

# REPORT ON MACHINERY.

13350

No. 5400 (M. 460)

Received at London Office MONDAY 4 FEB 1884

No. in Survey held at Stockton - Sunderland Date, first Survey 10 Sept 83 Last Survey 22 Jan 1884

Reg. Book. on the S. S. "Dunmail" (Number of Visits 15) Tons 999  
624

Master J. H. Rufford Built at Sunderland By whom built J. 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 A. 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 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 24 Can one be overhauled while the other is at work Yes

No. of Bilge pumps Two diameter of ditto 3 1/4 Stroke 24 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

When were stern tube, propeller, screw shaft, and all connections examined in dry dock Never

Is the screw shaft tunnel watertight Said to be and fitted with a sluice door Yes worked from Top platform in engine room

## OILERS, &c.—

Number of Boilers One Description Horizontal Multitubular Whether Steel or Iron Plates & parts of Steel

Working Pressure 80 lbs Tested by hydraulic pressure to 160 lbs Date of test 22.12.83 Certificate 11-10-79

Description of superheating apparatus or steam chest Horizontal Steam receiver

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 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 Yes Smallest distance between boilers and bunkers or woodwork 12" Diameter of boilers 15.4"

Length of boilers 10.9 description of riveting of shell long. seams All stays 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

Percentage 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 plate 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 stays double circum if rings are fitted Bottom stays with L shaped

Greatest length between 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 7 1/4 top Curved If stays are fitted with nuts or riveted heads Part outside part in working pressure of plating by rules 100 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 100.7 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 6 x 3 1/8 thickness of tube 15/16

plates, front 15/16 back 7/8 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 138 lbs diameter of flue — thickness of plates — If stiffened with rings —

Distance between rings 2 1/4 diameters 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 10 dia x 7 1/8

**DONKEY BOILER**— Description *vertical with 3 cross tubes*  
 Made at *Whitehead* by whom made *Clark, Chapman & Co* when made *1883* where fixed *St. Roch*  
 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 ft* 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 *75* thickness of crown plates *7/16* 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 *7/16* stayed by *Four stays 1 1/4 dia* working pressure of shell by rules *69 lb*  
 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*

SPARE GEAR. State the articles supplied: *Propeller, two connecting rod top end 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,  
*Problair* Manufacturer 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.~~ L.M.C. 1.84 in the Register Book*

*It is submitted that the vessel is eligible to have the notification L.M.C. 1.84 recorded*  
*W.P.*  
*4/2/84*

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

The amount of Entry Fee £ 2: : : received by me,  
 Special .. £ 18: : :  
 Donkey Boiler Fee .. £ : : :  
 Certificate (if required) .. £ : : :  
 To be sent as per margin.  
 (Travelling Expenses, if any, £ : : :)

Committee's Minute

TUESDAY 5 FEB 1884

