

REPORT ON MACHINERY.

No. 6398.

WED. 4 DEC 1907

Port of Belfast Received at London Office 19

No. in Survey held at Belfast Date, first Survey 15 March Last Survey 26 Nov 1907

Reg. Book. U.S.S. Rig Ara (Number of Visits 45)

on the U.S.S. Rig Ara Gross 6558 Tons

Master J. Chaddy Built at Belfast By whom built Wickman Clark & Co. Ltd. Net 4168

Engines made at Belfast By whom made Wickman Clark & Co. Ltd. When built 1907

Boilers made at Belfast By whom made Wickman Clark & Co. Ltd. when made 1907

Registered Horse Power ✓ Owners Shaw Savill & Albion Co. Ltd. Port belonging to Southampton

Nom. Horse Power as per Section 28 810 Is Refrigerating Machinery fitted for cargo purposes Yes Is Electric Light fitted Yes

ENGINES, &c.—Description of Engines Twin Screw Triple Expanding of Cylinders 6 No. of Cranks 6

Dia. of Cylinders 22"-37"-63" Length of Stroke 48" Revs. per minute 78 Dia. of Screw shaft 13.7" 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 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 4'-10"

Dia. of Tunnel shaft 12.5" Dia. of Crank shaft journals 12.95" Dia. of Crank pin 13.4" Size of Crank webs 24.5" x 9.5" Dia. of thrust shaft under

collars 14" Dia. of screw 15.9" Pitch of Screw 19'-6" No. of Blades 3 State whether moveable Yes Total surface 652 sq ft.

No. of Feed pumps 1 Diameter of ditto 5.5" Stroke 24" Can one be overhauled while the other is at work Yes

No. of Bilge pumps 1 Diameter of ditto 5.5" Stroke 24" Can one be overhauled while the other is at work Yes

No. of Donkey Engines 7 Sizes of Pumps 12" x 9" x 24" No. and size of Suctions connected to both Bilge and Donkey pumps

In Engine Room 4-3.5" In Holds, &c. 11-3.5" + 2-2.5"

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 Yes-3.5"

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 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 Four Lohk 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 10-9-07 of Stern Tube 15-9-07 Screw shaft and Propeller 15-9-07

Is the Screw Shaft Tunnel watertight Yes Is it fitted with a watertight door Yes worked from Upper Deck

BOILERS, &c.—(Letter for record S) Manufacturers of Steel Glasgow S.W. Co. Ltd. & Steel Co. Ltd.

Total Heating Surface of Boilers 11750 sq ft. Forced Draft fitted Yes No. and Description of Boilers 5 Single End Cylind

Working Pressure 205 lbs Tested by hydraulic pressure to 410 lbs Date of test 24-9-07 No. of Certificate 405

Can each boiler be worked separately Yes Area of fire grate in each boiler 57.4 sq ft. No. and Description of Safety Valves to

each boiler 2-12" West Spring Area of each valve 9.62 sq ft. Pressure to which they are adjusted 205 lbs Are they fitted with easing gear Yes

Smallest distance between boilers or uptakes and bunkers or woodwork 20" Mean dia. of boilers 14'-6" 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. seam Lap Rivet

Long. seams Butt Diameter of rivet holes in long. seams 1.5" Pitch of rivets 10" Top of plates or width of butt straps 22.5"

Percentage of strength of longitudinal joint 84.4 Working pressure of shell by rules 240 lbs Size of manhole in shell 16" x 12"

Size of compensating ring 12" No. and Description of Furnaces in each boiler 3-Mannison Material Steel Outside diameter 46.5"

Length of plain part 9" Thickness of plates 3.43" Description of longitudinal joint Weld No. of strengthening rings ✓

Working pressure of furnace by the rules 238 lbs Combustion chamber plates: Material Steel Thickness: Sides 4.3" Back 1.6" Top 4.3" Bottom 1"

Length of stays to ditto: Sides 8.5" x 7.5" Back 8.5" x 8.5" Top 8.5" x 7.5" If stays are fitted with nuts or riveted heads Nuts Working pressure by rules 215 lbs

Material of stays Steel Diameter at smallest part 1.5" Area supported by each stay 10.5" Working pressure by rules 262 lbs End plates in steam space:

Material Steel Thickness 1.5" Pitch of stays 2.5" x 1.5" How are stays secured Nuts & Washers Working pressure by rules 208 lbs Material of stay Steel

Diameter at smallest part 2.5" Area supported by each stay 10.5" Working pressure by rules 247 lbs Material of Front plates at bottom Steel

Thickness 1" Material of Lower back plate Steel Thickness 8" Greatest pitch of stays 13.5" Working pressure of plate by rules 276 lbs

Diameter of tubes 2.5" Pitch of tubes 3.5" x 3.5" Material of tube plates Steel Thickness: Front 1" Back 1.5" Mean pitch of stays 1.5" x 1.5"

Thickness across wide water spaces 13.5" Working pressures by rules 208 lbs Girders to Chamber tops: Material Steel Depth and

Thickness of girder at centre 8" x 3" x 2" Length as per rule 30" Distance apart 8" x 7.5" Number and pitch of stays in each 2-8.5"

Working pressure by rules 209 lbs Superheater or Steam chest; how connected to boiler Can the superheater be shut off and the boiler worked

Materially ✓ Diameter ✓ Length ✓ Thickness of shell plates ✓ Material ✓ Description of longitudinal joint ✓ Diam. of rivet ✓

Pitch of rivets ✓ Working pressure of shell by rules ✓ Diameter of flue ✓ Material of flue plates ✓ Thickness ✓

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	When made	Where fixed
Made at	By whom made	No. of Certificate	Fire grate area
Working pressure	tested by hydraulic pressure to	Date of test	Date of adjustment
Valves	No. of Safety Valves	Area of each	Pressure to which they are adjusted
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
Working pressure of shell by rules	Thickness of shell crown plates	Radius of do.	No. of stays to do.
Diameter of furnace Top	Bottom	Length of furnace	Thickness of furnace plates
Working pressure of furnace by rules	Thickness of furnace crown plates	Stayed by	Description of joint
Diameter of uptake	Thickness of uptake plates	Thickness of water tubes	Dates of survey

SPARE GEAR. State the articles supplied:— 5 Crank Shafts, 1 Spruce Shaft, 1 Propeller Shaft, 2 Propeller Walses, Pair Cross-head Brasses, Pair Crank pin Brasses, H. P. and M. P. Complete, 2 sets M. P. packing rings, 2 sets L. P. packing rings, H. P. and M. P. Piston valve complete, Piston rod and nuts, Thrust Rod, Strap pulley, Slide valve spindle, Air pump bucket, Jack, & hook value, 1 Forged Iron Fan, Engine, and all tools to 2 Lays Rules & Co.

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

M. H. Bell. Manufacturer.

Dates of Survey: During progress of work in shops— 1907, March 15, 21, 26. April 5, 11, 12, 16, 19, 29. May 9, 14, 17, 22, 28. June 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31. July 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31. Aug. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31. Sep. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31. Oct. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31. Nov. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31. Dec. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31.

Dates of Examination of principal parts—Cylinders 12-4-07 Covers 12-4-07 Pistons 12-4-07 Rods 24-9-07 Connecting rods 4-10-07 Crank shaft 29-4-07 Thrust shaft 12-4-07 Tunnel shafts 12-4-07 Stern tube 9-9-07 Steam pipes tested 16-9-07 Engine and boiler seatings 18-10-07 Engines holding down bolts 14-10-07 Completion of pumping arrangements 25-16-07 Boilers fixed 23-10-07 Engines tried under steam 18-11-07 Main boiler safety valves adjusted 13-11-07 Thickness of adjusting washers 12-14-07 Material of Crank shaft P. Steel Identification Mark on Do. 4-4-07 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 M. Iron Test pressure 615 lbs per sq. in.

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 workman ship, and the materials are of good description, and an trial under steam in Belfast Lough, the machinery worked satisfactorily.

In my opinion, it is eligible to have record + L.M.C. 11-07 with notification "Forced Draft". Electric Light. Refrigerating Machinery.

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

L.M.C. 11.07
ELEC LIGHT
F. D.
REF. MCH.

JSC 4-12-07

The amount of Entry Fee... £ 3: 0: 10
Special... £ 60: 10: 10
Donkey Boiler Fee... £ : :
Travelling Expenses (if any) £ : :
When applied for, 2-12-07
When received, 27-12-07

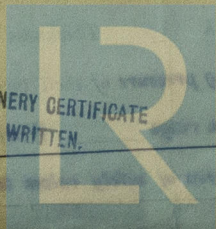
Committee's Minute

Assigned

FRI. 6 DEC 1907

+ L.M.C. 11.07
Elec Light
F.D. Ref Mach

MACHINERY CERTIFICATE
WRITTEN.



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