

# REPORT ON MACHINERY.

382  
 Port of *Middlesbrough-on-Tees*  
 Received at London Office *THURS. 28<sup>th</sup> APR 1891*  
 in Survey held at *Stockton-on-Tees* Date, first Survey *4<sup>th</sup> Dec<sup>r</sup> 1890* Last Survey *20<sup>th</sup> March 1891*  
 Book. (Number of Visits *24*)  
 on the *Screw Steamer "Lammermoor"*  
 Built at *Stockton* By whom built *Ropner & Son* Tons { Gross *2955.9*  
 Net *1925.2*  
 When built *1891*  
 Engines made at *Stockton* By whom made *Blair & Co<sup>y</sup> Limited* when made *1891*  
 Boilers made at *Stockton* By whom made *Blair & Co<sup>y</sup> Limited* when made *1891*  
 Indicated Horse Power *330* Owners *Walter Runciman & Co<sup>y</sup>* Port belonging to *S. Shields*  
 Registered HP *190*

## MACHINES, &c.—

Description of Engines *Inverted, Direct Acting, Triple Expansion* No. of Cylinders *Three*  
 No. of Cylinders *23 - 3 1/2 - 6 1/2* Length of Stroke *39"* Rev. per minute *60* Point of Cut off, High Pressure *.5* Low Pressure *.8*  
 Diameter of Screw shaft *12"* Diam. of Tunnel shaft *11 1/4"* Diam. of Crank shaft journals *11 1/4"* Diam. of Crank pin *12 1/4"* size of Crank webs *19 1/2 x 8 1/8"*  
 Diameter of screw *16' 0"* Pitch of screw *15' 0"* No. of blades *4* state whether moveable *No* total surface *71 sq. ft.*  
 No. of Feed pumps *2* diameter of ditto *3 1/4"* Stroke *28"* Can one be overhauled while the other is at work *Yes*  
 No. of Bilge pumps *2* diameter of ditto *4 1/2"* Stroke *28"* Can one be overhauled while the other is at work *Yes*  
 Where do they pump from *Fore, Main and After Holds, Engine room, Tunnel Well, Ballast tank, &c.*  
 No. of Donkey Engines *Two* Size of Pumps *(4 x 8") (7 1/2 x 9")* Where do they pump from *Feed - Sea, Hotwell, Tank, &c.*  
*Direct Acting*  
 Are all the bilge suction pipes fitted with roses *Yes* Are the roses always accessible *Yes* Are the sluices on Engine room bulkheads always accessible *Yes*  
 No. of bilge injections *1* and sizes *6"* Are they connected to condenser, or to circulating pump *Circulating pump*  
 Are the pumps worked *By levers from the cross head of the after engine*  
 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*  
 Are all pipes carried through the bunkers *None* How are they protected *By covers from the cross head of the after engine*  
 Are all pipes, cocks, valves, and pumps in connection with the machinery accessible at all times *Yes*  
 Are the pipes, cocks, and valves arranged so as to prevent an unintentional connection between the sea and the bilges *Yes*  
 Were stern tube, propeller, screw shaft, and all connections examined in dry dock *New vessel, before launching*  
 Is the screw shaft tunnel watertight *Yes* and fitted with a sluice door *Yes* worked from *Top platform in Engine room*

## BOILERS, &c.—

No. of Boilers *Two* Description *by 10" built: Single Ended* Material *Steel* Letter (for record) *S*  
 Working Pressure *160 lbs.* Tested by hydraulic pressure to *320 lbs.* Date of test *30<sup>th</sup> January 1891. (H. 188.)*  
 Description of superheating apparatus or steam chest *None* Heating surface *3520 sq. feet.*  
 Can each boiler be worked separately *Yes* Can the superheater be shut off and the boiler worked separately *Yes*  
 Area of square feet of fire grate surface in each boiler *49 1/2* Description of safety valves *Direct Spring* No. to each boiler *Two*  
 Area of each valve *4.06"* Are they fitted with easing gear *Yes* No. of safety valves to superheater *Yes* area of each valve *Yes*  
 Are they fitted with easing gear *Yes* Smallest distance between boilers and bunkers or woodwork *9"* Diameter of boilers *14' 0 1/2"*  
 Length of boilers *10' 0"* description of riveting of shell long. seams *Double* circum. seams *Double* Thickness of shell plates *1 1/4"*  
 Diameter of rivet holes *1 1/4"* whether punched or drilled *Drilled* pitch of rivets *8"* *Long. 8" Circ. 4 1/2"* Lap of plating *18 1/4" wide* *circ. 6 1/4"*  
 Percentage of strength of longitudinal joint *84%* working pressure of shell by rules *162.5 lbs.* size of manholes in shell *16 x 12"*  
 No. of compensating rings *28 x 24 x 1 1/4"* No. of Furnaces in each boiler *3* Description of Furnaces *Corrugated*  
 Inside diameter *3' 6"* length *6' 3"* thickness of plates *9/16"* description of joint *Welded* if rings are fitted *Yes*  
 Smallest length between rings *Yes* working pressure of furnace by the rules *166 lbs.* combustion chamber plating, thickness, sides *9/16"* back *9/16"* top *9/16"*  
 Size of stays to ditto, sides *3/2 x 7/4"* back *3/2 x 7/4"* top *3/2 x 7/4"* If stays are fitted with nuts or riveted heads *None* working pressure of plating by rules *172 lbs.*  
 Diameter of stays at smallest part *1 1/8"* working pressure of ditto by rules *179 lbs.* and plates in steam space, thickness *1 1/8"*  
 Size of stays to ditto *16 1/4" x 15"* how stays are secured *Double nut washers* working pressure by rules *171 lbs.* diameter of stays at smallest part *2 1/2"*  
 working pressure by rules *181 lbs.* Front plates at bottom, thickness *1"* Back plates, thickness *1"*  
 Smallest pitch of stays *12 1/8"* working pressure by rules *160.6 lbs.* Diameter of tubes *3 1/4"* pitch of tubes *4 1/2" x 4 1/8"* thickness of tube plates, front *1"* back *7/8"*  
 how stayed *Stay tubes* pitch of stays *14 1/4" x 9"* width of water spaces *1 1/4" x 5"*  
 Diameter of Superheater or Steam chest *Yes* length *Yes* thickness of plates *Yes* description of longitudinal joint *Yes* diam. of rivet holes *Yes*  
 Size of rivets *Yes* working pressure of shell by rules *Yes* diameter of flue *Yes* thickness of plates *Yes* If stiffened with rings *Yes*  
 Distance between rings *Yes* working pressure by rules *Yes* end plates of superheater, or steam chest; thickness *Yes* how stayed *Yes*  
 Superheater or steam chest; how connected to boiler *Yes*



2 steel

# DONKEY BOILERS

Description Vertical with four cross water tubes

Made at Stockton by whom made Riley Bros: when made 24.2.91 where fixed In Stockton

Working pressure 80 lbs tested by hydraulic pressure to 160 lbs. No. of Certificate 204 fire grate area 22 sq. feet description of safety

valves Direct Spring No. of safety valves one area of each 11 sq. in. if fitted with easing gear Yes if steam from main boilers can

enter the donkey boiler No. diameter of donkey boiler 6.0" length 12.0" description of riveting Long Lap Double

Thickness of shell plates 13/32" diameter of rivet holes 7/16" whether punched or drilled punched pitch of rivets 2 7/16" lap of plating 4 1/4"

per centage of strength of joint 41.1 thickness of crown plates 13/32" stayed by Six stays 1 1/2" dia. diameter

Diameter of furnace, top 4.10" bottom 5.5" length of furnace 5.2" thickness of plates 13/32" description of joint Lap - Single

Thickness of furnace crown plates 13/32" stayed by Same as shell crown plate.

working pressure of shell by rules 86.2 lbs

Working pressure of furnace by rules 84.8 lbs diameter of uptake 15" thickness of plates 7/16" thickness of water tubes 3/8"

SPARE GEAR. State the articles supplied: - 1 Propeller, 2 main Bearing Bolts & nuts, 2 Crosshead

Bolts & nuts, 2 Crank pin Bolts & nuts, 1 Set Coupling Bolts & nuts.

1 Set Feed & Bleed pump valves, 1 Set Piston Springs. Iron ass't 2 in, 120

Bolts & nuts ass't

The foregoing is a correct description,

John Blair & Co Ltd

Manufacturers of main Engines & Boilers.

4/7/91 Blair

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

The main steam pipes have been tested by hydraulic pressure to 320 lbs per sq. inch and found tight.

The Engines and Boilers have been constructed under special survey, and the materials and workmanship are of the best description. When fitted in the vessel they were examined under steam and worked satisfactorily.

The Machinery throughout is now in good and efficient condition and eligible in my opinion to have the notation **L.M.C. 3, 91** marked in the Society's Register Book.

It is submitted that this vessel is eligible to have the notation L.M.C. 3, 91 recorded.

Boiler

The amount of Entry Fee .. £ 2 : - : - received by me,

Special .. £ 15 : - : -

Donkey Boiler Fee .. £ : : -

Certificate (if required) .. £ : : -

To be sent as per margin

(Travelling Expenses, if any, £ : : -)

Committee's Minute

FRI. 5 APR 1891

Wm R Austin

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

+ L. M.C. 3/91