

# REPORT ON MACHINERY.

3053

No. 3053

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No. in Survey held at Belfast Date, first Survey 3<sup>rd</sup> April /83 Last Survey May 21<sup>st</sup> 1884

Reg. Book. on the S.S. "Hornhead" (Number of Visits 19) Tons 2493.86  
1649.91

Master M. Thompson Built at Belfast By whom built Harland & Wolff When built 1872-4

Engines made at Belfast By whom made Harland & Wolff when made 1874

Boilers made at " By whom made " when made 1874

Registered Horse Power 245 Owners Ulster Steam Ship Co Port belonging to Belfast

## ENGINES, &c.—

Description of Engines Compound Inverted Surface Condensing

Diameter of Cylinders 34 - 68 Length of Stroke 45 No. of Rev. per minute 65 Point of Cut off, High Pressure 1/2 stroke Low Pressure 1/2 stroke

Diameter of Screw shaft 1 1/2 Diam. of Tunnel shaft 1 1/8 Diam. of Crank shaft journals 1 1/2 Diam. of Crank pin 1 1/2 size of Crank webs 1 1/4 x 9 3/4

Diameter of screw 16 - 3 Pitch of screw 18 - 6 No. of blades 4 state whether moveable yes total surface about 70 sq ft

No. of Feed pumps 2 diameter of ditto 3 1/2 Stroke 27 Can one be overhauled while the other is at work yes

No. of Bilge pumps 2 diameter of ditto 3 1/2 Stroke 27 Can one be overhauled while the other is at work yes

Where do they pump from engine room fore, foremost & after holds, & after well, & ballast tanks

No. of Donkey Engines two Size of Pumps Feed 4" dia x 9" stroke Ballast 10" x 10" Where do they pump from Feed Donkey from sea, test well,

tanks & bilges. Ballast Donkey from Ballast Tanks

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 3/2 dia Are they connected to condenser, or to circulating pump circulating pump

How are the pumps worked by levers from piston rod crossheads of both engines

Are all connections with the sea direct on the skin of the ship yes Are they Valves or Cocks Valves & 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 blow off cocks fitted with a spigot and brass covering plate yes

What pipes are carried through the bunkers How are they protected

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 before commencing

Is the screw shaft tunnel watertight yes and fitted with a sluice door yes worked from

## BOILERS, &c.—

Number of Boilers two Description Cylindrical, Multi-tubular Whether Steel or Iron Steel

Working Pressure 90 lbs Tested by hydraulic pressure to 180 lbs Date of test 8/14/84

Description of superheating apparatus or steam chest None fitted

Can each boiler be worked separately yes Can the superheater be shut off and the boiler worked separately No Superheater

No. of square feet of fire grate surface in each boiler 75.5 Description of safety valves Spring No. to each boiler two

Area of each valve 19.63 sq ft Are they fitted with easing gear yes No. of safety valves to superheater ✓ area of each valve ✓

Are they fitted with easing gear ✓ Smallest distance between boilers and bunkers or woodwork Diameter of boilers 15 - 6"

Length of boilers 10 - 7 1/2 description of riveting of shell long. seams double butt straps, D.R. circum. seams lap, d'ble joint Thickness of shell plates 1 5/16

Diameter of rivet holes 1 1/4 whether punched or drilled drilled pitch of rivets 4.831 Lap of plating

Per centage of strength of longitudinal joint 74.1 working pressure of shell by rules 93.2 lbs size of manholes in shell 15 x 12

Size of compensating rings No. of Furnaces in each boiler three

Outside diameter 4 - 1" length, top 6 - 9" bottom 6 - 9" thickness of plates 7/16 description of joint Corrugated if rings are fitted ✓

Greatest length between rings ✓ working pressure of furnace by the rules 94.2 lbs combustion chamber plating, thickness, sides 1/2 back 1/2 top 1/2

Pitch of stays to ditto, sides 9 x 8 back 9 x 8 1/2 top 9 1/2 x 9 1/2 If stays are fitted with nuts or riveted heads Nuts working pressure of plating by rules 93 lbs Diameter of stays at smallest part working pressure of ditto by rules end plates in steam space, thickness 3/4

Pitch of stays to ditto 17 x 17 how stays are secured d'ble nuts, pin washers working pressure by rules 89.4 lbs diameter of stays at smallest part 2 5/8 working pressure by rules 112 lbs Front plates at bottom, thickness 3/4 Back plates, thickness 3/4

Greatest pitch of stays 1 1/2 (about) working pressure by rules 140 lbs Diameter of tubes 3 1/2 pitch of tubes 4 1/4 x 4 1/4 thickness of tube plates, front 3/4 back 1/16 how stayed Stay tubes pitch of stays 1 1/4 x 9 1/2 width of water spaces 1/4 between tubes

Diameter of Superheater or Steam chest ✓ length ✓ thickness of plates ✓ description of longitudinal joint ✓ diam. of rivet holes ✓

Pitch of rivets ✓ working pressure of shell by rules ✓ diameter of flue ✓ thickness of plates ✓ If stiffened with rings ✓

Distance between rings ✓ working pressure by rules ✓ end plates of superheater, or steam chest; thickness ✓ how stayed ✓

Superheater or steam chest; how connected to boiler ✓



**DONKEY BOILER**— Description *Cylindrical Vertical with Firebox*  
 Made at *Gateshead* by whom made *Clark Chapman & Co* when made *22/12/83* where fixed *St. Helens*  
 Working pressure *90 lb* tested by hydraulic pressure to *180* No. of Certificate *1342* fire grate area *19.6 sq ft* description of safety  
 valves *Spring* No. of safety valves *One* area of each if fitted with easing gear *yes* if steam from main boilers can  
 enter the donkey boiler *no* diameter of donkey boiler *6'-0"* length *13'-6"* description of riveting *lap, double riveted*  
 Thickness of shell plates *1/2" Steel* diameter of rivet holes *7/8* whether punched or drilled *punched* pitch of rivets *3 1/4* lap of plating *4 1/4*  
 per centage of strength of joint *73* thickness of crown plates *7/8* stayed by *10 Stay, each 2" diam.*  
 Diameter of furnace, top *4'-5 1/2"* bottom *5'-1 1/4"* length of furnace *6'-6"* thickness of plates *1/2* description of joint *Lap, single riv.*  
 Thickness of furnace crown plates *1/2* stayed by *as Shell Crown* working pressure of shell by rules *100*  
 Working pressure of furnace by rules *90 lb* diameter of uptake *17"* thickness of plates *7/16* thickness of water tubes *3/8*

**SPARE GEAR.** State the articles supplied:— *1 pair Crank pin brasses, 1 set of Propeller blades, 1*  
*pump rod, 1 set Valve spindles with neck bushes, 25 Boiler tubes, 1 set valve*  
*for Air Circulating pumps, 1 set furnace bars for one Boiler, 6 Junk ring bolts, 1 set*  
*Connecting End bolts, 2 Main Bearing bolts, 1 Half set of Bolts or Studs & Nuts for propeller*

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

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

*The Machinery and Boilers of this vessel have been constructed in*  
*Special Survey, Material and Workmanship good & satisfactory.*  
*The particulars of donkey boiler as set forth above, are copied from*  
*report received from the Newcastle Surveyors, which is attached hereto.*  
*The Engines and Boilers of this vessel are in good order and*  
*working condition and, in my opinion, eligible to be certificated*  
 ✠ *Key: M.C. 5-874* recorded in the Register Book.

*It is submitted that this*  
*vessel is eligible to have*  
*the notification + L.M.C.*  
*5.54 recorded*  
 R.S.  
 26/5/84

The amount of Entry Fee .. £ 2 : : : received by me,  
 Special .. £ 33 : 15 :  
 Donkey Boiler Fee .. £ - : :  
 Certificate (if required) .. £ gratis : 21.5 1884  
 To be sent as per margin.  
 (Travelling Expenses, if any, £ 10-10-0)

TUESDAY 27 MAY 1884

*James Ritchie* 2021  
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.  
 Barron - Belfast

Committee's Minute

*L. M. C.*