

# REPORT ON MACHINERY.

No. 21354

Port of Glasgow

No. in Survey held at Glasgow

Date, first Survey 7<sup>th</sup> July

Received at London Office JULY 8 DEC 1903

i. Book.

Last Survey 30<sup>th</sup> Nov 1903

on the

S.S. "FRATERNITY."

(Number of Visits 22)

ster

Built at Port Glasgow

By whom built

Murdoch & Murray

Gross Tons

Net Tons

When built 1903

ines made at

Glasgow

By whom made

Lees, Anderson & Co Ltd

when made 1903

lers made at

Glasgow

By whom made

Lees, Anderson & Co Ltd

when made 1903

gistered Horse Power

Owners Wholesale Co-operative Society

Port belonging to Manchester

n. Horse Power as per Section 28 116

Is Refrigerating Machinery fitted

No

Is Electric Light fitted

Yes

GINES, &c.—Description of Engines

Triple expansion—Screw

No. of Cylinders 3

No. of Cranks 3

a. of Cylinders

16", 27", 41 3/4"

Length of Stroke 30"

Revs. per minute 90

Dia. of Screw shaft

as per rule 9.49"

Material of screw shaft iron

the screw shaft fitted with a continuous liner the whole length of the stern tube

no

Is the after end of the liner made water tight

the propeller boss

yes

If the liner is in more than one length are the joints burned

yes

If the liner does not fit tightly at the part

between the bearings in the stern tube, is the space charged with a plastic material insoluble in water and non-corrosive

ers are fitted, is the shaft lapped or protected between the liners

no liners, bederoval's patent

Length of stern bush 3' 7" white metal

a. of Tunnel shaft

as per rule 8.07"

Dia. of Crank shaft journals

as per rule 8.48"

Dia. of Crank pin

8 1/2"

Size of Crank webs

6" thick

Dia. of thrust shaft under

lars

8 1/2"

Dia. of screw 11" 0"

Pitch of screw 14" 0"

No. of blades 4

State whether moveable

no

Total surface

36 sq. ft.

a. of Feed pumps

2 Woodsons

Diameter of ditto 5"

Stroke 12"

Can one be overhauled while the other is at work

yes

a. of Bilge pumps

2

Diameter of ditto 3"

Stroke 16"

Can one be overhauled while the other is at work

yes

a. of Donkey Engines

3

Sizes of Pumps

6" x 6" x 6" duplex

No. and size of Suctions connected to both Bilge and Donkey pumps

In Holds, &c.

Two in each No 1 + 2 holds

Engine Room

Two

2 1/4" dia

4" x 2 3/4" x 6" simple

Is a separate donkey suction fitted in Engine room & size

yes 2 1/4"

+ one in after hold & tunnel well

all 2 1/4" dia

Centrifugal

Connected to condenser, or to circulating pump

pump

Is a separate donkey suction fitted in Engine room & size

yes 2 1/4"

a. of bilge injections

1 sizes 4"

Connected to condenser, or to circulating pump

pump

Is a separate donkey suction fitted in Engine room & size

yes 2 1/4"

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

none

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

yes

Are they Valves or Cocks

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

awash

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

How are they protected

yes

What pipes are carried through the bunkers

none

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

before 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

1960 sq. ft.

Is forced draft fitted

no

No. and Description of Boilers

One single ended

Working Pressure

180 lbs

Tested by hydraulic pressure to

360 lbs

Date of test

2/11/03

Can each boiler be worked separately

yes

Area of fire grate in each boiler

61.75 sq. ft.

No. and Description of safety valves to

each boiler

2 patent spring

Area of each valve

5.94 sq. in.

Pressure to which they are adjusted

185 lbs

Are they fitted with easing gear

yes

Smallest distance between boilers or uptakes and bunkers or woodwork

14"

Mean dia. of boilers

14" 3"

Length

10" 10"

Material of shell plates

steel

Thickness

1 3/16"

Range of tensile strength

28 to 32

Are they welded or flanged

no

Descrip. of riveting: cir. seams

double

long. seams

treble

Diameter of rivet holes in long. seams

1 5/16"

Pitch of rivets

8 3/4"

Lap of plates or width of butt straps

19 1/2"

Per centages of strength of longitudinal joint

rivets 96

plate 85

Working pressure of shell by rules

184 lbs

Size of manhole in shell

12" x 16"

Size of compensating ring

McNeils

No. and Description of Furnaces in each boiler

3 Deighton

Material

steel

Outside diameter

46 1/4"

Length of plain part

top 9 1/2"

Thickness of plates

9 1/16"

Description of longitudinal joint

welded

No. of strengthening rings

yes

Working pressure of furnace by the rules

190 lbs

Combustion chamber plates: Material

steel

Thickness: Sides

3/4"

Back

5/8"

Top

1/16"

Pitch of stays to ditto: Sides

9" x 9"

Back

8" x 9 1/8"

Top

9" x 9 1/2"

If stays are fitted with nuts or riveted heads

nuts

Working pressure by rules

190 lbs

Material of stays

steel

Area at smallest part

2.03 sq. in.

Area supported by each stay

85.5 sq. in.

Working pressure by rules

214 lbs

End plates in steam space:

Material

steel

Thickness

1 1/4"

Pitch of stays

19" x 24"

How are stays secured

nuts

Working pressure by rules

187 lbs

Material of stays

steel

Area at smallest part

8.48 sq. in.

Area supported by each stay

456 sq. in.

Working pressure by rules

186

Material of Front plates at bottom

steel

Thickness

1 1/16"

Material of Lower back plate

steel

Thickness

7/8"

Greatest pitch of stays

14 1/4" x 8"

Working pressure of plate by rules

189 lbs

Diameter of tubes

3 1/4"

Pitch of tubes

4 3/8" x 4 3/8"

Material of tube plates

steel

Thickness: Front

1 1/16"

Back

25/32"



DONKEY BOILER— No. *one* Description *Horizontal tubular, single ended*  
Made at *Glasgow* By whom made *Lees, Anderson & Co* When made *1903* Where fixed in *hold*  
Working pressure *80* lbs tested by hydraulic pressure to *160* lbs No. of Certificate *6805* Fire grate area *10* <sup>sq ft</sup> Description of safety valves *Patent spring*  
No. of safety valves *one* Area of each *5.94* Pressure to which they are adjusted *85* lbs If fitted with easing gear *yes* If steam from main boilers can enter the donkey boiler *no* Dia. of donkey boiler *6* " Length *6* " 9 " Material of shell plates *steel* Thickness *13/32* " Range of tensile strength *28-32* Descrip. of riveting long. seams *double (lap)* Dia. of rivet holes *13/16* " Whether punched or drilled *drilled* Pitch of rivets *2* " Lap of plating *4* " Per centage of strength of joint *79* Rivets *79* Thickness of shell *end* plates *9/16* " Radius of do. *Pitch* No. of Stays to do. *12* x *10* 1/4 " Area *1.5* " Diameter of furnace *Top 33* " Bottom *✓* Length of furnace *5* " 14 " Thickness of furnace plates *13/32* " Description of joint *welded* Thickness of furnace crown plates *13/32* " Stayed by *✓* Working pressure of shell by rules *87* lbs.  
Working pressure of furnace by rules *84* lbs Diameter of *tubes 2 1/2* " Thickness of *tube* plates *9/16* " Thickness of *stay* tubes *1/4* "

SPARE GEAR. State the articles supplied:— *Two top end & two bottom end connecting rod bolts, two main bearing bolts, one set of coupling bolts, and one set of feed & bilge pump valves. etc.*

The foregoing is a correct description,

Manufacturer.

Dates { During progress of work in shops— *1903: July 7, 28, 31. Augt 6, 11. Sept 1, 10, 29. Oct 5, 13, 22, 28. Nov 2.*  
of Survey { During erection on board vessel— *6, 11, 13, 14, 16, 20, 23, 30.*  
while building { Total No. of *s 21*

Is the approved plan of main boiler forwarded herewith *yes.*

" " " donkey " " " *yes.*

General Remarks (State quality of workmanship, opinions as to class, &c. *The machinery of this vessel has been constructed under Special Survey the materials and workmanship are of good quality, it has been securely fitted on board, tried under steam & found satisfactory.*

*In my opinion it is eligible to be classed in the Register Book with the notation of +L.M.C. II. 03.*

It is submitted that  
this vessel is eligible for  
THE RECORD

*ILM.C II. 03 ELEC: LIGHT.*

*Ans.*  
*8.12.03.*

*Ans.*  
*8.12.03*

The amount of Entry Fee.. £ *2* : *0* :  
Special .. .. £ *17* : *8* :  
Donkey Boiler Fee .. .. £ *✓* : :  
Travelling Expenses (if any) £ *✓* : :  
When applied for, *7.12.1903*  
When received, *9.12.03*

*J.W. Dimmock*  
Engineer/Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute

*Glasgow 7-DEC 1903*

Assigned

*+ L.M.C. II. 03.*

*When fee is paid*

WRITTEN 9.12.03  
MACHINERY CERTIFICATE



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Foundation