

## REPORT ON MACHINERY.

Port of *Sunderland*Received at London Office *25 MAR 1903*No. in Survey held at *Sunderland & Blyth* Date, first Survey *23rd Dec 1901* Last Survey *30th July 1902*

Reg. Book.

on the

*SS "Lusitania"*(Number of Visits *41*)Master *H. Wheeler* Built at *Blyth* By whom built *Blyth S.B. Coy (1902)* When built *1903*Engines made at *Sunderland* By whom made *H.E. & M.E. Coy Ltd* when made *1903*Boilers made at *"* By whom made *"* when made *"*Registered Horse Power *209* Owners *John Hall Jun & Co* Port belonging to *London*Nom. Horse Power as per Section 28 *209* Is Refrigerating Machinery fitted *No* Is Electric Light fitted *Yes*

**ENGINES, &c.—Description of Engines** *Triple Expansion* No. of Cylinders *3* No. of Cranks *3*

Dia. of Cylinders *20 1/2 - 33 - 54* Length of Stroke *36* Revs. per minute *70* Dia. of Screw shaft as per rule *11.33* as fitted *11.78* Lgh. of stern bush *4-0*

Dia. of Tunnel shaft as per rule *9.8* as fitted *10* Dia. of Crank shaft journals as per rule *10.34* as fitted *10 1/2* Dia. of Crank pin *10 1/2* Size of Crank webs *16x6 1/2* Dia. of thrust shaft under collars *10 1/2* Dia. of screw *14-3* Pitch of screw *14-3* No. of blades *4* State whether moveable *No* Total surface *61 f*

No. of Feed pumps *2* Diameter of ditto *2 3/4* Stroke *1-9* Can one be overhauled while the other is at work *Yes*

No. of Bilge pumps *2* Diameter of ditto *3* Stroke *1-9* Can one be overhauled while the other is at work *Yes*

No. of Donkey Engines *2* Sizes of Pumps *8x9x10 7 5/4x3 1/2x5* No. and size of Suctions connected to both Bilge and Donkey pumps

In Engine Room *4 of 3"* In Holds, &c. *Forward holds Two 2 1/4" one 3"*

*Left holds Two 2 1/4" one 3"* after well one 3" Tunnel well one 2 1/4"

No. of bilge injections *1* sizes *3 1/2* Connected to condenser, or to circulating pump *C.P.* Is a separate donkey suction fitted in Engine room & size *Yes 3"*

Are all the bilge suction pipes fitted with roses *Yes* Are the roses in Engine room always accessible *Yes* Are the sluices on Engine room bulkheads always accessible *Yes*

Are all connections with the sea direct on the skin of the ship *Yes* Are they Valves or Cocks *Both*

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 *None* How are they protected *✓*

Are all pipes, cocks, valves, and pumps in connection with the machinery and all boiler mountings accessible at all times *Yes*

Are the bilge suction pipes, cocks, and valves arranged so as to prevent any communication between the sea and the bilges *Yes*

When were stern tube, propeller, screw shaft, and all connections examined in dry dock *On slips* Is the screw shaft tunnel watertight *Yes*

Is it fitted with a watertight door *Yes* worked from *Eng room top platform*

**BOILERS, &c.—** (Letter for record *S*) Total Heating Surface of Boilers *3586 f* Is forced draft fitted *No*

No. and Description of Boilers *2 Ordinary Marine* Working Pressure *170 lbs* Tested by hydraulic pressure to *340 lbs*

Date of test *30/5/03* Can each boiler be worked separately *Yes* Area of fire grate in each boiler *50 f* No. and Description of safety valves to each boiler *2 Spring* Area of each valve *5.94 f* Pressure to which they are adjusted *170 lbs* Are they fitted with easing gear *Yes*

Smallest distance between boilers or uptakes and bunkers or woodwork *18"* Mean dia. of boilers *13-10 29/32* Length *10-0* Material of shell plates *S*

Thickness *1 3/32* Range of tensile strength *29/32* Are they welded or flanged *No* Descrip. of riveting: cir. seams *D.R.L.* long. seams *T.R.D.B.*

Diameter of rivet holes in long. seams *1 1/8"* Pitch of rivets *7 7/8"* Lap of plates or width of butt straps *16 3/4"*

Per centages of strength of longitudinal joint rivets *85.8* plate *85.7* Working pressure of shell by rules *180.6 lbs* Size of manhole in shell *16x13"*

Size of compensating ring *Flanged* No. and Description of Furnaces in each boiler *3 Plain* Material *S* Outside diameter *3-6"*

Length of plain part top *20 7/8"* bottom *20 1/8"* Thickness of plates crown *49/64"* bottom *1/64"* Description of longitudinal joint *Welded* No. of strengthening rings *6*

Working pressure of furnace by the rules *172.3 lbs* Combustion chamber plates: Material *S* Thickness: Sides *2 1/32"* Back *1 1/16"* Top *2 1/32"* Bottom *1 3/16"*

Pitch of stays to ditto: Sides *9 3/4 x 8 1/8* Back *10 1/4 x 9 1/8* Top *8 7/8 x 8 1/8* If stays are fitted with nuts or riveted heads *Nuts* Working pressure by rules *177 lbs*

Material of stays *S* Diameter at smallest part *1 7/8"* Area supported by each stay *93.5 f* Working pressure by rules *172.2 lbs* End plates in steam space:

Material *S* Thickness *1 1/2"* Pitch of stays *9 3/8 x 1 1/4"* How are stays secured *N.R.W.* Working pressure by rules *170.5 lbs* Material of stays *S*

*Area* at smallest part *6.1 f* Area supported by each stay *329.4 f* Working pressure by rules *85.4 lbs* Material of Front plates at bottom *S*

Thickness *13/16"* Material of Lower back plate *S* Thickness *7/8"* Greatest pitch of stays *14 1/2 x 9 1/8* Working pressure of plate by rules *180 lbs*

Diameter of tubes *3 1/4"* Pitch of tubes *4 1/16 x 4 7/16* Material of tube plates *S* Thickness: Front *13/16"* Back *13/16"* Mean pitch of stays *8 7/8"*

Pitch across wide water spaces *14 1/2"* Working pressures by rules *215 lbs* Girders to Chamber tops: Material *S* Depth and thickness of girder at centre *6 3/4 x 13 1/4"* Length as per rule *28"* Distance apart *8 7/8"* Number and pitch of Stays in each *2 of 8 7/8"*

Working pressure by rules *181 lbs* Superheater or Steam chest; how connected to boiler *None* Can the superheater be shut off and the boiler worked separately

Diameter Length Thickness of shell plates Material Description of longitudinal joint Diam. of rivet holes

Pitch of rivets Working pressure of shell by rules Diameter of flue Material of flue plates Thickness

If stiffened with rings Distance between rings Working pressure by rules End plates: Thickness How stayed

Working pressure of end plates Area of safety valves to superheater Are they fitted with easing gear



**DONKEY BOILER—** No. 6274 Description *Ordinary cross tube*  
 Made at *Annan* By whom made *Cochran & Co* When made *1902* Where fixed *in stockhold*  
 Working pressure *80 lbs* tested by hydraulic pressure to *160 lbs* No. of Certificate *6274* Fire grate area *25 1/2 sq ft* Description of safety valves *Spring loaded*  
 No. of safety valves *2* Area of each *7.07 sq ft* Pressure to which they are adjusted *85 lbs* If fitted with easing gear *yes* If steam from main boilers can enter the donkey boiler *No* Dia. of donkey boiler *7'-0"* Length *14'-0"* Material of shell plates *Steel* Thickness *5/8"* Range of tensile strength *27-32* Descrip. of riveting long. seams *double* Dia. of rivet holes *3/8"* Whether punched or drilled *drilled* Pitch of rivets *2 3/4"*  
 Lap of plating *4 3/8"* Per centage of strength of joint *74.5* Rivets *24.5* Thickness of shell crown plates *9/16"* Radius of do. *7'-0"* No. of Stays to do. *8*  
 Area *3.49 sq ft* Dia. of stays *3.49* Diameter of furnace Top *5'-0 3/8"* Bottom *5'-11 1/2"* Length of furnace *6'-4"* Thickness of furnace plates *1/16"* Description of joint *riveted* Thickness of furnace crown plates *5/8"* Stayed by *as above* Working pressure of shell by rules *88 lbs*  
 Working pressure of furnace by rules *98 lbs* Diameter of uptake *15 1/4"* Thickness of uptake plates *3/8"* Thickness of water tubes *3/8"*

**SPARE GEAR.** State the articles supplied:— *Two top & bottom end bolts & nuts set of coupling bolts, feed, air, circ. & bilge pump valves. Assorted iron, bolts & nuts. 1 main feed check valve, 1 by feed check valve. Two main bearing bolts and nuts, 1 set of each springs for piston rings. 1 safety valve spring*

The foregoing is a correct description,  
**NORTH EASTERN MARINE ENGINEERING CO. LTD.** Manufacturers.  
*Robert Smith & Co*

Dates { During progress of work in shops - - 1901. Dec 23. 1902. Jan 7. 10. 15. 20. 23. 29. Feb. 6. 11. 17. 20. 24. 26. Mar. 1. 6. 10. 12. 17. 21. 24. 26.  
 of Survey { During erection on board vessel - - Apr. 7. 9. 15. 18. 25. 28. May. 1. 15. 22. 30. June 1. 9. 11. 16. 17. 20. July 1. 21. 25. 30.  
 while building { Total No. of visits *21.* (Nov 10 Oct 17 May 15 Aug 2 Sep 1 Oct 19 Nov 16 Dec 1901)

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

Material of screw shaft *Wrought Iron* Is the screw shaft fitted with a continuous liner the whole length of the stern tube *Yes*  
 Is the after end of the liner made water tight in the propeller boss *Yes* If the liner is in more than one length are the joints burned ✓  
 If the liner does not fit tightly at the part between the bearings in the stern tube, is the space charged with a plastic material insoluble in water and non-corrosive ✓ If two liners are fitted, is the shaft lapped or protected between the liners ✓

*The boiler & machinery of this vessel have been built under Special Survey, the materials & workmanship are good & efficient, & tested according to the Rules of this Society with satisfactory results.*

*In our opinion this vessel is now worthy of the notation of + L.M.C 3/03*

It is submitted that  
 this vessel is eligible for  
**THE RECORD. + L.M.C 303. FLEC. LIGHT.**

*Bak*

*25.3.03*

*25.3.03*

The amount of Entry Fee £ *2.*  
 Special .. £ *30.* 9  
 Donkey Boiler Fee .. £ :  
 Travelling Expenses (if any) £ :

When applied for,

*18.11.02*

When received,

*1.4.03*

*W. F. Fittmore. Andrew J. Graham.*  
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

**Committee's Minute**

**FRI. 27 MAR 1903**

**Assigned**

*+ L.M.C 303*

**MACHINERY CERTIFICATE**  
 WRITTEN.



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 Foundation

Certificate (if registered) to be sent to  
 The Surveyors are requested not to write on or below the space for Committee's Minute.