

LLOYD'S REGISTER OF BRITISH AND FOREIGN SHIPPING.

ENGINEER SURVEYOR'S REPORT ON MACHINERY.

ENGINES.

Description *Vertical Compound*
 Made by *Maudslayi Sons & Field*
 When *1871* At *London*
 Diameter of cylinders *29 & 56* Length of stroke *33*
 No. of revolutions per minute *62*
 Point of cut off *$\frac{1}{2}$ & $\frac{3}{8}$*
 Diameter of screw shaft *$9\frac{1}{4}$ "*
 Diameter of crank shaft journals *$9\frac{1}{4}$ "*
 Diameter of screw, or of paddle wheel *$13\frac{1}{2}$ "*
 Pitch of screw *$14\frac{1}{2}$ "*
 No. of blades, *4* Total surface *$52\frac{1}{2}$ sq ft*
 No. of bilge pumps *2* and sizes *$5" \times 9"$*
 Do they pump from each compartment *yes*

Are all the bilge suction pipes fitted with roses *yes*
 No. of feed pumps *2* and sizes *$5" \times 9"$*
 What gauges are there attached to the engines and boilers ... *1 Steam & 1 Gauge in Engine Room*
2 Steam in Stokehole
 Description and size of Donkey Pumps ... *2 off $14" \times 6"$ diam x —*
 Where do they pump from ... *Sea, Tanks, Aft Well, Engine Room, Centre & Wings*
 No. of bilge injections *1* and sizes *$4\frac{1}{2}"$*
 Are they connected to air, or circulating pumps *Cir*
 Is there a hand pump in the engine room *No*
 Can it be worked by the main engines *—*
 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 *Maudslayi Sons & Field*
 When *1871* At *London*
 Working pressure *60 lbs*
 Tested by hydraulic pressure to *130 lbs* Date *Nov 71*
 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 *No Superheater*
 Description and area of safety valves on each boiler ... *One dead weight, and one lever valves $4\frac{1}{2}"$ diam*
 No. of square feet of fire-grate surface in each boiler *$60\frac{1}{2}$ 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*

DONKEY BOILER.

Description *Vertical Cylindrical*
 Where fixed *Stokehole*
 Working pressure *42 lbs*

Tested by hydraulic pressure to *Not ascertained*
 Description and area of safety valves *1 Gauge $3"$ diam = $\frac{1}{2}$ area*
 No. of square feet of fire grate *$14\frac{1}{2}$ sq ft* *{ Lever & Weight*

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*
 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 *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 *19th March 1878*
 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 *Rafalgas* owned by *Nelson Donkin & Co*
 of the Port of *London* of *973* Tons Register, and *120* Registered Horse Power,
 and that they have been carefully inspected and examined by me at *Newcastle*
 and found to be at this date, viz., *March 23rd 1878* in good order and safe working condition.

Amount of Fee for Survey ... £ —

(Travelling Expenses, if any, £ —)

John Brockat
 Engineer Surveyor to Lloyd's Register of Shipping.

North Shields