

REPORT ON MACHINERY.

44726

No. _____ Received at London Office _____ 18
 No. in Survey held at London Date, first Survey Dec: 10/84 Last Survey Feb. 19th 1885
 Reg. Book. _____ (Number of Visits 8) _____ Tons _____
37 on the S. S. Rainbow
 Master _____ Built at Dunde By whom built Gourlay Bros. When built 1871
 Engines made at Dunde By whom made Gourlay Bros. when made 1871
 Boilers made at Deptford By whom made Gen. St. Nav. Co. when made 1884
 Registered Horse Power 250 Owners Gen. St. Nav. Co. Port belonging to London

ENGINES, &c.—

Description of Engines _____
 Diameter of Cylinders _____ Length of Stroke _____ No. of Rev. per minute _____ Point of Cut off, High Pressure _____ Low Pressure _____
 Diameter of Screw shaft _____ Diam. of Tunnel shaft _____ Diam. of Crank shaft journals _____ Diam. of Crank pin _____ size of Crank webs _____
 Diameter of screw _____ Pitch of screw _____ No. of blades _____ state whether moveable _____ total surface _____
 No. of Feed pumps _____ diameter of ditto _____ Stroke _____ Can one be overhauled while the other is at work _____
 No. of Bilge pumps _____ diameter of ditto _____ Stroke _____ Can one be overhauled while the other is at work _____
 Where do they pump from _____
 No. of Donkey Engines _____ Size of Pumps _____ Where do they pump from _____
 Are all the bilge suction pipes fitted with roses _____ Are the roses always accessible _____ Are the sluices on Engine room bulkheads always accessible _____
 No. of bilge injections _____ and sizes _____ Are they connected to condenser, or to circulating pump _____
 How are the pumps worked _____
 Are all connections with the sea direct on the skin of the ship _____ Are they Valves or Cocks _____
 Are they fixed sufficiently high on the ship's side to be seen without lifting the stokehold plates _____ Are the discharge pipes above or below the deep water line _____
 Are they each fitted with a discharge valve always accessible on the plating of the vessel _____ Are the blow off cocks fitted with a spigot and brass covering plate _____
 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 _____
 Are the pipes, cocks, and valves arranged so as to prevent an unintentional connection between the sea and the bilges _____
 When were stern tube, propeller, screw shaft, and all connections examined in dry dock _____
 Is the screw shaft tunnel watertight _____ and fitted with a sluice door _____ worked from _____

BOILERS, &c.—

Number of Boilers Two Description Multitubular Whether Steel or Iron Iron
 Working Pressure 65 lbs. Tested by hydraulic pressure to 130 lbs. Date of test Dec: 19th 1884
 Description of superheating apparatus or steam chest Cylindrical
 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 49.5 Description of safety valves Direct spring No. to each boiler 2
 Area of each valve 14.19 Are they fitted with easing gear yes No. of safety valves to superheater one area of each valve 3.14
 Are they fitted with easing gear no Smallest distance between boilers and bunkers or woodwork 12" Diameter of boilers 12.7
 Length of boilers 11.1 description of riveting of shell long. seams ribble lap circum. seams double Thickness of shell plates 3/8
 Diameter of rivet holes 1 1/8 whether punched or drilled punched pitch of rivets 3 3/4 Lap of plating 7/16
 Per centage of strength of longitudinal joint 70% working pressure of shell by rules 69 lbs. size of manholes in shell 15" x 12"
 Size of compensating rings 4 x 4 x 5/8 angles No. of Furnaces in each boiler 3
 Outside diameter 3.1 1/2 length, top 7.6 3/8 bottom 10.5 3/8 thickness of plates 7/16 description of joint welded if rings are fitted yes
 Greatest length between rings 3.9 working pressure of furnace by the rules 122 lbs. combustion chamber plating, thickness, sides 7/16 back 7/16 top 7/16
 Pitch of stays to ditto, sides 9 x 8 back 10 x 7 top _____ If stays are fitted with nuts or riveted heads nuts working pressure of plating by rules 67 lbs. Diameter of stays at smallest part 1 1/8 working pressure of ditto by rules 73 lbs. end plates in steam space, thickness 3/4
 Pitch of stays to ditto 1.5 3/4 between how stays are secured doub. nuts working pressure by rules 67 lbs. diameter of stays at smallest part 2 1/4 working pressure by rules 74 lbs. Front plates at bottom, thickness 5/8 Back plates, thickness 5/8
 Greatest pitch of stays 10" working pressure by rules 120 lbs. Diameter of tubes 3 1/2 pitch of tubes 1 3/4 thickness of tube plates, front 11/16 back 11/16 how stayed stay tubes pitch of stays 14" width of water spaces 5 1/4
 Diameter of Superheater or Steam chest 5.5 length 14.1 1/2 thickness of plates 5/8 description of longitudinal joint doub. lap diam. of rivet holes 7/8
 Pitch of rivets 2 13/16 working pressure of shell by rules 68 lbs. 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 3/4 how stayed 8 chgs. 3 1/2 dia
 Superheater or steam chest; how connected to boiler Independent of boiler, connected by steam pipes

LON 674-0312

LONDON: Printed and Sold by W. & A. GILBERT, Stationers, 15, Abchurch Lane.

44726

DONKEY BOILER— Description *Upright Gallways tubes*
 Made at *Deptford* by whom made *L. S. N. Co.* when made *1884* where fixed *Shorehold*
 Working pressure *50 lbs.* tested by hydraulic pressure to *100* No. of Certificate _____ fire grate area *21 sq. ft.* description of safety
 valves *direct dead weight* No. of safety valves *2* area of each *7* if fitted with easing gear *yes* if steam from main boilers can
 enter the donkey boiler *yes* diameter of donkey boiler *5.10* length *9.10* description of riveting *double lap*
 Thickness of shell plates *1/2* diameter of rivet holes *3/4* whether punched or drilled *punched* pitch of rivets *2* lap of plating *1 3/4*
 per centage of strength of joint _____ thickness of crown plates *5/8* stayed by *diag stays 1 1/2 dia.*
 Diameter of furnace, top *5. 2 1/2* bottom _____ length of furnace *3. 5* thickness of plates *1/2* description of joint *single lap*
 Thickness of furnace crown plates *5/8* stayed by *fire 1 1/2 dia. stays* working pressure of shell by rules *68 lbs.*
 Working pressure of furnace by rules *77 lbs.* diameter of uptake *1. 2 1/2* thickness of plates *1/2* thickness of water tubes *3/8*

SPARE GEAR. State the articles supplied:—

The foregoing is a correct description,
 Manufacturer.

General Remarks (State quality of workmanship, opinions as to class, &c. *A new pair of boilers have been fitted also new donkey boiler. These boilers have not been surveyed during construction, the material & workmanship appear to be good & were satisfactorily tested with water to double their working pressure.*

Examined cylinders, high pressure found to be in good condition, the low pressure cyl. has been bored out & a cast iron liner together with a new piston fitted. Slides & cyl. face in good condition. Examined, Air, Circulating, feed & bilge pumps & valves & pumping arrangements all in good condition. Crank, thrust & tunnel shafts in good condition.

Vessel placed in dry dock sea connections examined, found good donkey suction, & water service cocks have been fitted above stroke hold plates as per rules. Propeller disconnected, tail shaft drawn examined found in good condition, stern bush renewed & the whole refitted.

The vessel is eligible in my opinion to be marked L.M.C. 2.85.

The amount of Entry Fee .. £ - ; - : - received by me,
 Special .. *9/3/85* £ 3 : 3 : -
 Donkey Boiler Fee .. £ : :
 Certificate (if required) .. £ : : *31. 2 1885*
To be sent as per margin.

Submitted that the vessel is eligible to have and N.B. 85
Geo. E. McPherson
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.
6. 3. 85

Committee's Minute **TUESDAY 10 MARCH 1885**

L.M.C. 2, 85

