

REPORT ON MACHINERY

(Received in London Office)

No. 446 Survey held at Newcastle & Blyth Date, first Survey 27 July 1881 Last Survey 30 March 1882
 on the Iron S.S. "Galing" 14 Voy. 2063 Tons 1345
 Master J. W. Salmon Built at Blyth When built 1882
 Engines made at Newcastle By whom made R. W. Hawthorn when made 1882
 Boilers made at do By whom made do when made 1882
 Registered Horse Power 250 Owners John Walter Ward & Co. Port belonging to London

ENGINES, &c.
 Description of Engines Inverted Compound Surface Condensing
 Diameter of Cylinders 35 & 68 Length of Stroke 45 No. of Rev. per minute 60 Point of Cut off, High Pressure .6 Low Pressure .5
 Diameter of Screw shaft 12 Diameter of Tunnel shaft 11 1/4 Diameter of Crank shaft journals 12 Diameter of Crank pin 12 size of Crank webs 15x8
 Diameter of screw 16-0 Pitch of screw 16 to 20 feet No. of blades 4 state whether moveable yes total surface 70 Sq ft
 No. of Feed pumps 2 diameter of ditto 3 3/4 Stroke 22 1/2 Can one be overhauled while the other is at work yes
 No. of Bilge pumps 2 diameter of ditto 3 3/4 Stroke 22 1/2 Can one be overhauled while the other is at work yes
 Where do they pump from Engine space (4), M. Hold (3), Off hold with (1), Tunnel well (1), All tanks
 No. of Donkey Engines Two Size of Pumps 8 x 14 & 3 1/2 x 8 Where do they pump from Engine Space, M. Hold, A. Hold well, Tunnel well, Main tank (3), Off tank (3), Sea, Land,
 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 1 1/2 Are they connected to condenser, or to circulating pump no
 How are the pumps worked Lever over Condensers
 Are all connections with the sea direct on the skin of the ship yes Are they Valves or Cocks both
 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 at line
 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 — 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 Steel, Cylindrical return tubes
 Working Pressure 90 lbs Tested by hydraulic pressure to 150 lbs Date of test 19th December 1881
 Description of superheating apparatus or steam chest Horizontal dome on each boiler, cont. reeds
 Can each boiler be worked separately yes Can the superheater be shut off and the boiler worked separately —
 No. of square feet of fire grate surface in each boiler 53.5 Description of safety valves Spring
 No. to each boiler 2 area of each valve 1 1/2 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 24 inches
 Diameter of boilers 14-0 Length of boilers 10-6 description of riveting of shell long. seams Triple Laps circum. seams Double Laps
 Thickness of shell plates 27/32 diameter of rivet holes 1 1/4 whether punched or drilled no pitch of rivets 5"
 Lap of plating 10 1/2 per centage of strength of longitudinal joint 75 working pressure of shell by rules 90 lbs
 Size of manholes in shell 16 x 12 size of compensating rings 28 x 24 x 1
 No. of Furnaces in each boiler 3 outside diameter 40" length, top 7-3 bottom 9-10
 Thickness of plates 1/2 & 5/8 description of joint Single Strap if rings are fitted on greatest length between rings —
 Working pressure of furnace by the rules 90 lbs
 Combustion chamber plating, thickness, sides 1/2 back 1/2 top 1/2
 Pitch of stays to ditto 9 3/16 x 8 1/2 back 9 3/16 x 9 3/16 top curved
 If stays are fitted with nuts or riveted heads nuts working pressure of plating by rules 90 lbs
 Diameter of stays at smallest part 1 3/16 working pressure of ditto by rules 93 lbs
 End plates in steam space, thickness 3/4 pitch of stays to ditto 16 x 16 how stays are secured Double nuts & riveted washers
 Working pressure by rules 90 lbs diameter of stays at smallest part 2 1/16 working pressure by rules 102 lbs
 Front plates at bottom, thickness 5/8 Back plates, thickness 5/8 greatest pitch of stays 11 1/2 working pressure by rules 90 lbs

Report recd. 6/5/82 sent to Gen. 9/5/82

Boiler Bracing & Steel bolts now forwarded.



Diameter of tubes $3\frac{1}{2}$ " pitch of tubes $4\frac{1}{2}$ " thickness of tube plates, front $\frac{3}{4}$ " back $\frac{11}{16}$ "
 How stayed *Ribes* pitch of stays $14\frac{1}{2}$ " width of water spaces 12 "
 Diameter of Superheater or Steam chest $4-6$ length $7-0$
 Thickness of plates $\frac{3}{8}$ " description of longitudinal joint *2 Laps* diameter of rivet holes $\frac{3}{4}$ " pitch of rivets $2\frac{1}{2}$ "
 Working pressure of shell by rules $97\frac{1}{2}$ 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 $\frac{5}{8}$ " How stayed *Wished to 4 ft radius & double riveted*
 Superheater or steam chest; how connected to boiler *Contracted neck 18x12x $\frac{1}{16}$*

DONKEY BOILER Description *Archers Patent*
 Made at *Dunston* By whom made *Dunston Engine Works* when made *Tested 14th October 1881*
 Where fixed *Stockhold* working pressure 70 Tested by hydraulic pressure to 140 No. of Certificate 706
 Fire grate area $14\frac{1}{2}$ Sq ft Description of safety valves *Spring* No. of safety valves *one* area of each 70 "
 If fitted with easing gear *yes* If steam from main boilers can enter the donkey boiler *no*
 Diameter of donkey boiler $5-6$ " length $8-0$ " description of riveting *Long, Double Laps*
 thickness of shell plates $\frac{1}{16}$ " diameter of rivet holes $\frac{3}{4}$ " whether punched or drilled *punched*
 pitch of rivets $2\frac{1}{2}$ " lap of plating 4 " per centage of strength of joint 70%
 thickness of crown plates $-$ stayed by $-$
 Diameter of furnace, top $-$ bottom 36 in length of furnace $5-0$ "
 thickness of plates $\frac{1}{16}$ " description of joint *Single Caps*
 thickness of furnace crown plates $\frac{1}{16}$ " stayed by $-$
 Working pressure of shell by rules $72\frac{1}{2}$ working pressure of furnace by rules $70\frac{1}{2}$
 diameter of uptake $-$ thickness of plates $-$ thickness of water tubes $-$

The foregoing is a correct description, as signed *Manu Inquis*
W. M. Hawthorn Manufacturer.

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

The machinery of this vessel has been specially surveyed during construction. The materials and workmanship are sound and satisfactory, and eligible in my opinion to have the rotation  Lloyd's R. C. 3-82 in the Society's Register Books.

*No submitted to
 vessel is eligible to have
 the certificate
 recorded
 11/5/82*

John B. ...
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

The amount of Entry Fee .. £ 3 : - : - received by me,
 Special *W.M.* .. £ 32 : 10 : -
 Certificate (if required) *Gratis* - : - : - 6th May 1882
 To be sent as per margin.
 (Travelling Expenses, if any, £ 0 . 4 . 6 .)

Friday, 12th May, 1882.

Lloyd's