

REPORT ON MACHINERY.

4425

No. 124 (Received in London Office 8/9/81)
 No. in Reg. Book. Dundee Date, first Survey 19th Nov 80 Last Survey Sept 1st 1881
 on the T.S.S. "Waverley" Tons 201
 Master A. Burgess Built at Dundee When built 1881
 Engines made at Dundee By whom made Gourlay Bros when made 1881
 Boilers made at do By whom made do when made 1881
 Registered Horse Power 320 Owners Williamson Milligan Port belonging to Zinc

ENGINES, &c.—

Description of Engines Compound direct acting 2nd Cyms Surface Condensing
 Diameter of Cylinders 41" x 78" Length of Stroke 48" No. of Rev. per minute 60 Point of Cut off, High Pressure Exp. Low Pressure
 Diameter of Screw shaft 14 1/4" Diameter of Tunnel shaft 13 1/2" Diameter of Crank shaft journals 14 1/4" Diameter of Crank pin 14 1/4" size of Crank pin
 Diameter of screw 18" 6" Pitch of screw 19" 0" No. of blades 4 state whether moveable do total surface 94.6
 No. of Feed pumps two diameter of ditto 8 1/2" Stroke 9" Can one be overhauled while the other is at work yes
 No. of Bilge pumps two diameter of ditto 5 1/2" Stroke 29" Can one be overhauled while the other is at work yes
 Where do they pump from all compartments
 No. of Donkey Engines one Size of Pumps 7" x 8" + 4 1/2" Where do they pump from Pulsometer from
and compartments thro ship side 28. from sea Hatch to boilers thro Co
 Are all the bilge suction pipes fitted with roses yes Are the roses always accessible yes except those in hold when vessel Are the sluices on Engine room bulkheads always accessible
 No. of bilge injections one and sizes 6" Are they connected to condenser, or to circulating pump circulating
 How are the pumps worked by pin from end of crank shaft and levers from
 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
 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 before launch 28.7.81
 Is the screw shaft tunnel watertight yes and fitted with a sluice door yes worked from Cylinder platform

BOILERS, &c.—

Number of Boilers two Description steel Circular tubular fired from both ends
 Working Pressure 80 lbs Tested by hydraulic pressure to 160 lbs Date of test 13th June 1881
 Description of superheating apparatus on steam chest Horizontal dome
 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 82 feet Description of safety valves Direct Spring load 9.13.
 No. to each boiler two area of each valve 20.6" 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 1/2"
 Diameter of boilers 12.9" Length of boilers 8.6" description of riveting of shell long. seams Lap tieble. R. circum. seams Lap D. 1.
 Thickness of shell plates 25/32" diameter of rivet holes 1 3/16" whether punched or drilled drilled pitch of rivets 4 1/2"
 Lap of plating 8 1/4" x 6 1/4" per centage of strength of longitudinal joint 73 x 85% working pressure of shell by rules 89 lb
 Size of manholes in shell 17" x 13" size of compensating rings 4" x 4" x 3/4"
 No. of Furnaces in each boiler two each end outside diameter 45 3/8" length, top 6.6" bottom 6.6"
 Thickness of plates 7/16" description of joint welded if rings are fitted — greatest length between rings —
 Working pressure of furnace by the rules 94 lbs
 Combustion chamber plating, thickness, sides 15/32" back 15/32" top 9/16"
 Pitch of stays ditto sides 9" x 8 1/2" back 8 1/2" x 8 1/2" top round
 If stays are fitted with nuts or riveted heads nuts both ends working pressure of plating by rules 83 lbs
 Diameter of stays at smallest part 1 3/32" B.T. working pressure of ditto by rules 546.4 lbs
 End plates in steam space, thickness 13/16" pitch of stays to ditto 19" x 14 1/2" how stays are secured thro nut in
 Working pressure by rules 86 lbs diameter of stays at smallest part 1 1/16" working pressure by rules 747.1 lbs
 Front plates at bottom, thickness 7/16" Back plates, thickness — greatest pitch of stays — working pressure by rules —

Form No. 8, 2000-3/10/80

DUN107-0238

Number of tubes $3\frac{1}{2}$ pitch of tubes $4\frac{3}{4}$ thickness of tube plates, front $\frac{4}{16}$ back $\frac{4}{16}$
 Stayed 2 tubes pitch of stays $9\frac{1}{2} \times 9\frac{1}{2}$ width of water spaces $1\frac{1}{4}$
 Number of ~~Superheater~~ Steam chest 3×3 length $14 \cdot 0$
 Thickness of plates $\frac{7}{16}$ description of longitudinal joint Lap D.R. diameter of rivet holes $3\frac{1}{4}$ pitch of rivets $2\frac{1}{2}$
 Pressure of shell by rules 154 lbs Diameter of flue --- thickness of plates ---
 With rings --- distance between rings --- Working pressure by rules ---

How stayed by 4 lead stays the ends Anti-1 $\frac{23}{32}$ Dia
 of ~~superheater~~ or steam chest; thickness $3\frac{1}{4}$
 or steam chest; how connected to boiler by two malleable necks riveted to shells

BOILER - 2 Description Round vertical
Donkey By whom made Lourlay Bros & Co when made 1881
On Deck working pressure 50 lbs Tested by hydraulic pressure to 100 lbs No. of Certificate 120
 Area 12 feet Description of safety valves Direct S.V. No. of safety valves one area of each 4^{sq}
 If steam from main boilers can enter the donkey boiler no
 Has casing gear yes
 Donkey boiler 4' 8" length 10' 6" description of riveting Lap D.R.
 Shell plates $3\frac{3}{8}$ diameter of rivet holes $3\frac{1}{4}$ whether punched or drilled Punched
 Lap of plating $3\frac{7}{8}$ per centage of strength of joint 73.88%
 Stayed by 4 Sunset stays
 Furnace, top $3 \cdot 6$ bottom $3 \cdot 11$ length of furnace 6' 0"
 Description of joint Lap S.R.
 Stayed by Dished
 Pressure of shell by rules 74 lbs working pressure of furnace by rules 50 lbs
 Area of uptake 13' 14" thickness of plates $3\frac{3}{8}$ thickness of water tubes $\frac{5}{16}$

The foregoing is a correct description,
Lourlay Bros & Co Manufacturer.

General Remarks (State quality of workmanship, opinions as to class, &c. The Boilers and Machinery
this vessel have been built in accordance with the
requirements of the Rules and tracings of boilers
submitted for the Committee's approval dated the
2 November 1880. The material and workmanship
are of the best description. The boilers have been
run under steam and the safety valves set to a
working pressure of 80 lbs per square inch. The
machinery at work and all found satisfactory and
in good working order. and in my opinion are
eligible to be entered into the Register Book
with the distinctive mark \clubsuit Lloyd's R.C in red.
9.81.

submitted that
 vessel is eligible to
 with the certificate
 Lloyd's R.C in red
 M 8/9/81

amount of Entry Fee .. £ 3 : " : " received by me,
 Special Dev. W.M.C. .. £ 36 : " : "
 Certificate (if required) .. £ - : 5 : " 18
 To be sent as per margin.
 Expenses, if any, £

Committee's Minute Friday, September, 9th 1881,
John Starrock
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping,
Donkey & District
 + Lloyd's R.C
 Robert Edmund Taylor & Son Printers, 19, Old Street, Goswell Road, London, E.C.