

# REPORT ON MACHINERY.

No. 6501 Received at London Office THURS 28 JULY 1887  
 No. in Survey held at West Hartlepool Date, first Survey 4<sup>th</sup> Jan Last Survey 20<sup>th</sup> July 1884  
 Reg. Book. on the Screw Steamer "Swansea" (Number of Vistas 43) 1832.68  
 Tons 2809.06

Masters Hamilton Murrell Built at West Hartlepool By whom built William Gray Esq When built 1884  
 Engines made at West Hartlepool By whom made Central Marine Engineer & Co<sup>y</sup> when made 1884  
 Boilers made at West Hartlepool By whom made Central Marine Engineer & Co<sup>y</sup> when made 1884  
 Registered Horse Power 280 Owners Hoope, Murrell & Williams Port belonging to London

## ENGINES, &c.—

Description of Engines Triple expansion Inverted Direct Acting Surface condensing  
 Diameter of Cylinders 24 1/2", 40", 65" Length of Stroke 42" No. of Rev. per minute 65 Point of Cut off, High Pressure 1/2 stroke Low Pressure 1/2 stroke  
 Diameter of Screw shaft 12 3/4" Diam. of Tunnel shaft 12" Diam. of Crank shaft journals 12 1/2" Diam. of Crank pin 12 1/2" size of Crank webs 4 1/2" x 20"  
 Diameter of screw 16' 3" Pitch of screw Differential No. of blades 4 state whether moveable No total surface 80 sq. feet  
 No. of Feed pumps 2 diameter of ditto 3 1/4" Stroke 26" Can one be overhauled while the other is at work Yes  
 No. of Bilge pumps 2 diameter of ditto 4" Stroke 26" Can one be overhauled while the other is at work Yes  
 Where do they pump from Sea, Engine Room Bilges and Tunnel  
 No. of Donkey Engines Two Size of Pumps Ballast 9"x9" Feed 4"x7" Stroke Where do they pump from Ballast— Engine Room Bilges, Sea and all tanks. Feed— Hotwell, Sea Boilers, Engine Room Bilges Tunnel & 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 2 and sizes 5" Are they connected to condenser, or to circulating pump 1 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 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 16<sup>th</sup> July 1887  
 Is the screw shaft tunnel watertight Yes and fitted with a sluice door Yes worked from Upper platform of Engine Room.

## OILERS, &c.—

Number of Boilers Two Description Cylindrical Multitubular, Double ended. Whether Steel or Iron Steel  
 Working Pressure 160 lbs Tested by hydraulic pressure to 320 lbs Date of test 23<sup>rd</sup> June 1884  
 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 ✓  
 No. of square feet of fire grate surface in each boiler 65.25 Description of safety valves Spring No. to each boiler Two  
 Area of each valve 9.62 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 or woodwork 24" Diameter of boilers 12' 6"  
 Length of boilers 15' 6" description of riveting of shell long. seams Treble Double Butt strap circum. seams Treble, Lap Thickness of shell plates 1 3/32"  
 Diameter of rivet holes long: 1 1/8" cir: 1 1/4" whether punched or drilled Drilled pitch of rivets long: 4 1/8" cir: 5" Lap of plating cir: 8 5/8" Butt Straps: 16 3/4"  
 Per centage of strength of longitudinal joint 85.2 working pressure of shell by rules 161.6 lbs size of manholes in shell 16" x 12"  
 Size of compensating rings 7 1/4" x 1 1/8" Double riveted with 1 1/8" rivets No. of Furnaces in each boiler 4  
 Outside diameter 46 1/4" length, top 6' 1" bottom ✓ thickness of plates 19 1/32" description of joint Welded corrugated if rings are fitted ✓  
 Greatest length between rings ✓ working pressure of furnace by the rules 162.1 lbs combustion chamber plating, thickness, sides 5/8" back ✓ top 5/8"  
 Pitch of stays to ditto, sides 8 5/8" x 8 1/2" back top 8" x 7 3/4" If stays are fitted with nuts or riveted heads Nuts working pressure of plating by rules 161.5 lbs Diameter of stays at smallest part 1.38" working pressure of ditto by rules 163.2 lbs end plates in steam space, thickness 3 1/32"  
 Pitch of stays to ditto 14 3/8" x 14 1/4" how stays are secured Double nuts working pressure by rules 162.7 lbs diameter of stays at smallest part 2.16" working pressure by rules 160.9 lbs Front plates at bottom, thickness 1 1/16" Back plates, thickness ✓  
 Greatest pitch of stays ✓ working pressure by rules ✓ Diameter of tubes 3 1/4" pitch of tubes 4 1/2" x 4 1/2" thickness of tube plates, front 3 1/32" back 3 1/32" how stayed Stay tubes pitch of stays 9" x 9" width of water spaces 6"  
 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 BOILERS**

Description *Vertical with four cross water tubes.*

Made at *West Hartlepool* by whom made *H. Gray & Co.*

when made *1887* where fixed *Stokehold*

Working pressure *45 lbs* tested by hydraulic pressure to *150 lbs* No. of Certificate *1428*

fire grate area *19 Sq. feet.* description of safety valves *Spring*

No. of safety valves *2*

area of each *5.4 Sq. in.*

fitted with easing gear *Yes*

if steam from main boilers can enter the donkey boiler *No*

Thickness of shell plates *9/16"*

diameter of rivet holes *13/16"*

whether punched or drilled *punched*

pitch of rivets *2 7/8"* lap of plating *4 1/4"*

percentage of strength of joint *71.44*

thickness of crown plates *9/16"*

stayed by *Six Stays 2" diameter*

description of joint *Lap Single*

Diameter of furnace, top *4' 1/2"*

bottom *5' 2 1/2"*

length of furnace *5.88 ft*

thickness of plates *9/16"*

Thickness of furnace crown plates *9/16"*

stayed by *Same as shell crown*

working pressure of shell by rules *44.2*

Working pressure of furnace by rules *45 lbs*

diameter of uptake *13"*

thickness of plates *3/8"*

thickness of water tubes *3/8"*

SPARE GEAR. State the articles supplied:— *1 Spare Propellor, 2 Connecting Rod top End Bolts & Nuts, 2 Connecting Rod bottom End Bolts & Nuts, 2 Main Bearing Bolts & Nuts, 2 Feed check valves, 1 Set Feed pump valves, 1 Set Bilge pump valves, 2 Plates iron, 36 Bolts, Studs & Nuts assorted.*

The foregoing is a correct description,

PER PRO CENTRAL MARINE ENGINEERING CO

Manufacturer.

*Thomas Madd.*

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

*Materials and Workmanship good.*

*The Engines and Boilers of this vessel have been constructed under Special Survey; after being fitted on board the Boilers were examined under steam and found tight, their Safety valves being then adjusted to retain a working pressure of 160 lbs per sq. inch. The Engines were tried and worked in a satisfactory manner.*

*The Machinery and Boilers are now in good order and safe working condition and eligible in my opinion to have the notification  $\times$  L. No. 6.7.87 recorded in the Society's Register Book.*

The amount of Entry Fee .. £ 2 : 4 : 4 received by me,  
Special .. .. £ 34 : . : "  
Donkey Boiler Fee .. .. £ 2 : 2 : "  
Certificate (if required) .. £ : : 26.7.1887  
To be sent as per margin.

*E. W.*

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

Committee's Minute **FRI JULY 29 1887**

*T. M. C.*



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For  
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No. of  
Engines