

# REPORT ON MACHINERY.

No. 185

(Received in London Office 2/12/1890)

No. in Reg. Book. 60 Survey held at Hull & Grimsby Date, first Survey 11<sup>th</sup> June Last Survey 27<sup>th</sup> Nov. 1890  
 on the Iron screw Steamer "Galley of Lorne" Tons 2147  
 Master Hewitt Built at Glasgow When built 1871  
 Engines made at Glasgow By whom made R Napier & Sons when made 1872  
 Boilers made at Hull By whom made C. Holmes & Co. when made 1880  
 Registered Horse Power 240 Owners Shaw, Bushby & Co. Port belonging to London

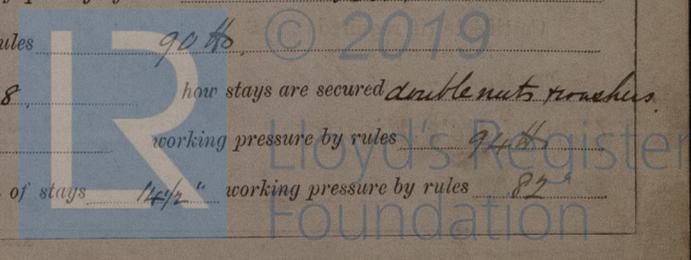
**ENGINES, &c.—**

Description of Engines Vertical inverted, compound surface condensing direct acting.  
 Diameter of Cylinders 2/32 1/2" & 68" Length of Stroke 42 No. of Rev. per minute ✓ Point of Cut off, High Pressure 18" Low Pressure 17 1/2"  
 Diameter of Screw shaft 12 3/4" Diameter of Tunnel shaft 1 1/2" Diameter of Crank shaft journals 12 1/2" Diameter of Crank pin 12 1/2" size of Crank webs 14 1/2" x 9"  
 Diameter of screw 18' 0" Pitch of screw ✓ No. of blades 4 state whether moveable yes total surface ✓  
 No. of Feed pumps 2 diameter of ditto 3 5/8" Stroke 16" Can one be overhauled while the other is at work No  
 No. of Bilge pumps 2 diameter of ditto 3 5/8" Stroke 16" Can one be overhauled while the other is at work No  
 Where do they pump from Fore, main & aft hold - Stoke hold & Engine room  
 No. of Donkey Engines One Size of Pumps 5 1/2" dia x 10" dia Where do they pump from Fore, main, after & Stoke hold & Engine room & Sea - delivery to main & donkey boilers, deck, outboard, condenser & distilling apparatus  
 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 One and sizes 6" dia Are they connected to condenser, or to circulating pump Circulating pump  
 How are the pumps worked By Eccentrics from crank shaft  
 Are all connections with the sea direct on the skin of the ship yes except main inlet which is on a star piece about 8" deep 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 circulation below, bilge & donkey - above  
 Are they each fitted with a discharge valve always accessible on the plating of the vessel yes - Circulating discharge - yes - Bilge & donkey - no 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 X  
 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 30<sup>th</sup> October 1890  
 Is the screw shaft tunnel watertight yes and fitted with a sluice door yes worked from upper deck

**BOILERS, &c.—**

Number of Boilers Two Description Circular, multitubular, ordinary marine type  
 Working Pressure 80 lbs Tested by hydraulic pressure to 150 lbs Date of test 4<sup>th</sup> October 1890  
 Description of superheating apparatus or steam chest Circular, horizontal  
 Can each boiler be worked separately yes Can the superheater be shut off and the boiler worked separately yes  
 No. of square feet of fire grate surface in each boiler 52.25 Description of safety valves Adams patent spring loaded  
 No. to each boiler 2 area of each valve 14.19 sq in Are they fitted with easing gear yes  
 No. of safety valves to superheater X area of each valve X are they fitted with easing gear X  
 Smallest distance between boilers and bunkers or woodwork 10 inches  
 Diameter of boilers 14' 6" Length of boilers 12' 6" description of riveting of shell long. seams double riveted with dovetail straps circum. seams double riv. lapped  
 Thickness of shell plates 1 1/16" diameter of rivet holes 1 1/16" whether punched or drilled drilled pitch of rivets 4"  
 Lap of plating 11 Straps per centage of strength of longitudinal joint 66 working pressure of shell by rules 80 lbs  
 Size of manholes in shell 17" x 14" size of compensating rings Angle iron 4" x 4" x 3/4"  
 No. of Furnaces in each boiler 3 outside diameter 3' 3" length, top 7' 3" bottom 11' 6"  
 Thickness of plates top 9/16" bottom 5/8" description of joint Welded if rings are fitted between at back end greatest length between rings supports 7' 0"  
 Working pressure of furnace by the rules 104 lbs  
 Combustion chamber plating, thickness, sides 1/2" back 1/2" top 1/2"  
 Pitch of stays to ditto sides varying 7' 6" 9 1/2" x 7 1/2" back 7 1/2" top 8" x 8 1/4"  
 If stays are fitted with nuts or riveted heads nuts working pressure of plating by rules 85 lbs  
 Diameter of stays at smallest part 1 1/4" bare working pressure of ditto by rules 90 lbs  
 End plates in steam space, thickness 1 1/16" pitch of stays to ditto 20 x 18 how stays are secured double nuts & washers  
 Working pressure by rules 100 lbs diameter of stays at smallest part 2 1/16" working pressure by rules 94 lbs  
 Front plates at bottom, thickness 3/4" Back plates, thickness 3/4" greatest pitch of stays 14 1/2" working pressure by rules 82

IRON 197-0340



Diameter of tubes  $3\frac{1}{2}$ " pitch of tubes  $4\frac{7}{8}$ " thickness of tube plates, front  $3\frac{1}{4}$ " back  $3\frac{1}{4}$ "  
 How stayed Stay Tube pitch of stays as drawing width of water spaces  $1\frac{3}{8}$ "  
 Diameter of Superheater or Steam chest  $5\text{' }0\text{'}$  length  $9\text{' }0\text{'}$  28757 Iron  
 Thickness of plates  $9/16$  description of longitudinal joint Butted with double straps, all riveted diameter of rivet holes  $3/4$ " pitch of rivets  $3\frac{1}{2}$ "  
 Working pressure of shell by rules  $120\text{ lb}$  Diameter of flue  $\infty$  thickness of plates  $\infty$   
 If stiffened with rings  $\times$  distance between rings  $\times$  Working pressure by rules  $\infty$   
 End plates of superheater, or steam chest; thickness  $13/16$  with  $9/16$  How stayed 4 round stays  $2\frac{3}{8}$ " dia  
 Superheater or steam chest; how connected to boiler By neck piece  $18\text{' } \times 15\text{'}$

**DONKEY BOILER**— Description Oval multitubular with mainary marine type  
 Made at Widale By whom made C. D. Holmes & Co when made 1890  
 Where fixed On deck working pressure 75 lb Tested by hydraulic pressure to 150 lb No. of Certificate 54  
 Fire grate area 14 sq. ft Description of safety valves Adams Spring No. of safety valves one area of each 7 sq. inch  
 If fitted with casing gear Yes If steam from main boilers can enter the donkey boiler No  
 Diameter of donkey boiler vertical dia. 10" 0" length 8" 6" description of riveting double riveted, lap joints  
 thickness of shell plates 9/16" diameter of rivet holes 7/8" whether punched or drilled drilled  
 pitch of rivets 2 1/2" lap of plating 5 1/2" per centage of strength of joint 66  
 thickness of end plates 5/8" stayed by 6 2" stays  
 Diameter of furnace, top 3" 6" bottom  $\infty$  length of furnace top 5" 6" Bottom 7" 10"  
 thickness of plates 1/2" inch description of joint double butt straps single riveted  
 thickness of furnace crown plates  $\infty$  stayed by  $\infty$   
 Working pressure of shell by rules 110 lb working pressure of furnace by rules 85 lb  
 diameter of uptake  $\infty$  thickness of plates  $\infty$  thickness of water tubes  $\infty$

The foregoing is a correct description,  
 Manufacturer.

*No submitted that  
 the vessel was intended to have  
 150 lb pressure Lloyd's M.C. 11.50  
 Register Book  
 M 2/12/80*

General Remarks (State quality of workmanship, opinions as to class, &c. For special Survey No 2)

This vessel has now been fitted with 2 new Boilers made to approved design & furnished with all new mountings. Stop Safety valves. Inner Sea blow out Cocks. main & donkey feed valves & all necessary pipes connected with same complete. The Boilers tested by hydraulic pressure to twice the <sup>pre</sup> working pressure and the safety valves tested under steam as required. The Sea Cocks & bitge fittings raised at the stoke hold floor or fitted with fixed handles to work from above.

New main Steam pipe. new double beat stop & throttle valve in Engine room. new Pistons to both Cyls. the slides drawn & examined (faces worn). Low pressure Cylinder patched in the upper steam pipe. Valve motion overhauled. Discharge valve examined in dry dock. Surface condenser tubes drawn & replaced (renewed as requisite) <sup>new brass glass plates fitted</sup>. Belge inspection examined & put in working order.

New collars to thrust. One new blade to propeller & repaired.  
 New Crank Shaft in one piece with cushion coupling. Main bearings polished.  
 New Steel donkey Boiler made to approved design. Furnished with all requisite mountings. Cocks, valves & the necessary pipes for connecting same. The Boiler tested by hydraulic pressure as required by the rules to twice the working pressure. & the valves tested under steam with satisfactory results.

The Workmanship on the Boilers & fittings as herein specified is good & in my opinion the vessel is eligible to retain the certification Lloyd's M.C. in the Register book.

The amount of Entry Fee MS £ 10 : 0 : 0 received by me,

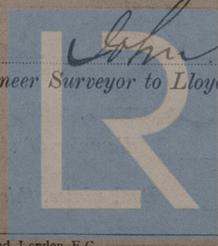
Special £ 6 : 6 : 0  
 Donkey Boiler fee £ 2 : 2 : 0  
 Certificate (if required) £ " : " : "  
 To be sent as per margin.  
 (Travelling Expenses, £ 1 : 1 : 0)

*has been* Vice Letter attached  
 5-12 January 81

Committee's Minute

Friday, December 31st. 1880.

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



Lloyd's Register Foundation

The designs of main & donkey boilers are forwarded herewith.