

LLOYD'S REGISTER OF BRITISH AND FOREIGN SHIPPING.

ENGINEER SURVEYOR'S REPORT ON MACHINERY.

ENGINES.

Description *Compound Inverted Direct Acting*
 Made by *Messrs A. Stephen & Sons*
 When *1877-8* At *Glasgow*
 Diameter of cylinder *32 1/2" x 42"* Length of stroke *27"*
 No. of revolutions per minute *80*
 Point of cut off
 Diameter of screw shaft *4"*
 Diameter of crank shaft journals *4 1/2"*
 Diameter of screw, or of paddle wheel *11' 0"*
 Pitch of screw *10" 6*
 No. of blades, *Four* Total surface *33 ft*
 No. of bilge pumps *Two* and sizes *3 1/2" dia x 13" stroke*
 Do they pump from each compartment *Yes*

Are all the bilge suction pipes fitted with roses *Yes*
 No. of feed pumps *Two* and sizes *3 1/2" dia x 13" stroke*
 What gauges are there attached to the engines and boilers ... *Two Steam, one Vacuum & one Compound*
 Description and size of Donkey Pumps ... *Double Acting 7" x 8" stroke*
 Where do they pump from ... *Sea, Bilge & Hotwell*
 No. of bilge injections *One* and sizes *3"*
 Are they connected to air, or circulating pumps *& circulating*
 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 *One* Description *Round Horizontal*
 Made by *A. Stephen & Sons*
 When *1877* At *Glasgow*
 Working pressure *60 lbs*
 Tested by hydraulic pressure to *120 lbs*, Date *Nov 16 1877*
 Description of super-heating apparatus *Part of Receiver enclosed in Smoke box*
 Can each boiler be worked separately

Can the super-heater be shut off and the boilers worked separately *No*
 Description and area of safety valves on each boiler *Two Direct Spring each 12.5 area*
 No. of square feet of fire-grate surface in each boiler *45 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*

DONKEY BOILER.

Description *Round Vertical*
 Where fixed *In Storehold*
 Working pressure *60 lbs*

Tested by hydraulic pressure to *120 lbs*, Date *Nov 16 1877*
 Description and area of safety valves *Direct Spring 7" area*
 No. of square feet of fire grate *9.6 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 ... *Screw down valves & cocks*
 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*

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 *On Slip previous to being launched*
 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 *"Letus"* owned by *Charles Anderson*
 of the Port of *Glasgow* of *515* Tons Register, and *80* Registered Horse Power,
 and that they have been carefully inspected and examined by me at *Glasgow*
 and found to be at this date, viz., *February 13 1878* in good order and safe working condition.

Amount of Fee for Survey £ *4 : 4 : 0*
 (Travelling Expenses, if any, £ *0*)

James Morrison
 Engineer Surveyor to Lloyd's Register of Shipping.
Aty Stephen & Sons