

# REPORT ON MACHINERY.

No. 5805

(Received at London Office)

No. in Survey held at *Glasgow*  
Reg. Book.

Date, first Survey *December 1881* Last Survey *August 14 1882*

on the *Screw Steamer "Borghese" late "Galatea"*

Tons *1331*

Master *D. Pearson*

Built at *Sunderland*

When built *1870-11 m*

Engines made at *Glasgow*

By whom made *James Hardie & Co.* when made *1882*

Boilers made at *"*

By whom made *"* when made *1882*

Registered Horse Power *200*

Owners *Raeburn & Co.*

Port belonging to *Glasgow*

## ENGINES, &c.—

Description of Engines *Compound Inverted Direct Acting*

Diameter of Cylinders *36" & 64"* Length of Stroke *42"* No. of Rev. per minute *67* Point of Cut off, High Pressure *6* Low Pressure *6*

Diameter of Screw shaft *1 1/2"* Diameter of Tunnel shaft *1 1/4"* Diameter of Crank shaft journals *1 1/2"* Diameter of Crank pin *1 1/2"* size of Crank webs *6 3/4"*

Diameter of screw *15 1/2"* Pitch of screw *1 1/2"* No. of blades *four* state whether moveable *Yes* total surface *64 ft<sup>2</sup>*

No. of Feed pumps *two* diameter of ditto *4"* Stroke *21"* Can one be overhauled while the other is at work *Yes*

No. of Bilge pumps *two* diameter of ditto *4"* Stroke *21"* Can one be overhauled while the other is at work *Yes*

Where do they pump from *All Compartments*

No. of Donkey Engines *one* Size of Pumps *5 x 6"* Where do they pump from *Sea Bilge & Hotwell*

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"* Are they connected to condenser, or to circulating pump *Circulating*

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 *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 *Main Steam Pipes* How are they protected *By iron casing*

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 *July 10<sup>th</sup> 1882*

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 *Round Horizontal*

Working Pressure *80 lbs* Tested by hydraulic pressure to *160 lbs* Date of test *31.5.82*

Description of superheating apparatus or steam chest *Round vertical dome*

Can each boiler be worked separately *Yes* Can the superheater be shut off and the boiler worked separately *none*

No. of square feet of fire grate surface in each boiler *60 ft<sup>2</sup>* Description of safety valves *Direct Spring (Alec McCallum)*

No. to each boiler *Two* area of each valve *16.8"* 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 *9"*

Diameter of boilers *11' 9"* Length of boilers *5' 7 1/8"* description of riveting of shell long. seams *Double riveted* circum. seams *Double riveted*

Thickness of shell plates *64* diameter of rivet holes *1 3/16"* whether punched or drilled *Drilled* pitch of rivets *5 7/16"*

Lap of plating *1/2"* per centage of strength of longitudinal joint *78%* working pressure of shell by rules *81 lbs*

Size of manholes in shell *16" x 12"* size of compensating rings *Angle iron*

No. of Furnaces in each boiler *four* outside diameter *3' 4"* length, top *6' 6"* bottom *through furnace*

Thickness of plates *1/16"* description of joint *welded in two lengths* if rings are fitted *—* greatest length between rings *—*

Working pressure of furnace by the rules *136 lbs @ 3' 4" length*

Combustion chamber plating, thickness, sides *1/16"* back *—* top *1/16"*

Pitch of stays to ditto sides *8 1/4" x 8 1/4"* back *—* top *8 1/4" x 8 1/4"*

If stays are fitted with nuts or riveted heads *Nuts* working pressure of plating by rules *79 lbs*

Diameter of stays at smallest part *1 1/4"* working pressure of ditto by rules *105 lbs*

and plates in steam space, thickness *1/16" & 1/16" double* pitch of stays to ditto *18" x 18"* how stays are secured *By double nuts*

working pressure by rules *97 lbs* diameter of stays at smallest part *2 1/2"* working pressure by rules *97 lbs*

nt plates at bottom, thickness *1/16"* Back plates, thickness *—* greatest pitch of stays *—* working pressure by rules *—*

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Diameter of tubes  $3\frac{1}{4}$ " pitch of tubes  $4\frac{1}{2}$ " thickness of tube plates, front  $\frac{1}{16}$ " back  $\frac{1}{16}$ "  
How stayed *by tubes* pitch of stays  $13\frac{1}{2} \times 13\frac{1}{2}$ " width of water spaces  $6$ "  
Diameter of ~~Superheater~~ Steam chest  $3'0"$  length  $3'8"$   
Thickness of plates  $\frac{15}{32}$ " description of longitudinal joint *double riveted* diameter of rivet holes  $1\frac{3}{16}$ " pitch of rivets  $3\frac{1}{4}$ "  
Working pressure of shell by rules *—* Diameter of flue *none* thickness of plates *—*  
If stiffened with rings *—* distance between rings *—* Working pressure by rules *—*  
End plates ~~of superheater~~ steam chest; thickness  $\frac{9}{16}$ " How stayed *—*  
~~Superheater~~ steam chest; how connected to boiler *by flange double riveted*  
DONKEY BOILER— Description *Round Horizontal (Old Boiler)*  
Made at *Not ascertained* By whom made *valves changed to B* when made *—*  
Where fixed *in upper deck* working pressure  $2\frac{1}{2}$  lbs Tested by hydraulic pressure to  $52$  lbs No. of Certificate *—*  
Fire grate area  $16\frac{1}{2}$  sq ft Description of safety valves *Dead weight* No. of safety valves *one* area of each  $9.62$ "  
If fitted with easing gear *yes* If steam from main boilers can enter the donkey boiler *no*  
Diameter of donkey boiler  $6'2"$  length  $9'0"$  description of riveting *Double riveted*  
thickness of shell plates  $\frac{9}{16}$ " diameter of rivet holes *—* whether punched or drilled *—*  
pitch of rivets  $2"$  lap of plating *—* per centage of strength of joint *—*  
thickness of crown plates *—* stayed by *—*  
Diameter of furnace, *top*  $3\frac{1}{2}$  ft bottom *—* length of furnace  $6'9"$   
thickness of plates *about*  $\frac{9}{16}$ " description of joint *lap single riveted*  
thickness of furnace crown plates *—* stayed by *—*  
Working pressure of shell by rules *—* working pressure of furnace by rules *—*  
diameter of uptake *—* thickness of plates *—* thickness of water tubes *—*

The foregoing is a correct description,  
Manufacturer.

*James Howden & Co*

General Remarks (State quality of workmanship, opinions as to class, &c. *The Old Engines & Boilers have been taken out & replaced by new, which are of good workmanship. The Engine & Boiler Leaking repaired & renewed where necessary, and all sea cocks & valves moved from the flat of bottom, to the upper turn of the bilge. Funnel Shifting lined up & bearings overhauled. Stern bush fitted with new wood on bottom side, New propeller fitted*

*Donkey Boiler repaired by renewing a number of screw stays, and a large patch at the bottom of back, Safety Valve overhauled & examined pipes & other connections repainted & made good*

*These Engines & Boilers, together with the above mentioned repairs have been satisfactorily completed by Messrs James Howden & Co and are now in good order and safe working condition and eligible in my opinion to be noted in the Register Book* **Lloyds. M. C. 8.82**

The amount of Entry Fee *£ 1: 10: 0* received by me, *(initials)*  
Special *£ 30: 0: 0*  
Certificate (if required) *£ 5: 0: 0* 21/8/1882  
To be sent as per margin. *£ 31: 15: 0*  
(Travelling Expenses, if any, £ *—*)

Committee's Minute 18

*It is submitted that this vessel is eligible to have the notification of 1884 & 1885 and 1886 recorded* *James Mollison*  
Engineer Surveyor to Lloyd's Register of British & Foreign Shipping  
*Clyde District*  
Lloyd's Register Foundation