

# REPORT ON MACHINERY.

23887

No. 23887  
 No. in Survey held at Newcastle Date, first Survey 9 March 1890 Last Survey 27<sup>th</sup> July 1890  
 g. Book. Newcastle Received at London Office THURS 6 MARCH 1890  
 on the S.S. "Moranghine" (Number of Visits 49) Tons 2481.05  
 Master J. Cowle Built at Newcastle By whom built Hawthorn Leslie & Co When built 1890  
 Engines made at Newcastle By whom made Hawthorn Leslie & Co when made 1890  
 Boilers made at " By whom made " when made 1890  
 Registered Horse Power 306300 Owners Olderley & Co Port belonging to Glasgow

**ENGINES, &c.**  
 Description of Engines Triple expansion in three cranks  
 Diameter of Cylinders 27.44.71 Length of Stroke 48 No. of Rev. per minute 65 Point of Cut off, High Pressure 33 $\frac{1}{2}$  Low Pressure 33  
 Diameter of Screw shaft 13 $\frac{1}{2}$  Diam. of Tunnel shaft 12 $\frac{1}{4}$  Diam. of Crank shaft journals 13 $\frac{1}{2}$  Diam. of Crank pin 13 $\frac{1}{2}$  size of Crank webs 20 $\frac{1}{2}$  x 8  
 Diameter of screw 16.6 Pitch of screw 18.6 No. of blades 4 state whether moveable no total surface 80 $\frac{1}{2}$   
 No. of Feed pumps 2 diameter of ditto 3 $\frac{3}{4}$  Stroke 24 Can one be overhauled while the other is at work yes  
 No. of Bilge pumps 2 diameter of ditto 3 $\frac{3}{4}$  Stroke 24 Can one be overhauled while the other is at work yes  
 Where do they pump from Eng. Room (P.C.S.) holds of well  
 No. of Donkey Engines Two Size of Pumps 14 x 8 x 4 x 8 Where do they pump from Bunks, sea, hotwell, engine room (p.c.s.) holds of well  
 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 aff  
 No. of bilge injections 1 and sizes 4 Are they connected to condensers, or to circulating pump no  
 How are the pumps worked by cross over condenser from main engine  
 Are all connections with the sea direct on the skin of the ship no Are they Valves or Cocks both  
 Are they fixed sufficiently high on the ship's side to be seen without lifting the stokehold plates no 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 no  
 What pipes are 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 new vessel  
 Is the screw shaft tunnel watertight ✓ and fitted with a sluice door yes worked from top platform

**BOILERS, &c.**  
 Number of Boilers Three Description of double ended Whether Steel or Iron Steel  
 Working Pressure 160 lbs Tested by hydraulic pressure to 320 lbs Date of test Dec 6 1889 No 3162  
 Description of superheating apparatus or steam chest none  
 Can each boiler be worked separately yes Can the superheater be shut off and the boiler worked separately ✓  
 No. of square feet of fire grate surface in each boiler 70 Description of safety valves sprung No. to each boiler two  
 Area of each valve 8.30" 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 36 Diameter of boilers 12.0  
 Length of boilers 15.3 description of riveting of shell long. seams Roman joint circum. seams dl Thickness of shell plates 1 $\frac{1}{2}$   
 Diameter of rivet holes 13/16 x 1/4 whether punched or drilled d pitch of rivets 8 $\frac{3}{16}$  Lap of plating 14 $\frac{1}{2}$  x 2 $\frac{1}{2}$   
 Percentage of strength of longitudinal joint 84.3 working pressure of shell by rules 170 size of manholes in shell 16 x 12  
 Size of compensating rings 6 x 1 $\frac{1}{4}$  No. of Furnaces in each boiler 4  
 Outside diameter 39 length, top Purves bottom flue thickness of plates 9/16 description of joint ✓ if rings are fitted ✓  
 Greatest length between rings ✓ working pressure of furnace by the rules 179 combustion chamber plating, thickness, sides 9/16 back ✓ top 4/6  
 Pitch of stays to ditto, sides 7 $\frac{3}{4}$  back ✓ top 9 $\frac{1}{2}$  If stays are fitted with nuts or riveted heads no working pressure of plating by rules 162 Diameter of stays at smallest part 1 $\frac{1}{4}$  working pressure of ditto by rules 164 end plates in steam space, thickness 1 $\frac{1}{2}$   
 Pitch of stays to ditto 18 x 19 how stays are secured d u w working pressure by rules 187 diameter of stays at smallest part 23/4 working pressure by rules 162 Front plates at bottom, thickness 15/16 Back plates, thickness ✓  
 Greatest pitch of stays ✓ working pressure by rules ✓ Diameter of tubes 3 $\frac{1}{2}$  pitch of tubes 4 $\frac{1}{2}$  thickness of tube plates, front 14/6 back 13/16 how stayed tubes pitch of stays 13 $\frac{1}{2}$  width of water spaces 7  
 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 ✓

Report filed 1/3/90 sent to London 1/3/90

NW513-0160

Purves  
Description of furnaces

**DONKEY BOILER**— Description *Cyl. single ended*  
 Made at *Stockton* by whom made *Rely Bros* when made *12/1890* where fixed *on deck*  
 Working pressure *100* tested by hydraulic pressure to *200* No. of Certificate *2020* fire grate area *20.25 sq* description of safety  
 valves *Spring* No. of safety valves *Two* area of each *5.41 sq* if fitted with easing gear *Yes* if steam from main boilers can  
 enter the donkey boiler *No* diameter of donkey boiler *8.0* length *8.0* description of riveting *d butts 12*  
 Thickness of shell plates *9/16* diameter of rivet holes *13/16* whether punched or drilled *d* pitch of rivets *3 1/2* lap of plating *5/16*  
 per centage of strength of joint *76* thickness of *shell* plates *4/16* stayed by *1 7/8 stays 13" pitch*  
 Diameter of furnace *top 2' 3 1/16* bottom *✓* length of furnace *5.3* thickness of plates *7/16 1/2* description of joint *102 L & S*  
 Thickness of furnace *shell* plates *9/16* stayed by *girders 9 1/2" pitch* working pressure of shell by rules  
 Working pressure of furnace by rules *11 1/4* diameter of uptake *✓* thickness of plates *✓* thickness of water tubes

**SPARE GEAR.** State the articles supplied:— *3 crank shaft, propeller shaft + blades, Bottom end brasses, Air in pump rods, buckets, head valves, Two e top, Bottom end bolts, 2 main bearing bolts, Set coupling, Set feed & bilge pump valves, Quantity bolts, nuts, + assorted iron*

The foregoing is a correct description,  
*R. & W. RAWTHORN, LESLIE & Co., LIMITED,* Manufacturers of main Engines & Boilers.

*H. Marshall* DIRECTOR

**General Remarks** (State quality of workmanship, opinions as to class, &c. *The machinery of this vessel has been constructed under special survey the materials and workmanship are sound and good and renders the vessel eligible in our opinion to have the notification + L.M.C. 2-90 in the Register Book*

*Heating Surface 6900 sq  
 Horse Power 404*

*It is submitted that this vessel is eligible to have + L.M.C. 2-90 recorded N.A. 6.3-90*

*[Large blue scribble]*

The amount of Entry Fee .. £ *3* .. received by me,  
 Special .. £ *40.74* ..  
 Donkey Boiler Fee .. £ *35.6* ..  
 Certificate (if required) .. £ *Francis 22/4/1890* ..  
 (Travelling Expenses, if any, £ ..)

*John H. Collier & Co. 2021*  
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute .. **FRIDAY 14 MARCH 1890** ..  
*Machinery* ..  
 Written. *+ Lmb 2/90*

