

LLOYD'S REGISTER OF BRITISH AND FOREIGN SHIPPING.

ENGINEER SURVEYOR'S REPORT ON MACHINERY.

ENGINES.

Description *Compound, Inverted, Surface Condensing*
 Made by *W. Napier & Sons*
 When *18 1/2* At *Glasgow*
 Diameter of cylinder *1-30 x 1-54* Length of stroke
 No. of revolutions per minute *About 60*
 Point of cut off *26"*
 Diameter of screw shaft *9"*
 Diameter of crank shaft journals *9 3/4"*
 Diameter of screw, or of paddle wheel *14-11*
 Pitch of screw *15 1/2 ft*
 No. of blades, *4* Total surface *38 sq ft*
 No. of bilge pumps *2* and sizes *3" dia x 14" stroke*
 Do they pump from each compartment *from sea, engine room fore & main hold tank*

Are all the bilge suction pipes fitted with roses *Yes*
 No. of feed pumps *2* and sizes *3" dia x 14" stroke Single Acting*
 What gauges are there attached to the engines and boilers ... *3 Steam & 1 vacuum & 1 Compound*
 Description and size of Donkey Pumps ... *Double Acting 3" dia 24" No 2 dia 24"*
 Where do they pump from ... *No 1 from sea, engine room, fore hold main hold, tank & after hold No 2 sea, engine room, holds & tank*
 No. of bilge injections *1* and sizes *6 1/2*
 Are they connected to air, or circulating pumps *Circulating pump*
 Is there a hand pump in the engine room *Yes*
 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 *Two* Description *Cyl. Multitubular*
 Made by *Messrs W. Napier & Sons*
 When *18 1/2* At *Glasgow*
 Working pressure *63 lbs*
 Tested by hydraulic pressure to *120* reported Date *in*
 Description of super-heating apparatus *Annular*
 Can each boiler be worked separately *Yes*

Can the super-heater be shut off and the boilers worked separately *No*
 Description and area of safety valves on each boiler *2 Lbs & weight on each boiler Total area 28.2*
 No. of square feet of fire-grate surface in each boiler *37 sq 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. Except pipes & suction pipes in holds when coal is loaded*

DONKEY BOILER.

Description *Flat sided, Semicircular top & bottom Multitubular*
 Where fixed *On deck*
 Working pressure *41 lbs*

Tested by hydraulic pressure to *50 lbs* reported Date *in*
 Description and area of safety valves *Two Lbs & weight 7.08 sq in.*
 No. of square feet of fire grate *13.8 sq ft*

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 ... *Stop valves & 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 *Suction pipes to holds & ballast tanks*
 How are they protected *Wood casing*
 When were the stern tube, propeller, screw shaft, and all connections examined in dry dock *January 18 1/2*
 Are the pipes, cocks, and valves arranged so as to prevent an unintentional connection between the sea and the bilge *Yes. Extra cock fitted on donkey suction*
 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 *Courland* owned by *Leith, Hull & Hamburg Steamer Co* of the Port of *Leith* of *803* Tons Register, and *130* Registered Horse Power, and that they have been carefully inspected and examined by me at *London* and found to be at this date, viz., *5th February 18 1/2* in good order and safe working condition.

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