

REPORT ON MACHINERY.

WED. 16 MAY 1906

Port of *Belfast*

Received at London Office

19

No. in Survey held at *Belfast*
Reg. Book. *B. S. Chivriso*
on the

Date, first Survey *Nov. 7th 1905* Last Survey *May 8th 1906*

(Number of Visits *51*)

Gross *4041*

Net *2574*

When built *1906*

Master

Built at *Belfast*

By whom built *Worthman Clark & Co.*

Engines made at *Belfast*

Boilers made at

By whom made

Registered Horse Power

Owners *Elders & Fyffes (Shipping)*

Port belonging to *Manchester*

Nom. Horse Power as per Section 28 *600*

Is Refrigerating Machinery fitted for cargo purposes *Yes*

Is Electric Light fitted *Yes*

ENGINES, &c.—Description of Engines

Triple Expansion

No. of Cylinders *3*

No. of Cranks *3*

Dia. of Cylinders *27"-45"-75"* Length of Stroke *54* Revs. per minute *74* Dia. of Screw shaft as per rule *15.2* Material of screw shaft *S. 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 *✓* 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 *65"*

Dia. of Tunnel shaft as per rule *14.2* Dia. of Crank shaft journals as per rule *14.92* Dia. of Crank pin *15.5* Size of Crank webs *28.5 x 10* Dia. of thrust shaft under collars *15.5* Dia. of screw *17.3* Pitch of Screw *19.9* No. of Blades *4* State whether moveable *Yes* Total surface *87.5 sq ft.*

No. of Feed pumps *2* Diameter of ditto *4.5* Stroke *27* Can one be overhauled while the other is at work *Yes*

No. of Bilge pumps *2* Diameter of ditto *4.5* Stroke *27* Can one be overhauled while the other is at work *Yes*

No. of Donkey Engines *6* Sizes of Pumps *5x8x6, 4x4x6, 4x6x6, 4x9x10* No. and size of Suctions connected to both Bilge and Donkey pumps *3-3.5*

In Engine Room *4-3.5* No. of Bilge Injections *1* sizes *9* Connected to condenser, or to circulating pump *Yes* 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 *Fore & aft 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 *27-3-06* of Stern Tube *27-3-06* Screw shaft and Propeller *27-3-06*

Is the Screw Shaft Tunnel watertight *Yes* Cased to be fitted with a watertight door *Yes* worked from *top platform*

BOILERS, &c.—(Letter for record *5*) Manufacturers of Steel *Lawless S. Eng.*

Total Heating Surface of Boilers *10400 sq ft.* Forced Draft fitted *Yes* No. and Description of Boilers *4—Single End Cylindrical*

Working Pressure *190 lbs* Tested by hydraulic pressure to *380 lbs* Date of test *8-3-06* No. of Certificate *374*

Can each boiler be worked separately *Yes* Area of fire grate in each boiler *64.5 sq ft.* No. and Description of Safety Valves to each boiler *2—Direct Spring* Pressure to which they are adjusted *195 lbs* Are they fitted with easing gear *Yes*

Smallest distance between boilers or uptakes and bunkers or woodwork *About 18"* Mean dia. of boilers *15.3* Length *11.6* Material of shell plates *Steel*

Thickness *1.5* Range of tensile strength *28-32 tons* Are the shell plates welded or flanged *No* Descrip. of riveting: cir. seams *Lap Rivet*

long. seams *Auto Rivet* Diameter of rivet holes in long. seams *1.5* Pitch of rivets *9.5* Width of butt straps *2.5*

Per centages of strength of longitudinal joint rivets *86.8* plate *84.8* Working pressure of shell by rules *222 lbs* Size of manhole in shell *16 x 12*

Size of compensating ring *McNeill* No. and Description of Furnaces in each boiler *4—Heighten* Material *Steel* Outside diameter *4.5*

Length of plain part top *5* bottom *0* Thickness of plates crown *3.5* bottom *3.25* Description of longitudinal joint *Weld* No. of strengthening rings *0*

Working pressure of furnace by the rules *205 lbs* Combustion chamber plates: Material *Steel* Thickness: Sides *5* Back *4.5* Top *5* Bottom *5*

Pitch of stays to ditto: Sides *8.5 x 7.5* Back *9.5 x 8.5* Top *8.5 x 7.5* Bottom *7.5 x 7.5* Working pressure by rules *204 lbs*

Material of stay *Steel* Diameter at smallest part *1.5* Area supported by each stay *66 sq in* Working pressure by rules *239 lbs* plates in steam space:

Material *Steel* Thickness *1.5* Pitch of stays *9.5 x 15.5* How are stays secured *Nuts & Washers* Working pressure by rules *251 lbs* Material of stays *Steel*

Diameter at smallest part *2.5* Area supported by each stay *302.5 sq in* Working pressure by rules *201 lbs* Material of Front plates at bottom *Steel*

Thickness *1* Material of Lower back plate *Steel* Thickness *5* Greatest pitch of stays *13.5* Working pressure of plate by rules *190 lbs*

Diameter of tubes *2.5* Pitch of tubes *3.5 x 3.5* Material of tube plates *Steel* Thickness: Front *4.5* Back *4* Mean pitch of stays *7.5 x 7.5*

Pitch across wide water spaces *13.5* Working pressures by rules *194 lbs* Girders to Chamber tops: Material *Steel* Depth and thickness of girder at centre *9.5 x (1.5 x 2)* Length as per rule *32* Distance apart *8.5 x 7.5* Number and pitch of stays in each *3-7.5*

Working pressure by rules *217 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

If not, state whether, and when, one will be sent to the Hull of the Ship

VERTICAL DONKEY BOILER—Manufacturers of Steel *H. Beardmore & Co*
 No. *one* Description *Cochran*
 Made at *Kunan* By whom made *Cochran & Co Ltd* When made *1906* Where fixed *Stockholm*
 Working pressure *100 lbs* by hydraulic pressure to *200 lbs* Date of test *1-3-06* No. of Certificate *7969* Fire grate area *12.5 sq ft* Description of Safety
 Valves *Direct opening* No. of Safety Valves *2* Area of each *4.9 sq ft* Pressure to which they are adjusted *100 lbs* Date of adjustment *25-4-06*
 If fitted with easing gear *Yes* If steam from main boilers can enter the donkey boiler *No* Dia. of donkey boiler *5'-0"* Length *10'-9"*
 Material of shell plates *Steel* Thickness *1 5/32"* Range of tensile strength *27/32* Descrip. of riveting long. seams *Double*
 Dia. of rivet holes *25/32"* Whether punched or drilled *Drilled* No. of rivets *25* Lap of plating *3/8"* Per centage of strength of joint *76.4*
 Working pressure of shell by rules *102 lbs* Thickness of shell crown plates *9/16"* Radius of do. *2'-6"* No. of stays to do. *None* Dia. of stays *1 1/2"* Plates *70.75*
 Diameter of furnace Top *24"* Bottom *14"* Length of furnace *2'-3"* Thickness of furnace plates *9/16"* Description of joint *Tap Riv?*
 Working pressure of furnace by rules *125 lbs* Thickness of furnace crown plates *9/16"* Stayed by
 Diameter of uptake *12 7/8"* Thickness of uptake plates *9/16"* Thickness of *water tubes* *1 1/2" x 3/16"* Dates of survey *1905 Dec 8, 1906 Feb 26, 23 March 4*
 (*Spirk J. Morrison*)

SPARE GEAR. State the articles supplied:—
*Propeller shaft & two blades, studs etc. pair crank pin bushes
 pair cross head bushes; air pump rods; 2 slide valves & spindles;
 Spare pair auxiliary pumps & engines; Circulating pump fan & spindle;
 and all gear to our Rules.*
 The foregoing is a correct description,
 FOR WORKMAN, CLARK & CO., LIMITED.
 Manufacturer.

Dates of Survey while building
 During progress of work in shops—*1905 Nov. 7, 9, 14, 21, 24, 28 Dec. 5, 8, 12, 15, 18, 20 1906 Jan. 2, 4, 8, 10, 17, 19, 24, 25, 29 Feb. 4, 8, 12, 13, 15, 20, 26, 28, March 1, 5, 7, 8, 12*
 During erection on board vessel—*13, 15, 19, 19, 22, 26, 27, 30 April 4, 5, 10, 12, 18, 23, 24, 26, 30 May 4, 8*
 Total No. of visits *57* Is the approved plan of main boiler forwarded herewith *Yes*
 " " " donkey " " " *No*

Dates of Examination of principal parts—Cylinders *4-1-06* Slides *18-12-05* Covers *18-12-05* Pistons *10-1-06* Rods *10-1-06*
 Connecting rods *15-12-05* Crank shaft *22-2-06* Thrust shaft *22-2-06* Tunnel shafts *22-2-06* Screw shaft *22-2-06* Propeller *5-3-06*
 Stern tube *5-3-06* Steam pipes tested *19-3-06* Engine and boiler seatings *23-4-06* Engines holding down bolts *18-4-06*
 Completion of pumping arrangements *30-4-06* Boilers fixed *5-4-06* Engines tried under steam *25-4-06*
 Main boiler safety valves adjusted *25-4-06* Thickness of adjusting washers *3/8 5/8*
 Material of Crank shaft *S. Steel* Identification Mark on Do. *R.S.B.* Material of Thrust shaft *S. Steel* Identification Mark on Do. *R.S.B.*
 Material of Tunnel shafts " Identification Marks on Do. " Material of Screw shafts " Identification Marks on Do. "
 Material of Steam Pipes *Iron* 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 License, and in accordance with the Rules. The materials and workmanship are of good description, and on trial in Belfast Lough, the machinery worked satisfactorily. In my opinion, it is eligible for record + L.M.C. 5-06.

It is submitted that this vessel is eligible for THE RECORD *ILMC. 5.06. F.D. ELEC. LIGHT. REF: MCHY.*

Certificate (if required) to be sent to this office

The amount of Entry Fee... £ *3 : 0* : When applied for, *9-5-06*
 Special £ *53 : 6* :
 Donkey Boiler Fee £ : :
 Travelling Expenses (if any) £ : : When received, *12-5-06*

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

Committee's Minute *FRI. 18 MAY 1906*
 Assigned *+ hmc 5.06*



MACHINERY CERTIFICATE WRITTEN.