

REPORT ON MACHINERY.

No. 4506

No. in Survey held at
Reg. Book.

Glasgow

Date, first Survey

28th Dec 1885

Received at London Office

15th June, 1886.

Last Survey

May 29 1886

(Number of Visits 3)

1893

Tons 2472

968 on the

S.S. "State of Pennsylvania"

Master

Mann

Built at

Glasgow

By whom built

London & Glasgow Coy

When built 1873-2

Engines made at

Glasgow

By whom made

London & Glasgow Coy

when made 1873

Boilers made at

"

By whom made

J & W Henderson & Coy

when made 1886

Registered Horse Power

400

Owners

The State Steamship Coy Ltd

Port belonging to

Glasgow

ENGINES, &c.—

Description of Engines Compound Inverted

Diameter of Cylinders 46" & 82" Length of Stroke 45" No. of Rev. per minute

Point of Cut off, High Pressure Variable Low Pressure

Diameter of Screw shaft 14 1/2" Diam. of Tunnel shaft

Diam. of Crank shaft journals 14 1/2"

Diam. of Crank pin 14 1/2" size of Crank web

Diameter of screw

Pitch of screw

No. of blades

state whether moveable total surface

No. of Feed pumps Two

diameter of ditto 6 1/8"

Stroke 12"

Can one be overhauled while the other is at work Yes

No. of Bilge pumps Two

diameter of ditto 8"

Stroke 10"

Can one be overhauled while the other is at work Yes

Where do they pump from all Compartments

No. of Donkey Engines One

Size of Pumps

Where do they pump from 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

Are they connected to condenser, or to circulating pump Circulating

How are the pumps worked By Levers

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 near to lead line

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 Bilge pipes to Stokehold

How are they protected By 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 May 1886

Is the screw shaft tunnel watertight Yes

and fitted with a sluice door Yes

worked from Upper platform

BOILERS, &c.—

Number of Boilers Two

Description

Round Horizontal

Whether Steel or Iron

Steel

Working Pressure 90 lbs

Tested by hydraulic pressure to

3180 lbs

Date of test

28th April 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 63 ft

Description of safety valves

Direct Spring

No. to each boiler Two

Area of each valve 30.67"

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 with stokehold

Diameter of boilers 18" & 9"

Length of boilers 14' 4 1/2"

description of riveting of shell long. seams

Double riveted

circum. seams Double riveted

Thickness of shell plates 3/8"

Diameter of rivet holes 1 3/16"

whether punched or drilled Drilled

pitch of rivets 4" & 3 1/2"

Lap of plating Straps 26" x 18"

Per centage of strength of longitudinal joint 83%

working pressure of shell by rules 102 lbs

size of manholes in shell 16" x 12"

Size of compensating rings doubling pieces

No. of Furnaces in each boiler six

Outside diameter 3' 3"

length, top 6' 8"

bottom 5' 8"

thickness of plates 9/16"

description of joint Corrugated

if rings are fitted

Greatest length between rings

working pressure of furnace by the rules 102 lbs

combustion chamber plating, thickness, sides 1/32" back 1/32" top 1/32"

Pitch of stays to ditto, sides 8" x 8"

back

top 8" x 8"

If stays are fitted with nuts or riveted heads nuts

working pressure of plating by

rules 105 lbs

Diameter of stays at smallest part 1 1/4"

working pressure of ditto by rules 115 lbs

and plates in steam space, thickness 1/16"

diameter of stays at

Pitch of stays to ditto 10" x 10"

smallest part 2 1/4"

how stays are secured By double nuts

working pressure by rules 90 lbs

diameter of stays at

Greatest pitch of stays

working pressure by rules

Diameter of tubes 3 1/2"

pitch of tubes 4 3/4" x 4 3/4"

thickness of tube

plates, front 1 1/16"

back 1/16"

how stayed By tubes

pitch of stays 14 1/4" x 9 1/2"

width of water spaces 6"

Diameter of Superheater or Steam chest None

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

(State of Report to also sent on the Hull of the Ship)

(Form No. 8-700-2/184-Transfer Ink)

7506 g/s

DONKEY BOILER— Description *Round Horizontal*
Made at *Glasgow* by whom made *J & W Henderson & Co* when made *1886* where fixed *in Stockholm*
Working pressure *45 lbs* tested by hydraulic pressure to *150 lbs* No. of Certificate *1688* fire grate area *22.5 sq ft* description of safety valves *Direct Spring* No. of safety valves *Two* area of each *4"* if fitted with easing gear *Yes* if steam from main boilers enter the donkey boiler *no* diameter of donkey boiler *8' 6"* length *8' 4"* description of riveting *Double butt straps double riveted*
Thickness of shell plates *3/16"* diameter of rivet holes *13/16"* whether punched or drilled *Drilled* pitch of rivets *1 1/4"* lap of plating *Straps 3/16"*
per centage of strength of joint *80%* thickness of ~~inner~~ plates *15/16"* stayed by *Unwelded Stays (iron) 1 1/8" dia 1 1/4" x 1 1/4"*
Diameter of furnace *2' 3"* bottom *—* length of furnace *5' 9"* thickness of plates *3/16"* description of joint *Welded*
Thickness of furnace crown plates *13/16"* stayed by *Screw Stays 1 1/2" dia, riveted 1 3/4" x 1 3/4"* working pressure of shell by rules *44 lbs*
Working pressure of furnace by rules *118 lbs* diameter of uptake *—* thickness of plates *—* thickness of water tubes *—*

SPARE GEAR. State the articles supplied:— *2 main bearing bolts, 4 Coupling bolts 2 bolts for TP + 2 bolts for P Eccentric straps 2 pairs Eccentric rod brasses 2 for TP + P gear 3 Bilge pump bars and one seat 3 Feed pump valves and one seat 1 circulating pump rod with 2 bolts & guide 1 pair crank pin brasses & 3 Half cranks for forward & after Engine Shaft Coupling for Gummel*
The foregoing is a correct description, *Shutting with bolts and keys complete a large assortment of bolts, studs, springs, condensers, tubes &c*
Manufacturer.

General Remarks (State quality of workmanship, opinions as to class, &c. *The Engines of this vessel have all been thoroughly overhauled & repaired a new Low pressure cylinder has been fitted, all pumps pipes & connections overhauled Sea cocks in Stockholm moved to upper turn of bilge. New propeller Shaft fitted. Crank Shaft bearings adjusted & some of the brasses renewed.*

Main & Donkey Boilers. New

The fitting of the new Boilers and repairs to the Engines have been satisfactorily carried out by Messrs J & W Henderson and they are now in good order & safe working condition reliable in my opinion to be noted in the Register Book

Lloyds M.C 5/86 (New Boilers)

This is submitted that this vessel is eligible to have the notification sub 5.56 + M.B 86 recorded

The amount of Entry Fee .. £ .. : .. : received by me,
Special .. £ 5 : 5 :
Main & Donkey Boiler Fee .. £ 12 : 12 :
Certificate (if required) .. £ .. : .. : 11/12/6/1886
To be sent as per margin.
(Travelling Expenses, if any, £ .. : .. :)

Committee's Minute

FRIDAY 18 JUNE 1886

+ M.B 86 + M.C 5/86

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

Chy de District

Lloyd's Register Foundation