

REPORT ON MACHINERY.

No. *4294*

Received at London Office **MONDAY, 1 FEB 1886**

No. in Survey held at *Glasgow* Date, first Survey *9th May 1883* Last Survey *Jan. 27th 1886*
 Reg. Book. *SS "City of Bombay"* (Number of Visits *61*) *4491.61*
 on the *SS "City of Bombay"* Tons *2938.43*
 Master *Anderson* Built at *Belfast* By whom built *Messrs Workman, Clark & Co* When built *1885*
 Engines made at *Glasgow* By whom made *Messrs J & J Thomson* when made *1885*
 Boilers made at *"* By whom made *"* when made *1885*
 Registered Horse Power *650* Owners *Messrs G. Smith & Sons* Port belonging to *Glasgow*

ENGINES, &c.—

Description of Engines *Compound Inverted direct acting*
 Diameter of Cylinders *50" x 96"* Length of Stroke *60"* No. of Rev. per minute *60* Point of Cut off, High Pressure *4.2* Low Pressure *3.7*
 Diameter of Screw shaft *14"* Diam. of Tunnel shaft *16"* Diam. of Crank shaft journals *14 1/2"* Diam. of Crank pin *14 1/2"* size of Crank webs *13 1/8" x 24 1/4"*
 Diameter of screw *19 ft* Pitch of screw *25 ft* No. of blades *4* state whether moveable *yes* total surface *106 sq ft*
 No. of Feed pumps *two* diameter of ditto *5"* Stroke *30"* Can one be overhauled while the other is at work *Yes*
 No. of Bilge pumps *two* diameter of ditto *6"* Stroke *30"* Can one be overhauled while the other is at work *Yes*
 do they pump from *Each compartment*
 Engines *One* Size of Pumps *5 1/2" 10 cyl 11 stroke* Where do they pump from *Sea, hotwell and*
of each compartment

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 *16 dia* Are they connected to condensers or to circulating pump *circulating pump*
 How are the pumps worked *By levers, centrifugal pump driven by separate engine*
 Are all connections with the sea direct on the skin of the ship *Yes* Are they Valves or Cocks *both Valves and Cocks*
 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 *forward suction* How are they protected *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 *before launching D. Ritchie*
 Is the screw shaft tunnel watertight *Yes* and fitted with a sluice door *Yes* worked from *the top platform*

BOILERS, &c.—

Number of Boilers *three* Description *Cyl. Mult double ended* Whether Steel or Iron *Steel*
 Working Pressure *90 lbs* Tested by hydraulic pressure to *180 lbs* Date of test *August 28th 1885*
 Description of superheating apparatus or steam chest *horizontal dome*
 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 *126 sq ft* Description of safety valves *direct spring* No. to each boiler *two*
 Area of each valve *21.64 sq"* Are they fitted with easing gear *Yes* No. of safety valves to superheater *1* area of each valve *✓*
 Are they fitted with easing gear *✓* Smallest distance between boilers and bunkers or woodwork *3.6 from deck* Diameter of boilers *14" 4"*
 Length of boilers *18 ft* description of riveting of shell long. seams *dbl riv butt* circum. seams *dbl riv lap* Thickness of shell plates *3/32"*
 Diameter of rivet holes *1 3/16"* whether punched or drilled *drilled* pitch of rivets *4 3/4"* Lap of plating *skapes 13 1/8" x 3/4"*
 Per centage of strength of longitudinal joint *45%* working pressure of shell by rules *95 lbs* size of manholes in shell *15 1/2" x 12"*
 Size of compensating rings *3 x 3 x 1/2"* No. of Furnaces in each boiler *Six*
 Outside diameter *44"* length, top *7 ft* bottom *✓* thickness of plates *1/2"* description of joint *welded, Adams* if rings are fitted *Yes*
 Greatest length between rings *3-8"* working pressure of furnace by the rules *90 lbs* combustion chamber plating, thickness, sides *1/2"* back *✓* top *1/2"*
 Pitch of stays to ditto, sides *8" x 8"* back *✓* top *8" x 8"* If stays are fitted with nuts or riveted heads *nuts riv at shell* working pressure of plating by rules *120* Diameter of stays at smallest part *1 3/8"* working pressure of ditto by rules *157 lbs* end plates in steam space, thickness *1/16"*
 Pitch of stays to ditto *15" x 16"* how stays are secured *dbl nuts & washers* working pressure by rules *105 lbs* diameter of stays at smallest part *2" screw* working pressure by rules *90 lbs* Front plates at bottom, thickness *1/16"* Back plates, thickness *✓*
 Greatest pitch of stays *✓* working pressure by rules *✓* Diameter of tubes *3 3/4"* pitch of tubes *5"* thickness of tube plates, front *12/16"* back *12/16"* how stayed *stay tubes* pitch of stays *15"* width of water spaces *5"*
 Diameter of Superheater or Steam chest *4 ft* length *18 ft* thickness of plates *1/2"* description of longitudinal joint *dbl riv lap* diam. of rivet holes *15/16"*
 Pitch of rivets *3 1/4"* working pressure of shell by rules *159 lbs* 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 *5/8"* how stayed *3-2" stays*
 Superheater or steam chest; how connected to boiler *con. pipes 1 1/2" x 18" dia*

DONKEY BOILER— Description

7297 gels
 Made at Glasgow by whom made Messrs J. & J. Thomson when made 1885 where fixed On deck
 Working pressure 150 lbs tested by hydraulic pressure to 150 lbs No of Certificate 1474 fire grate area 25 sq ft description of safety
 valves direct spring No. of safety valves two area of each 7.07 sq if fitted with easing gear Yes if steam from main boilers can
 enter the donkey boiler No diameter of donkey boiler 8' 6" length 8' 0" description of riveting Shear riv lap air dbl
 Thickness of shell plates 5/8" diameter of rivet holes 7/8" whether punched or drilled drill pitch of rivets 3 1/4" lap of plating 6"
 per centage of strength of joint 73% thickness of end plates 5/8" stayed by 1 3/4" stay dbl nuts 13 3/4" x 13 3/4"
 Diameter of furnace, top 2' 9" bottom 5' 6" length of furnace 5' 6" thickness of plates 9/16" x 7/16" description of joint lap S. Riv. 2 1/4" pitch
 Thickness of furnace tube crown plates 9/16" stayed by stay tubes working pressure of shell by rules 102 lbs
 Working pressure of furnace by rules 80 lbs diameter of uptake comb. cham thickness of plates 7/16" thickness of water tubes screw stays 1 1/4"
9 x 9

SPARE GEAR. State the articles supplied:— 1 propeller shaft 1 crank shaft (single throw) 1 pair of crank pin
brasses, 1 Valve spindle (common to both engines) 1 air pump rod 2 propeller blades 1 set of studs
for same 3 Safety Valve springs for Main Boilers 2 ditto for donk boiler 2 Top & 2 bottom end bolts & nuts
2 Main bearing bolts 1 set of coupling bolts 1 set of feed and bilge pump valves & seats assorted
bolts, iron &c
 The foregoing is a correct description,
John Thomson Manufacturer

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

The Engines and Boilers of the above named vessel
 have been constructed under Special Survey they are of good material and
 workmanship and are now in good order and safe working condition
 and eligible in our opinion to be noted in the Register Book L.M. 1-86

The shafting was examined while being rough turned, and afterwards
 and found to be satisfactory.

*It is submitted that
 this vessel is eligible
 to have a certificate
 M. 1/2/86*

The amount of Entry Fee .. £ 3 : : : received by me,
 Special .. £ 52 : 10 :
 Donkey Boiler Fee .. £ : : :
 Certificate (if required) .. £ : : : 30/11/86
 To be sent as per margin.
 (Travelling Expenses, if any, £/-/-/-)

Committee's Minute

TUESDAY 2 FEB 1886

G. L. Hindmarsh James Morrison
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Clyde District

Lloyd's Register
 Foundation