

REPORT ON MACHINERY.

Port of *Glasgow*

Received at London Office *JUL 13 MAY 1902*

Date, first Survey *13 June '01* Last Survey *5 May 1902*

No. in Survey held at *Glasgow*

Reg. Book. *81* on the *S. S. "Clarence"*

(Number of Visits *15*) Tons Gross *554.52* Net *223.46*

Master *Jones* Built at *Bowling* By whom built *Scott & Sons*

When built *1902*

Engines made at *Glasgow* By whom made *Arm & Duncan*

when made *1902*

Boilers made at *Glasgow* By whom made *Arm & Duncan*

when made *1902*

Registered Horse Power Owners *J. Rank Ltd*

Port belonging to *Hull*

Nom. Horse Power as per Section 28 *80.5* Is Refrigerating Machinery fitted *no*

Is Electric Light fitted *no*

ENGINES, &c.—Description of Engines *Triple Expansion Surface Cond.* No. of Cylinders *3* No. of Cranks *3*
 Dia. of Cylinders *14" - 22 1/2" - 37"* Length of Stroke *27"* Revs. per minute *94* Dia. of Screw shaft *7.8"* Lgth. of stern bush *2'-8"*
 Dia. of Tunnel shaft *6.8"* Dia. of Crank shaft journals *7.15"* Dia. of Crank pin *7 1/4"* Size of Crank webs *4 1/2" x 10 1/2"* Dia. of thrust shaft under collars *7 1/4"* Dia. of screw *10'-0"* Pitch of screw *12'-3"* No. of blades *4* State whether moveable *no* Total surface *34 sq*
 No. of Feed pumps *2* Diameter of ditto *2 1/2"* Stroke *13 1/2"* Can one be overhauled while the other is at work *yes*
 No. of Bilge pumps *2* Diameter of ditto *2 1/2"* Stroke *13 1/2"* Can one be overhauled while the other is at work *yes*
 No. of Donkey Engines *2* Sizes of Pumps *4 1/2" x 2 3/4" x 4" 6" x 5 3/4" x 6"* No. and size of Suctions connected to both Bilge and Donkey pumps *2 - 2"*
 In Engine Room *2 - 2" & 1 - 2 1/4"* In Holds, &c. *2 - 2"*

No. of bilge injections *1* sizes *3 1/4"* Connected to condenser, or to circulating pump *line* Is a separate donkey suction fitted in Engine room & size *yes 2"*
 Are all the bilge suction pipes fitted with roses *yes* Are the roses in Engine room always accessible *yes* Are the sluices on Engine room bulkheads always accessible *yes*
 Are all connections with the sea direct on the skin of the ship *yes* Are they Valves or Cocks *Both*
 Are they fixed sufficiently high on the ship's side to be seen without lifting the stokehold plates *yes* Are the discharge pipes above or below the deep water line *above*
 Are they each fitted with a discharge valve always accessible on the plating of the vessel *yes* Are the blow off cocks fitted with a spigot and brass covering plate *yes*
 What pipes are carried through the bunkers *Hold suctions* How are they protected *wood casing*
 Are all pipes, cocks, valves, and pumps in connection with the machinery and all boiler mountings accessible at all times *yes*
 Are the bilge suction pipes, cocks, and valves arranged so as to prevent any communication between the sea and the bilges *yes*
 When were stern tube, propeller, screw shaft, and all connections examined in dry dock *before launch* Is the screw shaft tunnel watertight *yes*
 Is it fitted with a watertight door *yes* worked from *yes*

BOILERS, &c.—(Letter for record *(5)* Total Heating Surface of Boilers *1350 sq* Is forced draft fitted *no*
 No. and Description of Boilers *1 Cylind. Mult. Single-ended* Working Pressure *160 lbs* Tested by hydraulic pressure to *320 lbs*
 Date of test *31-12-01* Can each boiler be worked separately *yes* Area of fire grate in each boiler *49 sq* No. and Description of safety valves to each boiler *2 Direct Spring* Area of each valve *6.93"* Pressure to which they are adjusted *165 lbs* Are they fitted with easing gear *yes*
 Smallest distance between boilers or uptakes and bunkers or woodwork *3'-6"* Mean dia. of boilers *13'-0"* Length *9'-6"* Material of shell plates *Steel*
 Thickness *1"* Range of tensile strength *37-32 tons* Are they welded or flanged *no* Descrip. of riveting: cir. seams *double* long. seams *little*
 Diameter of rivet holes in long. seams *1"* Pitch of rivets *6 3/4"* Lap of plates or width of butt straps *14 1/2"*
 Per centages of strength of longitudinal joint *86.7* Working pressure of shell by rules *161 lbs* Size of manhole in shell *15" x 11 1/2"*
 Size of compensating ring *6 1/2" x 1"* No. and Description of Furnaces in each boiler *3 plain* Material *Steel* Outside diameter *40"*
 Length of plain part *6'-3"* Thickness of plates *3/4"* Description of longitudinal joint *welded* No. of strengthening rings *partial at bottom*
 Working pressure of furnace by the rules *167 lbs* Combustion chamber plates: Material *Steel* Thickness: Sides *9/16"* Back *9/16"* Top *9/16"* Bottom *5/8"*
 Pitch of stays to ditto: Sides *7 3/4" x 7 3/4"* Back *7 3/4" x 7 3/4"* Top *7 3/4" x 7 3/4"* If stays are fitted with nuts or riveted heads *no* Working pressure by rules *182 lbs*
 Material of stays *Steel* Diameter at smallest part *1 1/2"* Area supported by each stay *60"* Working pressure by rules *165 lbs* End plates in steam space: *yes*
 Material *Steel* Thickness *15/16"* Pitch of stays *15' x 16"* How are stays secured *all nuts & washers* Working pressure by rules *170 lbs* Material of stays *Steel*
 Diameter at smallest part *2 3/4"* Area supported by each stay *240"* Working pressure by rules *175 lbs* Material of Front plates at bottom *Steel*
 Thickness *3/4"* Material of Lower back plate *Steel* Thickness *3/4"* Greatest pitch of stays *13 1/2"* Working pressure of plate by rules *284 lbs*
 Diameter of tubes *3 1/2"* Pitch of tubes *4 1/2" x 4 1/2"* Material of tube plates *Steel* Thickness: Front *3/4"* Back *3/4"* Mean pitch of stays *10 1/2"*
 Pitch across wide water spaces *14 1/2"* Working pressures by rules *195 lbs* Girders to Chamber tops: Material *Iron* Depth and thickness of girder at centre *6 1/2" x 2"* Length as per rule *27 3/4"* Distance apart *7 3/4"* Number and pitch of Stays in each *2 - 7 3/4"*
 Working pressure by rules *177 lbs* Superheater or Steam chest; how connected to boiler *none* Can the superheater be shut off and the boiler worked separately *yes*
 Diameter *-* Length *-* Thickness of shell plates *yes* Material *yes* Description of longitudinal joint *yes* Diam. of rivet holes *yes* Pitch of rivets *yes* Working pressure of shell by rules *yes* Diameter of flue *yes* Material of flue plates *yes* Thickness *yes*
 If stiffened with rings *yes* Distance between rings *yes* Working pressure by rules *yes* End plates: Thickness *yes* How stayed *yes*
 Working pressure of end plates *yes* Area of safety valves to superheater *yes* Are they fitted with easing gear *yes*

SPARE GEAR. State the articles supplied:— 2 Top end connecting rod bolts + 2 bottom end do. 2 main bearing bolts. 1 set of coupling bolts. 1 set of Bilge + feed pump valves. A quantity of assorted bolts + nuts + iron of various sizes.

Dates of Survey while building		During progress of work in shops - -		During erection on board vessel - -		Total No. of visits	Is the approved plan of main boiler forwarded herewith	
1901:	June 13.	19. 28.	July. 29.	Aug. 19.	Sept. 19.	Oct. 10. 14.		
	17. 23. 25.	Nov. 11.	Dec. 14 9.	21. 23.	1902:	Jan. 9. 11. 30.	Feb. 21. 22.	
	25.	Mar. 4.	Apr. 16. 24.	May. 5.				Yes.
					donkey			

Material of screw shaft iron Is the screw shaft fitted with a continuous liner the whole length of the stern tube Yn
Is the after end of the liner made water tight in the propeller boss Yn If the liner is in more than one length are the joints burned ✓
If the liner does not fit tightly at the part between the bearings in the stern tube, is the space charged with a plastic material insoluble in water and non-corrosive ✓ If two liners are fitted, is the shaft lapped or protected between the liners ✓

In my opinion it is eligible to be classed in the Register Book with the record of **L.M.G. 5.02.**

ES. Pla
14.5.02

A J Barrett. & J W Dimmock
Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

MACHINERY CERTIFICATE
WRITTEN. 20.5

Assigned

Lloyd's Register
Foundation