

REPORT ON MACHINERY.

M.M. No. 4452
S.M. No. 22700

Port of MIDDLESBROUGH-ON-TEES

Received at London Office _____ 19

No. in Survey held at Stockton

Date, first Survey 15th June 1905 Last Survey 21st March 1906

Reg. Book. Supplement 65 on the Steel S.S. "Trafalgar"

(Number of Visits 27)

Tons } Gross 2205.78
Net 1401.99
When built 1906

Master Hans Thorsen Built at Arendal By whom built J. Crown & Son Ltd

Engines made at Stockton By whom made Blain & Co Ltd when made 1906

Boilers made at Stockton By whom made Blain & Co Ltd when made 1906

Registered Horse Power _____ Owners W. H. Wilhelmsen Port belonging to Tonsberg

Nom. Horse Power as per Section 28 233 Is Refrigerating Machinery fitted for cargo purposes _____ Is Electric Light fitted _____

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

Dia. of Cylinders 22-36-59 Length of Stroke 39 Revs. per minute 58 Dia. of Screw shaft as per rule 2.4 Material of screw shaft W Iron
as fitted 1.3 1/2

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 4-8

Dia. of Tunnel shaft as per rule 12.8 Dia. of Crank shaft journals as per rule 11.3 Dia. of Crank pin 12 1/4 Size of Crank webs 19 x 7 1/4 Dia. of thrust shaft under collars 12 1/4 Dia. of screw 16-6 Pitch of screw 15 3/4 No. of blades 4 State whether moveable No Total surface 67 sq

No. of Feed pumps 2 Diameter of ditto 2 3/4 Stroke 28 Can one be overhauled while the other is at work Yes

No. of Bilge pumps 2 Diameter of ditto 4 Stroke 28 Can one be overhauled while the other is at work Yes

No. of Donkey Engines Two Sizes of Pumps Ball of 9 x 7 1/2 Foot 4 x 8 No. and size of Suctions connected to both Bilge and Donkey pumps In Engine Room Three. Two 2 3/4, one 3 In Holds, &c. 2 of 2 3/4 to each

No. of bilge injections / sizes 6 Connected to condenser, or to circulating pump LO 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 Below

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 Is the screw shaft tunnel watertight Yes

Is it fitted with a watertight door Yes worked from Top platform

BOILERS, &c.—No. of Certificate 3589 (Letter for record S) Total Heating Surface of Boilers 3540 sq Is forced draft fitted No

No. and Description of Boilers Two Cylindrical Tubular Working Pressure 180 lb Tested by hydraulic pressure to 360 lb

Date of test 22.1.06 Can each boiler be worked separately Yes Area of fire grate in each boiler 51 sq No. and Description of safety valves to each boiler Two spring Area of each valve 7.06 sq Pressure to which they are adjusted 185 lb Are they fitted with easing gear Yes

Smallest distance between boilers or uptakes and bunkers or woodwork 18 Dia. of boilers 13-9 Length 18-6 Material of shell plates Steel

Thickness 1/16 Range of tensile strength 27/32 Are they welded or flanged No Descrip. of riveting: cir. seams LD Riv long. seams D Butt Strap

Diameter of rivet holes in long. seams 1/4 Pitch of rivets One row 8 3/8 Two 4 3/16 Lap of plates or width of butt straps 1-6 1/4

Per centages of strength of longitudinal joint rivets 91.7% Working pressure of shell by rules 185 lb Size of manhole in shell 17 x 13 plate 85%

Size of compensating ring 31 x 27 x 1 3/16 No. and Description of Furnaces in each boiler 3 Brown Material Steel Outside diameter 5-0 1/2

Length of plain part top 6-10 1/2 Thickness of plates crown 1/2 Description of longitudinal joint Welded No. of strengthening rings _____ bottom 1/2

Working pressure of furnace by the rules 190 lb Combustion chamber plates: Material Steel Thickness: Sides 1/16 Back 1/16 Top 1/16 Bottom 3/4

Pitch of stays to ditto: Sides 9 3/4 x 9 Back 9 3/8 x 8 3/8 Top 9 3/8 x 9 3/8 If stays are fitted with nuts or riveted heads Nut Working pressure by rules 183 lb

Material of stays Steel Diameter at smallest part 1 9/16 Area supported by each stay 89 sq Working pressure by rules 193 lb End plates in steam space: Material Steel Thickness 1 3/16 Pitch of stays 2 1/2 x 1 7/8 How are stays secured 72 x 10 Working pressure by rules 183 lb Material of stays Steel

Diameter at smallest part 3 Area supported by each stay 376.2 sq Working pressure by rules 187 lb Material of Front plates at bottom Steel

Thickness 1/32 Material of Lower back plate Steel Thickness 1 1/32 Greatest pitch of stays 17 x 8 7/8 Working pressure of plate by rules 199 lb

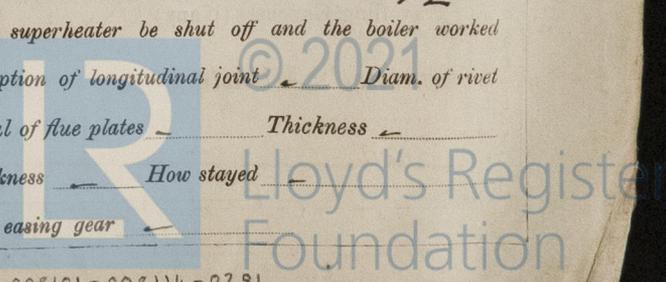
Diameter of tubes 3 1/4 Pitch of tubes 4 1/2 x 4 5/8 Material of tube plates Steel Thickness: Front 1 1/32 Back 1 3/16 Mean pitch of stays 18 1/4

Pitch across wide water spaces 1 1/4 Working pressures by rules 201 lb Girders to Chamber tops: Material Steel Depth and thickness of girder at centre 7 1/2 x 1 7/8 Length as per rule 28 Distance apart 9 3/8 Number and pitch of Stays in each Two 9 1/2

Working pressure by rules 186 lb 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. _____ Description _____
 Made at _____ By whom made _____ Date of test _____ Where fixed _____
 Working pressure _____ tested by hydraulic pressure to _____ No. of Certificate _____ Fire grate area _____ Description of safety valves _____
 No. of safety valves _____ Area of each _____ Pressure to which they are adjusted _____ 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 _____ 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 _____
 Thickness of furnace crown plates _____ Stayed by _____ Working pressure of shell by rules _____
 Working pressure of furnace by rules _____ Diameter of uptake _____ Thickness of uptake plates _____ Thickness of water tubes _____

SPARE GEAR. State the articles supplied:— *Propeller shaft, Propeller, H.P., & M.P. piston rings, L.P. piston springs, 2 main feed check valves, & seats, 2 donkey feed check valves, & seats, 1 set feed and bilge pump valves, 2 top end, 2 bottom end, 2 main bearings, & 1 set of coupling bolts, Bolts & nuts assorted, and Iron of sizes*
 The foregoing is a correct description,
FOR BLAIR & Co., LIMITED. Manufacturer of main engines & boilers
W. Bonnie

SECRETARY.
 Dates { During progress of work in shops - - } 1905 June 15. Dec^r 6. 15. 20. 23. 24. 28. 1906 Jan 5. 9. 11. 22. 25. 30. Feb 1. 2. 3. 19. 20.
 of Survey { During erection on board vessel - - } 21. 23. 28. Mar 1. 11. Jan 4. Feb 2. Mch 9. 12. 21.
 while building { Total No. of visits 27 }
 Is the approved plan of main boiler forwarded herewith *W. Bonnie*
 (Sld) 06: Jan 4, Feb 2, Mch 9, 12, 21. (5) " " " donkey " " "

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

*The machinery and boilers of this vessel have been constructed under Special Survey, the materials and workmanship are good and efficient & when tested under steam were found satisfactory and in my opinion eligible for the notation **L.M.C. 3.06.** in the Register Book.*

It is submitted that this vessel is eligible for **THE RECORD** **L.M.C. 3.06.**

Wm
6.4.06

The amount of Entry Fee.. £ 2 : 0 : 0
 Special .. £ 31 : 13 : 0
 Donkey Boiler Fee .. £ : :
 Travelling Expenses (if any) £ : :
 When applied for, 8.3.1906
 When received, 12/4/06

Geo A. Wilnes & R. W. Croucher
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute _____
 Assigned _____
 TUES. 10 APR 1906
 + L.M.C. 3.06



Sunderland

Certificate (if required) to be sent to _____

The Surveyors are requested not to write on or below the space for Committee's Minute.