

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 5th 1880
 Reg. Book. "Grappler" Tons 867.7
 on the Screw Steamer 497.5

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 Cylinder 25.5 Length of Stroke 36 No. of Rev. per minute 60 Point of Cut off, High Pressure 6 Low Pressure 5.3
 Diameter of Screw shaft 9.5 Diameter of Tunnel shaft 9 Diameter of Crank shaft journals 9.5 Diameter of Crank pin 9.5 size of Crank webs 12.2 x 6.2
 Diameter of screw 13.0 Pitch of screw 14.6 No. of blades 4 state whether moveable yes total surface 47 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, Starb one from Sea & bilges of engine room
 No. of Donkey Engines Two Size of Pumps 8 x 14 x 3.5 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 3rd 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 19th 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, Boilers 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 5.4 longitudinal 3.4 circum
 Lap of plating 11 longitudinal 6.5 circum per centage of strength of longitudinal joint plate 75. rivet 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 7/8 Back plates, thickness 7/8 greatest pitch of stays 12 x 9 5/8 working pressure by rules 83 lbs

26091 Jn

Diameter of tubes $3\frac{3}{4}$ inch pitch of tubes 5×5 thickness of tube plates, front $\frac{7}{8}$ back $\frac{7}{8}$
 How stayed stay tubes pitch of stays 15×15 width of water spaces $11\frac{1}{4}$ and $1\frac{1}{4}$
 Diameter of Superheater or Steam chest $4' 0"$ length $10' 9"$
 Thickness of plates $\frac{3}{8}$ description of longitudinal joint double rivet lap diameter of rivet holes $3\frac{1}{4}$ 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 $\frac{9}{16}$ How stayed spherical $3' 9"$ 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 Gateshead Tyne By whom made Clark, Chapman & Harvey 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 12.5 sq ft Description of safety valves loaded direct & blow off No. of safety valves two area of each 7 sq in
 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 $4' 6"$ length $9' 6"$ description of riveting longitudinal seams double rivet lap, others single
 thickness of shell plates $\frac{3}{8}$ diameter of rivet holes $3\frac{1}{4}$ 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 $3' 0"$ bottom $4' 0"$ length of furnace $1' 6"$
 thickness of plates $\frac{3}{8}$ description of joint lapped & single riveted.
 thickness of furnace crown plates $\frac{1}{2}$ stayed by, no stay, spherical $1' 9"$ radius.
 Working pressure of shell by rules 80 lbs working pressure of furnace by rules 62 lbs
 diameter of uptake 12 thickness of plates $\frac{7}{16}$ thickness of tubes W-10, B.W.S.

The foregoing is a correct description,

At 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 Lloyd's Surveyors and is eligible for the M.C. in red in the register Book.
 March 5-1880

The amount of Entry Fee £ 2 : 0 : received by me,

Special .. £ 5 : 0 : 0

Certificate (if required) .. £

To be sent as per margin.

(Travelling Expenses, if any, £ 1-10

Committee's Minute

Friday, March, 12th 1880

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