

LLOYD'S REGISTER OF BRITISH AND FOREIGN SHIPPING.

ENGINEER SURVEYOR'S REPORT ON MACHINERY.

ENGINES.

Per 31/8/76

Description *Compound, Inverted Direct Acting*
 Made by *J. Howden & Co.*
 When *1870* At *Glasgow*
 Diameter of cylinder *33" x 60* Length of stroke *39"*
 No. of revolutions per minute *65*
 Point of cut off *No expansion gear*
 Diameter of screw shaft *11 1/2"*
 Diameter of crank shaft journals *11"*
 Diameter of screw, *cast iron double fluted*
 Pitch of screw *Not ascertained*
 No. of blades, Total surface
 No. of bilge pumps *One* and sizes *5" dia. x 14" stroke*
 Do they pump from each compartment *Yes*

Are all the bilge suction pipes fitted with roses *Yes*
 No. of feed pumps *One* and sizes *5" dia. x 14" stroke*
 What gauges are there attached to the engines and boilers ... *One Steam Gauge to Steam pipe*
One Vacuum
One Steam to Boiler
 Description and size of Donkey Pumps ... *Double acting 4" dia x 9" stroke*
 Where do they pump from ... *From the Sea & Bilge*
 No. of bilge injections *One* and sizes *5"*
 Are they connected to air, or circulating pumps *To Circulating*
 Is there a hand pump in the engine room *Yes & Donkey worked*
 Can it be worked by the main engines *By hand*
 Is there a deck hose of sufficient length to reach to any part of the vessel *Yes*

MAIN BOILERS.

Number *One* Description *Round, Horizontal, Double ended*
 Made by *John & James Thomson*
 When *1876* At *Glasgow*
 Working pressure *65 lbs*
 Tested by hydraulic pressure to *130 lbs.* Date *May 11th 1876*
 Description of super-heating apparatus *None*
 Can each boiler be worked separately

Can the super-heater be shut off and the boilers worked separately
 Description and area of safety valves on each boiler *Two Direct Spring each 12.69 area.*
 No. of square feet of fire-grate surface in each boiler *84 ft*
 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*

Description *Now repaired Round Horizontal*
 Where fixed *On Upper Deck*
 Working pressure *40 lbs*

Tested by hydraulic pressure to , Date
 Description and area of safety valves *Direct weight*
 No. of square feet of fire grate *11 ft*

PIPES, COCKS, AND CONNECTIONS.

all connections with the sea direct on the skin of the ship *All except main injection valve which is fitted in Coal hold*
 They Kingston valves or common cocks ... *Screw down valves & cocks*
 fixed sufficiently high on ship's side to be seen without lifting the stoke hold *Main Blow off cock is under guard. It has not been fitted with*
 discharge pipes above or the deep water line *Above*
 each fitted with a discharge on the plating of the vessel *Yes*

What pipes are carried through the bunkers *Waste pipes to Coal hold*
 How are they protected *By strong lead casings*
 When were the stern tube, propeller, screw shaft, and all connections examined in dry dock *May 15th 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 *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 *"Atholl"* owned by *J. Warrack & Co.*
 of the Port of *Leith* of *1436.30* Tons Register, and *170* Registered Horse Power,
 and that they have been carefully inspected and examined by me at *Glasgow*
 and found to be at this date, viz., *Aug. 16th* 1876 in good order and safe working condition.

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

(10/176.)
 Cert written
 2.9.76.

IRON 467-0467