

## REPORT ON MACHINERY.

No. 24630

Port of

Sunderland

Received at London Office

FRI. 21 OCT 1910

No. in Survey held at  
Reg. Book.

on the

Sunderland  
S S Umona

Date, first Survey

31 March

Last Survey

11 10 - 1910.

(Number of Visits 23)

Master

Mitchell

Built at

Sunderland

By whom built

Messrs Sir J. Laing &amp; Sons Ltd

Gross 375.3

Net 238.8

When built 1910

Engines made at

Sunderland

By whom made

Messrs G. Clark Ltd

No 932.

when made

1910

Boilers made at

do

By whom made

do

do

when made

1910

Registered Horse Power

Owners

Messrs Bullard, King &amp; Co

Port belonging to

London

Nom. Horse Power as per Section 28

494.

Is Refrigerating Machinery fitted for cargo purposes

no

Is Electric Light fitted

yes

## ENGINES, &amp;c.—Description of Engines

Triple expansion

No. of Cylinders

3

No. of Cranks

3

Dia. of Cylinders

24" x 44" x 43"

Length of Stroke

48"

Revs. per minute

65

Dia. of Screw shaft

as per rule 14.53  
as fitted 14.2"

Material of

Stel.

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

yes

Is the after end of the liner made water tight

in 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

yes

If two

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

Length of stern bush

5'-6"

Dia. of Tunnel shaft

as per rule 13.32  
as fitted 13.3"

Dia. of Crank shaft journals

as per rule 14.96  
as fitted 14"

Dia. of Crank pin

14.4"

Size of Crank webs

21.4" x 9.3"

Dia. of thrust shaft under

collars

14.3"

Dia. of screw

14.0"

Pitch of Screw

18-9-2"

No. of Blades

4

State whether moveable

no

Total surface

88.45 sq

No. of Feed pumps

2

Diameter of ditto

3.2"

Stroke

30"

Can one be overhauled while the other is at work

yes

No. of Bilge pumps

2

Diameter of ditto

4.3"

Stroke

30"

Can one be overhauled while the other is at work

yes

No. of Donkey Engines

3

Sizes of Pumps

Ballast 9" x 10" x 10"

Feed 8" x 5" x 8"

No. and size of

Suctions connected to both Bilge and Donkey pumps

In Engine Room

4 @ 3.2"

In Holds, &amp;c.

2 - 3.2" suction in each hold

No. of Bilge Injections

1

sizes

6.2"

Connected to condenser, or to circulating pump

C.P.

Is a separate Donkey Suction fitted in Engine room &amp; size

yes 5"

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

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

Dates of examination of completion of fitting of Sea Connections

15-8-10

of Stern Tube

15-8-10

Screw shaft and Propeller

12-9-10

Is the Screw Shaft Tunnel watertight

yes

Is it fitted with a watertight door

yes

worked from

Top Platform.

## BOILERS, &amp;c.—(Letter for record)

Manufacturers of Steel

J. Spence &amp; Sons

Total Heating Surface of Boilers

4180

Is Forced Draft fitted

yes

No. and Description of Boilers

Three single ended

Working Pressure

180

Tested by hydraulic pressure to

360

Date of test

29.7.10

No. of Certificate

2852

Can each boiler be worked separately

yes

Area of fire grate in each boiler

54.4 sq

No. and Description of Safety Valves to

each boiler

Two direct spring

Area of each valve

10.321 sq

Pressure to which they are adjusted

183 lbs

Are they fitted with easing gear

yes

Smallest distance between boilers or uptakes and bunkers or woodwork

20"

Mean dia. of boilers

14.6"

Length

11.6"

Material of shell plates

Stel

Thickness

15.6"

Range of tensile strength

28.5-32

Are the shell plates welded or flanged

no

Descrip. of riveting: cir. seams

P.R. lap

long. seams

T.R.D.B.S.

Diameter of rivet holes in long. seams

13.8"

Pitch of rivets

9.5.6"

Lap of plates or width of butt straps

20.3"

Per centages of strength of longitudinal joint

rivets 90.5  
plate 85.25

Working pressure of shell by rules

208 lbs

Size of manhole in

End 16" x 13"

Size of compensating ring

9" x 13.8"

No. and Description of Furnaces in each boiler

3 locomotive

Material

Stel

Outside diameter

43.4"

Length of plain part

top 2.5.4  
bottom 2.5.4

Thickness of plates

crown 5.3  
bottom 5.3

Description of longitudinal joint

weld

No. of strengthening rings

Two

Working pressure of furnace by the rules

182 lbs

Combustion chamber plates, Material

Stel

Thickness: Sides

2.3"

Back

16.4"

Top

3.3"

Bottom

1"

Pitch of stays to ditto: Sides

10" x 9.4"

Back

10" x 9.4"

Top

11" x 11.3"

If stays are fitted with nuts or riveted heads

nuts

Working pressure by rules

192 lbs

Material of stays

Stel

Diameter at smallest part

1.9"

Area supported by each stay

83.25 sq

Working pressure by rules

219 lbs

End plates in steam space:

Material

Stel

Thickness

1.6"

Pitch of stays

23.3" x 20.3"

How are stays secured

D nuts

Working pressure by rules

188 lbs

Material of stays

Stel

Diameter at smallest part

2.9"

Area supported by each stay

20.4" x 20.4"

Working pressure by rules

209 lbs

Material of Front plates at bottom

Stel

Thickness

2.3"

Material of Lower back plate

Stel

Thickness

1.6"

Greatest pitch of stays

15.4" x 18.3"

Working pressure of plate by rules

183 lbs

Diameter of tubes

2.3"

Pitch of tubes

3.15" x 4"

Material of tube plates

Stel

Thickness: Front

2.3"

Back

1.4"

Mean pitch of stays

9"

Pitch across wide water spaces

13.3"

Working pressures by rules

311 lbs

Girders to Chamber tops: Material

Stel

Depth and

thickness of girder at centre

10" x 13.3"

Length as per rule

33.3"

Distance apart

11.3"

Number and pitch of stays in each

3 @ 4.4"

Working pressure by rules

184 lbs

Superheater or Steam chest; how connected to boiler

none

Can the superheater be shut off and the boiler worked

yes

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&lt;/



# VERTICAL DONKEY BOILER—Manufacturers of Steel

No.	Description					
Made at	By whom made	When made	Where fixed			
Working pressure	tested by hydraulic pressure to	Date of test	No. of Certificate	Fire grate area	Description of Safety	
Valves	No. of Safety Valves	Area of each	Pressure to which they are adjusted	Date of adjustment		
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	Plates
Working pressure of shell by rules	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 of joint		
Working pressure of furnace by rules	Thickness of furnace crown plates	Stayed by				
Diameter of uptake	Thickness of uptake plates	Thickness of water tubes	Dates of survey			

**SPARE GEAR.** State the articles supplied:— Two Con Rod Bp end bolts & nuts, 2 Con Rod Bottom end bolts & nuts, 2 Main Bearing bolts & nuts, 1 set coupling bolts & nuts, 1 set of valves for all pumps, 1 set of piston pumps, 1 Propeller, Air Pump bucket & rod, Air pump bucket & rod, 1 pair Con Rod Bottom end braces, Assorted bolts, nuts & iron.

The foregoing is a correct description,

FOR GEORGE CLARK, LIMITED.

James C. Clark

Manufacturers

Dates of Survey while building	During progress of work in shops—	1910 Mar 31 Apr 28 May 3 14 24 31 June 6 15 30 Jul 7 11 14 22 29
	During erection on board vessel—	Aug 3 10 15 16 23 25 30 Sep 7 12 14 15 19 20 21 23 29 Oct 5 7 11
	Total No. of visits	(33)

Is the approved plan of main boiler forwarded herewith

Yes

Dates of Examination of principal parts—Cylinders	29-7-10	Slides	23-8-10	Covers	23-8-10	Pistons	23-8-10	Rods	10-8-10
Connecting rods	10-8-10	Crank shaft	30-6-10	Thrust shaft	23-8-10	Tunnel shafts	7-9-10	Screw shaft	7-9-10
Propeller	23-8-10	Stern tube	10-8-10	Steam pipes tested	2-9-10, 20-9-10	Engine and boiler seatings	15-8-10	Engines holding down bolts	21-9-10
Completion of pumping arrangements	21-9-10	Boilers fixed	21-9-10	Engines tried under steam	11-10-10				
Main boiler safety valves adjusted	23-9-10	Thickness of adjusting washers	Stand Bw 9 3/4 5 1/2 Cent Bw 13 3/2 5 3/6 Port Bw 13 3/2 5 3/6						
Material of Crank shaft	Steel	Identification Mark on Do.	5681, 2056	Material of Thrust shaft	Steel	Identification Mark on Do.	6425 J.M.		
Material of Tunnel shafts	Steel	Identification Marks on Do.	5682 K.H., 5684 K.H., 5688 K.H., 3444 P.A., 5698 K.H.	Material of Screw shafts	Steel	Identification Marks on Do.	6426 J.M.		
Material of Steam Pipes	Solid drawn copper	5" dia. x 4 W.G.	Test pressure	400 lbs.					

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

The Machinery of this vessel has been built under special survey and the materials & workmanship are of good quality. The Boilers were tested satisfactorily by hydraulic pressure & their safety valves adjusted under steam. The Engines were tried under steam & worked satisfactorily.

The Machinery of this vessel is in good & safe working condition and eligible in my opinion to be classed & have record **L.M.C. 10-10** in the Register Book.

It is submitted that this vessel is eligible for THE RECORD. + L.M.C. 10.10.

F.D.

J.W.D.

William Butler

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

The amount of Entry Fee..	£ 3 :- :-	When applied for,	15-10-10
Special ..	£ 44-14-0	When received,	29-10-10
Donkey Boiler Fee ..	£		
Travelling Expenses (if any) £	£		

Committee's Minute

TUE. 25 OCT 1910

Assigned

+ L.M.C. 10.10

MACHINERY CERTIFICATE WRITTEN.



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