

REPORT ON MACHINERY.

No. 4539

Port of MIDDLESBROUGH-ON-TEES

Received at London Office SAT. APL 21 1906

No. in Survey held at Stockton

Date, first Survey 3rd Jan'y 1906 Last Survey 11th April 1906

(Number of Visits 30)

Reg. Book. Supplement on the Steel S.S. "Mpscove"

Tons { Gross 2984
Net 1885
When built 1906

Master W. Whitney Built at Stockton By whom built Hopner & Son

Engines made at Stockton By whom made Blain & Co^{rs} when made 1906

Boilers made at Stockton By whom made Blain & Co^{rs} when made 1906

Registered Horse Power _____ Owners A. & Hood Port belonging to London

Nom. Horse Power as per Section 28 284 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted No

ENGINES, &c.—Description of Engines Direct acting, trip expansion No. of Cylinders 3 No. of Cranks 3

Dia. of Cylinders 23 1/2 - 39 - 64 Length of Stroke 42 Revs. per minute 67 Dia. of Screw shaft as per rule 13.45 Material of W Iron
as fitted 14 1/2 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 - 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 Yes If two

liners are fitted, is the shaft lapped or protected between the liners - Length of stern bush 5-1

Dia. of Tunnel shaft as per rule 11.65 Dia. of Crank shaft journals as per rule 12.2 Dia. of Crank pin 13 1/4 Size of Crank webs 20 1/2 x 8 1/2 Dia. of thrust shaft under

collars 13 1/4 Dia. of screw 17.0 Pitch of Screw 16.0 No. of Blades 4 State whether moceable No Total surface

No. of Feed pumps 2 Diameter of ditto 3 Stroke 30 Can one be overhauled while the other is at work Yes

No. of Bilge pumps 2 Diameter of ditto 4 1/2 Stroke 30 Can one be overhauled while the other is at work Yes

No. of Donkey Engines Two Sizes of Pumps Two 4 x 3 Ballast 9 x 10 No. and size of Suctions connected to both Bilge and Donkey pumps

In Engine Room Two 8 diam. & one 3 1/2 diam. In Holds, &c. Two each hold 3 diam

No. of Bilge Injections 1 sizes 6 1/4 Connected to condenser, or to circulating pump L.P. 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 -

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 2/2/06 of Stern Tube 2/2/06 Screw shaft and Propeller 16/3/06

Is the Screw Shaft Tunnel watertight on ship Is it fitted with a watertight door Yes worked from Top platform

BOILERS, &c.—(Letter for record 5) Manufacturers of Steel John Spencer & Son^{rs}

Total Heating Surface of Boilers 4330^{sq} Is Forced Draft fitted No No. and Description of Boilers Two Cyl. Tubular

Working Pressure 180 lbs Tested by hydraulic pressure to 360 lbs Date of test 19.2.06 No. of Certificate 3608

Can each boiler be worked separately Yes Area of fire grate in each boiler 60^{sq} No. and Description of Safety Valves to

each boiler Two spring Area of each valve 8.29^{sq} Pressure to which they are adjusted 185 lbs Are they fitted with easing gear Yes

Smallest distance between boilers or uptakes and bunkers or woodwork 18 Less dia. of boilers 15-6 Length 10-3 Material of shell plates Steel

Thickness 1 5/16 Range of tensile strength 28/32 Are the shell plates welded or flanged No Descrip. of riveting: cir. seams L.D. Riv

long. seams 2 Butt Stap. Diameter of rivet holes in long. seams 1 5/16 Pitch of rivets One row 8 1/4 Lap of plates or width of butt straps 1.7 1/4

Per centages of strength of longitudinal joint rivets 87.5% Working pressure of shell by rules 183.6 lbs Size of manhole in shell 17 x 13

plate 85% Size of compensating ring 31 x 27 x 1 5/16 No. and Description of Furnaces in each boiler 3 Murrins Material Steel Outside diameter 3-10

Length of plain part top 6.6 Thickness of plates orow 9/16 Description of longitudinal joint Welded No. of strengthening rings -

bottom 6.4 3/4 Working pressure of furnace by the rules 191 lbs Combustion chamber plates: Material Steel Thickness: Sides 1 1/16 Back 1 1/16 Top 1 1/16 Bottom 1 3/16

Pitch of stays to ditto: Sides 9 3/4 x 8 1/2 Back 9 1/2 x 9 3/8 Top 9 1/2 x 9 1/4 If stays are fitted with nuts or riveted heads Nuts Working pressure by rules 193.3 lbs

Material of stays Steel Diameter at smallest part 1 9/16 Area supported by each stay 89^{sq} Working pressure by rules 193 lbs End plates in steam space:

Material Steel Thickness 1 3/16 Pitch of stays 19 x 20 How are stays secured 2 x 10 Working pressure by rules 184 lbs Material of stays Steel

Diameter at smallest part 3 Area supported by each stay 380^{sq} Working pressure by rules 186 lbs Material of Front plates at bottom Steel

Thickness 1 1/32 Material of Lower back plate Steel Thickness 1 1/32 Greatest pitch of stays 17 1/2 x 9 3/8 Working pressure of plate by rules 186 lbs

Diameter of tubes 3 1/2 Pitch of tubes 4 3/4 x 4 7/8 Material of tube plates Steel Thickness: Front 1 1/32 Back 1 3/16 Mean pitch of stays 11

Pitch across wide water spaces 14 1/2 Working pressures by rules 194 lbs Girders to Chamber tops: Material Steel Depth and

thickness of girder at centre 7 x 15 7/8 Length as per rule 26 1/4 Distance apart 9 1/2 Number and pitch of stays in each Two 9 1/4

Working pressure by rules 185 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

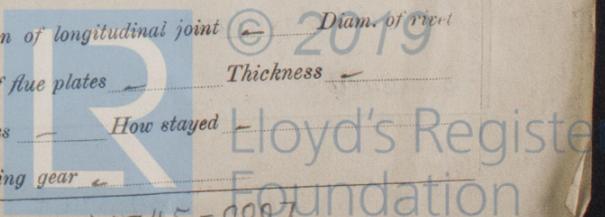
holes - Pitch of rivets - Working pressure of shell by rules - Diameter of flue - Material of flue plates - Thickness -

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 -

W 745-0007

If not, state whether, and when, one will be sent? In a Report also sent on the Hull of the Ship?



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	
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:— Propeller & propeller shaft. Top & bottom end connecting rod bolts & nuts. Two main bearing bolts & nuts. Set of coupling bolts. Set of feed & bilge pump valves. N & M P piston rings. 2 P piston springs. 2 main feed check valves. Set air pump valves & etc.

The foregoing is a correct description,
FOR BLAIR & CO., LIMITED.

W. Borrie Manufacturer of main engines & boilers.

SECRETARY.

Dates of Survey while building	During progress of work in shops - -	1906 Jan 2. 8. 12. Feb 1. 2. 5. 6. 9. 13. 15. 16. 19. March 2. 2. 5. 6. 6. 8. 12.
	During erection on board vessel - -	14. 15. 16. 19. 23. 27. 30. April 5. 6. 10. 11.
Total No. of visits		Thirty

Is the approved plan of main boiler forwarded herewith No. plain boiler Yes

Dates of Examination of principal parts—Cylinders 5/15/06 Slides — Covers 19/2/06 Pistons — Rods —

Connecting rods — Crank shaft 2/2/06 Thrust shaft 3/1/06 Tunnel shafts 1-2-9-13/2/06 Screw shaft 6/3/06 Propeller 6/3/06

Stern tube 2/3/06 Steam pipes tested 2/1/06 Engine and boiler seatings 12/3/06 Engines holding down bolts 5/4/06

Completion of pumping arrangements 4/4/06 Boilers fixed 4/4/06 Engines tried under steam 4/4/06

Main boiler safety valves adjusted 4/4/06 Thickness of adjusting washers 1/2" 15. 5/8" 32. 5/8" 57/16. 3/4" 15. 5/8" 3/8. 17/16"

Material of Crank shaft W.D. Identification Mark on Do. 5587 Material of Thrust shaft W.D. Identification Mark on Do. 5608

Material of Tunnel shafts Scrap S Identification Marks on Do. 5678 5711 Material of Screw shafts W.D. Identification Marks on Do. 5713

Material of Steam Pipes Copper solid drawn Test pressure 360 lbs per sq in

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

The engines, and boilers, of this vessel have been constructed under Special Survey, the materials and workmanship are good and efficient and when tested under steam were found satisfactory and in my opinion now eligible for the notation L.M.C. 4.06 in the Register Book.

It is submitted that
this vessel is eligible for
THE RECORD L.M.C. 4.06.

W.S.
21.4.06

The amount of Entry Fee..	£ 2 : 0 : 0	When applied for.	19. 4. 1906
Special	£ 24 . 4 : 0	When received,	19. 4. 1906
Donkey Boiler Fee .. .	£ : : :		
Travelling Expenses (if any)	£ : : :		

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

Committee's Minute TUES. 24 APL 1906

Assigned + L.M.C. 4.06

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