

LLOYD'S REGISTER OF BRITISH AND FOREIGN SHIPPING.

ENGINEER SURVEYOR'S REPORT ON MACHINERY.

ENGINES.

Description *Compound Inverted*
 Made by *Palmer's Company*
 When *1870* At *Newcastle*
 Diameter of cylinders *25 1/4* Length of stroke *30*
 No. of revolutions per minute *65*
 Point of cut off *5/8 stroke*
 Diameter of screw shaft *8 inches*
 Diameter of crank shaft journals *7 3/4 inches*
 Diameter of screw, or of paddle wheel *11 feet*
 Pitch of screw *from 16 to 18 feet*
 No. of blades, *3* Total surface *43 sq feet*
 No. of bilge pumps *2* and sizes *3 3/4 dia*
 Do they pump from each compartment *Engine Room only*

Are all the bilge suction pipes fitted with roses *yes*
 No. of feed pumps *2* and sizes *3 3/4 dia*
 What gauges are there attached to the engines and boilers ... *2 Steam & Eng Room, 1 in Strokehold 1 Vacuum*
 Description and size of Donkey Pumps ... *1 Comp gauge 4 1/2 dia 8 stroke*
 Where do they pump from ... *Bilge & Sea*
 No. of bilge injections *one* and sizes *3"*
 Are they connected to air, or circulating pumps *Circulating*
 Is there a hand pump in the engine room *no*
 Can it be worked by the main engines
 Is there a deck hose of sufficient length to reach to any part of the vessel *yes*

MAIN BOILERS.

Number *Two* Description *Cylindrical*
 Made by *Vict & Co's Eng Works Co Ltd*
 When *1874* At *London*
 Working pressure *75 lbs*
 Tested by hydraulic pressure to *150 lbs*, Date *15/5/77*
 Description of super-heating apparatus *none*
 Can each boiler be worked separately *yes*

Can the super-heater be shut off and the boilers worked separately
 Description and area of safety valves on each boiler *2 Adams patent*
 No. of square feet of fire-grate surface in each boiler *25 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 *yes*

DONKEY BOILER.

Description *Vertical, 2 cross tubes*
 Where fixed *On Deck*
 Working pressure *40 lbs*

Tested by hydraulic pressure to *not ascertained* Date
 Description and area of safety valves *Deadweight 4 sq ft*
 No. of square feet of fire grate *7.8 sq 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 ... *Common cocks and screw down valves*
 Are they fixed sufficiently high on the ship's side to be seen without lifting the stoke hold plates *yes*
 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 *none*
 How are they protected
 When were the stern tube, propeller, screw shaft, and all connections examined in dry dock *At this Survey*
 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 *no tunnel*

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 *Europa* owned by *London Steamship Company*
 of the Port of *London* of *424* Tons Register, and *1440* Registered Horse Power,
 and that they have been carefully inspected and examined by me at *London*
 and found to be at this date, viz., *June 11th* 18 *77* in good order and safe working condition.

Amount of Fee for Survey ... £ *7 : 0 : 0*
 (Travelling Expenses, if any, £ *7/4/77*)

James Melton
 Engineer Surveyor to Lloyd's Register of Shipping.