

## REPORT ON MACHINERY.

Port of *Leith*

FRI. JAN 4 1901

No. in Survey held at *Leith*Date, first Survey *19th Oct. 1899* Last Survey *22nd Dec. 1900*

Reg. Book.

(Number of Visits

*59*on the *S.S. "Benclench"*Gross *4158.69*  
Net *2679.11*Master *A.W.S. Thomson* Built at *Leith*By whom built *Ramage + Ferguson Ltd* When built *1900*Engines made at *Leith*By whom made *Ramage + Ferguson*when made *1900*Boilers made at *do*By whom made *do*when made *1900*Registered Horse Power *324*Owners *W. Thomson & Co*Port belonging to *Leith*Nom. Horse Power as per Section 28 *324*Is Refrigerating Machinery fitted *no*Is Electric Light fitted *no*ENGINES, &c.—Description of Engines *Triple expansion*No. of Cylinders *3*No. of Cranks *3*Dia. of Cylinders *25" - 41" - 67"* Length of Stroke *45"* Revs. per minute *80* Dia. of Screw shaft *as per rule 12.99"* Lgth. of stern bush *5' 9"*Dia. of Tunnel shaft *as per rule 11.76"* Dia. of Crank shaft journals *as per rule 12.38"* Dia. of Crank pin *13"* Size of Crank webs *21" x 9 1/4"* Dia. of thrust shaft under collars *13 1/2"*Dia. of screw *17' 0"* Pitch of screw *17' 6"* No. of blades *4* State whether moveable *yes* Total surface *75 sq*No. of Feed pumps *2* Diameter of ditto *4"* Stroke *24"* Can one be overhauled while the other is at work *✓*No. of Bilge pumps *2* Diameter of ditto *4 1/2"* Stroke *24"* Can one be overhauled while the other is at work *✓*No. of Donkey Engines *2* Sizes of Pumps *8x6x8 - 10x12x10* No. and size of Suctions connected to both Bilge and Donkey pumpsIn Engine Room *Two 3 1/2"* In Holds, &c. *Two to each hold 3 1/2" one to**tunnel well 2" + one to fore end of tunnel 2"*No. of bilge injections *1* sizes *6 1/2"* Connected to *condenser* or to circulating pump *yes* Is a separate donkey suction fitted in Engine room & size *Two - 4"*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 *none*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 *new vessel* Is the screw shaft tunnel watertight *yes*Is it fitted with a watertight door *yes* worked from *Deck.*

## BOILERS, &amp;c.—

(Letter for record *S*)Total Heating Surface of Boilers *4966 sq*Is forced draft fitted *no*No. and Description of Boilers *Two multitubular single ended* Working Pressure *180 lbs* Tested by hydraulic pressure to *360 lbs*Date of test *6/10/00* Can each boiler be worked separately *yes* Area of fire grate in each boiler *80 sq* No. and Description of safety valves to each boiler *Two, Spring*Area of each valve *8.62 sq* Pressure to which they are adjusted *185 lbs* Are they fitted with easing gear *yes*Smallest distance between boilers *upstays* and bunkers or woodwork *12"* Mean dia. of boilers *16' 6"* Length *10' 6"* Material of shell plates *Steel*Thickness *1 1/16"* Range of tensile strength *28/32* Are they welded or flanged *no* Descrip. of riveting: cir. seams *Lap. B. Riv. long. seams S.B.S.S. Riv.*Diameter of rivet holes in long. seams *1 7/16"* Pitch of rivets *10"* Lap of plates or width of butt straps *22 1/4"*Per centages of strength of longitudinal joint *91.5* Working pressure of shell by rules *213 lbs* Size of manhole in shell *16 x 12*Size of compensating ring *McNeil's* No. and Description of Furnaces in each boiler *4 - Brighton's* Material *Steel* Outside diameter *45"*Length of plain part *top* Thickness of plates *bottom* *5/8"* Description of longitudinal joint *welded* No. of strengthening rings *✓*Working pressure of furnace by the rules *223 lbs* Combustion chamber plates: Material *Steel* Thickness: Sides *1 1/16"* Back *2 1/32"* Top *1 1/32"* Bottom *1 1/16"*Pitch of stays to ditto: Sides *9 x 8 1/2"* Back *9 1/2 x 8"* Top *8 1/4 x 8"* If stays are fitted with nuts or riveted heads *nuts* Working pressure by rules *194 lbs*Material of stays *Steel* Diameter at smallest part *1.73"* Area supported by each stay *76"* Working pressure by rules *182 lbs* End plates in steam space:Material *Steel* Thickness *1 1/8"* Pitch of stays *16 x 15 1/2"* How are stays secured *S.R. + W.* Working pressure by rules *235 lbs* Material of stays *Steel*Diameter at smallest part *5.05"* Area supported by each stay *248 sq* Working pressure by rules *203 lbs* Material of Front plates at bottom *Steel*Thickness *7/8"* Material of Lower back plate *Steel* Thickness *2 1/32"* Greatest pitch of stays *13"* Working pressure of plate by rules *243 lbs*Diameter of tubes *3 1/4"* Pitch of tubes *4 1/2"* Material of tube plates *Steel* Thickness: Front *1"* Back *2 1/32"* Mean pitch of stays *11 1/4"*Pitch across wide water spaces *14 1/4"* Working pressures by rules *188 lbs* Girders to Chamber tops: Material *Steel* Depth andthickness of girder at centre *8" x 1 3/4"* Length as per rule *29"* Distance apart *8 1/4"* Number and pitch of Stays in each *2 - 8"*Working pressure by rules *220 lbs* Superheater or Steam chest; how connected to boiler *none* Can the superheater be shut off and the boiler workedseparately *✓* Diameter *✓* Length *✓* Thickness of shell plates *✓* Material *✓* Description of longitudinal joint *✓* Diam. of rivetholes *✓* 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 *✓*



Working pressure of furnace by rules 150 lbs Diameter of <sup>uptake</sup> 34 Thickness of <sup>plates</sup> 1

SPARE GEAR. State the articles supplied:— Two top-end bolts + nuts, 2 bottom end bolts + nuts, 2 main bearing bolts, 1 set of coupling bolts, 1 set of feed + bilge pump valves, a quantity of assorted bolts + iron. A screw shaft, 2 propeller blades, 1 pair bottom end bearings, 1 air + circulating pump rods, air pump bucket, 1 set of piston rings, 2 safety valve springs.

The foregoing is a correct description,  
Manufacturer. *John. Ramall*

|                          |     |                                      |   |
|--------------------------|-----|--------------------------------------|---|
| Dates                    |     | During progress of work in shops - - | 1899 Oct. 19-26. Nov. 6-9. 14-20. 23-27. 30-Dec-7. 14-26. 1900 Jan 8-16. 24 Feb 1-7. 13-20. 26-Mar 1-7. 20-21-22. Apr 3.          |
| of Survey while building |     | During erection on board vessel - -  | 6-12-19. May 2-9. 22-25-28. Jun 7-15-29. July 11-19. Aug 1-8-27-30. Sep 3-11-13-24 Oct 4-6-17-18-22. Nov. 5-14-21-22. See 1-15-27 |
| Total No. of visits      | 59. |                                      | Is the approved plan of main boiler forwarded herewith Yes<br>" donkey " " " Yes  |

General Remarks (State quality of workmanship, opinions as to class, &c.) The engines & boilers of this vessel have been constructed under special survey & the materials & workmanship are found to be good. The engines have been tried under steam & the safety valves of main & donkey boilers adjusted. The machinery is now in good & safe working condition & eligible in my opinion to have the notation of +LMC 12,

It is submitted that  
this vessel is eligible for  
THE RECORD. + CMB 12.00.

4. 1. 01

R.R.  
4.1.01

|                                |      |   |   |                               |
|--------------------------------|------|---|---|-------------------------------|
| The amount of Entry Fee..      | £ 3  | - | - | When applied for,             |
| Special .. ..                  | £ 36 | 4 | - | 3 <sup>rd</sup> January 1901. |
| Donkey Boiler Fee .. ..        | £ 2  | 2 | - | When received,                |
| Travelling Expenses (if any) £ | -    | - | - | 8/1/01                        |

Committee's Minute

Assigned

TUES. 8 JAN 1901

Thomas Field  
Engineer Surveyor to Lloyd's Register of British & Foreign Shipping

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Lloyd's Register  
Foundation

MACHINERY CERTIFICATE  
WRITTEN.