

## REPORT ON MACHINERY.

Port of Newcastle

Received at London Office

MON. 2 JUL 1900

No. in Survey held at NewcastleDate, first Survey Dec 29<sup>th</sup> 99 Last Survey June 16 19 00

Reg. Book.

96 on the s/s "Federation"(Number of Visits 21)Tons } Gross 767  
Not 367When built 1886-10Master Sherwood Built at Sunderland By whom built S P Austin & SonEngines made at Sunderland By whom made North Eastern Marine Eng'g Co. when made 1886-10Boilers made at Wallsend By whom made Wallsend Shipway & Eng'g Co. when made 1900-6Registered Horse Power \_\_\_\_\_ Owners Co-Operative Wholesale Ice Ltd Port belonging to GoodNom. Horse Power as per Section 28 161 Is Refrigerating Machinery fitted No Is Electric Light fitted Yes

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

Dia. of Cylinders 19" 31" 51" Length of Stroke 33" Revs. per minute \_\_\_\_\_ Dia. of Screw shaft as per rule 9 1/2" as fitted 10" Lgth. of stern bush \_\_\_\_\_

Dia. of Tunnel shaft as per rule 9 1/2" as fitted 9 3/8" Dia. of Crank shaft journals as per rule 9 1/2" as fitted 9 3/4" Dia. of Crank pin 9 3/4" Size of Crank webs \_\_\_\_\_ Dia. of thrust shaft under \_\_\_\_\_

Collars 10" Dia. 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 \_\_\_\_\_

In 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 \_\_\_\_\_

What 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

When were stern tube, propeller, screw shaft, and all connections examined in dry dock 13-6-00 Is the screw shaft tunnel watertight

Is it fitted with a watertight door \_\_\_\_\_ worked from \_\_\_\_\_

BOILERS, &c.— (Letter for record T) Total Heating Surface of Boilers 2500 Is forced draft fitted NoNo. and Description of Boilers Two, Mult., Single ended Working Pressure 175 lbs Tested by hydraulic pressure to 350 lbsDate of test 2/3-00 Can each boiler be worked separately Yes Area of fire grate in each boiler 40 No. and Description of safety valves toeach boiler 2 direct spring Area of each valve 4.67 Pressure to which they are adjusted 175 lbs Are they fitted with easing gear YesSmallest distance between boilers or uptakes and bunkers on woodwork 6'-0" Mean dia. of boilers 11'-6" Length 11'-0" Material of shell plates SteelThickness 3/32" Range of tensile strength 29-32 Are they welded or flanged No Descrip. of riveting: cir. seams 27 lap long. seams DBS, TRDiameter of rivet holes in long. seams 1/8" Pitch of rivets 8" Lap of plates or width of butt straps 16 1/8"Percentage of strength of longitudinal joint rivets 85-9 Working pressure of shell by rules 215 lbs Size of manhole in shell 16" x 12"Size of compensating ring 6 1/2" x 1 1/4" in hole No. and Description of Furnaces in each boiler 2, Deightons Material Steel Outside diameter 43"Length of plain part top \_\_\_\_\_ bottom \_\_\_\_\_ Thickness of plates crown 1/2" Description of longitudinal joint welded No. of strengthening rings NoneWorking pressure of furnace by the rules 175 lbs Combustion chamber plates: Material Steel Thickness: Sides 11/16" Back 3/32" Top 11/16" Bottom 3/4"Pitch of stays to ditto: Sides 9 1/4" x 8" Back 9" x 9" Top 9 1/4" If stays are fitted with nuts or riveted heads Nuts Working pressure by rules 219 lbsMaterial of stays Steel Area at smallest part 2.03 Area supported by each stay 81 Working pressure by rules 214 lbs End plates in steam space:Material Steel Thickness 1/16" Pitch of stays 16" x 16 3/8" How are stays secured DNW Working pressure by rules 240 lbs Material of stays SteelDiameter at smallest part 2 1/16" Area supported by each stay 262 Working pressure by rules 233 lbs Material of Front plates at bottom SteelThickness 3/32" Material of Lower back plate Steel Thickness 1/16" Greatest pitch of stays 14 1/2" x 9" Working pressure of plate by rules 208 lbsDiameter of tubes 3 1/2" Pitch of tubes 4 3/4" x 4 5/8" Material of tube plates Steel Thickness: Front 3/32" Back 3/4" Mean pitch of stays 9 3/8"Pitch across wide water spaces 14 1/2" Working pressures by rules 194 lbs Girders to Chamber tops: Material Steel Depth andThickness of girder at centre 10 1/2" 2 plates Length as per rule 23-5 Distance apart 9 1/4" Number and pitch of Stays in each oneWorking pressure by rules 194 lbs 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

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—** No. 0 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 3

No. of safety valves \_\_\_\_\_ Area of shell \_\_\_\_\_ Pressure to which they are adjusted \_\_\_\_\_ If fitted with easing gear \_\_\_\_\_ If steam from main boilers can enter the donkey boiler \_\_\_\_\_

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 \_\_\_\_\_ 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 THE WALLSEND SLIDWAY & ENGINEERING CO. LIMITED,**  
 Manufacturer.

Dates { During progress of work in shops - - 1899-1900 Dec. 29-1900 Jan. 12 Feb. 7 14 Mch. 16 19 21 22 27 Apl 19 23 May 8 15 16 23 25 30 June 11 12 15 16  
 of Survey { During erection on board vessel - -  
 while building { Total No. of visits 21

Is the approved plan of main boiler forwarded herewith yes  
 " " " donkey " " " none fitted

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

Main boilers & donkey boiler lifted out, main boiler seating renewed & two new main boilers fitted in place. Safety valves & stop valves from old boilers overhauled & refitted to new boilers after being tested by hydraulic test to 400 lbs. Main steam pipes repaired, - one length renewed - tested to 350 lbs by hydraulic test.

After crank pin found to be cracked for  $\frac{3}{4}$  of the diameter, crank shaft all lifted out & turned up in lathe, new after crank & coupling bolts fitted & main bearings refilled with white metal.

Propeller shaft drawn in & examined, stern bush relined with white metal, new propeller fitted & shafting lined up throughout.

(Blades of old propeller partly broken) All valve gears & pumps overhauled, two new feed rams fitted also new LP eccentric sheave & strap. Main boilers tested under steam safety valves adjusted to 175 lbs found to work well.

N.B. The main boiler pressure is now 175 lbs

This vessel has not any donkey boiler now, sea cock cut off. She vessel was docked on the Wallsend Slipway

Lank under boilers cut off, filling pipes blanked, bridge suction fitted in space.

The machinery of this vessel as far as seen is now in safe working condition eligible in my opinion to receive the record of +NB 6-1900, BS 6-1900 in the Register Book.

Screw shaft examined. New after crank fitted. New main boiler fitted

The amount of Entry Fee. £ : :  
 Special £ : :  
 Donkey Boiler Fee £ : :  
 Travelling Expenses (if any) £ : :  
 When applied for, 30 JUN 1900  
 When received, 31.7.1900

Committee's Minute

Assigned

TUES. 3 JUL 1900

226.00

+NB 6.00

It is submitted that this vessel is eligible for THE RECORD. BS 6.00 and notation of +NB 6.00 working pressure 175 lbs. Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Robert Haig.

27.00

Lloyd's Register Foundation