

REPORT ON MACHINERY.

73/64

No. 23164 Port of Newcastle Received at London Office 2 AUG 81
 No. in Survey held at Newcastle Date, first Survey September 20 1889 Last Survey August 28 1889
 Reg. Book. on the S.S. 'Haverthwaite' (Number of Visits 36) Tons 3720
 Master Wallace Built at Newcastle By whom built Row Hawthorn Leslie & Co. When built 1889
 Engines made at Newcastle By whom made Hawthorn Leslie & Co. when made 1889
 Boilers made at do By whom made do do when made 1889
 Registered Horse Power 306 Owners Edwards & S. Limited Port belonging to Glasgow

ENGINES, &c.—

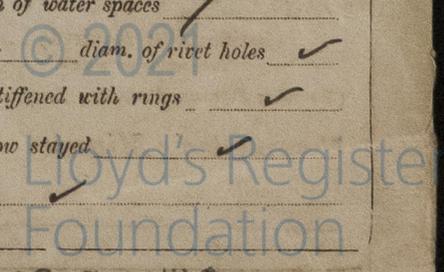
Description of Engines Triple expansion on three cranks
 Diameter of Cylinders 27.48 x 41 Length of Stroke 48 No. of Rev. per minute 65 Point of Cut off, High Pressure 33 1/2 Low Pressure 33
 Diameter of Screw shaft 13 1/2 Diam. of Tunnel shaft 12 3/4 Diam. of Crank shaft journals 13 7/8 Diam. of Crank pin 13 1/2 size of Crank webs 20 1/2 x 8
 Diameter of screw 16.6 Pitch of screw 18.6 No. of blades 4 state whether moveable no total surface 80 sq
 No. of Feed pumps 2 diameter of ditto 3 3/4 Stroke 24 Can one be overhauled while the other is at work no
 No. of Bilge pumps 2 diameter of ditto 3 3/4 Stroke 24 Can one be overhauled while the other is at work no
 Where do they pump from no pump from sea, engine belp (3) hold well - aft - same except sea
 No. of Donkey Engines Two Size of Pumps 14 x 8 & 4 x 8 Where do they pump from Ballast from tanks & sea
after pumps - feed from hotwell sea
 Are all the bilge suction pipes fitted with roses no Are the roses always accessible no Are the sluices on Engine room bulkheads always accessible aft
 No. of bilge injections one and sizes 4 Are they connected to condenser, or to circulating pump no
 How are the pumps worked by levers over condenser from mid-engine
 Are all connections with the sea direct on the skin of the ship no Are they Valves or Cocks both
 Are they fixed sufficiently high on the ship's side to be seen without lifting the stokehold plates no 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 no Are the blow off cocks fitted with a spigot and brass covering plate no
 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 no
 Are the pipes, cocks, and valves arranged so as to prevent an unintentional connection between the sea and the bilges no
 When were stern tube, propeller, screw shaft, and all connections examined in dry dock new vessel
 Is the screw shaft tunnel watertight ✓ and fitted with a sluice door no worked from top platform

BOILERS, &c.—

Number of Boilers Three Description Cyl. double-ended Whether Steel or Iron Steel
 Working Pressure 160 lbs Tested by hydraulic pressure to 320 lbs Date of test July 2nd 1889 No. 2725
 Description of superheating apparatus or steam chest none
 Can each boiler be worked separately no Can the superheater be shut off and the boiler worked separately ✓
 No. of square feet of fire grate surface in each boiler 70 sq Description of safety valves spring No. to each boiler two
 Area of each valve 8.3 sq Are they fitted with easing gear no No. of safety valves to superheater ✓ area of each valve ✓
 Are they fitted with easing gear ✓ Smallest distance between boilers and bunkers or woodwork 36 Diameter of boilers 12.0
 Length of boilers 15.3 description of riveting of shell long. seams Rivets joint circum. seams d c Thickness of shell plates 1 1/8
 Diameter of rivet holes 1 1/16 & 1 1/4 whether punched or drilled drilled pitch of rivets 8 7/16 Lap of plating 14 1/4 & 21 1/2
 Percentage of strength of longitudinal joint 84.3 working pressure of shell by rules 170 size of manholes in shell 16 x 12
 Size of compensating rings 6 x 1 1/4 No. of Furnaces in each boiler four
 Outside diameter 39 length, top same bottom same thickness of plates 9/16 description of joint ✓ if rings are fitted ✓
 Greatest length between rings ✓ working pressure of furnace by the rules 179 combustion chamber plating, thickness, sides 9/16 back ✓ top 11/16
 Pitch of stays to ditto, sides 7 3/4 back ✓ top 9 1/2 If stays are fitted with nuts or riveted heads nuts working pressure of plating by rules 162 Diameter of stays at smallest part 1 1/4 working pressure of ditto by rules 164 end plates in steam space, thickness 1 1/4
 Pitch of stays to ditto 18 x 19 how stays are secured d a r w working pressure by rules 187 diameter of stays at smallest part 2 3/4 working pressure by rules 162 Front plates at bottom, thickness 15/16 Back plates, thickness ✓
 Greatest pitch of stays ✓ working pressure by rules ✓ Diameter of tubes 3 1/2 pitch of tubes 4 1/2 thickness of tube plates, front 1 7/16 back 13/16 how stayed tubes pitch of stays 13 1/2 width of water spaces 7
 Diameter of Superheater or Steam chest ✓ length ✓ thickness of plates ✓ description of longitudinal joint ✓ diam. 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 ✓

NOT TO WRITE ACROSS THIS MARGIN.

Report received 23/8/89



NWC809-0149

DONKEY BOILER— Description *Cyl. Cuff ended*
 Made at *Stockton* by whom made *Riley Bros.* when made *21/7/89* where fixed *on deck*
 Working pressure *100 lb* tested by hydraulic pressure to *200 lb* No. of Certificate *1889* fire grate area *5.41* description of safety valves *sprung* No. of safety valves *two* area of each *2.705* if fitted with casing gear *no* if steam from main boilers can enter the donkey boiler *no* diameter of donkey boiler *80* length *8.9* description of riveting *dbl butt straps*
 Thickness of shell plates *9/16* diameter of rivet holes *13/16* whether punched or drilled *d* pitch of rivets *3 1/2* lap of plating *4 5/16*
 per centage of strength of joint *76* thickness of crown plates *7/16* stayed by *stays 13x13 pitch*
 Diameter of furnace, top *2.3 1/16* bottom *✓* length of furnace *5.3 1/10* thickness of plates *7/16 + 1/2* description of joint *single butt*
 Thickness of furnace crown plates *9/16* stayed by *plates 9 1/2 pitch* working pressure of shell by rules *102*
 Working pressure of furnace by rules *114* diameter of uptake *✓* thickness of plates *✓* thickness of water tubes *✓*

SPARE GEAR. State the articles supplied:— *Crank shaft, screw shaft, air pump rod, bucket & rod, circulating pump rod, two top end balls, two bottom end balls, two main bearing bolts,*

The foregoing is a correct description,
J. J. Mutton Manufacturers of Marine Engines & Boilers.

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 sound and good and, in my opinion, eligible to have the certification of L.M.C. 8.89 recorded when the donkey boiler safety valves have been adjusted under steam, spare gear described and engines tried.*

A letter with regard to the trial of engines is attached to this report.

The vessel has sailed for London - See letter Secy 12/8/89

*Heating surface 6900 sq ft
 = 404 HP*

It is anticipated that the vessel will be eligible for L.M.C. 8.89 recorded here + the safety valves adjusted under steam.

The amount of Entry Fee .. £ 3 .. - - received by me.
 Special .. £ 35 6 - -
 Donkey Boiler Fee .. £ - - -
 Certificate (if required) .. £ gratis: *21/7/89*
 To be sent as per margin.

(Travelling Expenses, if any, £)

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

Committee's Minute

+ L.M.C. 8.89

