REPORT ON MACHINERY.

7888

Port of West Hartlepool

No. 7888

Received at London Office THURS 6 FEB 1890

No. in Reg. Book. Survey held at West Hartlepool. Date, first Survey 8th Augt 89 Last Survey 29th Jany 1890

(Number of Visits 40)

on the Screw Steamer "Eton." Tons 2688·24 1745·61

Master Built at West Hartlepool By whom built Wm Gray & Co Ltd When built 1890.

Engines made at West Hartlepool By whom made Central Marine Engine Works W. Gray & Co Ltd when made 1890.

Boilers made at West Hartlepool By whom made Central Marine Engine Works W. Gray & Co Ltd when made 1890.

Registered Horse Power 250 Owners Edward Pembroke Port belonging to London.

HP. for Fees 2½

ENGINES, &c.— (Triple expansion)

Description of Engines Triple expansion, (3 Cranks) Inverted, Direct acting, Surface condensing.

Diameter of Cylinders 23"-36½"-62" Length of Stroke 39". No. of Rev. per minute 65. Point of Cut off, High Pressure ·55 Low Pressure ·55.

Diameter of Screw shaft 11¼" Diam. of Tunnel shaft 10¾" Diam. of Crank shaft journals 11¼" Diam. of Crank pin 11¼" size of Crank webs 16" × 7".

Diameter of screw 15'.9". Pitch of screw Differential No. of blades 4 state whether moveable No total surface 74·1 Sq: feet.

No of Feed pumps 2 diameter of ditto 3" Stroke 30". Can one be overhauled while the other is at work Yes.

No. of Bilge pumps 2 diameter of ditto 3½" Stroke 30". Can one be overhauled while the other is at work Yes.

Where do they pump from Engine Room Bilges, Forehold, Tunnel Well and after peak.

No. of Donkey Engines Two. Size of Pumps Feed 3½×6¾ Stroke. Ballast 10"×9" Stroke. Where do they pump from Feed-Sea, Hotwell, Forehold, Combines Surface. Double acting.

all tanks, Bilges & Tunnel Well. Ballast-Sea this Condenser, all tanks, Forehold, Eng: Bilges and Tunnel Well.

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 ✓

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 27th January 1890.

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 end Cylr Multitubular Whether Steel or Iron Steel.

Working Pressure 150 lbs: Tested by hydraulic pressure to 300 lbs: Date of test 30th Nov 1889. (No 2010)

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 54 Sq: ft: Description of safety valves Spring No. to each boiler Two.

Area of each valve 7·065 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 19". Diameter of boilers 14'. 3".

Length of boilers 10'. 0". description of riveting of shell long. seams 2 Straps Treble circum. seams (Endsquare flanged) Centre Lap Treble Thickness of shell plates 13/16".

Diameter of rivet holes long 13/16" Cir: 1⅛" whether punched or drilled Drilled pitch of rivets long 7/8" circ: 5½". Lap of plating circ: 9½". 2 Straps: 17¾ wide.

Per centage of strength of longitudinal joint 84·9%. working pressure of shell by rules 163·3 lbs: size of manholes in ~~shell~~ end 16" × 12".

Size of compensating rings 24" × 24" × ⅞" thick. Double riveted. No. of Furnaces in each boiler Three

Outside diameter 3'. 4½". length, top 6'. 3". bottom 9'. 0". thickness of plates 17/32" description of joint Welded-Ribbed. if rings are fitted ✓

Greatest length between rings ✓ working pressure of furnace by the rules 160·4 lbs combustion chamber plating, thickness, sides 5/8" back 5/8" top 5/8".

Pitch of stays to ditto, sides 8 7/8" × 8 7/8" back 8¾" × 8¾" top 7½" × 8½" If stays are fitted with nuts or riveted heads Nuts. working pressure of plating by rules 152·3 lbs Diameter of stays at smallest part 1·38". working pressure of ditto by rules 154·5 lbs end plates in steam space, thickness 1/32".

Pitch of stays to ditto 15 7/8" × 15¼". how stays are secured Double Nuts working pressure by rules 157·2 lbs: diameter of stays at smallest part 2·28". working pressure by rules 152 lbs: Front plates at bottom, thickness ¾" Back plates, thickness ⅞".

Greatest pitch of stays 12½" working pressure by rules 150·5 lbs Diameter of tubes 3¼". pitch of tubes 4½" × 4½" thickness of tube plates, front 15/16" back 23/32" how stayed Stay tubes pitch of stays 9" × 9" 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 ✓

2 Ste... ...EY BOILER— Description Vertical with three cross water tubes.

Made ...st Hartlepool by whom made W^m Gray & Co^{ld} Limited when made 30.12.89 where fixed In Stokehole

Working pressure 80 lbs: tested by hydraulic pressure to 160 lbs: No. of Certificate 2037. fire grate area 15.9 Sq: ft: description of valves Spring. No. of safety valves One area of each 7.66 Sq: in: if fitted with easing gear Yes. if steam from main boiler enter the donkey boiler No. diameter of donkey boiler 5'. 3". length 12'. 0". description of riveting Long^{al}. Lap Double

Thickness of shell plates 3/8". diameter of rivet holes 13/16". whether punched or drilled Punch 3/4 pitch of rivets 2 3/4". lap of plating 4 1/4". per centage of strength of joint 70.4 thickness of crown plates 3/8". stayed by Six Stays 1 1/2" Effective dia 7/16".

Diameter of furnace, top 4'. 0"; bottom 4'. 7"; length of furnace 5'. 4 ft: thickness of plates 17/32" description of joint Lap Single.

Thickness of furnace crown plates 17/32" stayed by Same as these crown plate. working pressure of shell by rules 83.7 lb

Working pressure of furnace by rules 80.9 lbs: diameter of uptake 14", thickness of plates 3/8" thickness of water tubes 3/8".

SPARE GEAR. State the articles supplied :— 2 Each Connecting Rod top & bottom End Bolts & nuts. 2 Main Bearing Bolts Nuts, 1 Set Coupling Bolts, 1 Set Suct Feed & Bilge pump valves, 1 Set Springs for H.P. piston. 1 Propellor, 6 Bar Iron, 1/3 Crank shaft, 1 Propellor shaft. 1 Pair Crank pin Locks. 1 H.P. Valve & Gl^{d}-face, 1 H.P. Packing ring. 1 Eccentric strap, 1 Crosshead brass, 12 Condenser tubes. 50 Boiler tubes. Bolts & nuts assᵗ.

The foregoing is a correct description,

FOR THE CENTRAL MARINE ENGINE WORKS, (W. Gray & Co. Ltd.) Manufacturer. Thomas Mudd.

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

The Materials and Workmanship are of the best description.

Weir's patent Feed Heater and Pump are fitted, the latter being arranged to work direct to the Main Boilers. an Evaporator is also fitted to supply fresh water.

The Engines and Boilers have been built under Special Survey; When fitted on board the former were tried and worked well, while with full steam up. the Boilers were found tight. The whole Machinery is now in good and efficient condition and Eligible in my opinion to have the notation ✠ L. M. C. 1, 90. marked in the Society's Register Book.

It is submitted that this Vessel is eligible to have ✠ L.M.C. 1-90 recorded- W.A. 6-2-90

The amount of Entry Fee .. £ 2 : - : - received by me,
Special ... £32 : 2 : -
Donkey Boiler Fee .. £ 2 : 2 : -
Certificate (if required) .. £ : : 5.2.1890.
To be sent as per margin.
(Travelling Expenses, if any, £)

W.R.

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

Committee's Minute FRIDAY 7 FEB 1890
Machinery Certificates Written.
✠ LMC 1, 90

HPL361/185