

REPORT ON MACHINERY.

(Received in London Office 17/2/81)

No. 5306 Date, first Survey August 1880 Last Survey July 15th 1881
 No. in Survey held at Glasgow Reg. Book. 3405
 on the Screw Steamer "Guth Castle" Tons 5380
 Master M. P. Webster Built at Glasgow When built 1881
 Engines made at Glasgow By whom made J. M. Elder & Co. when made 1881
 Boilers made at " By whom made " " " " when made 1881
 Registered Horse Power 500 Owners J. Currie & Co. Port belonging to London

ENGINES, &c.—

Description of Engines Compound riveted direct acting
 Diameter of Cylinders 57" & 88" Length of Stroke 54" No. of Rev. per minute 40 Point of Cut off, High Pressure .6 Low Pressure —
 Diameter of Screw shaft 1 1/4" Diameter of Tunnel shaft 16" Diameter of Crank shaft journals 1 3/4" Diameter of Crank pin 18" size of Crank webs 1 1/2" x 1 1/2"
 Diameter of screw 1 1/2" Pitch of screw 25 No. of blades four state whether moveable movable total surface 9 1/2
 No. of Feed pumps two diameter of ditto 6" Stroke 25" Can one be overhauled while the other is at work Yes
 No. of Bilge pumps two diameter of ditto 6" Stroke 25" Can one be overhauled while the other is at work Yes
 Where do they pump from All the Compartments
 No. of Donkey Engines one Size of Pumps 12" cyl. 6" x 12" stroke Where do they pump from From sea pipe & Hotwell

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 —
 No. of bilge injections one and sizes 15" 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 Near to the load 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 Main Steam pipe How are they protected By Iron Casings
 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 Sept. 4th 1881
 Is the screw shaft tunnel watertight Yes and fitted with a sluice door Yes worked from From Upper platform

BOILERS, &c.—

Number of Boilers Two Description Round Horizontal Double ended
 Working Pressure 45 lbs Tested by hydraulic pressure to 150 lbs Date of test 14.12.80
 Description of superheating apparatus or steam chest Annular with single flue
 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 162 sq. ft. Description of safety valves Direct Spring (Cookburn's)
 No. to each boiler three area of each valve 25.9" Are they fitted with easing gear Yes
 No. of safety valves to superheater one area of each valve 4" are they fitted with easing gear Yes
 Smallest distance between boilers and bunkers or woodwork 12"
 Diameter of boilers 16' 0" Length of boilers 17 1/2' description of riveting of shell long. seams Double riveted circum. seams Double
 Thickness of shell plates 1 1/2" diameter of rivet holes 1 1/8" whether punched or drilled Drilled pitch of rivets 6"
 Lap of plating Straps 16" x 1/2" per centage of strength of longitudinal joint 80% working pressure of shell by rules 92 lbs
 Size of manholes in shell Manholes in ends size of compensating rings Larged rings
 No. of Furnaces in each boiler two outside diameter 4' 3" length, top 6' 9" bottom (through furnaces)
 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 Corrugated
 Combustion chamber plating, thickness, sides 8/16" back 8/16" top 8/16"
 Pitch of stays to ditto sides 8" x 8" back 8" x 8" top 9 1/4" x 8"
 If stays are fitted with nuts or riveted heads Nuts working pressure of plating by rules 120 lbs
 Diameter of stays at smallest part 1 1/4" working pressure of ditto by rules 93 lbs
 End plates in steam space, thickness 1 1/16" pitch of stays to ditto 16 1/2" x 14 1/4" how stays are secured By double nuts
 Working pressure by rules 8 1/2 lbs taking 1/6" diameter of stays at smallest part 2 1/8" working pressure by rules 8 1/2 lbs
 Front plates at bottom, thickness 10/16" Back plates, thickness — greatest pitch of stays — working pressure by rules —

Diameter of tubes $3\frac{1}{2}$ " pitch of tubes $4\frac{1}{2}$ " thickness of tube plates, front $1\frac{1}{16}$ " back $1\frac{1}{16}$ "
 How stayed *By Tubes* pitch of stays $13\frac{1}{2} \times 13\frac{1}{2}$ " width of water spaces *about 6"*
 Diameter of Superheater or Steam chest $11\frac{1}{2}$ " length $10\frac{1}{2}$ " **5306** *yes*
 Thickness of plates $1\frac{1}{16}$ " description of longitudinal joint *Double* diameter of rivet holes $1\frac{1}{8}$ " pitch of rivets 5
 Working pressure of shell by rules 90 lbs Diameter of flue $8\frac{1}{2}$ " thickness of plates $1\frac{1}{16}$ "
 If stiffened with rings *Yes* distance between rings *4 rings + diaphragm plates* Working pressure by rules 100 lbs
 End plates of superheater, or steam chest; thickness $1\frac{1}{16}$ " How stayed *Connected to Shell no stays*
 Superheater or steam chest; how connected to boiler *By Copper pipes*

DONKEY BOILER— Description *Round Horizontal Multitubular*
 Made at *Glasgow* By whom made *John Elder & Co* when made *1880-1*
 Where fixed *On Upper Deck* working pressure 40 lbs Tested by hydraulic pressure to 140 lbs No. of Certificate
 Fire grate area 22.5 " Description of safety valves *Direct Spring* No. of safety valves *Two* area of each 4 "
 If fitted with easing gear *Yes* If steam from main boilers can enter the donkey boiler *Two Stop Valves are fitted*
 Diameter of donkey boiler $4\frac{1}{2}$ " length $4\frac{1}{2}$ " description of riveting *Double*
 thickness of shell plates $1\frac{1}{16}$ " diameter of rivet holes $1\frac{1}{8}$ " whether punched or drilled *punched & rimmed*
 pitch of rivets $3\frac{1}{8}$ " lap of plating $6\frac{1}{2}$ " per centage of strength of joint $44\frac{1}{10}$
 thickness of crown plates *—* stayed by *—*
 Diameter of furnaces $2\frac{1}{2}$ " bottom *—* length of furnace $5\frac{1}{2}$ "
 thickness of plates $1\frac{1}{16}$ " description of joint *double stripped*
 thickness of furnace crown plates $1\frac{1}{16}$ " + $1\frac{1}{16}$ " bottom stayed by *—*
 Working pressure of shell by rules 43 lbs working pressure of furnace by rules 98 lbs
 diameter of uptake *—* thickness of plates *—* thickness of water tubes *—*

The foregoing is a correct description,

John Elder & Co Manufacturer.
J. A. D. Gray

General Remarks (State quality of workmanship, opinions as to class, &c. *The Engines & Boilers are of good workmanship and now in good order & safe working condition and eligible in my opinion to be noted in the Register*
Boat + Lloyd's M.C. 2.81

Submitted that the machinery of this vessel is eligible to be noted.
Lloyd's 2.81
M. 17.2.81

The amount of Entry Fee $\pounds 3 : 0 : 0$ received by me,
 Special $\pounds 45 : 0 : 0$
 Certificate (if required) $\pounds - : - : -$ *11 Feb 1881*
 (Travelling Expenses, if any, $\pounds 2-2-0$)

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

Committee's Minute *Friday, February 12th 1881*
+ Lloyd's