

# REPORT ON MACHINERY.

No. 56902

Port of Newcastle-on-Tyne

Received at London Office

FRI 25 JUN 1909

No. in Survey held at Newcastle

Date, first Survey 6th Feb 1909

Last Survey 1st June 1909

Reg. Book. on the SS "Portugal"

(Number of Visits)

Master                      Built at Antwerp By whom built Antwerp S.B.C.

Tons <sup>Gross</sup>                      <sub>Net</sub>                       
When built 1909

Engines made at Newcastle By whom made North Eastern Marine when made 1909

Boilers made at Newcastle By whom made North Eastern Marine when made 1909

Registered Horse Power                      Owners                      Port belonging to                     

Nom. Horse Power as per Section 28 150 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted                     

## ENGINES, &c.—Description of Engines Triple expansion No. of Cylinders three No. of Cranks 3

\*Dia. of Cylinders 18, 29, 48 Length of Stroke 33 Revs. per minute 78 Dia. of Screw shaft 10 3/4 Material of screw shaft Iron

Is the screw shaft fitted with a continuous liner the whole length of the stern tube yes Is the after end of the liner made water tight in the propeller boss yes

If the liner is in more than one length are the joints burned                      If the liner does not fit tightly at the part between the bearings in the stern tube, is the space charged with a plastic material insoluble in water and non-corrosive                     

If two liners are fitted, is the shaft lapped or protected between the liners                      Length of stern bush 47"

Dia. of Tunnel shaft 9 5/8 Dia. of Crank shaft journals 9 5/8 Dia. of Crank pin 9 5/8 Size of Crank webs 9, 5 1/2 Dia. of thrust shaft under collars 9 5/8

Dia. of screw 13-3 Pitch of Screw 13-6 No. of Blades 4 State whether moveable No Total surface 53 1/2

No. of Feed pumps 2 Diameter of ditto 3" Stroke 16 1/2" Can one be overhauled while the other is at work yes

No. of Bilge pumps 2 Diameter of ditto 3" Stroke 16 1/2" Can one be overhauled while the other is at work yes

No. of Donkey Engines 2 Sizes of Pumps 5 1/2 x 3 1/2 x 5", 6 x 8 1/2 x 8" No. and size of Suctions connected to both Bilge and Donkey pumps In Engine Room Join 2 1/2"

In Holds, &c. Join at 2 1/4"

No. of Bilge Injections 1 sizes 4" Connected to condenser, or to circulating pump                      Is a separate Donkey Suction fitted in Engine room & size yes 2 1/4"

Are all the 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 yes

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 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

What pipes are carried through the bunkers iron How are they protected                     

Are all Pipes, Cocks, Valves, and Pumps in connection with the machinery and all boiler mountings accessible at all times yes

Are the Bilge Suction Pipes, Cocks, and Valves arranged so as to prevent any communication between the sea and the bilges yes

Dates of examination of completion of fitting of Sea Connections                      of Stern Tube                      Screw shaft and Propeller 1/6/09.

Is the Screw Shaft Tunnel watertight yes Is it fitted with a watertight door yes worked from                     

## BOILERS, &c.—(Letter for record S) Manufacturers of Steel Messrs John Sponner & Sons

Total Heating Surface of Boilers 2404 Is Forced Draft fitted No No. and Description of Boilers 2 Single ended return Tube

Working Pressure 180 lbs Tested by hydraulic pressure to 360 Date of test 18/2/09 No. of Certificate 7818

Can each boiler be worked separately yes Area of fire grate in each boiler 33.6 No. and Description of Safety Valves to each boiler 1 pair direct

Area of each valve 4.9 Pressure to which they are adjusted 185 lbs Are they fitted with easing gear yes

Smallest distance between boilers or uptakes and bunkers or woodwork                      Mean dia. of boilers 12" Length 10.0 Material of shell plates Steel

Thickness 1" Range of tensile strength 28 3/4 to 32 Are the shell plates welded or flanged No Descrip. of riveting: cir. seams double lap

long. seams double lap Diameter of rivet holes in long. seams 1 1/16" Pitch of rivets 7 5/16" Lap of plates or width of butt straps 14"

Per centages of strength of longitudinal joint rivets 82.5 Working pressure of shell by rules 182.5 lbs Size of manhole in shell 16" x 12"

plate 82.5 Size of compensating ring flanged No. and Description of Furnaces in each boiler 2 Dugout Material Steel Outside diameter 41 1/2"

Length of plain part                      Thickness of plates                      Description of longitudinal joint Welded No. of strengthening rings                     

Working pressure of furnace by the rules 182 Combustion chamber plates: Material Steel Thickness: Sides 3/32" Back 23/32" Top 23/32" Bottom 7/8"

Pitch of stays to ditto: Sides 10" x 9 3/4" Back 10" x 9 3/4" Top 10" x 9 3/4" If stays are fitted with nuts or riveted heads No Working pressure by rules 183

Material of stays Steel Diameter at smallest part 2.08" Area supported by each stay 97 1/2" Working pressure by rules 187.5 End plates in steam space: Material Steel

Thickness 1 1/32" Pitch of stays 8 3/4" How are stays secured 2 nuts Working pressure by rules 180 1/2 Material of stays Steel

Diameter at smallest part 6.09" Area supported by each stay 337" Working pressure by rules 181 Material of Front plates at bottom Steel

Thickness 13/16" Material of Lower back plate Steel Thickness 29/32" Greatest pitch of stays 14 1/2" Working pressure of plate by rules 186

Diameter of tubes 3 1/4" Pitch of tubes 4 1/2" x 4 1/2" Material of tube plates Steel Thickness: Front 13/16" Back 3/4" Mean pitch of stays 9"

Pitch across wide water spaces 14 1/2" Working pressures by rules 186 Girders to Chamber tops: Material Steel Depth and thickness of girder at centre 8 1/2" x 4" Length as per rule 30" Distance apart 9 3/4" Number and pitch of stays in each two 10"

Working pressure by rules 184 1/2 Superheater or Steam chest; how connected to boiler iron Can the superheater be shut off and the boiler worked separately

**VERTICAL DONKEY BOILER—** Manufacturers of Steel

No. *101* Description *See Middlesbrough Report No 5660.*  
 Made at \_\_\_\_\_ By whom made \_\_\_\_\_ When made \_\_\_\_\_ Where fixed \_\_\_\_\_  
 Working pressure tested by hydraulic pressure to \_\_\_\_\_ Date of test \_\_\_\_\_ No. of Certificate \_\_\_\_\_ Fire grate area \_\_\_\_\_ Description of Safety Valves *2 Spring loaded* No. of Safety Valves *2* Area of each *5.94* Pressure to which they are adjusted *100* Date of adjustment *11/6/09*  
 If fitted with casing gear *yes* If steam from main boilers can enter the donkey boiler *no* Dia. of donkey boiler \_\_\_\_\_ Length \_\_\_\_\_  
 Material of shell plates \_\_\_\_\_ Thickness \_\_\_\_\_ Range of tensile strength \_\_\_\_\_ Descrip. of riveting long. seams \_\_\_\_\_  
 Dia. of rivet holes \_\_\_\_\_ Whether punched or drilled \_\_\_\_\_ Pitch of rivets \_\_\_\_\_ Lap of plating \_\_\_\_\_ Per centage of strength of joint \_\_\_\_\_ Rivets \_\_\_\_\_ Plates \_\_\_\_\_  
 Working pressure of shell by rules \_\_\_\_\_ Thickness of shell crown plates \_\_\_\_\_ Radius of do. \_\_\_\_\_ No. of stays to do. \_\_\_\_\_ Dia. of stays \_\_\_\_\_  
 Diameter of furnace Top \_\_\_\_\_ Bottom \_\_\_\_\_ Length of furnace \_\_\_\_\_ Thickness of furnace plates \_\_\_\_\_ Description of joint \_\_\_\_\_  
 Working pressure of furnace by rules \_\_\_\_\_ Thickness of furnace crown plates \_\_\_\_\_ Stayed by \_\_\_\_\_  
 Diameter of uptake \_\_\_\_\_ Thickness of uptake plates \_\_\_\_\_ Thickness of water tubes \_\_\_\_\_ Dates of survey \_\_\_\_\_

**SPARE GEAR.** State the articles supplied:— *2 Top and Collis' Trunk 2 bottom and Collis' Trunk 2 main bearing Collis' Trunk, 1 set of coupling Collis' Trunk, 1 set of piston pumps, 2 fuel & 2 bilge pump valves, Collis' Trunk & iron of various sizes*

The foregoing is a correct description,  
**NORTH EASTERN MARINE ENGINEERING Co., LTD.**  
 Manufacturer.

*J. J. F. Harrison* Secretary.  
 Dates of Survey while building: During progress of work in shops - - - - - 1908 Oct. 28-30, Nov. 17, Dec. 4, 17, 24, 1909 Jan. 6, 11, 12, 14, 15, 19, Feb. 2, 3, 4, 9, 11, 16, 18, 24, Mar. 19, Jan. 1, 2, 7, 9, 11  
 Total No. of visits *27* Is the approved plan of main boiler forwarded herewith \_\_\_\_\_  
 " " " donkey " " " \_\_\_\_\_

Dates of Examination of principal parts—Cylinders *3-2-09* Slides *3-2-09* Covers *3-2-09* Pistons *4-2-09* Rods *4-2-09*  
 Connecting rods *12-1-09* Crank shaft *24/2/09* Thrust shaft *28/10/08* Tunnel shafts *28/10/08* Screw shaft *28/10/08* Propeller *24/2/09*  
 Stern tube *24/2/09* Steam pipes tested *7/6/09* Engine and boiler seatings *7/6/09* Engines holding down bolts *7/6/09*  
 Completion of pumping arrangements *11/6/09* Boilers fixed *7/6/09* Engines tried under steam *11/6/09*  
 Main boiler safety valves adjusted *11/6/09* Thickness of adjusting washers *Port boiler 7/16" 7/16" St boiler 13/32" 13/32"*  
 Material of Crank shaft *Light Steel* Identification Mark on Do. *R.J.F.* Material of Thrust shaft *Light Steel* Identification Mark on Do. *R.J.F.*  
 Material of Tunnel shafts *S. Iron* Identification Marks on Do. *R.J.F.* Material of Screw shafts *S. Iron* Identification Marks on Do. *R.J.F.*  
 Material of Steam Pipes *Copper* Test pressure *360lbs.*

**General Remarks** (State quality of workmanship, opinions as to class, &c.) *These engines and boilers have been built under special survey, the materials and workmanship are of good description they have been well fitted on board and tried under steam.*

*The machinery of this vessel is in our opinion eligible to have notation of **L.M.C. 6-09** in the Register Book*

*It is submitted that this vessel is eligible for THE BOARD + L.M.C. 6-09. ARR 28/6/09*  
*J.W.D. 28/6/09*

The amount of Entry Fee..	£ 2 : :	When applied for,	4 JUN 1909
Special .. .. .	£ 22 : 10 :	When received,	19/7/09
Donkey Boiler Fee .. .. .	£ 24 : 10 :		
Travelling Expenses (if any) £	: : :		

*J. Robinson*  
*J. F. Findlay & A. M. Beard*  
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute **TUES. 29 JUN 1909**  
 Assigned *+ L.M.C. 6-09*



Certificate (if required) to be sent to...