

# REPORT ON MACHINERY.

THUR, 20 MAY 1897

Port of **MIDDLESBROUGH-ON-TEES.**

Received at London Office

18

Survey held at **Middlesbro'-on-Tees.**

Date, first Survey

**15<sup>th</sup> Sept 1896**

Last Survey

**May 14<sup>th</sup> 1897.**

(Number of Visits **56**)

on the

**Steel Screw Steamer "Portugalete"**

Tons } Gross **3025.6**  
Net **1284.**

**Ufeda de Arcocha**

Built at **Middlesbro'-on-Tees.**

By whom built

**R. Braggs & Son.**

When built **1894**

made at **Middlesbro'-on-Tees.**

By whom made

**Sir C. Furness, Westgarth & Coy.**

when made **1894.**

made at **Middlesbro'-on-Tees.**

By whom made

" " "

" " "

" " "

when made **1894.**

red Horse Power **148**

Owners

**Signor Don Ramon de la Sota**

Port belonging to

**Bilbao.**

orse Power as per Section 28 **146.**

Is Electric Light fitted

**No.**

VES, &c.—Description of Engines

**Inverted Triple Expansion.**

No. of Cylinders **Three**

No. of Cranks **Three.**

er of Cylinders **20"-32½"-53"**

Length of Stroke **36"**

Revolutions per minute **65**

Diameter of Screw shaft

as per rule **9.6**  
as fitted **10"**

r of Tunnel shaft

as per rule **9.06**  
as fitted **9½"**

Diameter of Crank shaft journals **10"**

Diameter of Crank pin **10"**

Size of Crank webs **15" x 4"**

of screw **14" 0"**

Pitch of screw **14.0 to 15.0"**

No. of blades **4.**

State whether moveable **no**

Total surface **58.5 sq.**

Feed pumps **2.**

Diameter of ditto **2½"**

Stroke **19"**

Can one be overhauled while the other is at work **Yes.**

Bilge pumps **2.**

Diameter of ditto **3"**

Stroke **19"**

Can one be overhauled while the other is at work **Yes.**

Donkey Engines **2.**

Sizes of Pumps

**4½" x 5" x 4" Duplex.**

No. and size of Suctions connected to both Bilge and Donkey pumps

ine Room **3. One Centre 3' dia. Two wings 2½' dia.**

In Holds, &c.

**Main Hold Two 2½' dia.**

**Tunnel Well one 2½' dia.**

ter Main Hold Two 2½' dia.

**Tunnel Well one 2½' dia.**

lge injections **1** sizes **4"**

Connected to condenser, or to circulating pump **C.P.** Is a separate donkey suction fitted in Engine room & size **1. 4' dia**

he bilge suction pipes fitted with roses **Yes.** Are the roses in Engine room always accessible **Yes**

Are the sluices on Engine room bulkheads always accessible **none**

connections with the sea direct on the skin of the ship **Yes.**

Are they Valves or Cocks **Both.**

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**

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.**

ipes are carried through the bunkers **None.**

How are they protected

**✓**

pipes, cocks, valves, and pumps in connection with the machinery and all boiler mountings accessible at all times **Yes.**

**Yes.**

bilge suction pipes, cocks, and valves arranged so as to prevent any communication between the sea and the bilges **Yes.**

**Yes.**

cere stern tube, propeller, screw shaft, and all connections examined in dry dock **on stocks**

**new vessel.** Is the screw shaft tunnel watertight **Yes.**

ted with a watertight door **Yes.**

worked from **Top platform in Engine room.**

ERS, &c.—

(Letter for record **12**)

Total Heating Surface of Boilers **2762 sq.**

Is forced draft fitted **no.**

d Description of Boilers

**Two: cylind<sup>l</sup>, mult<sup>l</sup>, single ended.**

Working Pressure **160 lbs.**

Tested by hydraulic pressure to **320 lbs.**

test **5.5.94** Can each boiler be worked separately **Yes.**

Area of fire grate in each boiler **35.78 sq.**

No. and Description of safety valves to

iler **Two: Direct spring.**

Area of each valve **4.06 sq.**

Pressure to which they are adjusted **165 lbs.**

Are they fitted

ing gear **Yes.**

Smallest distance between boilers or uptakes and bunkers or woodwork **about 18"** Mean diameter of boilers **12' 6"**

10' 0" Material of shell plates **Steel.**

Thickness **1½"**

Description of riveting: circum. seams **Lap double.** long. seams **Dbl butt straps.**

er of rivet holes in long. seams **176**

Pitch of rivets

**one row 1½" two rows 3¾"**

Lap of plates or width of butt straps **1' 4¼" x 1½" thick.**

tages of strength of longitudinal joint

rivets **84.0**  
plate **85.4**

Working pressure of shell by rules **166 lbs.**

Size of manhole in shell **16" x 12"**

compensating ring **34½" x 26½" x 1½"** No. and Description of Furnaces in each boiler **Two: Morrisow.**

Material **Steel**

Outside diameter **43"**

of plain part

top **6.9"**  
bottom **6.9"**

Thickness of plates

crown **½"**  
bottom **½"**

Description of longitudinal joint **welded.**

No. of strengthening rings **none.**

ing pressure of furnace by the rules **145 lbs.**

Combustion chamber plates: Material **steel**

Thickness: Sides **9/16"**

Back **5/8"**

Top **5/8"**

Bottom **24/32"**

f stays to ditto: Sides **8" x 8"**

Back **9½" x 9½"**

Top **8" x 8"**

If stays are fitted with nuts or riveted heads **nuts.**

Working pressure by rules **163 lbs.**

al of stays **Iron**

Diameter at smallest part **1½"**

Area supported by each stay **64 sq.**

Working pressure by rules **165 lbs.**

End plates in steam space:

al **steel.** Thickness **16"**

Pitch of stays **15½" x 15"**

How are stays secured **Dbl nuts + washers.**

Working pressure by rules **144 lbs.**

Material of stays **steel.**

ter at smallest part **276"**

Area supported by each stay **232.5 sq.**

Working pressure by rules **162 lbs.**

Material of Front plates at bottom **steel.**

ess **3/4"**

Material of Lower back plate **steel**

Thickness **3/4"**

Greatest pitch of stays **12" x 9½"**

Working pressure of plate by rules **240 lbs.**

er of tubes **3½"**

Pitch of tubes **4¾" x 4¾"**

Material of tube plates **steel**

Thickness: Front **3/4"**

Back **3/4"**

Mean pitch of stays **9½"**

across wide water spaces **14½"**

Working pressures by rules **Front. Back. 192 lbs. 223 lbs.**

Girders to Chamber tops: Material **steel.** Depth and

ss of girder at centre **4": 1¾"**

Length as per rule **24½"**

Distance apart **8"**

Number and pitch of Stays in each **2: 8"**

ing pressure by rules **198 lbs.**

Superheater or Steam chest; how connected to boiler **none.** Can the superheater be shut off and the boiler worked

ely

Diameter

Length

Thickness of shell plates

Material

Description of longitudinal joint

Diam. of rivet

Pitch of rivets

Working pressure of shell by rules

Diameter of flue

Material of flue plates

Thickness

ened with rings

Distance between rings

Working pressure by rules

End plates: Thickness

How stayed

ing pressure of end plates

Area of safety valves to superheater

Are they fitted with easing gear

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MDR756-0201



## DONKEY BOILER—

Description

Vertical, with four cross tubes.

Made at *Stockton*

By whom made

*J. Sudrow & Co. Ltd*

When made

*25.2.97*

Where fixed

*in stokehole*Working pressure *80 lbs* tested by hydraulic pressure to *160 lbs* No. of Certificate *1439* Fire grate area *26.7* Description of safety valves *Direct spring*No. of safety valves *1* Area of each *14.18* Pressure to which they are adjusted *80 lbs*. If fitted with easing gear *Yes*. If steam from main boilers canenter the donkey boiler *No*. Diameter of donkey boiler *4' 0"* Length *14' 0"* Material of shell plates *steel* Thickness *15/32"*Description of riveting long. seams *lap double*. Diameter of rivet holes *13/16"* Whether punched or drilled *punched* Pitch of rivets *2 3/4"*Lap of plating *4 1/4"* Per centage of strength of joint Rivets *68.5* Thickness of shell crown plates *9/16"* Radius of do. *5' 9"* No. of Stays to do. *4*Dia. of stays. *1 3/4" eff.* Diameter of furnace Top *5' 3"* Bottom *6' 4 1/2"* Length of furnace *6' 3"* Thickness of furnace plates *2 1/32"* Description ofjoint *lap single* Thickness of furnace crown plates *5/8"* Stayed by *Same as shell crown*. Working pressure of shell by rules *83 lbs*Working pressure of furnace by rules *83 lbs*. Diameter of uptake *14 1/4"* Thickness of uptake plates *7/16"* Thickness of water tubes *3/8"*

## SPARE GEAR. State the articles supplied:—

*Two connecting rod top end, bolts + nuts; Two connecting rod bottom end bolts + nuts; Two main bearing bolts; one set of coupling bolts; one set of feed and bilge pump valves, 1/2 set each, Air & circulating pump valves, 1 set donkey pump valves, 1 feed check valve, 2 rings for piston valves, 1 set springs L.P. piston, 6 pump ring bolts, 1 main safety valve spring, 1 escape valve spring each size, one Propeller, Iron assorted.*

The foregoing is a correct description,

For Sir CHRISTOPHER FURNESS, WESTGARTH &amp; CO., LD.

Manufacturers of Main Engines &amp; Boilers.

*J. M. Mustard*

Dates of Survey while building

During progress of work in shops *MANAGING DIRECTOR. 1896 Sep 15-18-24-28 Oct 5-9-20 Nov 6-10-13-14-23-30 Dec 11-14-24 1897 Jan 20-23 Feb 2-3-8-11-12-15-17-18-19-20-25-26 Mar 1-2*

During erection on board vessel *1897 April 8-15-24-28 May 3-5-12-15-17*

Total No. of visits *Fifty six*

## General Remarks

(State quality of workmanship, opinions as to class, &amp;c.)

*The Engines, and Boilers, of this vessel have been built under special Survey, and the materials, and workmanship are good and efficient. When completed and fitted on board, they were tried under full steam, and worked satisfactorily. The Machinery throughout, is now in good and efficient condition, and eligible in my opinion to have notation L.M.C. 5.97. marked in the Society's Register Book.*

It is submitted that  
this vessel is eligible for  
THE RECORD. + L.M.C. 5.97.

*E.S.*  
*21.5.97*

The amount of Entry Fee. £ 2 : 0 : When applied for,  
Special .. £ 26 : 8 : 19.5.18.97  
Donkey Boiler Fee .. £ *MACHINERY CERTIFICATE* When received, *SW.*  
Travelling Expenses (if any) £ *WRITTEN.* 19.5.18.97

Committee's Minute

FRI. 21 MAY 1897

Assigned

+ L.M.C. 5.97

*Lidley Towell*  
Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Middlesbrough - Tees

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