

# REPORT ON MACHINERY.

SAI. 14 FEB 1891

8312. Mbu 333 Port of West Hartlepool  
 Survey held at Hartlepool Date, first Survey 20<sup>th</sup> Oct 1890 Last Survey 13<sup>th</sup> Jan 1891  
 Book. (Number of Visits 144)  
 on the Screw Steamer "Vala"  
 Tons { Gross 2536  
 Net 1623  
 ter Thomas Ball Built at Stockton By whom built Richardson, Duck & Co When built 1891  
 ines made at Hartlepool By whom made Messrs J. Richardson & Sons when made 1891  
 ers made at Hartlepool By whom made Messrs J. Richardson & Sons when made 1891  
 stered Horse Power 200 Owners Messrs Carlisle & Co Port belonging to London  
 " 220

INES, &c.—  
 Description of Engines Inverted, Triple Expansion, 3 Cylinders No. of Cylinders 3  
 of Cylinders 22", 35", 59" Length of Stroke 39" Rev. per minute 65 Point of Cut off, High Pressure .54th Low Pressure .64th  
 eter of Screw shaft 10 1/2" Diam. of Tunnel shaft 10 1/2" Diam. of Crank shaft journals 10 1/2" Diam. of Crank pin 10 1/2" size of Crank webs 16 1/4" x 7 1/4"  
 eter of screw 16.0" Pitch of screw 17.0" No. of blades 4 state whether moveable no total surface 74 sq. ft.  
 of Feed pumps 2 diameter of ditto 2 1/4" Stroke 23" Can one be overhauled while the other is at work yes.  
 of Bilge pumps 2 diameter of ditto 3 1/4" Stroke 23" Can one be overhauled while the other is at work yes.  
 re do they pump from 2nd main, & after holds, After well & sea  
 of Donkey Engines 2 Size of Pumps (8 1/2" x 7") (3 1/2" x 7") Where do they pump from (Ballast tank, sea,  
 engine room bilge) (sea, holdwell, main boiler, & all bilges)  
 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.  
 of bilge injections one and sizes 4 1/2" dia Are they connected to condenser, or to circulating pump Circulating pump.  
 are the pumps worked By levers from the after piston rod crosshead.  
 all connections with the sea direct on the skin of the ship yes Are they Valves or Cocks both  
 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  
 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.  
 pipes are carried through the bunkers none How are they protected  
 all pipes, cocks, valves, and pumps in connection with the machinery accessible at all times yes.  
 the pipes, cocks, and valves arranged so as to prevent an unintentional connection between the sea and the bilges yes  
 were stern tube, propeller, screw shaft, and all connections examined in dry dock New vessel, before commencing.  
 screw shaft tunnel watertight and fitted with a sluice door yes worked from Top platform in Engine room.

ERS, &c.—  
 of Boilers Two Description Cyl. built Single Ended Material Steel Letter (for record) S  
 ing Pressure 160 lb. Tested by hydraulic pressure to 320 lb. Date of test 11<sup>th</sup> Nov. 1890  
 Description of superheating apparatus or steam chest none  
 each boiler be worked separately yes Can the superheater be shut off and the boiler worked separately no superheater  
 of square feet of fire grate surface in each boiler 42.5 Description of safety valves Spring No. to each boiler 2  
 of each valve 5.94 Are they fitted with easing gear yes No. of safety valves to superheater area of each valve  
 they fitted with easing gear Smallest distance between boilers and bunkers on woodwork 14" Diameter of boilers 13.8"  
 h of boilers 9.4" description of riveting of shell long. seams double butt strap, circum. seams double riv. lap Thickness of shell plates 1 1/16"  
 eter of rivet holes 1 1/16" whether punched or drilled drilled pitch of rivets 1 1/2" 2 1/4" Lap of plating 9 3/4"  
 ntage of strength of longitudinal joint 85.15 working pressure of shell by rules 160 lb. size of manholes in shell none  
 f compensating rings No. of Furnaces in each boiler 3 Description of Furnaces Corrugated  
 le diameter 3.4" length 5.6" bottom 6.0" thickness of plates 1 1/32" description of joint welded if rings are fitted 40  
 est length between rings working pressure of furnace by the rules 162 lb. combustion chamber plating, thickness, sides 5/8" back 5/8" top 5/8"  
 of stays to ditto, sides 8 1/2" x 8 1/2" back 8 1/2" x 8 1/2" top 8 1/2" x 8 1/2" If stays are fitted with nuts or riveted heads nuts working pressure of plating by  
 les 161 lb. Diameter of stays at smallest part 1 1/8" working pressure of ditto by rules 161 lb. end plates in steam space, thickness 1 1/4"  
 of stays to ditto 18 1/4" x 16 1/2" how stays are secured double nut & washer working pressure by rules 168 lb. diameter of stays at  
 smallest part 3 1/8" working pressure by rules 161 lb. Front plates at bottom, thickness 1 1/16" Back plates, thickness 7/8"  
 est pitch of stays 12" working pressure by rules 163 lb. Diameter of tubes 3 1/4" pitch of tubes 4 1/2" x 4 1/2" thickness of tube  
 ates, front 1" back 1 1/16" how stayed stay lugs pitch of stays 9 x 8 3/4" width of water spaces 1 1/4"  
 eter of Superheater or Steam chest length thickness of plates description of longitudinal joint diam. of rivet holes  
 of rivets working pressure of shell by rules diameter of flue thickness of plates If stiffened with rings  
 nce between rings working pressure by rules end plates of superheater, or steam chest; thickness how stayed  
 Superheater or steam chest; how connected to boiler



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Foundation



**DONKEY BOILER**— Description *Vertical, Cylindrical, Piston Patent, (Steel)*  
 Made at *Gatehead* by whom made *Clarke, Chapman, & Co.* when made *25.10.90* where fixed *In stockholm*  
 Working pressure *80 lb.* tested by hydraulic pressure to *160 lb.* No. of Certificate *3385* fire grate area *19 sq. ft.* description of safety  
 valves *Safety Spring* No. of safety valves *one* area of each *11.79* <sup>sq. in.</sup> if fitted with easing gear *Yes* if steam from main boilers can  
 enter the donkey boiler *No* diameter of donkey boiler *6.0* length *13.0* description of riveting *Double riv. lap*  
 Thickness of shell plates *7/16* diameter of rivet holes *7/8* whether punched or drilled *drilled* pitch of rivets *3 3/16* lap of plating *4 1/4*  
 per centage of strength of joint *72* thickness of crown plates *7/16* stayed by *6* stays *1 3/8* "off" dia.  
 Diameter of furnace, top *2.8* bottom *5.1* length of furnace *4.6* thickness of plates *7/16* description of joint *Single riv. lap*  
 Thickness of furnace crown plates *7/16* stayed by *6* stays *1 3/8* "off" dia.  
 Working pressure of furnace by rules *98 lb.* diameter of uptakes *10 1/2* thickness of plates *7/16* thickness of water tubes *7/16*  
 as reported by W. Harrison.

**SPARE GEAR.** State the articles supplied:— *One flyweller, One crank shaft, One screw shaft*  
*A set of bolts & nuts for a connecting rod & main bearing, 1 set coupling*  
*Bolts 1 set Feed Water pump valves, 1 set piston springs, Bolt & nuts asst.*  
*Iron asst.*

The foregoing is a correct description,  
**P. PRO T. RICHARDSON & SONS** Manufacturer. of Engines & main boilers.

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

*Main steam pipes tested by hydraulic pressure to 320 lb.*  
*per square inch and found tight.*

*The engines and boilers of this vessel have been constructed*  
*under Special Survey and of a good quality of workmanship*  
*the engines and main boilers have been examined under special*  
*safety valves adjusted, and found to work well and will, in*  
*my opinion, be eligible to have L. R. C. 1. 91. recorded in the*  
*Register Book when the following work has been executed*  
*to the satisfaction of a Surveyor of this Society.*

*Donkey boiler to be made secure and tested under steam, Fuel*  
*pipe in after well to be connected to engine suction pipe*  
*Screw tunnel to be fitted with a sluice door and made*  
*water-tight, Spare gear to be supplied in accordance with*  
*the Rules, Sluice valves in engine room to be made*  
*accessible at all times. The vessel has proceeded to*  
*Stockton for completion.*

*The work above mentioned has been satisfactorily*  
*Completed.*

*Wm. A. Austin.*

*Middlesbrough 13<sup>th</sup> Feb 1891.*

*It is submitted that this*  
*vessel is eligible to have*  
*the notation + L.M.C. 1. 91*  
*recorded.*

*14.2.91*  
 The amount of Entry Fee .. £ 2 : 0 : 0 *Applied for*  
*received by me,*

*Special* .. £ 31 : 0 : 0

*Donkey Boiler Fee* .. £ :

*Certificate (if required)* .. £ :

*To be sent as per margin.*  
*(Travelling expenses, if any, £ )*

*Committee's Minute*

**TUES. 17 FEB 1891**

*+ L.M.C. 1. 91*

*R. Stoddart*  
 Engineer Surveyor to Lloyd's Register of British & Foreign Ships.