

## REPORT ON MACHINERY.

Port of Belfast Received at London Office MUR. 14 MAY 1903

No. in Survey held at Belfast Date, first Survey 1<sup>st</sup> Oct 1902 Last Survey 5<sup>th</sup> May 1903

Reg. Book. P. J. Counsellor (Number of Visits 57)

on the Belfast Tons Gross 4957 Net 3176

Master Belfast Built at Belfast By whom built Wickman Clark & Co When built 1903

Engines made at Belfast By whom made " when made 1903

Boilers made at " By whom made " when made "

Registered Horse Power 470 Owners Charente S.S. Co Port belonging to Liverpool

Nom. Horse Power as per Section 28 470 Is Refrigerating Machinery fitted Yes Is Electric Light fitted Yes

ENGINES, &c.—Description of Engines Triple Expansion, Direct Acting No. of Cylinders 3 No. of Cranks 3

Dia. of Cylinders 25"-41"-68" Length of Stroke 54" Revs. per minute 70 Dia. of Screw shaft as per rule 14.79" as fitted 15.75" Lgth. of stern bush 6'-0"

Dia. of Tunnel shaft as per rule 13.48" as fitted 14.2" Dia. of Crank shaft journals as per rule 14.15" as fitted 14.5" Dia. of Crank pin 14.2" Size of Crank webs 26" x 10" Dia. of thrust shaft under rollers 14.2" Dia. of screw 17'-6" Pitch of screw 19 ft. No. of blades 4 State whether moveable Yes Total surface 90 sq ft.

No. of Feed pumps 2 Diameter of ditto 4" Stroke 26" Can one be overhauled while the other is at work Yes

No. of Bilge pumps 2 Diameter of ditto 4.2" Stroke 26" Can one be overhauled while the other is at work Yes

No. of Donkey Engines 5 Sizes of Pumps 9 x 10 x 12, 8 x 8 x 8, 6 x 6 x 6, 4 x 4 x 5, 6 x 4 x 6 No. and size of Suctions connected to both Bilge and Donkey pumps 11-32" and 1-3"

In Engine Room 4-32"

No. of bilge injections 1 sizes 8" Connected to condenser, or to circulating pump Yes Is a separate donkey suction fitted in Engine room & size 10-32"

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 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

When were stern tube, propeller, screw shaft, and all connections examined in dry dock Before launching the screw shaft tunnel watertight Stated to be

Is it fitted with a watertight door Yes worked from Engine Room top platform

OILERS, &c.— (Letter for record Yes) Total Heating Surface of Boilers 8448 sq ft. (including auxiliary) Is forced draft fitted No

No. and Description of Boilers Two—Double End, Cylind. Working Pressure 190 lbs Tested by hydraulic pressure to 380 lbs

Date of test 7-4-03 Can each boiler be worked separately Yes Area of fire grate in each boiler 115 sq ft. No. and Description of safety valves to each boiler Two—Direct Spring Area of each valve 11.04 sq in. Pressure to which they are adjusted 190 lbs Are they fitted with easing gear Yes

Smallest distance between boilers or uptakes and bunkers or woodwork about 14" Mean dia. of boilers 15'-0" Length 14'-0" Material of shell plates Steel

Thickness 1.5" Range of tensile strength 28-32 Are they welded or flanged No Descrip. of riveting: cir. seams Lap, Dr. Lap, Long. seams Butts Butt Lap

Diameter of rivet holes in long. seams 1.5" Pitch of rivets 9.2" Lap of plates or width of butt straps 2 1/4"

Per centages of strength of longitudinal joint rivets 88.1 plate 84.9 Working pressure of shell by rules 220 lbs Size of manhole in shell 16 x 12"

Size of compensating ring McNeil No. and Description of Furnaces in each boiler 6—Morrison Material Steel Outside diameter 44 1/4"

Length of plain part top 5" bottom 5" Thickness of plates crown 1.5" bottom 1.32" Description of longitudinal joint Weld No. of strengthening rings 1

Working pressure of furnace by the rules 215 lbs Combustion chamber plates: Material Steel Thickness: Sides 3/4" Back 1/2" Top 3/4" Bottom 1"

Pitch of stays to ditto: Sides 8 1/4" x 7 1/4" Back 8 1/2" x 7 1/4" Top 8 1/2" x 7 1/4" Are stays fitted with nuts or riveted heads Nuts Working pressure by rules 201 lbs

Material of stays Steel Diameter at smallest part 1 3/8" Area supported by each stay 61.5 sq in. Working pressure by rules 192 lbs End plates in steam space: Material Steel Thickness 1 1/4" Pitch of stays 18 x 15" How are stays secured Welded Working pressure by rules 252 lbs Material of stays Steel

Diameter at smallest part 2 1/16" Area supported by each stay 285 sq in. Working pressure by rules 24 lbs Material of Front plates at bottom Steel

Thickness 1" Material of Lower back plate Yes Thickness 1" Greatest pitch of stays Yes Working pressure of plate by rules Yes

Diameter of tubes 3 1/4" Pitch of tubes 4 1/8" x 4 1/8" Material of tube plates Steel Thickness: Front 3/8" Back 3/8" Mean pitch of stays 9 1/4" x 9 1/4"

Pitch across wide water spaces 14 1/4" Working pressures by rules 222 lbs with 3/4" double end plates to Chamber tops: Material Steel Depth and thickness of girder at centre 12 1/2" x (3/4" x 2) Length as per rule 40 1/4" Distance apart 8 1/2" x 8 1/4" Number and pitch of Stays in each 4-1 1/4"

Working pressure by rules 228 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 "



*Auxiliary*  
**DONKEY BOILER**— No. *one* Description *Cylindrical Angle End. Multitubular*  
 Made at *Belfast* By whom made *Workman Clark & Co.* When made *1903* Where fixed *Stokehold*  
 Working pressure *140 lbs* Tested by hydraulic pressure to *380 lbs* No. of Certificate *330* Fire grate area *43 3/4* Description of safety valves *Direct Spring*  
 No. of safety valves *2* Area of each *4 9/16* Pressure to which they are adjusted *190 lbs* If fitted with easing gear *Yes* If steam from main boilers can enter the donkey boiler *No* Dia. of donkey boiler *13'-0"* Length *9'-6"* Material of shell plates *Steel* Thickness *1/4"* Range of tensile strength *28-32* Descrip. of riveting long. seams *Butt Lap* Dia. of rivet holes *1 1/16"* Whether punched or drilled *Drilled* Pitch of rivets *9 3/32"*  
*Butt* Lap of plating *19 1/4"* Per centage of strength of joint *85* Rivets *8 1/2"* Thickness of shell *1/4"* Radius of do. *1 1/2"* No. of stays to do. *14 1/2 x 12*  
 Dia. of stays *2 1/2, 3, 3 1/4* Diameter of furnace Top *13 1/4"* Bottom *11 1/4"* Length of furnace *6'-0"* Thickness of furnace plates *1/2"* Description of joint *Weld* Thickness of *Comb. Chamber* plates *3/32, 7/64, 1/4, 1/8* Stays by *1/8"* *Draw stays pitch 8 1/4 x 1 1/4* Working pressure of shell by rules *2 1/4 lbs*  
 Working pressure of furnace by rules *2 1/6 lbs* Diameter of uptake *11"* Thickness of *Refr.* plates *F. 1" B. 3/8"* Thickness of *Refr.* tubes *4 1/2 x 4 1/2"*

**SPARE GEAR.** State the articles supplied:— *3 Crank shaft: 1 propeller shaft: 1 propeller boss: 1 Bronze propeller blade: 3 Cast-iron propeller blades: 1 patent shaft coupling: one set Connecting rod braces: 1 air pump bucket & rod: 1 circulating pump impeller & shaft: 1 eccentric sheave & strap: 1 slide valve spindle set: and all gear to Lloyd's Rules additional*  
 The foregoing is a correct description,  
*FOR WORKMAN, CLARK & CO., LIMITED* Manufacturer.  
*M. W. Sell*

Dates of Survey while building { During progress of work in shops - *1902 - Oct 1, 3, 7, 10, 14, 22, 28, Nov 20, 24, 27, 28 Dec 3, 5, 9, 11, 18, 1903, Jan 7, 9*  
 { During erection on board vessel - *14, 16, 22, 23, 26, 28, Feb 3, 4, 9, 13, 19, 24, 26, 27, March 3, 10, 11, 13, 13, 17, 18, 25, 26, 30*  
 Total No. of visits *57* Is the approved plan of main boiler forwarded herewith *Yes*  
 " " " donkey " " " *Yes*

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

Material of screw shaft *Hydresport 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*

*The machinery of this vessel has been constructed under Special Survey and in accordance with the Rules. The materials used in construction and the workmanship are of good description. On trial in Belfast Lough it worked satisfactorily, and in my opinion it is eligible for record + L.M.C. 5-03, & Elect. Light in the Register Book*

It is submitted that  
 this vessel is eligible for  
 THE RECORD + L.M.C. 5-03 Elec. Light.

*14.5.03*  
*14.5.03*

The amount of Entry Fee.. £ *3* : : When applied for, *8-5-1903*  
 Special .. .. £ *43. 10* : : When received, *14.5.03*  
 Donkey Boiler Fee .. .. £ : : *14.5.03*  
 Travelling Expenses (if any) £ : : *19.03*

*R. J. Beveridge*  
 Engineer/Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute

Assigned

FRI. 15 MAY 1903

*+ L.M.C. 5.03*

*Elect. Light.*

MACHINERY CERTIFICATE  
 WRITTEN.



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