

# REPORT ON MACHINERY.

Port of Belfast

SAT. 2 NOV 1895

Received at London Office

No. in Survey held at Belfast

Date, first Survey July 23<sup>rd</sup> Last Survey October 28<sup>th</sup> 1895

g. Book.

(Number of Visits 38)

on the Steel Screw Steamer "Mourne"

Tons { Gross 3222  
Net 2092

Master James Aitken Built at Belfast By whom built Workman Clark & Co. Ltd When built 1895

Engines made at Belfast By whom made Workman Clark & Co. Ltd when made 1895

Boilers made at Belfast By whom made Workman Clark & Co. Ltd when made 1895

Registered Horse Power 410 Owners Thomas Nixon & Sons Port belonging to Belfast

nom. Horse Power as per Section 28 325

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

Diameter of Cylinders 24; 40; 66 Length of Stroke 45 Revolutions per minute 40 Diameter of Screw shaft as per rule 12.12  
as fitted 12.75

Diameter of Tunnel shaft as per rule 11.12 Diameter of Crank shaft journals 12.75 Diameter of Crank pin 12.75 Size of Crank webs 23 1/2 x 8 1/2  
as fitted 12

Diameter of screw 16.6 Pitch of screw 18.5 No. of blades 4 State whether moveable yes Total surface 45

No. of Feed pumps 2 Diameter of ditto 3 3/4 Stroke 24 Can one be overhauled while the other is at work yes

No. of Bilge pumps 2 Diameter of ditto 4 1/2 Stroke 24 Can one be overhauled while the other is at work yes

No. of Donkey Engines Two Sizes of Pumps Cartridges dip 7 x 9 (barrel) No. and size of Suctions connected to both Bilge and Donkey pumps  
5 1/2 x 3 1/2 x 5 (Reg. Run)

In Engine Room Three 3 1/2" suction In Holds, &c. Two 3 1/2" in each of Nos. 2 & 3 holds.  
No 4 hold, one 3 1/2" suction. Tunnel suction 2 1/2"

No. of bilge injections 1 sizes 7 Connected to condenser, or to circulating pump exp. 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 none

Are all connections with the sea direct on the skin of the ship yes Are they Valves or Cocks larger valves, smaller, cocks.

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 'Wow 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 before launch Is the screw shaft tunnel watertight yes

Is it fitted with a watertight door yes worked from upper E. R. platform.

**BOILERS, &c.** — (Letter for record S) Total Heating Surface of Boilers 5385

No. and Description of Boilers Three single ended Working Pressure 180 lb. Tested by hydraulic pressure to 360 lb.

Date of test 18.5.95 Can each boiler be worked separately yes Area of fire grate in each boiler 54.7 No. and Description of safety valves to each boiler Two, Adams' patent Area of each valve 8.295 Pressure to which they are adjusted 185 lb. Are they fitted with easing gear yes Smallest distance between boilers or uptakes and bunkers or woodwork 10" Mean diameter of boilers 13.9"

Length 10.6 Material of shell plates Steel Thickness 1 5/16 Description of riveting: circum. seams lugs, double long. seams doubt sharp.  
made, treble.

Diameter of rivet holes in long. seams 1 3/8 Pitch of rivets 9/8  $\nabla$  4 9/16 Lap of plates or width of butt straps 19 7/8 (x 1" thick)

Per centages of strength of longitudinal joint rivets 92 Working pressure of shell by rules 195 Size of manhole in shell 16 x 12"  
plate 85

Size of compensating ring 2.4 x 2.0 No. and Description of Furnaces in each boiler 3 suspended Material Steel Outside diameter 42"

Length of plain part top 1 5/16 Thickness of plates crown 1/2" Description of longitudinal joint welded No. of strengthening rings ~  
bottom 1 5/16

Working pressure of furnace by the rules 180 Combustion chamber plates: Material Steel Thickness: Sides 9/16 Back 9/16 Top 9/16 Bottom 3/4

Pitch of stays to ditto: Sides 6 1/2 x 7 3/4 Back 7 3/4 Top 7 1/2 If stays are fitted with nuts or riveted heads nuts Working pressure by rules 182

Material of stays Steel Diameter at smallest part 1 3/8 Area supported by each stay 60" Working pressure by rules 197 End plates in steam space:

Material Steel Thickness 1 1/32 Pitch of stays 14 1/2 How are stays secured doubt nuts Working pressure by rules 240 Material of stays Steel

Diameter at smallest part 2 1/32 Area supported by each stay 2.10 Working pressure by rules 183 Material of Front plates at bottom Steel

Thickness 7/8 Material of Lower back plate Steel Thickness 1 1/16 Greatest pitch of stays as approx. Working pressure of plate by rules 180

Diameter of tubes 3 1/4 Pitch of tubes 4 3/8 Material of tube plates Steel Thickness: Front 13/16 Back 3/4 Mean pitch of stays 8 3/4

Pitch across wide water spaces 14" Working pressures by rules 180 Girders to Chamber tops: Material Steel Depth and thickness of girder at centre 7 3/4 x 1 1/2 Length as per rule 27 1/16 Distance apart 7 1/2 Number and pitch of Stays in each 3 at 6 1/2"

Working pressure by rules 203 Superheater or Steam chest; how connected to boiler ~ 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 ~

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BE65-186

**DONKEY BOILER**— Description *No donkey boiler fitted.*  
 Made at \_\_\_\_\_ By whom made \_\_\_\_\_ When made \_\_\_\_\_ Where fixed \_\_\_\_\_  
 Working pressure \_\_\_\_\_ tested by hydraulic pressure to \_\_\_\_\_ No. of Certificate \_\_\_\_\_ Fire grate area \_\_\_\_\_ Description of safety valves \_\_\_\_\_  
 No. of safety valves \_\_\_\_\_ Area of each \_\_\_\_\_ Pressure to which they are adjusted \_\_\_\_\_ If fitted with easing gear \_\_\_\_\_ If steam from main boilers can enter the donkey boiler \_\_\_\_\_  
 Diameter of donkey boiler \_\_\_\_\_ Length \_\_\_\_\_ Material of shell plates \_\_\_\_\_ Thickness \_\_\_\_\_  
 Description of riveting long. seams \_\_\_\_\_ Diameter of rivet holes \_\_\_\_\_ Whether punched or drilled \_\_\_\_\_ Pitch of rivets \_\_\_\_\_  
 Lap of plating \_\_\_\_\_ Per centage of strength of joint \_\_\_\_\_ Rivets \_\_\_\_\_ Thickness of shell crown plates \_\_\_\_\_ Radius of do. \_\_\_\_\_ No. of Stays to do. \_\_\_\_\_  
 Dia. of stays \_\_\_\_\_ Diameter of furnace Top \_\_\_\_\_ Bottom \_\_\_\_\_ Length of furnace \_\_\_\_\_ Thickness of furnace plates \_\_\_\_\_ Description of joint \_\_\_\_\_ Thickness of furnace crown plates \_\_\_\_\_ Stayed by \_\_\_\_\_ Working pressure of shell by rules \_\_\_\_\_  
 Working pressure of furnace by rules \_\_\_\_\_ Diameter of uptake \_\_\_\_\_ Thickness of uptake plates \_\_\_\_\_ Thickness of water tubes \_\_\_\_\_

**SPARE GEAR.** State the articles supplied:— *Two connecting rod top end bolts & nuts, & two bottom end ditto. Two main bearing bolts & nuts. Set coupling bolts. Set feed & bilge pump valves. H.P. piston pack. Two propeller blades. Pump rod. Valve spindle. 1/2 set Air & Cr. pump valves. Main check valve. Two bolt nuts for eccentric straps. 12 fund ring set bolts. 15 condenser tubes. 12 boiler tubes. Assorted bolts. Iron of various sizes.*  
 The foregoing is a correct description,  
 Manufacturer. **PRO WORKMAN, CLARK & CO., LIMITED.**  
*M. A. Bell.*

**General Remarks** (State quality of workmanship, opinions as to class, &c.)  
 Dates of survey while building: During progress of work in shops— *Feb. 23<sup>rd</sup> July 10. Nov 20. (1894) Jan. 11. 14. 21. 31. Feb. 2. 6. 7. 9. 20. 28. March 11. 12. 18. 27. April 3. 18. 30. May 6. 18. 23. 31. June 6. July 11. 30.*  
 During erection on board vessel— *Sept 23. 26. 30. Oct. 2. 7. 9. 11. 22. 24. 25. 28. (1895)*  
 Total No. of visits *38.*

The above described engines & boilers have been constructed & fitted under special survey, in accordance with the approved tracings, & the workmanship is good throughout.  
 The vessel ran a satisfactory trial on the 28<sup>th</sup> inst, & the safety valves were found correctly adjusted.  
 Each separate length of main steam pipe has been tested by hydraulic pressure to double the working pressure & found satisfactory.  
 An installation for lighting the holds only by electricity has been fitted by the Faraday Electrical Engineering Co., Govan. Particulars are given on the enclosed report.  
 Tracings of boilers & of pumping arrangements in holds & engine room are forwarded herewith, also forging certificate for shafting.  
 The machinery in my opinion renders the vessel eligible for the ratification + L.M.C. 10.95 to be entered in the Register Book.

It is submitted that this vessel is eligible for **THE RECORD** + L.M.C. 10.95.  
*Electric Light.*  
 Ems  
 2. 11. 95

Certificate (if required) to be sent to \_\_\_\_\_  
 The amount of Entry Fee.. £ 3 : 0 :  
 Special .. .. . £ 36 : 5 :  
 Donkey Boiler Fee .. .. £ : :  
 Travelling Expenses (if any) £ : :  
 When applied for, 31<sup>st</sup> Oct. 18. 95.  
 When received, 5. 11. 95.  
**TUES. 5 NOV 1895**  
 Committee's Minute  
 Assigned *+ L.M.C. 10.95*  
 A. L. Jones  
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.  
 MACHINERY CERTIFICATE WRITTEN.

