

REPORT ON MACHINERY.

25731 Jun

No. 269

No. in Reg. Book. Survey held at Hartlepool Date, first Survey 2 Nov 1880 Last Survey 23 Feb 1880
 on the Machinery of the S. S. George Lowland Tons 592.54 Gross
 Master Meldrum Built at Leeds When built 1880 - 1 mo
 Engines made at Hartlepool By whom made Richardson & Sons when made 1880
 Boilers made at do By whom made do when made 1880
 Registered Horse Power 95 Owners Geo. Lowland Port belonging to London

ENGINES, &c.—

Description of Engines Compound. Inverted. Surface Condensing
 Diameter of Cylinders 25" & 48" Length of Stroke 30" No. of Rev. per minute 110 Point of Cut off, High Pressure 1/2 stroke Low Pressure 1/2 stroke
 Diameter of Screw shaft 8" Diameter of Tunnel shaft 7 1/2" Diameter of Crank shaft journals 8" Diameter of Crank pin 8" size of Crank web 5 1/2 x 5 7/8
 Diameter of screw 12" 0" Pitch of screw 14" 0" No. of blades 4 state whether moveable No total surface 44 sq feet
 No. of Feed pumps 1 diameter of ditto 3 1/4" Stroke 22 1/4" Can one be overhauled while the other is at work Yes
Feed pump can be made into bilge pump
 No. of Bilge pumps 1 diameter of ditto 3 1/4" Stroke 22 1/4" Can one be overhauled while the other is at work Yes
Bilge pump can be made into feed pump
 Where do they pump from Fore peak, fore hold, after hold & wings & centre of engine room
 No. of Donkey Engines Two Size of Pump 2 1/2 dia x 9 stroke Where do they pump from Large donkey pumps from ballast tanks & engine room, small donkey from fore peak, fore hold, after hold & wings & centre of engine room
 Are all the bilge suction pipes fitted with roses Yes Are the roses always accessible Yes in engine room Are the sluices on Engine room bulkheads always accessible Yes
 No. of bilge injections 2 and sizes 4 1/2" Are they connected to condenser, or to circulating pump Circulating pump
 How are the pumps worked By levers attached to crosshead on low pressure piston rods
 Are all connections with the sea direct on the skin of the ship Yes Are they Valves or Cocks Stop 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 Below
 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 Now
 Is the screw shaft tunnel watertight No and fitted with a sluice door Yes worked from Above level of load line

BOILERS, &c.—

Number of Boilers One Description Horizontal, Cylindrical, Multitubular
 Working Pressure 10 lbs per sq in Tested by hydraulic pressure to 140 lbs per sq in Date of test 18th December 1879
 Description of superheating apparatus or steam chest Vertical steam dome, contracted at ends
 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 47.25 Description of safety valves Spring
 No. to each boiler Two area of each valve 15 sq in Are they fitted with casing gear Yes
 No. of safety valves to superheater No superheater area of each valve — are they fitted with casing gear —
 Smallest distance between boilers and bunkers or woodwork 12"
 Diameter of boilers 12" 10" Length of boilers 9' 6" description of riveting of shell long. seams Double circum. seams Double
 Thickness of shell plates 3/4" diameter of rivet holes 1 1/8 full whether punched or drilled Drilled pitch of rivets 5"
 Lap of plating Double butt shape per centage of strength of longitudinal joint 1/8 working pressure of shell by rules 7 1/2 lbs
 Size of manholes in shell 15" x 11" size of compensating rings Rectangular plate 30 x 27 x 3/4
 No. of Furnaces in each boiler Three outside diameter 37" length, top 5' 9" between rivets bottom 9' 7" between rivets
 Thickness of plates top 7/16 bottom 1/2" description of joint Lap Double riveted rings are fitted Bottom plate greatest length between rings 5' 0" between angle iron
 Working pressure of furnace by the rules 80 lbs stiffened with angle iron
 Combustion chamber plating, thickness, sides 7/16 back 7/16 top 7/16
 Pitch of stays to ditto sides 1 3/4 x 7/4 vertical pitch back 7/4 x 7/4 top 8 1/2 x 8 3/4
 If stays are fitted with nuts or riveted heads Side & back riveted top fitted with nuts working pressure of plating by rules 7 1/2 lbs
 Diameter of stays at smallest part 1 1/8 working pressure of ditto by rules 80 lbs
 End plates in steam space, thickness 13/16 pitch of stays to ditto 18" x 18" how stays are secured Nuts & washers
 Working pressure by rules 73 lbs diameter of stays at smallest part 2 1/4" working pressure by rules 7 1/2 lbs
 Front plates at bottom, thickness 1 1/16 Back plates, thickness 3/4 x 5/8 greatest pitch of stays 10" working pressure by rules 90 lbs

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Diameter of tubes $3\frac{1}{4}$ " pitch of tubes $4\frac{1}{2} \times 4\frac{1}{2}$ thickness of tube plates, front $\frac{1}{16}$ back $\frac{1}{16}$
 How stayed *Stay tubes* pitch of stays $9 \times 13\frac{1}{2}$ width of water spaces $1\frac{1}{4}$ between tubes
 Diameter of ~~Superheater or Steam~~ *donkey* 3.0 " length 5.6 over all
 Thickness of plates $\frac{1}{16}$ description of longitudinal joint *lap double riveted* diameter of rivet holes $\frac{13}{16}$ pitch of rivets $2\frac{5}{8}$
 Working pressure of shell by rules 141 Diameter of flue " thickness of plates "
 If stiffened with rings " distance between rings " Working pressure by rules "
 End plates of ~~superheater or steam~~ *donkey* thickness $\frac{1}{2}$ " How stayed *No stays*
~~Superheater or steam~~ *donkey* how connected to boiler *By flanged plate $4 \times 4 \times 98$.*

DONKEY BOILER— Description *Round vertical two cross tubes*
 Made at *Leith* By whom made *Mannage & Sorenson* made *23^d December 1879*
 Where fixed *In Stockholm* working pressure *40 lbs* Tested by hydraulic pressure to *80 lbs* No. of Certificate *56*
 Fire grate area *1139 sq ft* Description of safety valves *Direct & lever weight* of safety valves *One of each* area of each *Direct 3. Lever 4.*
 If fitted with easing gear *Yes* If steam from main boilers can enter the donkey boiler *No*
 Diameter of donkey boiler *4.6*" length *9.6* description of riveting *lap single riveted*
 thickness of shell plates $\frac{7}{16}$ " diameter of rivet holes $\frac{3}{4}$ whether punched or drilled *punched*
 pitch of rivets 2 " lap of plating $2\frac{1}{2}$ " per centage of strength of joint *70 in plates 40 in rivets*
 thickness of crown plates $\frac{7}{16}$ lbs stayed by *dished top*
 Diameter of furnace, top 36 " bottom 48 " length of furnace 4.6
 thickness of plates $\frac{7}{16}$ " description of joint *lap single riveted*
 thickness of furnace crown plates $\frac{7}{16}$ stayed by *dished*
 Working pressure of shell by rules 48 lbs working pressure of furnace by rules "
 diameter of uptake 12 " thickness of plates $\frac{3}{8}$ " thickness of water tubes "

The foregoing is a correct description,
Wm Richardson & Co Manufacturers of Engines & Main Boilers only

General Remarks (State quality of workmanship, opinions as to class, &c.)
Materials & workmanship good.
The Machinery & Boilers are in good order and safe with
conditions and in our opinion eligible for the notification Lloyd's
M.C. in the Register Book

The Machinery of this vessel has been built in accordance with the rules submitted that she is eligible to have Lloyd's M.C. 2.80 in the Register Book. M 8.3.80

The amount of Entry Fee £ 2 : " : " received by me,
 Special .. £ 4 : 15 : "
 Certificate (if required) .. £ " : 2 : 6 18
 To be sent as per margin.
 (Travelling Expenses, if any, £)

James Ham
John Sturrock Under Secy
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute *Tuesday, March, 9th 1880.*

