

REPORT ON MACHINERY.

No. 11144 Port of *Glasgow*
 No. in Survey held at *Dumbarton* Date, first Survey *4th March* Last Survey *14th Dec^r 91*
 Reg. Book. on the *S.S. "Ruahine"* (Number of Visits *26*)
 Master *H. E. Greenbeck* Built at *Dumbarton* By whom built *Wm. Denny & Co.* When built *1891*
 Engines made at *Dumbarton* By whom made *Denny & Co.* when made *1891*
 Boilers made at *"* By whom made *"* when made *1891*
 Registered Horse Power *624* Owners *New Zealand Shipping Co. Ltd* Port belonging to *Plymouth*
402 as per rule

ENGINES, &c.

Description of Engines *Quadruple (2 cranks)* No. of Cylinders *4*
 Diam. of Cylinders *32" 6 1/2"* Length of Stroke *60"* Rev. per minute *"* Point of Cut off, High Pressure *variable* Low Pressure *"*
 Diameter of Screw shaft *18"* Diam. of Tunnel shaft *16 1/2"* Diam. of Crank shaft journals *18"* Diam. of Crank pin *18"* size of Crank webs *13"x26"*
 Diameter of screw *19 1/2"* Pitch of screw *25"* No. of blades *4* state whether moveable *Yes* total surface *103 sq ft*
 No. of Feed pumps *Two* diameter of ditto *5 1/2"* Stroke *24"* Can one be overhauled while the other is at work *Yes*
 No. of Bilge pumps *Two* diameter of ditto *5 1/2"* Stroke *24"* Can one be overhauled while the other is at work *Yes*
 Where do they pump from *All Compartments*
 No. of Donkey Engines *Three* Size of Pumps *(2) 11 1/2" x 9" x 18" (Weirs)* Where do they pump from *Sea, Bilges, Hotwell & Ballast Tanks*
(2) 7 1/2" x 5" x 6" (Worthington)
 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 *1/2"* Are they connected to condenser, or to circulating pump *To circulating*
 How are the pumps worked *By Levers*
 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 *Near to*
 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 *Pipes to forward Combs* How are they protected *By wood casing*
 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 *On Slip before launching*
 Is the screw shaft tunnel watertight *Yes* and fitted with a sluice door *Yes* worked from *Upper platform*

BOILERS, &c.

No. of Boilers *Three* Description *Horizontal multitubular* Material *Steel* Letter (for record) *S*
 Working Pressure *180 lbs* Tested by hydraulic pressure to *360 lbs* Date of test *15th Oct 1891*
 Description of superheating apparatus or steam chest *None*
 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 *90 sq ft* Description of safety valves *Direct Spring* No. to each boiler *Two*
 Area of each valve *11"* 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 *"* Diameter of boilers *13' 9 1/8"*
 Length of boilers *18' 1 1/2"* description of riveting of shell long. seams *Double straps* circum. seams *Double* Thickness of shell plates *1 1/8"*
 Diameter of rivet holes *1 3/8"* whether punched or drilled *Drilled* pitch of rivets *8 1/16"* Lap of plating *Straps*
 Percentage of strength of longitudinal joint *83 1/2%* working pressure of shell by rules *183 lbs* size of manholes in shell *14" x 13"*
 No. of compensating rings *Doubling plate* No. of Furnaces in each boiler *Six* Description of Furnaces *Cocks Comb printed*
 Outside diameter *3' 5"* length *8 1/2 ft* thickness of plates *1 1/16"* description of joint *Welded* if rings are fitted *"*
 Greatest length between rings *23 1/2"* working pressure of furnace by the rules *194 lbs* combustion chamber plating, thickness, sides *9/16"* back *"* top *9/16"*
 Pitch of stays to ditto, sides *7/16" x 7/16"* back *"* top *7/16" x 7/16"* stays are fitted with nuts or riveted heads *Nuts* working pressure of plating by rules *184 lbs*
 Diameter of stays at smallest part *1 3/8"* working pressure of ditto by rules *190 lbs* plates in steam space, thickness *1 1/2"* doubling strips *"*
 Pitch of stays to ditto *16" x 15"* how stays are secured *By double nuts* working pressure by rules *210 lbs* diameter of stays at smallest part *3" x 2 3/4"*
 working pressure by rules *210 lbs* Front plates at bottom, thickness *1 1/16"* Back plates, thickness *"*
 Greatest pitch of stays *"* working pressure by rules *"* Diameter of tubes *2 1/4"* pitch of tubes *3 1/2" x 3 1/2"* thickness of tube plates, front *12/16"* back *12/16"* how stayed *By tubes* pitch of stay *10 1/2" x 4"* width of water spaces *about 4"*
 Diameter of Superheater or Steam chest *None* length *"* thickness of plate *"* description of longitudinal joint *"* diam. of rivet holes *"*
 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 *"*

To write on or below the Committee's Minutes



111776ls

DONKEY BOILER—

Description

Round multitubular

Made at *Lumbarton*

by whom made *Denny & Coy*

when made *1891* where fixed *Leeds House*

Working pressure *180 lbs* tested by hydraulic pressure to *360 lbs* No. of Certificate *3090* fire grate area *30 sq ft* description of safety valves *Direct Spring*

No. of safety valves *Two* area of each *4"* if fitted with easing gear *Yes* if steam from main boiler's can enter the donkey boiler *No* diameter of donkey boiler *10' 4 1/4"* length *8' 0 3/8"* description of riveting *Double buttraps*

Thickness of shell plates *1/16"* diameter of rivet holes *1/16"* whether punched or drilled *Filled* pitch of rivets *1"* lap of plating *Double*

per centage of strength of joint *84.8%* thickness of *End* plates *16/16"* stayed by *Iron stays 3/8" dia 1 1/4" x 12 1/2"*

Diameter of furnace *3' 2 1/2"* bottom *Comb. Cham.* length of furnace *5 ft* thickness of plates *9/16"* description of joint *Welded*

Thickness of *Comb. Cham.* plates *9/16"* stayed by *1 1/8" stays 1/2" pitch* working pressure of shell by rules *186 lb*

Working pressure of furnace by rules *182 lb* diameter of uptake *3"* thickness of *1 1/2" x 1 1/2"* tubes *3" dia.*

SPARE GEAR. State the articles supplied:— *1 Half crank shaft. 1 Propeller shaft. 16 Coupling bolts. 2 Propeller blades.*

1 Thomsons coupling, 1 Air & 1 Cir: pump rod. 1 Air pump bucket, 1 Head & 1 Foot valve. 1 set valves for air pumps. 1 do. Cir. 1 do. Feed, 1 do. Bilge. 2 Main bearing bolts. 1 Pair crank pin bushes. 2 Connig. rod top end bolts & nuts, 2 do. bott. end.

3 Valve spindles. 1 Quadrant bush. 2 Springs for safety valves, 1 do. Feed escape. 2 do. Cyl. escape. Springs for all pistons & pistons 20 Cond: tubes. 43 Boiler tubes, A large assortment of bolts & nuts.

The foregoing is a correct description.
Denny & Coy Manufacturers.

General Remarks

(State quality of workmanship, opinions as to class, &c. *These Engines & Boilers are of good materials & workmanship and are in good order & safe working condition and in our opinion to be noted in the Register. M.C. 12/91*

The Boilers in this vessel are fitted with ~~the~~ a arrangement of Force draught. and the Electric lighting is fitted by the Builders firm

Was submitted that this vessel included to have M.C 12-91 recorded 19/12-91

(Certificate (if required) to be sent to

The amount of Entry Fee .. £ 3 : 0 : 0 received by me.
Special £ 55 : 2 : 0
Donkey Boiler Fee £ .. : .. : ..

19/12/1891

[Signature]

James McIlvion Surveyor to Lloyd's Register of British & Foreign Shipping

Clyde District

(Traveling Expenses, if any, £

Committee's Minutes, 24 DEC 1891

Dec. 9 FEB 1892

+ Lumb 12/91

