

REPORT ON MACHINERY.

No. 6065

(Received at London Office) Rec'd 10th APR. 1883

No. in Survey held at Glasgow Date, first Survey July 1882 Last Survey April 5th 1883
 Reg. Book. _____ (Number of Visits) 4240
 on the Screw Steamer "Hawarden Castle" Tons 2721
 Master M. P. Webster Built at Glasgow When built 1883
 Engines made at Glasgow By whom made Jno Elder & Co. when made 1883
 Boilers made at do By whom made do when made 1883
 Registered Horse Power 600 Owners Messrs Donald Currie & Co. Port belonging to London

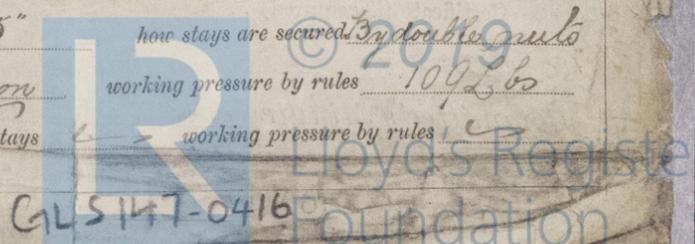
ENGINES, &c.—

Description of Engines Compound Inverted Direct Acting
 Diameter of Cylinders 50 & 90" Length of Stroke 60" No. of Rev. per minute 68 Point of Cut off, High Pressure 6 ^{variable} Low Pressure 6.5
 Diameter of Screw shaft 18" Diameter of Tunnel shaft 16 1/2" Diameter of Crank shaft journals 18 1/4" ^{Built steel shaft} Diameter of Crank pin 18 1/4" size of Crank webs 13 1/2" / 30"
 Diameter of screw 19 ft bronze Pitch of screw 24" . 6" No. of blades 4 state whether moveable yes total surface 112 ft
 No. of Feed pumps 2 diameter of ditto 6 1/2" Stroke 25" Can one be overhauled while the other is at work yes
 No. of Bilge pumps 2 diameter of ditto 6 1/2" Stroke 25" Can one be overhauled while the other is at work yes
 Where do they pump from All Compartments
 No. of Donkey Engines One Size of Pumps 12" x 7" x 12" Where do they pump from Sea, Bilge, Hotwell & Boilers
one centrifugal pump 15" suction pipes to hold & engine room for circulating water through condenser.
 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 2 and sizes 75" Are they connected to condenser, or to circulating pump To Centrifugal
 How are the pumps worked By Levers
 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 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 Main steam through after bunker How are they protected By iron casing cast iron pipes
 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 On slip previous to being launched
 Is the screw shaft tunnel watertight yes and fitted with a sluice door yes worked from Upper platforms

BOILERS, &c.—

Number of Boilers Three Description Round Horizontal (double ended) (Steel)
 Working Pressure 80 Lbs Tested by hydraulic pressure to 160 Lbs Date of test 27.10.82
 Description of superheating apparatus or steam chest None
 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 126 ft Description of safety valves direct spring
 No. to each boiler 3 area of each valve 28.27 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 4 ft 6 ins
 Diameter of boilers 14 1/2" 3" Length of boilers 17' 3" description of riveting of shell long. seams Double riveted double butt straps circum. seams double
 Thickness of shell plates 14 1/16" steel diameter of rivet holes 1 5/16" whether punched or drilled drilled pitch of rivets 5 3/8" & 2 3/4"
 Lap of plating Straps 14" per centage of strength of longitudinal joint 82% working pressure of shell by rules 109 Lbs
 Size of manholes in shell 16" x 12" size of compensating rings Forged rings
 No. of Furnaces in each boiler Six outside diameter 3' 6" length, top 6' 9" bottom through furnaces
 Thickness of plates 7/16" description of joint Corrugated if rings are fitted — greatest length between rings —
 Working pressure of furnace by the rules 119 Lbs
 Combustion chamber plating, thickness, sides 7/16" full = . 45" back — top 7/16" full = . 45"
 Pitch of stays to ditto, sides 8 3/4" x 8 3/4" back — top 8 3/4" x 8"
 If stays are fitted with nuts or riveted heads Nuts working pressure of plating by rules 85 Lbs
 Diameter of stays at smallest part 1 1/8" steel working pressure of ditto by rules 101 Lbs
 End plates in steam space, thickness 25/32" pitch of stays to ditto 15 3/4" x 15" how stays are secured By double nuts
 Working pressure by rules 92 Lbs diameter of stays at smallest part 2 1/4" Iron working pressure by rules 109 Lbs
 Front plates at bottom, thickness 10/16 Back plates, thickness — greatest pitch of stays — working pressure by rules —

Report is also sent on the Hull of



6065 gles

Diameter of tubes $3\frac{1}{2}$ " pitch of tubes $4\frac{3}{4}$ " thickness of tube plates, front $\frac{1}{16}$ " back $\frac{1}{16}$ "
 How stayed *By tubes* pitch of stays $9\frac{1}{2}$ " x $14\frac{1}{4}$ " width of water spaces $7\frac{1}{2}$ "
 Diameter of superheater or Steam chest *None* length \curvearrowright
 Thickness of plates \curvearrowright description of longitudinal joint \curvearrowright diameter of rivet holes \curvearrowright pitch of rivets \curvearrowright
 Working pressure of shell by rules \curvearrowright Diameter of flue \curvearrowright thickness of plates \curvearrowright
 If stiffened with rings \curvearrowright distance between rings \curvearrowright Working pressure by rules \curvearrowright
 End plates of superheater, or steam chest; thickness \curvearrowright How stayed \curvearrowright
 Superheater or steam chest; how connected to boiler \curvearrowright

DONKEY BOILER— Description *Round Horizontal (Steel)*
 Made at *Glasgow* By whom made *Anderson & Lyall* when made *1883*
 Where fixed *on upper deck* working pressure *80 Lbs* Tested by hydraulic pressure to *160 Lbs* No. of Certificate *943*
 Fire grate area *30 sq ft* Description of safety valves *direct spring* No. of safety valves *2* area of each *7"*
 If fitted with casing gear *Yes* If steam from main boilers can enter the donkey boiler *No*
 Diameter of donkey boiler *8"6"* length *8"6"* description of riveting *Triple riveted Lap*
 thickness of shell plates $\frac{1}{16}$ " diameter of rivet holes $\frac{13}{16}$ " whether punched or drilled *drilled*
 pitch of rivets $3\frac{3}{8}$ " lap of plating $6\frac{1}{4}$ " per centage of strength of joint *75%*
 thickness of ^{end} ~~end~~ plates $\frac{13}{16}$ " stayed by *Bar stays 2" dia iron*
 Diameter of furnace, top *2' 9"* bottom \curvearrowright length of furnace *6'6"*
 thickness of plates $\frac{1}{16}$ " ^{cross} ~~cross~~ *9/16"* bottom description of joint *double straps*
 thickness of ^{combustion chamber} ~~combustion chamber~~ furnace ^{plates} $\frac{7}{16}$ " stayed by *Screw stays 1 1/8" dia 7 1/2" x 8" pitch*
 Working pressure of shell by rules *80 Lbs* working pressure of furnace by rules *80 Lbs*
 diameter of ^{dome} ~~dome~~ *2'0"* thickness of plates $\frac{1}{16}$ " thickness of ~~water~~ *in* ~~boiler~~ *dome* stayed by *two stays 1 1/4" dia,*

The foregoing is a correct description,
John Elder Manufacturer.

General Remarks (State quality of workmanship, opinions as to class, &c) *These Engines & Boilers are of good workmanship and are now in good order and safe working condition and eligible in my opinion to be noted in the Register Book* ✠ Lloyd's M.C. 4.83

This certificate that this vessel is eligible to have the notice recorded
J.M. 10/4/83

The amount of Entry Fee .. £ *3: 0: 0* received by me,
 Special .. £ *50: 0: 0*
 Certificate (if required) .. £ *Gratis* *4/4/1883*
 (To be sent as per margin.)
 (Travelling Expenses, if any, £)

James Morrison
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping

Committee's Minute *Tuesday, 10th April 1883*

