

## REPORT ON MACHINERY.

No. 24908

Received at London Office TUE. APR. 30. 1912

Date of writing Report 18/4/12 When handed in at Local Office 18/4/12 Port of F Hull  
 No. in Survey held at F Hull & Beverley Date, First Survey Sep. 11 Last Survey April 9<sup>th</sup> 1912  
 Reg. Book. 66 Cuffon the Sc. K. "BIRCH" (Number of Visits 36) Tons Gross 215 Net 106  
 Master Beverley Built at Beverley By whom built Croft, Welling, & Gummell Ltd. When built 1912  
 Engines made at F Hull By whom made Messrs Charles R. Holmes & Co. Ltd. when made 1912  
 Boilers made at F Hull By whom made Messrs Charles R. Holmes & Co. Ltd. when made 1912  
 Registered Horse Power 64 Owners W. Grant Port belonging to Grimby  
 Nom. Horse Power as per Section 28 64 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted No

ENGINES, &c.—Description of Engines Triple Expansion No. of Cylinders 3 No. of Cranks 3  
 Dia. of Cylinders 12 $\frac{1}{2}$ " - 22" - 35" Length of Stroke 24" Revs. per minute 106 Dia. of Screw shaft 4 $\frac{1}{2}$ " Material of screw shaft 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 36"  
 Dia. of Tunnel shaft 6 $\frac{1}{2}$ " Dia. of Crank shaft journals 4 $\frac{1}{2}$ " Dia. of Crank pin 4" Size of Crank webs 3 $\frac{3}{8}$ " x 4 $\frac{1}{2}$ " Dia. of thrust shaft under collars 4" Dia. of screw 8 $\frac{1}{2}$ " Pitch of Screw 10 $\frac{1}{2}$ " No. of Blades 4 State whether moveable No Total surface 28 sq ft  
 No. of Feed pumps 1 Diameter of ditto 2 $\frac{1}{2}$ " Stroke 24" Can one be overhauled while the other is at work Yes  
 No. of Bilge pumps 1 Diameter of ditto 2 $\frac{1}{2}$ " Stroke 24" Can one be overhauled while the other is at work Yes  
 No. of Donkey Engines 1 Sizes of Pumps 5" x 2 $\frac{3}{4}$ " x 5" No. and size of Suctions connected to both Bilge and Donkey pumps 2" in Engine Room  
 In Engine Room Two 2" forward & aft. In Holds, &c. One 2" 1's duct with 2" injection  
suctions from all bilges with discharge on deck.  
 No. of Bilge Injections 1 sizes 3" Connected to condenser, or to circulating pump Pump Is a separate Donkey Suction fitted in Engine room & size Yes 2 $\frac{1}{2}$ "  
 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  
 What pipes are carried through the bunkers Hold suction How are they protected Wood casing  
 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. 12 of Stern Tube 23. 1. 12 Screw shaft and Propeller 23. 1. 12  
 Is the Screw Shaft Tunnel watertight Yes Is it fitted with a watertight door Yes worked from Yes

BOILERS, &c.—(Letter for record S) Manufacturers of Steel Messrs Phoenix & Co. Ltd. Glasgow No. and Description of Boilers One cyl. mult. simple ended  
 Total Heating Surface of Boilers 1040 sq ft Is Forced Draft fitted No No. and Description of Boilers One cyl. mult. simple ended  
 Working Pressure 180 lbs Tested by hydraulic pressure to 360 lbs Date of test 20. 2. 12 No. of Certificate 1844  
 Can each boiler be worked separately Yes Area of fire grate in each boiler 32 sq ft No. and Description of Safety Valves to each boiler Two Spring Area of each valve 3.94 sq in Pressure to which they are adjusted 185 lbs Are they fitted with easing gear Yes  
 Smallest distance between boilers or uptakes and bunkers or woodwork 5" Mean dia. of boilers 12 $\frac{1}{2}$ " Length 10 $\frac{1}{2}$ " Material of shell plates S  
 Thickness 1 $\frac{1}{2}$ " Range of tensile strength 28.32 tons Are the shell plates welded or flanged No Descrip. of riveting: cir. seams L. 10  
 long. seams D. B. S. L. R. Diameter of rivet holes in long. seams 1 $\frac{1}{2}$ " Pitch of rivets 4" Lap of plates or width of butt straps 15"  
 Per centages of strength of longitudinal joint 88.4 Working pressure of shell by rules 184 lbs Size of manhole in shell 16" x 12"  
 Size of compensating ring 4" x 1 $\frac{1}{2}$ " No. and Description of Furnaces in each boiler Two plain Material S Outside diameter 3 $\frac{1}{2}$ "  
 Length of plain part 6 $\frac{1}{2}$ " Thickness of plates 1 $\frac{1}{2}$ " Description of longitudinal joint Welded No. of strengthening rings 4  
 Working pressure of furnace by the rules 180 lbs Combustion chamber plates: Material S Thickness: Sides 2 $\frac{3}{8}$ " Back 1 $\frac{1}{2}$ " Top 2 $\frac{3}{8}$ " Bottom 2 $\frac{3}{8}$ "  
 Pitch of stays to ditto: Sides 9" x 10" Back 9" x 10" Top 8 $\frac{1}{2}$ " x 10" If stays are fitted with nuts or riveted heads Yes Working pressure by rules 180 lbs  
 Material of stays S Diameter at smallest part 1 $\frac{1}{2}$ " Area supported by each stay 90 sq in Working pressure by rules 204 lbs End plates in steam space: Material S Thickness 1 $\frac{1}{2}$ " Pitch of stays 14" x 14" How are stays secured By L. W. Working pressure by rules 185 lbs Material of stays S  
 Diameter at smallest part 5 $\frac{1}{8}$ " Area supported by each stay 289 sq in Working pressure by rules 208 lbs Material of Front plates at bottom S  
 Thickness 1 $\frac{1}{2}$ " Material of Lower back plate S Thickness 2 $\frac{3}{8}$ " Greatest pitch of stays 14 $\frac{1}{2}$ " x 9" Working pressure of plate by rules 195 lbs  
 Diameter of tubes 3 $\frac{1}{2}$ " Pitch of tubes 5" x 5" Material of tube plates S Thickness: Front 1 $\frac{1}{2}$ " Back 1 $\frac{1}{2}$ " Mean pitch of stays 10"  
 Pitch across wide water spaces 15" x 3" doubler Working pressures by rules 249 lbs Girders to Chamber tops: Material S Depth and thickness of girder at centre 9" x 1 $\frac{3}{4}$ " Length as per rule 2 $\frac{1}{2}$ " Distance apart 8 $\frac{1}{2}$ " Number and pitch of stays in each 2-10"  
 Working pressure by rules 260 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



# 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  
 Working pressure of shell by rules \_\_\_\_\_ Thickness of shell crown plates \_\_\_\_\_ Radius of do. \_\_\_\_\_ No. of stays to do. \_\_\_\_\_ Dia. of stays \_\_\_\_\_ Plates  
 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 each top & bottom end connecting rod bolts & nuts, two main bearing bolts & nuts, one set of coupling bolts & nuts, one set each feed & blift pump valves, iron of various sizes, a quantity of assorted bolts, nuts etc—*

The foregoing is a correct description,  
 p. pro CHARLES D. HOLMES & Co. LTD.

Manufacturer.

Dates of Survey while building { During progress of work in shops -- } 14/11. - Sep. 4. 26. Oct. 2. 3. 10. 19. 30. Nov. 17. 24. 27. Dec. 11. 1912. - Jan. 1. 9. 16. 17. 18. 23. 25. 30.  
 { During erection on board vessel -- } Feb. 1. 2. 6. 9. 13. 15. 20. 21. 23. 27. Mar. 4. 8. 12. 13. 19. 20. Apr. 9.  
 Total No. of visits 36.

Is the approved plan of main boiler forwarded herewith *yes*

Dates of Examination of principal parts—Cylinders 1. 2. 12 Slides 24. 2. 12 Covers 6. 2. 12 Pistons 21. 2. 12 Rods 1. 2. 12  
 Connecting rods 21. 2. 12 Crank shaft 24. 2. 12 Thrust shaft 24. 2. 12 Tunnel shafts " Screw shaft 18. 1. 12 Propeller 18. 1. 12  
 Stern tube 18. 1. 12 Steam pipes tested 13. 3. 12 Engine and boiler seatings 23. 1. 12 Engines holding down bolts 8. 3. 12  
 Completion of pumping arrangements 9. 4. 12 Boilers fixed 15. 3. 12 Engines tried under steam 15. 3. 12  
 Main boiler safety valves adjusted 15. 3. 12 Thickness of adjusting washers AFT. 5/32" FORWARD 3/32"  
 Material of Crank shaft I Identification Mark on Do. N° 8448 T. 4. D. 13. 2. 12 Material of Thrust shaft S Identification Mark on Do. N° 8448 T. 4. D. 27. 2. 12  
 Material of Tunnel shafts " Identification Marks on Do. " Material of Screw shafts I Identification Marks on Do. N° 8448 T. 4. D. 18. 1. 12  
 Material of Steam Pipes Solid drawn copper Test pressure 360 lbs. per sq. inch.

General Remarks (State quality of workmanship, opinions as to class, &c. *The engines & boiler of this vessel have been constructed under special survey in accordance with the Rules; the materials & workmanship are sound & good. The boiler tested by hydraulic pressure, & with the engines secured on board & tested under steam they are now in good order & safe working condition & respectfully submitted as being eligible in my opinion to be classed with the notation of L.M.C. 4. 12 in the Register Book.*

It is submitted that  
 this vessel is eligible for  
 THE RECORD. + L.M.C. 4. 12

*1. 5. 12.*

The amount of Entry Fee .. £ 1 : 0 :  
 Special .. £ 10 : 1 :  
 Donkey Boiler Fee .. £ : :  
 Travelling Expenses (if any) £ : 2/- :  
 When applied for, 29. 4. 12  
 When received, 30. 4. 12

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

Committee's Minute  
 Assigned

FRI. MAY 3 - 1912

*+ hmc 4. 12*



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Lloyd's Register  
 Foundation

Certificate (if required) to be sent to Hull

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