

# REPORT ON MACHINERY.

8584

No. 8584 (Received at London Office 31 DEC, 1883)  
 No. in Survey held at Port Glasgow Date, first Survey 4<sup>th</sup> May 1883 Last Survey 27<sup>th</sup> Dec 1883  
 Reg. Book. on the "S.S. Richard" (Number of Visits 38) 1135.21  
 Tons 643.05  
 Master Miller Built at Port Glasgow When built 1883  
 Engines made at Port Glasgow By whom made D. J. Dunlop & Co. when made 1883  
 Boilers made at Port Glasgow By whom made " when made 1883  
 Registered Horse Power 250 Owners Cork Steamship Coy. Port belonging to Cork

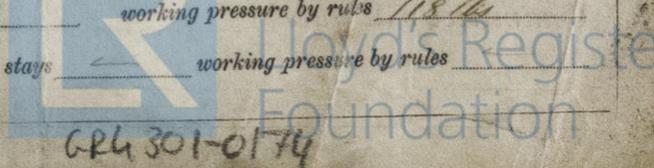
## ENGINES, &c.—

Description of Engines Compound Inverted Direct Acting  
 Diameter of Cylinders 35 & 70 Length of Stroke 48 No. of Rev. per minute 60 Point of Cut off, High Pressure 28 Low Pressure 28  
 Diameter of Screw shaft 12 1/2 Diameter of Tunnel shaft 12 Diameter of Crank shaft journals 12 1/2 Diameter of Crank pin 12 1/2 size of Crank webs 15 1/2 x 2 1/2  
 Diameter of screw 13.9 Pitch of screw 22.6 No. of blades Four state whether moveable No total surface 64 sq feet  
 No. of Feed pumps Two diameter of ditto 4 Stroke 24 Can one be overhauled while the other is at work Yes  
 No. of Bilge pumps Two diameter of ditto 4 Stroke 24 Can one be overhauled while the other is at work Yes  
 Where do they pump from Engine Room Cargo Hold  
 No. of Donkey Engines Two Size of Pumps 7 x 9 & 5 x 5 Where do they pump from Large from Ballast tanks & Engine room Bilges. Small from Sea Net well & Bilges also boiler  
 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 Two and sizes 6 & 3 Are they connected to condenser, or to circulating pump Circulating pump & bilge pump  
 How are the pumps worked By Levers  
 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 Under  
 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 Bilge pipes How are they protected Wood Cement  
 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 On Ship before vessel was launched  
 Is the screw shaft tunnel watertight Yes and fitted with a sluice door Yes worked from Engine room top platform

## BOILERS, &c.—

Number of Boilers Two Description Round Horizontal Multitubular (Shell iron, Enamelled steel)  
 Working Pressure 90 lbs Tested by hydraulic pressure to 180 lbs per sq in Date of test 6<sup>th</sup> December 1883  
 Description of superheating apparatus or steam chest Round Horizontal Receiver  
 Can each boiler be worked separately Yes Can the superheater be shut off and the boiler worked separately No Superheater  
 No. of square feet of fire grate surface in each boiler 75 Description of safety valves Direct Spring  
 No. to each boiler Two area of each valve 17.72 sq in 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 11  
 Diameter of boilers 11.5 Length of boilers 15.3 description of riveting of shell long. seams Double butt strap circum. seams Double  
 Thickness of shell plates 3/32 diameter of rivet holes 1 3/16 whether punched or drilled punched & drilled pitch of rivets 5 1/4  
 Lap of plating 16 1/2 straps per centage of strength of longitudinal joint 77 working pressure of shell by rules 108 lbs  
 Size of manholes in shell 16 x 12 size of compensating rings L iron 5 x 14 x 7/8  
 No. of Furnaces in each boiler Four outside diameter 42 1/2 length, top 6.3 bottom through  
 Thickness of plates Top 9/16 Bottom 5/8 description of joint Butt strap if rings are fitted Yes greatest length between rings 6 feet to plates  
 Working pressure of furnace by the rules 108 lbs  
 Combustion chamber plating, thickness, sides 7/16 back — top 5/8  
 Pitch of stays to ditto, sides 7 x 6 1/4 back — top 8 x 7 & 7 x 7  
 If stays are fitted with nuts or riveted heads Riveted Heads Nuts on top working pressure of plating by rules 90 lbs for sides, 120 lbs for top  
 Diameter of stays at smallest part 1 1/2 steel working pressure of ditto by rules 156 lbs for side stay, 200 lbs for top stay  
 End plates in steam space, thickness 3/4 full pitch of stays to ditto 15 x 15 how stays are secured Double nuts  
 Working pressure by rules 90 lbs diameter of stays at smallest part 2 3/8 working pressure by rules 118 lbs  
 Front plates at bottom, thickness 3/4 Back plates, thickness — greatest pitch of stays — working pressure by rules —

Form No. 8—21/6/82 1000.



GR4 301-0174

Diameter of tubes  $3\frac{1}{2}$ " pitch of tubes  $11\frac{1}{4} \times 11\frac{3}{4}$ " thickness of tube plates, front  $\frac{3}{16}$ " back  $\frac{1}{16}$ "  
 How stayed *Stay tubes* pitch of stays  $11\frac{1}{4} \times 9\frac{1}{2}$ " width of water spaces  $6\frac{1}{2}$ "  
 Diameter of Superheater or Steam chest  $36$ " length  $14\frac{1}{2}$ "  
 Thickness of plates  $5\frac{1}{4} \frac{7}{16}$ " description of longitudinal joint *Lap double* diameter of rivet holes  $\frac{13}{16}$ " pitch of rivets  $2\frac{1}{2}$ "  
 Working pressure of shell by rules  $121\frac{1}{2}$  Diameter of flue  $\leftarrow$  thickness of plates  $\leftarrow$   
 If stiffened with rings  $\leftarrow$  distance between rings  $\leftarrow$  Working pressure by rules  $\leftarrow$   
 End plates of superheater, or steam chest; thickness  $\frac{9}{16}$ " How stayed *Three Quarter Stays*  
 Superheater or steam chest; how connected to boiler *By neck pieces  $\frac{3}{4}$ " thick*

**DONKEY BOILER—** Description *Cochran's (patent)*  
 Made at *Birkenhead* By whom made *Cochran & Co* when made *1883*  
 Where fixed *on the deck* working pressure *60lb* Tested by hydraulic pressure to *120* No. of Certificate *389*  
 Fire grate area *18-3ft* Description of safety valves *Direct spring* No. of safety valves *Two* area of each  $\frac{1}{4}$ "  
 If fitted with casing gear  $\leftarrow$  If steam from main boilers can enter the donkey boiler *No*  
 Diameter of donkey boiler *6ft* length *13-0"* description of riveting *Fel'sons double*  
 thickness of shell plates  $\frac{7}{16}$ " diameter of rivet holes  $\frac{3}{4}$ " whether punched or drilled *punched*  
 pitch of rivets  $2\frac{1}{2}$ " lap of plating  $4\frac{1}{2}$ " per centage of strength of joint *70%*  
 thickness of crown plates  $\frac{7}{16}$ " stayed by *hemispherical*  
 Diameter of furnace, top *2-5 $\frac{1}{2}$ " Radius* bottom  $\leftarrow$  length of furnace  $\leftarrow$   
 thickness of plates  $\frac{7}{16}$ " description of joint *Single Rivet Lap*  
 thickness of furnace crown plates  $\frac{7}{16}$ " stayed by *hemispherical*  
 Working pressure of shell by rules *65-7lb* working pressure of furnace by rules *92lb*  
 diameter of uptake  $16$ " thickness of plates  $\frac{7}{16}$ " thickness of water tubes  $\leftarrow$

The foregoing is a correct description,  
*A. Mallory* Manufacturer.  
*J.G. Kinghorn*

**General Remarks** (State quality of workmanship, opinions as to class, &c. *The Engines & Boilers have been specially supervised during construction, workmanship of good quality, and the Machinery & Boilers are now in good order & safe working condition and are in my opinion eligible to be noted in the Register Book L.M.C. 12.83.*)

Examined screws, tunnel & thrust shafts when being turned & found them apparently sound & free from defects.

Spare gear supplied: 1 propeller shaft complete with coupling bolts, 2 top and 2 bottom end bolts, 4 main bearing bolts, 1 set of feed to bilge pump valves, 1 set of rubber cutters for air & circulating pump, 100 brass tubes for furnace, 50 furnace bars & 12 gauge plates.

*It is submitted that this need to change & have the notes in the L.M.C. records M 1/1884*

*[Large blue scribble]*

The amount of Entry Fee  $\pounds 2:0:0$  received by me,  
 Special  $\pounds 32:10:0$  at *Greenock*  
 Certificate (if required)  $\pounds$  *Gratis 28/1/83*  
 To be sent as per margin.  
 (Travelling Expenses, if any,  $\pounds$   $\leftarrow$ )

Committee's Minute **TUESDAY 1 JAN 1884** 18.  
*[Signature]*  
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping, Greenock District.

