

# LLOYD'S REGISTER OF BRITISH AND FOREIGN SHIPPING.

## ENGINEER SURVEYOR'S REPORT ON MACHINERY.

### ENGINES.

Description *Compound Inverted Surface Condensing*  
 Made by *The North Eastern Marine Engineers Co.*  
 When *Nov* 18*74* 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. ft.*  
 No. of bilge pumps *2* and sizes *4 1/4 x 4 1/2 the Single Acting*  
 Do they pump from each compartment *1st 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 1/2 the Single Acting*  
 What gauges are there attached to the engines and boilers ... *5 Steam 1 Vacuum*  
 Description and size of Donkey Pumps ... *1st Pump 6 1/2 x 7 1/2 the Double Acting 2nd 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*74* At *Sunderland*  
 Working pressure *75 lbs*  
 Tested by hydraulic pressure to *150 lbs*, Date *8th Nov 1874*  
 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. 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 friction pipes & hoses in holds where ship is loaded*

Description *Two DONKEY BOILERS Made by Messrs Taylor & Co. Birkenhead*  
 Tested by hydraulic pressure to *150 lbs*, Date *20th Sept 1874*  
 Description and area of safety valves *1 Spring valve on each boiler 4.06*  
 No. of square feet of fire grate *11.04 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 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*

*Pro N. E. M. Eng. Co. Manufacturers of Engines & Main Boilers only*  
*Alau*

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 *Clarkson & 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*74* in good order and safe working condition.

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

Engineer Surveyor to Lloyd's Register of Shipping.