

REPORT ON MACHINERY.

No. 6335

MON. 22 JUL 1907

Port of Belfast Received at London Office
 No. in Survey held at Belfast Date, first Survey 10th Jan^y Last Survey 10th July 1907
 Reg. Book. J.S.B. Whakarua (Number of Visits 47)
 on the Master Belfast Built at Belfast By whom built Workman Clark & Co^{ys} When built 1907
 Engines made at Belfast By whom made " when made "
 Boilers made at " By whom made " when made "
 Registered Horse Power " Owners The Tyne Line L^{td} Port belonging to London
 Nom. Horse Power as per Section 28 650 Is Refrigerating Machinery fitted for cargo purposes Yes Is Electric Light fitted Yes

ENGINES, &c.—Description of Engines Twin Screw Triple Expansion of Cylinders 6 No. of Cranks 6
 Dia. of Cylinders 20"-83 1/2"-56" Length of Stroke 45 Revs. per minute 82 Dia. of Screw shaft 12.3 Material of Steel
 as per rule 12.3 as fitted 12.62 screw shaft
 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 ✓ 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 ✓ Length of stern bush 4-6"
 Dia. of Tunnel shaft 11.7" as per rule 11.7" Dia. of Crank shaft journals 11.7" as per rule 11.7" Dia. of Crank pin 12" Size of Crank web 25x8 1/2" Dia. of thrust shaft under
 collars 12" Dia. of screw 14'-9" Pitch of Screw 17'-9" No. of Blades 3 State whether moveable Yes Total surface 582 sq ft.
 No. of Feed pumps 2 Diameter of ditto 8 1/2" Stroke 24" Can one be overhauled while the other is at work Yes
 No. of Bilge pumps 1 Diameter of ditto 5" Stroke 24" Can one be overhauled while the other is at work Yes
 No. of Donkey Engines 4 Sizes of Pumps 2 Wells 8x10 1/2x26 No. and size of Suctions connected to both Bilge and Donkey pumps
 In Engine Room 4-8 1/2" Ballast 10x11x12 General 8x5x8 Wadds, &c. 1-2 1/2" 10-3 1/2"
Sanitary 6x4x6
 No. of Bilge Injections 1 sizes 7" Connected to condenser, or to circulating pump Pump 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 Low hold suction 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
 Dates of examination of completion of fitting of Sea Connections 27-6-07 of Stern Tube 27-6-07 Screw shaft and Propeller 27-6-07
 Is the Screw Shaft Tunnel watertight Steel Is it fitted with a watertight door Yes worked from Engine Room Top Platform

BOILERS, &c.—(Letter for record 3) Manufacturers of Steel Glazebrook & Co^{ys} L^{td}
 Total Heating Surface of Boilers 9784 sq ft Forced Draft fitted Yes No. and Description of Boilers 4-Single End Cyl^{rs}
 Working Pressure 200 lbs Tested by hydraulic pressure to 400 lbs Date of test 28-5-07 No. of Certificate 401
 Can each boiler be worked separately Yes Area of fire grate in each boiler 61 5/8 sq ft No. and Description of Safety Valves to
 each boiler 2-Vertical Springs Area of each valve 9.62 sq ft Pressure to which they are adjusted 205 lbs Are they fitted with easing gear Yes
 Smallest distance between boilers or uptakes and bunkers or woodwork 1/8" Mean dia. of boilers 15'-0" Length 2'-0" Material of shell plates Steel
 Thickness 1 1/2" Range of tensile strength 28-32 tons Are the shell plates welded or flanged No Descrip. of riveting: cir. seams Exp. Riv^{ts}
 long. seams Butt Diameter of rivet holes in long. seams 1 1/32" Pitch of rivets 10" Lap of plates or width of butt straps 22 1/2"
 Per centages of strength of longitudinal joint 89.3 Working pressure of shell by rules 246 lbs Size of manhole in shell 16"x12"
 plate 84.6 Size of compensating ring McNeil's No. and Description of Furnaces in each boiler 4-Registon Material Steel Outside diameter 41 1/4"
 Length of plain part 5" Thickness of plates 3 3/4" Description of longitudinal joint Weld No. of strengthening rings ✓
 Working pressure of furnace by the rule 221 lbs combustion chamber plates: Material Steel Thickness: Sides 4 1/4" Back 4 1/6" Top 4 1/4" Bottom 3 1/2"
 Pitch of stays to ditto: Sides 8 1/2x8 Back 9 1/4x8 Top 8 1/4x8 If stays are fitted with nuts or riveted heads Nuts inside Working pressure by rules 214 lbs
 Material of stays Steel Diameter at smallest part 1 1/2" Area supported by one stay 75 sq ft Working pressure by rules 247 lbs End plates in steam space:
 Material Steel Thickness 1 1/2" Pitch of stays 22x18 1/2" How are stays secured Nuts inside Working pressure by rules 227 lbs Material of stays Steel
 Diameter at smallest part 3 1/2" supported by one stay 369 sq ft Working pressure by rules 229 lbs Material of Front plates at bottom Steel
 Thickness 1" Material of Lower back plate Steel Thickness 5/8" Greatest pitch of stays 13 1/2" Working pressure of plate by rules 237 lbs
 Diameter of tubes 2 1/2" Pitch of tubes 3 5/8x3 3/8" Material of tube plates Steel Thickness: Front 6 3/4" Back 13" Mean pitch of stays 7 1/6 & 7 1/4"
 Pitch across wide water spaces 13 1/2" Working pressures by rules 200 lbs Girders to Chamber tops: Material Steel Depth and
 thickness of girder at centre 10 1/2x(3x2) Length as per rule 34 1/2" Distance apart 8 1/4" Number and pitch of stays in each 3-8"
 Working pressure by rules 241 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 "

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, 2 blades, pair crank pin bushes, pair piston rod bushes, air pump bucket rod, 2 slide valves & spindles, sets piston packing rings, Main Pump rod & bucket set, & all seen to Lloyd's Rules

The foregoing is a correct description,
 FOR WORKMAN, CLARK & CO., LIMITED
 M. H. Bell Manufacturer.

Dates of Survey while building: During progress of work in shops - Jan 10, 11, 14, 29 Feb 6, 8, 11, 13, 19, 22, 28 March 14, 21, 26, 27 April 4, 8, 11, 12, 16, 19, 22, 23, 24, 27, 29 May 1, 2, 9 up to 10 July 1907
 During erection on board vessel -
 Total No. of visits 47
 Is the approved plan of main boiler forwarded herewith Yes

Dates of Examination of principal parts—Cylinders 6' 1" diameter 1907 Pistons _____ Rods _____
 Connecting Rods 3 June Crank shaft 4-3-07 Thrust shaft _____ Tunnel shafts _____ Screw shaft 14-5-07 Propeller 16-4-07
 Stern tube 16-4-07 Steam pipes tested 14-6-07 Engine and boiler seatings 27-6-07 Engines holding down bolts 25-6-07
 Completion of pumping arrangements 27-6-07 Boilers fixed 27-6-07 Engines tried under steam 3-7-07
 Main boiler safety valves adjusted 3-7-07 Thickness of adjusting washers 10-12/32
 Material of Crank shaft S-Steel Identification Mark on Do. LLOYD'S F.J.B. 14-5-07 Material of Thrust shaft No Identification Mark on Do. No
 Material of Tunnel shafts No Identification Marks on Do. No Material of Screw shafts No Identification Marks on Do. No
 Material of Steam Pipes W. Iron & Copper Test pressure 500 lbs

General Remarks (State quality of workmanship, opinions as to class, &c.)
 The machinery of this vessel has been constructed under Special Survey, and in accordance with the Rules. The workmanship is of good description, and on trial under steam in Belfast Lough the machinery worked satisfactorily. In my opinion, it is eligible for record + L.M.C. 7-07

It is submitted that this vessel is eligible for THE RECORD. ELEC LIGHT LME 7.07 F.D.

The amount of Entry Fee..	£ 3 : 0 :	When applied for,
Special	£ 52 : 10 :	1917
Donkey Boiler Fee	£ : :	When received,
Travelling Expenses (if any) £	: :	26.7.07

22.7.07
 J.M.
 22/7/07
 R. J. P. Overill
 Engineer, Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute
 Assigned

TUES. JUL 23 1907

+ L.M.C. 7.07
 F.D. Elec. Light



MACHINERY CERTIFICATE WRITTEN

Certificate (if required) to be sent to the office of the Surveyors (The Surveyors are requested not to write on or below the space for Committee's Minute.)