

REPORT ON MACHINERY.

No. 6833.

Port of Belfast Received at London Office 11th 30 AUG 1910
 Date, first Survey 9th Sept 1909 Last Survey 20th Aug 1910
 No. in Survey held at Belfast (Number of Visits 68)
 Reg. Book. J.B. Pakcha Gross 1911
 on the Belfast Tons Net 5042
 Master Belfast Built at Belfast By whom built Holland & Wolff When built 1910
 Engines made at Belfast By whom made Holland & Wolff when made 1910
 Boilers made at Belfast By whom made Holland & Wolff when made 1910
 Registered Horse Power 854 Owners James Lawrie & Co Ltd Port belonging to Southampton
 Nom. Horse Power as per Section 28 854 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted Yes

ENGINES, &c.—Description of Engines Two Seven Double Acting Engines No. of Cranks 8
 Dia. of Cylinders 22-3/4-46-65 Length of Stroke 40 Revs. per minute 82 Dia. of Screw shaft 14-1/2 Material of screw shaft Steel
 Is the screw shaft fitted with a continuous liner the whole length of the stern tube Yes Is the after end of the liner made water tight
 in the propeller boss Yes If the liner is in more than one length are the joints burned Yes 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 Yes If two
 liners are fitted, is the shaft lapped or protected between the liners Yes Length of stern bush 4'-6"
 Dia. of Tunnel shaft 12-3 Dia. of Crank shaft journals 12-9 Dia. of Crank pin 13-1/2 Size of Crank webs 26x9 Dia. of thrust shaft under
 collars 13-1/2 Dia. of screw 16-3 Pitch of Screw 18-6 No. of Blades 3 State whether moveable Yes Total surface 66 sq ft.
 No. of Feed pumps 1 Diameter of ditto 4-1/2 Stroke 20 Can one be overhauled while the other is at work Yes
 No. of Bilge pumps 1 Diameter of ditto 5 Stroke 28 Can one be overhauled while the other is at work Yes
 No. of Donkey Engines See notes No. and size of Suctions connected to both Bilge and Donkey pumps
 In Engine Room 6-3 1/2 and 4-2 1/2 In Holds, &c. 12-3 1/2 and 4-2 1/2
 No. of Bilge Injections 2 sizes 9 Connected to condenser, or to circulating pump Yes 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 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 Both
 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 Five hold suction How are they protected Wood casings
 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
 Dates of examination of completion of fitting of Sea Connections 13/5/10 of Stern Tube 12/5/10 Screw shaft and Propeller 13/5/10
 Is the Screw Shaft Tunnel watertight Yes Is it fitted with a watertight door Yes worked from Top platform D. Room

BOILERS, &c.—(Letter for record 5) Manufacturers of Steel W. Cowell & Sons
 Total Heating Surface of Boilers 9836 sq ft Forced Draft fitted No No. and Description of Boilers 2 Double End, by hull
 Working Pressure 215 lbs Tested by hydraulic pressure to 431 lbs Date of test 6-5-10 No. of Certificate 433
 Can each boiler be worked separately Yes Area of fire grate in each boiler 1454 sq ft No. and Description of Safety Valves to
 each boiler 3-Wire Spring Area of each valve 11.04 sq in Pressure to which they are adjusted 215 lbs Are they fitted with easing gear Yes
 Smallest distance between boilers or uptakes and bunkers or woodwork 18 in Mean dia. of boilers 15-8 Length 19-6 Material of shell plates Steel
 Thickness 1 1/4 Range of tensile strength 29-33 tons Are the shell plates welded or flanged No Descrip. of riveting: cir. seams L. Riv.
 long. seams Butt Riv. Diameter of rivet holes in long. seams 1 1/4 Pitch of rivets 10 Lap of plates or width of butt straps 23 1/2
 Per centages of strength of longitudinal joint 99.1 Working pressure of shell by rules 252 lbs Size of manhole in shell 16-7/2
 Size of compensating ring 10 in No. and Description of Furnaces in each boiler 8-Morseau Material Steel Outside diameter 43 1/2
 Length of plain part 2 Thickness of plates 3/8 Description of longitudinal joint Weld No. of strengthening rings 3 from
 Working pressure of furnace by the rules 231 lbs Combustion chamber plates: Material Steel Thickness: Sides 3/2 Back 3/2 Top 2 1/2 Bottom 1 3/8
 Pitch of stays to ditto: Sides 7 1/2 x 7 1/2 Back 7 1/2 x 7 1/2 Top 9 1/2 x 7 1/2 If stays are fitted with nuts or riveted heads Nuts riveted Working pressure by rules 214 lbs
 Material of stay Steel Diameter at smallest part 1 1/2 Area supported by each stay 62 sq in Working pressure by rules 300 lbs End plates in steam space:
 Material Steel Thickness 1 1/2 Pitch of stays 19 x 14 1/2 How are stays secured Nuts Riveted Working pressure by rules 215 lbs Material of stays Steel
 Diameter at smallest part 2 1/2 Area supported by each stay 295 sq in Working pressure by rules 250 lbs Material of Front plates at bottom Steel
 Thickness 3/8 Material of Lower back plate Steel Thickness 3/8 Greatest pitch of stays 8 x 8 Working pressure of plate by rules 214 lbs
 Diameter of tubes 2 1/2 Pitch of tubes 4 x 4 Material of tube plates Steel Thickness: Front 3/8 Back 3/8 Mean pitch of stays 8 x 8
 Pitch across wide water spaces 14 Working pressures by rules 338 lbs with Grinders to Chamber tops: Material Steel Depth and
 thickness of girder at centre 9 x (8 x 2) Length as per rule 52 3/8 Distance apart 9 x 7 Number and pitch of stays in each 6-7 1/2
 Working pressure by rules 249 lbs Superheater or Steam chest; how connected to boiler Can the superheater be shut off and the boiler worked
 separately Yes Diameter 14 Length 14 Thickness of shell plates 3/8 Material Steel Description of longitudinal joint Weld Diam. of rivet
 holes 1 1/4 Pitch of rivets 10 Working pressure of shell by rules 252 lbs Diameter of flue 14 Material of flue plates Steel Thickness 3/8
 If stiffened with rings Yes Distance between rings 14 Working pressure by rules 252 lbs End plates: Thickness 3/8 How stayed Weld
 Working pressure of end plates 249 lbs Area of safety valves to superheater 14 Are they fitted with easing gear Yes

VERTICAL DONKEY BOILER— Manufacturers of Steel

No. _____ Description _____
 Made at _____ By whom made _____ When made _____ Where fixed _____
 Working pressure tested by hydraulic pressure to _____ Date of test _____ No. of Certificate _____ Fire grate area _____ Description of Safety _____
 Valves _____ No. of Safety Valves _____ Area of each _____ Pressure to which they are adjusted _____ Date of adjustment _____
 If fitted with easing gear _____ If steam from main boilers can enter the donkey boiler _____ Dia. of donkey boiler _____ Length _____
 Material of shell plates _____ Thickness _____ Range of tensile strength _____ Descrip. of riveting long. seams _____
 Dia. of rivet holes _____ Whether punched or drilled _____ Pitch of rivets _____ Lap of plating _____ Per centage of strength of joint _____ Rivets _____ Plates _____
 Working pressure of shell by rules _____ Thickness of shell crown plates _____ Radius of do. _____ No. of stays to do. _____ Dia. of stays _____
 Diameter of furnace Top _____ Bottom _____ Length of furnace _____ Thickness of furnace plates _____ Description of joint _____
 Working pressure of furnace by rules _____ Thickness of furnace crown plates _____ Stayed by _____
 Diameter of uptake _____ Thickness of uptake plates _____ Thickness of water tubes _____ Dates of survey _____

SPARE GEAR. State the articles supplied:— Propeller & shaft brass also 2 blades; and crank & shaft; H.P. pistons; 2 valves & pins; piston rods; H.P. & M.P. pistons valves; 2 screw tie rods; 2 screw tie pulleys; pair crank pin bushes; pair cross head bushes; sets piston rings; and all gear to Lloyd's Rules Extra
 The foregoing is a correct description,
 Manufacturer. **Hawland & Wolff Ltd**

Dates of Survey while building
 During progress of work in shops - 1909. Sep^r 9. 20. 21. 22. 23. 24. 25. 26. Nov. 1. 8. 11. 12. 14. 18. 25 Dec^r 8. 8.
 During erection on board vessel - 13-23. 1910. Jan^r 6. 13. 19. 24 and until August 20th 1910
 Total No. of visits 68
 Is the approved plan of main boiler forwarded herewith **Yes**

Dates of Examination of principal parts—Cylinders 11-10 Slides 0-9 Cover to Pistons Rods
 Connecting rods 12-5-10 Crank shaft 3/12/09 Tunnel shafts to Screw shaft 26/5/10 Propeller 2/5/10
 Stern tube 2/5/10 Steam pipes tested 14/5/10 Engines and boiler seatings 3/6/10 Engines holding down bolts 3/6/10
 Completion of pumping arrangements 25/4/10 Boilers fixed 13/6/10 Engines tried under steam 20/4/10
 Main boiler safety valves adjusted 20/4/10 Thickness of adjusting washers 5-12/32
 Material of Crank shaft **Iron** Identification Mark on Do. **26508 7.5.8 26.5.10** Material of Thrust shaft **W** Identification Mark on Do. **W**
 Material of Tunnel shafts **W** Identification Marks on Do. **W** Material of Screw shafts **W** Identification Marks on Do. **W**
 Material of Steam Pipes **W-Iron** Test pressure **645 lbs**

General Remarks (State quality of workmanship, opinions as to class, &c.)
 The machinery of this vessel has been examined and special survey, and in accordance with the Rules. The materials and the workmanship are of good description, and on trial under steam, the machinery worked satisfactorily. In my opinion, it is eligible for record + L.M.C. 8-10 with notation "Direct Light and Refrigerating Machinery".

It is submitted that this vessel is eligible for THE RECORD + L.M.C. 8.10.

J.M. J.W.D. 1/9/10

The amount of Entry Fee. £ 3 : 0 :
 Special £ 62 : 14 :
 Donkey Boiler Fee £ : :
 Travelling Expenses (if any) £ : :
 When applied for, 24-8-10
 When received, 29-8-10

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

Committee's Minute
 Assigned

FRI. 2 SEP 1910

MACHINERY CERTIFICATE WRITTEN.



FLAT (If B GARE)
 State thick way of Bo
 Write "Aiming or Shiller Deck" "Sheer Strake" opposite its corresponding letter.
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