

# REPORT ON MACHINERY.

Port of *West Hartlepool*

Received at London Office **WED. 24 JAN 1894**

No. in Survey held at *Ex Hpl* Date, first Survey *17<sup>th</sup> Aug 93* Last Survey *13<sup>th</sup> Jan 1894*  
Reg. Book.

on the *Screw Steamer Pacific* Tons { Gross *2622* Net *1690*

Master *F Marshall* Built at *Ex Hpl* By whom built *Ex Gray & Co L<sup>td</sup>* When built *1894*

Engines made at *Ex Hpl* By whom made *Central Marine Engine Works* when made *1894*

Boilers made at *Ex Hpl* By whom made *Central Marine Engine Works* when made *1894*

Registered Horse Power *250* Owners *W. H. Cockerline & Co* Port belonging to *Hull*

Nom. Horse Power as per Section 28 *257*

**ENGINES, &c.—** Description of Engines *Triple. Inverted. Direct.* No. of Cylinders *Three*

Diameter of Cylinders *24"-38"-64"* Length of Stroke *42* Revolutions per minute *65* Diameter of Screw shaft *as per rule 11.26*  
*as fitted 11.1/2*

Diameter of Tunnel shaft *as per rule 10.7* Diameter of Crank shaft journals *11.1/2* Diameter of Crank pin *11.1/2* Size of Crank webs *16.1/4 x 7.1/8*  
*as fitted 11"*

Diameter of screw *15-3"* Pitch of screw *Differential* No. of blades *4* State whether moveable *no* Total surface *73 sq ft*

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*

No. of Donkey Engines *Three* Sizes of Pumps *6x6, 4x6, 10x9"* No. and size of Suctions connected to both Bilge and Donkey pumps  
*In Engine Room Three. Two 3" & one 3.1/2"* *In Holds, &c. Two 2.1/4" in Fore Hold. Two 2.1/4" in*  
*Fore Main Hold. Two 2.1/4" in Aft Main Hold. One 2.1/4" in After Hold with connection to Aft.*

No. of bilge injections *1* size *5* Connected to condenser or to circulating pump *Is a separate donkey suction fitted in Engine room & size* *Yes 3.1/2"*

Are all the bilge suction pipes fitted with roses *Yes* Are the roses in Engine room always accessible *Yes* Are the sluices on Engine room bulkheads always accessible *Yes*

Are all connections with the sea direct on the skin of the ship *Yes except* Are they Valves or Cocks *To Th*

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 and all boiler mountings accessible at all times *Yes*

Are the bilge suction pipes, cocks, and valves arranged so as to prevent any communication between the sea and the bilges *Yes*

When were stern tube, propeller, screw shaft, and all connections examined in dry dock *13<sup>th</sup> Jan* Is the screw shaft tunnel watertight *Yes*

Is it fitted with a watertight door *Yes* worked from *Top platform Engine room*

**BOILERS, &c.—** (Letter for record *S*) Total Heating Surface of Boilers *3750*

No. and Description of Boilers *Two single ended multi-tubular* Working Pressure *160* Tested by hydraulic pressure to *320*

Date of test *31.10.93* Can each boiler be worked separately *Yes* Area of fire grate in each boiler *42.5* No. and Description of safety valves to  
each boiler *Two spring direct* Area of each valve *8.3* Pressure to which they are adjusted *15.5-76.8* Are they fitted  
with easing gear *Yes* Smallest distance between boilers or uptakes and bunkers *18"* Mean diameter of boilers *14-9"*

Length *10-0"* Material of shell plates *Steel* Thickness *1.3/16"* Description of riveting: circum. seams *Treble* long. seams *Treble*

Diameter of rivet holes in long. seams *1.3/16"* Pitch of rivets *8"* Lap of plates or width of butt straps *9.1/2" & 17.1/4"*

Per centages of strength of longitudinal joint *86.6* Working pressure of shell by rules *163.5* Size of manhole in shell *16x12"*  
plate *85:1*

Size of compensating ring *✓* No. and Description of Furnaces in each boiler *3 ribbed (Brown)* Material *Steel* Outside diameter *43.1/2"*

Length of plain part *4.1/2"* Thickness of plates *1.1/2"* Description of longitudinal joint *weld* No. of strengthening rings *✓*  
top *4.1/2"* bottom *8"* crown *1.1/2"* bottom *1.1/2"*

Working pressure of furnace by the rules *160* Combustion chamber plates: Material *Steel* Thickness: Sides *19/32"* Back *19/32"* Top *19/32"* Bottom *7/8"*

Pitch of stays to ditto: Sides *8.1/2" x 8.1/2"* Back *8.1/2" x 8"* Top *8.1/2"* If stays are fitted with nuts or riveted heads *Nuts* Working pressure by rules *163.7*

Material of stays *Steel* Diameter at smallest part *1.383* Area supported by each stay *74.39* Working pressure by rules *161.3* End plates in steam space:  
Material *Steel* Thickness *1"* Pitch of stays *6.1/16" x 6.1/16"* How are stays secured *nuts* Working pressure by rules *161.0* Material of stays *Steel*

Diameter at smallest part *2.53* Area supported by each stay *278.2* Working pressure by rules *163.4* Material of Front plates at bottom *Steel*

Thickness *3/4"* Material of Lower back plate *Steel* Thickness *1"* Greatest pitch of stays *14"* Working pressure of plate by rules *176.3*

Diameter of tubes *3.1/4"* Pitch of tubes *4.1/2"* Material of tube plates *Steel* Thickness: Front *15/16"* Back *5/8"* Mean pitch of stays *9x9"*

Pitch across wide water spaces *14.1/4"* Working pressures by rules *166.2 & 172.8* Girders to Chamber tops: Material *Steel* Depth and  
thickness of girder at centre *8" x 5.1/8"* Length as per rule *24"* Distance apart *8.1/2"* Number and pitch of Stays in each *one 8.5/8"*

Working pressure by rules *168.3* Superheater or Steam chest; how connected to boiler *None* Can the superheater be shut off and the boiler worked  
separately

Diameter Length Thickness of shell plates Material Description of longitudinal joint Diam. of rivet  
holes Pitch of rivets Working pressure of shell by rules Diameter of flue Material of flue plates Thickness

If stiffened with rings Distance between rings Working pressure by rules End plates: Thickness How stayed

Working pressure of end plates Area of safety valves to superheater Are they fitted with easing gear

If not, state whether, and when, one will be used. In a Report also sent on the hull of the ship. L.R.L.A. Form No. 8. 4/2/92. Copyable Ink.

**DONKEY BOILER**— Description *Cir<sup>d</sup> vert<sup>d</sup> Cochran's Patent*  
 Made at *Birkenhead* By whom made *Cochran & Co* When made \_\_\_\_\_ Where fixed *stoke hold*  
 Working pressure *80* tested by hydraulic pressure to *160* No. of Certificate *1966* Fire grate area *20.5* Description of safety valves *Spring Direct*  
 No. of safety valves *Two* Area of each \_\_\_\_\_ Pressure to which they are adjusted *85* 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'-6"* Material of shell plates *Steel* Thickness *7/16*  
 Description of riveting long. seams *Double C single<sup>lap</sup>* Diameter of rivet holes *15/16* Whether punched or drilled *Drilled* Pitch of rivets *2 3/8"*  
 Lap of plating *4 1/16* Per centage of strength of joint Rivets *89.4* Thickness of shell crown plates *13/32* Radius of do. *Hemispherical*  
 Dia. of stays. *✓* Diameter of furnace Top *5'-4"* Bottom *5'-4"* Length of furnace *Circular* Thickness of furnace plates *9/16* Description of  
 joint *Single riv<sup>lap</sup>* Thickness of furnace crown plates *5/8"* Stayed by *Tube stays pitched 10 1/2° 10 1/2°* Working pressure of shell by rules *81.5*  
 Working pressure of furnace by rules *80.0* Diameter of uptake *17x19"* Thickness of uptake plates *1/2* Thickness of water tubes *none*

SPARE GEAR. State the articles supplied:— *One set connecting rod bolts top & bottom. One set  
 coupling bolts. Two main bearing bolts. One set feed & bilge pump valves. One set  
 springs<sup>for</sup> HP piston. 120 bolts & nuts assorted. 6 bars iron. 1 propeller. 1/2 crank shaft  
 1 tail shaft*

The foregoing is a correct description,

FOR THE CENTRAL MARINE ENGINE WORKS,

Manufacturer of main engines and boilers

*Thomas Mudd*

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

*The main engines and boilers of this vessel have been  
 constructed under special survey and are of good work-  
 manship. The boiler material has been tested as required  
 by the rules. The boilers and main steam pipes have been  
 tested by hydraulic pressure to 320 lbs. The engines and  
 boilers have been tried under steam and all safety valves  
 adjusted and are in my opinion eligible to have **L.M.C. 1.94**  
 recorded in the Register book*

*It is submitted that  
 this vessel is eligible for  
 THE RECORD + L.M.C. 1-94*

*W.A.  
 24-1-94*

*Boyle*

MACHINERY CERTIFICATE  
 WRITTEN.

Certificate (if required) to be sent to

The amount of Entry Fee..	£ 2 : 0 :	When applied for, 23.1.94
Special .. .. .	£ 32 : 17 :	
Donkey Boiler Fee .. .. .	£ : :	When received, 23.1.94
Travelling Expenses (if any) £	: :	

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

FRI 26 JAN 1894

Committee's Minute

Assigned

*+ L.M.C. 1.94*



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 Foundation

The Surveys are required not to write on or below the space for Committee's Minutes.