

# REPORT ON MACHINERY.

24344

WED 25 JUNE 1890

Port of Newcastle

Received at London Office

Survey held at Glasgow & Newcastle

Date, first Survey 14<sup>th</sup> May 1889 Last Survey 5<sup>th</sup> June 1890

(Number of Visits 50)

Gross 1834

Net 1144

When built 1890

Arundo

Built at Newcastle

By whom built Sloan & Hunter

when made 1890

at Glasgow

By whom made Alley & MacLellan

when made 1890

at So. Shields

By whom made J. J. Eltringham

Port belonging to Rotterdam

orse Power 140

Owners Hudig & Pedersen

, &c.—

Triple Expansion on three cranks

No. of Cylinders Three

Engines

ders 20", 33" & 54"

Length of Stroke 39"

Rev. per minute 70

Point of Cut off, High Pressure 27" Low Pressure 24"

screw shaft 10 1/2"

Diam. of Tunnel shaft 10"

Diam. of Crank shaft journals 10 1/2"

Diam. of Crank pin 10 3/4" size of Crank webs 4 7/8" x 7 1/2"

crew 13' 6"

Pitch of screw 14' 6"

No. of blades 4

state whether moveable Yes total surface 60 sq ft

pumps Two

diameter of ditto 3 1/2"

Stroke 19"

Can one be overhauled while the other is at work Yes

pumps Two

diameter of ditto 3 1/2"

Stroke 19"

Can one be overhauled while the other is at work Yes

ey pump from Star from sea, helix (3) holds well

Size of Pumps 8 x 8 x 8 & 6 x 3 1/2 x 3 1/2 x 6

Where do they pump from Feed from boiler, hotwell,

ey Engines Two

Ballast pump from helix, holds, tunnel tanks

Are the roses always accessible Yes

Are the sluices on Engine room bulkheads always accessible Yes

Are the suction pipes fitted with roses Yes

Are they connected to condenser, or to circulating pump Yes

Are the pumps worked by levers over condenser from mud engine

and sizes 5"

Are they Valves or Cocks both

Are the connections with the sea direct on the skin of the ship Yes

Are the discharge pipes above or below the deep water line both

Are the connections sufficiently high on the ship's side to be seen without lifting the stokehold plates Yes

Are the blow off cocks fitted with a spigot and brass covering plate Yes

Are the connections fitted with a discharge valve always accessible on the plating of the vessel Yes

How are they protected none

Are the connections carried through the bunkers none

Are the 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

Are the stern tube, propeller, screw shaft, and all connections examined in dry dock new vessel

Are the screw shaft tunnel watertight Yes and fitted with a sluice door Yes

worked from top platform

RS, &c.—

Boilers

Pressure 160

Description Cylindrical single ended

Material Steel

Letter (for record)

Tested by hydraulic pressure to 320

Date of test 2. 4. 90

No of test 3190

Are there superheating apparatus or steam chest none

Can the superheater be shut off and the boiler worked separately Yes

Can the boiler be worked separately Yes

Can the square feet of fire grate surface in each boiler 524 sq ft

Can each valve 7070

Can they be fitted with easing gear Yes

Can they be fitted with easing gear Yes

Can the smallest distance between boilers and bunkers or woodwork 11

Can the description of riveting of shell long. seams lap 6 & 7 rivets

Can the diameter of rivet holes 1 1/4"

Can the stage of strength of longitudinal joint 22

Can the compensating rings 7 x 1 1/2"

Can the diameter of stays to ditto, sides 8 5/8"

Can the diameter of stays at smallest part 19 1/6"

Can the diameter of stays to ditto 16 1/2 x 16"

Can the smallest part 2 1/2"

Can the test pitch of stays 14"

Can the plates, front 7/8"

Can the diameter of Superheater or Steam chest 16 1/4"

Can the diameter of rivets 7/8"

Can the distance between rings 16 1/4"

Can the working pressure of shell by rules 159

Can the working pressure of furnace by the rules 160

Can the working pressure of ditto by rules 230

Can the working pressure of plates 160

Can the working pressure of tubes 160

Can the working pressure of front plates at bottom, thickness 7/8"

Can the working pressure of back plates, thickness 7/8"

Can the working pressure of end plates of superheater, or steam chest; thickness 7/8"

Can the working pressure of Superheater or steam chest; how connected to boiler Superheater or steam chest; how connected to boiler

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**DONKEY BOILER**— Description *Vertical 4 x tube*  
 Made at *Stockton* by whom made *Riley Bros* when made *9.12.89* where fixed *Stockton*  
 Working pressure *80 lb* tested by hydraulic pressure to *160 lb* No. of Certificate *2016* fire grate area *28.45* description of safety valves *spring*  
 No. of safety valves *2* area of each *4.91* if fitted with easing gear *25* if steam from main boilers can enter the donkey boiler *no*  
 diameter of donkey boiler *7.0* length *14.0* description of riveting *all*  
 Thickness of shell plates *7/16* diameter of rivet holes *13/16* whether punched or drilled *p* pitch of rivets *2 13/16* lap of plating *4 1/2*  
 per centage of strength of joint *71* thickness of crown plates *7/16* stayed by *7 stays 1 1/2 diam*  
 Diameter of furnace, top *5.5* bottom *6.0 1/2* length of furnace *5.2* thickness of plates *7/8* description of joint *all*  
 Thickness of furnace crown plates *9/16* stayed by *as crown* working pressure of shell by rules *79*  
 Working pressure of furnace by rules *81* diameter of uptake *17* thickness of plates *7/16* thickness of water tubes *3/8*

**SPARE GEAR.** State the articles supplied:— *6 Coupling bolts, 2 top end 2 bottom end & 2 main bearing bolts, propeller, bolts nuts, hp piston springs, hp pump valves & usual engine room outfit.*

The foregoing is a correct description,  
*Alley Macchellane* Manufacturer. *W. T. Eltringham* Manufacturer of main tube

**General Remarks** (State quality of workmanship, opinions as to class, &c.) *The above mentioned engines are of good workmanship and material, they have been built under special Survey and have been forwarded to So. Shields where they will be put on board the vessel.*

*John Sanderson*

*Glasgow 9/5/90*

*The main boilers of this vessel have been constructed here under special survey and the whole of the machinery has been seen satisfactorily fitted on board. The engines have been tried under steam & found in order.*

*The machinery of this vessel is unobjectionable in our opinion & have the record + L. M. C. 6.90 in the Society's Register Book.  
 Heating surface as per rule = 2722  
 HHP = 183*

*It is submitted that this vessel is eligible to have L. M. C. 6.90 recorded*

The amount of Entry Fee *hwc* £ *2* : - : *not* received by me,

Special *hwc* £ *13* : *19* : -

Donkey Boiler Fee *hwc* £ *13* : *10* : -

Certificate (if required) *hwc* £ : : -

To be sent as per margin.

(Travelling Expenses, if any, £ : : -)

Committee's Minute

*TUES 1 JUL 1890*

*+ Lmb 6/90*

*John H. Wallis & Richard Napier*  
 Engineer Surveyor to Ld's Register of British & Foreign Shipping.