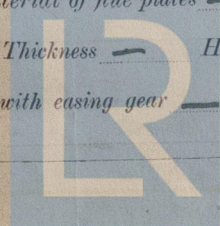


REPORT ON MACHINERY.

Port of MIDDLESBROUGH-ON-TEES.Received at London Office THUR. 9 FEB 1899

No. in Survey held at Stockton Date, first Survey 28th July 1898 Last Survey 30th Jan 1899.
 Reg. Book. S. S. Greenwich. (Number of Visits 41) Gross 2938
 on the S. S. Greenwich. Tons Net 1862
 Master E. Le Simplier Built at Stockton By whom built Ropner & Son When built 1899.
 Engines made at Stockton By whom made Blair & Hay Limd when made 1899.
 Boilers made at Stockton By whom made Blair & Hay Limd when made 1899.
 Registered Horse Power 210. Owners Brit. St. Shp Coy Ltd Port belonging to London
 Nom. Horse Power as per Section 28 256. Is Electric Light fitted No

ENGINES, &c.—Description of Engines Triple Expansion No. of Cylinders 3. No. of Cranks 3.
 Diameter of Cylinders 23", 38" & 62 1/2" Length of Stroke 42" Revolutions per minute 58 Diameter of Screw shaft as per rule 11.6
 Diameter of Tunnel shaft as fitted 12" Diameter of Crank shaft journals 12 1/2" Diameter of Crank pin 13" Size of Crank webs 20" x 8 1/2"
 Diameter of screw 16'-0" Pitch of screw 17'-0" No. of blades 4 State whether moveable Yes Total surface 78 sq. ft.
 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 2. Sizes of Pumps 9" x 10" 6" x 4" x 6" No. and size of Suctions connected to both Bilge and Donkey pumps
 In Engine Room Three: Centre 3 1/2" wings 3" dia. In Holds, &c. Fore hold, One 3 1/2" dia., Main-
hold two 3" dia. Aft. hold two 3" dia. Well 2 1/2" dia.
 No. of bilge injections 1. sizes 7" Connected to condenser, or to circulating pump yes 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 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 on stocks Is the screw shaft tunnel watertight apparently
 Is it fitted with a watertight door yes worked from upper platform
 OILERS, &c.—(Letter for record (S) Total Heating Surface of Boilers 3900 sq. ft. Is forced draft fitted No
 No. and Description of Boilers 2. S. S. Multitubular Working Pressure 160 lbs Tested by hydraulic pressure to 320 lbs
 Date of test 29.9.98 Can each boiler be worked separately yes Area of fire grate in each boiler 52.8" No. and Description of safety valves to
 each boiler two dis. out. Spring Area of each valve 7.6" 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 noside bunkers outside Mean diameter of boilers 15'-0"
 Length 10'-0" Material of shell plates steel Thickness 1 1/32" Description of riveting a circum. seams d. h. lap long. seams d. butt str.
 Diameter of rivet holes in long. seams 1 1/4" Pitch of rivets 27-32 in 1 row 8 3/8" Lap of plates 8" width of butt straps 6 1/2" & 19 1/2"
 Per centages of strength of longitudinal joint 89 Working pressure of shell by rules 174 lbs Size of manhole in shell 17" x 13"
 Size of compensating ring 31 x 27 x 1 1/32 No. and Description of Furnaces in each boiler 3 Ribbed Material steel Outside diameter 43"
 Length of plain part 8'-3" Thickness of plates 3 1/32" Description of longitudinal joint welded No. of strengthening rings —
 Working pressure of furnace by the rules 175 lbs Combustion chamber plates: Material steel Thickness: Sides 7/8" Back 7/8" Top 7/8" Bottom 7/8"
 Pitch of stays to ditto: Sides 9 1/2" x 9 1/2" Back 9 1/2" x 9 1/2" Top 9 1/2" x 9 1/2" stays are fitted with nuts or riveted heads nuts Working pressure by rules 174 lbs
 Material of stays steel Diameter at smallest part 1 9/16" Area supported by each stay 93.8" Working pressure by rules 183 lbs End plates in steam space:
 Material steel Thickness 1 1/8" Pitch of stays 20" x 18 1/2" How are stays secured d. nuts Working pressure by rules 161 lbs Material of stays steel
 Diameter at smallest part 2 3/8" Area supported by each stay 370" Working pressure by rules 175 lbs Material of Front plates at bottom steel
 Thickness 1" Material of Lower back plate steel Thickness 1 1/8" Greatest pitch of stays 14" Working pressure of plate by rules 211 lbs
 Diameter of tubes 3 1/4" Pitch of tubes 4 1/2" x 4 7/8" Material of tube plates steel Thickness: Front 1" Back 7/8" Mean pitch of stays 9 1/8"
 Pitch across wide water spaces 14 3/4" Working pressures by rules 176 lbs Girders to Chamber tops: Material steel Depth and
 thickness of girder at centre 7" x 1 1/2" Length as per rule 26 1/2" Distance apart 9 1/2" Number and pitch of Stays in each 2. 9 1/2"
 Working pressure by rules 178 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 —



Lloyd's Register
 Foundation
 M08761-0101

DONKEY BOILER— Description *Merediths Patent*
 Made at *Stockton* By whom made *Riley Brothers* When made *9.12.98* Where fixed *Storehold*
 Working pressure *90 lbs* tested by hydraulic pressure to *180 lbs* No. of Certificate *1849* Fire grate area *28* Description of safety valves *d. spring*
 No. of safety valves *2* Area of each *7.07* Pressure to which they are adjusted *90 lbs* If fitted with easing gear *Yes* If steam from main boilers can enter the donkey boiler *No* Diameter of donkey boiler *7'-6"* Length *16'-0"* Material of shell plates *Steel* Thickness *1/2"*
 Description of riveting long. seams *treb. riv. lap* Diameter of rivet holes *1 1/8"* Whether punched or drilled *dr.* Pitch of rivets *4 1/4"*
 Lap of plating *6 1/2"* Per centage of strength of joint *82.8* Thickness of shell crown plates *1/2"* Radius of do. *dished* Dia. of stays *—* Diameter of furnace Top *5'-6"* Bottom *6'-5"* Length of furnace *36"* Thickness of furnace plates *3/4"* Description of joint *lap* Thickness of furnace crown plates *1 1/8"* Stayed by *dished* Working pressure of shell by rules *100 lbs*
 Working pressure of furnace by rules *123 lbs* Diameter of uptake *3"* Thickness of uptake plates *7/8"* Thickness of water tubes *C.O.H. 1/2"*

SPARE GEAR. State the articles supplied:— *Sp and bottom end bolts & nuts. Main bearing & coupling bolts and nuts. Feed bridge & donkey pump valves. Propeller.*

The foregoing is a correct description,
 FOR BLAIR & CO., LIMITED. Manufacturer. of Engines and Main boilers

P. W. Blair Surveyor.
 Dates of Survey while building
 During progress of work in shops— *1898 July 28 Aug 3 11 23 25 Sept 6 13 29 Oct 12 18 20 25 26 31 Nov 2 4 7 10 15 20 25 30 Dec 1 5 6 7 19 22 29*
 During erection on board vessel— *1899 Jan 5 9 10 11 13 16 18 20 26 27 30*
 Total No. of visits *Forty-one.*

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

The above mentioned engines and boilers have been built under special Survey and are of good workmanship and materials. — They have been properly fitted and secured on board the vessel, and on completion, tried under steam at moorings, with satisfactory results. —

This vessels machinery is now in a good and efficient working condition and in my opinion eligible to the notation of: **L.M.C 1.99.** —

It is submitted that this vessel is eligible for THE RECORD. **L.M.C. 1.99**

A.C.H.
9.2.99.
10.2.99

The amount of Entry Fee. £ *2* : *0* : *0* When applied for, *8.2.1899*
 Special £ *32* : *16* : *0* When received, *8.2.1899*
 Donkey Boiler Fee £ : : :
 Travelling Expenses (if any) £ : : :
 Committee's Minute *FRI. 10 FEB 1899*
 Assigned *+ L.M.C 1.99*

John Sanderson
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

MACHINERY CERTIFICATE WRITTEN.