

# REPORT ON MACHINERY.

3790

TUES 21 OCT 1890

Port of Belfast

Received at London Office 13

No. 3790

No. in Survey held at Belfast

Date, first Survey 12<sup>th</sup> July

Last Survey 18<sup>th</sup> Oct. 1890

Reg. Book.

(Number of Visits 28)

'88 Sup. on the Screw Steamer "Mississippi"

Tons { Gross 3471

Master H. Murrell Built at Belfast By whom built Harland & Wolff

{ Net 2388

Engines made at Belfast. By whom made Harland & Wolff

When built 1890

Boilers made at Belfast. By whom made Harland & Wolff

when made 1890

Registered Horse Power 275

Owners The Mississippi Steamship Co. Port belonging to London

## ENGINES, &c.—

Description of Engines Tri-compound 3 Cranks D.I.S.C. No. of Cylinders Three

Diam. of Cylinders 25 1/2, 22 & 20 Length of Stroke 51 Rev. per minute 65 Point of Cut off, High Pressure .65 Low Pressure .6

Diameter of Screw shaft 14 1/2 Diam. of Tunnel shaft 14 Diam. of Crank shaft journals 14 1/2 Diam. of Crank pin 14 1/2 size of Crank webs 19 1/2 x 10 1/2

Diameter of screw 17-6 Pitch of screw 20-0 No. of blades 4 state whether moveable Yes total surface 81 sq. ft.

No. of Feed pumps 2 diameter of ditto 3 1/2 Stroke 32 Can one be overhauled while the other is at work Yes

No. of Bilge pumps 2 diameter of ditto 4 Stroke 32 Can one be overhauled while the other is at work Yes

Where do they pump from Bilge from all holds, E.A.B. Space up peak & Tunnel. Fed from hotwell

No. of Donkey Engines Five Size of Pumps 1 1/2, 2, 3, 4, 5 Where do they pump from Sea, ballast and

fresh water tanks, hotwell, all holds, E.A.B. space, peak, tunnel, evaporator & boilers.

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 One and sizes 5 1/2 Are they connected to condenser, or to circulating pump Yes

How are the pumps worked By links and levers from centre engine crosshead. Separate

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

That pipes are carried through the bunkers None How are they protected None

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 28<sup>th</sup> August-90, before launching

Is the screw shaft tunnel watertight Yes and fitted with a sluice door Yes worked from Upper deck

## BOILERS, &c.—

No. of Boilers Two Description 6ble ended Mult. Cir. Material Steel Letter (for record)

Working Pressure 180 lbs. Tested by hydraulic pressure to 360 lbs. Date of test 3<sup>rd</sup> September 1890

Description of superheating apparatus or steam chest None fitted. Cert. 231.

Can each boiler be worked separately Yes Can the superheater be shut off and the boiler worked separately Yes

No. of square feet of fire grate surface in each boiler 96 Description of safety valves 6 Cockburn's No. to each boiler Two

Area of each valve 11.04 sq. in. Are they fitted with easing gear Yes No. of safety valves to superheater 1 area of each valve 1

Are they fitted with easing gear Yes Smallest distance between boilers and bunkers or woodwork 28 inches Diameter of boilers 13-0"

Length of boilers 17-6" description of riveting of shell long. seams 6ble butt straps circum. seams Thickness of shell plates 1 3/8"

Diameter of rivet holes 1 5/16" whether punched or drilled drilled pitch of rivets 8 1/2" Lap of plating 19" x 1" butt strap

Percentage of strength of longitudinal joint 84.6 working pressure of shell by rules 181 lbs. size of manholes in shell 16" x 12"

Size of compensating rings M. Neil, pt ring No. of Furnaces in each boiler Six Description of Furnaces Purves pt ribbed

Outside diameter 38" length 7-0" thickness of plates 5/8" description of joint welded if rings are fitted yes

Greatest length between rings 9" working pressure of furnace by the rules 210 lbs. combustion chamber plating, thickness, sides 19" back 5" top 5"

Pitch of stays to ditto, sides 7 3/4" back 8 1/8" top 8 1/8" If stays are fitted with nuts or riveted heads nutted in shell working pressure of plating by rules 181 lbs.

Diameter of stays at smallest part 1 3/8" working pressure of ditto by rules 188 lbs. end plates in steam space, thickness 1 1/8"

Pitch of stays to ditto 19 1/2" x 16 1/2" how stays are secured double washers & nuts working pressure by rules 204 lbs. with 240 lbs. diameter of stays at smallest part 3"

Greatest pitch of stays 1 3/4" working pressure by rules 198 lbs. Front plates at bottom, thickness 1 3/8" Back plates, thickness 1 3/8"

Plates, front 2" back 3/4" how stayed stay tubes pitch of stays 9" x 9" width of water spaces 13 1/2" boxes

Diameter of Superheater or Steam chest 13 1/2" length 7 1/2" thickness of plates 1 1/2" description of longitudinal joint nutted in shell diam. of rivet holes 7/8"

Pitch of rivets 1 1/2" working pressure of shell by rules 181 lbs. diameter of flue 13 1/2" thickness of plates 1 1/2" If stiffened with rings Yes

Distance between rings 12" working pressure by rules 181 lbs. end plates of superheater, or steam chest; thickness 1 1/2" how stayed stay tubes

Superheater or steam chest; how connected to boiler stay tubes

BEL57-0221

Lloyd's Register Foundation

**DONKEY BOILER**— Description *Circ. Single ended, Multitubular, Steel with 2 furnaces.*  
 Made at *Belfast* by whom made *Harland & Wolff* when made *1890* where fixed *Under Bridge on upper deck.*  
 Working pressure *90 lbs.* tested by hydraulic pressure to *180 lbs.* No. of Certificate *89* fire grate area *76* description of safety valves *Lockburn* No. of safety valves *2* area of each *650* sq. in. if fitted with easing gear *Yes* if steam from main boilers can enter the donkey boiler *No* diameter of donkey boiler *10'-0"* length *8'-10 1/2"* description of riveting *Butt straps 3 rivets in on pitch*  
 Thickness of shell plates *5/8"* diameter of rivet holes *3/8"* whether punched or drilled *drilled* pitch of rivets *4 3/4"* lap of plating *9 1/2" x 3/16" B.S.*  
 per centage of strength of joint *82* thickness of ~~main~~ plates *5/8"* stayed by *1/2" x 2" steel stays 15" x 16" pitch double nuts & washers 14" x 9" riveted to the plates.*  
 Diameter of furnace, top *36"* bottom *-* length of furnace *6-0* thickness of plates *5/8"* description of joint *Butt straps Single riveted.*  
 Thickness of ~~furnace~~ crown plates *1/2"* stayed by *Screw stays 1 1/8" x 1 1/4" pitch. Top by girders* working pressure of shell by rules *98*  
 Working pressure of furnace by rules *103* diameter of uptake *✓* thickness of plates *✓* thickness of water tubes *✓*

**SPARE GEAR.** State the articles supplied:— *2 C.I. propeller blades; 2 pairs crank pin brasses 2 main bearing bolts & nuts; 2 top end & 2 bot. end Cou. rod bolts & nuts; Ramsbottom rings for all pistons; 1 eccentric strap complete; air pump bucket & head valve complete; 6 propeller studs & nuts; 6 coupling bolts; 1 set of red & blue pump valves; etc. etc.*

The foregoing is a correct description,  
*Harland & Wolff* Manufacturer.

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

The machinery of this steamer has been constructed in accordance with the approved plans for main and auxiliary boilers; the Secretary's letters dated 20th Nov. 1889, the Rules of the Society for First Entry of new machinery, or equal thereto and to the satisfaction of the undersigned.

The steel used in the construction of the boilers has been tested as required by the Rules & the Shafting when finished was found free from defect.

The main and auxiliary boilers and main steam pipes have been tested as required by the Rules with water and found free from leakage or weakness.

The boilers were tested under steam and the safety valves adjusted to the working pressures viz 180 lbs. & 90 lbs. respectively on main & auxiliary.

The main & auxiliary engines were tried under steam at full speed and gave entire satisfaction.

An Electric Light installation (Swans incandescent) on the Single Wire System (double in way of compasses) was fitted throughout vessel. Two separate generating machines engines each dynamo giving volts & amperes.

All the material used in the construction of the machinery, and the workmanship throughout are good & satisfactory and I would respectfully recommend that the notification **F.L.M.C. 10.90** be granted & recorded in the Reg. Book.

It is submitted that this vessel is eligible to have **+ L.M.C. 10.90** recorded

*W.A.*  
 22-10-90

The amount of Entry Fee .. £ 3 : 0 : 0 received by me  
 Special .. £ 38 : 15 : 0  
 Donkey Boiler Fee .. £ : :  
 Certificate (if required) .. £ gratis : 21/10/1890  
 To be sent as per margin.

*James Maston*  
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute  
 OCT 24 1890  
 + Lmb 610190

