

REPORT ON MACHINERY.

Port of *Glasgow*

MON. 30 APR 1900

No. in Survey held at
Reg. Book.*Glasgow*Date, first Survey *8 August 99* Last Survey *19 April 1900*(Number of Visits *13*)

on the

*SS. Cambrian*Tons { Gross *933.77*
Net *439.34*

Master

Matthews

Built at

Glasgow

By whom built

*MacKie & Thomson*When built *1900*

Engines made at

Glasgow

By whom made

*A. Stephen & Sons*when made *1900*

Boilers made at

Glasgow

By whom made

*A. Stephen & Sons*when made *1900*

Registered Horse Power

Owners

Hawthorn Brothers & Co. Ltd.

Port belonging to

*London*Horse Power as per Section 28 *108*Is Refrigerating Machinery fitted *no*Is Electric Light fitted *no*

VES, &c.—Description of Engines

*Triple expansion*No. of Cylinders *three*No. of Cranks *3*

Cylinders *18, 29, 48* Length of Stroke *33"* Revs. per minute *105* Dia. of Screw shaft *as per rule 9.2*
 as fitted *8.3* Dia. of Crank shaft journals *as per rule 8.76* as fitted *9* Dia. of Crank pin *9"* Size of Crank webs *11 1/2 x 6"* Dia. of thrust shaft under
 of Tunnel shaft *as fitted 8 1/2* Dia. of screw *11-0"* Pitch of screw *12-6"* No. of blades *4* State whether moveable *no* Total surface *37.5*
 of Thrust shaft *as fitted 9"* Dia. of screw *11-0"* Pitch of screw *12-6"* No. of blades *4* State whether moveable *no* Total surface *37.5*

No. of Feed pumps *two* Diameter of ditto *3"* Stroke *17"* Can one be overhauled while the other is at work *yes*
 No. of Bilge pumps *two* Diameter of ditto *3"* Stroke *17"* Can one be overhauled while the other is at work *yes*
 No. of Donkey Engines *one* Sizes of Pumps *duplex 3 1/2 x 6" plate* No. and size of Suctions connected to both Bilge and Donkey pumps
 in Engine Room *three 2 1/2"* In Holds, &c. *one 2 1/2" off two 2 1/2" forward*

No. of bilge injections *one* sizes *4"* Connected to condenser, or to circulating pump *pump* Is a separate donkey suction fitted in Engine room & size *yes 2 1/2"*
 Are all the bilge suction pipes fitted with roses *yes* Are the roses in Engine room always accessible *yes* Are the sluices on Engine room bulkheads always accessible *no*
 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 *none* How are they protected *—*

Are all pipes, cocks, valves, and pumps in connection with the machinery and all boiler mountings accessible at all times *yes*
 Are the bilge suction pipes, cocks, and valves arranged so as to prevent any communication between the sea and the bilges *yes*
 When were stern tube, propeller, screw shaft, and all connections examined in dry dock *by launch* Is the screw shaft tunnel watertight *yes*
 Is it fitted with a watertight door *yes* worked from *top platform*

OILERS, &c.— (Letter for record *S*) Total Heating Surface of Boilers *2686 sq ft* Is forced draft fitted *no*
 No. and Description of Boilers *two cylindrical return tube* Working Pressure *170 lbs* Tested by hydraulic pressure to *340*

Date of test *19/9/99* Can each boiler be worked separately *yes* Area of fire grate in each boiler *35 1/2 sq ft* No. and Description of safety valves to
 each boiler *one pair direct spring* Area of each valve *4.43 sq in* Pressure to which they are adjusted *175 lbs* Are they fitted with easing gear *yes*
 Smallest distance between boilers or uptakes and bunkers or woodwork *12"* Mean dia. of boilers *12-0* Length *9-10 1/2* Material of shell plates *steel*
 Thickness *13/16* Range of tensile strength *29,132* Are they welded or flanged *no* Descrip. of riveting: cir. seams *double lap* long. seams *butt*

Diameter of rivet holes in long. seams *1"* Pitch of rivets *7 1/4* Lap of plates or width of butt straps *15"*
 Per centages of strength of longitudinal joint rivets *87.5* Working pressure of shell by rules *175* Size of manhole in shell *16 x 12"*
 plate *86.2*

Size of compensating ring *flanged* No. and Description of Furnaces in each boiler *2 duplex* Material *steel* Outside diameter *46"*
 Length of plain part *top 1 1/2* Thickness of plates *bottom 3/4* Description of longitudinal joint *welded* No. of strengthening rings *—*

Working pressure of furnace by the rules *175* Combustion chamber plates: Material *steel* Thickness: Sides *3/8* Back *1/2* Top *3/8* Bottom *3/8*
 Pitch of stays to ditto: Sides *8 x 8 1/2* Back *8 x 8 1/2* Top *8 x 8 1/2* If stays are fitted with nuts or riveted heads *nuts* Working pressure by rules *188.170*

Material of stays *steel* Diameter at smallest part *1.78"* Area supported by each stay *71 sq in* Working pressure by rules *170 lbs* End plates in steam space:
 Material *steel* Thickness *1"* Pitch of stays *16 x 16* How are stays secured *2 nuts* Working pressure by rules *175 lbs* Material of stays *steel*

Diameter at smallest part *4.36* Area supported by each stay *256 sq in* Working pressure by rules *170 lbs* Material of Front plates at bottom *steel*
 Thickness *13/16* Material of Lower back plate *steel* Thickness *3/4* Greatest pitch of stays *14"* Working pressure of plate by rules *415 lbs*

Diameter of tubes *3 1/2* Pitch of tubes *4 1/2 x 4 1/2* Material of tube plates *steel* Thickness: Front *13/16* Back *13/16* Mean pitch of stays *9"*
 Pitch across wide water spaces *4 1/2* Working pressures by rules *292* Girders to Chamber tops: Material *steel* Depth and
 thickness of girder at centre *6 3/8 x 3/4 double* Length as per rule *25 1/2"* Distance apart *8"* Number and pitch of Stays in each *(2) 8 1/2"*

Working pressure by rules *177* Superheater or Steam chest; how connected to boiler *none* Can the superheater be shut off and the boiler worked
 separately *—* Diameter *—* Length *—* Thickness of shell plates *—* Material *—* Description of longitudinal joint *—* Diam. of rivet
 holes *—* Pitch of rivets *—* Working pressure of shell by rules *—* Diameter of flue *—* Material of flue plates *—* Thickness *—*

If stiffened with rings *—* Distance between rings *—* Working pressure by rules *—* End plates: Thickness *—* How stayed *—*
 Working pressure of end plates *—* Area of safety valves to superheater *—* Are they fitted with easing gear *—*

DONKEY BOILER— No. _____ Description *man*

Made at _____ By whom made _____ When made _____ Where fixed _____

Working pressure _____ tested by hydraulic pressure to _____ No. of Certificate _____ Fire grate area _____ Description of safety valves _____

No. of safety valves _____ Area of each _____ Pressure to which they are adjusted _____ If fitted with easing gear _____ If steam from main boilers can enter the donkey boiler _____

Dia. of donkey boiler _____ Length _____ Material of shell plates _____ Thickness _____ Range of tensile strength _____ Descrip. of riveting long. seams _____ Dia. of rivet holes _____ Whether punched or drilled _____ Pitch of rivets _____

Lap of plating _____ Per centage of strength of joint _____ Rivets _____ Thickness of shell crown plates _____ Radius of do. _____ No. of Stays to do. _____

Dia. of stays _____ Diameter of furnace Top _____ Bottom _____ Length of furnace _____ Thickness of furnace plates _____ Description _____

joint _____ Thickness of furnace crown plates _____ Stayed by _____ Working pressure of shell by rules _____

Working pressure of furnace by rules _____ Diameter of uptake _____ Thickness of uptake plates _____ Thickness of water tubes _____

SPARE GEAR. State the articles supplied:— *As required by the rules and in addition one span propeller*

The foregoing is a correct description,
Alro. Stephen Sons Manufacturer.

Dates of Survey while building { During progress of work in shops— 1899:— Aug. 8. 24. 31. Sep. 18. 19. Oct. 19. 30. Nov. 22.
 { During erection on board vessel— 1900:— Feb. 28. Mar. 27. Apr. 4. 10. 19.
 Total No. of visits *13.*

Is the approved plan of main boiler forwarded herewith _____
 " " " donkey " " "

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

These engines and boilers have been built under special survey, the materials and workmanship are of good description, they have been well fitted on board and tried under steam.

*In my opinion this machinery is eligible to have notification of **LMC 4. 1900** in the Register Book*

Glasgow.

Certificate (if required) to be sent to _____

It is submitted that this vessel is eligible for **LMC 4.00**

CM
30. 4. 00

ES
30. 4. 00

The amount of Entry Fee.. £ *2* : : When applied for, *30. 4. 00*
 Special .. £ *23* : *14* : :
 Donkey Boiler Fee .. £ : : When received, *30. 4. 00*
 Travelling Expenses (if any) £ : : *30. 4. 00*

Committee's Minute

Assigned

TUES. 1 MAY 1900

+ Lmb 4.00

MACHINERY CERTIFICATE WRITTEN.

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



© 2019
 Lloyd's Register Foundation