

REPORT ON MACHINERY.

8090

No. 8090

No. in Survey held at Reg. Book. Greenock

(Received in London Office 21/11/81)
 Date, first Survey 28th January, 1881 Last Survey 16th Nov 1881

on the S.S. "Cape Clear" Tons 2349.85
1500.77

Master Henderson Built at Greenock When built 1881

Engines made at Greenock By whom made R. Steel & Co. when made 1881

Boilers made at Greenock By whom made Greenock when made 1881

Registered Horse Power 225 Owners A. Lyle & Son Port belonging to Greenock

ENGINES, &c.—

Description of Engines Compound Inverted Direct Acting

Diameter of Cylinders 33 & 40 Length of Stroke 48 No. of Rev. per minute 60 Point of Cut off, High Pressure 27 Low Pressure 30

Diameter of Screw shaft 13 Diameter of Tunnel shaft 12 1/2 Diameter of Crank shaft journals 13 Diameter of Crank pin 13 size of Crank webs 14 1/2 x 9

Diameter of screw 17.0 Pitch of screw 18 to 20 feet No. of blades Four state whether moveable yes total surface 720 feet

No. of Feed pumps Two diameter of ditto 3 1/2 Stroke 48 Can one be overhauled while the other is at work yes

No. of Bilge pumps Two diameter of ditto 3 1/2 Stroke 48 Can one be overhauled while the other is at work yes

Where do they pump from Engine Room & Cargo Holds

No. of Donkey Engines One & One Gwynne Size of Pumps 4 x 9 & 6 Gwynne Where do they pump from Donkey pumps from Sea

Hot well Engine Room & Holds Gwynne from Engine Room & Ballast Tanks

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 one and sizes 4 1/2 Are they connected to condenser, or to circulating pump to circulating pump

How are the pumps worked by crosshead

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 below

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 Ballast Tank & Bilge pipes How are they protected by wood Casement

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 before ship was launched

Is the screw shaft tunnel watertight yes and fitted with a sluice door yes worked from top platform

OILERS, &c.—

Number of Boilers Two Description Round Horizontal Multitubular

Working Pressure 90 lbs Tested by hydraulic pressure to 180 lbs Date of test 19th September 1881

Description of superheating apparatus or steam chest none fitted

Can each boiler be worked separately yes Can the superheater be shut off and the boiler worked separately —

No. of square feet of fire grate surface in each boiler 75 Description of safety valves Direct Spring

No. to each boiler Two area of each valve 23.76 sq 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 5"

Diameter of boilers 12.0 Length of boilers 15.0 description of riveting of shell long. seams double butt Straps circum. seams Double

Thickness of shell plates 1" diameter of rivet holes 1 3/16 whether punched or drilled punched pitch of rivets 5"

Gap of plating 17 Straps per centage of strength of longitudinal joint 76 working pressure of shell by rules 100 lbs

Size of manholes in shell 16 1/2 x 13 size of compensating rings 6 x 7 1/2

No. of Furnaces in each boiler Four outside diameter 4 3/8 length, top 5 1/8 bottom through

Thickness of plates 1/2" steel description of joint double butt strap if rings are fitted yes greatest length between rings 3.3

Working pressure of furnace by the rules 161 lbs

Combustion chamber plating, thickness, sides 1/2" steel back — top 1/2" steel

Pitch of stays to ditto sides 8 x 8 back — top 8 x 8 1/2

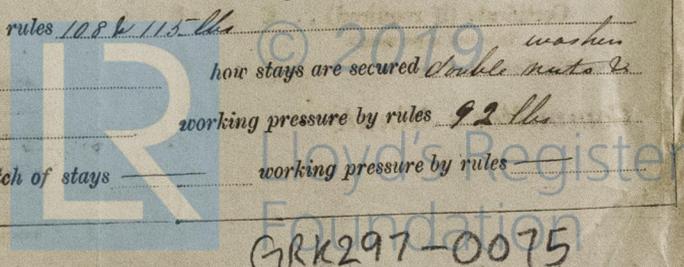
Stays are fitted with nuts or riveted heads Nuts inside & out working pressure of plating by rules 106 lbs for top & 120 lbs for sides

Diameter of stays at smallest part 1 1/4 working pressure of ditto by rules 108 & 115 lbs

End plates in steam space, thickness 7/8 pitch of stays to ditto 17 x 17 how stays are secured double nuts & washers

Working pressure by rules 95 lbs diameter of stays at smallest part 2 3/8 working pressure by rules 92 lbs

Front plates at bottom, thickness 3/4 Back plates, thickness — greatest pitch of stays — working pressure by rules —



Diameter of tubes $3\frac{1}{2}$ pitch of tubes $4\frac{1}{2}$ thickness of tube plates, front $\frac{3}{4}$ back $\frac{1}{16}$ steel
 How stayed *Stay Tubes* pitch of stays 9×9 width of water spaces 6
 Diameter of Superheater or Steam chest _____ length _____
 Thickness of plates _____ description of longitudinal joint _____ diameter of rivet holes _____ pitch of rivets _____
 Working pressure of shell by rules _____ 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 _____ How stayed _____
 Superheater or steam chest; how connected to boiler _____

DONKEY BOILER— Description *Round Upright iron steel*
 Made at *Glasgow* By whom made *R. Steel & Co.* when made *1881*
 Where fixed *above Hatchway* working pressure *50 lbs* Tested by hydraulic pressure to *100 lbs per sq in* No. of Certificate *48*
 Fire grate area *16 sq feet* Description of safety valves *Direct Spring* No. of safety valves *one* area of each *8.3 sq in*
 If fitted with easing gear *yes* If steam from main boilers can enter the donkey boiler *yes if stop valve is open (at 50 lbs)*
 Diameter of donkey boiler *5.6* length *12.6* description of riveting *double & single*
 thickness of shell plates $\frac{7}{16}$ diameter of rivet holes $\frac{13}{16}$ whether punched or drilled *punched*
 pitch of rivets $2\frac{3}{4}$ lap of plating *5* per centage of strength of joint *70*
 thickness of crown plates $\frac{7}{16}$ stayed by *Four 17/8 bar stays & uptake*
 Diameter of furnace, top *4.2* bottom *4.10* length of furnace *4.10*
 thickness of plates $\frac{7}{16}$ description of joint *lap single*
 thickness of furnace crown plates $\frac{7}{16}$ stayed by *bar stays & uptake*
 Working pressure of shell by rules *40 lbs* working pressure of furnace by rules *60 lbs* *reverse stays in furnace 13.2 x 13.2*
 diameter of uptake *18* thickness of plates $\frac{7}{16}$ thickness of water tubes $\frac{3}{8}$ *Four tubes 10 diam*

The foregoing is a correct description,
Robert Steel & Co Manufacturer.

General Remarks (State quality of workmanship, opinions as to class, &c. *The Engine and Boilers*)
were inspected by Mr. Albin during construction, and partly fitted on board, they have been completed under my survey and tested under steam. The Machinery and Boilers are now in good order and safe working condition and are in my opinion of good workmanship and eligible to be noted in the Register Book. LLOYD'S M.C. 11.81

This is submitted that the vessel is eligible to be noted in the Register Book. R. Steel & Co. 21/11/81

The amount of Entry Fee .. £ 3 : : , received by me,
 Special .. £ 31 : 5 : :
 Certificate (if required) .. £ gratis 15/11/1881
 To be sent as per margin.
 (Travelling Expenses, if any, £)

Andrew C. Merrin
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.
 Clyde District

Committee's Minute Tuesday, November, 22nd, 1881.

