

# REPORT ON MACHINERY.

Hull Rpt No. 21462

Port of MIDDLESBROUGH-ON-TEES.

Received at London Office THUR. 24 JUN 1909

No. in Survey held at Middlesbrough

Date, first Survey 29<sup>th</sup> Dec. 1908 Last Survey 21<sup>st</sup> June 1909

Reg. Book. 342 on the S.S. "Retriever"

(Number of Visits) 39 Gross 674 Tons Net 332

Master Gool Built at Gool

By whom built The Gool S.B. & R. Co. Ltd. When built 1909

Engines made at Middlesbrough By whom made Richardsons, Westgarth & Co.

When made 1909

Boilers made at do By whom made do when made 1909

Registered Horse Power \_\_\_\_\_ Owners West Coast of America Telegraph Co. Ltd. belonging to London

Nom. Horse Power as per Section 28 117 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted Yes

## ENGINES, &c.—Description of Engines Compound No. of Cylinders 2 No. of Cranks 2

Dia. of Cylinders 23", 46" Length of Stroke 30" Revs. per minute 76 Dia. of Screw shaft as per rule 9.7" 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 ✓ 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 3'-4"

Dia. of Tunnel shaft as per rule 8.85" Dia. of Crank shaft journals as per rule 9.29" Dia. of Crank pin 9.2" Size of Crank webs 6x14" Dia. of thrust shaft under collars 9.2" Dia. of screw 11.6" Pitch of Screw 14'-0" No. of Blades 4 State whether moveable No Total surface 45 sq. ft.

No. of Feed pumps 2 Diameter of ditto 2.5" Stroke 18" Can one be overhauled while the other is at work yes

No. of Bilge pumps 2 Diameter of ditto 3" Stroke 18" Can one be overhauled while the other is at work yes

No. of Donkey Engines Two Sizes of Pumps 6x4x6" 6x6x6" No. and size of Suctions connected to both Bilge and Donkey pumps

In Engine Room Three 2.5" In Holds, &c. One each 2.5" to each, the 1<sup>st</sup>, 2, 3, 4, 5 tanks

No. of Bilge Injections 1 sizes 4.5" Connected to condenser, or to circulating pump Pump Is a separate Donkey Suction fitted in Engine room & size yes, 3"

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 Above

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 None How are they protected ✓

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 19.5.09 of Stern Tube 9.6.09 Screw shaft and Propeller 11.6.09

Is the Screw Shaft Tunnel watertight yes Is it fitted with a watertight door yes worked from Top grating.

## BOILERS, &c.—(Letter for record (S)) Manufacturers of Steel John Spencer Sons Ltd.

Total Heating Surface of Boilers 2080 sq. ft. Forced Draft fitted No No. and Description of Boilers One S.E. Cyl. Mult.

Working Pressure 120 lbs Tested by hydraulic pressure to 240 lbs Date of test 4.5.09 No. of Certificate 4258

Can each boiler be worked separately ✓ Area of fire grate in each boiler 56 sq. ft. No. and Description of Safety Valves to each boiler Two direct spring Area of each valve 9.6" Pressure to which they are adjusted 125 lbs Are they fitted with easing gear yes

Smallest distance between boilers or uptakes and bunkers or woodwork 14" Mean dia. of boilers 14'-6" Length 10'-6" Material of shell plates Steel

Thickness 7/8" Range of tensile strength 28.2-32 Are the shell plates welded or flanged No Descrip. of riveting: cir. seams W.R. Lap long. seams W.R. 3 Riv. Diameter of rivet holes in long. seams 1/16" Pitch of rivets 5.9" Lap of plates or width of butt straps 11.4"

Per centages of strength of longitudinal joint rivets 81.5 plate 80.9 Working pressure of shell by rules 138 lbs Size of manhole in shell 16" x 12"

Size of compensating ring 34.2 x 29 x 7.8" No. and Description of Furnaces in each boiler Three plain Material Steel Outside diameter 3'-6"

Length of plain part top 6.78" bottom 6.478" Thickness of plates crown 1/16" bottom 1/16" Description of longitudinal joint Welded No. of strengthening rings bottom angle at

Working pressure of furnace by the rules 151 lbs Combustion chamber plates: Material Steel Thickness: Sides 9/16" Back 19/32" Top 9/16" Bottom 5/8"

Pitch of stays to ditto: Sides 9.2" x 9" Back 11" x 8.2" Top 9.2" x 8.2" If stays are fitted with nuts or riveted heads Nuts Working pressure by rules 127 lbs

Material of stays Steel Diameter at smallest part 1.5" Area supported by each stay 85.5" Working pressure by rules 140 lbs End plates in steam space:

Material Steel Thickness 13/16" Pitch of stays 16" x 15.2" How are stays secured W.R. x W. Working pressure by rules 126 lbs Material of stays Steel

Diameter at smallest part 3.34" Area supported by each stay 248" Working pressure by rules 140 Material of Front plates at bottom Steel

Thickness 13/16" Material of Lower back plate Steel Thickness 3/4" Greatest pitch of stays 15.2" x 8" Working pressure of plate by rules 128 lbs

Diameter of tubes 3.74" Pitch of tubes 4.8" x 4.8" Material of tube plates Steel Thickness: Front 13/16" Back 5/8" Mean pitch of stays 9.84"

Pitch across wide water spaces 14.74" Working pressures by rules 125 lbs Girders to Chamber tops: Material Steel Depth and thickness of girder at centre 7" x 1.5" Length as per rule 2'-6.2" Distance apart 8.2" Number and pitch of stays in each 2 @ 9.2"

Working pressure by rules 144 lbs Superheater or Steam chest; how connected to boiler None 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. *None* 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  
 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  
 Working pressure of shell by rules Thickness of shell crown plates Radius of do. No. of stays to do. Dia. of stays Plates  
 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:— *Two top & two bottom-end connecting rod bolts & nuts. Two main bearing bolts & nuts. One set of coupling bolts & nuts. One set of feed & bilge pump valves. Two feed check valves. Assorted bolts & nuts etc.*

The foregoing is a correct description,

For RICHARDSONS, WESTGARTH & Co. Ltd.

*H. Jackson* Manufacturer.

Dates of Survey while building  
 During progress of work in shops— 19 08. Dec. 29, 19 09. Jan. 7, 12, 13, 19, 22, 25, 27, 28, Feb. 1, 3, 4, 8, 11, 12, 15, 22, 23, 24, Mar. 6, 8, 15, 19, 25, 29, Apr. 28, 29, May 4, 13, 18, 20, 28, June 9, 11, 15, 17, 21. Hull Jun 13-19 - July 4<sup>th</sup>  
 Total No. of visits 39

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

" " " donkey " " "

Dates of Examination of principal parts—Cylinders 15.4.09 Slides 13.5.09 Covers 13.5.09 Pistons 29.4.09 Rods 29.4.09  
 Connecting rods 29.4.09 Crank shaft 10.2.09 Thrust shaft 13.5.09 Tunnel shafts 13.5.09 Screw shaft 30.4.09 Propeller 13.5.09  
 Stern tube 13.5.09 Steam pipes tested 15.6.09 Engine and boiler seatings 19.5.09 Engines holding down bolts 15.6.09  
 Completion of pumping arrangements 17.6.09 Boilers fixed 15.6.09 Engines tried under steam 17.6.09  
 Main boiler safety valves adjusted 17.6.09 Thickness of adjusting washers  $P \frac{7}{16}$  "  $S \frac{7}{16}$  "  
 Material of Crank shaft *Steel* Identification Mark on Do. 4763 C.T.A. Material of Thrust shaft *Steel* Identification Mark on Do. 4383  
 Material of Tunnel shafts *Steel* Identification Marks on Do. 3009 P.A. 4384 K.H. Material of Screw shafts *Steel* Identification Marks on Do. 476  
 Material of Steam Pipes *Solid drawn copper* Test pressure 240 lbs

General Remarks (State quality of workmanship, opinions as to class, &c.) *The Engines and Boiler of this vessel have been constructed under Special Survey, are of good material and workmanship, and have been fitted and secured on board in accordance with the Rules. They are now in good working condition and in our opinion eligible to have the notation of +LMC 4.09 in the Register Book.*

*This vessel has now sailed for Gool for completion of the hull & fitting of Electric Light Installation.*

It is submitted that this vessel is eligible for THE RECORD. +LMC 4.09 *see light.*

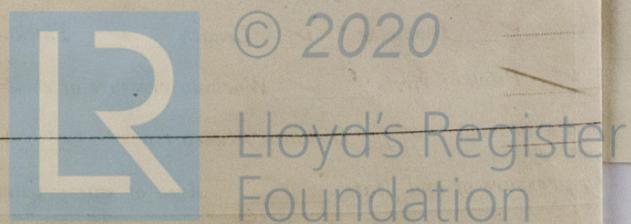
The amount of Entry Fee... £ 2 : 0 :  
 Special ... £ 17 : 11 :  
 Donkey Boiler Fee ... £ : :  
 Travelling Expenses (if any) £ : :  
 When applied for, 23.6.09  
 When received, 28/6/09

*J. Kerr & James Barclay*  
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping

Committee's Minute TUES. 27 JUL 1909

Assigned *thmc 7.09*

MACHINERY CERTIFICATE WRITTEN.



Certificate (if required) to be sent to the Surveyors are requested not to write on or below the space for Committee's Minute.