

# REPORT ON MACHINERY.

7607

Port of West Hartlepool.

Received at London Office

THURS 15 AUGUST 1889

No. 4607

No. in Survey held at West Hartlepool.

Date, first Survey 18<sup>th</sup> January

Last Survey 7<sup>th</sup> August 1889.

Reg. Book.

(Number of Visits 40)

2084

Tons 1360.9

on the Screw Steamer "Garlands."

Master Holman Built at West Hartlepool By whom built Wm Gray & Co Limited When built 1889.

Engines made at West Hartlepool. By whom made Central Marine Engine Works when made 1889.

Boilers made at West Hartlepool. By whom made Central Marine Engine Works when made 1889.

Registered Horse Power 160 Owners Hardy, Wilson & Co Port belonging to West Hartlepool.

## ENGINES, &c.—

Description of Engines Triplic Expansion, Inverted, Direct acting, Surface Condensing with 3 Cranks.  
 Diameter of Cylinders 20"-31½"-53" Length of Stroke 36" No. of Rev. per minute 65 Point of Cut off, High Pressure ⅓ Low Pressure ⅓  
 Diameter of Screw shaft 9¾" Diam. of Tunnel shaft 9¾" Diam. of Crank shaft journals 9¾" Diam. of Crank pin 9¾" size of Crank webs 6"x13"  
 Diameter of screw 14"0" Pitch of screw Differential No. of blades 4 state whether moveable No total surface 63.5 Sq. feet.  
 No. of Feed pumps 2 diameter of ditto 2½" Stroke 24" Can one be overhauled while the other is at work Yes.  
 No. of Bilge pumps 2 diameter of ditto 3" Stroke 24" Can one be overhauled while the other is at work Yes.  
 Where do they pump from Sea, Engine Room Bilges, Tunnel well and after peak.  
 No. of Donkey Engines 2 Size of Pumps 8"x8" stroke 32"x6" cast Where do they pump from Feed—Sea, Hotwell, Engine Room Bilges, Ballast tanks, Tunnel & after peak, Ballast—Sea then Condenser, Bilges, Tanks, Tunnel well & after peak.  
 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 2 and sizes 5" Are they connected to condenser, or to circulating pump One to circulating pump.  
 How are the pumps worked By levers from the crosshead of the after engine.  
 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 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 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 25<sup>th</sup> July 1889.  
 Is the screw shaft tunnel watertight Yes. and fitted with a sluice door Yes. worked from Top platform of Engine Room.

## BOILERS, &c.—

Number of Boilers Two Description Single ended by one horizontal Whether Steel or Iron Steel.  
 Working Pressure 154 lbs. Tested by hydraulic pressure to 308 lbs. Date of test 22<sup>nd</sup> June 1889. (1885)  
 Description of superheating apparatus or steam chest None.  
 Can each boiler be worked separately Yes. Can the superheater be shut off and the boiler worked separately Yes.  
 No. of square feet of fire grate surface in each boiler 36 Sq. ft. Description of safety valves Spring No. to each boiler Two.  
 Area of each valve 4.06 Sq. ins. 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 21" Diameter of boilers 12'0"  
 Length of boilers 10'0" description of riveting of shell long. seams DB. Sharp Treble circum. seams Central Lap Treble Thickness of shell plates 1"  
 Diameter of rivet holes 1" 1½" whether punched or drilled Drilled pitch of rivets 6" 5½" Lap of plating 9" 15" wide.  
 Per centage of strength of longitudinal joint 85.3% working pressure of shell by rules 154 lbs. size of manholes in shell 16"x12"  
 Size of compensating rings ¾" wide x 1½" thick, double riveted, 1" rivets. No. of Furnaces in each boiler Two.  
 Outside diameter 3'11¼" length, top 6'6" bottom 8'11" thickness of plates ⅝" description of joint Welded Ribbed if rings are fitted ✓  
 Greatest length between rings ✓ working pressure of furnace by the rules 161 lbs. combustion chamber plating, thickness, sides ⅝" back ⅝" top ⅝"  
 Pitch of stays to ditto, sides 8½"x8½" back 8½"x8½" top 1½"x1½" If stays are fitted with nuts or riveted heads Nuts. working pressure of plating by rules 156 lbs.  
 diameter of stays at smallest part 1.38" working pressure of ditto by rules 160.9 lbs. and plates in steam space, thickness 15-16"  
 Pitch of stays to ditto 14¼"x14¼" how stays are secured Double nuts working pressure by rules 158.12 lbs. diameter of stays at smallest part 2.16" working pressure by rules 168.2 lbs. Front plates at bottom, thickness ¾" Back plates, thickness 29.32"  
 Greatest pitch of stays 12½" working pressure by rules 161.5 lbs. Diameter of tubes 3¼" pitch of tubes 4½"x4½" thickness of tube plates, front 15-16" back 23-22" how stayed Stay tubes pitch of stays 9"x9" width of water spaces 5"  
 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 ✓



**DONKEY BOILER—** Description *Vertical with four cross water tubes.*  
 Made at *Hest Harlepool* by whom made *Wm Gray & Co Limited* when made *1.4.89* where fixed *in stockhold*  
 Working pressure *7 1/2 lbs* tested by hydraulic pressure to *180 lbs* No. of Certificate *1868* fire grate area *24 sq feet* description of safety  
 valves *Spring* No. of safety valves *1* area of each *11 1/2 sq in* if fitted with easing gear *Yes* if steam from main boilers can  
 enter the donkey boiler *No* diameter of donkey boiler *6' 6"* length *12' 0"* description of riveting *Long Lap Double*  
 Thickness of shell plates *1 1/2"* diameter of rivet holes *1 1/2"* whether punched or drilled *Punched* pitch of rivets *2 1/4"* lap of plating *1 1/4"*  
 per centage of strength of joint *70%* thickness of crown plates *1 1/2"* stayed by *Six stays 2" dia*  
 Diameter of furnace, top *14' 4"* bottom *5' 4"* length of furnace *6' 8"* thickness of plates *1 1/2"* description of joint *Lap Single*  
 Thickness of furnace crown plates *1 1/2"* stayed by *Same as shell crown plate* working pressure of shell by rules *79 1/2 lbs*  
 Working pressure of furnace by rules *76 1/2 lbs* diameter of uptake *18"* thickness of plates *3/8"* thickness of water tubes *3/8"*

**SPARE GEAR.** State the articles supplied:— *2 Connecting Rod Top End Bolt nuts 2 Connecting Rod*  
*Bottom End Bolt nuts. 2 Main Bearing Bolt nuts. 1 Set Coupling Bolt nuts.*  
*1 Set Feed pump valves. 1 Set Bilge pump valves. 1 Set Springs for 11 p. piston*  
*1 Propeller. 6 Bars of Iron Aest. Bolt nuts asst.*

The foregoing is a correct description,

FOR THE CENTRAL MARINE ENGINE WORKS.

Manufacturer of Marine Engines & Boilers.

*Thomas M. M.*

MANAGER

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

*The Materials and Workmanship are of the*  
*Best description.*

*The Engines and Boilers have been constructed under*  
*Special Survey. When fitted on board the vessel the Engines*  
*were tried and worked satisfactorily. While the Main*  
*Boilers were found tight with steam up and their safety*  
*valves were adjusted to retain a working pressure of*  
*15 1/2 lbs per sq inch.*

*The Machinery of this vessel is now in*  
*good and safe working condition and eligible*  
*in my opinion to have the notation **L.M.C. 8, 89***  
*marked in the Society's Register Book.*

*It is submitted that this vessel*  
*is eligible to have **L.M.C. 8, 89***  
*recorded. **N.A.***  
*15.8.89*

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

Special .. £ 24 : : *R.H.D.*

Donkey Boiler Fee .. £ 2 : 2 : :

Certificate (if required) .. £ : : 13.8.1889

(Travelling Expenses, if any, £ )

Committee's Minute

FRIDAY 16 AUGUST 1889

*+ L.M.C. 8, 89*

*Wm Austin.*

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



Lloyd's Register  
Foundation

Record Freeboard