

## REPORT ON MACHINERY.

No. 24404

Port of Sunderland

Received at London Office

MON. 11 APR 1910

No. in Survey held at

Sunderland

Date, first Survey

Sept. 14

Last Survey

11 April 1910

Reg. Book.

on the

315 Ben grove

Master

Wm Barber

Built at

Thornaby-on-Tees

By whom built

Craig &amp; Co. Ltd

Engines made at

Sland

By whom made

H &amp; M Eng. Co. Ltd

when made

Gross 2840.36

Net 2388.98

When built

1910

Boilers made at

By whom made

when made

Registered Horse Power

Owners

Joseph Hault &amp; Co.

Port belonging to

Liverpool

Nom. Horse Power as per Section 28

242.5

Is Refrigerating Machinery fitted for cargo purposes

no

Is Electric Light fitted

no

## ENGINES, &amp;c.—Description of Engines

No. of Cylinders

3

No. of Cranks

3

Dia. of Cylinders 24. 40. 66 Length of Stroke 45 Revs. per minute 65 Dia. of Screw shaft as per rule 13.22 Material of screw shaft as fitted 12.8

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 4.9

Dia. of Tunnel shaft as per rule 12.11 Dia. of Crank shaft journals as per rule 12.4 Dia. of Crank pin 13 Size of Crank webs 19 1/2 x 8 Dia. of thrust shaft under collars 13 Dia. of screw 17.3 Pitch of Screw 14.3 No. of Blades 4 State whether moveable f Total surface 94 f

No. of Feed pumps 2 Diameter of ditto 3.2 Stroke 2.5 Can one be overhauled while the other is at work yes

No. of Bilge pumps 2 Diameter of ditto 4 Stroke 2.5 Can one be overhauled while the other is at work yes

No. of Donkey Engines 3 Sizes of Pump (2) 4 1/2 x 5 x 6; (1) 8 1/2 x 11 x 10 1/2 No. and size of Suctions connected to both Bilge and Donkey pumps In Engine Room 3 of 3 1/2 In Holds, &amp;c 2 of 3 1/2 in each hold.

No. of Bilge Injections 1 sizes 4 1/2 Connected to condenser, or to circulating pump CR Is a separate Donkey Suction fitted in Engine room &amp; size 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 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 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 22.2.10 of Stern Tube Feb 23. Screw shaft and Propeller 23.2.10

Is the Screw Shaft Tunnel watertight yes Is it fitted with a watertight door yes worked from top platform

BOILERS, &amp;c.—(Letter for record 3) Manufacturers of Steel J Spence &amp; Sons Ltd

Total Heating Surface of Boilers 5604 Is Forced Draft fitted no No. and Description of Boilers 3. S. C.

Working Pressure 180 Tested by hydraulic pressure to 360 Date of test 22.12.09 No. of Certificate 2802

Can each boiler be worked separately yes Area of fire grate in each boiler 457 No. and Description of Safety Valves to each boiler 2 Spring Area of each valve 4.9 Pressure to which they are adjusted 185 Are they fitted with easing gear yes

Smallest distance between boilers or uptakes and bunkers or woodwork 18 Mean dia. of boilers 13.98 Length 11 1/2 Material of shell plates 8

Thickness 1 1/2 Range of tensile strength 284-32 Are the shell plates welded or flanged 15 Descrip. of riveting: cir. seams 2 x lap long. seams 2 butts Diameter of rivet holes in long. seams 1 3/16 Pitch of rivets 8 3/4 Lap of plates or width of butt straps 1 1/2

Per centages of strength of longitudinal joint rivets 85.4 Working pressure of shell by rules 181 Size of manhole in shell 8 1/2 x 16 x 12

Size of compensating ring flange No. and Description of Furnaces in each boiler 3 plain Material S Outside diameter 3.58

Length of plain part top 6.8 Thickness of plates crown 7.42 Description of longitudinal joint weld No. of strengthening rings 1

Working pressure of furnace by the rules 182 Combustion chamber plates: Material 8 Thickness: Sides 3/32 Back 3/4 Top 23/32 Bottom 13/16

Pitch of stays to ditto: Sides 8 1/2 x 11 Back 10 3/4 x 8 1/2 Top 8 1/2 x 10 1/2 If stays are fitted with nuts or riveted heads nuts Working pressure by rules 180

Material of stays S Diameter at smallest part 2.1 Area supported by each stay 94 1/2 Working pressure by rules 181 Material of stays 8

Material 8 Thickness 1 1/2 Pitch of stays 22 3/8 How are stays secured d. nuts Working pressure by rules 181 Material of Front plates at bottom 8

Thickness 3/4 Material of Lower back plate 8 Thickness 3/32 Greatest pitch of stays 14 x 10 Working pressure of plate by rules 188

Diameter of tubes 3 1/2 Pitch of tubes 4 1/2 x 4 1/2 Material of tube plates S Thickness: Front 3/4 Back 3/4 Mean pitch of stays 9 1/2 x 9

Pitch across wide water spaces 14 1/2 Working pressures by rules 192 Girders to Chamber tops: Material 8 Depth and thickness of girder at centre 8 x 2 Length as per rule 30 1/2 Distance apart 11 1/2 Number and pitch of stays in each 20 8 1/2

Working pressure by rules 182 Superheater or Steam chest; how connected to boiler 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

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1955-0083



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 \_\_\_\_\_ Stayed by \_\_\_\_\_

Diameter of uptake \_\_\_\_\_ Thickness of uptake plates \_\_\_\_\_ Thickness of water tubes \_\_\_\_\_ Dates of survey \_\_\_\_\_

SPARE GEAR. State the articles supplied:— 1 Set top and bottom end bolts & nuts  
1 Set main bearing bolts & nuts, 1 Set coupling bolts  
& nuts, 1 Set feed & barge pump valves, propeller,  
nuts bolts and assorted iron.

The foregoing is a correct description,  
NORTH EASTERN MARINE ENGINEERING CO LTD  
Hull & Co. Ltd. Manufacturer.

Dates of Survey while building { During progress of work in shops - 1909. Sept. 1. Oct. 12. 25. Nov. 28. 11. 12. Dec. 8. 9. 10. 14.  
During erection on board vessel - 1910. Jan. 14. 17. Feb. 4. 23. 25. Mar. 15. 18. 21. 22. 31.  
Total No. of visits 23

Is the approved plan of main boiler forwarded herewith Yes

" " " donkey " " " "

Dates of Examination of principal parts—Cylinders 12.11.09 Slides 11.12.09 Covers 12.11.09 Pistons 11.11.09 Rods 11.10.09  
Connecting rods 12.10.09 Crank shaft 25.2.10 Thrust shaft 25.2.10 Tunnel shafts 25.2.10 Screw shaft 25.2.10 Propeller 17.1.10  
Stern tube 4.2.10 Steam pipes tested 18.3.10 Engine and boiler seatings 21.3.10 Engines holding down bolts 22.3.10  
Completion of pumping arrangements 22.3.10 Boilers fixed 22.3.10 Engines tried under steam 22.3.10  
Main boiler safety valves adjusted 22.3.10 Thickness of adjusting washers PB 7/8 CB 3/16 - 4 B 3/16 - 4  
Material of Crank shaft S Identification Mark on Do. M. P. A. M. Material of Thrust shaft S Identification Mark on Do. J. M. 12.09  
Material of Tunnel shafts S Identification Marks on Do. J. M. 12.09 Material of Screw shafts S Identification Marks on Do. P. A. 12.09  
Material of Steam Pipes Copper Test pressure 360.

General Remarks (State quality of workmanship, opinions as to class, &c. Machinery and boilers  
built under Special Survey. Materials and workmanship  
good. Engines and boilers examined under full steam  
& found satisfactory  
It is submitted that this vessel is  
eligible for the record of LMC. 3.10.

It is submitted that  
this vessel is eligible for  
THE RECORD. + LMC 4.10

J. M. A. E. D.  
22.4.10

The amount of Entry Fee... £ 3: 0: 0: When applied for, 7.4.10  
Special ... £ 57: 2: 0: When received, 18.4.10  
Donkey Boiler Fee ... £ : : :  
Travelling Expenses (if any) £ : : :  
Committee's Minute TUES. 26 APR 1910  
Assigned + LMC 4.10

J. H. Tindal & W. Morrison  
Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.



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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.)