

pt. 4. **Supplementary Sheet of Particulars of Centre Main Boiler** No. 2786  
**REPORT ON MACHINERY.**

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

Received at London Office **14th MAR 29 1900**

No. in Survey held at **Middlesbro-ou-Tees.**

Date, first Survey **March 6<sup>th</sup> 1899** Last Survey **18<sup>th</sup> January 1900**

Reg. Book. **32**

(Number of Visits) **90**

Tons } Gross  
 Net

Master **1/2**

Built at

By whom built **Suness, Withy & Coy.** When built

Engines made at **Middlesbro-ou-Tees.** By whom made **Sir C. Suness, Withy & Coy.** when made **1900.**

Boilers made at **6** By whom made **6** when made **1900.**

Registered Horse Power

Owners

Port belonging to

Nom. Horse Power as per Section 28

Is Electric Light fitted

**ENGINES, &c.—Description of Engines**

No. of Cylinders

No. of Cranks

Diameter of Cylinders

Length of Stroke

Revolutions per minute

Diameter of Screw shaft

Diameter of Tunnel shaft

Diameter of Crank shaft journals

Diameter of Crank pin

Size of Crank webs

Diameter of screw

Pitch of screw

No. of blades

State whether moveable

Total surface

No. of Feed pumps

Diameter of ditto

Stroke

Can one be overhauled while the other is at work

No. of Bilge pumps

Diameter of ditto

Stroke

Can one be overhauled while the other is at work

No. of Donkey Engines

Sizes of Pumps

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

Engine Room

In Holds, &c.

No. of bilge injections

sizes

Connected to condenser, or to circulating pump

Is a separate donkey suction fitted in Engine room & size

Are all the bilge suction pipes fitted with roses

Are the roses in Engine room always accessible

Are the sluices on Engine room bulkheads always accessible

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

Are they Valves or Cocks

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

Are the discharge pipes above or below the deep water line

Are they each fitted with a discharge valve always accessible on the plating of the vessel

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

Are that pipes are carried through the bunkers

How are they protected

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

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

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

Is the screw shaft tunnel watertight

Is it fitted with a watertight door

worked from

**Boiler & Centre** (Letter for record **(S)**) Total Heating Surface of Boilers **2652** <sup>Centre</sup> **ft.**

Is forced draft fitted **Yes: Howard's**

No. and Description of Boilers **One, Cyl. mult. Single ended.** Working Pressure **180 lbs.** Tested by hydraulic pressure to **360 lbs.**

Date of test **28.11.99.** Can each boiler be worked separately **Yes.** Area of fire grate in each boiler **64.6** <sup>Centre</sup> **ft.** No. and Description of safety valves to

each boiler **3. Direct Spring.** Area of each valve **9.62** <sup>Centre</sup> **sq. in.** 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 diameter of boilers **15.6"**

Length **12.0'** Material of shell plates **S.** Thickness **1/8"** Description of riveting: circum. seams **D.P. Lap.** long. seams **Butt Straps.**

Diameter of rivet holes in long. seams **1 3/8"** Pitch of rivets **9". 4 1/2"** Lap of plates or width of butt straps **21 3/4" x 1 3/8"**

Percentages of strength of longitudinal joint **85.1** Working pressure of shell by rules **200.8** Size of manhole in shell **16" x 12"**

Area of compensating ring **35 1/2" x 30" x 1 1/8"** No. and Description of Furnaces in each boiler **4: Deighton.** Material **S.** Outside diameter **41 3/4"**

Length of plain part **8.3"** Thickness of plates **1 1/8"** Description of longitudinal joint **Weld.** No. of strengthening rings **✓**

Working pressure of furnace by the rules **196.** Combustion chamber plates: Material **S.** Thickness: Sides **19/32"** Back **19/32"** Top **19/32"** Bottom **4/8"**

Pitch of stays to ditto: Sides **4 1/2" x 4"** Back **4 1/2" x 4"** Top **4 1/2" x 4"** If stays are fitted with nuts or riveted heads **nuts.** Working pressure by rules **196.5**

Material of stays **S.** Diameter at smallest part **1 3/8"** Area supported by each stay **62** <sup>Centre</sup> **sq. in.** Working pressure by rules **193.5** End plates in steam space:

Material **S.** Thickness **3/32"** Pitch of stays **16 1/2" x 15 1/4"** How are stays secured **D.N. & W.** Working pressure by rules **188.** Material of stays **S.**

Diameter at smallest part **2 1/2"** Area supported by each stay **236** <sup>Centre</sup> **sq. in.** Working pressure by rules **214.** Material of Front plates at bottom **S.**

Thickness **13/16"** Material of Lower back plate **S.** Thickness **4/8"** Greatest pitch of stays **16"** Working pressure of plate by rules **184.5**

Diameter of tubes **2 1/2"** Pitch of tubes **3 3/4" x 3 3/4"** Material of tube plates **S.** Thickness: Front **1"** Back **3/4"** Mean pitch of stays **4 1/2"**

Pitch across wide water spaces **14 1/2"** Working pressures by rules **F. 182.6** Girders to Chamber tops: Material **S.** Depth and

Thickness of girder at centre **9" x 1 3/4"** Length as per rule **30"** Distance apart **4 1/8"** Number and pitch of Stays in each **2: 4 1/2"**

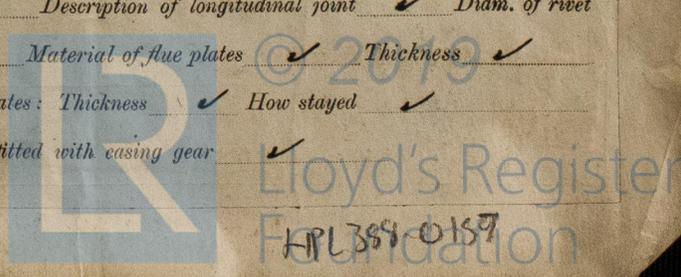
Working pressure by rules **268.5** Superheater or Steam chest; how connected to boiler **None.** Can the superheater be shut off and the boiler worked

separately **✓** Diameter **✓** Length **✓** Thickness of shell plates **✓** Material **✓** Description of longitudinal joint **✓** Diam. of rivet

holes **✓** Pitch of rivets **✓** Working pressure of shell by rules **✓** Diameter of flue **✓** Material of flue plates **✓** Thickness **✓**

stiffened with rings **✓** Distance between rings **✓** Working pressure by rules **✓** End plates: Thickness **✓** How stayed **✓**

Working pressure of end plates **✓** Area of safety valves to superheater **✓** Are they fitted with easing gear **✓**



**DONKEY BOILER—** Description

Made at \_\_\_\_\_ By whom made \_\_\_\_\_ When made \_\_\_\_\_ Where fixed \_\_\_\_\_  
 Working pressure tested by hydraulic pressure to \_\_\_\_\_ No. of Certificate \_\_\_\_\_ Fire grate area \_\_\_\_\_ Description of safety valves \_\_\_\_\_  
 No. of safety valves \_\_\_\_\_ Area of each \_\_\_\_\_ Pressure to which they are adjusted \_\_\_\_\_ If fitted with easing gear \_\_\_\_\_ If steam from main boilers can enter the donkey boiler \_\_\_\_\_  
 Diameter of donkey boiler \_\_\_\_\_ Length \_\_\_\_\_ Material of shell plates \_\_\_\_\_ Thickness \_\_\_\_\_  
 Description of riveting long seams \_\_\_\_\_ Diameter of rivet holes \_\_\_\_\_ Whether punched or drilled \_\_\_\_\_ Pitch of rivets \_\_\_\_\_  
 Lap of plating \_\_\_\_\_ Per centage of strength of joint \_\_\_\_\_ Rivets \_\_\_\_\_ 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 \_\_\_\_\_  
 Thickness of furnace crown plates \_\_\_\_\_ Stayed by \_\_\_\_\_ Working pressure of shell by rules \_\_\_\_\_  
 Working pressure of furnace by rules \_\_\_\_\_ Diameter of uptake \_\_\_\_\_ Thickness of uptake plates \_\_\_\_\_ Thickness of water tubes \_\_\_\_\_

**SPARE GEAR.** State the articles supplied:—

The foregoing is a correct description,

For **SIR CHRISTOPHER FURNESS, WESTBARTH & CO., LD.** Manufacturers of Engines & Marine Boilers—

*H. Jackson*  
 Dates of Survey while building  
 During progress of work in shops - - - - -  
 During erection on board vessel - - - - -  
 Total No. of visits  
 1<sup>st</sup> Visit 6<sup>th</sup> March 1899  
 Last Visit 18<sup>th</sup> January 1900.  
 Ninety

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

*See accompanying sheet*

Certificate (if required) to be sent to \_\_\_\_\_  
 (The Surveyors are requested not to write on or below the space for Committee's Minute.)

The amount of Entry Fee..	£	:	:	When applied for,
Special .. .. .	£	:	:	.....18.....
Donkey Boiler Fee .. .	£	:	:	When received,
Travelling Expenses (if any)	£	:	:	.....18.....

*Lidley Stowell & Richard Hind*  
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute

FRI 30 MAR 1900

Assigned



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