

REPORT ON MACHINERY

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No. 3464

Received at London Office

No. in Survey held at Belfast Date, first Survey 22 Nov. 1887 Last Survey 11th Aug. 1888
 Reg. Book. 590 on the Steel Screw Steamer "Bostonian" (Number of Visits 48) Net 2925 Tons Gross 4473
 Master W. H. Grant Built at Belfast By whom built Harland & Wolff When built 1888
 Engines made at Belfast By whom made Harland & Wolff when made 1888
 Boilers made at Belfast By whom made Harland & Wolff when made 1888
 Registered Horse Power 500 Owners Bostonian S.S. Co. Ltd. Port belonging to Liverpool
 (7 Seyland & Co.)

ENGINES, &c.—

Description of Engines Triple Expansion three Cylinders & Three Cranks
 Diameter of Cylinders 29, 45, 44 Length of Stroke 60" No. of Rev. per minute 65 Point of Cut off, High Pressure 3/8" M.P. 140" Low Pressure 36"
 Diameter of Screw shaft 15 1/2" Diam. of Tunnel shaft 14 3/4" Diam. of Crank shaft journals 15 1/2" Diam. of Crank pin 15 1/2" size of Crank webs 21 x 11 1/2"
 Diameter of screw 19'-0" Pitch of screw 24'-0" No. of blades 4 state whether moveable yes total surface 95 sq. ft.
 No. of Feed pumps 2 diameter of ditto 3 3/4" Stroke 35" Can one be overhauled while the other is at work yes
 No. of Bilge pumps 2 diameter of ditto 4" Stroke 35" Can one be overhauled while the other is at work yes
 Where do they pump from Sea from hotwell, Bilge from all bilges & forward bal. tank.
 No. of Donkey Engines Two 12 cyl. 12" at 5" pitch & 3" suet. Where do they pump from Sea, Ballast, Exhaust
Pulsometer 2 1/2" & 1 1/2" 5 1/2" 10" 3 1/2" 1 1/2"
fresh water tanks, hotwell, all bilges and boilers
 Are all the bilge suction pipes fitted with roses Yes Are the roses always accessible Yes Are the sluices on Engine room bulkheads always accessible Yes
 No. of bilge injections none and sizes ✓ Are they connected to condenser, or to circulating pump ✓
 How are the pumps worked by links and levers from two after engines.
 Are all connections with the sea direct on the skin of the ship yes Are they Valves or Cocks cocks & valves
 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 below
 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
 How are the pipes carried through the bunkers ballast & bilge How are they protected boxed in with wood
 Are all pipes, cocks, valves, and pumps in connection with the machinery accessible at all times yes.
 Are the pipes, cocks, and valves arranged so as to prevent an unintentional connection between the sea and the bilges yes.
 When were stern tube, propeller, screw shaft, and all connections examined in dry dock 3rd August 1888.
 Is the screw shaft tunnel watertight yes and fitted with a sluice door yes worked from upper deck.

BOILERS, &c.—

Number of Boilers Two Description Double ended, Incl^d & Circular Whether Steel or Iron Steel
 Working Pressure 150 lbs. Tested by hydraulic pressure to 300 lbs. Date of test 18th May, 1888.
 Description of superheating apparatus or steam chest None fitted
 Can each boiler be worked separately Yes Can the superheater be shut off and the boiler worked separately ✓
 Area of square feet of fire grate surface in each boiler 103 Description of safety valves D. Cockburn's Sp. to each boiler Two
 Area of each valve 14.18 sq. ft. Are they fitted with easing gear Yes No. of safety valves to superheater ✓ area of each valve ✓
 Are they fitted with easing gear ✓ Smallest distance between boilers and bunkers or woodwork 11" Diameter of boilers 14'-8"
 Length of boilers 16'-8" description of riveting of shell long. seams Double & triple circum. seams Double & triple Thickness of shell plates 1 3/8"
 Diameter of rivet holes 1 3/8" + 7/16" whether punched or drilled drilled pitch of rivets 8 1/2" Lap of plating 19 3/4" Straps
 Percentage of strength of longitudinal joint 83.8 working pressure of shell by rules 151 lbs. size of manholes in shell 12" x 15"
 Diameter of compensating rings 24 x 27 x 1 1/4" rectangular steel plate No. of Furnaces in each boiler Six
 Inside diameter 46 1/2" length, top 6'-4 1/2" bottom 7'-10" thickness of plates 9/16" description of joint Joints welded if rings are fitted ✓
 Smallest length between rings ✓ working pressure of furnace by the rules 152 combustion chamber plating, thickness, sides 9/16" bot. 5/8" top 9/16"
 Diameter of stays to ditto, sides 8" x 8" back ✓ top 8" x 8" If stays are fitted with nuts or riveted heads Nutted working pressure of plating by rules 152 lbs.
 Diameter of stays at smallest part 1.24 working pressure of ditto by rules 155 lbs. plates in steam space, thickness 7/16"
 Diameter of stays to ditto 16 1/2" x 16" how stays are secured double nuts & washers working pressure by rules 171 with 240 Diameter of stays at smallest part 3 1/4" working pressure by rules 191 lbs. Front plates at bottom, thickness 1 3/16" Back plates, thickness ✓
 Smallest pitch of stays ✓ working pressure by rules ✓ Diameter of tubes 3 1/4" 7 in. 6 pitch of tubes 4 1/2" x 4 1/2" thickness of tube plates, front 7/8" back 3/4" how stayed solid stays pitch of stays 9" x 9" width of water spaces 5" bet. boxes 6" bet. tubes 11" tubes.
 Diameter of Superheater or Steam chest ✓ length ✓ thickness of plates ✓ description of longitudinal joint ✓ diam. of rivet holes ✓
 Working pressure of shell by rules ✓ diameter of flue ✓ thickness of plates ✓ If stiffened with rings ✓
 Working pressure by rules ✓ end plates of superheater, or steam chest; thickness ✓ how stayed ✓
 Superheater or steam chest; how connected to boiler ✓

Harland & Wolff
 1888



DONKEY BOILER— Description *Cedar, Multitubular & Single ended.*
 Made at *Belfast* by whom made *Sarland Wolff* when made *1888* where fixed *on upper br*
 Working pressure *90 lbs* tested by hydraulic pressure to *180 lbs* No. of Certificate *33* fire grate area _____ description of safety
 valves _____ No. of safety valves *See form attached for particulars of safety valves from main boilers can*
 enter the donkey boiler _____ diameter of donkey boiler _____ length _____ description of riveting _____
 Thickness of shell plates _____ diameter of rivet holes _____ whether punched or drilled _____ pitch of rivets _____ lap of plating _____
 per centage of strength of joint _____ thickness of crown plates _____ stayed by _____
 Diameter of furnace, top _____ bottom _____ length of furnace _____ thickness of plates _____ description of joint _____
 Thickness of furnace crown plates _____ stayed by _____ working pressure of shell by rules _____
 Working pressure of furnace by rules _____ diameter of uptake _____ thickness of plates _____ thickness of water tubes _____

SPARE GEAR. State the articles supplied:— *1 Set of propeller blades, 1 air + 1 circular pump
 rod, bucket & valves complete; 4 feed + 2 bilge pump valves 2 Connect rod top & 2
 connect rod bottom end bolts, 16 coupling bolts, 1 spindle for HP + NP slide valves,
 1 set of propeller studs, 12 finch ring bolts, 1 set of piston rings for HP + NP cyl.
 The foregoing is a correct description,
Sarland Wolff Manufacturer. *an assorted quantity of bolts nuts
 and iron of various sizes & L.F.
 2 main bearing bolts added.**

General Remarks (State quality of workmanship, opinions as to class, &c.)

The boilers and other parts of the machinery of this steamer have been constructed and fitted on board, in accordance with the plans approved, namely the main & auxiliary boilers, the Secretary's letters of the 8th & 20th September, 1887; the amended sketch, showing the rearrangement of comb. box crown stays; in accordance with or equal to Rules of the Society for Scandlings and arrangements for the Special Survey on New Machinery and to the entire satisfaction of the undersigned.

The steel used in the construction of the boilers has been tested as required by the Rules.

The boilers and main steam pipes have been tested by hydraulic and the machinery under steam pressure, giving satisfaction.

The safety valves were adjusted under steam to 150 lbs. on the main and 90 lbs. on auxiliary boiler.

The shafting when finished was found good & sound. The materials used in the construction of the machinery and the workmanship throughout are good & satisfactory.

The machinery is in my opinion eligible for the Notification **L.M.C. 8-88** and I would respectfully recommend the same to the favourable consideration of the Committee.

The amount of Entry Fee .. £ 3 : 0 : 0 received by me,
 Special .. £ 45 : 0 : 0
 Donkey Boiler Fee .. £ : :
 Certificate (if required) gratis : : 25/1888
 (To be sent as per margin.)
 (Travelling Expenses, if any, £)

*This submitted that
 this vessel is eligible to
 have + L.M.C. 8-88 recorded*
James Maxton
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.
 13.9.88

Committee's Minute 16 Aug 1888 -
 L.M.C. 8-88 -

