

REPORT ON MACHINERY.

Port of Belfast

THUR 5 NOV 1896

Received at London Office

18

No. in Survey held at Belfast
on the Steel Screw Steamer "Magician"Date, first Survey July 28thLast Survey 30th October 1896(Number of Visits 25)Tons Gross 5065
Net 3271Master Robert H. Jones Built at BelfastBy whom built Messrs Workman Clark & Co Ltd When built 1896Engines made at BelfastBy whom made Messrs Workman Clark & Co Ltd when made 1896Boilers made at "By whom made " when made 1896Registered Horse Power 500Owners Messrs J & J HarrisonPort belonging to LiverpoolNom. Horse Power as per Section 28 424

ENGINES, &c.—

Description of Engines Triple ExpansionNo. of Cylinders Three

Diameter of Cylinders 25" 41" 68" Length of Stroke 54" Revolutions per minute 65 Diameter of Screw shaft as per rule 13.25"
 Diameter of Tunnel shaft as fitted 13 1/2" Diameter of Crank shaft journals 14 1/4" Diameter of Crank pin 14 1/2" Size of Crank webs 19 1/2" x 10"
 Diameter of screw 17' 6" Pitch of screw 19' 0" No. of blades 44 State whether moveable Yes Total surface 90"
 No. of Feed pumps 2 Diameter of ditto 4" Stroke 24" Can one be overhauled while the other is at work Yes
 No. of Bilge pumps 2 Diameter of ditto 4 1/2" Stroke 24" Can one be overhauled while the other is at work Yes
 No. of Donkey Engines Three Sizes of Pumps win. dupl. feed 10" x 8" x 18" No. and size of Suctions connected to both Bilge and Donkey pumps
 in Engine Room Three 3 1/2" In Holds, &c. No 1 hold, two 3 1/2" No 2 hold, & No 3
hull hold, two 3 1/2" No 4 hold, two 3 1/2" After hold well, one 3 1/2" Tunnel well, one 3"
 No. of bilge injections 1 sizes 4" Connected to condenser, or to circulating pump Cir. p. Is a separate donkey suction fitted in Engine room & size Yes 3 1/2"
 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 None
 Are all connections with the sea direct on the skin of the ship Yes Are they Valves or Cocks Larger valves, smaller cocks.
 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 Forward bilge suction pipes How are they protected Strong wooden 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 Deck level

BOILERS, &c.—

(Letter for record 3)Total Heating Surface of Boilers 7294 sq ftNo. and Description of Boilers Two double endedWorking Pressure 180 lbs Tested by hydraulic pressure to 360 lbs

Date of test 23.7.96 Can each boiler be worked separately Yes Area of fire grate in each boiler 110 sq ft No. and Description of safety valves to
 each boiler Two Cockburn's Area of each valve 11.04 Pressure to which they are adjusted 185 lbs Are they fitted
 with easing gear Yes Smallest distance between boilers or uptakes and bunkers or woodwork 11" (3" air casing) Mean diameter of boilers 15' 0"
 Length 14' 0" Material of shell plates Steel Thickness 1 1/16" Description of riveting: circum. seams Ends double, long seams
 Diameter of rivet holes in long. seams 1 1/2" Pitch of rivets 10" x 5" Lap of plates or width of butt straps 21 3/4" x 1 3/32"
 Per centages of strength of longitudinal joint 91.5% Working pressure of shell by rules 198 lbs Size of manhole in shell 16" x 12"
 Size of compensating ring 27" x 23" x 1 1/16" No. and Description of Furnaces in each boiler Six Morrison Material Steel Outside diameter 44 1/8"
 Length of plain part top 9 1/16" Thickness of plates bottom 9 1/16" Description of longitudinal joint Welded No. of strengthening rings —
 Working pressure of furnace by the rules 200 lbs Combustion chamber plates: Material Steel Thickness: Sides 9/16" Back — Top 9/16" Bottom 1/16"
 Pitch of stays to ditto: Sides 7 7/8" x 7 3/4" Back — Top 7 7/8" x 7 3/4" If stays are fitted with nuts or riveted heads Nuts inside Working pressure by rules 182 lbs
 Material of stays Steel Diameter at smallest part 1 3/8" Area supported by each stay 59" Working pressure by rules 200 lbs End plates in steam space:
 Material Steel Thickness 1 1/8" Pitch of stays 15 3/4" max How are stays secured Double nut Working pressure by rules 241 Material of stays Steel
 Diameter at smallest part 2 1/2" Area supported by each stay 244" Working pressure by rules 186 lbs Material of Front plates at bottom Steel
 Thickness 1 1/8" Material of Lower back plate — Thickness — Greatest pitch of stays As appd Working pressure of plate by rules 180 lbs
 Diameter of tubes 3 3/4" Pitch of tubes 4 7/8" Material of tube plates Steel Thickness: Front 7/8" Back 7/8" Mean pitch of stays 9 1/4"
 Pitch across wide water spaces 14 1/4" Working pressures by rules 180 lbs Girders to Chamber tops: Material Steel Depth and
 thickness of girder at centre 7 1/2" x 1 1/2" sup Length as per rule 40 1/4" Distance apart 7 3/4" x 7" Number and pitch of Stays in each 4 at 7 3/8"
 Working pressure by rules 180 lbs Superheater or Steam chest; how connected to boiler — Can the superheater be shut off and the boiler worked
 separately — Diameter — Length — Thickness of shell plates — Material — Description of longitudinal joint — Diam. of rivet
 holes — Pitch of rivets — Working pressure of shell by rules — Diameter of flue — Material of flue plates — Thickness —
 If stiffened with rings — Distance between rings — Working pressure by rules — End plates: Thickness — How stayed —
 Working pressure of end plates — Area of safety valves to superheater — Are they fitted with easing gear —

SPARE GEAR. State the articles supplied:— Piston crank shaft. Sail shaft. Propeller box & blades. Set top & bottom end brasses & bolts. Air & circulating pump buckets rods & valves comp. Two feed & bilge pump valves & seats. H.P. piston packing. Springs for other pistons. Slide valve sp. H.P. eccentric & strap complete. Two main bearing bolts & nuts. Three sets coupling bolts. 50 Condenser tubes. Escape valve springs. Set main & donkey escape valve springs. Fire bars. Bolts. Tube stoppers. Tubes. Assorted iron etc.

The foregoing is a correct description,

FOR WORKMAN, CLARK & CO., LIMITED. Manufacturer.

M. A. Self.

Dates of Survey while building		
During progress of work in shops -	{	Feb'y 28. March 16 th April 13. 15. 23. May 6. 11. 28 June 9. 18. July 2. 9. 23
During erection on board vessel -	{	August 14. 24. 28. Sept. 3. Oct. 1. 5. 9. 15. 21. 23. 28. 30
Total No. of visits		25

The engines had been erected in the works when the erecting shop was burnt down in July & it was thought that they might have sustained damage. The engines were accordingly taken apart & each part carefully examined. The piston rods, connecting rods, valve rods & spindles, & all the shafting were tried in the lathe found true & cleaned up where they had been discoloured. The cylinders were tested by steam pressure, & the condenser by water pressure & all the castings & other parts carefully examined; & the shafting was rebedded in the white metal bearings. The machinery worked well during a long test under steam at the moorings, & afterwards on the trial trip.

The approved tracings of main & double bottom & of pumping arrangements in engine room & holds, and the forging certificate for the shafting are enclosed.

Certificate (if required) to be sent to Belfast

Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Assigned

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Foundation