

REPORT ON MACHINERY.

No. 4940

(Received in London Office 7/8/81 1881)

No. in Survey held at Port Glasgow & Greenock Date, first Survey August 30th 1880 Last Survey March 2nd 1881
 Reg. Book. 1534.88
1023.5 Tons

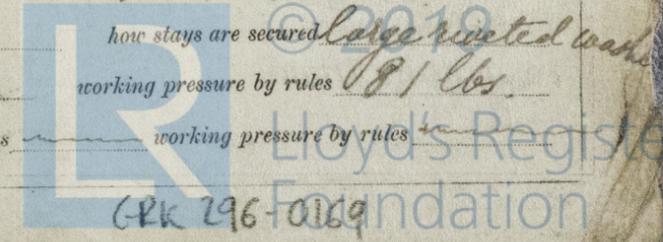
on the Iron Screw Steamer "James Watt"
 Master Riepenhausen Built at Port Glasgow When built 1881
 Engines made at Greenock By whom made Rankin & Blackmore when made 1881
 Boilers made at Greenock By whom made Rankin & Blackmore when made 1881
 Registered Horse Power 160 Owners Messrs. Leitch & Muir Port belonging to Greenock

ENGINES, &c.—

Description of Engines Compound, Inverted, Direct-Acting, Surface Condensing
 Diameter of Cylinders 31 & 62" Length of Stroke 39" No. of Rev. per minute 40 Point of Cut off, High Pressure 3/8 stroke Low Pressure 1/2 stroke
 Diameter of Screw shaft 11" Diameter of Tunnel shaft 10" Diameter of Crank shaft journals 11" Diameter of Crank pin 11" size of Crank webs 13 1/2" x 7 1/2"
 Diameter of screw 15.0" Pitch of screw 16.0" No. of blades 4 state whether moveable Yes total surface Not ascertained
 No. of Feed pumps 2 diameter of ditto 4" Stroke 25" Can one be overhauled while the other is at work Yes
 No. of Bilge pumps 2 diameter of ditto 4" Stroke 25" Can one be overhauled while the other is at work Yes
 Where do they pump from Bilge pumps from all bilges
 No. of Donkey Engines 2 Size of Pumps 8" x 9" Where do they pump from Ballast pumps from ballast tanks and sea, feed donkey from bilges and sea
 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 Not at all
 No. of bilge injections 1 and sizes 3 1/2" Are they connected to condenser, or to circulating pump Circulating
 How are the pumps worked By levers from crossheads
 Are all connections with the sea direct on the skin of the ship Yes Are they Valves or Cocks Valves and 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 None
 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 ship, before being launched
 Is the screw shaft tunnel watertight Fitted with a sluice door worked from Top of E. Room

BOILERS, &c.—

Number of Boilers One Description Round, horizontal, cylindrical, double-ended
 Working Pressure 80 lbs Tested by hydraulic pressure to 160 lbs Date of test Feb 8th 1881
 Description of superheating apparatus or steam chest None
 Can each boiler be worked separately None Can the superheater be shut off and the boiler worked separately None
 No. of square feet of fire grate surface in each boiler 95 sq ft Description of safety valves Direct Spring (our make)
 No. to each boiler 2 area of each valve 28.2" Are they fitted with easing gear Yes
 No. of safety valves to superheater None area of each valve None are they fitted with easing gear None
 Smallest distance between boilers and bunkers or woodwork About 4 1/2"
 Diameter of boilers 13'6" Length of boilers 16'0" description of riveting of shell long. seams Double laps circum. seams Double laps
 Thickness of shell plates 1" full diameter of rivet holes 1 5/16" whether punched or drilled Punched pitch of rivets 4 1/8"
 Lap of plating 8 1/2" per centage of strength of longitudinal joint 43 working pressure of shell by rules 44 lbs
 Size of manholes in shell 16" x 11 1/2" size of compensating rings 6" x 1"
 No. of Furnaces in each boiler 6 outside diameter 3'3" length, top 6'6" bottom Whole length of boiler
 Thickness of plates 1/2" (steel) description of joint Straps if rings are fitted 2 greatest length between rings 6'6"
 Working pressure of furnace by the rules 92 lbs
 Combustion chamber plating, thickness, sides 1/2" full (steel) back None top 1/2" full (steel)
 Pitch of stays to ditto 8 3/4" x 8 1/2" back None top Spiders 10" pitch/gates
 If stays are fitted with nuts or riveted heads 2 nuts working pressure of plating by rules 101 lbs
 Diameter of stays at smallest part 4 3/8" working pressure of ditto by rules 120 lbs
 End plates in steam space, thickness 13/16" pitch of stays to ditto 18" x 18" how stays are secured Large riveted washers
 Working pressure by rules 83 lbs diameter of stays at smallest part 2 3/8" working pressure by rules 81 lbs
 Front plates at bottom, thickness 3/4" bare (steel) Back plates, thickness 3/4" bare (steel) greatest pitch of stays None working pressure by rules None



Diameter of tubes $3\frac{1}{2}$ " pitch of tubes $4\frac{1}{4} \times 4\frac{1}{8}$ thickness of tube plates, front $11/16$ (iron) back $11/16$ (steel)
 How stayed *Tubes* pitch of stays $14" \times 14"$ width of water spaces $6"$
 Diameter of Superheater or Steam chest *none* length _____
 Thickness of plates _____ description of longitudinal joint _____ diameter of rivet holes _____ pitch of rivets _____
 Working pressure of shell by rules _____ 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 _____ How stayed _____
 Superheater or steam chest; how connected to boiler _____

DONKEY BOILER— Description *Round vertical, cross tubes*
 Made at *Greenock* By whom made *R. Steele & Co. Greenock* made *1880*
 Where fixed *In stockhold* working pressure *50 lbs* Tested by hydraulic pressure to *110 lbs* No. of Certificate *36*
 Fire grate area *21 sq ft* Description of safety valves *Direct spring* No. of safety valves *2* area of each *7"*
 If fitted with easing gear *Yes* If steam from main boilers can enter the donkey boiler *No*
 Diameter of donkey boiler *6"0"* length *11"0"* description of riveting *Double lap*
 thickness of shell plates *3/8"* diameter of rivet holes *3/4 1/16"* whether punched or drilled *Punched*
 pitch of rivets *3"* lap of plating *3 3/4"* per centage of strength of joint *73*
 thickness of crown plates *7/16"* stayed by *Dished, four stays, and by uptake*
 Diameter of furnace, top *4'10"* bottom *5'2"* length of furnace *5'0" capped*
 thickness of plates *7/16" full* description of joint *Single lap*
 thickness of furnace crown plates *7/16"* stayed by *Dished, four stays, and by uptake*
 Working pressure of shell by rules *58 lbs* working pressure of furnace by rules _____
 diameter of uptake *15"* thickness of plates *1/2"* thickness of water tubes *3/8"*

The foregoing is a correct description,
Ranfin Blackmore Manufacturer.

General Remarks (State quality of workmanship, opinions as to class, &c. *Workmanship and materials good*
*The engines and boilers have been inspected by me during construction, and the vessel is eligible in my opinion to be classed **LLOYD'S M.C.**, and to be noted **3.81.***

The machinery of this vessel has been built and fitted under special supervision. It is also in charge of Messrs. M.C. 3.81.

The amount of Entry Fee .. £ *3:0:0* received by me.
 Special *MA* .. £ *24:0:0*
 Certificate (if required) .. £ *0:0:0* *4 March 1881*
 To be sent as per margin. *£24:0:0*
 (Travelling Expenses, if any, £ _____)

Alfred H. Alchin
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.
Greenock

Committee's Minute *Tuesday March, 26. 1881.*

Lloyd's M.C.

