board, and if any defects should develop on the trial, subsequent trials, at the expense of the contractor, as described above, will be made until every part of the machinery has been proven to be in accordance with the requirements of these specifications, to the satisfaction of the Light-House Board.

The contract for the *Azalea* requires the delivery of this vessel at the light-house depot Tompkinsville, Staten Island, New York, on or before seven calendar months from the date of the approval of the contract by the Secretary of the Treasury. This contract was approved on February 28, 1890, so her delivery may be expected on or about September 28, 1890.

(Built at New York, in 1890-91. Tonnage 422.8 gross.)

"Built by Jonson Foundry & Machine Co., New York, for the L.H. Board. Dimensions:--length 154', breadth 25', depth 12' 3"; Schooner-rigged. Tonnage 422.8.

Material,--mild steel.

Engine,--screw-propeller inverted cylinder, surface-condensing, two cylinders fore and aft compound, indicating 400 horse-power.

Boiler,--one, cylindrical, Scotch-type, 11' 9" diameter, 11' 4" long.

Contract,--for \$77,125, was authorized 10 Feb'y, 1890.

Appropriation \$80,000. Act approved 2 March, 1889."

The Azalea.—This steamer is a single screw steel vessel, built with a flat plate keel, and outside keelsons fitted in the bilge. She is calculated to draw 8 feet on an even keel, fully equipped, and with about 20 tons of cargo in shallow water. The location of the cargo-rooms and ballast tanks makes it possible, however, to trim the vessel to say 9 feet 6 inches aft, and 8 feet 6 inches forward, when required for deep-sea service. The vessel is schooner-rigged and has comfortable accommodations for officers and crew and employes. The dimensions of this vessel are:

	Feet.
Length between perpendiculars.....	154.
Breadth, molded	25

The depth of hold from the top of the beam to the top of the floor is 12 feet 3 inches. The engine is a vertical compound, with cylinders 19 inches and 36 inches in diameter and a stroke of 28 inches. The engine has a surface condenser and is calculated to develop 400 indicated horse-power. The vessel has one cylindrical single-ended boiler. It is of the Scotch type with two corrugated furnaces, and is designed on the most modern principles to carry a working pressure of 100 pounds per square inch by gauge. To determine the draught of water under different circumstances, every possible precaution is taken in the superintendence of the construction of the vessel to confine the actual weights to the figures used in calculating the displacement and trim. The contract for this vessel was approved on February 28, 1890, and the work of construction was immediately commenced. The first frame was put in place May 24, 1890. The vessel is now fully framed up, keel-plates are fitted, part of the bulkheads are put together, most of the deck beams are fitted, stern and stern-posts are drilled and erected, and the strake next to the garboard strake nearly fitted. The low-pressure cylinder is nearly finished, and the connecting rods, eccentrics, eccentric rods, bearings, foundation plate, and part of the valve gear are being worked up. All the material for hull and boiler has been received, and the construction of the main boiler has been commenced. This steam tender was successfully launched November 29, 1890.

The Azalea.—This is a new steam-tender now being built under contract in New York City.*

* This steam-tender was successfully launched November 29, 1890.

INSPECTION OF STEEL.

1890.
p. 79. The Light-House Board having approved the general rules for testing steel and other material to be used in the construction of vessels for the Light-House Service, they were incorporated with the specifications for the new vessels and have governed the inspection and tests of all materials for the steamer *Azalea* and for light-vessels, Nos. 47, 48, and 49. Inspection and tests were made at the following works: The Homestead Steel Works, near Pittsburgh, Pa.; the Pencoyd Iron Works, Pennsylvania; the Oliver Steel Works, Pittsburgh, Pa.; the Rivet Works of S. Severance & Co., Pittsburgh, Pa.

As a consequence of the adoption of the rules and of the systematic testing and inspection to which material is now subjected, it is safe to say that the steel used in construction of the new vessels is of excellent quality, and that the service at large will be greatly benefited. No real difficulties have been encountered in obtaining material fully up to the standard required.

When the tests prescribed were finished and found to be satisfactory the material generally was subjected to severer tests to acquire a thorough knowledge of the qualities of the materials and the comparative excellence of the work of the different manufacturers.

1891 *The Azalea*.—A full description of this steamer was given in the annual report of last year. Since July 1, 1890, the work of construction done on this vessel was as follows:

The plating, with the exception of the garboard strake, keel strake, and one bilge strake, was fitted, riveted, and calked. One-fourth of the deck beams, one-half of the bulkheads, two-thirds of the keelsons, the bilge keels, all the decks and ceiling, all the joiner work, the ballast tank aft, engine and boiler foundations, etc., were built and fitted in the vessel.

2d Dist.

All masts and spars, standing and running rigging, derricks, sails, and awnings, were made and fitted. Main and donkey boilers were built, put in, connected, and covered. About four-fifths of the engine and all pumps and drainage of the vessel were put in. Anchor windlass, two steam hoisters, and all fittings about decks and elsewhere were fitted. She was launched on November 29, 1890, made her official trial trip June 10, and was formally accepted June 18, 1891. After her arrival at the general light-house depot at Staten Island her equipment was made complete, her supplies and provisions were put on board, and she left on June 23 for the light-house depot at Woods Holl, Mass., where she arrived on June 25, 1891. The report of her trial trip was as follows:

Pressure, 103 pounds; revolutions, 105; horse power, 446; speed, 11.75 knots.

On her arrival at Woods Holl depot, the master reported that the *Azalea* had worked well, but that the engine had not yet done its best work.

1891 *The Azalea*.—This new steam tender, which was built for use in this light-house district, was delivered on June 25 to the Light-House Establishment at Woods Holl. She is fully described in an appendix to the last annual report, in which her plans and specifications are given.

Do. do.

1892 *The Azalea*.—This steamer in July, 1891, was engaged in placing large marking buoys on the Nantucket New South Shoals, for the use of the Coast Survey, and after that on the regular work of the district. A Stratton separator, steam steerer, and water tanks were put in. She was also supplied with an ice chest, hand grenades, boat cushions, pistons, bedding, glassware, hose, and saloon furniture. Her saloon was remodeled, and in June she was hauled out on the ways and her bottom was scraped and painted. During the year she steamed about 5,853 miles, and used in so doing some 404 tons of coal.

2^d Dist.

1893 *The Azalea*.—This steamer was constantly employed in the work of the southern part of the district. In November, she towed Light-Ship No. 1 to Charleston, S. C. Her boiler and engines now require a general overhauling. In January a water-tank was put in, the anchor davits and heaters were overhauled, steel boat davits were set up, the steam tram was repaired and changes were made in the arrangement of the saloon and hatchways. During the year she steamed 11,735 miles and consumed about 898 tons of coal.

Do. do.

1894 *The Azalea*.—This steamer was engaged in buoy work, supplying light-ships, and the like. She steamed about 8,998 miles, and in doing so consumed some 893 tons of coal.

Do. do.

1895 *The Azalea*.—This steel screw steamer was constantly employed, with the exception of 27 days, when she was under repairs. She steamed about 11,328 miles, consuming some 896 tons of coal. She changed or replaced 230 buoys, and painted 75 buoys. She also delivered to light ships and stations 453 tons of coal and 35 loads of rations and supplies. She was employed 56 days at Woods Hole buoy depot. She took up and changed the anchors and moorings of five light-vessels. She was employed 18 days in towing light-ships to Delaware Breakwater and the tender *Verbena* from New Bedford to Boston to receive

a new boiler. Two wrecks were marked, and some 90 light-stations inspected. Her bottom was scraped and painted, and she received galley ware, engineer supplies, and bedding.

1896 *The Azalea*.—This steel screw steamer was constantly employed except during 18 days when she was under repair. She steamed about 13,616 miles, consuming some 1,053 tons of coal. She changed or replaced 179 buoys, and delivered 361 tons of coal to light-vessels and various stations, besides rations and supplies to the light-vessels. In August she received certain small repairs. On October 16 she went on the railway at Fairhaven, when her bottom was scraped and painted. On February 10 she made a trip to the general light-house depot at Staten Island, New York, and brought back to the Woods Hole depot certain whistling and bell buoys. On April 21 she went to New York for the Great Round Shoal light-vessel, No. 42, and towed her to Woods Hole depot. On May 21 she was hauled out on the railway at Fairhaven, when her bottom was again cleaned and painted. Repairs were made to her boiler, steam pipes, pilot house, rudder chain, bell guards, and she received a new steam steerer.

1897 *The Azalea*.—This steel screw steamer was constantly employed except 25 days when under repairs. She changed or replaced 155 buoys, delivered 793 tons of coal to light-vessels and various stations, besides 165 loads of rations and supplies, and worked 21 days at the buoy depot. On July 6, 1896, she towed light-vessel No. 58 to the general light-house depot at Staten Island. On August 4 she towed relief light-vessel No. 39 from New Bedford and put her on Boston Station. On September 17, she was sent to New York for a distilling apparatus for light-vessel No. 66, which she carried out to that vessel, and her engineers worked 2 days putting it in the light-vessel. In October, 1896, she went on the ways and her bottom was scraped and painted and repairs were made to the boiler, a new brass radiator was put in the pilot house, and wire rope was fitted to the steering gear. In January, 1897, she towed Vineyard Sound light-vessel No. 41 from Boston, upon the completion of repairs at Bath, to her station and brought relief light-vessel No. 39 from Vineyard Sound Station to New Bedford. On

March 1 she was sent to the general light-house depot at Staten Island for chain and buoys, and on March 5 returned to Woods Hole. On April 7 she was hauled out on the ways and her bottom was scraped and painted. She left New Bedford on April 23 for New York to take part in the Grant Memorial parade. She returned on April 30 with a load of buoys, chain, etc., from the general light-house depot. On June 12 she towed relief light-vessel No. 39 from New Bedford to the general light-house depot and returned to Woods Hole on June 17, 1897, with a load of buoys, chain, and the like. She was supplied with mattresses, bedding, a patent log, grate bars, chain cable, compensating binnacle, blocks, galley ware, and barometer. Her medicine chest was replenished. She steamed some 11,531 miles, consuming about 1,060 tons of coal.

1898 *The Azalea*.—This steel screw steamer was built in 1891, and is of about 423 tons burden. She was constantly employed, except during 77 days while under repair. She changed or replaced 228 buoys, painted 113 buoys, and marked two wrecks. She delivered to light-vessels and stations 465 tons of coal besides 138 loads of rations and supplies. She worked 48 days at the buoy depot. On September 9, 1897, she went to Portland, Me., for oil and supplies from the cargo of the *Armeria* to be distributed to stations in the southern part of the district. From November

1 to 14, 1897, she was under repairs to her boiler, when hard and soft patches were put on and five hand-holes were cut for riveting and cleaning the tubes. On December 3, 1897, she went to New Bedford for extensive repairs, which were completed on February 16, 1898, when a new deck was laid, deck beams were relocated, the floor of the saloon was recalked, the port rail was repaired, a billboard was fitted in the wake of the anchor, the locks and knobs were overhauled, the tanks were repaired, the ice house was lined and sheathed, new knees were fitted to the towing bitts, uprights below deck were examined, the steering gear was overhauled, and she was hauled out on a railway when her bottom was scraped and painted, a leak in the stem was stopped, a new propeller was supplied, a new rudder of larger surface than the old one was put in, the crank and main bearing brasses of the engine were remetaled, a new thrust shaft and bearings were supplied, a watertight door was fitted in the bulkhead forward of the engine and one in the shaft alley, an opening was made in the skin of the ship for the overflow from the air pump, the boiler was calked and covered with

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1898
cont'd. asbestos, a new injector was supplied, an ash ejector with necessary piping was fitted, the donkey boiler was retubed, all pipes in the engineer's department were covered with asbestos, the feed pipes to the boiler were relocated, and the windlass and smokestack were repaired. She was supplied with grate bars, mattresses, table linen, marine glass, engine indicator, awnings, spring beds, new windlass, bed and hose hawse pipe. She steamed some 10,869 miles and consumed about 919 tons of coal.

1899
Azalea.—This steel screw steamer was built in 1891, and is of about 423 tons burden. She was constantly employed except for 30 days when under repairs. She changed or replaced 162 buoys, painted 125 buoys and 1 beacon, and marked 3 wrecks. She delivered to light-vessels and stations 441 tons of coal, besides delivering 207 loads of rations and supplies. She was employed 16 days at the buoy depot. She steamed about 11,647 miles and consumed some 1,056 tons of coal.

On July 19, 1898, she went to the Staten Island light-house depot, where she took on board oil and supplies for light-stations in the southern part of this district and then delivered them. In August, 1898, repairs were made to her boilers and steam pumps. On October 24, 1898, she was hauled out on the ways and her bottom was scraped and painted. On December 8, 1898, she went to Dutch Island, R. I., and towed light-vessel No. 2 to her station, after having spent several days searching for the drifting vessel. In January, 1899, her deck was calked and steering gear was overhauled. From February 10 to 27, 1899, she was under repairs to boilers, old patches being removed and larger ones put on. On April 9, 1899, she came from New Bedford to Lovells Island light-house depot, taking on board 4,095 empty oil cans, and on April 25 she started from New Bedford for Staten Island light-house depot, returning to the Woods Hole light-house depot on May 1, 1899, with a load of buoys and light-vessel chain. On May 7, 1899, repairs were made to the steam chest of her main engine, and a delivery pipe of her air pump. An exhaust pipe for her hoisting engine and a new crank shaft to hoisting engine was supplied. During the year she was furnished with crockery, plated ware, engineer supplies, blankets, rope, galley ware, ladder, anchor stock, blocks, clock, and boat hooks.

1900
Azalea.—This steel screw steamer was built in 1891 and is of about 423 tons gross burden. She has been in constant service, except for 76 days, when under repairs. She changed or replaced 138 buoys, painted 259 buoys, painted 3 beacons, marked 2 wrecks, delivered to light-vessels and stations 431 tons of coal, besides delivering 145 loads of rations and supplies. She was employed 61 days at the buoy depot, steamed 10,764 miles, and consumed 984 tons of coal. On July 13, 1899, she was hauled out on the ways, her bottom was scraped and painted, repairs were made to her boilers, and the ironwork of the gangway was repaired. On September 23, 1899, she proceeded to New York for duty in connection with laying of buoys for naval fleet. On the night of October 2, 1899, when returning to New Bedford upon completion of this duty, she was run into off Cornfield Point light-vessel by the schooner *Wm. H. Davenport*. The stem of the *Azalea*, above the water line and 3 feet below the top rail, was broken and bent direct to starboard and aft for about 4 feet, the side bow plates being bent at right angles and back to the collision bulkhead. The hawse pipes were driven inboard about 15 inches. The vessel developed no leak and proceeded to New Bedford. On October 11, 1899, she came to Boston and was docked for the purpose of determining extent of injury. Repairs were made at a cost of \$4,261 for damage caused by the collision. At this time a new derrick mast was supplied, and the main boiler was repaired by renewing 78 socket

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1900

bolts and soft patching bottom of back connection, the thrust bearing of engine was refastened, fire-room floor was furnished with new angle-iron supports and plates, and new anchor davits were supplied. The work being completed, she left Boston for New Bedford, November 28, 1899. On April 23, 1900, she was hauled out on the marine railway, when her bottom was scraped and painted. She was supplied with a new propeller, and the vessel's deck was calked. She was supplied with a marine glass, paints, manila rope, and table linen; her mattresses were made over, and she received engineer supplies, galley ware, grate bars, blocks, rubber hose, and the like.

1901

Azalea.—This steel screw steamer was built in 1891 and is of 422.80 tons displacement. She was in constant service except for 40 days when under repair. She changed or replaced 130 buoys, painted 162 buoys, delivered 717 tons of coal and 179 loads of rations and supplies to light vessels and stations. She was employed 57 days at the buoy depot. During the year she steamed 13,914 miles and consumed about 1,150 tons of coal. In October, 1900, she was hauled on the New Bedford railway and her bottom was scraped and painted by the crew. In November her boilers were repaired and a new inner smokestack was furnished and set up. Slight repairs were made to the boilers in January. ~~Contract was made for the construction and installation of a new boiler.~~ In February, 1901, repairs were made to her boilers and the vessel was painted. Slight repairs were again made to her boilers in April. She was supplied during the year with paint, rope, boiler-ware, blocks, mattresses, fire brick, engineer supplies, belaying pins, wire rope, grate bars, life preservers, rubber hose, sheet lead, brass piping, lumber, linen, crockery, blankets, and galley ware. The furniture of the saloon and master's room was covered anew.

1902

Azalea.—This steel screw steamer was built in 1891, and is of 422.80 tons displacement. She was employed except during the 100 days when under repair. She changed or replaced 44 buoys, painted 66 buoys, and delivered 631 tons of coal and 194 loads of rations and supplies to light-vessels and stations. She was employed 59 days at the light-house depot. She steamed some 10,415 miles and consumed about 879 tons of coal. On July 4, 1901, she went to Boston for repairs, when a pine mainmast was put in, the main deck was calked, the upper deck and the top of the houses were covered with canvas, the dingy davits were overhauled, a complete outfit of rudder chains were furnished and fitted, the towing bitt was repaired, the blow-off flanges on the hull were repaired, the spar-deck rail was refastened, the low-pressure cylinder was rebored and fitted with packing, all eccentrics were rebabbitted, the windlass was overhauled and furnished with a new wildcat, the hoisting and steering engines were overhauled and repaired, a new smokestack and guys were furnished and set up, two new steel water tanks were installed in the vessel complete, the old tanks were repaired, a manifold was installed in the engine room, all necessary valves, etc., were fitted, a new floor was laid in the fire room and the coal bunkers were repaired, new saddles for the boiler were supplied, a new water column and a new blow-off, check, and feed valves were furnished, new ventilators for the fire room were furnished and fitted with turning gear complete, a new sanitary system was installed, a new bathtub was furnished, the woodwork in the fore-castle, main hold, and lower after cabin was removed and the metal work was scaled and painted, new feed and circulating pumps were furnished, the vessel was wired for the installation of electric light, a new cast-iron floor on the port side of the engine room was supplied, a dent in the stern of the vessel was taken out and her stem was straightened, a working boat was repaired, the companion-way ladders were repaired, the saloon floor was planed, two new deadlights were fitted, new main-hold manhole plates were furnished, sheet iron was fitted under the rudder chain, the bell pulls were overhauled, the pilot house was refitted and the inside sheathing was removed and refastened, the galley was refitted and a new stove and sink were supplied, a new platform in the forehold was made for storing rope, the vessel was docked, the bottom was scraped and painted, and the mate's room was remodeled and rebuilt. Upon the completion of these repairs the tender left Boston on September 13, 1901, for the southern part of the district. In March, 1902, she was hauled out and her bot-

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1902 tom was again scraped and painted. On May 8 she was laid up, when an oil tank, with three compartments, was put in place of one worn out, the bridge walls of the main boiler were lowered, the high-pressure cylinder was rebored, counterbored, and fitted with packing, the iron plate for the drum room was renewed, the grate bars were renewed and new bearers were supplied, the electric bells were overhauled, and the dingy was repaired. In June two new water tanks were put in, replacing a worn-out tank, and an electric-lighting plant was installed. She was supplied with rope, paint, bedding and mattresses, boat sails, linoleum, rubber hose, boat cushions, grate bars, blocks, engineer supplies, a new working boat, galley ware, curtains, and carpet, and her compasses were adjusted and the medicine chest was replenished.

1903 *Azalea*.—This steel screw steamer was built in 1891, and is of 422.8 tons displacement. She changed or replaced 148 buoys, painted 66 buoys, delivered 1,119 tons of coal and 207 loads of rations and supplies to light vessels and stations. She was employed 107 days at the light-house depot. She steamed some 13,151 miles and consumed about 1,043 tons of coal. In October and December, 1902, and in February and June, 1903, she received repairs. She was under repairs altogether about 44 days. She was supplied with needed stores and fitments.

1904 *Azalea*.—This steel screw steamer was built in 1891, and is of 422.81 tons displacement. She was employed during the year, with the exception of 36 days, when under repair. She changed or replaced 139 buoys, painted 88 buoys, delivered 618 tons of coal and 226 loads of rations and supplies to light-vessels and stations. She was employed 67 days at the buoy depot. During the year she steamed about 13,232 miles and consumed some 1,148 tons of coal. She received needed supplies and fitments.

1905 *Azalea*.—This steel screw steamer was built in 1891 and is of about 423 tons displacement. She was employed during the entire year, with the exception of 24 days, when she was under repair. She changed or replaced 140 buoys, painted 78 buoys, marked 1 wreck, delivered 438 tons of coal and 262 loads of rations and supplies to light-vessels and stations. She was employed 92 days at the light-house depot. During the year she steamed about 14,417 miles and consumed some 1,353 tons of coal. She received needed fitments, supplies, and repairs.

1906 *Azalea*, launched in 1891, a steel screw steamer of 423 tons, except for 43 days, while undergoing repairs, was in service during the entire year. She changed, replaced, and painted 222 buoys, marked 3 wrecks, furnished light-vessels and light-stations with 475 tons of coal, 5 cords of wood, 263 shipments of supplies and rations, and in addition her personnel worked 86 days at the light-house depot. She steamed about 12,455 miles, and consumed some 1,116 tons of coal. She received needed fitments, supplies, and repairs. The work in the southern part of this light-house district is hard, as the large number of light-vessels and other first-class floating aids to navigation require constant care and attention, their positions rendering them peculiarly liable to be sunk, dragged out of position, or otherwise injured by passing vessels colliding with them.

(Crew)

Azalea- steam-tender, 2nd District, 1891.

1907. *Azalea*.—This vessel, launched in 1891, is a steel screw steamer of 423 tons. She delivered to light-stations and vessels 33,220 gallons of mineral oil, 270 loads of supplies, 8 cords of wood, and 912 tons of coal. She was employed on inspection for 19 days and inspected 14 stations and vessels, and was at Woods Hole light-house depot for 96 days. She changed or replaced 158 buoys, painted 78 buoys and 2 beacons, refilled 9 gas buoys, was laid up for repairs 33 days, and was engaged in towing light-vessels for 23 days. She made 13 trips from New Bedford to Nantucket Shoals light-vessel. In the discharge of

these duties she steamed about 13,782 miles and consumed some 790 tons of coal. She was under steam for 365 days. On February 9, 1907, she was repaired. She has received needed fitments, repairs, and supplies.