

REPORT ON MACHINERY.

No. 2712

No. in Survey held at *Belfast*
Reg. Book.

Date, first Survey *28 April 1880* Last Survey *12 Oct 1880*

on the

S.S. "Ethel"

265.4
Tons *245.9*

Master *J. Thompson*

Built at *Belfast*

When built *1880*

Engines made at *Belfast*

By whom made *J. Rowan & Son Limited* when made *1880*

Boilers made at *Belfast*

By whom made *do* when made *1880*

Registered Horse Power *60*

Owners *Gault & MacMullen*

Port belonging to *Belfast*

ENGINES, &c.—

Description of Engines *Compound Inverted Direct Acting*
Diameter of Cylinders *19 & 38* Length of Stroke *30* No. of Rev. per minute *90* Point of Cut off, High Pressure *1/3* Low Pressure *1/2*
Diameter of Screw shaft *7* Diameter of Tunnel shaft *6 1/2* Diameter of Crank shaft journals *7* Diameter of Crank pins *7 1/2* size of Crank webs *8 1/2 x 3*
Diameter of screw *9 1/2* Pitch of screw *14* No. of blades *four* state whether moveable *No* total surface *30* *a feet*
No. of Feed pumps *two* diameter of ditto *2* Stroke *30* Can one be overhauled while the other is at work *No*
No. of Bilge pumps *two* diameter of ditto *3* Stroke *30* Can one be overhauled while the other is at work *yes*
Where do they pump from *Engine Room. Fore & Main Holds*
No. of Donkey Engines *one* Size of Pumps *4 x 6* Where do they pump from *Sea & Bilges*

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 *as far as possible sluices on both sides*
No. of bilge injections *one* and sizes *3 1/2 inch* Are they connected to condenser, or to circulating pump *Circulating pump*
How are the pumps worked *by crosshead*
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 except* 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 *on Slip before Ship was launched*
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 *Siemens Steel except tubes & large stays*
Working Pressure *80 lbs* Tested by hydraulic pressure to *160 lbs per inch* Date of test *1st September 1880*
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 *35* Description of safety valves *Direct Spring*
No. to each boiler *two* area of each valve *8.9 inches* 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 *4*
Diameter of boiler *11.3* Length of boiler *9.4* description of riveting of shell long. seams *Chair double riveted* circum. seams *single*
Thickness of shell plates *5/8* diameter of rivet holes *3/4 & 7/8* whether punched or drilled *punched* pitch of rivets *2 1/8 & 2 3/8*
Lap of plating *12 Straps* per centage of strength of longitudinal joint *71* working pressure of shell by rules *82 lbs*
Size of manholes in shell *13 1/2 x 12* size of compensating rings *5 x 7 1/2*
No. of Furnaces in each boiler *two* outside diameter *39 1/8* length, top *6.6* bottom *8.6*
Thickness of plates *3/32* description of joint *welded at ends* if rings are fitted *yes* greatest length between rings *3.6 & 3.3*
Working pressure of furnace by the rules *106 lbs*
Combustion chamber plating, thickness, sides *7/16* back *7/16* top *7/16*
Pitch of stays to ditto sides *8 x 8* back *8 x 8* top *7 1/2 x 8*
If stays are fitted with nuts or riveted heads *Nuts* working pressure of plating by rules *91 lbs*
Diameter of stays at smallest part *1" steel* working pressure of ditto by rules *98 lbs*
End plates in steam space, thickness *1/2* pitch of stays to ditto *10 1/2 x 10 1/2* how stays are secured *Nuts outside*
Working pressure by rules *81 lbs* diameter of stays at smallest part *1 1/2 & 2 3/4* working pressure by rules *96 lbs*
Front plates at bottom, thickness *1/2* Back plates, thickness *1/2* greatest pitch of stays *15 1/2* working pressure by rules *—*

2833 2 Iron

Diameter of tubes $3\frac{1}{2}$ pitch of tubes $4\frac{1}{4}$ thickness of tube plates, front $\frac{5}{8}$ back $\frac{3}{8}$
How stayed by tubes pitch of stays $9\frac{1}{2} \times 14\frac{1}{2}$ width of water spaces 6
Diameter of Superheater or Steam chest — length —
Thickness of plates — description of longitudinal joint — diameter 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 Round Vertical
Made at Belfast By whom made J. Rowan & Sons when made 1880
Where fixed in St. John's working pressure 80 lbs Tested by hydraulic pressure to 160 lbs No. of Certificate 26
Fire grate area 8 sq feet Description of safety valves Direct Spring No. of safety valves one area of each 7 sq in.
If fitted with easing gear Yes If steam from main boilers can enter the donkey boiler yes. if stop valve is
Diameter of donkey boiler 3' 9" height 8' 6" description of riveting single
thickness of shell plates $\frac{3}{8}$ diameter of rivet holes $\frac{13}{16}$ whether punched or drilled punched
pitch of rivets $2\frac{1}{8}$ lap of plating $2\frac{1}{2}$ per centage of strength of joint 6 to 8
thickness of crown plates $\frac{1}{16}$ Steel stayed by Uptake Crown Hemispherical
Diameter of furnace, top 2' 9" bottom 3' 3" height 4' 0" length of furnace
thickness of plates $\frac{3}{8}$ Steel description of joint lap. single riveted
thickness of furnace crown plates $\frac{3}{8}$ Steel stayed by Uptake
Working pressure of shell by rules 79 lbs working pressure of furnace by rules —
diameter of uptake $10\frac{3}{4}$ thickness of plates $\frac{5}{16}$ L M thickness of water tubes $\frac{5}{16}$ Two Gallonay Tubes

The foregoing is a correct description,
Manufacturer. **FOR JOHN ROWAN & SONS (LIMITED)**
I. A. Adamson Manager

General Remarks (State quality of workmanship, opinions as to class, &c.) The Machinery & Boilers
have been carefully inspected & examined by us. The workman
is of good quality and the Machinery and Boilers are now in
good order and safe working condition and are in our opinion
eligible to be noted in the Register Book. LLOYD'S. M.C. 10.8
on back being stiffened between Combustion Chambers. Referred to in letter attached. And
reported upon by one of the Society's Surveyors

It is submitted that this vessel should not have the second & third Register Book recorded in the Register Book while the back of boiler is stiffened as suggested by the Surveyor and that the owners be informed accordingly.
AW 17/10/80

The amount of Entry Fee £ 2 : — : — received by me,
Special .. £ 9 : — : —
Certificate (if required) .. £ 2 : — : —
To be sent as per margin. 18 80
(Travelling Expenses, if any, £ 7. 7. —)

Committee's Minute Tuesday, October, 19th 1880
Nov 23 - 1880
Lloyd's

Andrew C. Hearn James Morrison
Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

