

# REPORT ON MACHINERY.

No. 3499

Port of Belfast

17 NOV 88

No. in Survey held at Belfast

Reg. Book.

305 on the

Iron Screw Steamer

Date, first Survey 21<sup>st</sup> July

Last Survey 14<sup>th</sup> Nov. 1888

"William Finde"

Number of Visits 20

Tons 6.340.39

U.S. 277

Master S. Higgins Built at Belfast

By whom built Wortman, Clark & Co.

When built 1880

Engines made at Belfast

By whom made J. Rowan & Son, Ltd.

when made 1880

Boilers made at Belfast

By whom made MacLennan, Lewis & Co.

when made 1888

Registered Horse Power 60

Owners William Finde

Port belonging to Belfast

ENGINES, &c.—

Description of Engines

Compound Surface Condensing

Diameter of Cylinders

Length of Stroke

No. of Rev. per minute

Point of Cut off, High Pressure

Low Pressure

Diameter of Screw shaft

Diam. of Tunnel shaft

Diam. of Crank shaft journals

Diam. of Crank pin

size of Crank webs

Diameter of screw

Pitch of screw

No. of blades

state whether moveable

total surface

No. of Feed pumps

diameter of ditto

Stroke

Can one be overhauled while the other is at work

No. of Bilge pumps

diameter of ditto

Stroke

Can one be overhauled while the other is at work

Where do they pump from

No. of Donkey Engines one new

Size of Pumps

6" x 6" cyl. 3" pump

Where do they pump from

all bilges, Sea. hotwell

and boiler and ballast tank

Are all the bilge suction pipes fitted with roses

Are the roses always accessible

Are the sluices on Engine room bulkheads always accessible

No. of bilge injections

and sizes

Are they connected to condenser, or to circulating pump

How are the pumps worked

Are all connections with the sea direct on the skin of the ship

Are they Valves or Cocks

Are they fixed sufficiently high on the ship's side to be seen without lifting the stokehold plates

Are the discharge pipes above or below the deep water line

Are they each fitted with a discharge valve always accessible on the plating of the vessel

Are the blow off cocks fitted with a spigot and brass covering plate

That 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

Are the pipes, cocks, and valves arranged so as to prevent an unintentional connection between the sea and the bilges

When were stern tube, propeller, screw shaft, and all connections examined in dry dock

Is the screw shaft tunnel watertight

and fitted with a sluice door

worked from

BOILERS, &c.—

Number of Boilers

One

Description

Cir. Multi-<sup>2</sup> S. Ended

Whether Steel or Iron

Steel

Working Pressure

100 lbs.

Tested by hydraulic pressure to

200 lbs.

Date of test

12<sup>th</sup> October 1888.

Description of superheating apparatus or steam chest

None fitted

Can each boiler be worked separately

Can the superheater be shut off and the boiler worked separately

Area of square feet of fire grate surface in each boiler

492

Description of safety valves

B. Cockburn's

No. to each boiler 2

Area of each valve

9.62 sq. in.

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

12 inches

Diameter of boiler 13'-0"

Length of boiler

9-6

Description of riveting of shell long. seams 10-13 st. 3/16" circum. seams

Lap. 4 3/16" + 3/16" Thickness of shell plates 3/4"

Diameter of rivet holes

7/8"

whether punched or drilled

drilled

pitch of rivets

5 1/2"

Lap of plating 15 1/4" x 5/8" B.S.

Percentage of strength of longitudinal joint

84 lb. 86.6

Working pressure of shell by rules

107 lbs.

size of manholes in shell

16" x 12"

No. of compensating rings

27" x 27" x 9/16"

Steel plate

No. of Furnaces in each boiler

3

Side diameter

37"

length, top

6'-6"

bottom

8'-1"

thickness of plates

1 1/2"

Description of joint

Welded

if rings are fitted

Least length between rings

11 1/2"

Working pressure of furnace by the rules

113 lbs.

Combustion chamber plating, thickness, sides

5"

back

5"

top

Thickness of stays to ditto, sides

8 1/4"

back

8 1/4"

top

8 1/4" x 8"

If stays are fitted with nuts or riveted heads

Nuts in boxes

Working pressure of plating by rules

Diameter of stays at smallest part

1 1/8" x 1 1/8"

Working pressure of ditto by rules

117 lbs.

and plates in steam space, thickness

3/4"

Thickness of stays to ditto

1 1/2" x 1 1/2"

How stays are secured

2 nuts + 10" x 9/16"

Working pressure by rules

99.5 lbs.

diameter of stays at

smallest part

1.93" steel

Working pressure by rules

123 lbs.

Front plates at bottom, thickness

5/8"

Back plates, thickness

Least pitch of stays

1 1/2" + 1/4" double

Working pressure by rules

100 lbs.

Diameter of tubes

3 1/4"

pitch of tubes

4 1/2" x 4 1/4"

thickness of tube

1/16"

back

1/16"

how stayed

stay tubes + tripod stays

pitch of stays

Diameter of Superheater or Steam chest

14 1/2"

length

4 1/2"

thickness of plates

1/16"

Description of longitudinal joint

Welded

diam. of rivet holes

5/16"

9 1/2" at back

5" sides of plates

6 1/2" at top

1 1/2" at bottom

1 1/2" at top

No. of rivets

1

Working pressure of shell by rules

123 lbs.

diameter of flue

3 1/4"

thickness of plates

1/16"

If stiffened with rings

Yes

how stayed

stay tubes

end plates of superheater, or steam chest; thickness

1/16"

Superheater or steam chest; how connected to boiler

Distance between rings

11 1/2"

Working pressure by rules

113 lbs.

end plates of superheater, or steam chest; thickness

1/16"

Superheater or steam chest; how connected to boiler

stay tubes

Working pressure by rules

113 lbs.

end plates of superheater, or steam chest; thickness

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Superheater or steam chest; how connected to boiler

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stay tubes

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end plates of superheater, or steam chest; thickness

1/16"

Superheater or steam chest; how connected to boiler

stay tubes

Working pressure by rules

Distance between rings

11 1/2"

Working pressure by rules

113 lbs.

end plates of superheater, or steam chest; thickness

1/1



## DONKEY BOILER—

Description

Old vertical boiler still in use

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 \_\_\_\_\_ if fitted with easing gear \_\_\_\_\_ if steam from main boilers can  
 enter the donkey boiler \_\_\_\_\_ diameter of donkey boiler \_\_\_\_\_ length \_\_\_\_\_ description of riveting \_\_\_\_\_  
 Thickness of shell plates \_\_\_\_\_ diameter of rivet holes \_\_\_\_\_ whether punched or drilled \_\_\_\_\_ pitch of rivets \_\_\_\_\_ lap of plating \_\_\_\_\_  
 per centage of strength of joint \_\_\_\_\_ thickness of crown plates \_\_\_\_\_ stayed by \_\_\_\_\_  
 Diameter of furnace, top \_\_\_\_\_ bottom \_\_\_\_\_ length of furnace \_\_\_\_\_ thickness of 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 plates \_\_\_\_\_ thickness of water tubes \_\_\_\_\_

SPARE GEAR. State the articles supplied:—

The foregoing is a correct description,

*Mac. Gorman & Co. Ltd.* Manufacturer. of New Main Boiler.  
*H. Mac Gorman*

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

A new main boiler has been constructed for and fitted on board this steamer, to the foregoing scantings; in accordance with the tracing accompanying this report, the Secretary's dated 9<sup>th</sup> May 88, the Rules of the Society and to the satisfaction of the undersigned.

The material & workmanship in the above boiler were good and satisfactory. The steel was tested as required & the boiler tested under hydraulic pressure.

In addition to the above when the vessel was placed in graving dock the propeller was taken off; the shaft drawn taken to shop and tried up in lathe and a new propeller (mixture of steel & cast iron) fitted; all the sea cocks and valves were opened out & greased where necessary; the bilges were thoroughly cleaned out bilge boxes and pipes examined; the cylinders, slide valve casings, condenser, main & donkey pumps were opened out; the cylinders pistons and slide valves were taken to shop and carefully overhauled pistons, valve faces & slide valves machined; new bilge pump chests and valves fitted; half (lower) condenser tubes drawn, cleaned and repacked; the crank & tunnel shafts stripped and examined; the donkey boiler opened out & examined internally & externally.

When all the repairs had been satisfactorily accomplished, the machine was tried under steam giving entire satisfaction, the safety valves were adjusted to 100 lbs. on main and 40 lbs. on donkey boiler.

The machinery having been put in a good efficient & safe working condition; I would therefore respectfully <sup>recommend</sup> that the present notification be retained viz. **+ L.M.C. (11.88)** and in addition that the new boiler be noted thus **+ N.B. 88** in the Register Book.

The amount of Entry Fee .. £ : : received by me,

Special .. £

3 : 3 : 0

14<sup>th</sup> Nov.

Jm.

Main Donkey Boiler Fee .. £

4 : 4 : 0

13<sup>th</sup> Nov.

Certificate (if required) .. £

2/6 : 13<sup>th</sup> Nov.

1888

To be sent as per margin.

(Travelling Expenses, if any, £ .. ✓ ..)

Committee's Minute

20 NOV 1888

+ L.M.C. 11/88

+ N.B. 88

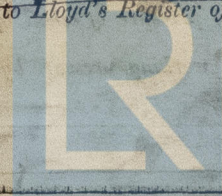
It is submitted that  
 this vessel is eligible  
 to have + L.M.C. 11.88  
 + N.B. 88 recorded

James Maxton

Engineer-Surveyor to Lloyd's Register of British &amp; Foreign Shipping.

M.D.

19.11.88

Lloyd's Register  
Foundation