

# REPORT ON MACHINERY.

No. 5400. (M. H. P.)  
 No. in Survey held at Stockton & Sunderland Date, first Survey 10 Sept 83 Last Survey 22 Jan 84  
 Reg. Book. S. S. "Hunnial" (Number of Visits 16) Tons 999  
 on the S. S. "Hunnial"  
 Master J. H. Rutherford Built at Sunderland By whom built S. P. Austin & Son When built 1883  
 Engines made at Stockton By whom made Blair & Co. Linn when made 1883  
 Boilers made at Do By whom made Do when made Do  
 Registered Horse Power 120 Owners Sharp & Co Port belonging to Newcastle  
 Makers H. H. P. 110

## ENGINES, &c.—

Description of Engines Compound Inverted Surface Condensing  
 Diameter of Cylinders 28 1/2 x 53 Length of Stroke 33 No. of Rev. per min at 65 Point of Cut off, High Pressure 1/2 stroke Low Pressure 1/2 stroke  
 Diameter of Screw shaft 10 Diam. of Tunnel shaft 9 3/8 Diam. of Crank shaft journals 9 3/4 Diam. of Crank pin 10 1/4 size of Crank webs 13 1/4 x 4  
 Diameter of screw 13.0 Pitch of screw 16.0 No. of blades Four state whether moveable No total surface not ascertained  
 No. of Feed pumps Two diameter of ditto 3 1/4 Stroke 2 1/2 Can one be overhauled while the other is at work Yes  
 No. of Bilge pumps Two diameter of ditto 3 1/4 Stroke 2 1/2 Can one be overhauled while the other is at work Yes  
 Where do they pump from one pump from tanks, engine room & after well. Other pump from engine room & after well  
 No. of Donkey Engines Two Size of Pumps 1 1/2 dia x 9 stroke Where do they pump from large donkey from engine room  
after well - tanks. Small donkey from sea, "hotwell" & tanks  
 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 6" Are they connected to condenser or to circulating pump circulating pump  
 How are the pumps worked By levers worked from crosshead on low pressure piston rod  
 Are all connections with the sea direct on the skin of the ship Yes Are they Valves or Cocks Stop valves & 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 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

## OILERS, &c.—

Number of Boilers One Description Horizontal Multitubular Whether Steel or Iron Plates & joints of steel  
 Working Pressure 80 lbs Tested by hydraulic pressure to 160 lbs Date of test 22.12.83 Certificate 8-10-19  
 Description of superheating apparatus or steam chest Horizontal Steam receiver  
 Can each boiler be worked separately ✓ Can the superheater be shut off and the boiler worked separately No Superheater  
 No. of square feet of fire grate surface in each boiler 53 1/4 Description of safety valves Spring No. to each boiler Two  
 Area of each valve 19.6 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 on woodwork 12" Diameter of boilers 15.4  
 Length of boilers 10.9 description of riveting of shell long. seams All steps double circum. seams Thickness of shell plates 15/16  
 Diameter of rivet holes 1 1/16 whether punched or drilled Drilled pitch of rivets 3 1/8 Lap of plating Straps 9 1/8  
 Per centage of strength of longitudinal joint 1/2 working pressure of shell by rules 95.3 lbs size of manholes in shell 12" x 16"  
 Size of compensating rings Rectangular plates 24" x 28" x 1 1/8 No. of Furnaces in each boiler Three  
 Outside diameter 3.9 length, top 6.9 bottom 9.6 thickness of plates 9/16 x 7/8 description of joint All steps double circum if rings are fitted Bottom 24" dia  
 Greatest length between rings 6.3 working pressure of furnace by the rules 90.3 lbs combustion chamber plating, thickness, sides 7/8 back 7/8 top 7/8  
 Pitch of stays to ditto, sides 8 x 8 back 8 x 1/4 top Curved If stays are fitted with nuts or riveted heads Paint outside part of working pressure of plating by rules 100.4 lbs  
 Diameter of stays at smallest part 1 3/16 working pressure of ditto by rules 126 lbs end plates in steam space, thickness 7/8  
 Pitch of stays to ditto 16 1/2 x 16 1/2 how stays are secured Nuts & washers working pressure by rules 100.4 lbs diameter of stays at smallest part 2 1/4  
 working pressure by rules 84.6 lbs Front plates at bottom, thickness 7/8 Back plates, thickness 7/8  
 Greatest pitch of stays 11 3/4 x 8 1/4 working pressure by rules 151.4 lbs Diameter of tubes 3 3/4 pitch of tubes 8 x 3 1/8 thickness of tube 15/16  
 plates, front 15/16 back 7/8 86.5 how stayed Stay tubes pitch of stays 15 x 10 1/4 width of water spaces 1 1/4 bet tubes  
 Diameter of Superheater or Steam chest 3.4 length 5.0 thickness of plates 7/8 description of longitudinal joint lap double diam. of rivet holes 13/16  
 Pitch of rivets 3 1/8 working pressure of shell by rules 158 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 3/4 how stayed Four stays  
 Superheater or steam chest; how connected to boiler Malleable neck 16 dia x 1 1/2 thick



DONKEY BOILER— Description *vertical with 3 cross tubes*  
Made at *Calicut* by whom made *Clark, Chapman & Co* when made *1883* where fixed *Stokehole*  
Working pressure *50 lbs* tested by hydraulic pressure to *100 lbs* No. of Certificate *1415* fire grate area *14.2 sq ft* description of safety  
valves *Spring* No. of safety valves *One* area of each *9.62 sq in* if fitted with easing gear *Yes* if steam from main boilers can  
enter the donkey boiler *No* diameter of donkey boiler *5.3* length *11.6* description of riveting *Double lap*  
Thickness of shell plates *3/8* diameter of rivet holes *3/4* whether punched or drilled *Punched* pitch of rivets *3* lap of plating *3 3/4*  
per centage of strength of joint *1/5* thickness of crown plates *1/16* stayed by *Four stays 1 1/4 dia*  
Diameter of furnace, top *3.11 1/4* bottom *4.5 3/8* length of furnace *5.3* thickness of plates *3/8* description of joint *Single lap*  
Thickness of furnace crown plates *1/16* stayed by *Four stays 1 1/4 dia* working pressure of shell by rules *69.1*  
Working pressure of furnace by rules *56 lbs* diameter of uptake *1 1/4* thickness of plates *3/8* thickness of water tubes *9 x 3/8*  
Above particulars of donkey boiler are copied from report attached received from *Clark, Chapman & Co*  
SPARE GEAR. State the articles supplied: *Propeller, two connecting rod top and bottom bolts & nuts,*  
*two connecting rod bottom end bolts & nuts, two main bearing bolts, one set coupling*  
*bolts, one set full & half pump valves, one set piston springs, bolts &*  
*nuts assorted, several pieces of iron & other spare gear*

The foregoing is a correct description,

*Problay, H. J. 7th* Manufacturers of Engines & Main Boilers only.

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

*Material & workmanship good*

*The whole of the material used in construction of main boiler, excepting dome neck & stays, is steel supplied by D. Colville. Motherwell*

*The Machinery & Boilers have been constructed under special survey & are in good order & safe working condition & in my opinion eligible for the notification \* L. M. C. 1. 84 in the Register Book*

The amount of Entry Fee £ 2 : : : received by me, *SW*

Special .. £ 18 : : :

Donkey Boiler Fee .. £ : : :

Certificate (if required) .. £ : : : *1st Feb. 1884*

To be sent as per margin.

(Travelling Expenses, if any, £ : : :)

Committee's Minute

TUESDAY 5 FEB 1884

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