

# REPORT ON MACHINERY.

No. 3172

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No. in Survey held at *Belfast*  
 Reg. Book. *639* on the *SS. "Chilian"*  
 Master *Minister* Built at *Glasgow* By whom built *Lou & Glasgow Co.* When built *1871*  
 Engines made at *changed to triple exp.* By whom made *Harland & Wolff* when made *1883*  
 Boilers made at *Belfast* By whom made *"* when made *1883*  
 Registered Horse Power *250* Owners *Harland & Wolff* Port belonging to *Belfast*

## ENGINES, &c.—

Description of Engines *Triple Expansion Two Cranks*  
 Diameter of Cylinders *32, 32, 58* Length of Stroke *42* No. of Rev. per minute *65* Point of Cut off, High Pressure *625* Low Pressure *375*  
 Diameter of Screw shaft *12 1/2* Diam. of Tunnel shaft *12* Diam. of Crank shaft journals *12 1/2* Diam. of Crank pin *12 1/2* size of Crank web *8 x 14*  
 Diameter of screw *15-0* Pitch of screw *18-0* No. of blades *4* state whether moveable *yes* total surface *60 square feet*  
 No. of Feed pumps *two* diameter of ditto *3 3/4* Stroke *15* Can one be overhauled while the other is at work *yes*  
 No. of Bilge pumps *two* diameter of ditto *8* Stroke *8* Can one be overhauled while the other is at work *yes*  
 Where do they pump from *engine room fore main and after holds*  
 No. of Donkey Engines *two* Size of Pumps *Feed, 4 dia x 8 stroke* Where do they pump from *Small pump from sea and*  
*ed well, large pump from ballast tanks and as barge pumps.*  
 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 *yes*  
 No. of bilge injections *one* and sizes *6 dia* Are they connected to condenser, or to circulating pump *circ pump*  
 How are the pumps worked *by levers from forward engine*  
 Are all connections with the sea direct on the skin of the ship *yes* Are they Valves or Cocks *both Valves and 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 *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 *9th October 1883*  
 Is the screw shaft tunnel watertight *no* and fitted with a sluice door *yes* worked from *top platform*

## BOILERS, &c.—

Number of Boilers *two* Description *Multi-tubular* Whether Steel or Iron *Steel*  
 Working Pressure *160 lbs* Tested by hydraulic pressure to *320 lbs* Date of test *12th October 1883*  
 Description of superheating apparatus or steam chest *none fitted*  
 Can each boiler be worked separately *yes* Can the superheater be shut off and the boiler worked separately *✓*  
 No. of square feet of fire grate surface in each boiler *58.5* Description of safety valves *Spring* No. to each boiler *two*  
 Area of each valve *7.07 sq ft* 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 *9"* Diameter of boilers *13-0*  
 Length of boilers *9-9* description of riveting of shell long. seams *D. Shap. Heb Riv* circum. seams *lap D Riv* Thickness of shell plates *1 3/16*  
 Diameter of rivet holes *1 1/4* whether punched or drilled *drilled* pitch of rivets *7-232* Lap of plating *B. Shap. 20 1/2 wide*  
 Percentage of strength of longitudinal joint *82.7* working pressure of shell by rules *163.6 lbs* size of manholes in shell *15 x 12*  
 Size of compensating rings *28 x 24 x 1 3/16* No. of Furnaces in each boiler *three*  
 Outside diameter *27"* length, top *6-8"* bottom *6-8"* thickness of plates *1 7/32* description of joint *Corrugated* if rings are fitted *✓*  
 Greatest length between rings *✓* working pressure of furnace by the rules *175.9 lbs* combustion chamber plating, thickness, sides *9/16* back *9/16* top *9/16*  
 Pitch of stays to ditto, sides *7 3/4 x 7 3/4* back *7 3/4 x 7 3/4* top *7 3/4 x 7 3/4* Are stays fitted with nuts or riveted heads *nuts* working pressure of plating by  
 rules *61.8 lbs* Diameter of stays at smallest part *1 1/4* Steel working pressure of ditto by rules *163.8 lbs* end plates in steam space, thickness *7/8*  
 Pitch of stays to ditto *16 1/2 x 15* how stays are secured *d. He nuts and* working pressure by rules *115.2 lbs* diameter of stays at  
 smallest part *3 3/4* In working pressure by rules *201.2 lbs* Front plates at bottom, thickness *3/16* Back plates, thickness *3/4*  
 Greatest pitch of stays *about 12"* working pressure by rules *160 lbs* Diameter of tubes *3 3/4* pitch of tubes *4 5/8 x 4 1/2* thickness of tube  
 plates, front *7/8* back *3/4* how stayed *Stay Yoke* pitch of stays *9 1/4 x 9* width of water spaces *1 3/8*  
 Diameter of Superheater or Steam chest *✓* length *✓* thickness of plates *✓* description of longitudinal joint *✓* diam. 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 *Cylindrical Mild Steel*  
 Made at *Belfast* by whom made *Harland & Wolff* when made *29/8/85* where fixed *on upper deck*  
 Working pressure *60 lb* tested by hydraulic pressure to *120 lb* No. of Certificate *108* fire grate area *28.6 sq ft* description of safety  
 valves *Spring* No. of safety valves *Two* area of each *7.07 sq in* if fitted with easing gear *yes* if steam from main boilers can  
 enter the donkey boiler *no* diameter of donkey boiler *8'-6"* length *9'-0"* description of riveting *Long seams Lap dble riv*  
 Thickness of shell plates *1/2" steel* diameter of rivet holes *7/8"* whether punched or drilled *drilled* pitch of rivets *3'-0.23"* lap of plating *4 1/4"*  
 per centage of strength of joint *68* thickness of ~~crown~~ <sup>end</sup> plates *5/8"* stayed by *2 1/4" stays 16 1/2" pitch secured by dble rivets*  
 Diameter of furnace, top *3'-0 7/8"* bottom *2'-6"* length of furnace *5'-9"* thickness of plates *7/16"* description of joint *dble butt straps 5/8"*  
 Thickness of furnace crown plates *1/2"* stayed by *1"* working pressure of shell by rules *71.6 lb*  
 Working pressure of furnace by rules *69.4 lb* diameter of <sup>tubes</sup> ~~uptake~~ *3 1/4"* thickness of <sup>tube</sup> ~~plates~~ *5/8"* thickness of ~~water~~ <sup>pitch</sup> tubes *4 1/2" x 4 1/2"*

**SPARE GEAR.** State the articles supplied:—

The foregoing is a correct description,

*Harland & Wolff* Manufacturer.

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

*Survey now held in accordance with the Society's rules for Special Survey  
 Minutes three for iron vessels.*

*New Main and donkey Boilers with New Mountings and Smoke boxes fitted  
 on board. Safety valves adjusted under steam to admit of a load of 60 lbs on the  
 Main and 60 lbs on the donkey Boilers. New Cylinders and Pistons and trip  
 pressure piston rod and Slide valves fitted, all Slide valve gear put in good  
 order and new Steam Starting gear fitted, New Circulating and Feed  
 Pumps fitted and Air and Bilge Pumps overhauled and put in good order.  
 Condenser re-fitted with new tubes, Crank Shaft re-turned, new Main  
 bearing brasses fitted and Crank Shaft re-bedded in place, New Propeller  
 Shaft and new Propeller fitted and Stern bush re-lined, Stern tube in  
 good condition, all Sea Connections overhauled and part renewed and  
 now in good order.*

*New Feed and Ballast Donkey Engines fitted on board.*

*The Machinery and Boilers of this vessel are in good order and  
 are in working condition and in my opinion eligible to have the  
 Certification "Lloyd's R.C. & N.B." 10-85 recorded in the Register Book.*

The amount of Entry Fee .. £ " : " : " received by me,  
 Special .. £ 15 : 15 : "  
 Donkey Boiler Fee .. £ " : " : "  
 Certificate (if required) .. £ " : 5 : " 24/10/1885  
 To be sent as per margin.

(Travelling Expenses, if any, £9-9-0)

Committee's Minute

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

*+ SVB 85 LMB 10.8.85*