

REPORT ON MACHINERY.

No. 25162

Received at London Office

TUE JUL 2-1912

Date of writing Report 19 When handed in at Local Office 29.6.12 Port of Hull.
 No. in Survey held at Hull. Date, First Survey Mar 1912 Last Survey Jun 22nd 1912
 Reg. Book. 49 sup. on the Steam Trawler "BALFOUR". (Number of Visits 22)
 Master Built at Selby. By whom built Cochrane & Sons. Tons { Gross 285
 Engines made at Hull. By whom made Messrs. Charles D. Thomas & Co. Ltd. when made 1912
 Boilers made at Hull. By whom made when made 1912
 Registered Horse Power Owners Pickering & Haldon's S. J. Coy. Ltd. Port belonging to Hull.
 Nom. Horse Power as per Section 28 79. 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 $\frac{3}{4}$ "-22"-36" Length of Stroke 24" Revs. per minute 112 Dia. of Screw shaft as per rule 4 $\frac{1}{2}$ " Material of screw shaft S.
 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 If two liners are fitted, is the shaft lapped or protected between the liners Length of stern bush 36"
 Dia. of Tunnel shaft as per rule 6 $\frac{3}{4}$ " Did. of Crank shaft journals as per rule 4 $\frac{1}{2}$ " Dia. of Crank pin 4 $\frac{1}{2}$ " Size of Crank webs 4 $\frac{3}{4}$ " x 14" Dia. of thrust shaft under collars 4 $\frac{1}{2}$ " Dia. of screw 9'-0" Pitch of Screw 11'-0" No. of Blades 4. State whether moveable No. Total surface 29 $\frac{1}{2}$ "
 No. of Feed pumps 1 Diameter of ditto 2 $\frac{3}{8}$ " Stroke 14 $\frac{1}{2}$ " Can one be overhauled while the other is at work
 No. of Bilge pumps 1 Diameter of ditto 2 $\frac{3}{8}$ " Stroke 14 $\frac{1}{2}$ " Can one be overhauled while the other is at work
 No. of Donkey Engines 1 Sizes of Pumps 6" x 4 $\frac{1}{2}$ " x 6" No. and size of Suctions connected to both Bilge and Donkey pumps
 In Engine Room Two 2" - One forward & one aft. In Holds, &c. One 2" to deck well, one 2" to main hold, one 2" to fore-castle. Bilge suction from all bilges with anchor, 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 $\frac{3}{8}$ "
 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 O.
 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 Cold 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 3.4.12 of Stern Tube 3.4.12 Screw shaft and Propeller 3.4.12
 Is the Screw Shaft Tunnel watertight O. Is it fitted with a watertight door worked from

BOILERS, &c.—(Letter for record S.) Manufacturers of Steel Swan's & Lloyd's Ltd. Glasgow.
 Total Heating Surface of Boilers 1295 $\frac{1}{2}$ Is Forced Draft fitted No. No. and Description of Boilers One cyl. multi. single. modid.
 Working Pressure 200 lbs. Tested by hydraulic pressure to 400 lbs. Date of test 31.5.12 No. of Certificate 1902.
 Can each boiler be worked separately Area of fire grate in each boiler 46 $\frac{1}{2}$ No. and Description of Safety Valves to each boiler Two Spring. Area of each valve 4'9" Pressure to which they are adjusted 200 lbs. Are they fitted with easing gear Yes.
 Smallest distance between boilers or uptakes and bunkers or woodwork 6" Ex. Mean dia. of boilers 13'-6" Length 10'-6" Material of shell plates S.
 Thickness 1 $\frac{3}{4}$ " Range of tensile strength 28 tons. Are the shell plates welded or flanged No. Descrip. of riveting: cir. seams S. D. long. seams S. D. S. J. Y. Diameter of rivet holes in long. seams 1 $\frac{3}{8}$ " Pitch of rivets 8" Lap of plates on width of butt straps 16 $\frac{5}{8}$ "
 Per centages of strength of longitudinal joint rivets 85% plate 85% Working pressure of shell by rules 212 lbs. Size of manhole in shell 16" x 12"
 Size of compensating ring 4" x 1 $\frac{3}{8}$ " No. and Description of Furnaces in each boiler 3 plain. Material S. Outside diameter 38"
 Length of plain part top 6'-5 $\frac{1}{2}$ " bottom 6'-5 $\frac{1}{2}$ " Thickness of plates crown 5 $\frac{1}{2}$ " bottom 6 $\frac{1}{2}$ " Description of longitudinal joint Welded. No. of strengthening rings 0
 Working pressure of furnace by the rules 212 lbs. Combustion chamber plates: Material S. Thickness: Sides 23" Back 23" Top 23" Bottom 23"
 Pitch of stays to ditto: Sides 8" x 10" Back 8 $\frac{1}{2}$ " x 10" Top 8" x 11" If stays are fitted with nuts or riveted heads No. Working pressure by rules 212 lbs.
 Material of stays S. Diameter at smallest part 2.4 Area supported by each stay 10'10" Working pressure by rules 213 lbs. End plates in steam space: Material S. Thickness 1 $\frac{3}{8}$ " Pitch of stays 18" x 18" How are stays secured H. & W. Working pressure by rules 206 lbs. Material of stays S.
 Diameter at smallest part 6'3" Area supported by each stay 324" Working pressure by rules 203 lbs. Material of Front plates at bottom S.
 Thickness 1 $\frac{3}{8}$ " Material of Lower back plate S. Thickness 2 $\frac{3}{8}$ " Greatest pitch of stays 14 $\frac{1}{2}$ " x 8 $\frac{1}{4}$ " Working pressure of plate by rules 204 lbs.
 Diameter of tubes 3 $\frac{1}{2}$ " Pitch of tubes 6 $\frac{1}{2}$ " x 5" Material of tube plates S. Thickness: Front 16" Back 8" Mean pitch of stays 10"
 Pitch across wide water spaces 14" x 14" Working pressures by rules 213 lbs. Girders to Chamber tops: Material S. Depth and thickness of girder at centre 10 $\frac{3}{4}$ " - 1 $\frac{3}{4}$ " Length as per rule 2'-11 $\frac{3}{8}$ " Distance apart 11" Number and pitch of stays in each 3 - 8"
 Working pressure by rules 203 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 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 each top & bottom end connecting rod bolts & nuts, two main bearing bolts & nuts, one set of coupling bolts & nuts, one set each feed & bilge 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.

S. Arthur Holmes
 Dates of Survey while building { During progress of work in shops -- } 1912 - Mar 14, 26, 27, Apr 1, 3, 12, 17, 23, 25, May 1, 3, 7, 15, 17, 22, 30, June 6, 7, 11, 15, 21, 22
 { During erection on board vessel -- }
 Total No. of visits 27

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

Dates of Examination of principal parts—Cylinders 14.4.12 Slides 15.5.12 Covers 15.5.12 Pistons 15.5.12 Rods 4.5.12
 Connecting rods 4.5.12 Crank shaft 1.5.12 Thrust shaft 15.5.12 Tunnel shafts - Screw shaft 1.4.12 Propeller 1.4.12
 Stern tube 24.3.12 Steam pipes tested 4.6.12 Engine and boiler seatings 3.4.12 Engines holding down bolts 11.6.12
 Completion of pumping arrangements 15.6.12 Boilers fixed 11.6.12 Engines tried under steam 15.6.12
 Main boiler safety valves adjusted 15.6.12 Thickness of adjusting washers *found 3" off 4"*
 Material of Crank shaft S. Identification Mark on Do. N° 8887.42 Material of Thrust shaft S. Identification Mark on Do. N° 8887.42
 Material of Tunnel shafts - Identification Marks on Do. - Material of Screw shafts S. Identification Marks on Do. N° 8887.42
 Material of Steam Pipes *Solid drawn copper* Test pressure *400 lbs. pressure 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 "L.M.C. 6.12" in the Register Book.*

It is submitted that
 this vessel is eligible for
THE RECORD + L.M.C. 6.12.

JWA
 27/4/12

The amount of Entry Fee £ 1 : 0 :
 Special £ 11 : 14 :
 Donkey Boiler Fee £ : :
 Travelling Expenses (if any) £ 4/1 :
 When applied for, 1.7.1912
 When received, 31.7.1912

Committee's Minute

FRI. JUL 5-1912

Assigned

27/6.6.12.

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



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