

## REPORT ON MACHINERY.

Port of *Glasgow & Grimsby*

5 JUL 1899

Received at London Office

No. in Survey held at *Glasgow &*Date, first Survey *15 Dec '98*Last Survey *26 Jan 1899*

No. of Book.

33 on the

*S.S. KING ALFRED.*Master *J. Crocker*Built at *Grimsby*By whom built *Hagerup, Doughty, & Schofield*When built *1899*Engines made at *Glasgow*By whom made *Muir & Houston Ltd*When made *1899*Boilers made at *Grimsby*By whom made *Schofield, Hagerup, & Doughty Ltd*When made *1899*Registered Horse Power *45*Owners *Monarch Steam Towing Co. Ltd.*Port belonging to *Grimsby*Nom. Horse Power as per Section 28 *46*Is Refrigerating Machinery fitted *No*Is Electric Light fitted *No*

ENGINES, &c.—Description of Engines *Triple expansion screw* No. of Cylinders *3* No. of Cranks *3*  
 Dia. of Cylinders *11, 17, 28* Length of Stroke *30* Revs. per minute *5.4* Dia. of Screw shaft *5.68* Lgth. of stern bush *11*  
 Dia. of Tunnel shaft *as per rule* Dia. of Crank shaft journals *as per rule* Dia. of Crank pin *5.78* Size of Crank webs *3 5/8 x 16* Dia. of thrust shaft under  
 collars *5 5/8* Dia. of screw *8" 0"* Pitch of screw *9" 0" to 10" 0"* No. of blades *4* State whether moveable *no* Total surface *21 sq. ft.*  
 No. of Feed pumps *1* Diameter of ditto *2"* Stroke *10"* Can one be overhauled while the other is at work *✓*  
 No. of Bilge pumps *1* Diameter of ditto *3 1/2"* Stroke *10"* Can one be overhauled while the other is at work *✓*  
 No. of Donkey Engines *one* Sizes of Pumps *5 x 2 1/2 x 5* No. and size of Suctions connected to both Bilge and Donkey pumps  
 in Engine Room *Sea - Bilge - Botwell - 2"* In Holds, &c. *Fish Hold - 2"*

No. of bilge injections *one* sizes *2 1/2"* Connected to condenser, or to circulating pump *no* Is a separate donkey suction fitted in Engine room & size *Yes - 2"*  
 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 *no*  
 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* Are the blow off cocks fitted with a spigot and brass covering plate *Yes*  
 What pipes are carried through the bunkers *Fish Hold suction* How are they protected *wood casing*  
 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 *Before launching* Is the screw shaft tunnel watertight *no*  
 Is it fitted with a watertight door *✓* worked from *✓*

BOILERS, &c.—(Letter for record *S*) Total Heating Surface of Boilers *836 sq. feet* Is forced draft fitted *No*  
 No. and Description of Boilers *One - Single ended Multitubular* Working Pressure *180 lb per sq. in.* Tested by hydraulic pressure to *360 lb per sq. in.*  
 Date of test *May 10/99* Can each boiler be worked separately *✓* Area of fire grate in each boiler *25 sq. ft.* No. and Description of safety valves to  
 each boiler *2 - Spring loaded* Area of each valve *3 1/4 sq. in.* Pressure to which they are adjusted *180 lb per sq. in.* Are they fitted with easing gear *Yes*  
 Smallest distance between boilers or uptakes and bunkers or woodwork *8 in.* Mean dia. of boilers *10 1/2" inside* Length *9 ft 0 in.* Material of shell plates *Steel*  
 Thickness *3/8"* Range of tensile strength *28 to 32 tons* Are they welded or flanged *neither* Descrip. of riveting: cir. seams *DR - lap* long. seams *TR - double straps*  
 Diameter of rivet holes in long. seams *1 1/2"* Pitch of rivets *7 1/2" & 3 1/2"* Lap of plates or width of butt straps *17 in.*  
 Percentages of strength of longitudinal joint: rivets *97%* Working pressure of shell by rules *183 lb per sq. in.* Size of manhole in shell *16" x 12"*  
 plate *95%*  
 Size of compensating ring *Patent ring* No. and Description of Furnaces in each boiler *2 - Plain* Material *Steel* Outside diameter *3' 3"*  
 Length of plain part *top 5' 6"* Thickness of plates *bottom 3"* Description of longitudinal joint *Weld* No. of strengthening rings *none*  
 Working pressure of furnace by the rules *199 lb per sq. in.* Combustion chamber plates: Material *Steel* Thickness: Sides *3/8"* Back *3/8"* Top *3/8"* Bottom *7/8"*  
 Pitch of stays to ditto: Sides *7 1/2" x 7 1/2"* Back *7 1/2" x 7 1/2"* Top *7 1/2" x 7 1/2"* If stays are fitted with nuts or riveted heads *nuts* Working pressure by rules *183 lb*  
 Material of stays *Steel* Area at smallest part *1.45 sq. in.* Area supported by each stay *60.26 sq. in.* Working pressure by rules *192 lb per sq. in.* End plates in steam space:  
 Material *Steel* Thickness *1 1/2"* Pitch of stays *15" x 15"* How are stays secured *nuts* Working pressure by rules *183 lb per sq. in.* Material of stays *Steel*  
 Area at smallest part *1.37 sq. in.* Area supported by each stay *22.2 sq. in.* Working pressure by rules *192 lb per sq. in.* Material of Front plates at bottom *Steel*  
 Thickness *3/8"* Material of Lower back plate *Steel* Thickness *3/8"* Greatest pitch of stays *9"* Working pressure of plate by rules *183 lb*  
 Diameter of tubes *3 1/2"* Pitch of tubes *4 1/2"* Material of tube plates *Steel* Thickness: Front *3/8"* Back *3/8"* Mean pitch of stays *9"*  
 Pitch across wide water spaces *14"* Working pressures by rules *182 lb per sq. in.* Girders to Chamber tops: Material *Iron* Depth and  
 thickness of girder at centre *2 - 7" x 3"* Length as per rule *27"* Distance apart *7 1/2"* Number and pitch of Stays in each *2 - 7 1/2"*  
 Working pressure by rules *197 lb per sq. in.* 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. Description

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 Pressure to which they are adjusted If fitted with casing gear If steam from main boilers can enter the donkey boiler

Dia. of donkey boiler Length Material of shell plates Thickness Range of tensile strength

Descrip. of riveting long seams Dia. of rivet holes Whether punched or drilled Pitch of rivets

Lap of plating Per centage of strength of joint Rivets Thickness of shell crown plates Radius of do. No. of Stays to do.

Dia. of stays. Diameter of furnace Top Bottom Length of furnace Thickness of furnace 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 uptake plates Thickness of water tubes

**SPARE GEAR.** State the articles supplied:— 2 each of connecting rod top & bottom end bolts & nuts— 2 main bearing bolts & nuts— 1 set of coupling bolts & nuts— 6 piston bolts— 6 cylinder cover studs & nuts— 6 gland studs & nuts— 1 set of air, circulating, feed & bilge pump valves— 1 safety valve spring— 1 escape valve spring— 12 condenser tubes & ferrules— tube stoppers, bolts, nuts, studs iron & iron of various sizes.

The foregoing is a correct description,

Manufacturer. *Wm & Houston Ld & Co*

*C. Ashbridge* Secretary } *Boiler Makers*

Dates of Survey while building

During progress of work in shops— 1899:— Jan 10, 21, Feb 2, 10, 18, 28, Mar 3, 13, 20, 29, April 6, 13, 27, May 10.

During erection on board vessel— 1899:— May 24, June 5, 18, 15, 17

Total No. of visits 2 96 19 8ms.

Is the approved plan of main boiler forwarded herewith *h*

**General Remarks** (State quality of workmanship, opinions as to class, &c. The engines of this vessel have been constructed under Special Survey, the material & workmanship are of good quality & are eligible in my opinion to be classed in the Register Book.

The boiler has been constructed under Special Survey to the approved plan and the Secretary's letter (E) of 13/5/98. The steel has been tested as required by the Rules. The engines and boiler have been satisfactorily fitted on board and tried under steam. They are in good and safe working condition and eligible in my opinion to be classed in the Register Book with record of *LMC 699*

It is submitted that this vessel is eligible for THE RECORD. + L.M.C. 699.

*signed*

*5/7/99*

The amount of Entry Fee... £ 1 : : When applied for. *29/3/99*

Special ... £ 4 : 17 : : *17/1/99*

Boiler Fee ... £ 3 : 3 : : *17/1/99*

Travelling Expenses (if any) £ : : : When received. *17/1/99*

Committee's Minute

Assigned

FRI, 7 JUL 1899

*+ LMC 699*

MACHINERY CERTIFICATE WRITTEN.

*J. W. Dimmock & B. G. Oxford*  
Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

GM5357/19