

REPORT ON MACHINERY.

No. 26375

THU. MAR. 4-1915

Received at London Office

Date of writing Report 19 When handed in at Local Office - 3 MAR 1915 Port of **SUNDERLAND.** *Bristol*

No. in Survey held at **SUNDERLAND.** *Bristol* Date, First Survey 19 June 14 Last Survey 19 June 1915

Reg. Book. on the **S.S. WELSH COAST.** (Number of Visits 4)

Master **T. Bony** Built at **Bristol** By whom built **G. Hill & Sons (S/S No 122)** Tons ^{Gross} When built 1915

Engines made at **Sunderland** By whom made **George Rank Ltd (No 1011)** when made 1915

Boilers made at **Sunderland** By whom made **George Rank Ltd (No 1011)** when made 1915

Registered Horse Power Owners **Poull, Bacon & Hough Ltd** Port belonging to **Liverpool**

Nom. Horse Power as per Section 28 **174** Is Refrigerating Machinery fitted for cargo purposes **No** Is Electric Light fitted **Yes**

ENGINES, &c.—Description of Engines **Triple expansion** No. of Cylinders **3** No. of Cranks **3**

Dia. of Cylinders **18"-29 1/2"-48 1/2"** Length of Stroke **33** Revs. per minute **9.99** Dia. of Screw shaft **10"** Material of screw shaft **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 **No** 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 **No** If two liners are fitted, is the shaft lapped or protected between the liners **Yes** Length of stern bush **3'-4"**

Dia. of Tunnel shaft **9"** Dia. of Crank shaft journals **9.45"** Dia. of Crank pin **9 1/2"** Size of Crank webs **6 1/8" x 4"** Dia. of thrust shaft under collars **9 7/8"** Dia. of screw **12'-0"** Pitch of Screw **12'-0"** No. of Blades **4** State whether moveable **No** Total surface **47.5 sq ft**

No. of Feed pumps **2** Diameter of ditto **2 3/4"** Stroke **18"** Can one be overhauled while the other is at work **Yes**

No. of Bilge pumps **2** Diameter of ditto **3 1/2"** Stroke **13"** Can one be overhauled while the other is at work **Yes**

No. of Donkey Engines **Three** Sizes of Pumps **5 1/4" x 5 1/2" x 5"** No. and size of Suctions connected to both Bilge and Donkey pumps **In Engine Room Three of 2 1/2"** In Holds, &c. **Two of 2"**

No. of Bilge Injections **One** sizes **5"** Connected to **condenser** or to circulating pump **Yes** Is a separate Donkey Suction fitted in Engine room & size **Yes 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 **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 **Yes**

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 Hold Suction** How are they protected **Casing & 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 **8.5.15** of Stern Tube **8.5.15** Screw shaft and Propeller **8.5.15**

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

BOILERS, &c.—(Letter for record **S**) Manufacturers of Steel **Aachen Hütten Verein of Aachen Rho Eide**

Total Heating Surface of Boilers **3070 sq ft** Is Forced Draft fitted **No** No. and Description of Boilers **Two single ended marine**

Working Pressure **180** Tested by hydraulic pressure to **360** Date of test **2-11-14** No. of Certificate **3255**

Can each boiler be worked separately **Yes** Area of fire grate in each boiler **49 sq ft** No. and Description of Safety Valves to each boiler **Two spring loaded** Area of each valve **4.91 sq in** Pressure to which they are adjusted **185 lb** Are they fitted with easing gear **Yes**

Smallest distance between boilers or uptakes and bunkers or **4 ft** Mean dia. of boilers **13'-1 1/2"** Length **10'-3"** Material of shell plates **Steel**

Thickness **1 1/4"** Range of tensile strength **29 1/2 - 33** Are the shell plates welded or flanged **No** Descrip. of riveting: cir. seams **D.R.** long. seams **D.B.S.T.R.** Diameter of rivet holes in long. seams **1 1/16"** Pitch of rivets **7/8"** Lap of plates or width of butt straps **16"**

Per centages of strength of longitudinal joint rivets **91.6** plate **85.07** Working pressure of shell by rules **182** Size of manhole in shell **16" x 12"**

Size of compensating ring **Flanged** No. and Description of Furnaces in each boiler **3 plain** Material **Steel** Outside diameter **3'-2 1/4"**

Length of plain part ^{top} **6'-2 9/16"** ^{bottom} **5'-10"** Thickness of plates ^{crown} **3/32"** ^{bottom} **1/32"** Description of longitudinal joint **welded** No. of strengthening rings **none**

Working pressure of furnace by the rules **184** Combustion chamber plates: Material **Steel** Thickness: Sides **1/16"** Back **45/64"** Top **1/16"** Bottom **1 3/32"**

Pitch of stays to ditto: Sides **9" x 10"** Back **8 3/4" x 10 1/2"** Top **9" x 10"** If stays are fitted with nuts or riveted heads **nut and washers** Working pressure by rules **180**

Material of stays **Steel** Diameter at smallest part **2.030"** Area supported by each stay **9.01 sq in** Working pressure by rules **203** End plates in steam space: Material **Steel** Thickness **1 3/16"** Pitch of stays **14" x 19 1/2"** How are stays secured **DN** Working pressure by rules **200** Material of stays **Steel**

Diameter at smallest part **3.41"** Area supported by each stay **30.10 sq in** Working pressure by rules **187** Material of Front plates at bottom **Steel** Thickness **3/32"** Material of Lower back plate **Steel** Thickness **59/64"** Greatest pitch of stays **16 3/4" x 9 1/2"** Working pressure of plate by rules **181**

Diameter of tubes **3 1/4"** Pitch of tubes **4 1/2" x 4 7/8"** Material of tube plates **Steel** Thickness: Front **27/32"** Back **7/4"** Mean pitch of stays **10 3/8"**

Pitch across wide water spaces **4 1/4" + 1 3/16"** Working pressures by rules **276** Girders to Chamber tops: Material **Steel** Depth and thickness of girder at centre **20 1/2" x 7 1/8"** Length as per rule **29 3/8"** Distance apart **10"** Number and pitch of stays in each **20 9"**

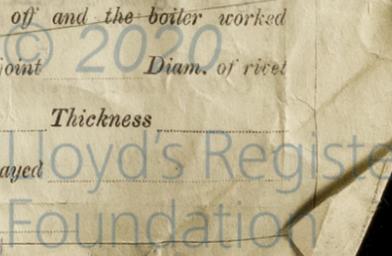
Working pressure by rules **183** Superheater or Steam chest; how connected to boiler **none** Can the superheater be shut off and the boiler worked separately **Yes**

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 net state whether, and when, etc. will be sent? To a Report also sent on the Hull of the Ship?



002249-002249-0022

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:—

2 Top end, 2 bottom end, 2 Main Bearing bolts + nuts, 1 set coupling bolts, spare fuel valve, Sets of Valves for fuel + ballast pumps, 12 condenser tubes, iron + bolts + nuts assorted, 3 Sets Piston bolts

The foregoing is a correct description,

FOR GEORGE CLARK, LIMITED
James C. Clark Manufacturer.

Dates of Survey while building	During progress of work in shops --	1914 Jun 19 23 Jul 9 14 Aug 6 10 13 18 26 28 Sep 7 10 11 14 18 23 25 Oct 5 8 13
	During erection on board vessel ---	21 28 29 Nov 2 11 Dec 7 Jan 15 18 Feb 23 1915 March 19 16 18 19 April 8 10 12 26
	Total No. of visits	(29+15) May 11 26 June 17 16 17 19

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

Dates of Examination of principal parts—Cylinders 14-9-14 Slides 12-11-14 Covers 5-10-14 Pistons 8-10-14 Rods 21-10-14
Connecting rods 28-10-14 Crank shaft 11-9-14 Thrust shaft 18-9-14 Tunnel shafts none Screw shaft 18-1-15 Propeller 18-1-15
Stern tube 15-1-15 Steam pipes tested 11-6-15 Engine and boiler seatings 8-5-15 Engines holding down bolts 26-5-15
Completion of pumping arrangements 15-6-15 Boilers fixed 10-5-15 Engines tried under steam 19-6-15
Main boiler safety valves adjusted 16-6-15 Thickness of adjusting washers 7 7/16 5 3/4 5 1/2 1 3/32
Material of Crank shaft **Steel** Identification Mark on Do. **218EK** Material of Thrust shaft **Steel** Identification Mark on Do. **743N WC**
Material of Tunnel shafts **none** Identification Marks on Do. ✓ Material of Screw shafts **Steel** Identification Marks on Do. **743N WC**
Material of Steam Pipes **Copper solid drawn** Test pressure **360 lbs**

General Remarks (State quality of workmanship, opinions as to class, &c.)

The machinery will be forwarded to Bristol to be fitted in the vessel. Local surveyors advised the materials and workmanship are good, the machinery has been constructed under special survey and is eligible in my opinion for classification subject to its being satisfactorily fitted in the vessel.

This machinery has now been fitted in the above vessel. The main steam pipes tested, Safety Valves adjusted to 185 lbs sq in the engine tried under working conditions. The machinery of this vessel in my opinion is eligible for record **L.M.C. 6-15**

It is submitted that this vessel is eligible for **THE RECORD, + L.M.C. 6.15.**

Certificate (if required) to be sent to

The amount of Entry Fee .. £ 2	When applied for.	3 MAR 1915
Special .. 2/2 £ 17 8	When received.	31/6/15
Donkey Boiler Fee .. £		
Travelling Expenses (if any) £		

Lewis Davis & G. H. Myden
Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute TUE JUN 29 1915

Assigned

+ L.M.C. 6.15



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