

REPORT ON MACHINERY.

(153711)

453.
 Survey held at Stockton & Blyth Date, first Survey 6 Aug^r 1880 last Survey 13 April 1881
 on the S. V. D. Vessey Tons 1454
 Built at Blyth When built 1881
 Made at Stockton on Tees By whom made Plain Co. (Lancs) when made 1881
 By whom made Do when made Do
 Registered Horse Power 140 Owners Watts Ward & Co Port belonging to London

ENGINES, &c.—
 Description of Engines Compound, Inverted Surface Condensing,
 Diameter of Cylinders 32" & 60" Length of Stroke 39" No. of Rev. per minute 65 Point of Cut off, High Pressure 1/2 stroke Low Pressure 1/2 stroke
 Diameter of Screw shaft 11 1/2" Diameter of Tunnel shaft 10 1/4" Diameter of Crank shaft journals 11 1/4" Diameter of Crank pin 11 3/4" size of Crank webs 15 3/4" x 8 1/2"
 Diameter of screw 15" - 0" Pitch of screw 16 - 0" No. of blades Four state whether moveable No total surface Not ascertained
 Diameter of Feed pumps Two diameter of ditto 4" Stroke 28" Can one be overhauled while the other is at work Yes
 Diameter of Bilge pumps Two diameter of ditto 4" Stroke 28" Can one be overhauled while the other is at work Yes
 Do they pump from Two pumps from fore hold, engine room, after hold after well & ballast tanks. After pump from after hold
 Diameter of Donkey Engines Two Size of Pumps 7 1/2 dia x 9 stroke Where do they pump from Large donkey from fore hold, engine room
hold, after well & ballast tanks. Small donkey from sea, hot well & ballast tanks, also fitted with portable
 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
 Number of bilge injections One and sizes 6" Are they connected to condenser, or to circulating pump Circulating pump
 Are the pumps worked By levers worked from cross head on low pressure piston rod
 Are all connections with the sea direct on the skin of the ship Yes Are they Valves or Cocks Stop valves & Cocks
 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 at & above
 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
 How 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
 Were stern tube, propeller, screw shaft, and all connections examined in dry dock Yes

BOILERS, &c.—
 Number of Boilers Two Description Cylindrical, Multitubular
 Working Pressure 80 lbs Tested by hydraulic pressure to 160 lbs Date of test 24.2.81. Certificate No. 488
 Description of superheating apparatus or steam chest Vertical steam dome. Constructed at sea.
 Can each boiler be worked separately Yes Can the superheater be shut off and the boiler worked separately No Superheater
 Area of square feet of fire grate surface in each boiler 28 sq feet. Description of safety valves Spring. Made by Plain Co. (Lancs)
 Area of each valve 9.62 sq in Are they fitted with easing gear Yes
 Area of each valve " are they fitted with easing gear "
 Least distance between boilers and bunkers or woodwork 11"
 Diameter of boilers 12.6 Length of boilers 10.6 description of riveting of shell long. seams all welded except seams of
 Diameter of rivet holes 1 1/16 whether punched or drilled Drilled pitch of rivets 4 1/8"
 Thickness of shell plates 1 diameter of rivet holes 1 1/16 whether punched or drilled Drilled pitch of rivets 4 1/8"
 Thickness of plating Butt straps 10" broad per centage of strength of longitudinal joint 6 1/2% working pressure of shell by rules 90 lbs
 Number of manholes in shell 15 1/2 x 11 1/2 size of compensating rings Rectangular plates 28" x 24" x 1 1/8"
 Number of Furnaces in each boiler Two outside diameter 3.4 1/4 length, top 6.6 bottom 9.3
 Thickness of plates Top 9/16 bottom 5/8 description of joint Double butt strap if rings are fitted No greatest length between rings "
 Working pressure of furnace by the rules Top 10 lbs bottom 8 1/2 lbs
 Thickness of combustion chamber plating, thickness, sides 1/2" stud plate back 1/2" stud plate top 1/2" stud plate
 Thickness of stays to ditto 8 x 8 back 8 x 7 1/8 top Curved top
 Are stays fitted with nuts or riveted head Part with nuts & part riveted working pressure of plating by rules 100 lbs
 Diameter of stays at smallest part 1 5/16 working pressure of ditto by rules 126 lbs
 Thickness of plates in steam space, thickness 13/16 pitch of stays to ditto 1 1/4 x 14 3/8 + 2 1/2" stay how stays are secured Facts & nuts
 Working pressure by rules 82 lbs diameter of stays at smallest part 2 1/2 x 2 3/8 working pressure by rules 116 lbs
 Thickness of plates at bottom, thickness 13/16 Back plates, thickness 13/16 greatest pitch of stays 12 1/8 x 8 working pressure by rules 82 lbs

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Diameter of tubes $3\frac{1}{2}$ pitch of tubes $4\frac{3}{4}$ thickness of tube plates, front $13\frac{1}{16}$ back $13\frac{1}{16}$ Steel plates
 How stayed *Screwed tubes* pitch of stays $11\frac{1}{4} \times 19\frac{1}{2}$ width of water spaces 6 smallest space between furnaces
 Diameter of Superheater or Steam chest 3.4 length 5.6
 Thickness of plates $\frac{1}{2}$ description of longitudinal joint *Cap. double* diameter of rivet holes $13\frac{1}{16}$ pitch of rivets $3\frac{1}{8}$
 Working pressure of shell by rules 126 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 $\frac{1}{2}$ bottom $\frac{3}{8}$ How stayed *Iron Stays $2\frac{1}{8}$ dia*
 Superheater or steam chest; how connected to boiler *By malleable iron pipe $1\frac{1}{2}$ dia $\frac{1}{8}$ thick. Double punched to the*

DONKEY BOILER— Description *upright cylindrical*
 Made at *Gateshead* By whom made *Clark Chapman* when made *28th Feb 1881*
 Where fixed *Workshop* working pressure 80 lbs Tested by hydraulic pressure to 160 lbs No. of Certificate *530*
 Fire grate area $22\frac{1}{2}$ sq ft Description of safety valves *Spring* No. of safety valves *one* area of each $3\frac{3}{4}$ dia = 11 sq in
 If fitted with easing gear *yes* If steam from main boilers can enter the donkey boiler *no*
 Diameter of donkey boiler $6-0$ length $12-6$ description of riveting *Heavy double Cap.*
 thickness of shell plates $9\frac{1}{16}$ diameter of rivet holes $13\frac{1}{16}$ whether punched or drilled *punched*
 pitch of rivets $3\frac{3}{8}$ lap of plating $4\frac{1}{2}$ per centage of strength of joint 70 %
 thickness of crown plates $9\frac{1}{16}$ stayed by *Diagonal to 5 ft radius & 6 Stays $1\frac{1}{2}$ diameter*
 Diameter of furnace, top $4-8$ bottom $5-4$ length of furnace $5\frac{1}{2}$ ft in
 thickness of plates $9\frac{1}{16}$ description of joint *Single Cap*
 thickness of furnace crown plates $9\frac{1}{16}$ stayed by *6 Stays $1\frac{1}{2}$ dia*
 Working pressure of shell by rules 92 lbs working pressure of furnace by rules 80 lbs
 diameter of uptake 16 thickness of plates $3\frac{1}{8}$ thickness of water tubes $7\frac{1}{16}$

The foregoing is a correct description,
Rob Blair & Co Manufacturers of Engines & Steam Boilers only
R Blair

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

Material & workmanship good.
For results of tests applied to samples of steel used in construction of combustion chambers & for back turn plates see Secretary's letter dated 13th October 1880
The Machinery & Boilers of this vessel are in good order & safe working condition & in my opinion eligible for the notification of Lloyd's M.C. in the Register Book

This submitted that this vessel is eligible to have the notification of Lloyd's M.C.
Recorded J.M. 12/5/81

The amount of Entry Fee £ 2 : : : received by me,
 Special .. £ 21 : : :
 Certificate (if required) .. £ : : : 10th May 1881
 To be sent as per margin.
 (Travelling Expenses, if any, £ 2. 2. 0)

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

Committee's Minute
 Friday, May, 13th 1881
Rob Blair

