

# REPORT ON MACHINERY.

Received at London Office

SAT. JUL. 25. 1914

Date of writing Report 22. 7. 1914. When handed in at Local Office 24. 7. 1914 Port of MIDDLESBRO'

No. in Survey held at Middlesbrough Date, First Survey Octbr. 24. 1913. Last Survey July 13<sup>th</sup> 1914. Reg. Book. 574 on the S.S. "Galernian" (Number of Visits 45)

Master Built at Middlesbrough By whom built W. Barkess & Son L<sup>d</sup> Tons } Gross } Net } When built 1914

Engines made at Middlesbrough By whom made Richardsons, Westgarth & Co. L<sup>d</sup> when made 1914

Boilers made at do By whom made do when made 1914

Registered Horse Power Owners Ellenman Lines L<sup>d</sup> Port belonging to Liverpool

Nom. Horse Power as per Section 28 344 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted Yes

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

Dia. of Cylinders 20 1/2, 35 1/2, 60 Length of Stroke 42 Revs. per minute Dia. of Screw shaft as per rule 12.9. Material of Steel as fitted 13 1/4 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 If two liners are fitted, is the shaft lapped or protected between the liners Length of stern bush 5-1"

Dia. of Tunnel shaft as per rule 11.4. Dia. of Crank shaft journals as per rule 12. Dia. of Crank pin 12 1/2 Size of Crank webs 20x8 Dia. of thrust shaft under collars 12 1/2 Dia. of screw 16-0 Pitch of Screw 16-0 No. of Blades 4 State whether moveable No Total surface 85 sq. ft.

No. of Feed pumps 2 Weirs Diameter of ditto 7x9 1/2 Stroke 18 Can one be overhauled while the other is at work Yes

No. of Bilge pumps 2 Diameter of ditto 4 Stroke 25 1/2 Can one be overhauled while the other is at work Yes

No. of Donkey Engines Two Sizes of Pumps 7x8x8 7x5x8 No. and size of Suctions connected to both Bilge and Donkey pumps In Engine Room Three 3" In Holds, &c. Two 3" in each hold, One 3" in Tunnel well.

No. of Bilge Injections 1 sizes 6 1/2 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 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 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 Forward bilge suction How are they protected Wood ceiling

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. 5. 14 of Stern Tube 29. 5. 14 Screw shaft and Propeller 29. 5. 14

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

## BOILERS, &c.—(Letter for record (S) Manufacturers of Steel John Spencer & Sons L<sup>d</sup>)

Total Heating Surface of Boilers 4896 sq. ft. Is Forced Draft fitted Yes No. and Description of Boilers Two J. E. Cyle Muller

Working Pressure 215 lbs Tested by hydraulic pressure to 430 lbs Date of test 26. 1. 14 No. of Certificate 5225

Can each boiler be worked separately Yes Area of fire grate in each boiler 38 1/2 sq. ft. No. and Description of Safety Valves to each boiler Two direct spring Area of each valve 4.9 Pressure to which they are adjusted 220 lbs Are they fitted with easing gear Yes

Smallest distance between boilers or uptakes and bunkers or woodwork 11 Mean dia. of boilers 12-0 Length 12-0 Material of shell plates Steel

Thickness 1/8 Range of tensile strength 29-33 Are the shell plates welded or flanged No Descrip. of riveting: cir. seams Lap long. seams Lap 5 Rivets Diameter of rivet holes in long. seams 1 3/16 Pitch of rivets 8 3/8 Lap of plates or width of butt straps 18 1/4

Per centages of strength of longitudinal joint rivets 87.6 plate 85.8 Working pressure of shell by rules 217 lbs Size of manhole in shell 16x12

Size of compensating ring 34 1/2 x 29 x 1 1/8 No. and Description of Furnaces in each boiler Two Horizontal Material Steel Outside diameter 3-8 1/2

Length of plain part top 5 bottom 3 Thickness of plates crown 5 bottom 3 Description of longitudinal joint Welded No. of strengthening rings

Working pressure of furnace by the rules 226 Combustion chamber plates: Material Steel Thickness: Sides 23/32 Back 23/32 Top 1/16 Bottom 1/16

Pitch of stays to ditto: Sides 10 3/8 x 7 3/4 Back 9 x 8 1/2 Top 9 1/4 x 7 5/8 If stays are fitted with nuts or riveted heads Nuts Working pressure by rules 221 lbs

Material of stays Steel Diameter at smallest part 2.1 Area supported by each stay 76.5 Working pressure by rules 247 End plates in steam space:

Material Steel Thickness 1/16 Pitch of stays 18 x 16 3/4 How are stays secured Nut Working pressure by rules 221 lbs Material of stays Steel

Diameter at smallest part 7.02 Area supported by each stay 288 Working pressure by rules 254 Material of Front plates at bottom Steel

Thickness 1/32 Material of Lower back plate Steel Thickness 3/32 Greatest pitch of stays 14 1/2 x 8 1/2 Working pressure of plate by rules 230

Diameter of tubes 2 1/2 Pitch of tubes 3 3/4 x 3 3/4 Material of tube plates Steel Thickness: Front 1/32 Back 3/4 Mean pitch of stays 9 3/8

Pitch across wide water spaces 13 1/2 Working pressures by rules 223 lbs Girders to Chamber tops: Material Steel Depth and thickness of girder at centre 9 1/2 x 1 7/8 Length as per rule 2-8 1/2 Distance apart 9 1/4 Number and pitch of stays in each 30 7 5/8

Working pressure by rules 227 lbs Superheater or Steam chest; how connected to boiler None Can the superheater be shut off and the boiler worked separately

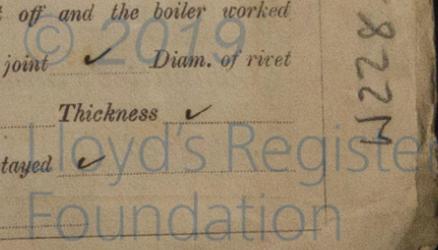
Diameter Length Thickness of shell plates Material Description of longitudinal joint Diam. of rivet holes Pitch of rivets Working pressure of shell by rules Diameter of flue Material of flue plates Thickness

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

If not, state whether, and when, one will be sent? No. If not, state whether, and when, one will be sent? No. If not, state whether, and when, one will be sent? No.

9900-822M W228-0068



**VERTICAL DONKEY BOILER—** Manufacturers of Steel

No. *None* 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 casing 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:— *Two top & two bottom end connecting rod bolts & nuts. Two main bearing bolts & nuts. One set of coupling bolts & nuts. One set of feed & bilge pump valves. One set of H.P. M.P. & L.P. piston rings. Assorted bolts & nuts etc.*  
 For and on behalf of **RICHARDSONS, WESTGARTH & Co**  
*E. Hall-Brown.*  
 The foregoing is a correct description,  
 Manufacturer.

Dates of Survey while building { During progress of work in shops -- } 1913. Oct. 24-29. Nov. 8-18-20-28. Dec. 1-5-8-10-12-15-19-22-1914. Jan. 6-12-21-26-27. Feb. 3-5-6  
 { During erection on board vessel -- } 13-19-24. Mar. 5-9-10-19-23-25. Apr. 1-8-16. May 18-23-29. Jun. 10-11-13-18. Jul. 1-3-8-13.  
 Total No. of visits *45.* Is the approved plan of main boiler forwarded herewith *yes*  
 " " " donkey " " "

Dates of Examination of principal parts—Cylinders *3. 2. 14* Slides *23. 3. 14* Covers *23. 3. 14* Pistons *9. 3. 14* Rods *9. 3. 14*  
 Connecting rods *9. 3. 14* Crank shaft *8. 1. 14* Thrust shaft *10. 3. 14* Tunnel shafts *25. 3. 14* Screw shaft *23. 5. 14* Propeller *23. 5. 14*  
 Stern tube *23. 5. 14* Steam pipes tested *6. 3. 14* Engine and boiler seatings *23. 5. 14* Engines holding down bolts *11. 6. 14*  
 Completion of pumping arrangements *13. 6. 14* Boilers fixed *11. 6. 14* Engines tried under steam *13. 6. 14*  
 Main boiler safety valves adjusted *13. 6. 14* Thickness of adjusting washers *PB PV 9/32 SV 5/16 CB PV 1/32 SV 3/32 SB PV 9/32 SV 5/16*  
 Material of Crank shaft *Steel* Identification Mark on Do. *5289AB* Material of Thrust shaft *Steel* Identification Mark on Do. *3688MB*  
 Material of Tunnel shafts *Steel* Identification Marks on Do. *3690MB, 668WS, 3689MB, 3691MB, 3615MB* Material of Screw shafts *Steel* Identification Marks on Do. *3687MB*  
 Material of Steam Pipes *Steel, Lap Welded* Test pressure *645 lbs, Glasgow Rpt.*

**General Remarks** (State quality of workmanship, opinions as to class, &c.)  
*The Engines and Boilers of this vessel have been constructed under Special Survey, are of good material and workmanship, and have been fitted and secured on board in accordance with the Rules. They are now in good working condition and in my opinion eligible to have the notation of + LMC 7. 14 in the Register Book.*

It is submitted that this vessel is eligible for THE RECORD. + LMC 7. 14. F.D.

*J.W.D.*  
*27/7/14*  
*J.R.S.*

The amount of Entry Fee .. £ 3 : 0 :  
 Special .. .. . £ 37 : 4 :  
 Donkey Boiler Fee .. .. £ : :  
 Travelling Expenses (if any) £ : :  
 When applied for, 15. 7. 1914  
 When received, 21. 7. 1914

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

Committee's Minute TUE AUG 11. 1914  
 Assigned *Deferred for further repl. on hull*

TUE SEP 1. 1914  
 + LMC 7. 14  
 F.D.  
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Certificate (if required) to be sent to \_\_\_\_\_

The Surveyor's report is not to be written on or below the space for Committee's Minute.