

# REPORT ON MACHINERY.

No. 9113

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No. in Survey held at *Argy & Bulgean* Date, first Survey *24<sup>th</sup> Decr 1885* Last Survey *17<sup>th</sup> Apr. 1886*  
 Reg. Book. *S.S. "Isabella"* (Number of Visits *8*) *103.21*  
 on the *S.S. "Isabella"* Tons *29.87*  
 Master *A. McIntosh* Built at *Bulgean* By whom built *Bulgean S.B. & E. Coy (Lim<sup>d</sup>)* When built *1886*  
 Engines made at *Argy* By whom made *J & J. Young* when made *1886*  
 Boilers made at *do* By whom made *do do* when made *1886*  
 Registered Horse Power *35* Owners *J. & M. Murray* Port belonging to *Ardrrossan*.

## ENGINES, &c.—

Description of Engines *Compound Inverted Direct Acting.*  
 Diameter of Cylinders *15" & 29"* Length of Stroke *21"* No. of Rev. per minute *106* Point of Cut off, High Pressure *1/4* Low Pressure *1/3*  
 Diameter of Screw shaft *5 3/8* Diam. of Tunnel shaft *5 3/16* Diam. of Crank shaft journals *5 1/2* Diam. of Crank pin *5 1/2* size of Crank webs *7 1/2 x 3 3/8*  
 Diameter of screw *6" 10* Pitch of screw *12" 0* No. of blades *Four* state whether moveable *no* total surface *17 feet*  
 No. of Feed pumps *one* diameter of ditto *2 1/2* Stroke *10 1/2* Can one be overhauled while the other is at work *—*  
 No. of Bilge pumps *one* diameter of ditto *2 1/2* Stroke *10 1/2* Can one be overhauled while the other is at work *—*  
 Where do they pump from *Engine room & Cargo Hold*  
 No. of Donkey Engines *one* Size of Pumps *4 x 6" stroke* Where do they pump from *Sea. Hot well. ballast tank & Bilges.*  
 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 *2 1/2* Are they connected to condenser, or to circulating pump. *Circulating 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 *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 *On slip before vessel was launched.*  
 Is the screw shaft tunnel watertight *no tunnel* and fitted with a sluice door *—* worked from *—*

## BOILERS, &c.—

Number of Boilers *one* Description *Round Horizontal multitubular* Whether Steel or Iron *Steel*  
 Working Pressure *100 lbs* Tested by hydraulic pressure to *200 lbs per sq* Date of test *20<sup>th</sup> March 1886*  
 Description of superheating apparatus or steam chest *None*  
 Can each boiler be worked separately *—* Can the superheater be shut off and the boiler worked separately *—*  
 No. of square feet of fire grate surface in each boiler *28.8* Description of safety valves *Direct Spring* No. to each boiler *Two*  
 Area of each valve *9.62 sq* 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 *9" 6"*  
 Length of boilers *9" 0"* description of riveting of shell long. seams *Double riveted* circum. seams *Double* Thickness of shell plates *5 3/8*  
 Diameter of rivet holes *15/16* whether punched or drilled *Punched* pitch of rivets *3 7/8* Lap of plating *9" Straps*  
 Per centage of strength of longitudinal joint *76.* working pressure of shell by rules *104 lbs* size of manholes in shell *16" x 12"*  
 Size of compensating rings *6" x 7/16* No. of Furnaces in each boiler *Two*  
 Outside diameter *34"* length, top *6" 2"* bottom *8" 3"* thickness of plates *1/2"* description of joint *Double butt strap* if rings are fitted *Longitudinal*  
 Greatest length between rings *—* working pressure of furnace by the rules *106 lbs* combustion chamber plating, thickness, sides *5/32* back *7/16* full top *15/32*  
 Pitch of stays to ditto, sides *7 3/4 x 7 1/2* back *7 1/4 x 7 1/2* top *7 3/4 x 7 1/4* If stays are fitted with nuts or riveted heads *nuts* working pressure of plating by rules *111 & 112 lbs*  
 Diameter of stays at smallest part *1 1/8* working pressure of ditto by rules *104 lbs* end plates in steam space, thickness *3/32*  
 Pitch of stays to ditto *12 3/8 x 12 3/8* & *12* how stays are secured *Double nuts* working pressure by rules *100 lbs* diameter of stays at smallest part *1 1/2 full*  
 working pressure by rules *103* Front plates at bottom, thickness *5/8* Back plates, thickness *9/16*  
 Greatest pitch of stays *9 1/2* working pressure by rules *107 lbs* Diameter of tubes *3 1/4* pitch of tubes *4 1/2 x 4 1/2* thickness of tube plates, front *2 1/32* back *5/8* how stayed *Stay tubes* pitch of stays *13 1/4 x 9"* width of water spaces *5 to 6 inches*  
 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 *—*



**DONKEY BOILER—** Description *None*

Made at \_\_\_\_\_ by whom made \_\_\_\_\_ when made \_\_\_\_\_ where fixed \_\_\_\_\_  
Working pressure \_\_\_\_\_ tested by hydraulic pressure to \_\_\_\_\_ No. of Certificate \_\_\_\_\_ fire grate area \_\_\_\_\_ description of safety  
valves \_\_\_\_\_ No. of safety valves \_\_\_\_\_ area of each \_\_\_\_\_ if fitted with easing gear \_\_\_\_\_ if steam from main boilers can  
enter the donkey boiler \_\_\_\_\_ diameter of donkey boiler \_\_\_\_\_ length \_\_\_\_\_ description of riveting \_\_\_\_\_  
Thickness of shell plates \_\_\_\_\_ diameter of rivet holes \_\_\_\_\_ whether punched or drilled \_\_\_\_\_ pitch of rivets \_\_\_\_\_ lap of plating \_\_\_\_\_  
per centage of strength of joint \_\_\_\_\_ thickness of crown plates \_\_\_\_\_ stayed by \_\_\_\_\_  
Diameter of furnace, top \_\_\_\_\_ bottom \_\_\_\_\_ length of furnace \_\_\_\_\_ thickness of plates \_\_\_\_\_ description of joint \_\_\_\_\_  
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 \_\_\_\_\_

**SPARE GEAR.** State the articles supplied:— *2 top & 2 bottom end bolts & nuts. 2 main bearing bolts  
1 set of coupling bolts. 1 set of feed & bilge pump valves. a quantity of bolts,  
nuts, and iron assorted.*

The foregoing is a correct description,

*W. Young* Manufacturer.

**General Remarks** (State quality of workmanship, opinions as to class, &c. *The Engines & Main boiler*  
*have been specially surveyed during construction and tested under*  
*full steam test satisfactory. quality of workmanship good. Shafts*  
*examined when being turned and found satisfactory. The machinery*  
*and main boiler are now in good order and safe working condition*  
*and are in my opinion eligible to be noted in the Register Book*  
**LMC. 4.86.**

*It is submitted that  
this vessel is eligible to  
have LMC recorded  
on 6/5/86*

The amount of Entry Fee .. £ 1 : 0 : 0 received by me,

Special .. £ 8 : 0 : 0

Donkey Boiler Fee .. £ : : :

Certificate (if required) .. £ gratis 4<sup>th</sup> May 1886

To be sent as per margin.

(Travelling Expenses, if any, £ 6 : 12 : 6)

Committee's Minute

*A. C. Heron*  
Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

*Greenock District.*