

REPORT ON MACHINERY.

No. 911 (Received in London Office 29 JUNE 1883)
 No. in Survey held at Hull & Sunderland Date, first Survey Oct 23/82 Last Survey June 26 1883
 Reg. Book. on the Screw Steamer "Triano" Tons 2217.7
 Master J. Hurrieta Built at Sunderland When built 1883
 Engines made at Sunderland By whom made J. & F. Wilson when made 1883
 Boilers made at Hull By whom made C. D. Holmes & Co. when made 1883
 Registered Horse Power 200 Owners Sanjines Sobrino Port belonging to Bilbao

ENGINES, &c.—

Description of Engines Inverted Compound, surface Condensing.
 Diameter of Cylinders 36 & 68 Length of Stroke 42 No. of Rev. per minute 56 Point of Cut off, High Pressure 1/2 stroke Low Pressure 2/3 stroke
 Diameter of Screw shaft 11 3/4 Diameter of Tunnel shaft 11 1/2 Diameter of Crank shaft journals 11 3/4 Diameter of Crank pin 11 3/4 size of Crank webs 14 3/4 x 7 1/2
 Diameter of screw 16.0 Pitch of screw 18.0 No. of blades 4 state whether moveable not total surface 64 sq. feet
 No. of Feed pumps 2 diameter of ditto 4 Stroke 26 Can one be overhauled while the other is at work yes
 No. of Bilge pumps 2 diameter of ditto 4 Stroke 26 Can one be overhauled while the other is at work yes
 Where do they pump from The Sea. Tanks & bilges of engine room, after well & fore hold.
 No. of Donkey Engines 2 Size of Pumps 12 in. x 10 in. & 6 in. x 8 in. Where do they pump from The large one from the sea. Tanks, and bilges of engine room, after well & fore hold. Small one from the same places & hot well.
 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 1 and sizes 5 Are they connected to condenser, or to circulating pump to Circulating pump
 How are the pumps worked by levers from the piston rod Crosshead of the after engine.
 Are all connections with the sea direct on the skin of the ship yes Are they Valves or Cocks 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
 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
 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 Two Description Circular, multitubular of ordinary marine type.
 Working Pressure 80 lbs Tested by hydraulic pressure to 160 lbs Date of test 30th March 1883.
 Description of superheating apparatus on steam chest Vertical Cylinder with flat ends.
 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 60 Description of safety valves Spring by J. & F. Wilson
 No. to each boiler 2 area of each valve 28 sq. in. 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 18
 Diameter of boilers 13 1/2 ft Length of boilers 10 1/2 description of riveting of shell long. seams double butt with circum. seams double riveted lap.
 Thickness of shell plates 5/16 diameter of rivet holes Long 1 1/8 Circ 1 1/8 whether punched or drilled Long drilled pitch of rivets Long 3 1/2 Circ 3 1/2
 Lap of plating 11 butt straps per centage of strength of longitudinal joint 71 working pressure of shell by rules 81 lbs.
 Size of manholes in shell 17 x 14 size of compensating rings dome neck & flange
 No. of Furnaces in each boiler Three outside diameter 40 length, top 7.0 bottom 9.9
 Thickness of plates 1/2 inch description of joint welded if rings are fitted as at back end greatest length between rings 7.0
 Working pressure of furnace by the rules 80 lbs.
 Combustion chamber plating, thickness, sides 1/2 in back 1/2 top 1/2
 Pitch of stays to ditto sides 8 1/2 to 9 x 9 to 9 1/2 back 8 to 9 x 9 to 9 1/2 top rounded.
 Are they fitted with nuts or riveted heads nuts working pressure of plating by rules 85 lbs & upwards.
 No. of stays at smallest part 17 1/6 & 17 1/6 working pressure of ditto by rules 94 lbs.
 Shipping plates in steam space, thickness 1/16 pitch of stays to ditto 16 x 15 how stays are secured dbl nuts & washers
 Working pressure by rules 92 lbs diameter of stays at smallest part 2 1/8 working pressure by rules 89 lbs.
 Plates at bottom, thickness 5/8 Back plates, thickness 5/8 greatest pitch of stays 12 working pressure by rules 89 lbs.

Diameter of tubes $3\frac{1}{2}$ " pitch of tubes $4\frac{3}{4} \times 4\frac{7}{8}$ thickness of tube plates, front $\frac{7}{8}$ " back $\frac{7}{8}$ "
 How stayed *by tubes & stays* pitch of stays $11\frac{1}{2} \times 9$ in mid width of water spaces $1\frac{1}{2} \times 1\frac{3}{8}$ "
 Diameter of Superheater or Steam chest $4\cdot0$ length $8\cdot0$
 Thickness of plates $\frac{1}{2}$ " description of longitudinal joint *double rivet lap* diameter of rivet holes $\frac{7}{8}$ " pitch of rivets $3\frac{1}{4}$ "
 Working pressure of shell by rules $117\frac{1}{2}$ Diameter of flue \times thickness of plates \times
 If stiffened with rings \times distance between rings \times Working pressure by rules \times
 End plates of superheater, or steam chest; thickness $\frac{3}{4}$ " How stayed $4\cdot2\frac{1}{8}$ Stays
 Superheater or steam chest; how connected to boiler *by welded neck piece 24" dia*
DONKEY BOILER— Description *Vertical, water tubes in furnace*
 Made at *Darlington* By whom made *J. Skewell & Co* when made *1883* tested *17.4.83*
 Where fixed *in stockpile* working pressure *80 lbs* Tested by hydraulic pressure to *160 lbs* No. of Certificate *92*
 Fire grate area *19 sq ft* Description of safety valves *Spring* No. of safety valves *one* area of each *9.62 sq in*
 If fitted with easing gear *yes* If steam from main boilers can enter the donkey boiler *no*
 Diameter of donkey boiler $5\cdot9$ length $12\cdot9$ description of riveting *Long seams lap & double riveted*
 thickness of shell plates $\frac{17}{32}$ diameter of rivet holes $\frac{13}{16}$ whether punched or drilled *punched*
 pitch of rivets $2\frac{3}{4}$ lap of plating $4\frac{1}{4}$ per centage of strength of joint 704
 thickness of crown plates $\frac{19}{32}$ stayed by *six stays 1\frac{1}{2} diameter
 Diameter of furnace, top $4\cdot8$ bottom $5\cdot2$ length of furnace $5\cdot6$
 thickness of plates $\frac{19}{32}$ description of joint *lap, single riveted*
 thickness of furnace crown plates $\frac{19}{32}$ stayed by *six stays 1\frac{1}{2} diameter
 Working pressure of shell by rules $84\frac{1}{2}$ working pressure of furnace by rules $80\frac{1}{2}$ lbs
 diameter of uptake $1\frac{1}{4}$ thickness of plates $\frac{3}{8}$ thickness of water tubes $\frac{3}{8}$**

The foregoing is a correct description,

Charles D. Holmes Esq Manufacturer of Main Boilers *J. W. & G. Wilson Esq* Builders of Engines etc

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

The Machinery of this vessel has been Constructed under Special Survey, the Materials & Workmanship are good & efficient.
 The Engines & Boilers have been tried under steam, and in our opinion are in good order and safe working condition and eligible for the distinguishing Mark **L.M.C. 6.83** in the Register Book of this Society.

The Photo print of the Main Boilers is returned here with.

The amount of Entry Fee .. £ **3 : 0 :** received by me, *[Signature]*

Special

*Hull 4 : 7 :
Sunderland 22-13*

Certificate (if required) .. £ — : — : **28 June 1883.**

To be sent as per margin.

(Travelling Expenses, if any, £)

Committee's Minute

John B. Stevens & William Allen
 Engineer Surveyors to Lloyd's Register of British & Foreign Shipping
Hull & Sunderland

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