

# REPORT ON MACHINERY.

64

MON 19 MAY 1890

Port of *Middlesbro'*

Received at London Office

18

64

Date, first Survey *Jan 31<sup>st</sup> 1890*

Last Survey *12<sup>th</sup> May 1890*

(Number of Visits *25*)

Survey held at *Middlesbro'*

on the *Screw Steamer Ingleby*

Tons { Gross *1785.8*  
Net *1131.9*

Builder *James Hall* Built at *Middlesbro'* By whom built *R. Bragg & Sons*

When built *1890*

Motors made at *Middlesbro'* By whom made *Hestgarth, English & Co<sup>y</sup>* when made *1890*

Motors made at *Middlesbro'* By whom made *Hestgarth, English & Co<sup>y</sup>* when made *1890*

Registered Horse Power *145* Owners *Edward Harris & Co<sup>y</sup>*

Port belonging to *Middlesbrough*

By Rule *148*

## ENGINES, &c.—

*(Triple expansion)*

Description of Engines *Triple expansion (3 cranks, inverted, direct acting, surface condensing)* No. of Cylinders *Three*

No. of Cylinders *20 - 33 - 54* Length of Stroke *36* Rev. per minute *72* Point of Cut off, High Pressure *1/2* Stroke Low Pressure *1/2* Stroke

Diameter of Screw shaft *10* Diam. of Tunnel shaft *9 1/2* Diam. of Crank shaft journals *10* Diam. of Crank pin *10* size of Crank webs *7 1/4 x 18*

Diameter of screw *14.0* Pitch of screw *14.6 to 13.6* No. of blades *4* state whether moveable *to* total surface *56 sq. feet.*

No. of Feed pumps *2* diameter of ditto *2 1/4* Stroke *19* Can one be overhauled while the other is at work *Yes.*

No. of Bilge pumps *2* diameter of ditto *4* Stroke *19* Can one be overhauled while the other is at work *Yes.*

Where do they pump from *Engine Room Bilges & after keel.*

No. of Donkey Engines *Two* Size of Pumps *5 1/2 x 3 1/2 x 3 1/2* Where do they pump from *Feed - E.R. Bilges, Tunnel, Sea, Boiler*

How well *Ballast - Sea thro Condenser, Engine room Bilges and all Ballast tanks.*

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 *5* Are they connected to condenser, or to circulating pump *Circulating pump.*

How are the pumps worked *By levers from the crosshead of the intermediate 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.*

How are pipes carried through the bunkers *None* How are they protected *✓*

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.*

When were stern tube, propeller, screw shaft, and all connections examined *in dry dock* *Before Cannering.*

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 *Single End, by Locomotive, Multitubular* Material *Steel* Letter (for record)

Working Pressure *160 lbs.* Tested by hydraulic pressure to *320 lbs.* Date of test *5<sup>th</sup> April 1890 (N. 1016)*

Description of superheating apparatus or steam chest *None.* Heating surface *2722 sq. feet.*

Can each boiler be worked separately *Yes.* Can the superheater be shut off and the boiler worked separately *✓*

Area of square feet of fire grate surface in each boiler *66 sq. feet.* Description of safety valves *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 *✓* area of each valve *✓*

Are they fitted with easing gear *✓* Smallest distance between boilers and bunkers or woodwork *8"* Diameter of boilers *12' 6"*

Length of boilers *10' 4 1/2"* description of riveting of shell long. seams *Double* circum. seams *Lap - Double* Thickness of shell plates *1 3/32"*

Diameter of rivet holes *1 1/8"* whether punched or drilled *Drilled* pitch of rivets *1 1/2"* Lap of plating *6"*

Percentage of strength of longitudinal joint *84.8%* working pressure of shell by rules *160 lbs.* size of manholes in shell *16 x 12"*

Size of compensating rings *28 x 24 x 1 3/32"* No. of Furnaces in each boiler *Two* Description of Furnaces *Stubbed*

Outside diameter *3' 9 3/8"* length *7' 0"* thickness of plates *1 3/32"* description of joint *Welded.* if rings are fitted *✓*

Greatest length between rings *✓* working pressure of furnace by the rules *160 lbs.* combustion chamber plating, thickness, sides *1 3/32"* back *9/16"* top *5/8"*

Pitch of stays to ditto, sides *8 1/2 x 8"* back *7 1/2 x 7 1/2"* top *8 x 7 1/2"* If stays are fitted with nuts or riveted heads *Nuts* working pressure of plating by

rules *160 lbs.* Diameter of stays at smallest part *1 1/4"* working pressure of ditto by rules *160 lbs.* end plates in steam space, thickness *1"*

Pitch of stays to ditto *14 1/2" x 14 1/2"* how stays are secured *Double nuts & washers* working pressure by rules *140 lbs.* diameter of stays at

smallest part *2 1/4"* working pressure by rules *140 lbs.* Front plates at bottom, thickness *3/4"* Back plates, thickness *3/4"*

Greatest pitch of stays *10 1/4"* working pressure by rules *164 lbs.* Diameter of tubes *3 1/2"* pitch of tubes *4 1/4" x 4 1/4"* thickness of tube

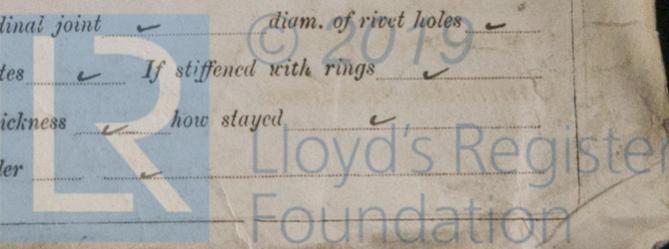
plates, front *3/4"* back *1 1/16"* how stayed *Stay tubes* pitch of stays *9 1/2" x 9 1/2"* width of water spaces *5"*

Diameter of Superheater or Steam chest *✓* length *✓* thickness of plates *✓* description of longitudinal joint *✓* diam. of rivet holes *✓*

Pitch of rivets *✓* working pressure of shell by rules *✓* diameter of flue *✓* thickness of plates *✓* If stiffened with rings *✓*

Distance between rings *✓* working pressure by rules *✓* end plates of superheater, or steam chest; thickness *✓* how stayed *✓*

Superheater or steam chest; how connected to boiler *✓*



Serial

DONKEY BOILER— Description *Cylindrical, multitubular*

Made at *Birkenhead* by whom made *Cochrane 1604*

when made *2.2.90* where fixed *In stockhold*

Working pressure *80 lb* tested by hydraulic pressure to *160 lb* No. of Certificate *889* fire grate area *15 sq. feet* description of safety

valves *Spring* No. of safety valves *one* area of each *9.62 sq. in.* if fitted with easing gear *Yes* if steam from main boilers can

enter the donkey boiler *No.* diameter of donkey boiler *8' 0"* length *4' 6"* description of riveting *Butt strap tubes*

Thickness of shell plates *1/16"* diameter of rivet holes *3/4"* whether punched or drilled *Drilled* pitch of rivets *4 1/2" x 2 1/4"* lap of plating *1 1/4"*

percentage of strength of joint *83%* thickness of <sup>end</sup> ~~main~~ plates *9/16"* stayed by *Bar stays*

Diameter of furnace, top *3' 6"* bottom *3' 6"* length of furnace *5' 0"* thickness of plates *1/16"* description of joint *Double Butt strap*

Thickness of furnace <sup>tube</sup> ~~main~~ plates *5/8* stayed by *Stay tubes* working pressure of shell by rules *84 lb*

Working pressure of furnace by rules *83 lb.* diameter of uptake *✓* thickness of plates *✓* thickness of water tubes *✓*

SPARE GEAR. State the articles supplied:— *2 Each, Connecting Rod top & bottom End Bolts & nuts, 2 Main Bearing Bolts & nuts, 1 set Coupling Bolt, 1 set Piston Springs, 1 set Feed & Bilge pump valves, Bolts & nuts ass't. Iron ass't. sizes.*

The foregoing is a correct description,

*Wm. A. Light & Co.* Manufacturers of main Engines & Boilers—

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

*Materials and Workmanship good.*

*The Engines and Boilers have been constructed under special survey. When tried the Engines worked satisfactorily, while the Main Boilers were found tight with steam up and their safety valves are now adjusted to carry a working pressure of 160 lb. per sq. inch.*

*The whole Machinery is now in good and efficient condition and eligible in my opinion to have the notation **L.M.C. 5, 90.** marked in the Society's Register Book.*

*It is submitted that this vessel is eligible to have + L.M.C. 5-90 recorded.*

*W.A.  
19-5-90*

Amount of Entry Fee .. £ 2 : 4 : 4 received by me,

Special .. £ 26 : 14 : 9

Donkey Boiler Fee .. £ : : *W.A.*

Certificate (if required) .. £ : : *16-5-1890*

To be sent as per margin.

(Travelling Expenses, if any, £ )

Committee's Minute **TUES 20 MAY 1890**

*+ L.M.C. 5/90*

*Wm. A. Light*  
Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.



Lloyd's Register Foundation