

## REPORT ON MACHINERY.

No. 6645

FRI. 6 AUG 1909

Port of *Belfast*

Received at London Office

No. in Survey held at  
Reg. Book. on theDate, first Survey *23<sup>rd</sup> Nov 1906* Last Survey *28<sup>th</sup> July 1909*(Number of Visits *88*)Gross *3583*Net *2213*

Master

Built at *Belfast*By whom built *Workman Clark & Bayly*When built *1907*Engines made at *Belfast*

By whom made

when made

Boilers made at

By whom made

when made

Registered Horse Power

Owners *Lloyd Brasileiro Co*Port belonging to *Rio-de-Janeiro*Nom. Horse Power as per Section 28 *534*Is Refrigerating Machinery fitted for cargo purposes *Yes*Is Electric Light fitted *Yes*

## ENGINES, &amp;c.—Description of Engines

*Triple Expansion* of Cylinders *6* No. of Cranks *6*Dia. of Cylinders *18"-30"-49"* Length of Stroke *42"* Revs. per minute *100* Dia. of Screw shaft as per rule *10.13* Material of screw shaft *as fitted 11.5* *Stal*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 tightin 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 partbetween the bearings in the stern tube, is the space charged with a plastic material insoluble in water and non-corrosive *Yes* If twoliners are fitted, is the shaft lapped or protected between the liners *✓* Length of stern bush *46"*Dia. of Tunnel shaft as per rule *9.85* Dia. of Crank shaft journals as per rule *10.34* Dia. of Crank pin *11"* Size of Crank webs *19 1/2 x 7 1/2* Dia. of thrust shaft undercollars *11"* Dia. of screw *12.9* Pitch of Screw *14.9* No. of Blades *3* State whether moveable *Yes* Total surface *46 sq ft*No. of Feed pumps *1* Diameter of ditto *4"* Stroke *21"* Can one be overhauled while the other is at work *Yes*No. of Bilge pumps *1* Diameter of ditto *4"* Stroke *21"* Can one be overhauled while the other is at work *Yes*No. of Donkey Engines *5* Sizes of Pumps *General 8 x 5 1/2 x 8* No. and size of Suctions connected to both Bilge and Donkey pumpsIn Engine Room *4-3 1/2 x 1-3 1/2* *Ballast 9 x 10 x 19* Holds, &c. *6-3 1/2 x 1-3 1/2**Sanit 6 x 6 x 10*No. of Bilge Injections *2* sizes *6"* Connected to condenser, or to circulating pump *Pumps* 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 *One 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 *13/6/07* of Stern Tube *13/6/07* Screw shaft and Propeller *13/6/07*Is the Screw Shaft Tunnel watertight *Stal* *Yes* it fitted with a watertight door *Yes* worked from *Upper deck*BOILERS, &c.—(Letter for record *9*) Manufacturers of Steel *Sweet, Keen & Nettleton*Total Heating Surface of Boilers *8754 sq ft* forced Draft fitted *Yes* No. and Description of Boilers *3 - Single End Cylindrical*Working Pressure *180 lbs* Tested by hydraulic pressure to *360 lbs* Date of test *7-5-07* No. of Certificate *398*Can each boiler be worked separately *Yes* Area of fire grate in each boiler *74 3/4 sq ft* No. and Description of Safety Valves toeach boiler *2 - Rust Spring* Area of each valve *12.56 sq in* Pressure to which they are adjusted *180 lbs* Are they fitted with easing gear *Yes*Smallest distance between boilers or uptakes and bunkers or woodwork *18"* Mean dia. of boilers *16"-0"* Length *11'-9"* Material of shell plates *Stal*Thickness *1 1/32"* Range of tensile strength *28-32* Are the shell plates welded or flanged *No* Descrip. of riveting: cir. seams *Lap Rivet*long. seams *Butt Lap* Diameter of rivet holes in long. seams *1 1/32"* Pitch of rivets *9 1/4"* Lap of plates or width of butt straps *2 1/4"*Per centages of strength of longitudinal joint *84.9* Working pressure of shell by rules *207 lbs* Size of manhole in shell *16" x 12"*Size of compensating ring *W. Neils* No. and Description of Furnaces in each boiler *4 - Brighton* Material *Stal* Outside diameter *43 1/4"*Length of plain part *10'* Thickness of plates *3 3/4"* Description of longitudinal joint *Weld* No. of strengthening rings *✓*Working pressure of furnace by the rules *211 lbs* Combustion chamber plates: Material *Stal* Thickness: Sides *3 1/2"* Back *3 1/4"* Top *3 1/2"* Bottom *3 1/2"*Pitch of stays to ditto: Sides *9 1/2 x 9 1/2* Top *9 x 8 1/2* If stays are fitted with nuts or riveted heads *Nuts inside* Working pressure by rules *198 lbs*Material of stay *Stal* Diameter at smallest part *1 1/2"* Area supported by each stay *76 1/2 sq in* Working pressure by rules *203 lbs* End plates in steam space:Material *Stal* Thickness *1 1/32"* Pitch of stays *16 x 16* How are stays secured *Nuts inside* Working pressure by rules *204 lbs* Material of stays *Stal*Diameter at smallest part *2 1/16"* Area supported by each stay *304 sq in* Working pressure by rules *219 lbs* Material of Front plates at bottom *Stal*Thickness *1"* Material of Lower back plate *Stal* Thickness *5/8"* Greatest pitch of stays *13 1/2"* Working pressure of plate by rules *86 lbs*Diameter of tubes *2 1/2"* Pitch of tubes *3 1/4 x 3 5/8* Material of tube plates *Stal* Thickness: Front *1 1/16"* Back *1 1/16"* Mean pitch of stays *9 1/2 x 7 1/4*Pitch across wide water spaces *13 1/2"* Working pressures by rules *185 lbs* Girders to Chamber tops: Material *Stal* Depth andthickness of girder at centre *9 x (3/4 x 2)* Length as per rule *32 3/4"* Distance apart *8 1/2"* Number and pitch of stays in each *2-9"*Working pressure by rules *183 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

Lloyd's Register  
Foundation  
W718-0859



# 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:— *Propeller shaft: 2 propeller blades; pair crank pin bushes; pair cross head bushes; air pump work. bucket. head. valve seat; Centrif. pump fan & spindle; sets 14. P. & 1. P. piston rings; Sanitary pump rod & plunger; Condenser tubes, ferrules & set; 2 side valve & spindle & all parts to Lloyd's Rules Extra*

The foregoing is a correct description,  
FOR WORKMAN, CLARK & CO., LIMITED.

*M. W. Bell* Manufacturer.

Dates of Survey while building { During progress of work in shops - 1906: - 1005-23-26-29 Dec 6. 13-18-20. 1907: - Jan 3-10-11-14-16-21-29 Feb 6-8  
During erection on board vessel - 11-13 up to 10 Dec 1907. 1908: - Feb 5-20. June 2 up to 21 Dec 1908.  
Total No. of visits 88  
Is the approved plan of main boiler forwarded herewith *Yes*

Dates of Examination of principal parts—Cylinders \_\_\_\_\_ Slides \_\_\_\_\_ Covers \_\_\_\_\_ Pistons \_\_\_\_\_ Rods \_\_\_\_\_

Connecting rods 14- Crank shaft 06 Thrust shaft 07 Tunnel shafts \_\_\_\_\_ Screw shaft 21 - Propeller 14-5-07

Stern tube 14-5-07 Steam pipes tested 11-3-07 Engine and boiler seatings 25-6-07 Engines holding down bolts 20-6-07

Completion of pumping arrangements 6-12-07 Boilers fixed 7-8-07 Engines tried under steam 10-12-07 }  
Main boiler safety valves adjusted 10-12-07 } Thickness of adjusting washers 10-14 - } 28-7-09 }  
Material of Crank shaft *W. Lloyd* Identification Mark on Do. *LLOYD'S* Material of Thrust shaft *W. Lloyd* Identification Mark on Do. *Do*  
Material of Tunnel shafts *W. Lloyd* Identification Marks on Do. *W. Lloyd* Material of Screw shafts *W. Lloyd* Identification Marks on Do. *LLOYD'S*  
Material of Steam Pipes *W. Lloyd* Test pressure 540 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, the workmanship and the materials used are of good description, and an trial under steam in Belfast Lough. The machinery worked satisfactorily.*

*The progress of work on this vessel has been delayed from time to time, for various reasons, not of a technical nature.*

*In my opinion, it is eligible for record + L.M.C. 7-09 with notation "Forced draft & Electric Light"*

It is submitted that  
this vessel is eligible for  
THE RECORD.

Ref. mech. F.D. *ARK*

*R. L. Pennington*  
Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

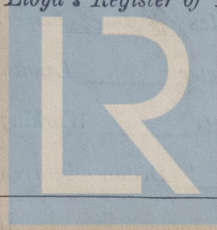
The amount of Entry Fee. £ 3 : 0 :  
Special £ 46. 14 :  
Donkey Boiler Fee £ : :  
Travelling Expenses (if any) £ : :  
When applied for, 29-7-09  
When received, 31-8-09

Committee's Minute

TUES. 10 AUG 1909

Assigned

MACHINERY CERTIFICATE  
WRITTEN



Lloyd's Register  
Foundation