

# REPORT ON MACHINERY.

(12660)

No. 630

(Received in London Office 30/1/81)

No. in Survey held at Sunderland

Date, first Survey Nov 26<sup>th</sup> 1880 Last Survey June 28 1881

Reg. Book.

1614.28

on the S.S. Elizabeth Allen

Tons 1048.49

Master J Bates

Built at Sunderland

When built 1881

Engines made at Sunderland

By whom made John Dickinson when made 1881

Boilers made at Sunderland

By whom made John Dickinson when made 1881

Registered Horse Power 160

Owners John Allen & Co

Port belonging to London

## ENGINES, &c.—

Description of Engines Compound, Inverted, Surface condensing, direct acting.

Diameter of Cylinders 32" x 60" Length of Stroke 39" No. of Rev. per minute 60 Point of Cut off, High Pressure 1/2 stroke Low Pressure 1/2 stroke

Diameter of Screw shaft 11" Diameter of Tunnel shaft 10 1/2" Diameter of Crank shaft journals 11" Diameter of Crank pin 11" size of Crank webs 14 x 1 1/4"

Diameter of screw 14" 0" Pitch of screw 18" 0" No. of blades 4 state whether moveable not total surface 60 1/2 sq ft

No. of Feed pumps 2 diameter of ditto 4 1/4" Stroke 21" Can one be overhauled while the other is at work yes

No. of Bilge pumps 2 diameter of ditto 4 1/4" Stroke 21" Can one be overhauled while the other is at work yes

Where do they pump from Fore tank, fore hold, engine room, after tanks and after well

No. of Donkey Engines 2 Size of Pumps 9 x 1 1/2" Where do they pump from Sea, fore well, fore tank, fore

hold, engine room, after tanks and after well

Are the bilge suction pipes fitted with roses yes Are the roses always accessible yes Are the sluices on Engine room bulkheads always accessible yes

Are bilge injections one and sizes 3 1/2" Are they connected to condenser, or to circulating pump Circulating pump

Are the pumps worked by levers on after engine crosshead

Are connections with the sea direct on the skin of the ship yes Are they Valves or Cocks both valves and 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 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

Are pipes carried through the bunkers fore tank pipe How are they protected by a wooden 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

Were stern tube, propeller, screw shaft, and all connections examined in dry dock May 14<sup>th</sup> 1881

Is screw shaft tunnel watertight yes and fitted with a sluice door yes worked from top platform of engine room

## BOILERS, &c.—

No. of Boilers 2 Description Cylindrical multitubular & single ended

Working Pressure 90 lbs Tested by hydraulic pressure to 180 lbs Date of test 6-6-81

Position of superheating apparatus or steam chest Vertical dome

Can each boiler be worked separately yes Can the superheater be shut off and the boiler worked separately no superheater

Square feet of fire grate surface in each boiler 48 sq ft Description of safety valves Direct spring valves

Are they fitted with easing gear yes

Are safety valves to superheater — area of each valve — are they fitted with easing gear —

Least distance between boilers and bunkers or woodwork 18"

Number of boilers 2 Length of boilers 9' 11" description of riveting of shell long. seams treble lap circum. seams double lap

Thickness of shell plates 1 1/32" diameter of rivet holes 1 1/4" whether punched or drilled drilled pitch of rivets 4 1/2"

Thickness of plating 9" percentage of strength of longitudinal joint 94 1/2% R 41 1/2% working pressure of shell by rules 90 lbs

Number of manholes in shell 16 x 11" size of compensating rings 6 x 7/8"

Number of Furnaces in each boiler 3 outside diameter 3' 3" length, top 6' 3" bottom 9' 0"

Thickness of plates 1 1/32" 13 5/8" description of joint lap double riveted if rings are fitted no greatest length between rings —

Working pressure of furnace by the rules 103 R 99

Thickness of combustion chamber plating, thickness, sides 1/2" back 1/2" top 1/2"

Thickness of stays to ditto sides 8 x 7/2" back 8 x 8" top Radius 2' 0"

Are stays fitted with nuts or riveted heads Riveted heads working pressure of plating by rules 100 lbs

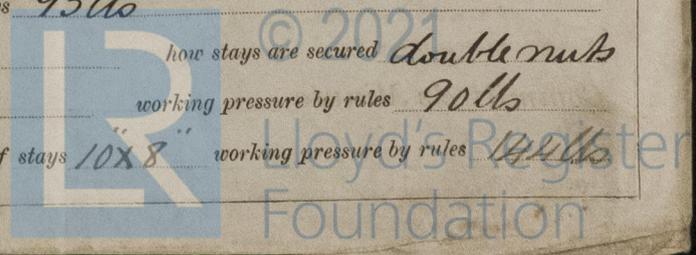
Diameter of stays at smallest part 1 1/8" working pressure of ditto by rules 93 lbs

Thickness of plates in steam space, thickness 3/4" pitch of stays to ditto 14 1/2 x 14" how stays are secured double nuts

Working pressure by rules 96 lbs diameter of stays at smallest part 2" working pressure by rules 90 lbs

Thickness of bottom plates at bottom, thickness 3/4" Back plates, thickness 3/4" greatest pitch of stays 10 x 8" working pressure by rules 100 lbs

F100-07475



Diameter of tubes  $3\frac{1}{4}$ " pitch of tubes  $4\frac{1}{2}$ " thickness of tube plates, front  $\frac{3}{4}$ " back  $\frac{3}{4}$ "  
 How stayed *stay tubes* pitch of stays  $13\frac{1}{2} \times 9$ " width of water spaces  $1\frac{1}{2}$ "  
 Diameter of ~~Superheater~~ or Steam chest  $4-0$ " length  $8-3$ "  
 Thickness of plates  $\frac{1}{16}$ " description of longitudinal joint *lap double riveted* diameter of rivet holes  $3\frac{1}{4}$ " pitch of rivets  $2\frac{1}{2}$ "  
 Working pressure of shell by rules  $99$  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  $5\frac{1}{8}$ " How stayed *Dished to a radius of  $3-6$ "*  
~~Superheater~~ or steam chest; how connected to boiler *By a neck flanged to dome and boiler shell & dble riveted*

**DONKEY BOILER** Description *Vertical with cross tubes*  
 Made at *Gateshead* By whom made *Clarke Chapman & Guernsey* when made *May 1881*  
 Where fixed *Stokehold* working pressure  $80$  lbs Tested by hydraulic pressure to  $160$  lbs No. of Certificate  $389$   
 Fire grate area  $25$  sq ft Description of safety valves *Dorch Springs* No. of safety valves  $2$  area of each  $7.09$  sq in  
 If fitted with easing gear *yes* If steam from main boilers can enter the donkey boiler *no*  
 Diameter of donkey boiler  $6-6$ " length  $12-6$ " description of riveting *Longitudinal double riveted*  
 thickness of shell plates  $9\frac{1}{16}$ " diameter of rivet holes  $1\frac{1}{16}$ " whether punched or drilled *punched*  
 pitch of rivets  $3\frac{3}{8}$ " lap of plating  $4\frac{3}{4}$ " per centage of strength of joint  $72.5\%$   
 thickness of crown plates  $5\frac{1}{8}$ " stayed by *six stays  $1\frac{3}{4}$ " diam*  
 Diameter of furnace, top  $5-2$ " bottom  $5-10$ " length of furnace  $5-4$ "  
 thickness of plates  $9\frac{1}{16}$ " description of joint *lap single riveted*  
 thickness of furnace crown plates  $9\frac{1}{16}$ " stayed by *6 stays  $1\frac{3}{4}$ " diam*  
 Working pressure of shell by rules  $85$  lbs working pressure of furnace by rules  $64$  lbs *the remaining measure being made up by two rows of  $1\frac{1}{2}$ " stays 12 in number in top row and 13 in number in bottom row*  
 diameter of uptake  $19$ " thickness of plates  $3\frac{1}{8}$ " thickness of water tubes  $3\frac{3}{8}$ "

The foregoing is a correct description,  
 Manufacturer. *See Letter annexed*

General Remarks (State quality of workmanship, opinions as to class, &c.)  
*The engines and boilers of this vessel have been constructed under Special Survey and have all been tried under steam and found satisfactory. The material and workmanship are good and efficient and in accordance with the rules. In my opinion the machinery of this vessel is eligible for the Special notification. LLOYD'S MC in the Register Book.*

*Has submitted that this vessel is eligible to have the notification in the Register Book. M. 30/6/81*

The amount of Entry Fee .. £  $3 : 0$  : received by me, *SW*  
 Special *SW* .. £  $24$  : - :  
 Certificate (if required) .. £ - : - : - 28 June 1881  
 To be sent as per margin.  $£24-0-0$   
 (Travelling Expenses, if any, £ -)

*Patrick Salmon*  
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute Friday, July, 1st 1881

