

# REPORT ON MACHINERY.

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No. 682

No. in Survey held at Sunderland

Date, first Survey July 23<sup>rd</sup> 1881 Last Survey Jan'y 26<sup>th</sup> 1882

Reg. Book.

on the "S. S. Congella"

1594.38  
Tons 1041.43

Master R. Chwood Built at Sunderland When built 1882

Engines made at Sunderland By whom made Messrs Doxford & Sons when made 1882

Boilers made at Sunderland By whom made " " when made 1882

Registered Horse Power 180 Owners Messrs Bullard, King & Co Port belonging to London

**ENGINES, &c.—**

Description of Engines Vertical, compound, surface condensing direct acting  
 Diameter of Cylinders 33" & 62" Length of Stroke 42" No. of Rev. per minute 64 Point of Cut off, High Pressure 1/2 stroke Low Pressure 1/2 stroke  
 Diameter of Screw shaft 11" Diameter of Tunnel shaft 10 1/2" Diameter of Crank shaft journals 11" Diameter of Crank pin 11" size of Crank webs 13" x 4 1/2"  
 Diameter of screw 14-9" Pitch of screw 14-8" No. of blades 4 state whether moveable yes total surface 64 sq ft  
 No. of Feed pumps 2 diameter of ditto 3 Stroke 2-4" Can one be overhauled while the other is at work yes  
 No. of Bilge pumps 2 diameter of ditto 3 Stroke 2-4" Can one be overhauled while the other is at work yes  
 Where do they pump from fore tanks, main tank, engine room well, after tank, and after wells  
 No. of Donkey Engines 2 Size of Pumps 8" x 10" stroke Where do they pump from fore tanks main tank engine room well, after tank and after wells, and sea  
 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 4" Are they connected to condenser, or to circulating pump Condenser  
 How are the pumps worked By levers on after engine crosshead  
 Are all connections with the sea direct on the skin of the ship yes Are they Valves or Cocks Both valves & cocks  
 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 fore tank pipes How are they protected By a wooden 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 new vessel  
 Is the screw shaft tunnel watertight yes and fitted with a sluice door yes worked from top platform of engine room

**BOILERS, &c.—**

Number of Boilers 2 Description Single ended iron cylindrical & multitubular  
 Working Pressure 80 lbs Tested by hydraulic pressure to 160 lbs Date of test 30-11-81  
 Description of ~~superheating apparatus~~ steam chest Horizontal dome  
 Can each boiler be worked separately yes Can the superheater be shut off and the boiler worked separately no superheater  
 No. of square feet of fire grate surface in each boiler 45 sq ft Description of safety valves Direct spring valves  
 No. to each boiler 2 area of each valve 12.56 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 2-0"  
 Diameter of boilers 13-2" Length of boilers 10-3" description of riveting of shell long. seams dbl butt straps circum. seams dbl riveted lap  
 Thickness of shell plates 15/16" diameter of rivet holes 1 1/8" whether punched or drilled drilled pitch of rivets 3-9"  
 Lap of plating 11" straps per centage of strength of longitudinal joint 94/96 R 84 working pressure of shell by rules 84 lbs  
 Size of manholes in shell 16 x 12" size of compensating rings 6" x 5/8"  
 No. of Furnaces in each boiler 3 outside diameter 3-2" length, top 4-0" bottom 4-0"  
 Thickness of plates 1/2" description of joint dbl butt & single riveted if rings are fitted yes greatest length between rings 4-0"  
 Working pressure of furnace by the rules 85 lbs  
 Combustion chamber plating, thickness, sides 1/2" back 1/2" top 1/2"  
 Pitch of stays to ditto sides 8 1/2" x 9 1/2" back 9 1/2" x 9 1/2" top 2-0" radius & 16" pitched gussets  
 If stays are fitted with nuts or riveted heads nuts working pressure of plating by rules 85 lbs  
 Diameter of stays at smallest part 1 3/8" working pressure of ditto by rules 93 lbs  
 End plates in steam space, thickness 3/8" pitch of stays to ditto 19 1/2" x 15" how stays are secured nuts  
 Working pressure by rules 84 lbs diameter of stays at smallest part 2 1/4" working pressure by rules 82 lbs  
 Front plates at bottom, thickness 3/4" Back plates, thickness 3/4" greatest pitch of stays 14 x 9 1/2" working pressure by rules 93 lbs

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Diameter of tubes  $3\frac{1}{2}$ " pitch of tubes  $4\frac{1}{2} \times 4\frac{1}{2}$ " thickness of tube plates, front  $\frac{3}{4}$ " back  $\frac{3}{4}$ "  
 How stayed *stay tubes* pitch of stays  $13\frac{1}{2} \times 9$ " width of water spaces  $1\frac{1}{4}$ "  
 Diameter of ~~Steam chest~~ Steam chest  $4-0$ " length  $4-9$ "  
 Thickness of plates  $\frac{9}{16}$ " description of longitudinal joint *dbl rivet lap* diameter of rivet holes  $\frac{3}{4}$ " pitch of rivets  $2\frac{3}{4}$ "  
 Working pressure of shell by rules  $98$  lbs Diameter of flue *none* thickness of plates \_\_\_\_\_  
 If stiffened with rings \_\_\_\_\_ distance between rings \_\_\_\_\_ Working pressure by rules \_\_\_\_\_  
 End plates ~~of superheater~~ of steam chest; thickness  $\frac{9}{16}$ " How stayed *3 gusset stays and radius of  $3-6$ "*  
~~Steam chest~~ steam chest; how connected to boiler *oval neck  $16 \times 12 \times \frac{3}{4}$ "*

**DONKEY BOILER**— Description *Vertical. Three cross tubes*  
 Made at *Sunderland* By whom made *Wm & J. Welford Higham* Tested *25-11-81*  
 Where fixed *Stokehold* working pressure  $80$  lbs Tested by hydraulic pressure to  $160$  lbs No. of Certificate  $468$   
 Fire grate area  $16.5$  sq ft Description of safety valves *Direct spring* No. of safety valves *one* area of each  $8-30$   
 If fitted with easing gear *yes* If steam from main boilers can enter the donkey boiler *yes*  
 Diameter of donkey boiler  $5-6$ " length  $12-9$ " description of riveting *Longitudinal seams double riveted circumferential "single punched"*  
 thickness of shell plates  $\frac{7}{2}$ " diameter of rivet holes  $\frac{3}{4}$ " whether punched or drilled \_\_\_\_\_  
 pitch of rivets  $2\frac{1}{2}$ " lap of plating  $3\frac{3}{4}$ " per centage of strength of joint  $70$  %  
 thickness of crown plates  $\frac{1}{2}$ " stayed by *6 stays  $1\frac{3}{4}$ " diam & uptake & dished to a radius of  $5-0$ "*  
 Diameter of furnace, top  $4-0$ " bottom  $4-8$ " length of furnace  $5-0$ "  
 thickness of plates  $\frac{9}{16}$ " description of joint *lap single riveted*  
 thickness of furnace crown plates  $\frac{9}{16}$ " stayed by *6 stays  $1\frac{3}{4}$ " diam & uptake and dished to a radius of  $5-0$ "*  
 Working pressure of shell by rules  $80$  lbs working pressure of furnace by rules  $80$  lbs  
 diameter of uptake  $15$ " thickness of plates  $\frac{3}{8}$ " thickness of water tubes  $\frac{5}{16}$ "

The foregoing is a correct description,  
 Manufacturer. *William D. Duffell* Sons. *Manufacturers of engine & boiler, but not donkey boiler or fittings of donkey boiler*

**General Remarks** (State quality of workmanship, opinions as to class, &c.)  
*The machinery of this vessel has been constructed under special survey. The material and workmanship are good and efficient. The engines and boilers have been tried under steam and in my opinion they are in good order and safe working condition and eligible for the distinguishing mark  $\times$  Lloyd's M.C. in the Register Book*

*Submitted that the vessel is eligible to Lloyd's M.C. 2-2-82*

The amount of Entry Fee .. £  $3$  : - : - received by me, *AW*  
 Special *AW* .. £  $24$  : - : -  
 Certificate (if required) .. £ \_\_\_\_\_ :  $30$  Nov 1882  
 To be sent as per margin.  
 (Travelling Expenses, if any, £ \_\_\_\_\_)

*Park Salmon*  
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute *Friday, February 3rd, 1882*  
*+ Lloyd's*

