

# REPORT ON MACHINERY.

Mat No. 1354  
N. 166 9525

MON. 19 NOV 1894

Port of Middlesbro' on Tees.

Received at London Office

No. in Survey held at Stockton on Tees. Date, first Survey 16<sup>th</sup> June Last Survey 1<sup>st</sup> Nov. 1894  
 Reg. Book. on the "Nellie" (Number of Visits 30)  
 Master Mrs. Shotton Built at West Hartlepool. By whom built Furness, Withy & Co. L<sup>td</sup> When built 1894.  
 Engines made at Stockton on Tees. By whom made Blair & Co. L<sup>td</sup> when made 1894.  
 Boilers made at Stockton on Tees. By whom made Blair & Co. L<sup>td</sup> when made 1894.  
 Registered Horse Power 190 Owners Burdick & Cook. Port belonging to London.

Nom. Horse Power as per Section 28 192.  
 Manufacturers 155.

ENGINES, &c.— Description of Engines Triple expansion. No. of Cylinders Three.  
 Diameter of Cylinders 21 1/2" - 35" - 54". Length of Stroke 36" Revolutions per minute 65. Diameter of Screw shaft as per rule 9.9"  
 Diameter of Tunnel shaft as fitted 11 1/2" Diameter of Crank shaft journals 11" Diameter of Crank pin 11 1/2" Size of Crank webs 18 1/2" x 6 1/4" built.  
 Diameter of screw 15' 0" Pitch of screw 15' 6" No. of blades 4 State whether moveable No Total surface 61 sq. ft.  
 No. of Feed pumps 2 Diameter of ditto 2 1/2" Stroke 26" Can one be overhauled while the other is at work Yes.  
 No. of Bilge pumps 2 Diameter of ditto 3 1/2" Stroke 26" Can one be overhauled while the other is at work Yes.  
 No. of Donkey Engines Two. Sizes of Pumps Feed (4' x 8") Ballast (7 1/2" x 9") No. and size of Suctions connected to both Bilge and Donkey pumps  
 Engine Room Three: P. 2 1/2" dia. C. 3" dia. S. 2 1/2" dia. In Holds, &c. Fore Hold: one - 3" dia.  
After Hold: one - 3" dia. Tunnel Well: one - 2 1/2" dia.  
 No. of bilge injections 1 sizes 6" Connected to condenser, or to circulating pump C.P. Is a separate donkey suction fitted in Engine room & size Yes: 4" dia.  
 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 No Sluices.  
 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 New vessel. Is the screw shaft tunnel watertight Yes  
 Is it fitted with a watertight door Yes worked from Upper platform

BOILERS, &c.— (Letter for record B.) Total Heating Surface of Boilers 2850 sq. ft.  
 No. and Description of Boilers One: Cylindrical metal. Fired both ends. Working Pressure 160 lbs. Tested by hydraulic pressure to 320 lbs.  
 Date of test 30/8/94 Can each boiler be worked separately — Area of fire grate in each boiler 63 1/2 sq. ft. No. and Description of safety valves to  
 each boiler Two: Direct Spring. Area of each valve 8.29" Pressure to which they are adjusted 165 lbs. Are they fitted  
 with casing gear Yes. Smallest distance between boilers or uptakes and bunkers or woodwork About 12" Mean diameter of boiler 13' 0 1/8"  
 Length 15' 0" Material of shell plates Steel Thickness 1 3/32" Description of riveting: circum. seams Lap Double long. seams Diagonal Butts straps.  
 Diameter of rivet holes in long. seams 1 1/8" Pitch of rivets 7 1/4" 358" Lap of plates or width of butt straps 16 3/8" x 1" thick  
 Per centages of strength of longitudinal joint rivets 93.4. Working pressure of shell by rules 166 lbs. Size of manhole in shell 16" x 12"  
 Size of compensating ring 28" x 24" x 1 3/32" No. and Description of Furnaces in each boiler 4: Corrugated. Material Steel Outside diameter 3' 9"  
 Length of plain part top 5' 6" Thickness of plates crown 1 1/4" Description of longitudinal joint Welded. No. of strengthening rings —  
bottom 32" Working pressure of furnace by the rules 181 lbs. Combustion chamber plates: Material Steel Thickness: Sides 9/16" Back — Top 9/16" Bottom 15"  
 Pitch of stays to ditto: Sides 7/8" x 7/8" Back — Top 7/8" x 7/8" If stays are fitted with nuts or riveted heads Nuts Working pressure by rules 182 lbs.  
 Material of stays Iron Diameter at smallest part 1 1/16" hoil. Area supported by each stay 56" Working pressure by rules 143 lbs. End plates in steam space:  
 Material Steel Thickness 1 3/32" Pitch of stays 17 1/4" x 17 1/4" How are stays secured Diagonal Nuts Working pressure by rules 140 lbs. Material of stays Steel  
 Diameter at smallest part 2 5/8" Area supported by each stay 294" Working pressure by rules 163 lbs. Material of Front plates at bottom Steel  
 Thickness 1" Material of Lower back plate — Thickness — Greatest pitch of stays — Working pressure of plate by rules —  
 Diameter of tubes 3" Pitch of tubes 14 1/4" x 4 3/8" Material of tube plates Steel Thickness: Front 1" Back 1 1/16" Mean pitch of stays 8' 8"  
 Pitch across wide water spaces 14" Working pressures by rules 195 lbs. Girders to Chamber tops: Material Steel Depth and  
 thickness of girder at centre 8 3/4" x 1 5/8" Length as per rule 36" Distance apart 7 3/4" Number and pitch of Stays in each 4: 7/4"  
 Working pressure by rules 140 lbs. Superheater or Steam chest; not 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 casing gear



**DONKEY BOILER**— Description *Vertical mult. Blakes patent.*  
 Made at *Middlesbro.* By whom made *Copley, Turner & Co. L<sup>td</sup>* When made *21/9/94* Where fixed *In Stoke New.*  
 Working pressure *40 lbs* tested by hydraulic pressure to *140 lbs* No. of Certificate *925* Fire grate area *17 1/2* Description of safety valves *Spring*  
 No. of safety valves *2* Area of each *4.91* Pressure to which they are adjusted *74 lbs* If fitted with easing gear *Yes* If steam from main boilers can enter the donkey boiler *No* Diameter of donkey boiler *6' 0"* Length *13' 0"* Material of shell plates *Steel* Thickness *3/32"*  
 Description of riveting long. seams *Lap double* Diameter of rivet holes *3/16"* Whether punched or drilled *Drilled* Pitch of rivets *2 1/2"*  
 Lap of plating *4 1/4"* Per centage of strength of joint Rivets *7/4* Plates *70.4* Thickness of shell crown plates *3/8"* Radius of do. *Semi* No. of Stays to do. —  
 Dia. of stays. — Diameter of furnace Top *2' 1 1/8"* Bottom *5' 3"* Length of furnace *5 feet* Thickness of furnace plates *1/2"* Description of joint *Lap single* Thickness of furnace crown plates *1/2"* Stayed by *1 5/16"* Stays *cutted 10 x 10* Working pressure of shell by *81 lbs*  
 Working pressure of furnace by rules *88 lbs* Diameter of tubes *2 3/4"* Thickness of tubes *3/16"* Thickness of water tubes *1/28*

**SPARE GEAR.** State the articles supplied:— *Propeller, 2 main Bearing Bolts, 2 cross head Bolts, 2 Crank pin Bolts, 1 set Coupling Bolts, 2 feed pump valves, 2 main & 2 donkey check valves, piston Springs, 6 boiler tubes, nuts, bolts & iron assorted.*

The foregoing is a correct description,  
**FOR BLAIR & Co., LIMITED.** Manufacturer of main Engines & Boilers.  
*N. Borrie* SECRETARY

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

*The Engines and Boilers have been built under survey and the materials and workmanship are good. When fitted in position on board the vessel, they were tried under steam and worked satisfactorily.*

*The machinery is now in good and efficient condition and will be eligible in my opinion to have the notation of L.M.C. 11, 94 marked in the Register Book when the following work has been completed: viz: The donkey Boiler to be secured in place, its mounting fitted and examined under steam; Watertight doors to be fitted and Tunnel made watertight; and spare gear to be examined. The above mentioned fittings have been satisfactorily finished and spare gear supplied in accordance with the Rules.*  
*Richard Austri*

It is submitted that this vessel is eligible for THE RECORD + L.M.C. 11-94

*N.A.*  
*19-11-94*

The Secretary is requested not to write on or bring the space for Committee's minutes

Certificate (if required) to be sent to		MACHINERY CERTIFICATE WRITTEN.
The amount of Entry Fee..	£ 2 : " : "	When applied for,
Special .. .. .	£ 28 : 16 : "	17. 11. 18. 94
Donkey Boiler Fee .. .	£ : : "	When received,
Travelling Expenses (if any) £	: : "	17. 11. 18. 94

*R. Austri*  
 Engineer, Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute TUES. 20 NOV 1894  
 Assigned + L.M.C. 11, 94

