

REPORT ON MACHINERY.

No. 16195

(Received at London Office) 21st SEP. 82.

No. in Survey held at Newcastle & North Shields Date, first Survey 5th June Last Survey 2nd Sept 1882
 Reg. Book. 1343
Tons 864
 on the Screw Steamer "El Dorado"
 Master Bonifaci Built at North Shields 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 100 Owners Scrutton Sons & Co Port belonging to London

ENGINES, &c.—

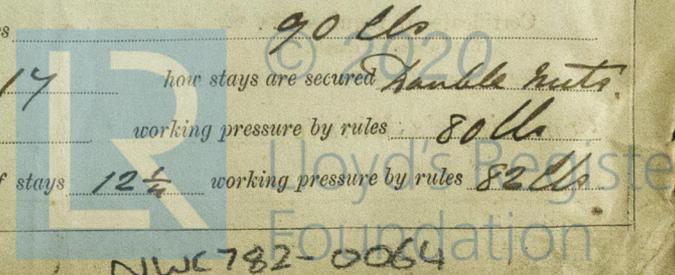
Description of Engines Inverted Compound Surface Condensing
 Diameter of Cylinders 30 & 54 Length of Stroke 36 No. of Rev. per minute 65 Point of Cut off, High Pressure .6 Low Pressure .5
 Diameter of Screw shaft 11 Diameter of Tunnel shaft 9 1/2 Diameter of Crank shaft journals 10 Diameter of Crank pin 10 size of Crank webs 13 x 6 1/2
 Diameter of screw 13-0 Pitch of screw 16 1/2 feet No. of blades 4 state whether moveable no total surface 52 sq feet
 No. of Feed pumps 2 diameter of ditto 3 Stroke 18 Can one be overhauled while the other is at work yes
 No. of Bilge pumps 2 diameter of ditto 3 Stroke 18 Can one be overhauled while the other is at work yes
 Where do they pump from Engine Space, 4, Tunnel well, 1, Fore hold tank, 1, aft hold tank, 1, Sea.
 No. of Donkey Engines Two Size of Pumps 8 x 14 & 3 x 8 Where do they pump from as above
 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 2 1/2 Are they connected to condenser, or to circulating pump no
 How are the pumps worked Levers on condenser
 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 level
 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 80 lbs Tested by hydraulic pressure to 160 lbs Date of test 15th June 1882
 Description of ~~superheating apparatus~~ or steam chest Angular contracted neck.
 Can each boiler be worked separately yes Can the superheater be shut off and the boiler worked separately yes
 No. of square feet of fire grate surface in each boiler 34 Description of safety valves Spring
 No. to each boiler Two area of each valve 12 1/2 " dia 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 12 inches
 Diameter of boilers 11-0 Length of boilers 10-0 description of riveting of shell long. seams Triple Cap circum. seams Double Cap
 Thickness of shell plates 5/8 diameter of rivet holes 5/16 whether punched or drilled drilled pitch of rivets 3 3/4
 Lap of plating 4 7/8 per centage of strength of longitudinal joint 75% working pressure of shell by rules 80 lbs
 Size of manholes in shell 16 x 12 size of compensating rings 6 x 3 1/2
 No. of Furnaces in each boiler 2 outside diameter 40 length, top 7-0 bottom 9-3
 Thickness of plates 1/2 & 9/16 description of joint Butt, Single straps if rings are fitted no greatest length between rings —
 Working pressure of furnace by the rules 80 lbs
 Combustion chamber plating, thickness, sides 15/32 back 15/32 top 15/32
 Pitch of stays to ditto — sides 9 3/16 back 9 3/16 top Curved
 Are stays fitted with nuts or riveted heads nuts working pressure of plating by rules 80 lbs
 Diameter of stays at smallest part 1 1/8 working pressure of ditto by rules 90 lbs
 End plates in steam space, thickness 3/4 pitch of stays to ditto 17 x 14 how stays are secured Handle nuts
 Working pressure by rules 80 lbs diameter of stays at smallest part 2 working pressure by rules 80 lbs
 Front plates at bottom, thickness 9/16 Back plates, thickness 5/8 greatest pitch of stays 12 1/2 working pressure by rules 82 lbs

NWC 782-0064

Boiler Plating was forwarded



Diameter of tubes $3\frac{3}{4}$ pitch of tubes $4\frac{1}{2}$ thickness of tube plates, front $\frac{23}{32}$ back $\frac{11}{16}$
 How stayed *Tubes* pitch of stays $13\frac{1}{2}$ width of water spaces $6\frac{1}{2}$
 Diameter of Superheater or Steam chest $48"$ length $5'-0"$
 Thickness of plates $\frac{3}{8}"$ description of longitudinal joint *Double Lap* diameter of rivet holes $\frac{3}{4}$ pitch of rivets $2\frac{1}{2}$
 Working pressure of shell by rules 100 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 *Revised to 3 ft radius*
 Superheater or steam chest; how connected to boiler *Contracted neck*

DONKEY BOILER— Description *Upright cylindrical 3 cross tubes*
 Made at *Cateshead* By whom made *C. & D. Gurney* when made *Tested 23rd May 1882*
 Where fixed *Stoke Newington* working pressure 80 lbs Tested by hydraulic pressure to 160 lbs No. of Certificate 869
 Fire grate area $21\frac{1}{2}$ sq ft Description of safety valves *Spring* No. of safety valves *one* area of each 9.6 sq ft
 If fitted with easing gear $-$ If steam from main boilers can enter the donkey boiler $-$
 Diameter of donkey boiler $6'-0"$ length $12'-6"$ description of riveting *Long run, Double Lap*
 thickness of shell plates $\frac{9}{16}$ diameter of rivet holes $\frac{15}{16}$ whether punched or drilled *punched*
 pitch of rivets $3\frac{3}{8}$ lap of plating $4\frac{1}{2}"$ per centage of strength of joint 70 %
 thickness of crown plates $\frac{2}{10}"$ stayed by *Revised to 5 ft radius & 6 stays*
 Diameter of furnace, top $4'-8\frac{1}{2}"$ bottom $5'-1\frac{1}{4}"$ length of furnace $5'-1"$
 thickness of plates $\frac{9}{16}"$ description of joint *Single Lap*
 thickness of furnace crown plates $\frac{9}{16}"$ stayed by *as above*
 Working pressure of shell by rules 92 working pressure of furnace by rules 72 & compensation by stays = 80 lbs
 diameter of uptake $15"$ thickness of plates $\frac{3}{8}$ thickness of water tubes $\frac{3}{8}$

The foregoing is a correct description, of Main Engine.
R. W. 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 suitable in my opinion to have the notation \times Lloyd's M. C. 9-82 in the Society's Register Book.

This submitted that this vessel is eligible to have the notation of M.C. recorded M 2/9/82

W. L. S.
Wm. Brockat
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.
 North Shields

The amount of Entry Fee £ 3 : - :- received by me,
 Special .. £ 22 : 10 :-
 Certificate (if required) 20^{th} Sept 1882
 To be sent as per margin.

Committee's Minute Friday, 22nd September, 1882.