

# REPORT ON MACHINERY.

3916

No. 3916 Port of Belfast Received at London Office MON. 1 JUN 1891  
 No. in Survey held at Belfast Date, first Survey Nov 28, 1890 Last Survey May 19 1891  
 Reg. Book. on the steel S.S. Stream Fisher (Number of Visits 19)  
 Master R. Bannister Built at Belfast By whom built Mac Ilwaine & Mac Coll When built 1891-2  
 Engines made at Belfast By whom made Mac Ilwaine & Mac Coll, Lim. when made 1891  
 Boilers made at Do By whom made Do when made 1891  
 Registered Horse Power 80 Owners J. Fisher & Sons Port belonging to Barrow

**ENGINES, &c.—**

Description of Engines Tri-compound I. D. A. S. C. with 3 Cranks No. of Cylinders 3  
 Diam. of Cylinders 15", 23", 39" Length of Stroke 30 Rev. per minute 90 Point of Cut off, High Pressure 1/8" Low Pressure 1/2"  
 Diameter of Screw shaft 7 1/2" Diam. of Tunnel shaft 4 1/2" Diam. of Crank shaft journals 7 1/2" Diam. of Crank pin 7 1/2" size of Crank webs 9" x 4 1/2"  
 Diameter of screw 10.3" Pitch of screw 14.0" No. of blades 3 state whether moveable yes total surface 24.59 sq. ft.  
 No. of Feed pumps 2 diameter of ditto 2 1/2" Stroke 15" Can one be overhauled while the other is at work yes  
 No. of Bilge pumps 2 diameter of ditto 3" Stroke 15" Can one be overhauled while the other is at work yes  
 Where do they pump from Feed from hotwell Bilge from all the holds & E & B. space  
 No. of Donkey Engines Two Size of Pumps 4" 2 1/2" 5" 2 1/2" Where do they pump from From sea, hotwell  
intakes and bilges of E & B space and holds  
 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 4 in. Are they connected to condenser, or to circulating pump to centrifugal cir. pump  
 How are the pumps worked By levers & links  
 Are all connections with the sea direct on the skin of the ship yes Are they Valves or Cocks valves  
 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 below the  
 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 the pipes 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 Before the vessel was launched  
 Is the screw shaft tunnel watertight yes and fitted with a sluice door yes worked from Top Platform

**BOILERS, &c.—**

No. of Boilers One Description One Multiple Single ended Material Steel Letter (for record) Oct 30, 1890  
 Working Pressure 160 lbs Tested by hydraulic pressure to 320 lbs Date of test April 29th 1891 Cer. No. 109  
 Description of superheating apparatus or steam chest ✓  
 Can each boiler be worked separately ✓ Can the superheater be shut off and the boiler worked separately ✓  
 No. of square feet of fire grate surface in each boiler 400 Description of safety valves D. Cockburn's No. to each boiler Two  
 Area of each valve 5.930" 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 7 ft. Diameter of boilers 12.0"  
 Length of boilers 10.0" description of riveting of shell long. seams Double B.S. Treble circum. seams Treble & double Thickness of shell plates 1"  
 Diameter of rivet holes 1" whether punched or drilled Drilled pitch of rivets 9.14 Lap of plating 16 1/2" B.S.  
 Percentage of strength of longitudinal joint 88.4 working pressure of shell by rules 159.6 size of manholes in shell 16" x 12"  
 Size of compensating rings none No. of Furnaces in each boiler Two Description of Furnaces Plain with one Adamson's  
 Outside diameter 3.5 5/16 length 4.1 5/16 thickness of plates 3/32 description of joint Welded if rings are fitted yes  
 Greatest length between rings 3.7 5/32 working pressure of furnace by the rules 163 combustion chamber plating, thickness, sides 9/16 back 9/16 top 9/16  
 Pitch of stays to ditto, sides 7 3/4" back 7 3/4" top 7 3/4" If stays are fitted with nuts or riveted heads nutted in C.C. working pressure of plating by rules 162 Diameter of stays at smallest part 1 1/4" working pressure of ditto by rules 162.6 end plates in steam space, thickness 25/32 doubled  
 Pitch of stays to ditto 18" x 14" how stays are secured Double nuts & washers working pressure by rules 160 lbs diameter of stays at smallest part 2 3/4" working pressure by rules 143 Front plates at bottom, thickness 7/16 Back plates, thickness 5/16 doubled  
 Pitch of stays 13 working pressure by rules 160 Diameter of tubes 3 1/2" pitch of tubes 4 3/4" x 4 3/4" thickness of tube 11/16  
 front 11/16" back 11/16" how stayed Stay tubes pitch of stays 9 1/2" x 9 1/2" width of water spaces 11 1/2" x 9"  
 of Superheater or Steam chest ✓ length ✓ thickness of plates ✓ description of longitudinal joint ✓ diam. of rivet holes ✓  
 rivets working pressure of shell by rules diameter of flue thickness of plates If stiffened with rings ✓  
 between rings working pressure by rules end plates of superheater, or steam chest; thickness how stayed  
 Superheater or steam chest; how connected to boiler ✓

Lloyd's Register  
Foundation

**DONKEY BOILER**— Description *Cir. Single ended Multisubular Horizontal one furnace Steel*  
 Made at *Belfast* by whom made *MacDugane & MacColl Ltd* when made *1891* where fixed *St. Stokelold*  
 Working pressure *60 lbs* tested by hydraulic pressure to *120 lbs* No. of Certificate *108* fire grate area *8.5* description of safety  
 valves *D. Cockburn's* No. of safety valves *2* area of each *3.14 sq ft* if fitted with easing gear *yes* if steam from main boilers can  
 enter the donkey boiler *no* diameter of donkey boiler *5.6"* length *6.6"* description of riveting *Double rivetted lap*  
 Thickness of shell plates *3/8"* diameter of rivet holes *1/16"* whether punched or drilled *Drilled* pitch of rivets *2 1/2"* lap of plating *4"*  
 per centage of strength of joint *69* thickness of ~~plates~~ <sup>END</sup> plates *1/2"* stayed by *1 1/2" steel stays 12 in pitch with washers dia 7/16*  
 Diameter of furnace <sup>top</sup> *24 3/4"* <sup>bottom</sup> *6.6"* length of furnace *4.2"* thickness of plates *3/8"* description of joint *Welded*  
 Thickness of ~~furnace~~ <sup>scum back</sup> plates *3/8"* stayed by *3/2"* working pressure of shell by rules *78 lbs*  
 Working pressure of furnace by rules *108 lbs* diameter of uptake *✓* thickness of plates *✓* thickness of water tubes *✓*

**SPARE GEAR.** State the articles supplied:—*2 Top & 2 Bottom-end Bolts and nuts; one set of coupling bolts; 2 Main Bearing bolts; one set of Feed & Bilge Pump valves; one set of Ramsbottom rings for H.P. & I.P. pistons and a quantity of assorted bolts & nuts, and two Propeller Blades.*

The foregoing is a correct description,  
*MacDugane & MacColl* Manufacturer.

**General Remarks** (State quality of workmanship, opinions as to class, &c.)  
*The machinery of this vessel has been constructed in accordance with the amended plans of the main & auxiliary boilers, the Secretary's letter dated Oct 30, 1890, the Rules of the Society & to the satisfaction of the undersigned.*  
*The shafting when finished was examined & found free from any visible defects.*  
*The materials & workmanship are good & satisfactory throughout.*  
*The main steam pipe, main & auxiliary boilers were tested to twice the working pressure & the safety valves adjusted under steam to 160 + 5 lbs & 60 lbs respectively.*  
*The engines were tried under steam running at full speed & gave every satisfaction & I am of opinion that the machinery merits the approval of the Committee & that the special notification **L.M.C. 5.91** be granted & recorded in the Society's Register Book.*

*It is submitted that this vessel is eligible for the record & L.M.C. 5.91 of the Surveyors to be requested to state whether the dimensions of the cylinders are correct. J.D. 1.6.91*

The amount of Entry Fee .. £ *1 : 0 :* received by me,  
 Special .. .. £ *12 : 6 :*  
 Donkey Boiler Fee .. .. £ : :  
 Certificate (if required) .. £ *Gratis*: *22/6* 1891  
 To be sent as per margin.

*W.M. Davy*  
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute **TUES. 2 JUN 1891**  
*+ L.M.C. 5/91.*

