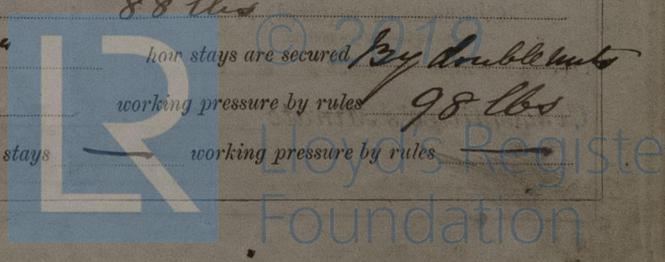


REPORT ON MACHINERY.

No. 5256 (Received in London Office 30/12/80)
 No. in Survey held at Glasgow Date, first Survey Mar. 3rd Last Survey Feb. 24th 1880
 Reg. Book. 1570-15
 on the Screw Steamer "Lith" Tons 2308-16
 Master Shustone Built at Glasgow When built 1880
 Engines made at Glasgow By whom made J. Gordon & Co. when made 1880
 Boilers made at " By whom made " " " when made 1880
 Registered Horse Power 300 Owners Geltalby Hankey & Lovell & Co. Port belonging to London

ENGINES, &c.—
 Description of Engines Compound Inverted Direct Acting
 Diameter of Cylinders 40" + 1/2" Length of Stroke 40" No. of Rev. per minute about 60 Point of Cut off, High Pressure — Low Pressure —
 Diameter of Screw shaft 13 1/4" Diameter of Tunnel shaft 12 1/4" Diameter of Crank shaft journals 13 1/2" Diameter of Crank pin 13 1/4" size of Crank webs 9" x 15 1/2"
 Diameter of screw 16 ft. Pitch of screw 20 to 21 ft. 3" No. of blades Four state whether moveable Yes total surface 40 ft. 2
 Diameter of Feed pumps 2 1/2" diameter of ditto 4 1/2" Stroke 21" Can one be overhauled while the other is at work Yes
 Diameter of Bilge pumps 2 1/2" diameter of ditto 4 1/2" Stroke 28 1/4" Can one be overhauled while the other is at work Yes
 Where do they pump from From the Bilge
 Number of Donkey Engines One Size of Pumps 9" cyl. 15" x 9 1/2" Where do they pump from The sea Bilge & Holdwell
 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
 Number of bilge injections One and sizes 8" 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 load line
 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
 How are the pipes carried through the bunkers By pipes to stokehold 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 ship previous to being launched
 Is the screw shaft tunnel watertight Yes and fitted with a sluice door Yes worked from Upper platform

BOILERS, &c.—
 Number of Boilers Two Description Round Horizontal (double ended)
 Working Pressure 80 lbs Tested by hydraulic pressure to 160 lbs Date of test 9. 9. 80
 Description of superheating apparatus steam chest Round Longitudinal Receiver fitted on each boiler
 Can each boiler be worked separately Yes Can the superheater be shut off and the boiler worked separately No Superheater
 No. of square feet of fire grate surface in each boiler 40 ft. Description of safety valves Direct Spring
 No. to each boiler Two area of each valve 10.63" 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 15"
 Diameter of boilers 12'-6" Length of boilers 16'-1 1/2" description of riveting of shell long. seams Double riveted circum. seams Double riveted
 Thickness of shell plates 1 1/16" diameter of rivet holes 1 1/4" whether punched or drilled Drilled pitch of rivets 6"
 Lap of plating 12 1/4" Straps per centage of strength of longitudinal joint 75 working pressure of shell by rules 89 lbs
 Size of manholes in shell 11 1/2" x 15 1/2" size of compensating rings A.S. rings 3 1/2" x 3 1/2" x 1 1/16"
 No. of Furnaces in each boiler Four outside diameter 3'-6" length, top 6'-6" bottom through funnels
 Thickness of plates 1 1/16" description of joint welded if rings are fitted cocks could be fitted near the greatest length between rings centre of furnaces
 Working pressure of furnace by the rules 131 lbs
 Combustion chamber plating, thickness, sides 1 1/16" back no back top 1 1/16"
 Pitch of stays to ditto sides 8 1/4" x 8 1/4" back — top 8 1/4" x 8"
 If stays are fitted with nuts or riveted heads Nuts working pressure of plating by rules 49 lbs
 Diameter of stays at smallest part 1 1/4" stays working pressure of ditto by rules 88 lbs
 End plates in steam space, thickness 1 1/16" pitch of stays to ditto 19" x 19" how stays are secured By double nuts
 Working pressure by rules — diameter of stays at smallest part 2 3/4" working pressure by rules 98 lbs
 Front plates at bottom, thickness 1 1/16" Back plates, thickness — greatest pitch of stays — working pressure by rules —



IRON 47. 0453

Diameter of tubes $3\frac{1}{2}$ " pitch of tubes $4\frac{3}{4}$ " thickness of tube plates, front $\frac{1}{16}$ " back $\frac{1}{16}$ "
 How stayed *By Tubes* pitch of stays $14\frac{1}{2} \times 9\frac{1}{2}$ " width of water spaces $6\frac{1}{2}$ "
 Diameter of ~~Superheater~~ or Steam chest $3\frac{1}{2}$ " length $10\frac{1}{2}$ "
 Thickness of plates $\frac{1}{16}$ " description of longitudinal joint *Double riveted Lap joint* diameter of rivet holes $1\frac{3}{16}$ " pitch of rivets $3\frac{3}{16}$ "
 Working pressure of shell by rules $139\frac{1}{2}$ lbs Diameter of flue $\frac{1}{2}$ " thickness of plates $\frac{1}{16}$ "
 If stiffened with rings $\frac{1}{2}$ " distance between rings $\frac{1}{2}$ " Working pressure by rules $\frac{1}{2}$ "
 End plates of ~~superheater~~ or steam chest; thickness $8\frac{1}{16}$ " How stayed *Dished & fitted with one Bar stay*
 Superheater or steam chest; how connected to boiler *By neck piece*

DONKEY BOILER— Description *Flat Sided Horizontal*
 Made at *Glasgow* By whom made *S. Howden & Co* when made *1880*
 Where fixed *On Upper Deck* working pressure 50 lbs Tested by hydraulic pressure to 100 lbs No. of Certificate *414*
 Fire grate area $14\frac{1}{2}$ sq ft Description of safety valves *Street Spring* No. of safety valves *Two* area of each 4 "
 If fitted with easing gear *Yes* If steam from main boilers can enter the donkey boiler *No*
 Diameter of donkey boiler $6\frac{1}{2} \times 9\frac{1}{2}$ " high length $8\frac{1}{2}$ ft description of riveting *Double*
 thickness of shell plates $\frac{1}{16}$ " diameter of rivet holes $1\frac{3}{16}$ " whether punched or drilled *Filled*
 pitch of rivets $3\frac{3}{16}$ " lap of plating $4\frac{1}{2}$ " per centage of strength of joint 75
 thickness of crown plates $\frac{1}{16}$ " stayed by $\frac{1}{2}$ "
 Diameter of furnace, $3\frac{1}{2}$ " bottom $\frac{1}{2}$ " length of furnace $5\frac{1}{2}$ "
 thickness of plates $\frac{1}{16}$ " description of joint *welded*
 thickness of furnace ~~plates~~ $\frac{1}{16}$ " stayed by $\frac{1}{2}$ "
 Working pressure of shell by rules 40 lbs working pressure of furnace by rules 41 lbs
 diameter of uptake *no uptake* thickness of plates $\frac{1}{16}$ " thickness of water tubes $\frac{1}{16}$ "

The foregoing is a correct description,
 Manufacturer.

James Howden & Co

General Remarks (State quality of workmanship, opinions as to class, &c. *The Engines & Boilers are of good workmanship and now in good order & safe working condition, except the Donkey pump which it is intended to replace with a new one, on this Donkey pump being satisfactory reported upon I am of opinion the Machinery & Boilers will be eligible to be noted in the Register Book.* *Lloyd's M 12.80* Donkey pump examined, and found to be in good condition, together with all pipes & connections.
 Geo. E. Williamson.

London, Jan. 4th 1881

It is submitted that this vessel's donkey pump should be submitted for survey when the vessel arrives in London. Note of 4/1/81 see Mr. Williamson's note of 31/12/80

It is submitted that the vessel is now eligible to have the notification of Lloyd's Register recorded in the Register Book. JM 4/1/81

The amount of Entry Fee $\pounds 3$: " : " received by me,
 Special .. $\pounds 35$: " : "
 Certificate (if required) .. \pounds : : : *22 Decr 1880*
 To be sent as per margin.
 (Travelling Expenses, if any, $\pounds 1.0.0$)

James Williamson
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute *Friday, December 31st 1880*
Lloyd's M