

REPORT ON MACHINERY.

Mat. No. 4128
Sta. No. 24352

Registered at London Office

SAT. 19 FEB 1910

Date of writing Report 19 When handed in at Local Office 18. 2. 10 Port of Sunderland

No. in Survey held at Sunderland Date, First Survey 1st Sept. 1909 Last Survey 10th Feby 1910
Reg. Book. on the "Benbrook" (Number of Visits 3)

Master Built at Middlebro By whom built Craig Taylor & Co L^d Tons Gross 3839.68 Net 2882.00
When built 1909-10

Engines made at Sunderland By whom made H. E. M. Long & Co L^d when made 1909-10

Boilers made at " By whom made " when made 1909-10

Registered Horse Power Owners Howel & Co Port belonging to Liverpool

Nom. Horse Power as per Section 28 342. Is Refrigerating Machinery fitted for cargo purposes no. Is Electric Light fitted no.

ENGINES, &c.—Description of Engines In C.P.D. No. of Cylinders 3 No. of Cranks 3
 Dia. of Cylinders 24" 40" 66" Length of Stroke 45" Revs. per minute 65 Dia. of Screw shaft as per rule 13.8" Material of screw shaft S.
 as fitted 14.8"
 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 ✓ 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 ✓ If two liners are fitted, is the shaft lapped or protected between the liners ✓ Length of stern bush 4' 9"
 Dia. of Tunnel shaft as per rule 12.11" Dia. of Crank shaft journals as per rule 12.72" Dia. of Crank pin 13" Size of Crank webs 9 1/2" x 8" Dia. of thrust shaft under collars 13" Dia. of screw 14" 5" Pitch of Screw 17" 5" No. of Blades 4 State whether moveable f. Total surface 94"
 No. of Feed pumps 2 Diameter of ditto 3 1/2" Stroke 2 ft. Can one be overhauled while the other is at work yes.
 No. of Bilge pumps 2 Diameter of ditto 4" Stroke 2 ft. Can one be overhauled while the other is at work yes.
 No. of Donkey Engines 3 - a Static Sizes of Pumps 2 - 7/2 x 5 x 6 + 1. 8 1/2 x 11 x 10 1/2 No. and size of Suctions connected to both Bilge and Donkey pumps In Engine Room 3 of 3 1/2" In Holds, &c. 2 of 3 1/2" in each Compartment
 No. of Bilge Injections 1 sizes 4 1/2" Connected to condenser, or to circulating pump C.P.D. Is a separate Donkey Suction fitted in Engine room & size yes. 3 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 ✓
 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 2.1.10 of Stern Tube 25.1.10. Screw shaft and Propeller 25.1.10
 Is the Screw Shaft Tunnel watertight yes. Is it fitted with a watertight door yes. worked from top platform

BOILERS, &c.—(Letter for record 3.) Manufacturers of Steel J. Spencer & Sons L^d
 Total Heating Surface of Boilers 5604. Is Forced Draft fitted no. No. and Description of Boilers 3 S.E.
 Working Pressure 180 lbs. Tested by hydraulic pressure to 360 lbs. Date of test 3/12/09 No. of Certificate 2797
 Can each boiler be worked separately yes. Area of fire grate in each boiler 45 sq. ft. No. and Description of Safety Valves to each boiler 2 Spring Area of each valve 4.9 sq. ft. 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 18" Mean dia. of boilers 13' 9 1/2" Length 11 ft. Material of shell plates B
 Thickness 1 3/8" Range of tensile strength 28 1/2 - 32 Are the shell plates welded or flanged no. Descrip. of riveting: cir. seams 27. Top
 g. seams 7. butts. Diameter of rivet holes in long. seams 1 3/16" Pitch of rivets 8 3/4" Lap of plates or width of butt straps 1' 6"
 Percentages of strength of longitudinal joint rivets 85.4 Working pressure of shell by rules 187. Size of manhole in shell end. 16" x 12"
 plate 86.4
 Size of compensating ring flanged. No. and Description of Furnaces in each boiler 3 plain Material S. Outside diameter 3' 5 1/2"
 Length of plain part top 6' 8 1/2" Thickness of plates crown 7/16" 49 Description of longitudinal joint welded. No. of strengthening rings ✓
 bottom 6' 1" 0.1
 Working pressure of furnace by the rules 182 Combustion chamber plates: Material S Thickness: Sides 3/8" Back 3/4" Top 23/32" Bottom 13/16"
 Pitch of stays to ditto: Sides 8 1/2" x 11" Back 10 1/4" x 10 1/2" Top 8" x 10 1/2" If stays are fitted with nuts or riveted heads nuts. Working pressure by rules 180
 Material of stays S. Diameter at smallest part 2.1" Area supported by each stay 94 1/2" Working pressure by rules 180 End plates in steam space:
 Material S. Thickness 1 1/16" Pitch of stays 22 1/2" x 19 1/2" How are stays secured 2. nuts. Working pressure by rules 187. Material of stays S.
 Diameter at smallest part 8.48" Area supported by each stay 446.8" Working pressure by rules 196 Material of Front plates at bottom S.
 Thickness 3/4" Material of Lower back plate S Thickness 3/8" Greatest pitch of stays 14" x 10 1/2" Working pressure of plate by rules 188
 Diameter of tubes 3 1/4" Pitch of tubes 4 1/2" x 4 1/2" Material of tube plates B Thickness: Front 3/4" Back 3/4" Mean pitch of stays 9 1/2" x 9"
 Pitch across wide water spaces 14 1/2" Working pressures by rules 192 Girders to Chamber tops: Material S. Depth and thickness of girder at centre 8" x 2" Length as per rule 30 1/2" Distance apart 11 1/2" Number and pitch of stays in each 2 @ 8 1/2"
 Working pressure by rules 182. Superheater or Steam chest; how connected to boiler ✓ 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



