

REPORT ON MACHINERY.

7634

No. 4634

No. in Survey held at

Reg. Book.

32 on the

Glasgow
J. & J. "Cady"

Date, first Survey 28th Dec. 1885 Last Survey Sep 18th 1886

Received at London Office FRIDAY 24th Dec 1886
(Number of Visits 52) 2682
Tons 1431

Master Gario Built at Sunderland By whom built Messrs T. R. Oswald & Co When built 1873

Engines made at Glasgow By whom made Messrs J. & J. Thomson when made 1886

Boilers made at " By whom made " when made "

Registered Horse Power 300 Owners Larrinaga & Co Port belonging to Bilbao

ENGINES, &c.—

Description of Engines Compound Inverted direct acting triple expansive

Diameter of Cylinders 24 $\frac{1}{2}$, 30 $\frac{1}{2}$, 64 Length of Stroke 48 No. of Rev. per minute 65 Point of Cut off, High Pressure 33 ^{Index 30 $\frac{1}{2}$} Low Pressure 30 $\frac{1}{2}$

Diameter of Screw shaft 13 Diam. of Tunnel shaft 12 $\frac{1}{2}$ Diam. of Crank shaft journals 13 Diam. of Crank pin 13 size of Crank webs 9 $\frac{1}{2}$ x 14

Diameter of screw 14 ft Pitch of screw 18 ft No. of blades 4 state whether moveable no total surface 4.5 sq ft

No. of Feed pumps two diameter of ditto 4 Stroke 24 Can one be overhauled while the other is at work yes

No. of Bilge pumps two diameter of ditto 4 Stroke 24 Can one be overhauled while the other is at work yes

Where do they pump from bilges of each compartment

No. of Donkey Engines One Size of Pumps 5 dia cyl 10 str 6 Where do they pump from Sea, hotwell and bilges of each compartment

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 dia Are they connected to condenser, or to circulating pump air pump

How are the pumps worked By levers on Low pressure engine

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 Suctions to fore hold 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 August 10th 1886

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

BOILERS, &c.—

Number of Boilers two Description Cylindrical, tubular Whether Steel or Iron Steel

Working Pressure 150 lbs Tested by hydraulic pressure to 300 lbs Date of test June 23rd 1886

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 ✓

No. of square feet of fire grate surface in each boiler 74 sq ft Description of safety valves direct spring No. to each boiler two

Area of each valve 4.04 sq Are they fitted with easing gear yes No. of safety valves to superheater 1 area of each valve ✓

Are they fitted with easing gear ✓ Smallest distance between boilers and bunkers or woodwork 10 Diameter of boilers 12 ft

Length of boilers 16 ft description of riveting of shell long. seams rib riv butt circum. seams rib riv lap Thickness of shell plates 1 $\frac{1}{4}$

Diameter of rivet holes 1 $\frac{1}{16}$ whether punched or drilled drilled pitch of rivets 3 $\frac{1}{2}$ x 6 $\frac{1}{2}$ Lap of plating 14 x 3 straps

Per centage of strength of longitudinal joint 84% working pressure of shell by rules 153 lbs size of manholes in shell 15 x 12

Size of compensating rings 3 x 3 x 2 No. of Furnaces in each boiler four

Outside diameter 44 length, top 6 ft bottom ✓ thickness of plates 9 $\frac{1}{16}$ description of joint corrugated if rings are fitted 3

Greatest length between rings 6 ft working pressure of furnace by the rules 159 lbs combustion chamber plating, thickness, sides 9 $\frac{1}{16}$ back ✓ top 9 $\frac{1}{16}$

of stays to ditto, sides 4 x 4 $\frac{1}{2}$ back ✓ top 9 $\frac{1}{16}$ If stays are fitted with nuts or riveted heads nuts working pressure of plating by rules 184 lbs

Diameter of stays at smallest part 1 $\frac{1}{4}$ screw working pressure of ditto by rules 152 lbs end plates in steam space, thickness 1 $\frac{1}{16}$ radial

of stays to ditto 15 $\frac{1}{2}$ how stays are secured dbl nuts working pressure by rules 150 lbs diameter of stays at smallest part 2 $\frac{3}{4}$ screw working pressure by rules 160 lbs Front plates at bottom, thickness 3 $\frac{1}{4}$ Back plates, thickness ✓

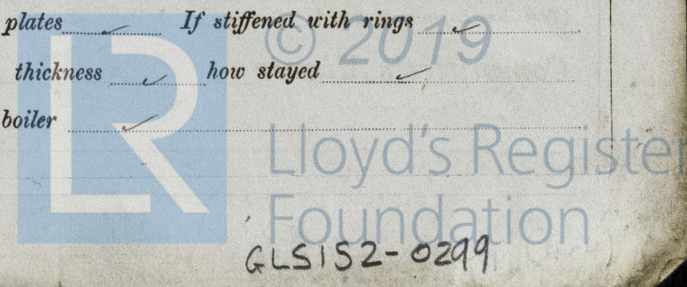
at least pitch of stays ✓ working pressure by rules ✓ Diameter of tubes 3 $\frac{1}{2}$ pitch of tubes 5 x 4 $\frac{3}{4}$ thickness of tube plates, front 15 $\frac{1}{16}$ back 3 $\frac{1}{4}$ how stayed stay tubes pitch of stays 14 $\frac{1}{2}$ x 9 $\frac{1}{2}$ width of water spaces 6

Diameter of Superheater or Steam chest ✓ length ✓ thickness of plates ✓ description of longitudinal joint ✓ diam. 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



GLS152-0299

7634 Gls

DONKEY BOILER— Description *Vertical tubular Iron*
 Made at *Birkenhead* by whom made *Messrs Cochran & Co* when made *1883* where fixed *Stokehold*
 Working pressure *60 lbs* tested by hydraulic pressure to *160 lbs* by *the makers* No. of Certificate *✓* fire grate area *18 1/2 sq ft* description of safety
 valves *direct spring* No. of safety valves *two* area of each *4 1/2 sq ft* if fitted with easing gear *yes* if steam from main boilers can
 enter the donkey boiler *No* diameter of donkey boiler *6 ft* length *14 ft* description of riveting *dbl riv lap*
 Thickness of shell plates *9/16* diameter of rivet holes *13/16* whether punched or drilled *✓* pitch of rivets *3* lap of plating *4*
 per centage of strength of joint *61%* thickness of crown plates *1/2* stayed by *hemispherical*
 Diameter of furnace, top *5 ft* bottom *✓* length of furnace *✓* thickness of plates *7/16* description of joint *S riv lap*
 Thickness of furnace crown plates *1/2* stayed by *hemispherical* working pressure of shell by rules *78 lbs*
 Working pressure of furnace by rules *40 lbs* diameter of uptake *16 1/2* thickness of plates *1/2* thickness of water tubes *3/32*

SPARE GEAR. State the articles supplied:— *One propeller, 2 crosshead bolts & nuts, 2 crank pin bolts & nuts,*
1 pair of crank pin brasses, 1 air pump rod, 1 air pump rod, 2 eccentric straps, 1 set of packing
rings and springs for each piston, and also for H. P. piston slide valve, 1 set of coupling bolts,
2 main bearing bolts, 1 set of feed & bilge pump valves and seats, 20 boiler tubes, 12 cond tubes, assorted
bolts & nuts
 The foregoing is a correct description,
John & James Thomas Manufacturer.

General Remarks (State quality of workmanship, opinions as to class, &c.)

The Engines and main Boilers of this vessel
have been constructed under special Survey, they are of good material and
workmanship, and are now in good working condition, and eligible in
my opinion to be noted in the Register Book *L No 69-86*

The donkey boiler was fitted on board previous to the vessel being
classed in this Society; but it has now been thoroughly examined and found
in good order. The safety valves were also opened up and afterwards adjusted
under steam

It is submitted that this vessel
is eligible to have the notification
of June 9 & 86 recorded. also
of June 9 & 86
of June 9 & 86

24/9/86

The amount of Entry Fee .. £ *3* : - : - received by me,
 Special .. £ *35* : - : -
 Donkey Boiler Fee .. £ - : - : -
 Certificate (if required) .. £ - : - : - *21/9/1886*
 To be sent as per margin.

(Travelling Expenses, if any, £ - *8/-*)

Committee's Minute **FRIDAY 24 SEPT 1886**

J. L. Hindmarsh

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