

# REPORT ON MACHINERY.

No. 3904

Port of MIDDLESBROUGH-ON-TEES.

14th JUL 1904

Received at London Office

19

No. in Survey held at Middlesbrough Date, first Survey 5 Jan'y Last Survey 22nd June 1904  
 Reg. Book. S.S. "Crane" (Number of Visits 52)  
1512 on the S.S. "Crane" Tons } Gross 2033.09  
 Master G. Aelyer Built at Stockton By whom built Rejner & Son When built 1904  
 Engines made at Middlesbrough By whom made Richardsons Westgarth & Co. Ltd when made 1904  
 Boilers made at ditto By whom made ditto when made 1904  
 Registered Horse Power \_\_\_\_\_ Owners General Steam Navigation Co. Ltd Port belonging to London  
 Nom. Horse Power as per Section 28 257 Is Refrigerating Machinery fitted no Is Electric Light fitted no

ENGINES, &c.—Description of Engines Triple expansion No. of Cylinders 3 No. of Cranks 3  
 Dia. of Cylinders 22"-35"-59" Length of Stroke 39" Revs. per minute \_\_\_\_\_ Dia. of Screw shaft as per rule 11.79" Material of Screw shaft Seeger iron  
 as fitted 12" screw shaft  
 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 yes 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'-5 1/2"  
 Dia. of Tunnel shaft as per rule 10.6" Dia. of Crank shaft journals as per rule 11.13" Dia. of Crank pin 11 1/2" Size of Crank webs 8"x18" Dia. of thrust shaft under  
 as fitted 11 1/8" as fitted 11 1/2" collars 11 1/2" Dia. of screw 14'-3" Pitch of screw 13'-0" No. of blades 4 State whether moceable no Total surface 65 sq. ft.  
 No. of Feed pumps 2 Diameter of ditto 3 1/4" Stroke 21" Can one be overhauled while the other is at work yes  
 No. of Bilge pumps 2 Diameter of ditto 4" Stroke 21" Can one be overhauled while the other is at work yes  
 No. of Donkey Engines Two duplex Sizes of Pumps Ind. 8"x6"x18" Ball. 6"x8"x10" 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 1/2" dia" in each.  
Tunnel well, one of 3"  
 No. of bilge injections 1 sizes 6" Connected to condenser, or to circulating pump C.P. 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  
 When were stern tube, propeller, screw shaft, and all connections examined in dry dock New vessel Is the screw shaft tunnel watertight see ship report  
 Is it fitted with a watertight door yes worked from Upper grating

BOILERS, &c.— (Letter for record (P) ) Total Heating Surface of Boilers 4338 sq. ft. Is forced draft fitted no  
 No. and Description of Boilers Two Cyl. Mult. single ended Working Pressure 170 lbs Tested by hydraulic pressure to 340 lbs  
 Date of test 28.4.04 Can each boiler be worked separately yes Area of fire grate in each boiler 65 1/2 sq. ft. No. and Description of safety valves to  
 each boiler Two direct spring Area of each valve 962 sq. in. Pressure to which they are adjusted 175 lbs Are they fitted with easing gear yes  
 Smallest distance between boilers or uptakes and bunkers or woodwork 16" Mean dia. of boilers 15'-0" Length 11'-0" Material of shell plates Steel  
 Thickness 3/16" Range of tensile strength 28/32 Are they welded or flanged no Descrip. of riveting: cir. seams D.P. lap long. seams D Butt Str.  
 Diameter of rivet holes in long. seams 1 3/16" Pitch of rivets 8" 1 row 4" 2 row Lap of plates or width of butt straps 18" x 1 1/8"  
 Per centages of strength of longitudinal joint rivets 87 Working pressure of shell by rules 175 lbs Size of manhole in shell 14" x 13"  
 plate 85.1  
 Size of compensating ring 8 1/2" x 1 1/4" each side No. and Description of Furnaces in each boiler 3 Corrugated Material Steel Outside diameter 3-9 3/4"  
 Length of plain part top 4'-6" Thickness of plates crown 1 1/2" Description of longitudinal joint welded No. of strengthening rings ✓  
 bottom 32 Working pressure of furnace by the rules 178 lbs Combustion chamber plates: Material Steel Thickness: Sides 1/4" Back 5/8" Top 1/16" Bottom 1/16"  
 Pitch of stays to ditto: Sides 8 1/4" x 10 1/4" Back 8 3/4" x 8 3/4" Top 8 1/2" x 10 1/2" If stays are fitted with nuts or riveted heads nuts Working pressure by rules 176 lbs  
 Material of stays S.S. Diameter at smallest part 2.09" Area supported by each stay 84.5 sq. in. Working pressure by rules 185 lbs End plates in steam space:  
 Material Steel Thickness 1 3/32" Pitch of stays 15" x 21" How are stays secured D nuts & wash Working pressure by rules 170 lbs Material of stays Steel  
 Diameter at smallest part 4.95" Area supported by each stay 283.9 sq. in. Working pressure by rules 173 lbs Material of Front plates at bottom Steel  
 Thickness 7/8" Material of Lower back plate Steel Thickness 7/8" Greatest pitch of stays 8 3/4" x 15" Working pressure of plate by rules 174  
 Diameter of tubes 3 1/4" Pitch of tubes 4 1/2" x 4 1/2" Material of tube plates Steel Thickness: Front 1 3/32" Back 3/32" Mean pitch of stays 11 1/4"  
 Pitch across wide water spaces 14 1/4" Working pressures by rules 211 lbs Girders to Chamber tops: Material steel Depth and  
 thickness of girder at centre 9" x 1 3/4" Length as per rule 2-5 3/4" Distance apart 10 1/2" Number and pitch of Stays in each two 8 1/2"  
 Working pressure by rules 211 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 \_\_\_\_\_

W466-0132



**DONKEY BOILER**— No. *One* Description *Vertical, with 6 cross tubes & side uptake*  
 Made at *Middlesbro* By whom made *Richardsons Westgarth* When made *16.5.04* Where fixed *on deck*  
 Working pressure *100 lbs* Tested by hydraulic pressure to *200 lbs* No. of Certificate *3214* Fire grate area *28.4* Description of safety valves *direct spring*  
 No. of safety valves *2* Area of each *7.07* Pressure to which they are adjusted *80 lbs* If fitted with easing gear *Yes* If steam from main boilers can enter the donkey boiler *no* Dia. of donkey boiler *7'-0"* Length *14'-6"* Material of shell plates *Steel* Thickness *7/8"* Range of tensile strength *21/32* Descrip. of riveting long. seams *DR lap* Dia. of rivet holes *5/16"* Whether punched or drilled *drilled* Pitch of rivets *3"*  
 Lap of plating *4 5/8"* Per centage of strength of joint Rivets *69.5* Thickness of shell crown plates *1/8"* Radius of do. flat No. of Stays to do. *7*  
 Dia. of stays *2 3/4"* Diameter of furnace Top *5'-1"* Bottom *6'-4"* Length of furnace *6'-4"* Thickness of furnace plates *3/16"* Description of joint *S riv lap* Thickness of furnace crown plates *5/8"* Stayed by *as above & dished 3-3' rad* Working pressure of shell by rules *110 lbs*  
 Working pressure of furnace by rules *124 lbs* Diameter of uptake *15"* Thickness of uptake plates *5/8"* Thickness of water tubes *1/2"*

**SPARE GEAR.** State the articles supplied:— *2 Bolts & nuts for connecting Rod top ends, bottom ends, main bearings & 1 set for couplings, 12 piston bolts & nuts, 1 set rings for piston valve & H.P. & I.P. pistons 1 guide shoe 1 eccentric strap complete, 1 pair crank pin brasses, 1 valve gear block, 1 air pump rod 1 excul. pump shaft 1 set feed, bilge & donkey pump valves & fled check valves, 1 air pump head valve & bucket, 1 tail shaft*

The foregoing is a correct description, *1 air pump head valve & bucket, 1 tail shaft*  
 For **RICHARDSONS, WESTGARTH & Co. Ltd.** Manufacturer.

*H. J. Adams*  
 Dates of Survey while building  
 During progress of work in shops - -  
 During erection on board vessel - -  
 Total No. of visits *52*  
 MANAGER: Jan. 5, 6, 7, 10, 20, 29 Feb. 2, 6, 8, 10, 12, 15, 16, 17, 18, 23 Mar. 3, 5, 9, 11, 14, 16, 18, 21, 24, 29 Apr. 7, 8, 9, 11, 12, 14, 18, 19  
 May 6, 11, 16, 18, 19, 20, 26 June 16, 17, 22-1904  
 Is the approved plan of main boiler forwarded herewith *yes*  
 " " " donkey " " " *yes*

**General Remarks** (State quality of workmanship, opinions as to class, &c.)  
*The machinery is not placed aft.*

*This vessel's machinery has been built under special survey and tested as required by the Rules.  
 The materials and workmanship are good.  
 It has been tried under steam satisfactorily, and is now in good and safe working condition and eligible in my opinion to have the record* **ILMC 6.04**

*It is submitted that this vessel is eligible for THE RECORD* **ILMC 6.04**

*AS*  
*7.7.04*  
*Sml*  
*7.7.04*

Certificate (if required) to be sent to

The amount of Entry Fee... £ *2* : - : -  
 Special ... .. £ *32* : *14* : -  
 Donkey Boiler Fee ... .. £ : : -  
 Travelling Expenses (if any) £ : : -

*R. D. Shilston & Geo. A. Milner*  
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute **TUES. 12 JUL 1904**

Assigned *+ LMC 6.04*

