

## REPORT ON MACHINERY.

Port of Belfast

Received at London Office

11 MAY 92

No. in Survey held at Belfast  
Reg. Book.Date, first Survey Sept 14<sup>th</sup> 1891 Last Survey 7<sup>th</sup> May 1892  
(Number of Visits 28)on the Steel Twin screw steamer "Mohawk"Tons } Gross 5575  
Net 3594  
When built 1892Master John Wiltshire Built at BelfastBy whom built Harland & Wolff Lim.Engines made at BelfastBy whom made Harland & Wolff Lim.when made 1892Boilers made at BelfastBy whom made Harland & Wolff Lim.when made 1892Registered Horse Power 600Owners Elder Dempster & CoPort belonging to LondonNom. Horse Power as per Section 28 599.5

ENGINES, &c.— Description of Engines Triple Expansion Twin screws No. of Cylinders Six  
 Diameter of Cylinders 22 1/2, 36 1/2, 60 Length of Stroke 48" Revolutions per minute 72 Diameter of Screw shaft as per rule 11 7/8  
 Diameter of Tunnel shaft as fitted 12 1/4 Diameter of Crank shaft journals 12 3/4 Diameter of Crank pin 12 3/4 Size of Crank webs 9" x 16" shaped  
 Diameter of screw 15 1/2 Pitch of screw 21 feet No. of blades 3 State whether moveable yes Total surface 60 each screw  
 No. of Feed pumps two Diameter of ditto 3 1/2" Stroke 24" Can one be overhauled while the other is at work yes One pump on each engine  
 No. of Bilge pumps two Diameter of ditto 5" Stroke 24" Can one be overhauled while the other is at work "  
 No. of Donkey Engines four Sizes of Pumps Worthington duplex 9" x 6" x 6" No. and size of Suctions connected to both Bilge and Donkey pumps  
Watson's Westminister 10" x 10" x 10" ballast.  
 In Engine Room three 3" bilge & donkey was fitted 10" x 8" x 24" In Holds, &c. No 1 hold: two 2 1/2" No 2 hold: two 2 1/2"  
pumps: & one 2 1/2" separate donkey suction No 3 hold: two 2 1/2" No 4 hold: one 3" No 5 hold: two 2 1/2" and  
 No. of bilge injections 2 sizes 6" Connected to condenser, or to circulating pump Cir. pump a separate donkey suction fitted in Engine room & size yes 2 1/2"  
 Are all the bilge suction pipes fitted with roses except 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 Are they Valves or Cocks valves and 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 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 lead bilge pipes How are they protected strong wood casings  
 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 examined before launching Is the screw shaft tunnel watertight yes  
 Is it fitted with a watertight door yes worked from level of main deck

## BOILERS, &amp;c.—

(Letter for record S)Total Heating Surface of Boilers 10500 sq. ft.

No. and Description of Boilers 2 Double ended & 2 Single ended Working Pressure 175 Tested by hydraulic pressure to 350 lb  
 Date of test 28.1.92 Can each boiler be worked separately yes Area of fire grate in each boiler d.e. 109 No. and Description of safety valves to  
 each boiler Cockburn's two each boiler Area of each valve d.e. 17.7 Pressure to which they are adjusted 175 lb Are they fitted  
 with easing gear yes Smallest distance between boilers or uptakes and bunkers or woodwork 5.6" to corners of Mean diameter of boilers 14" 1"  
 Length d.e. 17' 0" Material of shell plates steel Thickness 1 1/2" Description of riveting: circum. seams treb. ends double butt  
 Diameter of rivet holes in long. seams 1 3/8 Pitch of rivets 9" & 4 1/2" Lap of plates or width of butt straps 20 1/2 x 1 1/16  
 Per centages of strength of longitudinal joint 88.4 Working pressure of shell by rules 175.1 lb Size of manhole in shell 16" x 12"  
 Size of compensating ring 2' 7" x 2' 3" x 1 1/2" No. and Description of Furnaces in each boiler d.e. six Material steel Outside diameter 3' 4 1/2"  
 Length of plain part top 11' 0" Thickness of plates bottom 1 1/2" Description of longitudinal joint weld No. of strengthening rings nibs  
 Working pressure of furnace by the rules 185 lb Combustion chamber plates: Material steel Thickness: Sides 19/32 Back 19/32 Top 3/8 Bottom 3/4  
 Pitch of stays to ditto: Sides 7 1/8 x 7 1/8 Back 7 1/2 x 7 1/8 Top 8 x 8 1/4 If stays are fitted with nuts or riveted heads nuts inside Working pressure by rules 196  
 Material of stays steel Diameter at smallest part 1 3/8 Area supported by each stay 62 sides Working pressure by rules 179 top End plates in steam space:  
 Material steel Thickness 3 1/32 Pitch of stays 16 3/4 x 17 1/4 How are stays secured double nuts Working pressure by rules 177 lb Material of stays steel  
 Diameter at smallest part 2 5/8 Area supported by each stay 278 Working pressure by rules 178 lb Material of Front plates at bottom steel  
 Thickness 13/16 Material of Lower back plate steel Thickness 29/32 Greatest pitch of stays as approx Working pressure of plate by rules 175  
 Diameter of tubes 3 1/4 Pitch of tubes 4 1/2" Material of tube plates steel Thickness: Front 7/8 Back 3/4 Mean pitch of stays 9 in  
 Pitch across wide water spaces 14 1/2" Working pressures by rules 175 lb Girders to Chamber tops: Material W. I. Depth and  
 thickness of girder at centre 7" x 7 1/8 Length as per rule 37 3/4 Distance apart 8 1/4 Number and pitch of Stays in each 4 pitched 8"  
 Working pressure by rules 220 lb Superheater or Steam chest; how connected to boiler none Can the superheater be shut off and the boiler worked  
 Girders in d.e. boilers supported by hanging stays Thickness of shell plates " Material " Description of longitudinal joint " Diam. of rivet  
 separately " Diameter " Length " Material of flue plates " Thickness "  
 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 " Area of safety valves to superheater " Are they fitted with easing gear "



DONKEY BOILER— Description *Long ended main boiler used for donkey purposes.*

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:— I.P. valve spindle. Pair con. rod brasses. Air pump & set rod head  
valve, seal & guard, & set valves. Centrif. spindle & impeller. 2 main bearing bolts & nuts. 2 top end & 2 bottom  
end con. rod bolts & nuts. Set coupling bolts. 2 propeller blades & 8 shanks & nuts. Set crosshead brace  
Set pump link brasses. Cyl. escape valve & spring. Eccentric strap. Set piston springs. 6 pump nut  
The foregoing is a correct description, 6 cyl. cover bolts. 4 valve chest bolts. Set feed & helge pump  
seats. Set springs for safety & for escape valves. Set feed che  
*Harland & Wolff Ltd.* Manufacturer. 10 boiler tubes. Assorted bolts & nuts.

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

The machinery of this vessel  
has been built under special survey throughout. The boilers which are  
duplicates of those fitted in the steamers "Massachusetts" and "Manito"  
previously reported, are made as shown on the enclosed photoprints & ha  
been tested as required by the Rules.

The workmanship is good throughout, the steel has been tested as the  
Rules require and each of the boilers and each separate length of the main steam  
pipes have been tested by water to double the working pressure.

The safety valves are all adjusted to blow off at from 175 lbs to 180 lbs  
per sq in and the engines were worked under full steam for several hours  
on the 7<sup>th</sup> inst with satisfactory results.

The vessel is lighted throughout by electricity. Particulars of the  
installation will be forwarded shortly on the usual form.

The machinery in my opinion renders the vessel eligible for the  
record of + LMC 5.92. in the Register Book.

(The forging certificate for shafting is enclosed)

It is submitted that  
this vessel is eligible for  
THE RECORD + LMC 5.92  
Cyl. 11.5.92

MACHINERY CERTIFICATE  
WRITTEN.

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WRITTEN.

Certificate (if required) to be sent to \_\_\_\_\_

The amount of Entry Fee.. £ 3 : 0 : 0  
Special .. .. £ 50 : 0 : 0  
Donkey Boiler Fee .. .. £ : :  
Travelling Expenses (if any) £ : :  
When applied for, 7<sup>th</sup> May 1892  
When received, 11.5.92

A. L. Jones  
Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute

FBI 13 MAY 1892

Assigned

+ L.B. 6.5.92.



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Foundation