

LLOYD'S REGISTER OF BRITISH AND FOREIGN SHIPPING.

ENGINEER SURVEYOR'S REPORT ON MACHINERY.

ENGINES.

Dec 6/1877

Report (if any) on Hull of Vessel. *Port of Newcastle No. 3912*
 Report on Engines *No. 35*

Description *Compound Inverted Surface Condensing*
 Made by *The North Eastern Marine Engineers Co.*
 When *Nov* 18*77* At *Sunderland*
 Diameter of cylinder *38* Length of stroke *45*
 No. of revolutions per minute *About 50*
 Point of cut off *Point 5/8 of stroke*
 Diameter of screw shaft *12"*
 Diameter of crank shaft journals *12" Tunnel shaft 11 1/2"*
 Diameter of screw, or of paddle wheel *16.3*
 Pitch of screw *20.0*
 No. of blades, *4* Total surface *About 84 sq feet*
 No. of bilge pumps *2* and sizes *4 1/4 x 4 5/8 the Single Acting*
 Do they pump from each compartment *But pump draws from engine room fore hold & after hold. 2nd pump draws from engine room only*

Are all the bilge suction pipes fitted with roses *Yes*
 No. of feed pumps *2* and sizes *4 1/4 x 4 5/8 the Single Acting*
 What gauges are there attached to the engines and boilers ... *5 Steam 1 Vacuum*
 Description and size of Donkey Pumps ... *2 1/2 Pump 6 dia x 7 1/2 the Double Acting 2 1/2 4 x 6*
 Where do they pump from ... *Ballast tanks, wing & Centre of engine room, fore hold & after hold*
 No. of bilge injections *1* and sizes *1 1/2 inside*
 Are they connected to air, or circulating pumps *Circulating Pump*
 Is there a hand pump in the engine room *Donkey 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 *Two* Description *Cylindrical Multitubular*
 Made by *The N. E. M. Eng. Co.*
 When *Nov* 18*77* At *Sunderland*
 Working pressure *75 lbs*
 Tested by hydraulic pressure to *150 lbs*, Date *8th Nov 1877*
 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 ... *Two spring valves on each boiler Area of two valves 31.8*
 No. of square feet of fire-grate surface in each boiler *55 1/2 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 except friction pipes & rods in holds where ship is loaded*

Two DONKEY BOILERS Made by Messrs Taylor & Co, Birkenhead

Description *Vertical Water tubes in furnaces*
 Where fixed *In stokehold*
 Working pressure *75 lbs*

Tested by hydraulic pressure to *150 lbs*, Date *20th Sept 1877*
 Description and area of safety valves *1 Spring valve on each boiler 7.06 Area of one valve*
 No. of square feet of fire grate *11.04 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 ... *Stop valves and 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 *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 fore hold & fore tank*
 How are they protected *Under ceiling*
 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*

John E. M. Eng. Co. Manufacturers of Engines & Marine Boilers only
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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 "*Castello*" owned by *Clouston & Co* of the Port of *London* of *1482.58* Tons Register, and *250* Registered Horse Power, and that they have been carefully inspected and examined by me at *Stockton, Sunderland & Middlesbrough* and found to be at this date, viz., *5th Dec* 18*77* in good order and safe working condition.

Amount of Fee for Survey ... £12:10:0
 Certificate 0.5
 Travelling Expenses, if any, £1:10:0

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

