

# REPORT ON MACHINERY.

9434

No. 9434 Port of Glasgow Received at London Office THURS 24 OCT 1889  
 No. in Survey held at Glasgow Date, first Survey 28<sup>th</sup> March 1889 Last Survey Oct 12<sup>th</sup> 1889  
 Reg. Book. 806 on the S. S. "Clan Stuart" (Number of Visits 20) 1355  
 Master Schofield Built at Glasgow By whom built A. McMullan & Son When built 1849-24  
 Engines made at Glasgow By whom made J. Rowan & Son when made 1849  
 Boilers made at Glasgow By whom made A. Stephen & Son when made 1889-10m  
 Registered Horse Power \_\_\_\_\_ Owners Cayzer Irvine & Co Port belonging to Glasgow

ENGINES, &c.—  
 Description of Engines Now altered to Triple Expansion  
 Diameter of Cylinders 22" 36" 59" Length of Stroke 42" No. of Rev. per minute \_\_\_\_\_ Point of Cut off, High Pressure variable Low Pressure 1/10  
 Diameter of Screw shaft 12" Diam. of Tunnel shaft \_\_\_\_\_ Diam. of Crank shaft journals 12 1/2" Diam. of Crank pin 12 1/2" size of Crank webs 8 3/4" x 16 1/2"  
 Diameter of screw 16 1/2" Pitch of screw 1 1/2" 6" No. of blades 4 state whether moveable Yes total surface 62 1/2"  
 No. of Feed pumps Two diameter of ditto 3 1/2" Stroke 21" Can one be overhauled while the other is at work Yes  
 No. of Bilge pumps Two diameter of ditto 3 1/2" Stroke 21" Can one be overhauled while the other is at work Yes  
 Where do they pump from All Compartments  
 No. of Donkey Engines Four Size of Pumps 8" 6" 4" 18" 18" 18" 18" Where do they pump from Sea Bilge Hotwell and Ballast Tanks  
 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 \_\_\_\_\_ Are they connected to condenser, or to circulating pump To circulating  
 How are the pumps worked By Levers  
 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 \_\_\_\_\_  
 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 Bilge pipe to Lockhold How are they protected By wood casing  
 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 Oct 5<sup>th</sup> 1889  
 Is the screw shaft tunnel watertight Yes and fitted with a sluice door Yes worked from Upper platform

BOILERS, &c.—  
 Number of Boilers One Description Round (Single end) Whether Steel or Iron Steel  
 Working Pressure 160 lbs Tested by hydraulic pressure to 320 lbs Date of test 6<sup>th</sup> July 1889  
 Description of superheating apparatus or steam chest none  
 Can each boiler be worked separately Yes Can the superheater be shut off and the boiler worked separately Yes  
 No. of square feet of fire grate surface in each boiler 60 ft<sup>2</sup> Description of safety valves Direct Spring No. to each boiler Two  
 Area of each valve 4" Are they fitted with easing gear Yes No. of safety valves to superheater \_\_\_\_\_ area of each valve \_\_\_\_\_  
 Are they fitted with easing gear Yes Smallest distance between boilers and bunkers or woodwork \_\_\_\_\_ Diameter of boilers 15 ft  
 Length of boilers 11' 9" description of riveting of shell long. seams Double twisted circum. seams Treble Thickness of shell plates 1 1/16"  
 Diameter of rivet holes 1 5/16" whether punched or drilled Drilled pitch of rivets 8 5/8" Lap of plating Straps 22" x 1 1/2"  
 Per centage of strength of longitudinal joint 84 7/10 working pressure of shell by rules 160 lbs size of manholes in shell 16" x 12"  
 Size of compensating rings Doubling plate fitted No. of Furnaces in each boiler Three  
 Outside diameter 3' 10" length, top 8' 3" bottom \_\_\_\_\_ thickness of plates 1 3/32" description of joint Corrugated if rings are fitted \_\_\_\_\_  
 Greatest length between rings \_\_\_\_\_ working pressure of furnace by the rules 160 lbs combustion chamber plating, thickness, sides 9/16" x 9/16" back 9/16" x 9/16" top 9/16"  
 Pitch of stays to ditto, sides 7" x 4" back 4" x 4" top 4" x 4" stays are fitted with nuts or riveted heads Nuts working pressure of plating by rules 160 lbs  
 Pitch of stays to ditto 15 1/4" x 15 1/4" how stays are secured By double nuts working pressure by rules 160 lbs diameter of stays at smallest part 2 5/8"  
 Greatest pitch of stays 12" x 4" working pressure by rules 160 lbs Front plates at bottom, thickness 1 1/16" Back plates, thickness 1 1/16"  
 plates, front 1 3/16" back 1 3/16" how stayed By tubes pitch of stays 7 1/2" x 11 7/8" width of water spaces about 4"  
 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

9434 g/s.  
 Made at Paisley by whom made Brown & MacLachlan when made 1889 where fixed On upper deck  
 Working pressure 80 lbs tested by hydraulic pressure to 160 lbs No. of Certificate 2361 fire grate area 25 ft<sup>2</sup> description of safety  
 valves Direct Spring No. of safety valves Two area of each 5" if fitted with easing gear Yes if steam from main boilers can  
 enter the donkey boiler No diameter of donkey boiler 4 1/2" length 12' 6" description of riveting Double riveted lap  
 Thickness of shell plates 1/16" diameter of rivet holes 7/8" whether punched or drilled Drilled pitch of rivets 3 1/8" lap of plating 4 5/8"  
 per centage of strength of joint 40% thickness of crown plates 1 1/16" stayed by eight stays + 11 stake  
 Diameter of furnace, top 5' 6" bottom 5' 11" length of furnace 6' 3" thickness of plates 1 1/16" description of joint Lap  
 Thickness of furnace crown plates 1 1/16" stayed by As above working pressure of shell by rules 80 lbs  
 Working pressure of furnace by rules 80 lbs diameter of uptake 21" thickness of plates 1 1/16" thickness of water tubes 1 1/2" dia 7/8"

## SPARE GEAR.

State the articles supplied:

Piece of crank shaft and Propeller shaft  
 with set of Propeller blades, 2 main bearing bolts top & bottom end  
 connecting rod bolts set of coupling bolts, & set of valves for all the  
 pumps, assortment of bolts nuts &c

The foregoing is a correct description

Manufacturer.

## General Remarks

(State quality of workmanship, opinions as to class, &amp;c)

These Engines have now  
 been tripled by Messrs A. Stephen & Sons by fitting a  
 new H and L cylinder and introducing a line, fits the  
 low pressure all the other parts of the Engines have been  
 disconnected and thoroughly overhauled. Sea cocks & valves  
 also Propeller overhauled in Dry Dock.

Howden's system of forced draught is adopted in  
 this case

The whole of the machinery and boilers have now  
 been tried under steam and are now in good order  
 and safe working condition and eligible in my  
 opinion to be noted in the Register Book + Lloyd's  
 M.C. 10/88

It is submitted that this vessel is eligible  
 to have N.B. 89 & L.M.C. 10.89 recorded  
 Engines tripled by N.A.

24 10 89

The amount of Entry Fee .. £ .. : .. : received by me,

Special .. £ 10 : 10 : - 22/10/89

Donkey Boiler Fee .. £ 2 : 2 : - 25/10/89

Certificate (if required) .. £ .. : .. : 18

To be sent as per margin.

(Travelling Expenses, if any, £ ..)

Committee's Minute

FRIDAY 25 1889

+ NB 89

Cmb 10/89

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

Clyde District

Lloyd's Register  
Foundation