

REPORT ON MACHINERY.

1884

No. 10041

Port of Glasgow

Received at London Office

No. in Survey held at Glasgow Date, first Survey 21st Oct 1889 Last Survey August 2nd 1890.

Reg. Book. on the Four Screw - Hopper Dredger - Manchester.

Master Maddin Built at Renfrew. By whom built Simons & Co Tons Gross 881.50
Net 502.19

Engines made at Renfrew. By whom made Simons & Co when made 1890.

Boilers made at Glasgow By whom made Widray, Burnet & Co when made 1890

Registered Horse Power 200. Owners Manchester Ship Canal Co Port belonging to Renfrew

ENGINES, &c.—

Description of Engines Inverted Direct Acting Triple Expansion. (Two Sets) No. of Cylinders Six.
 Diam. of Cylinders $\frac{7}{16}$ $\frac{25}{16}$ $\frac{21}{16}$ Length of Stroke 27. Rev. per minute 160 Point of Cut off, High Pressure $18\frac{7}{8}$ Low Pressure $18\frac{1}{4}$
 Diameter of Screw shaft 8" Diam. of Tunnel shaft 7" Diam. of Crank shaft journals 8" Diam. of Crank pin 8" size of Crank webs $5\frac{1}{2} \times 15$
 Diameter of screws 5-6 For'd Pitch of screw 7-8 aft No. of blades Three state whether moveable Solid total surface 12.6 sq ft
 No. of Feed pumps Four. diameter of ditto $2\frac{1}{2}$ Stroke 13" Can one be overhauled while the other is at work Yes
 No. of Bilge pumps Four. diameter of ditto $2\frac{1}{2}$ Stroke 13" Can one be overhauled while the other is at work Yes
 Where do they pump from Engine Room, Stokhold, Side compartments For'd & Aft and centre pocket.
 No. of Donkey Engines Two + two hand. Size of Pumps $2\frac{3}{4} \times 4$ $5\frac{1}{2} \times 12$ Where do they pump from Feed pump from Hotwell, Sea, & boiler also one hand pump from ditto - Bilge donkey from all compartments & sea - one hand pump from ditto.
 Are all the bilge suction pipes fitted with roses Yes. Are the roses always accessible Yes Are the sluices on Engine room bulkheads always accessible Yes.
 No. of bilge injections Two and sizes $2\frac{1}{2}$ dia Are they connected to condenser, or to circulating pump Circulating pump.
 How are the pumps worked By levers from Crosshead
 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 accessible at all times Yes
 Are the pipes, cocks, and valves arranged so as to prevent an unintentional connection between the sea and the bilges Yes
 When were stern tube, propeller, screw shaft, and all connections examined in dry dock Before launching
 Is the screw shaft tunnel watertight No tunnel and fitted with a sluice door ✓ worked from ✓

BOILERS, &c.—

No. of Boilers Two Description Cylin. Mult Material Steel Letter (for record) S
 Working Pressure 160 lbs Tested by hydraulic pressure to 320 lbs. Date of test 15th May 1890
 Description of superheating apparatus or steam chest ✓
 Can each boiler be worked separately Yes Can the superheater be shut off and the boiler worked separately ✓
 No. of square feet of fire grate surface in each boiler 54 Description of safety valves Steel spring No. to each boiler Two
 Area of each valve 8.3 sq ft Are they fitted with easing gear Yes No. of safety valves to superheater — area of each valve —
 Are they fitted with easing gear — Smallest distance between boilers and bunkers or woodwork No side bunkers. Diameter of boilers $13' 0"$
 Length of boilers $11' 0"$ description of riveting of shell long. seams D. butt strap 3 rows cum. seams Lap 2 rows Thickness of shell plates $17/32$
 Diameter of rivet holes $13/8"$ whether punched or drilled drilled pitch of rivets $8" \times 3\frac{3}{16}$ Lap of plating $11\frac{1}{2} \times 6\frac{1}{2}$
 Per centage of strength of longitudinal joint 82.8 working pressure of shell by rules 162 lbs. size of manholes in shell $12" \times 16"$
 Size of compensating rivets $6\frac{1}{2} \times 6\frac{1}{2} \times 1\frac{1}{4}$ No. of Furnaces in each boiler Three Description of Furnaces Purvis (Ribbed)
 Outside diameter $37\frac{1}{16}$ length 7' 1" thickness of plates $17/32$ description of joint welded if rings are fitted —
 Greatest length between rings — working pressure of furnace by the rules 204 lbs combustion chamber plating, thickness, sides $\frac{9}{16}$ back $\frac{1}{2}$ top $\frac{9}{16}$
 Pitch of stays to ditto, sides $7\frac{3}{4} \times 7\frac{3}{4}$ back $6\frac{7}{8} \times 6\frac{7}{8}$ $7\frac{1}{8} \times 7\frac{3}{4}$ stays are fitted with nuts or riveted heads Nuts working pressure of plating by rules 162 lbs
 diameter of stays at smallest part $1\frac{1}{4}$ working pressure of ditto by rules 164 lbs plates in steam space, thickness $\frac{3}{4} + \frac{3}{4}$
 Pitch of stays to ditto $14" \times 14"$ how stays are secured D. nuts + double working pressure by rules 165 lbs diameter of stays at smallest part $2\frac{1}{2}$ working pressure by rules 200 lbs. Front plates at bottom, thickness $\frac{3}{4}$ Back plates, thickness $\frac{3}{4}$
 Greatest pitch of stays ✓ working pressure by rules — Diameter of tubes $3\frac{1}{4}$ pitch of tubes $4\frac{1}{4} \times 4\frac{1}{4}$ thickness of tube plates, front $\frac{3}{4}$ back $\frac{3}{4}$ how stayed S. Tubes. pitch of stays $8\frac{1}{2} \times 8\frac{1}{2}$ width of water spaces 5" to 9"
 Diameter of Superheater or Steam chest ✓ length — thickness of plates — description of longitudinal joint — diam. of rivet holes —
 Pitch of rivets ✓ working pressure of shell by rules — diameter of flue — thickness of plates — If stiffened with rings —
 Distance between rings ✓ working pressure by rules — end plates of superheater, or steam chest; thickness — how stayed —
 Superheater or steam chest; how connected to boiler —

DONKEY BOILER—

Description

See accompanying Report No 7216.

Made at by whom made when made where fixed
Working pressure tested by hydraulic pressure to No. of Certificate fire grate area description of safety valves
No. of safety valves area of each if fitted with easing gear if steam from main boilers can enter the donkey boiler
diameter of donkey boiler length description of riveting
Thickness of shell plates diameter of rivet holes whether punched or drilled pitch of rivets lap of plating
per centage of strength of joint thickness of crown plates stayed by
Diameter of furnace, top bottom length of furnace thickness of plates description of joint
Thickness of furnace crown plates stayed by working pressure of shell by rules
Working pressure of furnace by rules diameter of uptake thickness of plates thickness of water tubes

SPARE GEAR. State the articles supplied:— Two bolts & nuts for connecting rod top ends and two for bottom ends. Two main bearing bolts & nuts. One set of coupling bolts. One set of Feed & Bilge pump valves. One set of check valves for one boiler. One set of water gauge mountings. Two propellers complete. Two springs for feed valves and one for safety valve. One set of circulating pump rod. Three main engine valve spindles. 100 assorted bolts & nuts.

The foregoing is a correct description,

Manufacturer.

Wm Simons & Co

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

The engines, boilers & machinery on board this vessel have been constructed under special survey. They are of good material and workmanship. They have been well fitted on board & satisfactorily tested under steam, and we are of opinion they are eligible to be classed + L N.C. 8-90 in the Register Book.

The main engines are used for driving the dredging plant, clutches being provided on the main shaft for disconnecting the propellers of which there are four—two at either end of the vessel and the main shafts are carried right Fore & Aft. Either set of engines can be connected separately to the dredging plant, or they can both be utilized for this purpose at the same time.

When propelling the vessel each set of main engines is quite independent of each other and of the dredging plant.

At a trial of the dredging plant in the Tidal basin at Greenock on the 2nd inst. both of sets of main engines were tried independently, when the dredge was at the rate of 900 tons per hour, with one set of engines at work. The propellers being disconnected and the engines running at from 125 to 130 rev-per min.

A speed trial was afterwards made in the Firth of Clyde. Everything in connection with the dredging plant, engines & gear, were found on trial to be in good working order and suitable for the purpose intended.

Appended hereto is the approved tracing of main boiler also two Reports on Forgings.

The amount of Entry Fee .. £ 2 : - : - received by me
Special £ 20 : - : -
main Donkey Boiler Fee £ 10 : - : -
Certificate (if required) .. £ - : - : - 18
To be sent as per margin.

(Travelling Expenses, if any, £ FEB 12 AUGUST 1886

Committee's Minute

+ L.M.C. 8-90

FRI. 13 MAR 1908

FRI. NOV 23 1906

FRI. 1 MAY 1908

TUES. 5 MAY 1908

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