

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. on the *Screw Steamer "El Dorado"* Tons *1343*
 Master *Boniface* 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 1/2 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 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*

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 Lap* circum. seams *Double Lap*
 Thickness of shell plates *5/8* diameter of rivet holes *5/16* whether punched or drilled *drilled* pitch of rivets *3 3/4*
 Gap of plating *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 & 3/4* description of joint *Butt, Single strap* 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 *9/16* back *9/16* 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 17* 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 1/4* working pressure by rules *82 lbs*

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Diameter of tubes $3\frac{1}{4}$ 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 1 thickness of plates 1
If stiffened with rings 1 distance between rings 1 Working pressure by rules 1
End plates of superheater, or steam chest; thickness $\frac{5}{8}$ How stayed *Welded 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. C. & Co. Newcastle* when made *Tested 23rd May 1882*
Where fixed *Slater's hold* 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 in
If fitted with easing gear 1 If steam from main boilers can enter the donkey boiler 1
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 $\frac{2}{16}"$ stayed by *Welded 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 Engines.

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 \star Lloyd's M. C. 9-82 in the Society's Register Book.

Disapproved that this vessel is eligible to have the notation M.C. recorded 24/9/82

The amount of Entry Fee $\pounds 3 : - : -$ received by me,

Special $\pounds 22 : 10 : -$

Certificate (if required) $\pounds - : - : -$ 20th Sept 1882

To be sent as per margin.

(Travelling Expenses, if any, \pounds)

Committee's Minute

Friday, 22nd September, 1882.

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

North Shields

Lloyd's Register
Foundation