

# REPORT ON MACHINERY.

JUN 23 1903

Part of *Glasgow*

Received at London Office

No. in Survey held at *Penryn* Date, first Survey *Aug 4<sup>th</sup> 1903* Last Survey *9<sup>th</sup> June 1903*  
 Reg. Book. on the *F.S.S. Sand Pump Hopper Dredger "Agnes"* Tons Gross *1891* Net *1161*  
 Master *Penryn* Built at *Penryn* By whom built *Tom Simons & Co Ltd* When built *1903*  
 Engines made at *Penryn* By whom made *Tom Simons & Co Ltd* when made *1903*  
 Boilers made at *Glasgow* By whom made *LONDON & GLASGOW S & S B Co.* when made *1903*  
 Registered Horse Power Owners *East London Harbour Board* Port belonging to *East London*  
 Nom. Horse Power as per Section 28 *228* Is Refrigerating Machinery fitted *No* Is Electric Light fitted *Yes*

ENGINES, &c.—Description of Engines *Simple expansion* No. of Cylinders *6* No. of Cranks *6*  
 Dia. of Cylinders *17" 27" 43"* Length of Stroke *27"* Revs. per minute *130* Dia. of Screw shaft as per rule *9"* Material of screw shaft *Steel*  
 Is 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 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 *Yes* Length of stern bush *54"*  
 Dia. of Tunnel shaft as per rule *8.1"* Dia. of Crank shaft journals as per rule *8.39"* Dia. of Crank pin *8 1/2"* Size of Crank webs *16 1/2 x 6"* Dia. of thrust shaft under collars *8 1/2"* Dia. of screw *9-9"* Pitch of screw *10' 0"* No. of blades *4* State whether moveable *No* Total surface *42 sq ft*  
 No. of Feed pumps *2* Diameter of ditto *3 1/2"* Stroke *15"* Can one be overhauled while the other is at work *Yes*  
 No. of Bilge pumps *2* Diameter of ditto *3 1/2"* Stroke *15"* Can one be overhauled while the other is at work *Yes*  
 No. of Donkey Engines *2* Sizes of Pumps *7 1/2 x 6 x 6", 6 x 6 x 6" (2)* No. and size of Suctions connected to both Bilge and Donkey pumps  
 In Engine Room *Size 2 1/2"* In Holds, &c. *Size 2 1/2"*

No. of bilge injections *2* sizes *4* Connected to condenser, or to circulating pump *Yes* Is a separate donkey suction fitted in Engine room & size *Yes 2 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 *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 *Steam to pump room & bunks* How are they protected *In casings*  
 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 *By Lamont* Is the screw shaft tunnel watertight *No*  
 Is it fitted with a watertight door *Yes* worked from *Yes*

BOILERS, &c.—(Letter for record *3*) Total Heating Surface of Boilers *3779 sq ft* Is forced draft fitted *No*  
 No. and Description of Boilers *Two single ended return tube* Working Pressure *180 lbs* Tested by hydraulic pressure to *360 lbs*  
 Date of test *17/12/02* Can each boiler be worked separately *Yes* Area of fire grate in each boiler *65 sq ft* No. and Description of safety valves to each boiler *2 spring loaded* Area of each valve *8.3 sq ft* Pressure to which they are adjusted *180 lbs* Are they fitted with easing gear *Yes*  
 Smallest distance between boilers or uptakes and bunkers or woodwork *15"* Mean dia. of boilers *14' 6"* Length *10' 6"* Material of shell plates *Steel*  
 Thickness *1 1/4"* Range of tensile strength *27/32* Are they welded or flanged *No* Descrip. of riveting: cir. seams *Lap &* long. seams *Butt*  
 Diameter of rivet holes in long. seams *1 1/4"* Pitch of rivets *8 1/2"* Lap of plates or width of butt straps *18 1/4"*  
 Per centages of strength of longitudinal joint rivets *86.1* Working pressure of shell by rules *185.5* Size of manhole in shell *16" x 12"*  
 Size of compensating ring *7 in* No. and Description of Furnaces in each boiler *3 Dugtons* Material *Steel* Outside diameter *48"*  
 Length of plain part top *9"* Thickness of plates crown *9"* Description of longitudinal joint *welded* No. of strengthening rings *1*  
 Working pressure of furnace by the rules *183 lbs* combustion chamber plates: Material *Steel* Thickness: Sides *9/8"* Back *9/8"* Top *4/8"* Bottom *3/4"*  
 Pitch of stays to ditto: Sides *7 1/4 x 7 1/4"* Back *7 1/4 x 7 1/4"* Top *7 1/4 x 8 1/2"* If stays are fitted with nuts or riveted heads *Painted* Working pressure by rules *190 215*  
 Material of stays *Steel* Diameter at smallest part *1.19"* Area supported by each stay *62 1/2"* Working pressure by rules *181 lbs* End plates in steam space:  
 Material *Steel* Thickness *1"* Pitch of stays *16 1/2 x 15 3/4"* How are stays secured *2 nuts* Working pressure by rules *182 lbs* Material of stays *Steel*  
 Diameter at smallest part *5.05"* Area supported by each stay *206"* Working pressure by rules *194 lbs* Material of Front plates at bottom *Steel*  
 Thickness *13/16"* Material of Lower back plate *Steel* Thickness *13/16"* Greatest pitch of stays *18 1/2"* Working pressure of plate by rules *420 lbs*  
 Diameter of tubes *3 1/4"* Pitch of tubes *4 1/2 x 4 1/2"* Material of tube plates *Steel* Thickness: Front *13/16"* Back *13/16"* Mean pitch of stays *10 1/8"*  
 Pitch across wide water spaces *14 1/4"* Working pressures by rules *282 lbs* Girders to Chamber tops: Material *Steel* Depth and thickness of girder at centre *8 3/4 x 13/16"* Length as per rule *31 1/2"* Distance apart *8 1/2"* Number and pitch of Stays in each *Three 7 1/4"*  
 Working pressure by rules *188 lbs* Superheater or Steam chest; how connected to boiler *No* 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



**DONKEY BOILER**— No. *101* Description *Vertical*  
 Made at *Glasgow* By whom made *Clark Chapman* When made *1903* Where fixed *in stockhold*  
 Working pressure *100 lbs* tested by hydraulic pressure to *200 lbs* No. of Certificate *6478* Fire grate area *9 3/4* Description of safety valves *spring loaded*  
 No. of safety valves *1* Area of each *4.9* Pressure to which they are adjusted *100 lbs* If fitted with casing gear *yes* If steam from main boilers can enter the donkey boiler *no* Dia. of donkey boiler *4'-6"* Length *8'-0"* Material of shell plates *steel* Thickness *3/8"* Range of tensile strength *27/32* Descrip. of riveting long seams *D.R. Lap* Dia. of rivet holes *3/4"* Whether punched or drilled *dulled* Pitch of rivets *2 3/4"*  
 Lap of plating *3 5/8"* Per centage of strength of joint Rivets *22-7* Thickness of shell crown plates *9/16"* Radius of do. *5ft* No. of Stays to do. *3*  
 Dia. of stays. *1 3/8* Diameter of furnace Top *3-5 3/8* Bottom *3-10* Length of furnace *3-6* Thickness of furnace plates *9/16"* Description of joint *D.R. Lap* Thickness of furnace crown plates *9/16"* Stayed by *as above* Working pressure of shell by rules *104 lbs*  
 Working pressure of furnace by rules *144 lbs* Diameter of uptake *12"* Thickness of uptake plates *3/8"* Thickness of water tubes *3/8"*

**SPARE GEAR.** State the articles supplied:— *two top end bolts & nuts, two bottom end bolts & nuts, 1 set of coupling bolts, 1 set of fuel & bilge pump valves, iron of various sizes, bolts & nuts assorted, 2 propellers, 1 propeller shaft, 1 thrust shaft, 1 crank shaft, etc.*

The foregoing is a correct description,  
 FOR **WM. SIMONS & CO., LTD.** Manufacturer.  
*Wm. Simons* DIRECTOR

Dates of Survey while building  
 During progress of work in shops— 1902, Aug 4, 18, 19, 26. Oct 1, 3, 7, 13, 18, 20. Nov 27, 18, 24, 25, 26. Dec 1, 4, 8, 10, 16, 17. 1903, Jan 8, 16, 27.  
 During erection on board vessel— Feb 4, 9, 11, 16, 20. Mar 18, 19, 20, 25, 30, 31. Apr 9, 17, 27. May 1. Jun 2, 9.  
 Total No. of s 42. Is the approved plan of main boiler forwarded herewith *yes*  
 " " " donkey " " " *no*

**General Remarks** (State quality of workmanship, opinions as to class, &c. **L.M.C. 6.03.**)  
*These engines & boilers have been constructed under special survey the materials and workmanship are of good description they have been well fitted on board and tried under steam. In our opinion this machinery is eligible to have the above notification in the Register Book.*

It is submitted that this vessel is eligible for **THE RECORD.** L.M.C. 6.03. ELEC LIGHT.

*Bal.*  
*23.6.03.*  
*R.S.*  
*24.6.03*

The amount of Entry Fee.. £ 2 : : : When applied for,  
 Special .. .. £ 21 : 8 : : 18.6.1903  
 Donkey Boiler Fee .. .. £ : : : When received,  
 Travelling Expenses (if any) £ : : : JUN 22 1903

*Per A.M. Leand Jos. M. Buchanan.*  
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute *Glasgow 22 JUN 1903*

Assigned *+ L.M.C. 6.03.* *R.S.*



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