

# REPORT ON MACHINERY.

Port of **WEST HARTLEPOOL.**

Received at London Office 18

No. in Survey held at **West Hartlepool** Date, first Survey **Oct 18 1895** Last Survey **May 5 1896**  
Reg. Book. (Number of Visits **101**)

on the **Steel S.S. "Inchmona"** Tons Gross **3484.35** Net **2222.77**

Master **H. Ashby** Built at **West Hartlepool** By whom built **Messrs N. Gray & Co. Ltd.** When built **1896**

Engines made at **West Hartlepool** By whom made **Central Marine Eng. Works** when made **1896**

Boilers made at **West Hartlepool** By whom made **Central Marine Eng. Works** when made **1896**

Registered Horse Power **225.7** Owners **Hamilton Fraser & Co.** Port belonging to **Liverpool**

Nom. Horse Power as per Section 28 **225.7**

**ENGINES, &c.** — Description of Engines **Mudd's patent quadruple expansion, Sprank's** No. of Cylinders **Five**

Diameter of Cylinders **17-24-34-42-42** Length of Stroke **42"** Revolutions per minute **68** Diameter of Screw shaft **11 1/2"**

Diameter of Tunnel shaft **11"** Diameter of Crank shaft journals **11"** Diameter of Crank pin **11"** Size of Crank webs **14" x 6 1/2"**

Diameter of screw **15-6"** Pitch of screw **Differential** No. of blades **4** State whether moveable **no** Total surface **94 sq ft**

No. of Feed pumps **2** Diameter of ditto **3"** Stroke **33"** Can one be overhauled while the other is at work **Yes**

No. of Bilge pumps **2** Diameter of ditto **3 1/2"** Stroke **33"** Can one be overhauled while the other is at work **Yes**

No. of Donkey Engines **Four** Sizes of Pumps **Feed double 4x8" Neirs 6x18" Special 6x6" Ballast 10x9"** No. and size of Suctions connected to both Bilge and Donkey pumps **In Holds, &c. Eight. — one 2 1/2" dia to fore Peak; two 3 1/2" dia to No. 1 hold; two 3 1/2" dia to No. 2 hold; one 3 1/2" dia in No. 3 hold, one 3 1/2" dia in No. 4 hold, & one 2 1/2" dia to after peak with con. 5 1/2" dia well**

No. of bilge injections **one** sizes **5"** Connected to condenser, or to circulating pump **as a separate donkey suction fitted in Engine room & size 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 **none**

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 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 **not docked** Is the screw shaft tunnel watertight **Yes**

Is it fitted with a watertight door **Yes** worked from **top platform of engine Room.**

**OILERS, &c.** — (Letter for record **S**) Total Heating Surface of Boilers **2060 sq ft.**

No. and Description of Boilers **2 single ended, with induced draught** Working Pressure **255 lbs** Tested by hydraulic pressure to **510 lbs.**

Date of test **10.3.96** Can each boiler be worked separately **Yes** Area of fire grate in each boiler **24 1/2 sq ft** No. and Description of safety valves to each boiler **2 Spring direct** Area of each valve **4.04 sq"** Pressure to which they are adjusted **260 lbs.** Are they fitted with easing gear **Yes** Smallest distance between boilers or uptakes and bunkers or woodwork **35"** Mean diameter of boilers **11' 0"**

Length **10' 6"** Material of shell plates **steel** Thickness **1 3/8"** Description of riveting: circum. seams **treble** long. seams **treble**

Diameter of rivet holes in long. seams **1 3/8"** Pitch of rivets **9"** Lap of plates or width of butt straps **20 1/8"**

Per centages of strength of longitudinal joint rivets **89.18%** plate **84.72%** Working pressure of shell by rules **256.7 lbs** Size of manhole in shell **16" x 12"**

Size of compensating ring **4" doubling plate** No. and Description of Furnaces in each boiler **2 Purves'** Material **steel** Outside diameter **34"**

Length of plain part **4-3"** Thickness of plates crown **4 1/4"** bottom **4 1/4"** Description of longitudinal joint **weld** No. of strengthening rings **✓**

Working pressure of furnace by the rules **259.3 lbs** Combustion chamber plates: Material **steel** Thickness: Sides **2 1/32"** Back **2 1/32"** Top **2 1/32"** Bottom **1 1/32"**

Pitch of stays to ditto: Sides **7 1/2"** Back **7"** Top **6"** If stays are fitted with nuts or riveted heads **nuts** Working pressure by rules **255.9 lbs.**

Material of stays **steel** Diameter at smallest part **1.5" off** Area supported by each stay **52.5 sq"** Working pressure by rules **262.9 lbs.** End plates in steam space: Material **steel** Thickness **1" with 3/4" doubling plate** Pitch of stays **16" x 14 1/2"** How are stays secured **double nuts & washers** Working pressure by rules **268 lbs.** Material of stays **steel**

Diameter at smallest part **2.9" off** Area supported by each stay **228 sq"** Working pressure by rules **262.5 lbs.** Material of Front plates at bottom **steel**

Thickness **1"** Material of Lower back plate **steel** Thickness **1"** Greatest pitch of stays **12 1/2"** Working pressure of plate by rules **419 lbs.**

Diameter of tubes **3 1/4"** Pitch of tubes **4 1/2" x 4 1/2"** Material of tube plates **steel** Thickness: Front **1"** Back **1 1/16"** Mean pitch of stays **9"**

Pitch across wide water spaces **14 1/2"** Working pressures by rules **F. 442 lbs. B. 292 lbs.** Girders to Chamber tops: Material **steel** Depth and thickness of girder at centre **4 3/4" x 1 1/4"** Length as per rule **22 1/2"** Distance apart **4 1/2"** Number and pitch of Stays in each **Two 6"**

Working pressure by rules **266.9 lbs.** Superheater or Steam chest; how connected to boiler **by pipes** Can the superheater be shut off and the boiler worked separately **Yes** Diameter **2" internal length dia of pipe** Thickness of shell plates **1/4"** Material **iron** Description of longitudinal joint **lap welded** Diam. of rivet holes **✓** Pitch of rivets **✓** Working pressure of shell by rules **1000 lbs.** 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 **3.14 sq"** Are they fitted with easing gear **no**



HPL377-0154

**DONKEY BOILER**— Description *Mult. with two plain furnaces.*

Made at *Stockton* By whom made *Riley Bros.* When made *1896* Where fixed *Queen deck,*  
Working pressure *90 lbs* tested by hydraulic pressure to *180 lbs.* No. of Certificate *1226* Fire grate area *28 sq'* Description of safety valves *Spring*  
No. of safety valves *two* Area of each *4 sq'* Pressure to which they are adjusted *90 lbs.* If fitted with easing gear *yes* If steam from main  
enter the donkey boiler *no* Diameter of donkey boiler *8'-0"* Length *9'-0"* Material of shell plates *steel* Thickness  
Description of riveting long seams *lap treble* Diameter of rivet holes *15/16"* Whether punched or drilled *drilled* Pitch of rivets  
Lap of plating *6 1/2"* Per centage of strength of joint Rivets *8 1/2 %* Thickness of shell *end* plates *1/4"* Radius of do. *Pitch* No. of Stays to do  
Dia. of stays *2" off* Diameter of furnace Top *2'-4"* Bottom *2'-4"* Length of furnace *6 feet* Thickness of furnace plates *7/8" 15/32"* Des  
joint *lap single* Thickness of furnace *c. chr.* crown plates *1/32"* Stayed by *1 1/2" 1 1/4" off stays riveted.* Working pressure of shell by rule  
Working pressure of furnace by rules *102 lbs.* Diameter of *tubes* uptake *3"* Thickness of uptake plates *3/16" F. 1/16"* Thickness of *stay* water tubes *5/16"*

**SPARE GEAR.** State the articles supplied:— *2 bon. rod top end bolts + nuts; 2 bon. rod bottom end bolts + nuts; 2 main bearings + nuts; 1 set of coupling bolts + nuts; 1 set of feed + bilge pump valves; 1 set of springs for H.P. piston; 120 bolts + nuts; 6 bars of iron; 1 propeller; 1 tail end shaft; 1 eccentric sheave + strap; 1 H.P. valve spindle; 1 cir. pump rod; 1 pump rod + bucket; 1 set of cir. pump + ballast donkey valves; 2 safety valve springs; 1 spring for each feed + cyl. e*

The foregoing is a correct description,

OR THE CENTRAL MARINE ENGINE WORKS,

Manufacturers of *Main Engines Boilers*

*Thouval*

**General Remarks** (State quality of workmanship, opinions as to class, &c. *The main steam pipes, have been tested by hydraulic pressure to 510 lbs per sq. in, and found tight.*

*The Boilers are fitted with Ellis + Baves induced draught, driven by fan engine 4 1/2" dia } 6" stroke. Steam driers are fitted in the uptake consisting of coils of iron pipes, these have been tested by hydraulic pressure to 1000 lbs per sq. in + found tight.*

*Three circular feed heaters and one water meter are fitted, these have been tested by water to 510 lbs per sq. in + found tight. Four of Edmondson's patent filters; and Mudds patent evaporator also fitted.*

*The Engines + Boilers of this vessel, have been constructed under Special Survey, of a good quality of workmanship they have been tried under steam, safety valves adjusted, and found to work well, and are now in a safe working condition + eligible in our opinion to have **L.M.C. 5.96** recorded in the Register Book.*

Certificate (if required) to be sent to

The amount of Entry Fee..	£ 2 : 0 :	When applied for,
Special .. .. .	£ 31 : 6 :	13.5.96
Donkey Boiler Fee .. .	£ :	When received,
Travelling Expenses (if any) £	:	13.5.96

*M. J. M. & R. H. A.*  
Engineer Surveyors to Lloyd's Register of British & Foreign Shipping

Committee's Minute **FRI. MAY 15 1896**

Assigned *+ L.M.C. 5.96*

MACHINERY CERTIFICATE WRITTEN.



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(The Surveyors are requested not to write on or below the space for Committee's Minute.)