

## REPORT ON MACHINERY.

No. 6474

JUN 2 JUN 1908

Port of

Belfast

Received at London Office

19

No. in Survey held at  
Reg. Book.

Date, first Survey 19 April 1907 Last Survey 19 June 1908

(Number of Visits)

Gross

Net

When built

1908

Master

Built at

By whom built

Tons

When built

Engines made at

By whom made

when made

Boilers made at

By whom made

when made

Registered Horse Power

Owners

Port belonging to

Nom. Horse Power as per Section 28

Is Refrigerating Machinery fitted for cargo purposes

Is Electric Light fitted

ENGINES, &c.—Description of Engines *Lucin Perce Quadriple Expansion* Cylinders 8 No. of Cranks 8Dia. of Cylinders *23"-34"-48"-69"* Length of Stroke *51"* Revs. per minute *78* Dia. of Screw shaft *14 1/2"* Material of *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 tightin 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 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 *Yes* Length of stern bush *61"*Dia. of Tunnel shaft *13 1/2"* as per rule *13 1/2"* Dia. of Crank shaft journals *13 1/2"* as per rule *13 1/2"* Dia. of Crank pin *14 1/2"* Size of Crank web *26 1/2" x 10 1/2"* Dia. of thrust shaft undercollars *14 1/2"* Dia. of screw *16"-6"* Pitch of Screw *19'-0"* No. of Blades *3* State whether moveable *Yes* Total surface *72 sq ft.*No. of Feed pumps *1* Diameter of ditto *5 1/2"* Stroke *28"* Can one be overhauled while the other is at work *Yes*No. of Bilge pumps *1* Diameter of ditto *5"* Stroke *28"* Can one be overhauled while the other is at work *Yes*No. of Donkey Engines *6* Sizes of Pumps *10 1/2" x 9 1/2" x 26" 10 1/2" x 7 1/2" x 12" 10 1/2" x 5 1/2" x 12" 10 1/2" x 4 1/2" x 12" 10 1/2" x 3 1/2" x 12" 10 1/2" x 2 1/2" x 12"* and size of Suctions connected to both Bilge and Donkey pumpsIn Engine Room *4-3 1/2" 3-2 1/2" 2-3"* Holds, &c. *10-3 1/2" 1-3" 4-2 1/2"*No. of Bilge Injections *2* sizes *8"* Connected to condenser, or to circulating pump *Pumps* Is a separate Donkey Suction fitted in Engine room & size *2-4"*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 *Both*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 *All pipes carried this pipe tunnel* How are they protected *Iron tunnel*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 *18-12-07* of Stern Tube *18-12-07* Screw shaft and Propeller *18-12-07*Is the Screw Shaft Tunnel watertight *Stated to be* Is it fitted with a watertight door *Yes* worked from *Engine Room top platform*BOILERS, &c.—(Letter for record *Yes*) Manufacturers of Steel *H. Calville & Sons Glasgow*Total Heating Surface of Boilers *14460 sq ft* Is forced draft fitted *No* No. and Description of Boilers *3 Double End Cyl.*Working Pressure *215 lbs* Tested by hydraulic pressure to *430 lbs* Date of test *20-12-07* No. of Certificate *408*Can each boiler be worked separately *Yes* Area of fire grate in each boiler *124 sq ft* No. and Description of Safety Valves toeach boiler *3 Relief Spring* Area of each valve *9.62 sq in* Pressure to which they are adjusted *215 lbs* Are they fitted with easing gear *Yes*Smallest distance between boilers *as upstages and bunkers on woodwork* *16"* Mean dia. of boilers *15'-6"* Length *19'-8"* Material of shell plates *Steel*Thickness *1 1/2"* Range of tensile strength *29-32 tons* Are the shell plates welded or flanged *No* Descrip. of riveting: cir. seams *Lap R & J*long. seams *Butt Lap* Diameter of rivet holes in long. seams *1 1/2"* Pitch of rivets *10"* or width of butt straps *23 1/2"*Per centages of strength of longitudinal joint *90.6* Working pressure of shell by rules *250 lbs* Size of manhole in shell *16" x 12"*Size of compensating ring *McNeils* No. and Description of Furnaces in each boiler *6-Mannison* Material *Steel* Outside diameter *49 1/2"*Length of plain part *6"* Thickness of plates *3 1/2"* Description of longitudinal joint *Weld* No. of strengthening rings *8 to an*Working pressure of furnace by the rules *242 lbs* Combustion chamber plates: Material *Steel* Thickness: Sides *5"* Back *5"* Top *5"* Bottom *1 1/2" x 1 3/4"*Pitch of stays to ditto: Sides *7 1/2" x 7 1/2"* Back *7 1/2" x 7 1/2"* Top *8 1/2" x 7 1/2"* If stays are fitted with nuts or riveted heads *Nuts inside* Working pressure by rules *217 lbs*Material of stays *Steel* Diameter at smallest part *1 1/2" 1 5/8" 1 3/4"* Are stays supported by *each stay* Working pressure by rules *224 lbs* End plates in steam space:Material *Steel* Thickness *1 1/2"* Pitch of stays *18" x 15 1/2"* How are stays secured *Nuts & Washers* Working pressure by rules *215 lbs* Material of stays *Steel*Diameter at smallest part *3"* Area supported by *each stay* Working pressure by rules *263 lbs* Material of Front plates at bottom *Steel*Thickness *1 1/2"* Material of Lower back plate *Steel* Thickness *1 1/2"* Greatest pitch of stays *8 1/2" x 8 1/2"* Working pressure of plate by rules *Yes*Diameter of tubes *3"* Pitch of tubes *4 1/2" x 4 1/2"* Material of tube plates *Steel* Thickness: Front *5"* Back *1 1/2" x 1 3/4"* Mean pitch of stays *8 1/2" x 8 1/2"*Pitch across wide water spaces *14 1/2"* Working pressures by rules *326 lbs with 8" tubes* to Chamber tops: Material *Steel* Depth andthickness of girder at centre *8 1/2" x (7/8 x 2)* Length as per rule *49 3/8"* Distance apart *8 1/2"* Number and pitch of stays in each *6-7 1/2"*Working pressure by rules *180 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 \_\_\_\_\_

Working pressure \_\_\_\_\_ tested by hydraulic pressure to \_\_\_\_\_ Date of test \_\_\_\_\_ When made \_\_\_\_\_ Where fixed \_\_\_\_\_

Valves \_\_\_\_\_ No. of Safety Valves \_\_\_\_\_ Area of each \_\_\_\_\_ Pressure to which they are adjusted \_\_\_\_\_ Fire grate area \_\_\_\_\_ Description of Safe \_\_\_\_\_

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, piston rod, guide shoe, eccentric strap, feed pump plunger, lift pump plunger, air pump bucket rod, & foot valve, H.P. valve spindle & P. do. spindle & impeller for circulating pump, air pump bucket rod, sets connecting rod brasses, top & bottom, 6 propeller blades, sets piston rings for all cyls. etc. & all gear to & from the*

The foregoing is a correct description, *Harland & Wolff* Manufacturer.

Dates of Survey while building: During progress of work in shops— *1907. April 15, 24, 26, May 2, 7, 10, 15, 16, 21, 23, 29, June 17, 25, July 3, 11, 25*

During erection on board vessel— *30 Aug 2, 7, Sep 3, 10, 21, 30 Oct 7, 11, 14, 22, 28, 29, up to 1st June 1908*

Total No. of visits *79*

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

Dates of Examination of principal parts—Cylinders \_\_\_\_\_ " " " donkey " " " "

Connecting rods *1-1-08* Crank shaft *24th May 04* Tunnel shafts *to* Pistons *to* Rods \_\_\_\_\_

Stern tube *21-11-07* Steam pipes tested *14/3/08* Engine and boiler seatings *24-2-08* Engines holding down bolts *20-2-08*

Completion of pumping arrangements *14-4-08* Boilers fixed *13-3-08* Engines tried under steam *14-3-08*

Main boiler safety valves adjusted *14-3-08* Thickness of adjusting washers *11-13*

Material of Crank shaft *I. Steel* Identification Mark on Do. *LLOYDS* Material of Thrust shaft *do* Identification Mark on Do. *do*

Material of Tunnel shafts *do* Identification Marks on Do. *do* Material of Screw shafts *do* Identification Marks on Do. *do*

Material of Steam Pipes *W. Dean & Sons* Test pressure *640 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, are of good description throughout, and an trial under steam, the machinery worked satisfactorily. In my opinion, it is eligible to have record L.M.C. 6-08 with notation Electric Light, & Refrigerating Machinery.*

It is submitted that this vessel is eligible for THE RECORD L.M.C. 6.08.

ELEC. LIGHT. REF. MCHY.

*HC 2-6-08*

*2.6.08*

The amount of Entry Fee. £ *3* : - : When applied for, *20-5-08*

Special £ *73* : 15 : When received, *10-6-08*

Donkey Boiler Fee £ : :

Travelling Expenses (if any) £ : :

Committee's Minute

Assigned

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

Lloyd's Register Foundation

MACHINERY CERTIFICATE WRITTEN