

REPORT ON MACHINERY.

3242

No. Belfast 3242 Received at LONDON THURS 26 AUGUST 1886

No. in Survey held at Glasgow Date, first Survey March 5th 1886 Last Survey Aug 16th 1886

Reg. Book. 6 in Supr the "Broughshane" (Number of Visits 35) Tons 131.96

Master John Paisley Built at Belfast By whom built Messrs Workman, Clark & Co When built 1886

Engines made at Glasgow By whom made Messrs J. & J. Thomson when made 1886

Boilers made at " By whom made " when made 1886

Registered Horse Power 70 Owners The Antrim Iron Ore Co Port belonging to Belfast

ENGINES, &c.—

Description of Engines Compound Inverted direct acting

Diameter of Cylinders 19" x 38" Length of Stroke 30" No. of Rev. per minute 80 Point of Cut off, High Pressure 1/4" Low Pressure 1/4"

Diameter of Screw shaft 7 1/4" Diam. of Tunnel shaft 4" Diam. of Crank shaft journals 7 1/4" Diam. of Crank pin 7 1/4" size of Crank webs 5 1/4" x 9"

Diameter of screw 10 ft Pitch of screw 15 ft No. of blades 4 state whether moveable yes total surface 30.4 sq ft

No. of Feed pumps One diameter of ditto 3" Stroke 15" Can one be overhauled while the other is at work ✓

No. of Bilge pumps One diameter of ditto 4" Stroke 15" Can one be overhauled while the other is at work ✓

Where do they pump from Stowwell all bilges and yeards

No. of Donkey Engines One Size of Pumps 4 1/4 cyl 8 1/2 strokes Where do they pump from Sea Boiler bilges & 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" dia Are they connected to condenser, or to circulating pump air pump

How are the pumps worked by levers on after engine only

Are all connections with the sea direct on the skin of the ship yes Are they Valves or Cocks Cocks & Valves

Are they fixed sufficiently high on the ship's side to be seen without lifting the stowhold 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 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 launching 3rd June, 1886

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

BOILERS, &c.—

Number of Boilers One Description cylindrical multitubular Whether Steel or Iron Steel

Working Pressure 90 lbs Tested by hydraulic pressure to 180 lbs Date of test June 4th 1886

Description of superheating apparatus or steam chest none

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

No. of square feet of fire grate surface in each boiler 52 sq ft Description of safety valves direct spring No. to each boiler two

Area of each valve 4.04 sq" 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 14" Diameter of boilers 12" 6"

Length of boilers 9' 6" description of riveting of shell long. seams dbl riv butt circum. seams dbl riv lap Thickness of shell plates 3/4"

Diameter of rivet holes 1 1/16" whether punched or drilled drilled pitch of rivets 4 1/2" Lap of plating straps 10 3/4" x 9"

Per centage of strength of longitudinal joint 76.4 working pressure of shell by rules 95 lbs size of manholes in shell 16" x 12"

Size of compensating rings 3 x 3 x 1/2" No. of Furnaces in each boiler three

Outside diameter 34" length, top 6' 6" bottom 8' 6" thickness of plates 1/2" description of joint dbl riv butt if rings are fitted 3 x 3 x 1/2"

Greatest length between rings 6' 6" working pressure of furnace by the rules 93 lbs combustion chamber plating, thickness, sides 1/2" back 1/2" top 1/2"

Pitch of stays to ditto, sides 8 x 9" back 8 x 8" top 8 x 9" If stays are fitted with nuts or riveted heads nuts working pressure of plating by rules 95 lbs Diameter of stays at smallest part 1 1/4" screw working pressure of ditto by rules 98 lbs end plates in steam space, thickness 1 3/16"

Pitch of stays to ditto 16" x 16" how stays are secured dbl nuts working pressure by rules 92 lbs diameter of stays at smallest part 2 1/4" screw working pressure by rules 105 lbs Front plates at bottom, thickness 1 1/16" Back plates, thickness 1 1/16" x 3/4"

Greatest pitch of stays ✓ working pressure by rules ✓ Diameter of tubes 3 1/2" pitch of tubes 4 1/2" x 4 1/2" thickness of tube plates, front 1/16" back 1/16" how stayed stay tubes pitch of stays 13 1/2" x 9" width of water spaces 6"

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 *Vertical Common*
 Made at *Glasgow* by whom made *Messrs J & J Thomson* when made *1886* where fixed *Star Stockhold*
 Working pressure *60 lbs* tested by hydraulic pressure to *120 lbs* No. of Certificate *1574* fire grate area *12 sq ft* description of safety valves *direct spring* No. of safety valves *one* area of each *4.07 sq ft* if fitted with easing gear *yes* if steam from main boilers can enter the donkey boiler *no* diameter of donkey boiler *4.6* length *7.3* description of riveting *S. riv lap*
 Thickness of shell plates *7/16* diameter of rivet holes *13/16* whether punched or drilled *drilled* pitch of rivets *2 1/2* lap of plating *2 1/2*
 per centage of strength of joint *47.6* thickness of crown plates *9/16* stayed by *3-1 1/2 stays & uptake*
 Diameter of furnace, top *3.8* bottom *4.0* length of furnace *3.0* thickness of plates *7/16* description of joint *S. riv lap*
 Thickness of furnace crown plates *1/2* stayed by *as above* working pressure of shell by rules *82 lbs*
 Working pressure of furnace by rules *42 lbs* diameter of uptake *10* thickness of plates *7/16* thickness of water tubes *7/16*

SPARE GEAR. State the articles supplied:— *2 propeller blades with a set of studs & nuts for one blade. 2 con rod top end bolts & nuts 2 con rod bottom end bolts & nuts 1 set of coupling bolts 1 set of feed and helge pump valves with seats also a quantity of assorted bolts & nuts.*
The foregoing is a correct description,
John Samu Thomson, Manufacturer.

General Remarks (State quality of workmanship, opinions as to class, &c. *The Stern bush, propeller shaft & boss the machinery seatings with all sea cocks and valves were fitted before launching under the inspection and to the satisfaction of the undersigned; after which the vessel left this port for Glasgow to receive her machinery.*)
James Maxton,
27 Aug. 1886

*The engines and boilers of the above named vessel have been constructed under Special Survey; they are of good material and workmanship and are now in good working order and eligible in my opinion to receive the notification of **L.M.C. 8-86** in the Register Book.*
The shafting was examined while rough turned and afterwards and appeared to be quite satisfactory.

Submitted that this vessel is eligible to L.M.C. 8-86
MM 27.8.86

The amount of Entry Fee .. £ *1* : *0* : *0* received by me,
 Special .. £ *10* : *10* : *0*
 Donkey Boiler Fee .. £ *0* : *0* : *0*
 Certificate (if required) .. £ *0* : *0* : *0* *24/8/1886*
 To be sent as per margin.
 (Travelling Expenses, if any, £ ..)

J. L. Hindmarsh, James Maxton,
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute *FRIDAY 27 AUGUST 1886*
J.M.C.

