

REPORT ON MACHINERY.

7319

No. 4319

Received at London Office TUESDAY 16 FEB 1886

No. in Survey held at Glasgow Date, first Survey June 25th 1885 Last Survey February 12th 1886
Reg. Book. "Mirror" (Number of Vols. 48) Tons 1545 Gross

Master Green Built at Glasgow By whom built Messrs R Napier & Sons When built 1885
Engines made at Glasgow By whom made Messrs R Napier & Sons when made 1885
Boilers made at Glasgow By whom made " when made 1885
Registered Horse Power 250 Owners The Eastern Telegraph Co (Lim) Port belonging to London

ENGINES, &c.—

Description of Engines Compound Inverted direct acting (Twin Screw)
Diameter of Cylinders 26" & 46" Length of Stroke 36" No. of Rev. per minute 100 Point of Cut off, High Pressure .4 Low Pressure .45
Diameter of Screw shaft 4 1/2" Diam. of Tunnel shaft 8 3/4" Diam. of Crank shaft journals 9 1/2" Diam. of Crank pin 10" size of Crank webs 6" x 11 1/2"
Diameter of screw 9" 6" Pitch of screw 16 ft No. of blades 4 state whether moveable Yes total surface 34 sq ft
No. of Feed pumps one to each engine diameter of ditto 3 1/2" Stroke 19" Can one be overhauled while the other is at work Yes
No. of Bilge pumps one to each engine diameter of ditto 4 1/4" Stroke 19" Can one be overhauled while the other is at work Yes
Where do they pump from Each compartment
No. of Donkey Engines two Size of Pumps 6 1/4" & 8 1/2" Stroke 8" & 9" Where do they pump from Sea, bilges, tanks hotwell,
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 three and sizes two & diameter 9" Are they connected to condenser, or to circulating pump Condenser & centrifugal pump
How are the pumps worked by levers also separate engine for centrifugal pump
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 forward suction How are they protected Wood casing
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 previous to the vessel being launched
Is the screw shaft tunnel watertight Yes and fitted with a sluice door Yes worked from the top platform

BOILERS, &c.—

Number of Boilers two Description Cyl. Multitubular single end Whether Steel or Iron Steel
Working Pressure 100 lbs Tested by hydraulic pressure to 200 lbs Date of test October 1st 1885
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 40 sq ft Description of safety valves direct spring No. to each boiler two
Area of each valve 11.49 sq in Are they fitted with easing gear Yes No. of safety valves to superheater Yes area of each valve Yes
Are they fitted with easing gear Yes Smallest distance between boilers and bunkers or woodwork 18" from deck Diameter of boilers 14" 6"
Length of boilers 10' 3" description of riveting of shell long. seams sub riv lap circum. seams dbl riv lap Thickness of shell plates 1"
Diameter of rivet holes 1 3/8" whether punched or drilled drilled pitch of rivets 6" & 3" Lap of plating 9 1/2"
Per centage of strength of longitudinal joint 74% working pressure of shell by rules 106 lbs size of manholes in shell 16" x 12"
Size of compensating rings 4 1/8" x 1" No. of Furnaces in each boiler three
Outside diameter 41" length, top 4 ft bottom 9' 3" thickness of plates 7/8" description of joint corrugated if rings are fitted Yes
Greatest length between rings Yes working pressure of furnace by the rules 122 lbs combustion chamber plating, thickness, sides 1/2" back 1/2" top 5/8"
Pitch of stays to ditto, sides 8 1/2" x 8 1/2" back 8 1/2" x 8 1/2" top 10 1/2" If stays are fitted with nuts or riveted heads nuts working pressure of plating by rules 106 lbs Diameter of stays at smallest part 1 1/4" & 1 1/2" screw working pressure of ditto by rules 109 lbs end plates in steam space, thickness 7/8"
Pitch of stays to ditto 16" x 16" how stays are secured dbl nuts working pressure by rules 104 lbs diameter of stays at smallest part 2 1/4" screw working pressure by rules 102 lbs Front plates at bottom, thickness 5/8" Back plates, thickness 5/8"
Closest pitch of stays 11" x 8 1/2" working pressure by rules 100 lbs Diameter of tubes 3" 6" pitch of tubes 4" x 1 1/8" thickness of tube plates, front 3/4" back 11/16" how stayed stay tubes pitch of stays 15 1/2" & horizontal width of water spaces 5"
Diameter of Superheater or Steam chest Yes length Yes thickness of plates Yes description of longitudinal joint Yes diam. of rivet holes Yes
Pitch of rivets Yes working pressure of shell by rules Yes diameter of flue Yes thickness of plates Yes If stiffened with rings Yes
Distance between rings Yes working pressure by rules Yes end plates of superheater, or steam chest; thickness Yes how stayed Yes
Superheater or steam chest; how connected to boiler Yes

No. 1 for Ir. (State if Report is also sent on Hull of the Ship)

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DONKEY BOILER— Description *Cylindrical Mult. single ended*
 Made at *Glasgow* by whom made *Messrs R Napier & Sons* when made *1885* where fixed *On deck*
 Working pressure *100 lbs* tested by hydraulic pressure to *200 lbs* No. of Certificate *1626* fire grate area *17.4 sq ft* description of safety valves *direct spring* No. of safety valves *two* area of each *7.07 sq* if fitted with easing gear *Yes* if steam from main boilers can enter the donkey boiler *No* diameter of donkey boiler *8' 6"* length *8' 0"* description of riveting *dbl riveted butt*
 Thickness of shell plates *5/8"* diameter of rivet holes *7/8"* whether punched or drilled *drilled* pitch of rivets *3 1/16"* lap of plating *straps 9 1/2 x 5/8"*
 per centage of strength of joint *7 1/2%* thickness of ~~end~~ plates *7/8"* stayed by *long stay 2" dia 14" x 14" pitch*
 Diameter of furnace, top *4' 5"* bottom *✓* length of furnace *5' 2"* thickness of plates *7/16"* description of joint *Welded*
 Thickness of ~~furnace crown~~ ^{tube} plates *3/4" 7/16"* stayed by *stay tubes and 2" long stay* working pressure of shell by rules *11 1/4 lbs*
 Working pressure of furnace by rules *100 lbs* diameter of uptake *✓* thickness of plates *✓* thickness of water tubes *✓*

SPARE GEAR. State the articles supplied:— *1 crank shaft (single throw) + propeller blades and 12 studs & nuts for same 1 slide valve spindle 1 pair of top and bottom end brasses 1 pair of main bearing brasses 1 H.P. valve face 1 eccentric strap 100 condenser tubes 100 boiler tubes 2 sets of springs for each piston 2 con rod top & bottom end bolts & nuts 2 main bearing bolts 1 set of coupling bolts + valves & seats for bilge pump & for feed pump assorted bolts nuts &c &c.*
 The foregoing is a correct description,
M. Napier & Sons. Manufacturer.

General Remarks (State quality of workmanship, opinions as to class, &c.)
The above Engines and Boilers have been constructed under special survey; they are of good material and workmanship and are now in good order and safe working condition and eligible in my opinion to be noted in the Register Book L M & 2-86
The Shafting was examined at the works of Messrs R Napier & Sons while being rough turned and also when finished and appeared to be satisfactory

Certificate to be retained in London till the Builder calls for it.

The amount of Entry Fee .. £ *2* : - : - received by me,
 Special £ *32* : *10* : -
 Donkey Boiler Fee £ - : - : -
 Certificate (if required) .. £ - : - : - *15/2/1886*
 To be sent as per margin.
 (Travelling Expenses, if any, £ *8/-*)

G. L. Hindmarsh
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute

[Handwritten signature]

