

REPORT ON MACHINERY.

No. 5446 (Received at London Office 18th JULY 82.)
 No. in Survey held at Paisley & Dumbarton Date, first Survey 31-5-81 Last Survey 14th July 1882
 Reg. Book. S. S. Stratheden Tons 934
 on the George Wilson Built at Dumbarton When built 1881-2
 Master George Wilson Engines made at Paisley By whom made Fleming & Ferguson when made 1881-2
 Boilers made at do By whom made do when made 1881-2
 Registered Horse Power 200 Owners James Hay & Sons Port belonging to Glasgow

ENGINES, &c.—

Description of Engines Compound Surface condensing Direct acting
 Diameter of Cylinders 34 & 66 Length of Stroke 39" No. of Rev. per minute 70 Point of Cut off, High Pressure 5/8 Low Pressure 5/8
 Diameter of Screw shaft 11 1/4" Diameter of Tunnel shaft 11" Diameter of Crank shaft journals 11 1/4" Diameter of Crank pin 11 1/4" size of Crank webs 7 1/2 x 13
 Diameter of screw 14-6 Pitch of screw 18-0 No. of blades 4 state whether moveable yes total surface 56 sq ft
 No. of Feed pumps Two diameter of ditto 4 1/2" Stroke 19 1/2" Can one be overhauled while the other is at work yes
 No. of Bilge pumps do diameter of ditto 4 1/2" Stroke 19 1/2" Can one be overhauled while the other is at work yes
 Where do they pump from Bilges & Hold
 No. of Donkey Engines Two Size of Pumps 8 gal 5 p 10 p 12 p Where do they pump from 5 pump from bilges, 7 pump from tanks & bilges
 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 3" Are they connected to condenser, or to circulating pump circulating pump
 How are the pumps worked By levers from crosshead of each engine
 Are all connections with the sea direct on the skin of the ship No 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 Below
 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 pipes to Forehold How are they protected 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 5th July 1882. Henderson's
 Is the screw shaft tunnel watertight yes and fitted with a sluice door yes worked from Main deck

BOILERS, &c.—

Number of Boilers Two Description Cylindrical - multitubular
 Working Pressure 80 lbs Tested by hydraulic pressure to 160 lbs Date of test April 14th 1882
 Description of superheating apparatus or steam chest Horizontal - Cylindrical
 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 54 sq ft Description of safety valves Turnbull's direct springs
 No. to each boiler Two area of each valve 15.9 sq ins 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 10 ins
 Diameter of boilers 13-6" Length of boilers 11-0" description of riveting of shell long. seams Double butt circum. seams Lap, double
 Thickness of shell plates 1 3/8" diameter of rivet holes 1 1/8" whether punched or drilled drilled pitch of rivets 4 3/4"
 Lap of plating butt 10 1/2" per centage of strength of longitudinal joint 65.7 working pressure of shell by rules 84 lbs
 Size of manholes in shell 18 x 13 1/2" size of compensating rings 4 1/2 x 3/4"
 No. of Furnaces in each boiler Three outside diameter 3-7" length, top 6-6" bottom 10-0"
 Thickness of plates 1/2" description of joint Double butt if rings are fitted Flanged greatest length between rings 6-0"
 Working pressure of furnace by the rules 80 lbs
 Combustion chamber plating, thickness, sides 1/2" back 1/2" top 1/2"
 Pitch of stays to ditto 8 3/4" sides back 8 3/4" top 8 3/4"
 If stays are fitted with nuts or riveted heads Nuts working pressure of plating by rules 101 lbs
 Diameter of stays at smallest part 1 3/8" screw working pressure of ditto by rules 95 lbs
 End plates in steam space, thickness 1/16" pitch of stays to ditto 15" how stays are secured Nuts
 Working pressure by rules 80 lbs diameter of stays at smallest part 2 1/2" working pressure by rules 130 lbs
 Front plates at bottom, thickness 5/8" Back plates, thickness 5/8" greatest pitch of stays 14 x 9 1/2" working pressure by rules Lloyd's Register

Diameter of tubes $3\frac{1}{2}$ " pitch of tubes $4\frac{7}{8}$ " thickness of tube plates, front $\frac{11}{16}$ " back $\frac{5}{8}$ "
 How stayed *Nuts & tubes* pitch of stays $15 \times 9\frac{3}{4}$ " width of water spaces $6\frac{1}{8}$ "
 Diameter of Superheater or Steam chest $3-6$ " length $7-6$ "
 Thickness of plates $\frac{1}{2}$ " description of longitudinal joint *double lap* diameter of rivet holes $\frac{7}{8}$ " pitch of rivets 4 "
 Working pressure of shell by rules *110 lbs* 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 $\frac{3}{4}$ " How stayed *One centre stay*.
 Superheater or steam chest; how connected to boiler *Wt iron neck, double riveted!*

DONKEY BOILER— Description *Cylindrical - Multitubular*
 Made at *Paisley* By whom made *Fleming & Ferguson* when made *1882*
 Where fixed *In Stechford* working pressure *60 lbs* Tested by hydraulic pressure to *120 lbs* No. of Certificate *762*
 Fire grate area *15³/₄ sq ft* Description of safety valves *Spring* No. of safety valves *One* area of each *7 sq in*
 If fitted with easing gear *yes* If steam from main boilers can enter the donkey boiler *No*
 Diameter of donkey boiler $8-0$ " length $8-0$ " description of riveting *Lap - helix*
 thickness of shell plates $\frac{7}{16}$ " diameter of rivet holes $\frac{13}{16}$ " whether punched or drilled *Drilled*
 pitch of rivets 4 " lap of plating $6\frac{3}{8}$ " per centage of strength of joint *76*
 thickness of crown plates — stayed by —
 Diameter of furnace, *top* $3-0$ bottom — length of furnace *5-6 top 7-0 bottom*
 thickness of plates $\frac{7}{16}$ " description of joint *Double butt shape*
 thickness of furnace crown plates — stayed by —
 Working pressure of shell by rules *60 lbs* working pressure of furnace by rules *67 lbs*
 diameter of uptake — thickness of plates — thickness of water tubes —

The foregoing is a correct description,
Fleming & Ferguson Manufacturer.

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

These engines & boilers have been constructed under special survey they are of good material & workmanship, they have been well fitted on board, satisfactorily tested under steam & are there fore in my opinion eligible to be classed "ALLOYD'S M.C., 7-82 in the Register Book -

I may say that this vessel is fitted with Kuntadter's Patent Screw Propelling & Steering apparatus -

It is submitted that this vessel is eligible to have an inspection & Lloyd's M.C. 7-82 recorded subject to the propellers & connections being examined by one of the Surveyors in 6 months

R 24/7/82

The amount of Entry Fee .. £ 3 : 0 : 0 received by me,
 July 14/82 Special £ 30 : 0 : 0
 Certificate (if required) .. £ 14/4/1882
 To be sent as per margin. £ 33 : 0 : 0
 (Travelling Expenses, if any, £)

Committee's Minute Friday, 21st July, 1882.

Walter E. Robson
 Robert Edmund Taylor & Sons, Surveyors, 11, Abchurch Lane, London, E.C. 4.

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

Glasgow Lloyd's Register of British & Foreign Shipping
 22/9/82