

REPORT ON MACHINERY.

5871

No. 5871 (Received at London Office 19th Oct. 1882)
 No. in Survey held at Dunbarton Date, first Survey 20. 10. 81 Last Survey 13. 10 1882
 Reg. Book. on the S.S. "Hawoto" Tons 1988.24
1275.86
 Master J. Fielding Built at Dunbarton When built 1882
 Engines made at Dunbarton By whom made Denny & Co. when made 1882
 Boilers made at " By whom made " when made 1882
 Registered Horse Power 250 Owners Union S.S. Co. New Zealand Port belonging to Dunedin

ENGINES, &c.—

Description of Engines Compound Inverted Direct Acting
 Diameter of Cylinders 38" & 68" Length of Stroke 40" No. of Rev. per minute 65 Point of Cut off, High Pressure 7/10 Low Pressure 6/10
 Diameter of Screw shaft 12 7/16" Diameter of Tunnel shaft 11 1/2" Diameter of Crank shaft journals 12 1/2" Diameter of Crank pin 12 1/2" size of Crank webs 8 1/4" x 15"
 Diameter of screw 16 0" Pitch of screw 21 0" No. of blades 4 state whether moveable yes total surface 65 sq. ft.
 No. of Feed pumps two diameter of ditto 4 1/4" Stroke 22 3/4" Can one be overhauled while the other is at work yes
 No. of Bilge pumps two diameter of ditto 4 1/4" Stroke 22 3/4" Can one be overhauled while the other is at work yes
 Where do they pump from Holds, Engine room, Storehold & Tunnel
 No. of Donkey Engines two Size of Pumps 8" & 9" Where do they pump from One from Sea, Holdwell
Holds, Engine room, Storehold & Tunnel, the other for ballast tank only.
 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 below
 No. of bilge injections One and sizes 5" Are they connected to condenser, or to circulating pump Circulating pumps.
 How are the pumps worked by eccentrics on crankshaft
 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 below
 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 yes and fitted with a sluice door yes worked from top platform

BOILERS, &c.—

Number of Boilers One Description Cyl. double ended Multitubular all steel
 Working Pressure 44 lbs. Tested by hydraulic pressure to 150 lbs. Date of test 28th of August. 1882.
 Description of superheating apparatus or steam chest None.
 Can each boiler be worked separately " Can the superheater be shut off and the boiler worked separately "
 No. of square feet of fire grate surface in each boiler 141 sq. ft. Description of safety valves direct spring
 No. to each boiler three area of each valve 23 3/4 sq. in. 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 woodwork 9 1/2"
 Diameter of boilers 15' 10 1/2" Length of boilers 17 5/4" description of shell long. seams double butt circum. seams double, lap
 Thickness of shell plates 13/16" diameter of rivet holes 1 1/8" whether punched or drilled drilled pitch of rivets 4 1/2" x 2 1/2"
 Lap of plating iron 12 1/4" Cu 5 1/4" percentage of strength of longitudinal joint 75 plates 92 direct working pressure of shell by rules 83 lbs.
 Size of manholes in shell 14" x 13" size of compensating rings 32" x 30" x 1 1/2"
 No. of Furnaces in each boiler three outside diameter 39" 17 1/2" length, top 6' 4 3/8" bottom 8' 4 5/8"
 Thickness of plates 1/2" description of joint Welded if rings are fitted no greatest length between rings "
 Working pressure of furnace by the rules "
 Combustion chamber plating, thickness, sides 1/2" back " top 1/2"
 Pitch of stays to ditto sides 10" x 9" back " top Guides
 If stays are fitted with nuts or riveted heads Nuts. working pressure of plating by rules 44 lbs.
 Diameter of stays at smallest part 1 1/4" working pressure of ditto by rules 98 lbs.
 End plates in steam space, thickness 3/4" pitch of stays to ditto 14" x 16" how stays are secured Double nuts &
 Working pressure by rules 74 lbs. diameter of stays at smallest part 2 1/8" working pressure by rules 105 lbs.
 Front plates at bottom, thickness 3/4" Back plates, thickness " greatest pitch of stays " working pressure by rules Lloyd's Register



5871 gls

Diameter of tubes $3\frac{1}{2}$ " pitch of tubes $4\frac{3}{4}$ " thickness of tube plates, front $\frac{3}{4}$ " back $\frac{1}{16}$ "
 How stayed *by tubes* pitch of stays $15\frac{1}{2}$ " width of water spaces $6\frac{1}{2}$ "
 Diameter of Superheater or Steam chest " length "
 Thickness of plates " description of longitudinal joint " diameter 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 *Vertical with internal inverted cone.*
 Made at *Wombaton* By whom made *Denny & Co.* when made *1882*
 Where fixed *Upper deck* working pressure *40 lbs* Tested by hydraulic pressure to *140 lbs* No. of Certificate *835*
 Fire grate area *15.2 sq ft* Description of safety valves *direct spring* No. of safety valves *two* area of each *4.06 sq in*
 If fitted with easing gear *yes* If steam from main boilers can enter the donkey boiler *no*
 Diameter of donkey boiler *6' 0 1/4"* Height *11' 2 1/4"* description of riveting *double & single lap joint*
 thickness of shell plates *5/8"* diameter of rivet holes *1 1/2"* whether punched or drilled *drilled*
 pitch of rivets *3 1/4"* lap of plating *4 1/4"* per centage of strength of joint *75 plate 80 rivet*
 thickness of ^{shell} crown plates *1/2"* stayed by *4 cord stays 2 5/8" dia.*
 Diameter of furnace, top *4' 4"* bottom *5' 3"* length of furnace *5' 3"*
 thickness of plates *7/16"* description of joint *single lap*
 thickness of furnace crown plates *7/16"* stayed by *4 cord stays 2 5/8" dia.*
 Working pressure of shell by rules *83 lbs* working pressure of furnace by rules *70 lbs.*
 diameter of uptake *16"* thickness of plates *3/8"* thickness of water tubes "

The foregoing is a correct description,
Denny & Co. Manufacturer.

General Remarks (State quality of workmanship, opinions as to class, &c.) *The above Engines & Boilers have been specially surveyed during construction. The workmanship and materials are good, and these having been seen under steam are now in good and safe working condition, and in my opinion eligible to be noted in the Register Book.* LLOYD'S M.C., 10.8.

Submitted that this vessel is eligible to have the registration + L.M.C. 10.8.2
 19/10/82
 DS

The amount of Entry Fee .. £ *3 : 4* : " received by me,
 Special .. £ *32 : 10* : "
 Certificate (if required) .. £ *gratis Oct 17 1882*
 (To be sent as per margin.)
 (Travelling Expenses, if any, £)
 Committee's Minute *24/10/82* 18
+ DS

Wm. Brownlie
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

