

LLOYD'S REGISTER OF BRITISH AND FOREIGN SHIPPING.

ENGINEER SURVEYOR'S REPORT ON MACHINERY.

ENGINES.

Description *Compound Inverted Surface Condensing*
 Made by *Messrs R. Napier & Sons*
 When 18 At *Glasgow*
 Diameter of cylinder Length of stroke
 No. of revolutions per minute *About 60*
 Point of cut off *About $\frac{2}{3}$ of stroke. Adjustable*
 Diameter of screw shaft *9"*
 Diameter of crank shaft journals *9 $\frac{3}{4}$ "*
 Diameter of screw, or of paddle wheel *14" 0"*
 Pitch of screw *15" 6"*
 No. of blades, *14* Total surface *38 sq feet*
 No. of bilge pumps *2* and sizes *3 dia x 14 stroke. Single Acting*
 Do they pump from each compartment *Yes, except fore peak*

Are all the bilge suction pipes fitted with roses *Yes*
 No. of feed pumps *2* and sizes *3 dia x 14 stroke. Single Acting*
 What gauges are there attached to the engines and boilers ... *3 steam, 1 vacuum and 1 combined*
 Description and size of Donkey Pumps ... *Double Acting 2 1/2"*
 Where do they pump from *Both donkeys draw from sea, engine room fore hold, main hold, after hold & tank.*
 No. of bilge injections *1* and sizes *6" dia*
 Are they connected to air, or circulating pumps *Circulating Pumps*
 Is there a hand pump in the engine room *Yes*
 Can it be worked by the main engines *No*
 Is there a deck hose of sufficient length to reach to any part of the vessel *Yes*

MAIN BOILERS.

Number *Two* Description *Cyl. Multitubular*
 Made by *Messrs R. Napier & Sons*
 When 18 At *Glasgow*
 Working pressure *60 lbs*
 Tested by hydraulic pressure to *120 lbs Reported*, Date *Not ascertained*
 Description of super-heating apparatus *Annular*
 Can each boiler be worked separately *Yes*

Can the super-heater be shut off and the boilers worked separately *No*
 Description and area of safety valves on each boiler *Direct Spring (Adams) Two on boiler 4" dia. Total area 25.1 sq in.*
 No. of square feet of fire-grate surface in each boiler *37 sq feet*
 Are there separate blow off and brine cocks on each boiler, independent of those on the vessel's skin *Yes*
 Are all pipes, cocks, roses, and pumps in connection with the machinery accessible at all times. *Suction pipes & roses in holds not accessible when vessel is loaded*

DONKEY BOILER.

Description *Oval Semicircular top & bottom*
 Where fixed *On deck*
 Working pressure *40 lbs*

Tested by hydraulic pressure to *80 lbs Reported*, Date *Not ascertained*
 Description and area of safety valves *Two Lever & weight 2 1/2" dia. Area 9.8 sq in.*
 No. of square feet of fire grate *13.6 sq feet*

PIPES, COCKS, AND CONNECTIONS.

Are all connections with the sea direct on the skin of the ship *Yes*
 Are they Kingston valves or common cocks ... *Stop valves and common cocks*
 Are they fixed sufficiently high on the ship's side to be seen without lifting the stoke hold plates *No*
 Are the discharge pipes above or below the deep water line *Below*
 Are they each fitted with a discharge valve on the plating of the vessel *Yes*

What pipes are carried through the bunkers *Suction pipes to fore hold & ballast tank*
 How are they protected *Hand Raising*
 When were the stern tube, propeller, screw shaft, and all connections examined in dry dock *Decr 1876*
 Are the pipes, cocks, and valves arranged so as to prevent an unintentional connection between the sea and the bilge *Yes*
 Is the screw shaft-tunnel water tight and fitted with a sluice door on bulkhead *Yes*

Manufacturer.

I hereby certify that the whole of the above are correct particulars of the Machinery and Boilers of the Iron (or ~~Wood~~) Screw (or ~~Paddle~~) Steam Vessel *Elizabeth Martin* owned by *A. Currie* of the Port of *Greenock* of *809* Tons Register, and *130* Registered Horse Power, and that they have been carefully inspected and examined by me at *S. H. India St. London* and found to be at this date, viz., *23 Decr* 18 *76* in good order and safe working condition.

Amount of Fee for Survey ... £ : :

(Travelling Expenses, if any, £)

Engineer Surveyor to Lloyd's Register of Shipping.