

# LLOYD'S REGISTER OF BRITISH AND FOREIGN SHIPPING.

## ENGINEER SURVEYOR'S REPORT ON MACHINERY.

### ENGINES.

Description *Compound, Inverted.*  
 Made by *Black Hawthorn & Co*  
 When *Dec 18 77* At *Newcastle*  
 Diameter of cylinder *32 & 62* Length of stroke *36*  
 No. of revolutions per minute *60*  
 Point of cut off *5/8th stroke*  
 Diameter of screw shaft *10*  
 Diameter of crank shaft journals *10 1/2*  
 Diameter of screw, ~~or of paddle wheel~~ *14.9*  
 Pitch of screw *15.6*  
 No. of blades, *4* Total surface *52 sq feet*  
 No. of bilge pumps *2* and sizes *3 5/8 x 18 stroke*  
 Do they pump from each compartment *Eng room bilge, aft well & fore peak*

Are all the bilge suction pipes fitted with roses *yes*  
 No. of feed pumps *2* and sizes *3 5/8 dia x 18 str*  
 What gauges are there attached to the engines and boilers ... *1 Steam each boiler Stokato 15. 1 V in Eng Room.*  
 Description and size of Donkey Pumps *(1) Ballast, 8" x 12" 2 A (2) Boiler 4" x 10" 2 A*  
 Where do they pump from *(1) From Tanks, Eng Room, Bilge & Sea (2) Sea, Hotwell, & Room bilge aft well & fore peak.*  
 No. of bilge injections *(1)* and sizes *4 1/2 dia.*  
 Are they connected to air, or circulating pumps *circulating*  
 Is there a hand pump in the engine room *No, Boiler Donkey*  
 Can it be worked by the main engines *Can be used as such*  
 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 *Black Hawthorn & Co*  
 When *Dec. 18 77* At *Newcastle*  
 Working pressure *65 lbs per sq inch*  
 Tested by hydraulic pressure to *130 lbs*, Date *Oct 17 77*  
 Description of super-heating apparatus *None. Hot steam chest attached to each boiler*  
 Can each boiler be worked separately *yes*

Can the super-heater be shut off and the boilers worked separately *No Superheater*  
 Description and area of safety valves on each boiler *2 Spring valves 4" dia = 25.2 sq"*  
 No. of square feet of fire-grate surface in each boiler *48 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. *except roses in fore peak.*

### DONKEY BOILER.

Description *Vertical cylindrical 2 constr tubes*  
 Where fixed *Stokehold*  
 Working pressure *50 lbs*

Tested by hydraulic pressure to *130 lbs*, Date *22nd Oct 77*  
 Description and area of safety valves *18 lb. 2 3/8 dia. 8.44*  
 No. of square feet of fire grate *16.9 sq feet*

### PIPES, COCKS, AND CONNECTIONS.

Are all connections with the sea direct on the skin of the ship *yes, only one valve enclosed in Spence's patent chest to which all other connections are made.*  
 Are they Kingston valves or common cocks ... *yes*  
 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 *yes*  
 Are they each fitted with a discharge valve on the plating of the vessel *yes*  
 Manufacturer. *Black Hawthorn & Co*

What pipes are carried through the bunkers *none*  
 How are they protected *new*  
 When were the stern tube, propeller, screw shaft, and all connections examined in dry dock *yes, except small cock on valve chest which has been fitted to clear the chest in the event of its becoming choked with sand &c. Cock is fitted with a screwed cap over the end.*  
 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*  
 Safety valves ease *65* lift *66 1/2* close *65*  
 No accumulation.

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 *"Indus"* owned by *The Mercantile S. S. Co Ltd* of the Port of *London* of *1236.24* Tons Register, and *200* Registered Horse Power, and that they have been carefully inspected and examined by me at *Gateshead & Wallsend on Tyne* and found to be at this date, viz., *15th December 1877* in good order and safe working condition.

Amount of Fee for Survey ... £ *10: 0: 0* Paid by *Black Hawthorn & Co*  
 (Travelling Expenses, if any, £ *0: 5: 0*)

Engineer Surveyor to Lloyd's Register of Shipping.