

LLOYD'S REGISTER OF BRITISH AND FOREIGN SHIPPING.

ENGINEER SURVEYOR'S REPORT ON MACHINERY.

ENGINES.

Description *Compound. Inverted. Surface Condensing* Are all the bilge suction pipes fitted with roses *Yes*
 Made by *J. Scott & Sons* No. of feed pumps *2* and sizes *3 1/2 x 18 1/2 the Single Acting*
 When *Nov 18/5* At *Swansea* What gauges are there attached to the engines and boilers ... *3 Steam*
 Diameter of cylinder *2 1/2 x 48 1/2* Length of stroke *36"* *1 Vacuum*
 No. of revolutions per minute *About 65* Description and size of Donkey Pumps ... *Double Acting. No 1 - 8" dia x 12" stroke. No 2 - 3" dia x 6" stroke*
 Point of cut off *2 1/4 in.* Where do they pump from *No 1 - from Sea, engine room, fore hold. after hold, Condenser, after peak, ballast tank & after well. No 2 - ditto except from Sea*
 Diameter of screw shaft *8 1/2"* No. of bilge injections *1* and sizes *5"*
 Diameter of crank shaft journals *8 5/8"* Are they connected to air, or circulating pumps *Circulating pump*
 Diameter of screw, ~~or of paddle wheel~~ *12 x 6"* Is there a hand pump in the engine room *Yes*
 Pitch of screw *16 x 9"* Can it be worked by the main engines *No*
 No. of blades, *4* Total surface *45 sq feet* Is there a deck hose of sufficient length to reach to any part of the vessel *Yes*
 No. of bilge pumps *2* and sizes *4 x 18 1/2 the Single Acting*
 Do they pump from each compartment *from Sea, fore hold, engine room after hold & after well*

MAIN BOILERS.

No. *Two* Description *Cyl. Multitubular* Can the super-heater be shut off and the boilers worked separately *No Superheater*
 Made by *J. Scott & Co* Description and area of safety valves on each boiler *1 on each boiler. Lever & weight 20.63 sq in area*
 When *Nov 18/5* At *Swansea* No. of square feet of fire-grate surface in each boiler *34.5 sq feet*
 Working pressure *40 lbs* Are there separate blow off and brine cocks on each boiler, independent of those on the vessel's skin *Yes*
 Tested by hydraulic pressure to *140 lbs* Reported Date *Oct. 18/5* Are all pipes, cocks, roses, and pumps in connection with the machinery accessible at all times. *Yes*
 Description of super-heating apparatus *None*
 Can each boiler be worked separately *Yes*

DONKEY BOILER.

Description *Vertical Water Tubes in furnace* Tested by hydraulic pressure to *140 lbs* Reported Date *Nov 18/5*
 Where fixed *In Stokehole* Description and area of safety valves *Direct weight. 5.43 sq in area*
 Working pressure *50 lbs* No. of square feet of fire grate *10.5 sq feet*

PIPES, COCKS, AND CONNECTIONS.

Are all connections with the sea direct on the skin of the ship *Yes* What pipes are carried through the bunkers *None*
 Are they Kingston valves or common cocks ... *Stop valves and cocks* How are they protected *None*
 Are they fixed sufficiently high on the ship's side to be seen without lifting the stoke hold plates *No* When were the stern tube, propeller, screw shaft, and all connections examined in dry dock *April 18/4*
 Are the discharge pipes above or below the deep water line *Above* Are the pipes, cocks, and valves arranged so as to prevent an unintentional connection between the sea and the bilge *Yes*
 Are they each fitted with a discharge valve on the plating of the vessel *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 *John Bender* owned by *D. Begbie*
 of the Port of *London* of *1138* Tons Register, and *98* Registered Horse Power,
 and that they have been carefully inspected and examined by me at *London*
 and found to be at this date, viz., *14th April* 18 *94* in good order and safe working condition.

Amount of Fee for Survey ... £ *5:5:11*

(Travelling Expenses, if any, £)

(1000/31/7/76.)

Engineer Surveyor to Lloyd's Register of Shipping.