

REPORT ON MACHINERY.

3422

No. 3422

Received at London Office

10 MAY 88

No. in Survey held at Belfast Date, first Survey 31st March 87 Last Survey 3rd May 1888

Reg. Book. Sup. on the Steel Screw Steamer "Titanic" (Number of Visits 59) Net 1016 Tons Gross 1608

Master M.R. Nelson Built at Belfast By whom built MacLwaine Lewis & Co When built 1888

Engines made at Belfast By whom made MacLwaine Lewis & Co when made 1888

Boilers made at Belfast By whom made MacLwaine Lewis & Co when made 1888

Registered Horse Power 260 166 Owners William Service Port belonging to Glasgow

ENGINES, &c.—

Description of Engines Triple Expansion Three Cranks.

Diameter of Cylinders 21 1/2, 35 & 57 1/2 Length of Stroke 36 No. of Rev. per minute 75 Point of Cut off, High Pressure 20 Low Pressure 21

Diameter of Screw shaft 11 Diam. of Tunnel shaft 10 1/4 Diam. of Crank shaft journals 11 Diam. of Crank pin 11 size of Crank webs 13 1/4 x 7 1/4

Diameter of screw 14-6 Pitch of screw 15-6 to 17-3 No. of blades four state whether moveable yes total surface 52.75 sq ft

No. of Feed pumps 2 diameter of ditto 3 Stroke 20 Can one be overhauled while the other is at work yes

No. of Bilge pumps 2 diameter of ditto 4 Stroke 20 Can one be overhauled while the other is at work yes

Where do they pump from Feed from hotwell & bilge from all bilges in holds & mach. space.

No. of Donkey Engines 3 Rulsonmeter Size of Pumps 10 x 10 at cyl. 8 1/2 pump 4 1/2 Where do they pump from Boilers, Ballast tanks

Feed water heater, Sea, hotwell, all bilges & exhaust tank.

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 4 1/2 Are they connected to condenser, or to circulating pump Circulating pump.

How are the pumps worked by levers & links to after engine; a separate cut pump for circulating.

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 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 for hold bilge suction How are they protected boxed in with wood

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 26th April in graving dock

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

BOILERS, &c.—

Number of Boilers Two Description Cyl. Multi Single ended Whether Steel or Iron Steel

Working Pressure 160 Tested by hydraulic pressure to 320 Date of test 18th Feb. 1888 Cert. No. 28

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 yes

No. of square feet of fire grate surface in each boiler 450 Description of safety valves B. Cockburns No. to each boiler Two

Area of each valve 7.06 sq in Are they fitted with easing gear yes No. of safety valves to superheater yes area of each valve yes

Are they fitted with easing gear yes Smallest distance between boilers and bunkers or woodwork 11 Diameter of boilers 13-0

Length of boilers 9-6 description of riveting of shell long. seams Triple 4 rivets cum. seams hold & triple Thickness of shell plates 13/16

Diameter of rivet holes 1 1/4 whether punched or drilled drilled pitch of rivets 7" & 3 1/2" Lap of plating 19" x 15" B.S.T.

Percentage of strength of longitudinal joint plate 82 1/2 working pressure of shell by rules 164.6 lbs size of manholes in shell 16" x 12"

Size of compensating rings Mc Neil's pt No. of Furnaces in each boiler Three

Outside diameter 37 1/2 length, top 6-6 bottom 8-9 thickness of plates 2 description of joint Fox's welded if rings are fitted yes

Greatest length between rings yes working pressure of furnace by the rules 160 combustion chamber plating, thickness, sides 19/16 back 9/16 top 9/16

Pitch of stays to ditto, sides 7 3/4 x 7 3/4 back 7 3/4 x 7 3/4 top 8 x 6 1/2 If stays are fitted with nuts or riveted heads hatted at both working pressure of plating by rules 160 lbs

Diameter of stays at smallest part 1 5/8 working pressure of ditto by rules 164 lbs end plates in steam space, thickness 15/16

Pitch of stays to ditto 15 x 15 how stays are secured washers 10" x 1 1/2 riveted to plate & two nuts working pressure by rules 160 lbs. diameter of stays at smallest part 2 5/16 Steel working pressure by rules 168 lbs. Front plates at bottom, thickness 3/4 Back plates, thickness 3/4

Greatest pitch of stays 13 working pressure by rules 160 lbs Diameter of tubes 3 1/2 pitch of tubes 4 3/4 x 4 3/4 thickness of tube plates, front 13/16 back 1/16 how stayed Star tubes pitch of stays 9 1/2 x 14 1/4 width of water spaces 5/16 at sides 7/16 at ends 1/16 at back

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

pitch of rivets yes working pressure of shell by rules yes diameter of flue yes thickness of plates yes If stiffened with rings yes

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

Superheater or steam chest; how connected to boiler yes

Lloyd's Register Foundation
BCL54-0281

DONKEY BOILER— Description *Cylindrical Multitubular horizontal Steel*
 Made at *Belfast* by whom made *MacLennan & Lewis* when made *1888* where fixed *on main deck*
 Working pressure *60 lbs* tested by hydraulic pressure to *120* No. of Certificate *29* fire grate area *10 sq ft* description of safety
 valves *2 Cockburn's Spring* No. of safety valves *2* area of each *3.14* if fitted with easing gear *yes* if steam from main boilers can
 enter the donkey boiler *no* diameter of donkey boiler *6'-6"* length *6'-6"* description of riveting *lap & bolt*
 Thickness of shell plates *3/6"* diameter of rivet holes *3/4"* whether punched or drilled *drilled* pitch of rivets *2 1/2"* lap of plating *4"*
 per centage of strength of joint *68-6* ^{min} ~~70-0~~ ^{plate} thickness of crown plates *3/8"* stayed by *✓*
 Diameter of furnace, top *30"* ~~bottom~~ length of furnace *4'-9"* thickness of plates *3/8"* description of joint *all butt straps*
 Thickness of ~~plate~~ crown plates *3/6"* stayed by *gussets & curved top plates* working pressure of shell by rules *60 lbs*
 Working pressure of furnace by rules *95 lbs* diameter of uptake *✓* thickness of plates *✓* thickness of water tubes *✓*

SPARE GEAR. State the articles supplied:— *2 propeller blades (Steel), 2 connecting rods*
top end & 2 bottom end bolts & nuts, 2 main bearing bolts & nuts, 6
coupling bolts, 2 feed pump valves, 2 bilge pump valves, a run
of bolts & nuts, iron of various sizes, &c. &c. M: Laines & Co. Piston
 The foregoing is a correct description,
 Manufacturers.

General Remarks (State quality of workmanship, opinions as to class, &c.) *The machinery of this*
vessel has been constructed and fitted in accordance with the
plans approved of by the Committee by the plans of Main and
of donkey boilers; the Secretary's letters dated, 8th February & 27th
April, 1887, in accordance with the Rules of the Society or equal
thereto and to the satisfaction of the undersigned.

The steel used in the boilers has been tested as required
by the Rules.
The boilers were tested under hydraulic pressure and the
machinery tried under steam, giving entire satisfaction.

The Safety valves were adjusted under steam and set
to 160 lbs on main & 60 lbs on donkey boilers

The material used in the construction and the workmanship
throughout of the machinery, are good & satisfactory and in
my opinion the machinery is eligible for Classification, I would
therefore respectfully recommend that the Notification + L.M.C.
be granted by the Committee & entered in the Register Book.

It is submitted that
this vessel is eligible to
have + L.M.C. 5.88 recorded.

HJ 10.5.88

The amount of Entry Fee £ 2 : 0 : 0 received by me,
 Special *Certificate* .. £ 33 : 0 : 0
 Donkey Boiler Fee .. £ : :
 Certificate (if required) .. £ : : *P. 5. 1888*
 To be sent as per margin.
 Selling Expenses, if any, £ ..)

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

Committee's Minute **FRIDAY 11 MAY 1888**
+ L.M.C. 5788

