

# REPORT ON MACHINERY.

No. 5954

No. in Survey held at Reg. Book.

Glasgow

Date, first Survey

(Received at London Office 28th Dec 82)

Oct 18. 81 Last Survey Dec 27. 1882

on the

S.S. City of Cambridge

Tons 3488

Master

David Anderson

Built at

Belfast

When built

1881-82

Engines made at

Glasgow

By whom made

J & T Thomson

when made

1882

Boilers made at

do

By whom made

do

when made

1882

Registered Horse Power

650

Owners

G. Smith & Sons

Port belonging to

Glasgow

## ENGINES, &c.—

Description of Engines

Compound Inverted Surface Condensing

Diameter of Cylinders

50" & 96"

Length of Stroke

60"

No. of Rev. per minute

60

Point of Cut off, High Pressure

40"

Low Pressure

40"

Diameter of Screw shaft

16 1/2"

Diameter of Tunnel shaft

16"

Diameter of Crank shaft journals

17 1/2"

Diameter of Crank pin

17 1/2"

size of Crank webs

Diameter of screw

19" 0"

Pitch of screw

24" 0"

No. of blades

4

state whether moveable

yes

total surface

107 sq. ft.

No. of Feed pumps

2

diameter of ditto

5"

Stroke

30"

Can one be overhauled while the other is at work

yes

No. of Bilge pumps

2

diameter of ditto

6"

Stroke

30"

Can one be overhauled while the other is at work

yes

Where do they pump from

Bilges of Engine Room and all Compartments of Vessel

No. of Donkey Engines

one

Size of Pumps

5 1/2" x 16"

Where do they pump from

Sea. Hotwell.

And Bilges of Engine Room and all Compartments

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

6"

Are they connected to condenser, or to circulating pump

Circulating Pump

How are the pumps worked

By Levers attached to Crosshead of After Engine

Are all connections with the sea direct on the skin of the ship

yes

Are they Valves or Cocks

Stop Valves & Cocks

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

For main Hotwell suction

How are they protected

Wood casing

Are all pipes, cocks, valves, and pumps in connection with the machinery accessible at all times

yes

except in Hoods

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

Before Launching

Is the screw shaft tunnel watertight

yes

and fitted with a sluice door

yes

worked from

Top platform

## BOILERS, &c.—

Number of Boilers

3

Description

Horizontal Multitubular Circular Top & Bottom Flat Sided

Working Pressure

80 lb

Tested by hydraulic pressure to

160 lb

Date of test

22nd Sep 1882

Description of superheating apparatus or steam chest

Vertical Tubes with Mues. Two on each boiler

Can each boiler be worked separately

yes

Can the superheater be shut off and the boiler worked separately

No superheater

No. of square feet of fire grate surface in each boiler

112 sq. ft.

Description of safety valves

Direct Spring

No. to each boiler

2

area of each valve

28.4 in

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 to Deck

Diameter of boilers

12" 3"

Length of boilers

18' 0"

description of riveting of shell long. seams

Double Butt

circum. seams

Double Lap

Thickness of shell plates

11/16"

diameter of rivet holes

15/16"

whether punched or drilled

drilled

pitch of rivets

3 1/2"

Lap of plating

10 1/2"

per centage of strength of longitudinal joint

4/3

working pressure of shell by rules

85 lb

Size of manholes in shell

15" x 12"

size of compensating rings

Angle Iron 3 x 3 1/2"

No. of Furnaces in each boiler

6

outside diameter

8" 4"

length, top

4' 0"

bottom

through

Thickness of plates

7/16"

description of joint

Corrugated

if rings are fitted

—

greatest length between rings

—

Working pressure of furnace by the rules

125 lb

Combustion chamber plating, thickness, sides

7/16" full

back

—

top

1/2"

Pitch of stays to ditto

sides

8 3/4" x 8 1/2"

back

—

top

8" x 9"

If stays are fitted with nuts or riveted heads

nut

working pressure of plating by rules

78 lb

Diameter of stays at smallest part

1 1/8"

working pressure of ditto by rules

80 lb

End plates in steam space, thickness

3/4"

pitch of stays to ditto

18" x 15"

how stays are secured

Nuts & Washers

Working pressure by rules

80 lb

diameter of stays at smallest part

2 3/8"

working pressure by rules

98 lb

Front plates at bottom, thickness

11/16"

Back plates, thickness

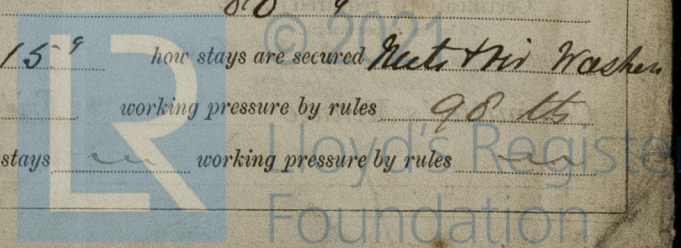
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greatest pitch of stays

—

working pressure by rules

—



Diameter of tubes  $3\frac{3}{4}$ " pitch of tubes  $6" \times 5"$  thickness of tube plates, front  $\frac{11}{16}$ " back  $\frac{5}{8}"$   
How stayed *Tube stays* pitch of stays  $15 \times 10"$  width of water spaces  $6"$   
Diameter of Superheater or Steam chest  $42"$  length  $5' 4"$   
Thickness of plates  $\frac{1}{2}$ " description of longitudinal joint *Lap dr* diameter of rivet holes  $\frac{7}{8}"$  pitch of rivets  $3"$   
Working pressure of shell by rules  $180\text{ lb}$  Diameter of flue  $\frac{11}{16}"$  thickness of plates  $\frac{11}{16}"$   
If stiffened with rings  $\frac{11}{16}"$  distance between rings  $\frac{11}{16}"$  Working pressure by rules  $\frac{11}{16}"$   
End plates of superheater, or steam chest; thickness  $\frac{9}{16}"$  How stayed *Lashed*  
Superheater or steam chest; how connected to boiler *by neck*  
DONKEY BOILER— Description *Multitubular. Flat sided*  
Made at *Glasgow* By whom made *J. & J. Thomson* when made *1882*  
Where fixed *on deck* working pressure  $55\text{ lb}$  Tested by hydraulic pressure to  $110\text{ lb}$  No. of Certificate *9008*  
Fire grate area  $25.7\text{ ft}$  Description of safety valves *double* No. of safety valves *two* area of each  $7\frac{1}{2}\text{ sq in}$   
If fitted with easing gear *yes*  $4\frac{1}{2}"$  If steam from main boilers can enter the donkey boiler *no*  
Diameter of donkey boiler  $6' 6"$  length  $8' 0"$  description of riveting *Lap double*  
thickness of shell plates  $\frac{1}{2}"$  diameter of rivet holes  $\frac{13}{16}"$  whether punched or drilled *punched*  
pitch of rivets  $3"$  lap of plating  $3\frac{3}{4}"$  per centage of strength of joint  $68$   
thickness of crown plates  $\frac{11}{16}"$  stayed by  $\frac{11}{16}"$   
Diameter of furnace, top  $30"$  bottom  $\frac{11}{16}"$  length of furnace  $5' 6"$   
thickness of plates  $\frac{7}{16} \times \frac{1}{2}"$  description of joint *Lap double riveted*  
thickness of furnace crown plates  $\frac{7}{16}"$  stayed by  $\frac{11}{16}"$   
Working pressure of shell by rules  $67\text{ lb}$  working pressure of furnace by rules  $103\text{ lb}$   
diameter of uptake  $\frac{11}{16}"$  thickness of plates  $\frac{11}{16}"$  thickness of water tubes  $\frac{11}{16}"$

The foregoing is a correct description,

Manufacturer.

*John James Munro*

General Remarks (State quality of workmanship, opinions as to class, &c. *The above Engines and Boilers have been surveyed during construction. The material and workmanship are of good description. The Main Boilers are constructed of steel which has been tested as required by the rules. The whole of the machinery has been tested under steam and found satisfactory. And is eligible in my opinion to be noted in the Society's Register Book "LLOYD'S M.C." 12-82*

*It is submitted that this vessel is eligible to have the registration & L.M.C. recorded Jm 28/12/82*

The amount of Entry Fee . £  $3 : 0 : 0$  received by me, *Jm*

Special . £  $52 : 10 : 0$

Certificate (if required) . £ *gratis 26/12/82*

To be sent as per margin.

(Travelling Expenses, if any, £  $3 : 3 : 0$  sent *to Glasgow 26/12/82*

Committee's Minute

Friday, 29th December, 1882.

*+ Jm*

*Jm Chegan*

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

*Walter Bestwick*

Lloyd's Register

LRF/PUN/BCL52/7R