

# REPORT ON MACHINERY.

No. 5448

Received at London Office MON. NOV. 17. 1913

Date of writing Report 29-10-1913 When handed in at Local Office 10 Port of Falmouth.

No. in Survey held at Falmouth Date, First Survey 10-2-13 Last Survey 25-10 1913

Reg. Book. 1180 on the Steam Screw Tug "Hinas" late SS. 7<sup>o</sup> 164 (Number of Visits 147)

Master J. A. Rogers. Built at Falmouth By whom built Cox, & Co. L<sup>d</sup> Tons { Gross 49.07 Net 6.66 When built 1913-10

Engines made at Falmouth By whom made Cox, & Co. L<sup>d</sup> when made 1913-10

Boilers made at Falmouth By whom made Cox, & Co. L<sup>d</sup> when made 1913-10

Registered Horse Power 32.4 Owners T. Wilson, Sons, & Co. L<sup>d</sup> Port belonging to Rio de Janeiro.

Nom. Horse Power as per Section 28 24.05 32 Is Refrigerating Machinery fitted for cargo purposes  Is Electric Light fitted

**ENGINES, &c.**—Description of Engines Inverted Compound Surface Condensing No. of Cylinders two No. of Cranks two  
 Dia. of Cylinders 13"-26" Length of Stroke 17" Revs. per minute 163 Dia. of Screw shaft 5.36 Material of screw shaft White Iron  
 as fitted 5 11/16"  
 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 1'-10"  
 Dia. of Tunnel shaft as per rule 5.0109" Dia. of Crank shaft journals as per rule 5.26" Dia. of Crank pin 5 3/8" Size of Crank webs 10 1/4 x 3 1/2" Dia. of thrust shaft under collars 5 3/8" Dia. of screw 6'-0" Pitch of Screw 8'-9" No. of Blades 4 State whether moveable no Total surface 13.63 sq ft  
 No. of Feed pumps one Diameter of ditto 2" Stroke 8 1/2" Can one be overhauled while the other is at work no  
 No. of Bilge pumps one Diameter of ditto 2" Stroke 8 1/2" Can one be overhauled while the other is at work no  
 No. of Donkey Engines one Sizes of Pumps 2 1/2" dia. double acting No. and size of Suctions connected to both Bilge and Donkey pumps  
 In Engine Room one to donkey or bilge pump, & one to donkey only In Holds, &c. one to fore hold & one to after hold for either donkey or bilge pumps.  
 No. of Bilge Injections one sizes 2" Connected to condenser, or to circulating pump pump Is a separate Donkey Suction fitted in Engine room & size yes, 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 yes  
 Are all connections with the sea direct on the skin of the ship yes Are they Valves or Cocks Main Injections a valve all others 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 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  
 Dates of examination of completion of fitting of Sea Connections 20-10-13 of Stern Tube 20-10-13 Screw shaft and Propeller 20-10-13  
 Is the Screw Shaft Tunnel watertight  Is it fitted with a watertight door  worked from

**BOILERS, &c.**—(Letter for record S) Manufacturers of Steel W. Beardmore, & Co  
 Total Heating Surface of Boilers 637 sq ft Is Forced Draft fitted no No. and Description of Boilers one cylindrical return tube  
 Working Pressure 120 lbs Tested by hydraulic pressure to 240 lbs Date of test 2-9-13 No. of Certificate 148  
 Can each boiler be worked separately no Area of fire grate in each boiler 27.9 sq ft No. and Description of Safety Valves to each boiler two, Cox's double lip Area of each valve 3.97 sq ft Pressure to which they are adjusted 120 lbs Are they fitted with easing gear yes  
 Smallest distance between boilers or uptakes and bunkers or woodwork 3" Mean dia. of boilers 8'-10" Length 9'-0" Material of shell plates steel  
 Thickness 21/32" Range of tensile strength 28 to 32 tons Are the shell plates welded or flanged no Descrip. of riveting: cir. seams lap 2 rivets  
 Long. seams lap 3 rivets Diameter of rivet holes in long. seams 31/32" Pitch of rivets 3 13/16" Lap of plates or width of butt straps 6 3/4"  
 Percentages of strength of longitudinal joint rivets 75-16 Working pressure of shell by rules 122.6 Size of manhole in shell 16" x 12"  
 Diameter of compensating ring 2-1 x 2-1 x 2 1/32" No. and Description of Furnaces in each boiler two plain Material steel Outside diameter 33"  
 Length of plain part top 6-1 1/2" bottom 17/32" Thickness of plates crown 17/32" Description of longitudinal joint single butt double rivets No. of strengthening rings no  
 Working pressure of furnace by the rules 125 lbs Combustion chamber plates: Material steel Thickness: Sides 17/32" Back 17/32" Top 17/32" Bottom 9/16"  
 Diameter of stays to ditto: Sides 8 3/4 x 8 Back 8 3/4 x 8 Top 8 3/4 x 8 If stays are fitted with nuts or riveted heads nuts Working pressure by rules 123.4 lbs  
 Material of stays steel Diameter at smallest part 1' 2.4" Area supported by each stay 70 sq ft Working pressure by rules 136 lbs End plates in steam space: Material steel Thickness F. 3/4" Pitch of stays 13 1/4" How are stays secured F. double nuts Working pressure by rules F. 152 Material of stays steel  
 Diameter at smallest part 1.62" Area supported by each stay 165.6 sq ft Working pressure by rules 130 Material of Front plates at bottom steel  
 Thickness 3/4" Material of Lower back plate steel Thickness 19/32" Greatest pitch of stays 11 1/2" x 8" Working pressure of plate by rules 124 lbs  
 Diameter of tubes 3" Pitch of tubes 4" Material of tube plates steel Thickness: Front 3/4" Back 5/8" Mean pitch of stays 10"  
 Width across wide water spaces 14" Working pressures by rules F. 124.6 B. 140 Girders to Chamber tops: Material steel Depth and thickness of girder at centre 5 7/8 x 1" Length as per rule 24" Distance apart 8" Number and pitch of stays in each two 8 3/4"  
 Working pressure by rules 125.6 lbs Superheater or Steam chest; how connected to boiler no Can the superheater be shut off and the boiler worked separately  Diameter no Length no Thickness of shell plates no Material no Description of longitudinal joint no Diam. of rivet no  
 Pitch of rivets no Working pressure of shell by rules no Diameter of flue no Material of flue plates no Thickness no  
 Fitted 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



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 \_\_\_\_\_ 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:— 1. Propeller, 2. crosshead bolts, 2. crankhead bolts, 2. main bearing bolts, 4 shaft coupling bolts, 1 set Air pump valves, 1 set circulating pump valves, 1 set feed pump valves, 1 set bilge pump valves, 1 boiler main feed check valve, 1 boiler donkey feed check valve, 1 set of fire bars for the furnace, a quantity of assorted bolts & nuts & a quantity of iron of various sizes.

The foregoing is a correct description,

COX & Co., (ENGINEERS) LTD., Manufacturer.

Herbert H. Cox Manager  
 Dates of Survey while building  
 During progress of work in shops—  
 During erection on board vessel—  
 Total No. of visits 147

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

Dates of Examination of principal parts—Cylinders 2-5-13 Slides 15-2-13 Covers 19-2-13 Pistons 11-3-13 Rods 1-3-13  
 Connecting rods 1-3-13 Crank shaft 1-3-13 Thrust shaft 1-3-13 Tunnel shafts 25-7-13 Screw shaft 23-8-13 Propeller 22-2-13  
 Stern tube 31-7-13 Steam pipes tested 14-10-13 Engine and boiler seatings 29-9-13 Engines holding down bolts 14-10-13  
 Completion of pumping arrangements 14-10-13 Boilers fixed 14-10-13 Engines tried under steam 22-10-13  
 Main boiler safety valves adjusted 20-10-13 Thickness of adjusting washers 3/8  
 Material of Crank shaft iron Identification Mark on Do. 7-958 Material of Thrust shaft iron Identification Mark on Do. 7-958  
 Material of Tunnel shafts iron Identification Marks on Do. 7-958 Material of Screw shafts iron Identification Marks on Do. 7-958  
 Material of Steam Pipes Copper, seamless Test pressure 250 lbs per sq in

General Remarks (State quality of workmanship, opinions as to class, &c. The workmanship is good throughout)  
 The steam & feed pipes have been tested in my presence by hydraulic pressure to 250 lbs per sq in.  
 The safety valves are set to relieve at 120 lbs pressure with no apparent accumulation.  
 At the trial the engines worked well & efficiently.  
 Everything being fitted in accordance with the Rules & Instructions, I am of opinion that the Machinery is fit for Classification in the Society's Register Book, & beg to recommend for the Committee's approval that a Machinery Certificate be granted & the notation of + L.M.C. 10-13 made in the Register Book.

It is submitted that this vessel is eligible for THE RECORD, + L.M.C. 10-13.

JWD  
 18/11/13

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

The amount of Entry Fee... £ 1 : 0 :  
 Special ... £ 8 : 0 :  
 Donkey Boiler Fee ... £ : :  
 Travelling Expenses (if any) £ 9-0-0 :  
 When applied for, 14-11-13  
 When received, 14-11-13

Committee's Minute TUE. NOV. 18. 1913

Assigned + PM 6 10-13



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Certificate (if required) to be sent to this Office. (The Surveyors are requested not to write on or below the space for Committee's Minute.)