

# REPORT ON MACHINERY.

No. 55487.

Port of Newcastle

Received at London Office **31. 5 OCT 1908**

No. in Survey held at Newcastle Date, first Survey 11<sup>th</sup> Sep 07 Last Survey 1<sup>st</sup> Oct 1908

Book. on the 545 "Joyo Maru" (Number of Visits 46)

Master J.A. Prowse Built at Newcastle By whom built Armstrong Whitworth & Co Tons Gross 5135

Engines made at Newcastle By whom made Wallsend Shipway & Eng<sup>g</sup> when made 1908 Net 3149

Wheels made at do. By whom made do. when made 1908 When built 1908

Registered Horse Power \_\_\_\_\_ Owners C. J. Bowring & Co. Ltd Port belonging to Liverpool

Net Horse Power as per Section 28 438 Is Refrigerating Machinery fitted for cargo purposes No. Is Electric Light fitted Yes.

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

No. of Cylinders 26. 43. 42 Length of Stroke 48 Revs. per minute 65 Dia. of Screw shaft as per rule 14 1/4 Material of screw shaft 5

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 Yes.

Is 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 shafts are fitted, is the shaft lapped or protected between the liners Yes. Length of stern bush 5' 1"

Dia. of Tunnel shaft as per rule 13.65 Dia. of Crank shaft journals as per rule 14 Dia. of Crank pin 14 Size of Crank web 282.93 Dia. of thrust shaft under bars 14 Dia. of screw 18.6 Pitch of Screw 14.6 No. of Blades 4 State whether moveable f Total surface 108.5

No. of Feed pumps 2 Diameter of ditto 7.92 Stroke 18 Can one be overhauled while the other is at work Yes.

No. of Bilge pumps 2 Diameter of ditto 4.2 Stroke 24 Can one be overhauled while the other is at work Yes.

No. of Donkey Engines 2 Sizes of Pumps 7.42 x 7.6 x 8.2 x 6 No. and size of Suctions connected to both Bilge and Donkey pumps In Holds, &c. No. 1. one 2" 1/2. one 2 1/2"

Engine Room 4 of 3 1/2

No. of Bilge Injections 1 sizes 4 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 above

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.

How are they protected none.

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.

Date of examination of completion of fitting of Sea Connections 29. 7. 08 of Stern Tube 29. 7. 08 Screw shaft and Propeller 29. 7. 08

Is the Screw Shaft Tunnel watertight Yes. Is it fitted with a watertight door worked from

MANUFACTURERS, &c.—(Letter for record R.) Manufacturers of Steel Spencer & Sons.

Total Heating Surface of Boilers 7425 Is Forced Draft fitted No. No. and Description of Boilers 3 S.E.

Working Pressure 180 lb Tested by hydraulic pressure to 360 Date of test 17. 1. 08 No. of Certificate 7661

Can each boiler be worked separately Yes. Area of fire grate in each boiler 642 No. and Description of Safety Valves to boiler 2 Spring Area of each valve 8.29 Pressure to which they are adjusted 185 Are they fitted with easing gear Yes.

Least distance between boilers or uptakes and bunkers or woodwork about 2' Mean dia. of boilers 16ft. Length 10.9 Material of shell plates S

Thickness 1 3/32 Range of tensile strength 29. 33 Are the shell plates welded or flanged both Descrip. of riveting: cir. seams dr. r. lap

seams dr. butt Diameter of rivet holes in long. seams 1 1/2 Pitch of rivets 10 Lap of plates or width of butt straps 21 3/4

Percentages of strength of longitudinal joint 93 Working pressure of shell by rules 209 Size of manhole in shell 16 x 12

No. of compensating ring McNeil's No. and Description of Furnaces in each boiler 3 Bay's Material S Outside diameter 4.1 1/4

Thickness of plain part top 9 Thickness of plates bottom 5/8 Description of longitudinal joint weld. No. of strengthening rings \_\_\_\_\_

Working pressure of furnace by the rules 202 Combustion chamber plates: Material S Thickness: Sides 5/8 Back 5/8 Top 5/8 Bottom 1 1/2

No. of stays to ditto: Sides 8 x 4 1/2 Back 4 1/2 x 4 1/2 Top 4 1/2 x 4 1/2 If stays are fitted with nuts or riveted heads nuts Working pressure by rules 219

Material of stays S Diameter at smallest part 1.6 Area supported by each stay 612 Working pressure by rules 195 End plates in steam space: Material S Thickness 1 3/32 Pitch of stays 16 1/2 x 15 1/2 How are stays secured dr. nuts Working pressure by rules 212 Material of stays S

Diameter at smallest part 2 1/4 Area supported by each stay 252 Working pressure by rules 188 Material of Front plates at bottom S

Thickness 1 Material of Lower back plate S Thickness 5/8 Greatest pitch of stays 14 Working pressure of plate by rules 188

Diameter of tubes 3 Pitch of tubes 4 1/2 x 4 1/2 Material of tube plates S Thickness: Front 1 3/32 Back 3/4 Mean pitch of stays 8 1/4 x 8 1/2

Distance across wide water spaces 14 Working pressures by rules 235 Girders to Chamber tops: Material S Depth and thickness of girder at centre 8 3/4 x 1 1/2 Length as per rule 31 3/4 Distance apart 7 1/2 Number and pitch of stays in each 3 @ 7 1/2

Working pressure by rules 183 Superheater or Steam chest; how connected to boiler Yes Can the superheater be shut off and the boiler worked Yes

Material Diameter Length Thickness of shell plates Material Description of longitudinal joint Diam. of rivet Pitch of rivets Working pressure of shell by rules Diameter of flue Material of flue plates Thickness

Are they strengthened 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 \_\_\_\_\_ Rivets \_\_\_\_\_

Dia. of rivet holes \_\_\_\_\_ Whether punched or drilled \_\_\_\_\_ Pitch of rivets \_\_\_\_\_ Lap of plating \_\_\_\_\_ Per centage of strength of joint \_\_\_\_\_ 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:— *1 Set connecting rod bolts & nuts, two main bearing bolts & nuts, 1 set coupling bolts & nuts, 1 set feed & bilge pump valves, propeller & shaft.*

The foregoing is a correct description,  
FOR THE WALLSEND SLIPWAY & ENGINEERING CO. LIMITED,  
Manufacturer.

Dates of Survey while building: During progress of work in shops— *Sept. 07, Oct. 25, Nov. 11, 13, 25, Dec. 3, 17, 19, 21, 31, 1908, Jan. 9, 10, 13, 15, 23, 30, Feb. 4, 20, 24, 26, 1909*  
During erection on board vessel— *Mar. 3, 10, Apr. 13, June 5, 15, July 21, 28, 29, 30, Aug. 3, 11, 27, 31, Sep. 1, 2, 3, 11, 17, 22, 28, Oct. 1*  
Total No. of visits *46*

Is the approved plan of main boiler forwarded herewith *Yes*  
" " " donkey " " " *Yes*

Dates of Examination of principal parts— Cylinders *13.11.07* Slides *24.7.08* Covers *24.7.08* Pistons *13.11.07* Rods *13.11.07*  
Connecting rods *13.11.07* Crank shaft *19.12.07* Thrust shaft *19.12.07* Tunnel shafts *17.12.07* Screw shaft *17.12.07* Propeller *13.1.08*  
Stern tube *28.7.08* Steam pipes tested *3<sup>rd</sup> Oct. 08* Engine and boiler seatings *31.8.08* Engines holding down bolts *31.8.08*  
Completion of pumping arrangements *1.10.08* Boilers fixed *31.8.08* Engines tried under steam *1.10.08*  
Main boiler safety valves adjusted *1.10.08* Thickness of adjusting washers *P.F. 5.5, S.F. 32.5, A.B. 8.5*  
Material of Crank shaft *S* Identification Mark on Do. *B.J.T.F.* Material of Thrust shaft *S* Identification Mark on Do. *B.J.T.F.*  
Material of Tunnel shafts *W.S.* Identification Marks on Do. *W.S.* Material of Screw shafts *S* Identification Marks on Do. *B.J.T.F.*  
Material of Steam Pipes \_\_\_\_\_ Test pressure *540*

General Remarks (State quality of workmanship, opinions as to class, &c. *Machinery and boilers built under special survey. Materials and workmanship good. Engines & boilers examined under steam & found satisfactory. In my opinion this vessel is eligible for the record of L.M.C. 10/08*)

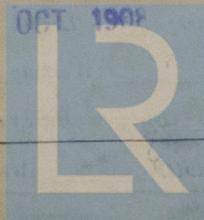
It is submitted that this vessel is eligible for THE RECORD + L.M.C. 10.08.  
Fitted for liquid fuel.  
Electric light.  
*J.W.D. 3/10/08*  
*S.P.R. 5-10-08*

The amount of Entry Fee... £ 3 : : When applied for, \_\_\_\_\_  
Special ... £ 41 : 18 : : \_\_\_\_\_  
Donkey Boiler Fee ... £ : : : When received, \_\_\_\_\_  
Travelling Expenses (if any) £ : : : *2 OCT 1908*

*J.Y. Hindle*  
Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute  
Assigned

FRI. 9 OCT 1908



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MACHINERY CERTIFICATE  
WRITTEN 10-08

Certificate (if required), to be sent to the Secretary of the Committee's Minute.