

# REPORT ON MACHINERY.

Port of Belfast

Received at London Office

No. in Survey held at Belfast

Date, first Survey July 25 1896 Last Survey June 15 1898

on the Steel Screw Steamer "Beacon Grange"

(Number of Visits)

Gross 4042  
Net 2620

Master Taylor Built at Belfast

By whom built Workman Clark & Co Ltd When built 1898

Engines made at Belfast

By whom made Workman Clark & Co Ltd when made 1898

Boilers made at Belfast

By whom made Workman Clark & Co Ltd when made 1898

Registered Horse Power 650

Owners The Beacon Grange S.S. Co Ltd Port belonging to London

Horse Power as per Section 28 415

Houlder Bros & Co Ltd (Mfrs) Dec. Light

**ENGINES, &c.—** Description of Engines Triple Expansion No. of Cylinders Three  
Diameter of Cylinders 26" 43" 72" Length of Stroke 48" Revolutions per minute 75 Diameter of Screw shaft as per rule 13 1/2"  
Diameter of Tunnel shaft as fitted 13 1/4" Diameter of Crank shaft journals 13 3/4" Diameter of Crank pin 13 3/4" Size of Crank webs 9 1/2" x 20"  
Diameter of screw 14" 6" Pitch of screw 10" 0" No. of blades 4 State whether moveable Yes Total surface 85"  
Diameter of Feed pumps 2 1/2" Diameter of ditto 4" Stroke 24" Can one be overhauled while the other is at work Yes  
Diameter of Bilge pumps 2 1/2" Diameter of ditto 4 1/2" Stroke 24" Can one be overhauled while the other is at work Yes  
No. of Donkey Engines 4 Sizes of Pumps 1 1/2" 2" 3" 4" No. and size of Suctions connected to both Bilge and Donkey pumps  
Engine Room Three 3 1/2" Mumford Bros & Co Ltd 6" 8" 10" 12" No. 1, 2 & 3 holds, two 3 1/2" in each.  
No 4 hold well over 3 1/2". Tunnel drain 2 1/2"  
Diameter of bilge injections 1 sizes 4 1/2" Connected to condenser, or to circulating pump Yes Is a separate donkey suction fitted in Engine room & size Yes. 3 1/2"  
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 None  
Are all connections with the sea direct on the skin of the ship Yes Are they Valves or Cocks Larger valves, smaller 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  
Are pipes carried through the bunks Inward by suction How are they protected Strong 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 launch Is the screw shaft tunnel watertight Yes  
Is it fitted with a watertight door Yes worked from Upper platform in Eng. Rm.

**BOILERS, &c.—** (Letter for record S) Total Heating Surface of Boilers 5252.9 Free draught  
No. and Description of Boilers Two single ended Working Pressure 190 lbs Tested by hydraulic pressure to 380  
Date of test 14.4.98 Can each boiler be worked separately Yes Area of fire grate in each boiler 62.56 No. and Description of safety valves to  
each boiler Two Cocks Area of each valve 9.62 Pressure to which they are adjusted 193 lbs Are they fitted  
with easing gear Yes Smallest distance between boilers or uptakes and bunks or woodwork 13 1/4" side bulk Mean diameter of boilers 15" 6"  
Length 11" 6" Material of shell plates Steel Thickness 1 1/16" Description of riveting: circum. seams Mixed long. seams Flow straps  
Diameter of rivet holes in long. seams 1 9/16" Pitch of rivets 10" 5" Lap of plates or width of butt straps 2 1/2"  
Percentages of strength of longitudinal joint 91.5 Working pressure of shell by rules 209 lbs Size of manhole in shell 16" 12"  
Diameter of compensating ring 2' 8" 2' 4" 1 1/2" No. and Description of Furnaces in each boiler Three Moruan Material Steel Outside diameter 49 3/4"  
Length of plain part 21' 32" Thickness of plates 2 1/16" Description of longitudinal joint Welded No. of strengthening rings -  
Working pressure of furnace by the rules 202 Combustion chamber plates: Material Steel Thickness: Sides 9/16" Back 9/16" Top 9/16" Bottom 3/4"  
Pitch of stays to ditto: Sides 7 x 7 1/2" Back 7 1/2" Top 7 x 7 1/2" If stays are fitted with nuts or riveted heads Nuts Working pressure by rules 194  
Material of stays Steel Diameter at smallest part 1 3/8" Area supported by each stay 56 1/4" Working pressure by rules 210 End plates in steam space:  
Material Steel Thickness 1 1/16" Pitch of stays 15 1/2" How are stays secured Boat nuts Working pressure by rules 222 Material of stays Steel  
Diameter at smallest part 2 1/2" Area supported by each stay 216" Working pressure by rules 210 Material of Front plates at bottom Steel  
Thickness 1" Material of Lower back plate Steel Thickness 2 3/8" Greatest pitch of stays As above Working pressure of plate by rules 190 lbs  
Diameter of tubes 2 1/2" Pitch of tubes 3 3/4" x 3 3/4" Material of tube plates Steel Thickness: Front 2 1/32" Back 13/16" Mean pitch of stays 4 3/8"  
Pitch across wide water spaces 14" (down) Working pressures by rules 190 lbs Girders to Chamber tops: Material Steel Depth and  
thickness of girder at centre 8 1/2" x (long) 3/4" Length as per rule 29" Distance apart 4 1/2" Number and pitch of Stays in each None at 7"  
Working pressure by rules 223 Superheater or Steam chest; how connected to boiler - 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  
Pitch of rivets - Working pressure of shell by rules - Diameter of flue - Material of flue plates - Thickness -  
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 -

STRAP

FLAT PLATE K  
(If Bar Keel, at  
GARBOARD OF A  
State actual  
thickness in  
way of Double  
Bottom.

Main sheet  
Spar sheet

DOUBLING OF F  
Length of E  
and of S  
thickness of S  
POOP SIDES  
BRIDGE SIDES  
FORECASTLE S

Manufact  
manufacture  
Plates, Plating  
Coles. & Co.  
Bow-lam.  
Rtd. pla.  
Rtd. Don.  
Rtd. Don.  
Rtd. Co.  
FRAMES ex  
REVERSED  
Spar d

LOWER MAS  
Bowsprit  
Topmasts,  
Rigging, M  
Sails.

EQUIPM  
Number of  
Certificate.  
318 5 4  
318 5 5  
316 2 7  
316 2 8  
Collection  
153 9 9  
154 5 8

Number of  
Certificate.  
739  
740  
Steel wire

Boats  
Pumps, N  
Windlass  
Engine R  
What arrar  
Coal Bun  
Number of  
Ceiling in  
Cargo Ha  
State size  
Number of  
Bulwark  
The above  
Builder's

© 2019

Lloyd's Register  
Foundation

0666-039



**DONKEY BOILER**— Description *Horizontal Multitubular. Two flues.*  
 Made at *Belfast* By whom made *William Clark & Co Ltd* When made *1898* Where fixed *In Stokes*  
 Working pressure *90* tested by hydraulic pressure to *180* No. of Certificate *267* Fire grate area *36* Description of safety valves *Cockburn*  
 No. of safety valves *2* Area of each *4.068* Pressure to which they are adjusted *90 lb* If fitted with easing gear *Yes* If steam from main boiler enter the donkey boiler *No* Diameter of donkey boiler *11' 0"* Length *10' 0"* Material of shell plates *Steel* Thickness *2*  
 Description of riveting long. seams *Exp. riv. lap* Diameter of rivet holes *15/16* Whether punched or drilled *Drilled* Pitch of rivets *2*  
 Lap of plating *6 13/16* Per centage of strength of joint Rivets *84* Thickness of shell *end* plates *5/8 upper 9/16 lower* Radius of do. *Pitch* No. of Stays to do. *12 3/4*  
 Dia. of stays. *1 1/8* Diameter of furnace Top *37 1/2* Bottom *—* Length of furnace *6' 9"* Thickness of furnace plates *17/32* Description joint *Stub shape* Thickness of furnace crown plates *1/2: 1 1/8 1 1/2* Stayed by *1 1/8 stay 8 1/2 pitch* Working pressure of shell by rules *92 lb*  
 Working pressure of furnace by rules *99 lb* Diameter of tubes *3"* Thickness of uptake plates *5/8* Thickness of water tubes *5/8* *Given up 8 1/8 two 1/8 pitch 3 1/2 deep 3 1/2 main c.c. 24*

**SPARE GEAR.** State the articles supplied:— *Two top & two bottom end bolts & nuts for con. rod.*  
*2 main bearing bolts. Set coupling bolts. Set feed & fly pump valves. H.P. piston packing. Thrust shaft. Propeller shaft. 2 blades. A.P. rod & valves. Valves for waste pump & feed air.*  
*2 main & 1 B.K. boiler safety valve spring. Main check valve. B.K. check & feed escape spring.*  
 The foregoing is a correct description, *Boiler & condenser tubes. Fire bars. Iron. Rollers & nuts*  
*James Patterson* Manufacturer.

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

Dates of Survey while building  
 During progress of work in shops *July 25. 1897 to 9<sup>th</sup> March 8. 12. 23. 25. April 1. 7. 14. 31. May 31<sup>st</sup>*  
 During erection on board vessel *June 3. Sept. 22. 28. Oct 6. 27. 29. Nov 24. 25. Jan 5. 21. 24. 25. 31 Feb 21. 23. 24*  
 Total No. of visits *Mar. 8. 28. April 4. 15. 21. 23. 26. May 3. 17. 21. 31. June 10. 15. Total 41.*

The machinery & boilers have been made & fitted under special survey & the workmanship is good throughout.

The main steam pipes have been tested by water pressure to double the working pressure as required by the Rules.

The boilers are supplied with forced draught on Howden's system

Refrigerating engines (Carbonic Acid) have been fitted by H.E. Hall & Co of Deptford.

Electric lighting fittings are by the Globe Electrical Co & the report will be sent shortly.

The approved plans of donkey boiler & of the pumping arrangements accompany this report, also four shaft forging certificates. The tracing of main boilers was sent with the report on the sister vessel "Royalton Grange" Ref. rep. 4795

In my opinion the machinery renders the vessel eligible for the notation *+ Lm C 6.98* (forced draught. Electric light) to be entered in the Register Book.

It is submitted that this vessel is eligible for THE RECORD. + *Lm.C. 6.98 F.D. Elec. Light.*

Certificate (if required) to be sent to

The amount of Entry Fee. £ 3 : 0 :  
 Special .. .. £ 40 : 15 :  
 Donkey Boiler Fee .. .. £ : :  
 Travelling Expenses (if any) £ : :  
 When applied for, *20<sup>th</sup> June 18.98*  
 When received, *24. 5. 98*

*21.6.98*

*A. L. Jones*

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

Committee's Minute

**FRI. 24 JUN 1898**

Assigned

*+ Lm C 6.98*  
*F.D. Elect. light*



© 2019

Lloyd's Register Foundation