

# REPORT ON MACHINERY.

8607

No. 8607 Port of West Hartlepool Received at London Office 21 OCT 91  
 No. in Survey held at West Hartlepool Date, first Survey 22<sup>nd</sup> Jan 7 Last Survey 14<sup>th</sup> Oct 1891.  
 Reg. Book. on the Saw Steamer "Emma" (Number of Visits 40)  
 Master Moore Built at W. Hartlepool By whom built Messrs. N. Irvine & Co. Tons { Gross 2893.07  
 Engines made at Hartlepool By whom made Messrs. J. Richardson & Sons when made 1891. Net 1887.28  
 Boilers made at Hartlepool By whom made Messrs. J. Richardson & Sons when made 1891.  
 Registered Horse Power 180 Owners O. Prochman Port belonging to W. Hartlepool  
250

## ENGINES, &c.—

Description of Engines Inverted Triple Expansion, 3 Cranks, No. of Cylinders 3  
 Diam. of Cylinders 23", 36 1/2", 59" Length of Stroke 42" Rev. per minute 60 Point of Cut off, High Pressure .53 Low Pressure .6  
 Diameter of Screw shaft 11 1/2" Diam. of Tunnel shaft 11" Diam. of Crank shaft journals 11 1/2" Diam. of Crank pin 11 3/4" size of Crank webs 16 3/4" x 7 3/4"  
 Diameter of screw 16.6" Pitch of screw 17.9" No. of blades 4 state whether moveable no total surface 80 sq. ft.  
 No. of Feed pumps 2 diameter of ditto 2 3/4" Stroke 26" Can one be overhauled while the other is at work yes.  
 No. of Bilge pumps 2 diameter of ditto 3 3/4" Stroke 26" Can one be overhauled while the other is at work yes.  
 Where do they pump from Sea, main & After holds, After well, Engine room & Sea.  
 No. of Donkey Engines 2 Size of Pumps (10" x 9") (4" x 6") Where do they pump from (Sea, tanks, & engine-room bilge) (Sea, hotwell, main boilers, & all 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" dia. Are they connected to condenser, or to circulating pump Circulating pump.  
 How are the pumps worked By lever from the after piston rod crosshead.  
 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 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 \_\_\_\_\_  
 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 2<sup>nd</sup> September 1891.  
 Is the screw shaft tunnel watertight yes and fitted with a sluice door yes worked from top platform of engine room.

## BOILERS, &c.—

No. of Boilers Two Description Cyl. built, single ended Material Steel Letter (for record) S  
 Working Pressure 160 lb. Tested by hydraulic pressure to 320 lb. Date of test 7<sup>th</sup> August 1891.  
 Description of super-heating apparatus or steam chest none. Heating surface 4113 sq. ft.  
 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 43 Description of safety valves Spring No. to each boiler 2  
 Area of each valve 7.07 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 16" Diameter of boilers 14.9"  
 Length of boilers 10.0 description of riveting of shell long. seams double butt straps circum. seams double lap Thickness of shell plates 1 5/16"  
 Diameter of rivet holes 1 9/32" whether punched or drilled drilled pitch of rivets 1 in 8 1/4", 2 in 4 1/8" Lap of plating 11"  
 Percentage of strength of longitudinal joint 84.46 working pressure of shell by rules 162 lb. size of manholes in shell none  
 Size of compensating rings \_\_\_\_\_ No. of Furnaces in each boiler 3 Description of Furnaces Ribbed (Purves patent)  
 Outside diameter 3.3 3/16" length 6.0 1/4", 6.7 bottom thickness of plates 1 5/32" description of joint welded if rings are fitted no  
 Greatest 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"  
 Pitch of stays to ditto, sides 8 1/2" x 8 1/2" back 8 1/2" x 7 1/8" top 8 1/2" x 8" If stays are fitted with nuts or riveted heads nuts working pressure of plating by rules 166 lb.  
 Diameter of stays at smallest part 1 3/8" working pressure of ditto by rules 164 lb. end plates in steam space, thickness 1 1/32"  
 Pitch of stays to ditto 18" x 17" how stays are secured double nuts & washers working pressure by rules 164 lb. diameter of stays at smallest part 2 3/4" working pressure by rules 174 lb. Front plates at bottom, thickness 1 3/16" Back plates, thickness 7/8"  
 Greatest pitch of stays 12" working pressure by rules 163 lb. Diameter of tubes 3 1/2" int. pitch of tubes 4 3/4" x 4 3/4" thickness of tube plates, front 1" back 1 1/16" how stayed stay tubes pitch of stays 14 1/4" x 9 1/2" width of water spaces 1 1/4"  
 Diameter of Superheater or Steam chest \_\_\_\_\_ length \_\_\_\_\_ thickness of plates \_\_\_\_\_ description of longitudinal joint \_\_\_\_\_ diam. of rivet holes \_\_\_\_\_  
 pitch of rivets \_\_\_\_\_ working pressure of shell by rules \_\_\_\_\_ 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 \_\_\_\_\_ how stayed \_\_\_\_\_  
 Superheater or steam chest; how connected to boiler \_\_\_\_\_

8607 90

2 DONKEY BOILER—S Description *Vertical, Cylindrical, 4 Cross tubes.*  
 Made at *Gateshead* by whom made *Clarke Chapman & Co* when made *26.59* where fixed *In stow hole*  
 Working pressure *80 lb.* tested by hydraulic pressure to *160 lb.* No. of Certificate *3589* fire grate area *25 sq. ft.* description of safety  
 valves *Spring* No. of safety valves *one* area of each *11.04* if fitted with easing gear *yes* if steam from main boilers can  
 enter the donkey boiler *no* diameter of donkey boiler *6.6"* 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 7/16"* lap of plating *1 1/4"*  
 per centage of strength of joint *72* thickness of crown plates *9/16"* stayed by *6 stays 1 1/8" dia.*  
 Diameter of furnace, top *5.2* bottom *5.6 3/4* length of furnace *5.3* thickness of plates *5/8"* description of joint *single riv lap*  
 Thickness of furnace crown plates *9/16"* stayed by *6 stays 1 1/8" dia.* working pressure of shell by rules *87 1/2*  
 Working pressure of furnace by rules *85 lb.* diameter of uptake *10 1/2"* thickness of plates *7/16"* thickness of water tubes *3/8"*  
 as reported by *J. A. Holden.*

SPARE GEAR. State the articles supplied:— *One Propeller, A set of bolts & nuts for a 100 lb rod, main bearing, & shaft coupling. A set of valves for the feed and bilge pumps. 2 sets of piston springs. Bolt & nuts & iron assorted*

The foregoing is a correct description,

*J. W. W. W.* 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 sq. inch and found tight*  
*The engines and boilers of this vessel have been constructed under Special Survey and of a good quality of workmanship they have been tried under steam the safety valves adjusted and found to work well, and are now in safe and efficient working condition and, in my opinion, eligible to have*  
*L.M.C. 10.91. recorded in the Register of this Society*

Date *14 10 91*

*It is submitted that this vessel is eligible for the record + L.M.C. 10.91*  
*C. J. P. 21.10.91*

The amount of Entry Fee .. £ *2 : 0 : 0* received by me, *W. W.*  
 Special .. .. £ *32 : 10 : 0*  
 Donkey Boiler Fee .. .. £ : :  
 Certificate (if required) .. £ *yes* : *20.10.1891.*  
 (To be sent as per margin.)  
 (Travelling Expenses, if any, £ .. ..)

FRI 23 OCT 1891

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

Committee's Minute

*+ Lmb 10/91*