

## REPORT ON MACHINERY.

No. 6187

Port of Belfast Received at London Office WED. 10 OCT 1906

No. in Survey held at Belfast Date, first Survey 15 March Last Survey 2 Oct 1906

Reg. Book. S.S. Star of Japan (Number of Visits 58)

Master F. Alcock Built at Belfast By whom built Wortman Clark & Co. Ltd Tons Gross 6235 Net 3999

Engines made at Belfast By whom made " When built 1906

Boilers made at " By whom made " when made 1906

Registered Horse Power " Owners Star Line L.P. Co. Ltd Belonging to Belfast

Nom. Horse Power as per Section 28 601 Is Refrigerating Machinery fitted for cargo purposes Yes Is Electric Light fitted Yes

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

Dia. of Cylinders 27"-46"-78" Length of Stroke 54" Revs. per minute 65 Dia. of Screw shaft 16 1/8" Material of S. 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 68"

Dia. of Tunnel shaft 15 1/2" Dia. of Crank shaft journals 15 1/2" Dia. of Crank pin 15 1/2" Size of Crank webs 29 1/2" x 10 1/2" of thrust shaft under collars 15 1/2" Dia. of screw 19 1/2" Pitch of Screw 19 1/2" No. of Blades 4 State whether moveable Yes Total surface 110 sq. ft.

No. of Feed pumps 2 Diameter of ditto 5" Stroke 27" Can one be overhauled while the other is at work Yes

No. of Bilge pumps 2 Diameter of ditto 6" Stroke 27" Can one be overhauled while the other is at work Yes

No. of Donkey Engines 6 Sizes of Pumps 10 1/2" x 8 x 21" No. and size of Suctions connected to both Bilge and Donkey pumps 9-3 1/2" + 1-2 1/2"

In Engine Room 4-3 1/2" 7-10 1/2" x 14" 8-10 1/2" x 14" 4-7 1/2" x 5" 3 1/2" x 2 1/2" x 4"

No. of Bilge Injections 1 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 None

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

Dates of examination of completion of fitting of Sea Connections 21-8-06 of Stern Tube 21-8-06 Screw shaft and Propeller 21-8-06

Is the Screw Shaft Tunnel watertight Stated to be it fitted with a watertight door Yes worked from Top platform E. Room

**BOILERS, &c.—(Letter for record S.)** Manufacturers of Steel Lucas, Kerr, Vetterli & Co. Ltd

Total Heating Surface of Boiler 8356 sq. ft. Forced Draft fitted Yes No. and Description of Boilers 4 Single End Cylinders

Working Pressure 200 lbs Tested by hydraulic pressure to 400 lbs Date of test 27-8-06 No. of Certificate 385

Can each boiler be worked separately Yes Area of fire grate in each boiler 52 sq. ft. No. and Description of Safety Valves to each boiler 2-Direct Spring Area of each valve 8 1/2 sq. in. 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 18 in. Mean dia. of boilers 13'-9" Length 11'-6" 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 Lap Riv.

long. seams Butt Diameter of rivet holes in long. seams 1 1/2" Pitch of rivets 9 1/2" Lap of plates or width of butt straps 20 1/2"

Per centages of strength of longitudinal joint rivets 88% Working pressure of shell by rules 229 lbs Size of manhole in shell 16" x 12"

Size of compensating ring M. Keils No. and Description of Furnaces in each boiler 3-Morrison Material Steel Outside diameter 43 1/4"

Length of plain part top 2'-3 1/2" Thickness of plates bottom 3 1/2" Description of longitudinal joint Weld No. of strengthening rings 5

Working pressure of furnace by the rules 226 lbs Combustion chamber plates: Material Steel Thickness: Sides 3/2" Back 3/4" Top 3/2" Bottom 7/8"

Pitch of stays to ditto: Sides 8 1/2" x 7 1/2" Back 8 1/2" x 7 1/2" Top 8" x 6 1/2" Bottom 8" x 6 1/2" If stays are fitted with nuts or riveted heads Nuts inside Working pressure by rules 204 lbs

Material of stays Steel Diameter at smallest part 1 1/2" Area supported by each stay 66 sq. in. Working pressure by rules 209 lbs Material of plates in steam space: Steel

Material Steel Thickness 1 1/2" Pitch of stays 6 1/2" x 15" How are stays secured Nuts & Washers Working pressure by rules 202 lbs Material of stays Steel

Diameter at smallest part 2 1/2" x 1 1/2" supported by each stay 24 7/8 sq. in. Working pressure by rule 203 lbs Material of Front plates at bottom Steel

Thickness 1" Material of Lower back plate Steel Thickness 3/2" Greatest pitch of stays 15 1/2" Working pressure of plate by rules 206 lbs

Diameter of tube 2 1/2" Pitch of tube 3 1/2" x 3 1/2" Material of tube plates Steel Thickness: Front 1" Back 1 1/2" Mean pitch of stays 7 1/2" x 7 1/2"

Pitch across wide water spaces 13 1/2" Working pressures by rules 209 lbs Girders to Chamber tops: Material Steel Depth and thickness of girder at centre 8 1/2" x (3/4" x 2) Length as per rule 30 1/2" Distance apart 8' 4" Number and pitch of stays in each 3-6 1/2"

Working pressure by rules 212 lbs Superheater or Steam chest; how connected to boiler Yes Can the superheater be shut off and the boiler worked separately Yes

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

W 757-0114



# 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: 2 Propeller blades; pair Crank pin bushes; pair Cross head bushes; Fan & spindle for Oil pump; air pump rod; 2 slide valve spindles; set rings & springs H.P. piston; set rings H.P. piston valves; Breakdown coupling; 2 safety valve springs; 3 escape valves set; and all gear & tools Rules additional.

The foregoing is a correct description,

FOR WORKMAN, CLARK & CO. LIMITED.

Manufacturer.

Dates of Survey while building: During progress of work in shops: 1906. March 15, 22, 28. April 2, 11, 19, 24, 27, 30. May 3, 10, 18, 22, 24, 30, 30. June 1, 5, 12, 13, 15, 20, 22, 26, 26, 29. up to 2 October 1906

During erection on board vessel: \_\_\_\_\_

Total No. of visits: 56

Is the approved plan of main boiler forwarded herewith

Yes

Dates of Examination of principal parts—Cylinders 25-4-06 Cylinders to \_\_\_\_\_ Pistons \_\_\_\_\_ Rods \_\_\_\_\_

Connecting rods 9-7-06 Crank shaft 30-7-06 Thrust shaft do Tunnel shafts do Screw shaft do Propeller do

Stern tube 2-8-06 Steam pipes tested 10-8-06 Engine and boiler seatings 21-8-06 Engines holding down bolts 28-9-06

Completion of pumping arrangements 31-8-06 Boilers fixed 30-8-06 Engines tried under steam 2-10-06

Main boiler safety valves adjusted 26-9-06 Thickness of adjusting washers 11-14-06

Material of Crank shaft S. Steel Identification Mark on Do. 4402 P.S. Material of Thrust shaft do Identification Mark on Do. do

Material of Tunnel shafts do Identification Marks on Do. 30-7-06 Material of Screw shafts do Identification Marks on Do. do

Material of Steam Pipes W. Iron 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. It has been securely fitted on board, and on trials under steam in Belfast Lough, it worked satisfactorily. In my opinion it is eligible for record + L.M.C. 10-06 with Forced Draft & Electric Light & Reversing Machinery.

It is submitted that

this vessel is eligible for

THE RECORD H.L.M.C. 10-06 F.D. ELEC. LIGHT.

REF. MCHY.

10.10.06

The amount of Entry Fee. £ 3 : 0 : When applied for. 8-10-1906

Special . . . . £ 50 : 1 : When received. 12/10/06

Donkey Boiler Fee . . . . £ : :

Travelling Expenses (if any) £ : :

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

Committee's Minute

FRI. 12 OCT 1906

Assigned

+ L.M.C. 1006  
F.D. Elec. Light  
Ref. Mch

MACHINERY CERTIFICATE  
WRITTEN.



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Lloyd's Register  
Foundation

This Office

Certificate (if required) to be sent to

(The Surveyors are requested not to write on or below the space for Committee's Minute.)