

# REPORT ON MACHINERY.

13153

No. \* 5230

No. in Survey held at Wentworth & Sanduland. Date, first Survey 19th Feb 1883 Last Survey 26 June 1883  
 Reg. Book. Wentworth & Sanduland. (Received at London) (S. 1. 10. 6)

on the "S. L. Phoenix" Tons 1150

Master B. Davis Built at Sanduland. When built 1883

Engines made at Wentworth By whom made J. Richardson when made 1883.

Boilers made at ditto By whom made ditto when made 1883.

Registered Horse Power 160 Owners A. Smith & Co. Port belonging to London

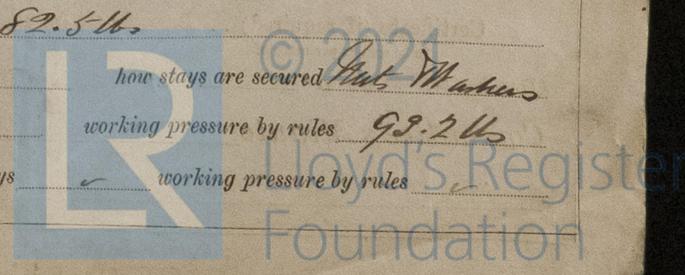
**ENGINES, &c.—**

Description of Engines Compound, Vertical, Surface condensing.  
 Diameter of Cylinders 23" and 61" Length of Stroke 33" No. of Rev. per minute 65 Point of Cut off, High Pressure 1/2 stroke Low Pressure 1/2 stroke  
 Diameter of Screw shaft 10" Diameter of Tunnel shaft 9 1/2" Diameter of Crank shaft journals 10 1/4" Diameter of Crank pin 10 1/4" size of Crank webs 11" x 6 1/2"  
 Diameter of screw 15" 0' Pitch of screw 16" 0' No. of blades 4 state whether moveable Yes total surface 58 sq. feet  
 No. of Feed pumps Two diameter of ditto 3 1/4" Stroke 21" Can one be overhauled while the other is at work Yes  
 No. of Bilge pumps Two diameter of ditto 3 1/4" Stroke 21" Can one be overhauled while the other is at work Yes  
 Where do they pump from Fore hold, after well, and engine bilges.  
 No. of Donkey Engines Two Size of Pumps 7 1/2" dia. 9" stroke Where do they pump from Small one from fore hold, after well, engine bilges, sea chest well, & large one from main tanks and engine bilges.  
 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 One and sizes 4 1/2" Are they connected to condenser, or to circulating pump Circulating pump.  
 How are the pumps worked By lever attached to crank of after engine.  
 Are all connections with the sea direct on the skin of the ship Yes Are they Valves or Cocks Valves.  
 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 None.  
 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 See Report.

**BOILERS, &c.—**

Number of Boilers One Description Cylindrical, Multitubular, Double ended.  
 Working Pressure 80 lbs Tested by hydraulic pressure to 160 lbs Date of test 23-2-83 Certificate No. 894  
 Description of superheating apparatus or steam chest Vertical down, Crucial ended.  
 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 75. Description of safety valves Spring - Richardson's Patent.  
 No. to each boiler Two area of each valve 21.64 sq. in. Are they fitted with easing gear Yes  
 No. of safety valves to superheater None area of each valve None are they fitted with easing gear None  
 Smallest distance between boilers and bunkers or woodwork 24" to bunkers  
 Diameter of boilers 19' 2" Length of boilers 15' 6" description of riveting of shell long. seams W. butt joint, 4" dia. circum. seams Lap double end Yes  
 Thickness of shell plates 1 3/16" diameter of rivet holes 1 1/16" whether punched or drilled drilled pitch of rivets 5 1/2"  
 Lap of plating Steps 9 1/2" wide per centage of strength of longitudinal joint 78.17 working pressure of shell by rules 80.2 lbs  
 Size of manholes in shell 16 3/4" x 13" size of compensating rings 2' 6" x 2' 3" x 1 1/2"  
 No. of Furnaces in each boiler None outside diameter 45" length, top 5' 5" bottom 15' 0"  
 Thickness of plates 1/2" description of joint Lap joint if rings are fitted None greatest length between rings 5' 5"  
 Working pressure of furnace by the rules 86.9 lbs  
 Combustion chamber plating, thickness, sides 15/32" back Yes top 15/32"  
 Pitch of stays to ditto sides 8" x 8 1/2" back Yes top 8 1/2" x 8 1/2"  
 If stays are fitted with nuts or riveted heads None. working pressure of plating by rules 93.4 lbs  
 Diameter of stays at smallest part 1 1/8" working pressure of ditto by rules 82.5 lbs  
 End plates in steam space, thickness 1 3/16" pitch of stays to ditto 16" x 16" how stays are secured Welded  
 Working pressure by rules 92.4 lbs diameter of stays at smallest part 2 1/4" working pressure by rules 93.2 lbs  
 Front plates at bottom, thickness 1/4" Back plates, thickness Yes greatest pitch of stays Yes working pressure by rules Yes

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Diameter of tubes  $2\frac{1}{4}$ " pitch of tubes  $4\frac{1}{2}$ " thickness of tube plates, front  $1\frac{1}{16}$ " back  $1\frac{1}{16}$ "  
 How stayed *Stay tubes* pitch of stays  $13\frac{1}{2} \times 9$ " width of water spaces  $1\frac{1}{4}$ "  
 Diameter of Superheater or Steam chest  $3' 0"$  length  $5' 0"$   
 Thickness of plates  $7\frac{1}{16}$ " description of longitudinal joint *lap of rivets* diameter of rivet holes  $1\frac{1}{16}$ " pitch of rivets  $2\frac{1}{16}$ "  
 Working pressure of shell by rules  $125\text{ lbs}$  Diameter of flue  $\checkmark$  thickness of plates  $\checkmark$   
 If stiffened with rings  $\checkmark$  distance between rings  $\checkmark$  Working pressure by rules  $\checkmark$   
 End plates of superheater, or steam chest; thickness  $\frac{1}{2}$ " How stayed *Conical Aided.*  
 Superheater or steam chest; how connected to boiler *angle iron (4 x 4 x 5/8) angle rivets*

**DONKEY BOILER—** Description *Artificial Iron cross water tubes.*  
 Made at *Guthrie* By whom made *Walter, Glasgow* when made *24-4-83.*  
 Where fixed *North-Sea* working pressure  $70\text{ lbs}$  Tested by hydraulic pressure to  $140\text{ lbs}$  No. of Certificate *1228*  
 Fire grate area  $25.5\text{ sq ft}$  Description of safety valves *Spring* No. of safety valves *two* area of each  $7.0709\text{ inches}$   
 If fitted with easing gear  $\checkmark$  If steam from main boilers can enter the donkey boiler *No*  
 Diameter of donkey boiler  $7' 0"$  length  $18' 0"$  description of riveting *lap of rivets*  
 thickness of shell plates  $9\frac{1}{16}$ " diameter of rivet holes  $1"$  whether punched or drilled *Punched*  
 pitch of rivets  $2\frac{1}{2}$ " lap of plating  $4\frac{1}{8}$ " per centage of strength of joint  $71\%$   
 thickness of crown plates  $5\frac{1}{8}$ " stayed by *diagonal and 7 stays.*  
 Diameter of furnace, top  $5' 8"$  bottom  $5' 11\frac{1}{2}"$  length of furnace  $5' 6"$   
 thickness of plates  $5\frac{1}{8}$ " description of joint *lap of rivets*  
 thickness of furnace crown plates  $9\frac{1}{16}$ " stayed by *same as shell crown.*  
 Working pressure of shell by rules  $79\text{ lbs}$  working pressure of furnace by rules  $70\text{ lbs}$   
 diameter of uptake  $18"$  thickness of plates  $7\frac{1}{16}$ " thickness of water tubes  $7\frac{1}{8}"$

The above particulars of Donkey Boiler  
 are taken from a report forwarded  
 by the Society, Glasgow, Scotland,  
 under whose inspection the Boiler  
 was built, and according attached.  
 James Lambey.

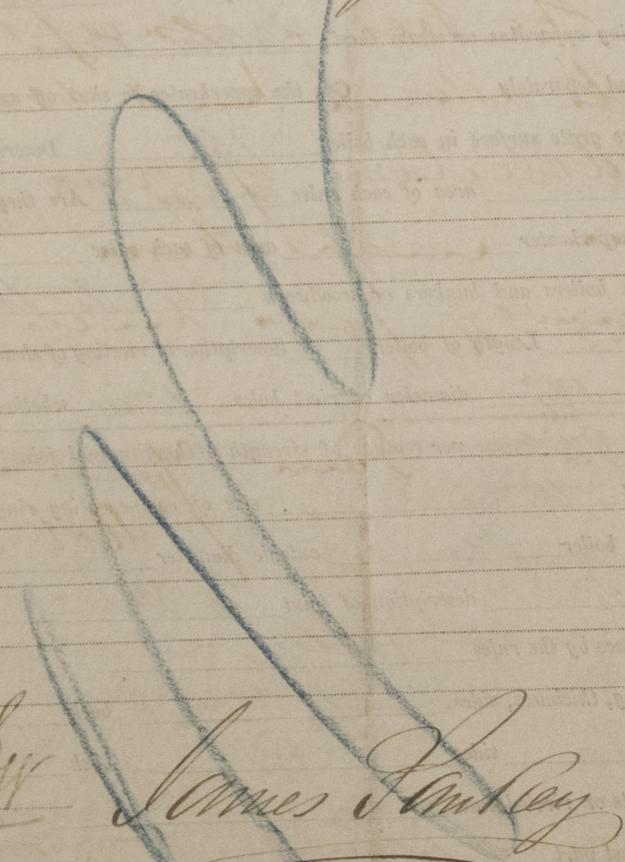
The foregoing is a correct description,

*J. Richardson & Sons* Manufacturers of Engines & Iron Boilers only  
*Glasgow*

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

*Material and Workmanship good.*  
*The Furnace Crown Plates, combustion Chamber, Watering, and*  
*back tube Plate are of the Manufacture by J. W. Gladstone Glasgow.*  
*The Machinery and Boiler of the above named vessel are*  
*in good order and safe working condition, and in my opinion, eligible*  
*for the Certificate L.M.C. 6.83. in the Register Book.*

*It is submitted that this*  
*report is correct to have*  
*the inspection of the*  
*records Jm 5/7/83*



The amount of Entry Fee .. £ 2 : : received by me,  
 Special .. £ 14 : :  
 Certificate (if required) .. £ : : : *3 shillings* 18 83.  
To be sent as per margin.  
(Travelling Expenses, if any, £ 2.5.0.)

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

Committee's Minute FRIDAY 6 JULY 1883 18

