

# REPORT ON MACHINERY.

No. 2327

Port of WEST HARTLEPOOL

Recd. 15 APR 1904

Received at London Office 19

No. in Survey held at Hartlepool Date, first Survey 3rd Nov. 1903 Last Survey 27th March 1904

Reg. Book. Steel S.S. "Majestic" (Number of Visits 84)

Master J.N. Peck Built at Hartlepool By whom built Irwin's S. B. & Co. Ltd Tons Gross 3024  
Net 1920

Engines made at Hartlepool By whom made Richardsons, Westgarth & Co. Ltd When built 1904

Boilers made at do By whom made do when made 1904

Registered Horse Power 275 Owners N.H. Gockerline & Co Port belonging to Hull

Nom. Horse Power as per Section 28 277 Is Refrigerating Machinery fitted No Is Electric Light fitted No

## ENGINES, &c.—Description of Engines Triple expansion No. of Cylinders three No. of Cranks three

Dia. of Cylinders 24" 38" 64" Length of Stroke 42" Revs. per minute 61 Dia. of Screw shaft 13 1/4" Material of screw shaft scrap iron

Is the screw shaft fitted with a continuous liner the whole length of the stern tube no 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 no Length of stern bush 4-4 1/4"

Dia. of Tunnel shaft 11 1/2" Dia. of Crank shaft journals 11.8" Dia. of Crank pin 12" Size of Crank webs 7x17 1/2" Dia. of thrust shaft under collars 12 1/2" Dia. of screw 16-0" Pitch of screw 16-6" No. of blades 4 State whether moveable no Total surface 41 sq. ft.

No. of Feed pumps 2 Diameter of ditto 2 1/4" Stroke 27" Can one be overhauled while the other is at work yes

No. of Bilge pumps 2 Diameter of ditto 3 1/4" Stroke 27" Can one be overhauled while the other is at work yes

No. of Donkey Engines 2 Sizes of Pumps Feed 4x6 duplex 8 1/2 x 4" No. and size of Suctions connected to both Bilge and Donkey pumps 3"

In Engine Room Three 3' dia hold, one 2 1/2' dia to fore peak and one 2 1/2' dia to aft peak & tunnel well. In Holds, &c. Eight - Two 3' dia. to each

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 3 1/2"

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 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 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 29.3.04 Is the screw shaft tunnel watertight yes

Is it fitted with a watertight door yes worked from upper platform.

## BOILERS, &c.— (Letter for record S.) Total Heating Surface of Boilers 4329 sq. ft. Is forced draft fitted No

No. and Description of Boilers 2 single ended. byl. Mill. Working Pressure 160 lbs Tested by hydraulic pressure to 320 lbs.

Date of test 9-3-04 Can each boiler be worked separately yes Area of fire grate in each boiler 50.06 sq. ft. No. and Description of safety valves to each boiler no spring direct Area of each valve 7.06 sq. in. Pressure to which they are adjusted 165 lbs. Are they fitted with easing gear yes

Smallest distance between boilers or uptakes and bunkers or woodwork 22" Mean dia. of boilers 15-6" Length 10'-0" Material of shell plates steel

Thickness 1 1/8" Range of tensile strength 29/32 Are they welded or flanged no Descrip. of riveting: cir. seams double long. seams treble

Diameter of rivet holes in long. seams 1 3/32" Pitch of rivets 7/8" Lap of plates or width of butt straps 1 1/2"

Per centages of strength of longitudinal joint rivets 85 Working pressure of shell by rules 161.4 lbs. Size of manhole in shell 16" x 13 1/2"

Size of compensating ring 29 x 30 x 1 3/32" No. and Description of Furnaces in each boiler 3 Monson Material steel Outside diameter 48 1/2"

Length of plain part 7' 3" Thickness of plates crown 1 1/8" bottom 1 1/2" Description of longitudinal joint weld No. of strengthening rings —

Working pressure of furnace by the rules 168 lbs. Combustion chamber plates: Material steel Thickness: Sides 9/16" Back 9/16" Top 9/16" Bottom 3/4"

Pitch of stays to ditto: Sides 8 x 8 1/2" Back 8 1/2 x 8 1/2" Top 8 1/2 x 8" If stays are fitted with nuts or riveted heads nuts Working pressure by rules 160 lbs.

Material of stays steel Diameter at smallest part 1 3/8" Area supported by each stay 68 sq. in. Working pressure by rules 175 lbs. End plates in steam space:

Material steel Thickness 1/4" Pitch of stays 16 x 16 1/2" How are stays secured by nuts Working pressure by rules 160 lbs. Material of stays steel

Diameter at smallest part 2 1/2" Area supported by each stay 260 sq. in. Working pressure by rules 180 lbs. Material of Front plates at bottom steel

Thickness 1/8" Material of Lower back plate steel Thickness 3/4" Greatest pitch of stays 13" Working pressure of plate by rules 162 lbs.

Diameter of tubes 3 1/4" Pitch of tubes 4 1/2" Material of tube plates steel Thickness: Front 15/16" Back 3/4" Mean pitch of stays 9"

Pitch across wide water spaces 14 1/4" Working pressures by rules 166 lbs. Girders to Chamber tops: Material steel Depth and thickness of girder at centre 4" 15" Length as per rule 29" Distance apart 8" Number and pitch of Stays in each 2 - 8 1/2"

Working pressure by rules 173 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 ✓

**DONKEY BOILER**— No. *One* Description *Blakes Improved patent*  
 Made at *Middlesbrough* By whom made *Richardsons Westgarth & Co.* When made *22-1-04* Where fixed *Stoke hold*  
 Working pressure *90 lbs.* tested by hydraulic pressure to *180 lbs.* No. of Certificate *3140* Fire grate area *240* Description of safety valves *Spring*  
 No. of safety valves *2* Area of each *6.49 sq.* Pressure to which they are adjusted *93 lbs.* If fitted with easing gear *Yes* If steam from main boilers can enter the donkey boiler *No* Dia. of donkey boiler *4' 0"* Length *15' 0"* Material of shell plates *steel* Thickness *1/2"* Range of tensile strength *27-32* Descrip. of riveting long seams *d.p. lap.* Dia. of rivet holes *5/16"* Whether punched or drilled *drilled* Pitch of rivets  
 Lap of plating *4 5/8"* Per centage of strength of joint Rivets *7/8"* Plates *60-75* Thickness of shell crown plates *1/2"* Radius of do. *3'-6"* No. of Stays to do.  
 Dia. of stays. *1 1/2"* Diameter of furnace Top *3'-3"* Bottom *5'-5 1/2"* Length of furnace *4'-9"* Thickness of furnace plates *5/8"* Description of joint *S.P. lap.* Thickness of furnace crown plates *Com. Ch. top 1/2"* *dished to 3'-9" rad* Stayed by *Cylindrical* Working pressure of shell by rules *94.6 lbs.*  
 Working pressure of furnace by rules *99.7 lbs.* Diameter of uptake *2 1/2"* Thickness of uptake plates *13/32"* Thickness of water tubes *3/8"*

SPARE GEAR. State the articles supplied:— *2 bon. rod top & 2 bon. rod bottom end bolts & nuts, 2 main bearings & one set of coupling bolts, one set of feed & bilge pump valves, a quantity of assorted bolts, nuts, and iron. Propeller and propeller shaft.*

The foregoing is a correct description,  
**RICHARDSONS, WESTGARTH & CO., LIMITED**  
*J. L. G. G. G.* Manufacturer.

Managing Director.  
 Dates of Survey while building  
 During progress of work in shops: 1903. Nov. 3-5-6-9-12-18-20-23-26-30. Dec. 3-7-8-9-11-12-15-16-19-21-22-23-30-31. 1904. Jan. 4-5-6-7-8-9-11-12.  
 During erection on board vessel: 13-14-15-16-18-19-21-22-23-25-26-27-28-29-30. Feb. 1-2-3-4-5-8-9-10-11-12-13-17-18-20-23-24-25-27. Mar. 1-2-3-4-7-8.  
 Total No. of visits: 9-10-11-12-14-16-17-18-21-22-23-24-29. **84** Is the approved plan of main boiler forwarded herewith *Yes*  
 " " " donkey " " " *Yes*

General Remarks (State quality of workmanship, opinions as to class, &c.)  
*The main steam pipes have been tested by hydraulic pressure to 320 lbs. per sq. in. and found tight. The engines and boilers of this vessel have been built under special survey in accordance with the full requirements, the materials and workmanship are good and efficient. When completed and fitted on board were tried under steam at moorings with satisfactory results, and eligible in my opinion, to have **L.M.O. 3,04** marked in the Register Book.*

It is submitted that this vessel is eligible for THE RECORD **L.M.O. 3,04**  
*J.M.S.*  
*18.4.04*  
*J.L.*  
*18.4.04*

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

The amount of Entry Fee..	£	2	When applied for,
Special .. .. .	£	33	14. 4. 04
Donkey Boiler Fee .. .	£		When received,
Travelling Expenses (if any) £			15. 4. 04

*J. Smith*  
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute **T.M. 3919 APR 1904**  
 Assigned *+ L.M.O. 3,04*

MACHINERY CERTIFICATE WRITTEN.

