

LLOYD'S REGISTER OF BRITISH AND FOREIGN SHIPPING.

ENGINEER SURVEYOR'S REPORT ON MACHINERY.

ENGINES.

Description *Compound Inverted Direct Acting Surface Cond.*
Made by *Messrs R. & W. Hawthorn*
When *July 1876* At *Newcastle*
Diameter of cylinder *26" x 4" of each* Length of stroke *36"*
No. of revolutions per minute *About 63*
Point of cut off *24" full gear 26" working position*
Diameter of screw shaft *8 1/2"*
Diameter of crank shaft journals *8 3/4" Tunnel shaft 8" dia*
Diameter of screw, or of paddle wheel *11" 0"*
Pitch of screw *14' 0" to 15' 0"*
No. of blades, *4* Total surface *144 sq feet*
No. of bilge pumps *2* and sizes *3" dia x 18" stroke Single Acting*
Do they pump from each compartment *From port side of engine room only*

Are all the bilge suction pipes fitted with roses *Yes*
No. of feed pumps *2* and sizes *3" dia x 18" stroke Single Acting*
What gauges are there attached to the engines and boilers ... *1 Steam gauge common to both boilers*
1 Vacuum and 1 Compound gauge
Description and size of Donkey Pumps ... *Feed donkey pump 4" dia 8" stroke Single Acting*
Ballast " " 8 " " " Double Acting
Where do they pump from ... *Feed donkey draws from sea, engine room*
Ballast donkey from sea, tanks, & starboard side of engine room
No. of bilge injections *1* and sizes *4" dia*
Are they connected to air, or circulating pumps *Circulating pump*
Is there a hand pump in the engine room *Yes Donkeys work 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 *6 Nos* Description *Cylindrical Multitubular*
Made by *Messrs R. & W. Hawthorn*
When *July 1876* At *Newcastle*
Working pressure *70 lbs*
Tested by hydraulic pressure to *110 lbs*, Date *May 15/76*
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 *Yes*
Description and area of safety valves on each boiler *Vertical spring safety valves*
Total area 11.13 sq in on each boiler
No. of square feet of fire-grate surface in each boiler *29.39 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 *All accessible except in fore hold one for tank when vessel is loaded*

DONKEY BOILER.

Description *Vertical (Water tubes in furnace)*
Where fixed *On deck*
Working pressure *45 lbs*

Tested by hydraulic pressure to *100 lbs*, Date *April 18/76*
Description and area of safety valves *Vertical weight 5.94 sq in*
No. of square feet of fire grate *12.5 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 ... *Kingston 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 *None*
How are they protected *"*
When were the stern tube, propeller, screw shaft, and all connections examined in dry dock *Now*
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*

R. W. Hawthorn 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 *Hoven* owned by *A. Pring* of the Port of *Newcastle* of *481* Tons Register, and *95* Registered Horse Power, and that they have been carefully inspected and examined by me at *Newcastle and Sunderland* and found to be at this date, viz., *July 15th* 18 *76* in good order and safe working condition.

Survey fee *£4-15-0*
Certificate *5-0-0* Received at *Sunderland*
5-0-0 by *HW 15/7/76*

Amos & Isaac W. Allison
Engineer Surveyors to Lloyd's Register of Shipping.

Report (if any) on Hull of Vessel. Port *Sunderland* No. *11463*

Builder's Signature, *James Haring*

Surveyor's Signature, *James Allison*
Surveyor to Lloyd's Register of British and Foreign Shipping.

