

# REPORT ON MACHINERY.

26091

No. 4211 (Received in London Office 18)  
 No. in Survey held at Newcastle & Sunderland Date, first Survey August 22/79 Last Survey March 5<sup>th</sup> 1880  
 Reg. Book. "Grappler"  
 on the Screw Steamer Tons 867.7  
 Master \_\_\_\_\_ Built at Sunderland When built 1880  
 Engines made at Newcastle on Tyne By whom made Mr. R. W. Hawthorn when made March 1880  
 Boiler made at St. Peters on Tyne By whom made do do when made March 1880  
 Registered Horse Power 100 Owners West India & Panama Telegraph Coy Port belonging to London

**ENGINES, &c.—**

Description of Engines Inverted, Compound, Surface Condensing  
 Diameter of Cylinders 25 x 50 Length of Stroke 36 No. of Rev. per minute 60 Point of Cut off, High Pressure 6 Low Pressure .53  
 Diameter of Screw shaft 9 1/2 Diameter of Tunnel shaft 9 Diameter of Crank shaft journals 9 1/2 Diameter of Crank pin 9 1/2 size of Crank webs 12 1/2 x 6 1/2  
 Diameter of screw 13.0 Pitch of screw 14.6 No. of blades 4 state whether moveable yes total surface 4.7 sq. feet  
 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 Port one from fore hold, engine room, and aft well, Starboard one from sea & bilges of engine room  
 No. of Donkey Engines Two Size of Pumps 8 x 14 x 3 1/2 x 8 Where do they pump from The large one from sea. Ballast tanks and bilges of aft well, engine room & fore hold. Feed Donkey from sea 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 4" dia. Are they connected to condenser, or to circulating pump to Circulating pump  
 How are the pumps worked by levers attached to piston rod crosshead of after engine.  
 Are all connections with the sea direct on the skin of the ship yes Are they Valves or Cocks, Kingston 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 none How are they protected \_\_\_\_\_  
 Are all pipes, cocks, valves, and pumps in connection with the machinery accessible at all times yes, except those in tanks & hold.  
 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 March 3<sup>rd</sup> 1880  
 (No tunnel) Bulkhead Is the screw shaft tunnel, watertight yes and fitted with a sluice door yes worked from top platform of Engine room, above load line.

**BOILERS, &c.—**

Number of Boilers One Description Cylindrical and Multitubular  
 Working Pressure 75 lbs Tested by hydraulic pressure to 150 lbs Date of test November 19<sup>th</sup> 79  
 Description of ~~superheating apparatus~~ or steam chest Horizontal dome  
 Can each boiler be worked separately \_\_\_\_\_ Can the superheater be shut off and the boiler worked separately No superheater  
 No. of square feet of fire grate surface in each boiler 66 Description of safety valves Spring valves by R. W. Hawthorn  
 No. to each boiler two area of each valve 16.8 sq. ins 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~~ 14 inches, Boats Covered with Cement.  
 Diameter of boiler 14.0 Length of boiler 10.9 description of riveting of shell long. seams Double lapped circum. seams double lapped  
 Thickness of shell plates 29/32 diameter of rivet holes 1 5/16 whether punched or drilled drilled pitch of rivets 5 1/4" longitudinal & 3 1/4" circum  
 Lap of plating 11 longitudinal & 6 1/2 circum per centage of strength of longitudinal joint 75 rivets 76 working pressure of shell by rules 76 lbs  
 Size of manholes in shell 16" x 12" size of compensating rings plate 2.2 x 2.0 x 7/8  
 No. of Furnaces in each boiler 4 outside diameter 3.1 length, top 7.6 bottom 9.6  
 Thickness of plates top 2, bottom 7/16 description of joint single butt & double riveted if rings are fitted no greatest length between rings \_\_\_\_\_  
 Working pressure of furnace by the rules 80 lbs  
 Combustion chamber plating, thickness, sides 7/16 back 1/2 top 1/2  
 Pitch of stays to ditto sides 8 3/4 x 8 3/4 back 9 5/8 x 9 5/8 top Circular. 1-11 radius  
 If stays are fitted with nuts or riveted heads nuts working pressure of plating by rules 83 lbs  
 Diameter of stays at smallest part sides 1 1/4, back 1 3/8 working pressure of ditto by rules 95 lbs  
 End plates in steam space, thickness 27/32 pitch of stays to ditto 16 1/2 x 16 1/2 how stays are secured bolts & nuts  
 Working pressure by rules 86 lbs diameter of stays at smallest part 2 1/4 working pressure by rules 87 lbs  
 Front plates at bottom, thickness 5/8 Back plates, thickness 5/8 greatest pitch of stays 12 x 9 5/8 working pressure by rules 83 lbs

Form No. 8, 2001 (S. 17. 20)

© 2019  
 Lloyd's Register  
 Foundation  
 1R0N491-0271

26091 Jn

Diameter of tubes  $3\frac{3}{4}$  inch pitch of tubes  $5 \times 5$  thickness of tube plates, front  $\frac{7}{8}$  back  $\frac{7}{8}$   
 How stayed *stay tubes* pitch of stays  $15 \times 15$  width of water spaces  $11\frac{1}{4}$  and  $1\frac{1}{4}$   
 Diameter of ~~Superheater or~~ Steam chest  $4 \cdot 0$  length  $10 \cdot 9$   
 Thickness of plates  $\frac{3}{8}$  description of longitudinal joint *double rivet lap* diameter of rivet holes  $\frac{3}{4}$  pitch of rivets  $2\frac{1}{2}$   
 Working pressure of shell by rules  $84$  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  $9$  How stayed *spherical  $3 \cdot 9$  radius and 3 stays  $1\frac{1}{2}$  diameter*  
~~Superheater or~~ steam chest; how connected to boiler *by an oval neck piece  $16 \times 12 \times 3\frac{1}{4}$*

**DONKEY BOILER**— Description *upright, cylindrical & multitubular, Cochran's patent.*  
 Made at *Galesheaden Tyne* By whom made *Cart. Chapman & Hurney* when made *January 1880*  
 Where fixed *in stone hole* working pressure  $60$  lbs Tested by hydraulic pressure to  $120$  lbs No. of Certificate  $233$   
 Fire grate area  $12 \cdot 5$  sq ft Description of safety valves *loaded direct + 1 lever* No. of safety valves *two* area of each  $7 \cdot 29$  sq ins  
 If fitted with easing gear *disc loaded one is fitted* If steam from main boilers can enter the donkey boiler *no.*  
 Diameter of donkey boiler  $4 \cdot 6$  length  $9 \cdot 6$  description of riveting *longitudinal seams double rivet lap, others single*  
 thickness of shell plates  $\frac{3}{8}$  diameter of rivet holes  $\frac{3}{4}$  whether punched or drilled *punched.*  
 pitch of rivets  $3$  length lap of plating  $4$  length per centage of strength of joint  $75$ .  
 thickness of crown plates  $\frac{1}{2}$  stayed by *4 gusset plates  $10 \times 3\frac{1}{8}$*   
 Diameter of furnace, top  $3 \cdot 0$  bottom  $4 \cdot 0$  length of furnace  $1 \cdot 6$   
 thickness of plates  $3p$  description of joint *lapped & single riveted.*  
 thickness of furnace crown plates  $\frac{1}{2}$  stayed by *no stay, spherical  $1 \cdot 9$  radius.*  
 Working pressure of shell by rules  $80$  lbs working pressure of furnace by rules  $62$  lbs  
 diameter of uptake  $1\frac{1}{2}$  thickness of plates  $\frac{7}{16}$  thickness of ~~water~~ tubes *No 10, B.W.S.*

The foregoing is a correct description,  
*W. Hawthorn* Manufacturer. (*Engine of Donkey Boiler*)

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

*The above Machinery has been constructed under ordinary survey. I was present when the engines were worked and found all satisfactory. In my opinion the engines and Boilers of this vessel are in good order and safe working condition, and eligible for the certification of Lloyd's M.C. in red in the register Book. The tracing of the main Boiler is returned.*

*The Machinery of this vessel has been built and fitted under survey of the Society of Lloyd's M.C. and a machinery certificate was issued on March 5-1880*

The amount of Entry Fee  $\pounds 2 \cdot 0$  : received by me,  
 Special ..  $\pounds 5 \cdot 0$  :  
 Certificate (if required) ..  $\pounds$  :  
 To be sent as per margin.  
 (Travelling Expenses, if any,  $\pounds 1-10$   $\pounds 7-0$  0)

*William Allison*  
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute Friday, March, 12<sup>th</sup> 1880

