

REPORT ON MACHINERY.

No. 21668

Port of Sunderland

Received at London Office 19

No. in Survey held at Sunderland

Date, first Survey 8th July '03

Last Survey 28 Jan'y 1904

Reg. Book.

on the Steel Screw Steamer "Saint Robert"

(Number of Visits)

Tons { Gross 3749
Net 2394

Master Caffarata

Built at Sunderland

By whom built W. Pickering & Son

When built 1904

Engines made at Sunderland

By whom made George Clark (Limited)

when made 1904

Boilers made at Sunderland

By whom made George Clark (Limited)

when made 1904

Registered Horse Power

Owners (Rankin, Gilmour & Co)

Port belonging to Liverpool

Nom. Horse Power as per Section 28 343

Is Refrigerating Machinery fitted no

Is Electric Light fitted no

ENGINES, &c.—Description of Engines Triple Expansion No. of Cylinders Three No. of Cranks

Dia. of Cylinders 24-40-64 Length of Stroke 45 Revs. per minute 65 Dia. of Screw shaft as per rule 13.76 Material of Lock fast
as fitted 13.76 screw shaft iron

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 no 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 no If two
liners are fitted, is the shaft lapped or protected between the liners no Length of stern bush 4-7

Dia. of Tunnel shaft as per rule 12.14 Dia. of Crank shaft journals as per rule 12.75 Dia. of Crank pin 2 3/4 Size of Crank webs 24 1/2 x 8 1/2 Dia. of thrust shaft under
as fitted 12.14 collars 13 Dia. of screw 1 1/4 Pitch of screw 1 1/4 x 3 in No. of blades 4 State whether moveable yes Total surface 82

No. of Feed pumps Two Diameter of ditto 3 1/2 Stroke 26 Can one be overhauled while the other is at work yes

No. of Bilge pumps Two Diameter of ditto 4 1/4 Stroke 26 Can one be overhauled while the other is at work yes

No. of Donkey Engines Two Sizes of Pumps 7 1/2 x 9 x 10 feet - 7 1/2 x 5 x 6 feet No. and size of Suctions connected to both Bilge and Donkey pumps
In Engine Room four 3 1/2 In Holds, &c. forehold Two 3 1/2, Main Hold Two 3 1/2

deep Tank no 2 3/4 After Hold Two 3 1/2 Aftermost Hold Two 3 1/2 - after well one 2 3/4 dia

No. of bilge injections one sizes 5 1/2 Connected to condenser, or to circulating pump no Is a separate donkey suction fitted in Engine room & 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 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 no

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 18/11/03 Is the screw shaft tunnel watertight yes

Is it fitted with a watertight door yes worked from Top platform

BOILERS, &c.— (Letter for record (7)) Total Heating Surface of Boilers 4399 Is forced draft fitted yes

No. and Description of Boilers Two cylindrical angle ended Working Pressure 180 lb Tested by hydraulic pressure to 360 lb

Date of test 22-12-03 Can each boiler be worked separately yes Area of fire grate in each boiler 54 No. and Description of safety valves to
30-12-03 each boiler Two direct spring Area of each valve 10.32 Pressure to which they are adjusted 185 lb Are they fitted with easing gear yes

Smallest distance between boilers or uptakes and bunkers or woodwork 18 Mean dia. of boilers 14 1/4 Length 11-9 Material of shell plates steel

Thickness 1 9/64 Range of tensile strength 28 1/2 Are they welded or flanged no Descrip. of riveting: cir. seams lap DR long. seams DR. T.R.

Diameter of rivet holes in long. seams 1 3/16 Pitch of rivets 4 1/8 Lap of plates or width of butt straps 18 1/4

Per centages of strength of longitudinal joint rivets 91.6 Working pressure of shell by rules 182 lb Size of manhole in shell 16 x 13
plate 84.92

Size of compensating ring 8 3/4 x 1 3/16 No. and Description of Furnaces in each boiler Three, Suspension Material steel Outside diameter 45 3/4

Length of plain part top Thickness of plates orow 1 1/8 Description of longitudinal joint welded No. of strengthening rings no
bottom 32

Working pressure of furnace by the rules 185 lb Combustion chamber plates: Material steel Thickness: Sides 4/16 Back 4/16 Top 4/16 Bottom 4/16

Pitch of stays to ditto: Sides 9 1/2 x 8 3/4 Back 10 x 9 Top 9 3/8 x 9 If stays are fitted with nuts or riveted heads nuts Working pressure by rules 181 lb

Material of stays steel Diameter at smallest part 1 4/16 Area supported by each stay 114 Working pressure by rules 188 lb End plates in steam space:

Material steel Thickness 1 13/64 Pitch of stays 18 3/4 x 19 How are stays secured by nuts Working pressure by rules 182 lb Material of stays steel

Diameter at smallest part 2.9 1/2 Area supported by each stay 355 Working pressure by rules 186 lb Material of Front plates at bottom steel

Thickness 3/32 Material of Lower back plate steel Thickness 3/32 Greatest pitch of stays 14 1/4 Working pressure of plate by rules 183 lb

Diameter of tubes 2 1/2 Pitch of tubes 3 3/4 x 3 1/8 Material of tube plates steel Thickness: Front 3/32 Back 3/4 Mean pitch of stays 9 1/2

Pitch across wide water spaces 13 1/2 Working pressures by rules 185 lb Girders to Chamber tops: Material steel Depth and
thickness of girder at centre 8 1/8 x 1 3/4 Length as per rule 30 Distance apart 9 3/8 Number and pitch of Stays in each Two 9

Working pressure by rules 194 lb Superheater or Steam chest; how connected to boiler no Can the superheater be shut off and the boiler worked
separately no Diameter no Length no Thickness of shell plates no Material no Description of longitudinal joint no Diam. of rivet
holes no Pitch of rivets no Working pressure of shell by rules no Diameter of flue no Material of flue plates no Thickness no

If stiffened with rings no Distance between rings no Working pressure by rules no End plates: Thickness no How stayed no

Working pressure of end plates no Area of safety valves to superheater no Are they fitted with easing gear no



DONKEY BOILER— No. *one* Description *Cylindrical single ended with two plain furnaces*
 Made at *Sunderland* By whom made *Wm. Melrose & Co.* When made *30/9/03* Where fixed *on deck*
 Working pressure *110 lb* tested by hydraulic pressure to *220 lb*. No. of Certificate *2196* Fire grate area *32 sq ft* Description of safety valves *burst opening*
 No. of safety valves *two*. Area of each *4.91* Pressure to which they are adjusted *115 lb*. If fitted with easing gear *yes* If steam from main boilers can enter the donkey boiler *No*
 Dia. of donkey boiler *10-3* Length *9-6* Material of shell plates *steel* Thickness *23/32* Range of tensile strength *38 1/2*
 Descrip. of riveting long. seams *Lap - tuble riveted* Dia. of rivet holes *15/16* Whether punched or drilled *drilled* Pitch of rivets *3.285*
 Lap of plating *6 1/4* Per centage of strength of joint Rivets *44.5* Thickness of shell *steel* plates *23/32* Radius of stay *14 x 14* No. of Stays to do. *—*
 Dia. of stays. *2* Diameter of furnace *Top 36 1/2 Bottom 34* Length of furnace *8-4* Thickness of furnace plates *14/32* Description of joint *Welded*
 Thickness of *con. etc.* furnace *cross* plates *14/32* Stayed by *1 1/2 occan stays* Working pressure of shell by rules *113.2 lb*
 Working pressure of furnace by rules *116.5 lb*. Diameter of *tube* uptake *3 1/4* Thickness of *tube* uptake plates *F 23/32 B 7/8* Thickness of *stay* water tubes *1/2*

SPARE GEAR. State the articles supplied:— *2 connecting rod bottom end bolts + nuts, 2 piston rod bolts + nuts, 2 main bearing bolts, 1 set of coupling bolts, 1 set of feed + bilge pump valves, 1 set each piston rings + mounted bolts + nuts + key - 1 propeller + shaft, 1 large 1 small half eccentric straps, air pump rod, 1 bottom end brass, 2 safety valve springs, 12 boiler + 12 condenser tubes, 12 piston bolts.*

The foregoing is a correct description,
FOR GEORGE CLARK LIMITED.
James C. Clark. Manufacturer of *Main Engines + Boilers only*

Dates of Survey while building
 During progress of work in shops - *1903- July 8.13.30 Aug 12.26.27 Sep 1.3.5.21.22.25.30 Oct 1.7.12.15.20.23.29*
 During erection on board vessel - *Nov. 3.5.6.13.17.18.24.26.30 Dec. 2.17.19.27.29.30 - 1904- Jan 18.25.28*
 Total No. of *58* 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 built under special survey the material + workmanship sound + good, the Boilers and steam pipes tested to double the working pressure by Hydraulic pressure, the Engines worked well under steam and the safety Valves were adjusted to the working pressure + fitted with easing gear.

*This vessel is eligible in my opinion to have the notation of *LMC 104 in the Register Book.*
 It is submitted that
 this vessel is eligible for
THE RECORD LMC. 1.04. F.D.

The amount of Entry Fee. £ *3* : : : When applied for, *10.2.19.04*
 Special .. £ *37* : *3* : : *16.2.04*
 Donkey Boiler Fee .. £ : : : When received, *24/2/04*
 Travelling Expenses (if any) £ : : : *16.2.04*
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping. *W. P. ...*

Committee's Minute **FRI. 19 FEB 1904**
 Assigned *LMC 1.04 7D*
 LLOYD'S REGISTER FOUNDATION

Certificate (if required) to be sent to

