

# REPORT ON MACHINERY.

No. 185

No. in Survey held at *Hull & Grimsby* Date, first Survey *11<sup>th</sup> June* Last Survey *27<sup>th</sup> Nov. 1880*  
 Reg. Book. *60* 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 *21 3/4" & 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 1/4"* 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" diam x 10" stroke* Where do they pump from *Fore, main, after & Stoke hold & Engine room & Sea - deliver to main & donkey boilers - deck - overboard - 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" diam* 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 clamp 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 - otherwise 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*  
 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 *30<sup>th</sup> October 1880*  
 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 lb* Tested by hydraulic pressure to *150 lb* Date of test *4<sup>th</sup> October 1880*  
 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 *✓*  
 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 *✓* area of each valve *✓* are they fitted with easing gear *✓*  
 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 double 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 lb*  
 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 rings supports 7' 0"*  
 Working pressure of furnace by the rules *104 lb*  
 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 lb*  
 Diameter of stays at smallest part *1 1/4" bare* working pressure of ditto by rules *90 lb*  
 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 lb* diameter of stays at smallest part *2 1/16"* working pressure by rules *94 lb*  
 Front plates at bottom, thickness *3/4"* Back plates, thickness *3/4"* greatest pitch of stays *14 1/2"* working pressure by rules *82 lb*

IRON 197-0340



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

DONKEY BOILER— Description Oval multitubular with ordinary marine type  
Made at Wale By whom made C. D. Holmes & Co when made 1880  
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 & Spun No. of safety valves one area of each 7 sq. inch  
If fitted with easing gear  $4/10$  If steam from main boilers can enter the donkey boiler  $\times$   
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  $2\frac{1}{2}$  lap of plating  $5\frac{1}{2}$ " 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~~  $\times$  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  $\times$  stayed by  $\times$   
Working pressure of shell by rules 110 lb working pressure of furnace by rules 86 lb  
diameter of uptake  $\times$  thickness of plates  $\times$  thickness of water tubes  $\times$

The foregoing is a correct description,  
Manufacturer.

*No submitted that  
this vessel was eligible to have  
the notification Lloyd's M.C. 11.50  
Registered in the  
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 pressure and the safety valves tested under steam as required. The Sea Cocks & bitge sections raised at the Stroke hold from or fitted with fixed handles to work from above.

Saw 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 required). <sup>new brass glass plates fitted</sup> Bilge inspection examined & put in working order.

Saw collars to thrust. One new blade to propeller & repaired.

Saw Crank Shaft in one piece. with cushion coupling. & main bearings polished.  
Saw 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 safety 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 notification Lloyd's M.C. in the Register book.

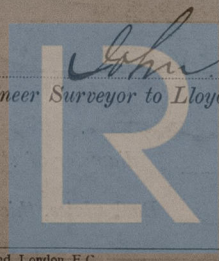
The amount of Entry Fee  $\pounds 10 : 0$  received by me,

Special  $\pounds 6 : 6$   
Donkey Boiler fee  $\pounds 2 : 2$   
Certificate (if required)  $\pounds 5 : 5$   
To be sent as per margin.  
(Travelling Expenses,  $\pounds 1 : 1 : 0$ )

Committee's Minute

*1018 Vice Letter attached  
12 Jan'y 81  
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.*