

# REPORT ON MACHINERY.

9113

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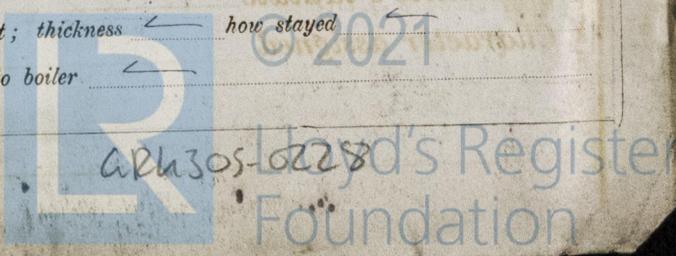
No. in Survey held at *Argy & bulgean* Date, first Survey *21<sup>th</sup> Decr 1885* Last Survey *17<sup>th</sup> Aprl. 1886*  
 Reg. Book. on the *"Isabella"* (Number of Visits *8*) Tons *103.21*  
 Master *A. McIntosh* Built at *bulgean* By whom built *bulgean S. B. & Co. (Lim<sup>d</sup>)* When built *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. & C. 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 Hotwell 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 1/8*  
 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 *L or better*  
 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 3/4* If stays are fitted with nuts or riveted heads *nuts* working pressure of plating by rules *118 & 126* Diameter of stays at smallest part *1 1/2* working pressure of ditto by rules *104 lbs* end plates in steam space, thickness *2 1/2*  
 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 1/2* 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,  
*J. 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 account  
J.M. 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)

TUESDAY 11 MAY 1886

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

Committee's Minute

+ *LMC*

