

# REPORT ON MACHINERY.

No. 6510

No. in Survey held at *Glasgow*

Reg. Book.

Date, first Survey *June 20<sup>th</sup> 1883* Last Survey *3<sup>rd</sup> May 1884*

Received at London Office *Rec'd 6th May 1884*

Number of Visits *44* *5058*

Tons *3389*

on the *Screw Steamer "Vancouver"*

Master *E. J. Lindsay* Built at *Glasgow* By whom built *C. Connell & Co* When built *1884*

Engines made at *Glasgow* By whom made *John & James Thomson* when made *1884*

Boilers made at *do* By whom made *do* when made *do*

Registered Horse Power *1000* Owners *Mississippi & Dominion Steam Ship Co* Port belonging to *Liverpool*

## ENGINES, &c.—

Description of Engines *Compound Inverted Direct Acting*

Diameter of Cylinders *58" 80" 80"* Length of Stroke *66"* No. of Rev. per minute *60* Point of Cut off, High Pressure *Var* Low Pressure *2*

Diameter of Screw shaft *19 1/8"* Diam. of Tunnel shaft *18 3/4"* Diam. of Crank shaft journals *20"* Diam. of Crank pin *20"* size of Crank webs *14 1/2"* Built *1884*

Diameter of screw *20-6"* Pitch of screw *29-0"* No. of blades *4* state whether moveable *yes* total surface *132 sq. ft*

No. of Feed pumps *two* diameter of ditto *4"* Stroke *30"* Can one be overhauled while the other is at work *yes*

No. of Bilge pumps *two* diameter of ditto *4"* Stroke *30"* Can one be overhauled while the other is at work *yes*

Where do they pump from *all Compartments*

No. of Donkey Engines *two* Size of Pumps *5 1/2" x 11" stroke* Where do they pump from *Sea, Hotwell and Bilges*

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 *two* and sizes *6"* Are they connected to condenser, or to circulating pump *air pump*

How are the pumps worked *by levers (Circulating pumps by separate Engines)*

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 *for bilge suction* How are they protected *wood flooring*

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 *before launching*

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

## BOILERS, &c.—

Number of Boilers *Six* Description *Single & double ended* Whether Steel or Iron *Steel*

Working Pressure *90 lbs.* Tested by hydraulic pressure to *180 lbs.* Date of test *14<sup>th</sup> January 1884*

Description of superheating apparatus or steam chest *Horizontal dome*

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 *D.E. 129.34 ft* Description of safety valves *direct spring* No. to each boiler *S.E. 2.*

Area of each valve *S.E. 17.7" D.E. 21.6"* Are they fitted with easing gear *yes* No. of safety valves to superheater *1* area of each valve *D.E. 3.*

Are they fitted with easing gear *yes* Smallest distance between boilers and bunkers or woodwork *15"* Diameter of boilers *15'-0"*

Length of boilers *S.E. 10'-0" D.E. 17'-9 1/4"* description of riveting of shell long. seams *double butt* circum. seams *double lap* Thickness of shell plates *15/16"*

Diameter of rivet holes *9/16"* whether punched or drilled *drilled* pitch of rivets *5"* Lap of plating *14" straps*

Per centage of strength of longitudinal joint *75* working pressure of shell by rules *100 lbs.* size of manholes in shell *16" x 12 1/2"*

Size of compensating rings *Angle Iron 3 1/2" x 3 1/2" x 5/8"* No. of Furnaces in each boiler *S.E. 3.*

Outside diameter *48"* length, top *7'-0"* bottom *5'-9 1/2"* thickness of plates *3/16"* description of joint *welded* if rings are fitted *yes*

Greatest length between rings *corrugated* working pressure of furnace by the rules *104* combustion chamber plating, thickness, sides *15"* back *15"* top *19"*

Pitch of stays to ditto, sides *1/2" x 8"* back *8" x 8"* top *1/2" x 8"* If stays are fitted with nuts or riveted heads *Nuts* working pressure of plating by rules *105* Diameter of stays at smallest part *1 1/4"* working pressure of ditto by rules *115* end plates in steam space, thickness *15/16" x 13/16"*

Pitch of stays to ditto *16" x 16" x 16 1/2"* how stays are secured *nut & wash* working pressure by rules *104 lbs.* diameter of stays at smallest part *S.E. 2 1/2" D.E. 2 3/8"* working pressure by rules *114 lbs.* Front plates at bottom, thickness *1 1/2"* Back plates, thickness *3/4"*

Greatest pitch of stays *15/16"* working pressure by rules *114 lbs.* Diameter of tubes *3 1/2"* pitch of tubes *4 3/4"* thickness of tube plates, front *15/16"* back *3/4"* how stayed *stayed* pitch of stays *9 1/2" x 14 1/2"* width of water spaces *6"*

Diameter of Superheater or Steam chest *3'-9"* length *S.E. 9'-0" x 3'-0" dia* thickness of plates *9/16" x 5/8"* description of longitudinal joint *lap* diam. of rivet holes *13/16"*

Pitch of rivets *2 5/8"* working pressure of shell by rules *320* diameter of flue *—* thickness of plates *—* If stiffened with rings *yes*

Distance between rings *—* working pressure by rules *—* end plates of superheater, or steam chest; thickness *5/8"* how stayed *One Rod Stay*

*2 3/4" dia through centre of dishes* Superheater or steam chest; how connected to boiler *by welded joints*

GLS149-0135

Lloyd's Register Foundation

# 2. DONKEY BOILERS

Description

Cochran's Patent

6510 g/s

Made at Birkenhead by whom made Cochran & Co when made 1884 where fixed on deck  
 Working pressure 60 lbs tested by hydraulic pressure to 120 lbs No. of Certificate 416 fire grate area 13 ft description of safety  
 valves Direct Spring No. of safety valves One area of each 7" if fitted with easing gear yes if steam from main boilers can  
 enter the donkey boiler no diameter of donkey boilers 5'-3" length 11'-9" description of riveting Single & double  
 Thickness of shell plates 3/8" diameter of rivet holes 3/4" whether punched or drilled punched pitch of rivets 2 1/2" lap of plating 4 1/2"  
 per centage of strength of joint 70 thickness of crown plates 3/8" stayed by hemispherical  
Radius of furnace, top 2'-0" bottom 4'-0" length of furnace 4' thickness of plates 3/8" description of joint Single riv. lap.  
 Thickness of furnace crown plates 3/8" stayed by hemispherical working pressure of shell by rules 64.36  
 Working pressure of furnace by rules 93 lbs diameter of uptake 14" thickness of plates 3/8" thickness of water tubes —

## SPARE GEAR.

State the articles supplied:—

Top and Bottom End Bolts. Main Bearing  
Bolts, One Set Coupling Bolts. Feed, Bilge and Donkey Valves  
Valve Spindle. Bolts, Nuts and Iron assorted.

The foregoing is a correct description,

John & James Thomson Manufacturers

## General Remarks

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

The above mentioned  
Engines and Boilers have been built under special  
Survey and are now completed onboard in a satisfactory  
manner. The Machinery is now in my opinion  
in a safe and good working condition and  
eligible to be noted in the Register Book.

\*L.M.C. 5.84.

*This submitted that this  
 vessel is eligible to have  
 the notification of L.M.C.  
 recorded J.M. 6/5/84*

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

Special ... £ 40 : 0 : 0

Donkey Boiler Fee ... £ — : — : —

Certificate (if required) ... £ gratis

To be sent as per margin.

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

Committee's Minute

TUESDAY 6 MAY 1884

Engineer Surveyor to Lloyd's Register of British & Foreign Ships

Glasgow.

Lloyd's Register  
Foundation