

# REPORT ON MACHINERY.

4667

No. 4667

Received at London Office

No. in Survey held at Glasgow Date, first Survey 14<sup>th</sup> May Last Survey 16<sup>th</sup> October 1886  
 Reg. Book. S.S. "Wainui" (Number of Visits 33) Tons 639.99  
 on the 391.33

Master A. Watson Built at Dumbarton By whom built Messrs Murray Bros When built 1886  
 Engines made at Glasgow By whom made Messrs Miller & Houston when made 1886  
 Boilers made at " By whom made " when made 1886  
 Registered Horse Power 95 Owners Mr J H Williams Port belonging to Wellington

**ENGINES, &c.—**

Description of Engines Compound Inverted direct acting  
 Diameter of Cylinders 25 x 50 Length of Stroke 36 No. of Rev. per minute 85 Point of Cut off, High Pressure 18.75 Low Pressure 18.75  
 Diameter of Screw shaft 9 1/4 Diam. of Tunnel shaft 9 Diam. of Crank shaft journals 9 1/4 Diam. of Crank pin 9 1/4 size of Crank webs 6 1/2 x 11 1/2 built  
 Diameter of screw 11 ft Pitch of screw 15.6 No. of blades 4 state whether moveable No total surface 38 sq ft  
 No. of Feed pumps 2 diameter of ditto 3 Stroke 18 Can one be overhauled while the other is at work Yes  
 No. of Bilge pumps 2 diameter of ditto 3 Stroke 18 Can one be overhauled while the other is at work Yes  
 Where do they pump from the bilges of each compartment  
 No. of Donkey Engines One Size of Pumps 4 1/2 dia, 8" cyl, 9" stroke Where do they pump from the sea, ballast tanks, bilges of each compartment and 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 3 1/2 dia Are they connected to condenser, or to circulating pump air pump  
 How are the pumps worked By levers on Low pressure engine  
 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 previous to the vessel being launched  
 Is the screw shaft tunnel watertight Yes and fitted with a sluice door Yes worked from top platform

**BOILERS, &c.—**

Number of Boilers One Description Cylindrical multitubular Whether Steel or Iron Steel  
 Working Pressure 100 lbs Tested by hydraulic pressure to 200 lbs Date of test September 6<sup>th</sup> 1886  
 Description of superheating apparatus or steam chest Vertical dome  
 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 63 sq ft Description of safety valves direct spring No. to each boiler two  
 Area of each valve 11.04 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 14.1"  
 Length of boilers 10.6 description of riveting of shell long. seams rib riv butt circum. seams dbl riv lap Thickness of shell plates 3/32  
 Diameter of rivet holes 1 1/16 whether punched or drilled drilled pitch of rivets 5 3/4 Lap of plating straps 16 x 3 full  
 Per centage of strength of longitudinal joint 81% working pressure of shell by rules 105 lbs size of manholes in shell end plate 16 x 11  
 Size of compensating rings 6 1/2 x 13/4 No. of Furnaces in each boiler three  
 Outside diameter 3.9 length, top 6.3 bottom 8 ft thickness of plates 7/16 description of joint corrugated if rings are fitted 3 1/2 x 3 1/2 x 2 1/2  
 Greatest length between rings 6.9 working pressure of furnace by the rules 111 lbs combustion chamber plating, thickness, sides 1/2" back 1/2" top 1/2"  
 Pitch of stays to ditto, sides 8 x 8 1/4 back 8 1/4 x 8 1/4 top 7 x 8 1/4 If stays are fitted with nuts or riveted heads nuts working pressure of plating by rules 113 lbs Diameter of stays at smallest part 1 1/2 screw working pressure of ditto by rules 123 lbs end plates in steam space, thickness 3/4"  
 Pitch of stays to ditto 14 x 14 how stays are secured dbl nuts working pressure by rules 102 lbs diameter of stays at smallest part 2 1/4 fine thread working pressure by rules 112 lbs Front plates at bottom, thickness 3/4" Back plates, thickness 1/16"  
 Greatest pitch of stays 13 1/2 working pressure by rules 100 lbs Diameter of tubes 3 1/2 pitch of tubes 14 1/4 x 14 1/4 thickness of tube plates, front 3/4" back 3/4" how stayed stay tubes pitch of stays 13 1/2 x 9 1/2 width of water spaces 6"  
 Diameter of Superheater or Steam chest 39 length 4.6 thickness of plates 7/16 description of longitudinal joint dbl riv lap diam. of rivet holes 15/16  
 Pitch of rivets 3 1/2 working pressure of shell by rules 145 lbs 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 5/8" how stayed 3-1 1/2 stays  
 Superheater or steam chest; how connected to boiler dbl riv flange

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**DONKEY BOLLER**— Description *Vertical 3 cross tubes*  
 Made at *Glasgow* by whom made *Messrs Muir & Houston* when made *1886* where fixed *in the stokehold*  
 Working pressure *60 lbs* tested by hydraulic pressure to *120 lbs* No. of Certificate *1441* fire grate area *14 sq ft* description of safety  
 valves *direct spring* No. of safety valves *one* area of each *7.04 sq* if fitted with easing gear *yes* if steam from main boilers can  
 enter the donkey boiler *No* diameter of donkey boiler *4.9* length *10.7* description of riveting *all riv lap*  
 Thickness of shell plates *3/8* diameter of rivet holes *15/16* whether punched or drilled *drilled* pitch of rivets *3 1/2* lap of plating *5*  
 per centage of strength of joint *73* thickness of crown plates *1/2* stayed by *three 1 1/2 stays*  
 Diameter of furnace, top *3 1/2* bottom *4.2* length of furnace *5.6* thickness of plates *5/32* description of joint *single riv lap*  
 Thickness of furnace crown plates *1/2* stayed by *as above* working pressure of shell by rules *60 lbs*  
 Working pressure of furnace by rules *75 lbs* diameter of uptake *9 3/4* thickness of plates *1/16* thickness of water tubes *3/8*

**SPARE GEAR.** State the articles supplied:— *2 top end bolts and nuts 2 bottom end bolts and nuts 2 (main  
 bearing) bolts 1 set of coupling bolts 1 air pump rod 1 L.P. valve spindle 2 eccentric straps  
 1 pair of top and bottom end brasses 1 pair of main bearing brasses 1 propeller 2 pump lever links  
 1 set of air pump metallic valves 1 dozen condenser tubes 1 dozen boiler tubes assorted bolts &c  
 1 set of feed & bilge pump valves*  
 The foregoing is a correct description,  
*Muir & Houston* Manufacturer.

**General Remarks** (State quality of workmanship, opinions as to class, &c.)

*The Engines and Boilers of the above named  
 vessel have been constructed under special survey they are of good material  
 and workmanship and have been tried under steam with satisfactory results.  
 They are now in good order and safe working condition and eligible  
 in my opinion to be noted in the Register Book L. M. 6 10-86*

*It is submitted that this  
 vessel is eligible to have the  
 notification + done 10.10.86  
 recorded.  
 19/10/86*

*[Large blue signature]*

The amount of Entry Fee .. £ 1 : - : - received by me,  
 Special .. £ 14 : 5 : -  
 Donkey Boiler Fee .. £ - : - : -  
 Certificate (if required) .. £ - : - : - 18/10/1886  
 To be sent as per margin.  
 (Travelling Expenses, if any, £ - 8/- )

*G. L. Hindmarsh*  
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute

TUESDAY 19 OCT 1886

*[Signature]*

