

# REPORT ON MACHINERY.

No. 7359.

Received at London Office MON. APR. 20. 1914

Date of writing Report 15<sup>th</sup> April 14 When handed in at Local Office 10 Port of Belfast  
 No. in Survey held at Belfast Date, First Survey Feb 1913 Last Survey 8<sup>th</sup> April 1914  
 Reg. Book. P.S.S. Star of England (Number of Visits 105)  
 on the P.S.S. Star of England Gross 9136 Tons  
 Master Belfast Built at Belfast By whom built Warkman Clark & Co Net 5834 Tons  
 Engines made at Belfast By whom made - when made 1914  
 Boilers made at - By whom made - when made -  
 Registered Horse Power 979 Owners Commonwealth & Dominion Port belonging to London  
 Nom. Horse Power as per Section 28 979 Is Refrigerating Machinery fitted for cargo purposes Yes Is Electric Light fitted Yes

ENGINES, &c.—Description of Engines Lucin Screw Triple Expansion Cylinders 6 No. of Cranks 6  
 Dia. of Cylinders 24"-40 1/2"-68" Length of Stroke 48" Revs. per minute 76 1/2 Dia. of Screw shaft 14 1/2" Material of I. Steel  
 as per rule 15 1/2" as fitted 15 1/2" 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 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 61"  
 Dia. of Tunnel shaft 12 8/9" as per rule 13 5/8" Dia. of Crank shaft journals 13 5/8" as per rule 14 3/8" Dia. of Crank pin 4 3/8" Size of Crank webs 27 5/8" x 9 5/8" Dia. of thrust shaft under  
 collars 4 3/8" Dia. of screw 17"-0" Pitch of Screw 18"-9" No. of Blades 3 State whether moveable Yes Total surface 85 sq. ft.  
 No. of Feed pumps 1 each Engine Diameter of ditto 6 1/2" Stroke 24" Can one be overhauled while the other is at work Yes  
 No. of Bilge pumps 1 each Engine Diameter of ditto 5 1/2" Stroke 24" Can one be overhauled while the other is at work Yes  
 No. of Donkey Engines See plan sheet No. and size of Suctions connected to both Bilge and Donkey pumps  
 In Engine Room 4-3 1/2" In Holds, &c. 13-3 1/2" & 1-2 1/2"

No. of Bilge Injections 2 sizes 8" Connected to condenser, or to circulating pump Pumps 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 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  
 What pipes are carried through the bunkers Fore 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 23-1-14 of Stern Tube 29-1-14 Screw shaft and Propeller 10-2-14  
 Is the Screw Shaft Tunnel watertight Yes Is it fitted with a watertight door Yes worked from Top platform & Room

BOILERS, &c.—(Letter for record S) Manufacturers of Steel Beardmore & Co  
 Total Heating Surface of Boilers 16244 Forced Draft fitted Yes No. and Description of Boilers 2 Double End Cyl.  
 Working Pressure 200 lbs Tested by hydraulic pressure to 400 lbs Date of test 21-1-14 No. of Certificate 460  
 Can each boiler be worked separately Yes Area of fire grate in each boiler 147 sq. ft. No. and Description of Safety Valves to  
 each boiler 3 Direct Spring Area of each valve 14' 9" Pressure to which they are adjusted 200 lbs Are they fitted with easing gear Yes  
 Smallest distance between boilers or uptakes and bunkers or woodwork 19" Mean dia. of boilers 16'-3" Length 20'-3" Material of shell plates Steel  
 Thickness 1 1/4" Range of tensile strength 30-33 1/2 Are the shell plates welded or flanged No Descrip. of riveting: cir. seams L. D. & S.  
 long. seams P. Butt Diameter of rivet holes in long. seams 1 1/2" Pitch of rivets 10 1/2" Lap of plates or width of butt straps 23 1/2"  
 Per centages of strength of longitudinal joint rivets 91.9 Working pressure of shell by rules 233 lbs Size of manhole in shell 16" x 12"  
 plate 84.8 Size of compensating ring Mr Keils No. and Description of Furnaces in each boiler 8-Monson Material Steel Outside diameter 45 1/2"  
 Length of plain part top Thickness of plates bottom 3 1/4" Description of longitudinal joint Weld No. of strengthening rings top & bottom  
 Working pressure of furnace by the rules 229 lbs Combustion chamber plates: Material Steel Thickness: Sides 3 1/2" Back 3 1/2" Top 3 1/2" Bottom 3 1/2"  
 Pitch of stays to ditto: Sides 8 1/2" x 8 1/2" Back 8 1/2" x 8 1/2" Top 8 1/2" x 7" If stays are fitted with nuts or riveted heads Nuts Working pressure by rules 201 lbs  
 Material of stays Steel Diameter at smallest part 1 1/2" Area supported by each stay 70 sq" Working pressure by rules 226 lbs End plates in steam space:  
 Material Steel Thickness 1 1/4" Pitch of stays 14 1/2" x 15 1/2" How are stays secured Nuts & Washers Working pressure by rules 203 lbs Material of stays Steel  
 Diameter at smallest part 2 1/2" x 3 1/2" Area supported by each stay 32 1/2 sq" Working pressure by rules 235 lbs Material of Front plates at bottom Steel  
 Thickness 1" Material of Lower back plate Yes Thickness Yes Greatest pitch of stays Yes Working pressure of plate by rules Yes  
 Diameter of tubes 2 1/2" Pitch of tubes 3 1/2" x 3 5/8" Material of tube plate Steel Thickness: Front 6 3/4" Back 4 1/2" Mean pitch of stays 7 1/2" x 7 1/4"  
 Pitch across wide water spaces 13 1/2" Working pressures by rules 206 lbs Girders to Chamber tops: Material Steel Depth and  
 thickness of girder at centre 7 1/2" x (1/4" x 2) Length as per rule 52 7/8" Distance apart 8 1/2" Number and pitch of stays in each 6-7 x 8"  
 Working pressure by rules 266 lbs Superheater or Steam chest; how connected to boiler Yes Can the superheater be shut off and the boiler worked  
 separately Yes Diameter Yes Length Yes 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

W412-0260  
W412-0262



**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 \_\_\_\_\_ Radius of do. \_\_\_\_\_ Stayed by \_\_\_\_\_

Diameter of uptake \_\_\_\_\_ Thickness of uptake plates \_\_\_\_\_ Thickness of water tubes \_\_\_\_\_ Dates of survey \_\_\_\_\_

SPARE GEAR. State the articles supplied:— *See other sheet*

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

Dates of Survey while building: During progress of work in shops - 1913: - Feb 5, 14, 20, 27, Mar 5, 10, 13, 21, 28, April 3, 7, 10, 16, 21, 25, May 5, 12, 19, 26, 31, June 6, 13, 20, 27, July 4, 11, 18, 25, Aug 1, 8, 15, 22, 29, Sept 5, 12, 19, 26, Oct 3, 10, 17, 24, Nov 7, 14, 21, 28, Dec 5, 12, 19, 26, 31, 1914: - Jan 2, 9, 16, 23, 30, Feb 6, 13, 20, 27, Mar 6, 13, 20, 27, Apr 3, 10, 17, 24, May 1, 8, 15, 22, 29, June 5, 12, 19, 26, July 3, 10, 17, 24, Aug 7, 14, 21, 28, Sept 4, 11, 18, 25, Oct 2, 9, 16, 23, 30, Nov 6, 13, 20, 27, Dec 4, 11, 18, 25, 1915: - Jan 1, 8, 15, 22, 29, Feb 5, 12, 19, 26, 31, Mar 5, 12, 19, 26, 31, Apr 5, 12, 19, 26, 31, May 5, 12, 19, 26, 31, June 5, 12, 19, 26, 31, July 5, 12, 19, 26, 31, Aug 5, 12, 19, 26, 31, Sept 5, 12, 19, 26, 31, Oct 5, 12, 19, 26, 31, Nov 5, 12, 19, 26, 31, Dec 5, 12, 19, 26, 31.

Total No. of visits 105

Is the approved plan of main boiler forwarded herewith *Yes - See with Stays of Victoria plan*

Dates of Examination of principal parts—Cylinders *13-3* Slides *3* Covers *to* Pistons \_\_\_\_\_ Rods \_\_\_\_\_

Connecting rods *18-7-13* Crank shaft *10-4-13* shaft \_\_\_\_\_ Tunnel shafts \_\_\_\_\_ Screw shaft *19-12-13* Propeller *14-11-13*

Stern tube *10-10-13* Steam pipes tested *3-2-14* Engine and boiler seatings *26-2-14* Engines holding down bolts *10-3-14*

Completion of pumping arrangements *23-3-14* Boilers fixed *26-2-14* Engines tried under steam *8-4-14*

Main boiler safety valves adjusted *26-3-14* Thickness of adjusting washers *8-11/32*

Material of Crank shaft *Steel* Identification Mark on Do. *F.J.B.* Material of Thrust shaft *Do* Identification Mark on Do. *Do*

Material of Tunnel shafts *Do* Identification Marks on Do. *Do* Material of Screw shafts *Do* Identification Marks on Do. *LLOYDS F.J.B. 19-12-13*

Material of Steam Pipes *W. Iron* Test pressure *600 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, and the materials are 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. 4-14.** and notation "Forced Draft" "Electric Light" "Refrigerating Machinery"

The machinery is a duplicate of that fitted in the sister vessel, "Star of Victoria, Report No. 7330"

It is submitted that this vessel is eligible for **THE RECORD, + L.M.C. 4. 14. F.D.**  
*R.D. & I.S.B. Ref. Mch.*

The amount of Entry Fee .. £	3 : 0 :	When applied for,
Special .. .. .	£ 68 : 19 :	9-4-1914
Donkey Boiler Fee .. .. .	£ : : :	When received,
Travelling Expenses (if any) £	: : :	18-4-1914

*J.W. J.P.R.*  
*9/4/14*  
**P. L. Beveridge**  
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute TUE. APR. 21. 1914  
 Assigned *+ hmc 4, 14 J.A.*

MACHINERY CERTIFICATE WRITTEN.

