

LLOYD'S REGISTER OF BRITISH AND FOREIGN SHIPPING.

ENGINEER SURVEYOR'S REPORT ON MACHINERY.

ENGINES.

Rev 20/11/76

Description *Inverted Direct Acting Surface Condenser*
 Made by *Messrs J & W Hawthorn*
 When *1864* At *Newcastle*
 Diameter of cylinder *2 cys 38"* Length of stroke *30"*
 No. of revolutions per minute *About 65*
 Point of cut off *About 3/4ths of stroke*
 Diameter of screw shaft *8"*
 Diameter of crank shaft journals *7 3/4" Tunnel shaft 7 5/8"*
 Diameter of screw, or of paddle wheel *11'-0"*
 Pitch of screw *17 1/2 to 19 1/2 feet*
 No. of blades, *3* Total surface *in*
 No. of bilge pumps *2* and sizes *4 x 8 stroke Single Acting*
 Do they pump from each compartment *From engine room only*

Are all the bilge suction pipes fitted with roses *Yes*
 No. of feed pumps *3* and sizes *4 x 18 stroke Single Acting*
 What gauges are there attached to the engines and boilers ... *3 Steam 1 Vacuum*
 Description and size of Donkey Pumps ... *No 1 - pump 8" dia x 12 stroke Double Acting No 2 - 4" x 8" Single Acting No 1 - draws from Stalkhole and tanks No 2 draws from engine room & sea*
 Where do they pump from ...
 No. of bilge injections *1* and sizes *1 1/4 dia*
 Are they connected to air, or circulating pumps *Air Pump*
 Is there a hand pump in the engine room *Small donkey works by hand*
 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 *One* Description *Compound Multitubular*
 Made by *Messrs J & W Hawthorn*
 When *Oct 1876* At *Newcastle*
 Working pressure *35 lbs*
 Tested by hydraulic pressure to *40 lbs* Date *21 Sep 1876*
 Description of super-heating apparatus *None*
 Can each boiler be worked separately *Only one boiler in ship*

Can the super-heater be shut off and the boilers worked separately *No Superheater*
 Description and area of safety valves on each boiler *Direct Spring Two on boiler Area of two valves 39.26*
 No. of square feet of fire-grate surface in each boiler *63 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 in tanks not accessible when vessel is loaded*

NO DONKEY BOILER ON BOARD

Description *None*
 Tested by hydraulic pressure to *None* Date *None*
 Description and area of safety valves *None*
 No. of square feet of fire grate *None*

PIPES, COCKS, AND CONNECTIONS.

Are all connections with the sea direct on the skin of the ship *All except sea cock for small donkey which is attached to copper stand pipe*
 Are they Kingston valves or common cocks ... *Common cocks and sluice 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 *None*
 When were the stern tube, propeller, screw shaft, and all connections examined in dry dock *Nov. 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 *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 *Charles Laffer* owned by *Messrs Bryn & Harris* of the Port of *London* of *479* Tons Register, and *90* Registered Horse Power, and that they have been carefully inspected and examined by me at *Newcastle & Liverpool on 14 Nov* and found to be at this date, viz., *November 14* 18 *76* in good order and safe working condition.

Amount of Fee for Survey *£ 4 : 10 : 0* Revised *£ 4 : 15 : 0*
 (Travelling Expenses, if any, £ *0 : 5 : 0*) by me *James J. Hall*

Engineer Surveyor to Lloyd's Register of Shipping.