

REPORT ON MACHINERY.

Port of **NEWCASTLE-ON-TYNE**Received at London Office **NOV. 12 DEC 1892**

No. in Survey held at **Newcastle** Date, first Survey **26 April** Last Survey **Dec 3rd 1892**
 Reg. Book. **S.S. Great Northern** (Number of Vests **30**) Tons { Gross **3022**
 on the **S.S. Great Northern** Net **1937**
 Master **Adams** Built at **Newcastle** By whom built **Hawthorn Leslie & Co** When built **1892**
 Engines made at **Newcastle** By whom made **Hawthorn Leslie & Co** when made **1892**
 Boilers made at **do** By whom made **do** when made **do**
 Registered Horse Power **276** Owners **Great Northern S.S. Co.** Port belonging to **Newcastle**
 Nom. Horse Power as per Section 28 **281**

ENGINES, &c.— Description of Engines **Triple expansion in 3 cranks** No. of Cylinders **3**
 Diameter of Cylinders **23 $\frac{1}{2}$ - 35.64** Length of Stroke **42** Revolutions per minute **65** Diameter of Screw shaft **11.2**
 as per rule **10.6** Diameter of Tunnel shaft **10 $\frac{3}{4}$** Diameter of Crank shaft journals **11 $\frac{1}{4}$** Diameter of Crank pin **11 $\frac{1}{2}$** Size of Crank webs **22 x 7**
 as fitted **10 $\frac{3}{4}$** Diameter of screw **15.9** Pitch of screw **16.6** No. of blades **4** State whether moveable **no** Total surface **71 $\frac{1}{2}$**
 No. of Feed pumps **2** Diameter of ditto **3 $\frac{3}{4}$** Stroke **18** Can one be overhauled while the other is at work **Y**
 No. of Bilge pumps **2** Diameter of ditto **3 $\frac{3}{4}$** Stroke **18** Can one be overhauled while the other is at work **Y**
 No. of Donkey Engines **Two** Sizes of Pumps **6 x 4 x 6 & 6 x 6 x 8 $\frac{1}{2}$** No. and size of Suctions connected to both Bilge and Donkey pumps
 In Engine Room **Star 3" Cutts 3" P 3" Suction 3" In Holds, &c. Fore hold P. 3" S 3"**
Main hold P 3" S 3" after main P. 3" S 3" after hold. C 3"
 No. of bilge injections **1** sizes **5 $\frac{1}{4}$** Connected to ~~condenser~~ to circulating pump **Y** Is a separate donkey suction fitted in Engine room & size **Y - 3 $\frac{1}{2}$**
 Are all the bilge suction pipes fitted with roses **Y** Are the roses in Engine room always accessible **Y** Are the sluices on Engine room bulkheads always accessible **Y**
 Are all connections with the sea direct on the skin of the ship **Y** Are they Valves or Cocks **both**
 Are they fixed sufficiently high on the ship's side to be seen without lifting the stokehold plates **Y** Are the discharge pipes above or below the deep water line **Y**
 Are they each fitted with a discharge valve always accessible on the plating of the vessel **Y** Are the blow off cocks fitted with a spigot and brass covering plate **Y**
 What pipes are carried through the bunkers **for hold sustains** How are they protected **efficient work climbing**
 Are all pipes, cocks, valves, and pumps in connection with the machinery and all boiler mountings accessible at all times **Y**
 Are the bilge suction pipes, cocks, and valves arranged so as to prevent any communication between the sea and the bilges **Y**
 When were stern tube, propeller, screw shaft, and all connections examined in dry dock **now** Is the screw shaft tunnel watertight **Y**
 Is it fitted with a watertight door **Y** worked from **top platform**

BOILERS, &c.— (Letter for record **S**) Total Heating Surface of Boilers **4450**
 No. and Description of Boilers **Two - cyl. single end** Working Pressure **160** Tested by hydraulic pressure to **320**
 Date of test **22.10.92** Can each boiler be worked separately **Y** Area of fire grate in each boiler **66 $\frac{1}{2}$** No. and Description of safety valves to
 each boiler **Two spring** Area of each valve **7.075** Pressure to which they are adjusted **165 lbs** Are they fitted
 with easing gear **Y** Smallest distance between boilers or uptakes and bunkers or woodwork **12** Mean diameter of boilers **15.3**
 Length **10.3** Material of shell plates **S** Thickness **1 $\frac{3}{8}$** Description of riveting: circum. seams **C. d 22** long. seams **Run joint**
 Diameter of rivet holes in long. seams **1 $\frac{1}{2}$ x 1 $\frac{1}{8}$** Pitch of rivets **9 $\frac{3}{16}$ x 6 $\frac{1}{8}$** Lap of plates or width of butt straps **24 $\frac{7}{8}$ x 16 $\frac{3}{8}$**
 Per centages of strength of longitudinal joint **83.6** Working pressure of shell by rules **163** Size of manhole in shell **ends 16 x 12**
 Size of compensating ring **No. and Description of Furnaces in each boiler Four Adams Material S Outside diameter 37 $\frac{1}{2}$**
 Length of plain part **top 3.6** Thickness of plates **bottom 9 $\frac{3}{32}$** Description of longitudinal joint **welded** No. of strengthening rings **1**
 Working pressure of furnace by the rules **164** Combustion chamber plates: Material **S** Thickness: Sides **5 $\frac{7}{8}$** Back **5 $\frac{7}{8}$** Top **5 $\frac{7}{8}$** Bottom **3 $\frac{1}{4}$**
 Pitch of stays to ditto: Sides **9 $\frac{3}{16}$** Back **as per plan** Top **as per plan** If stays are fitted with nuts or riveted heads **nuts** Working pressure by rules **160**
 Material of stays **chd** Diameter at smallest part **1 $\frac{5}{8}$** Area supported by each stay **84** Working pressure by rules **169** End plates in steam space:
 Material **chd** Thickness **1 $\frac{1}{32}$** Pitch of stays **as per plan** How are stays secured **as per plan** Working pressure by rules **165** Material of stays **S**
 Diameter at smallest part **2 $\frac{7}{8}$** Area supported by each stay **228.50** Working pressure by rules **178** Material of Front plates at bottom **S**
 Thickness **3 $\frac{1}{4}$** Material of Lower back plate **S** Thickness **4 $\frac{1}{8}$** Greatest pitch of stays **13** Working pressure of plate by rules **160**
 Diameter of tubes **3 $\frac{1}{4}$** Pitch of tubes **4 $\frac{1}{2}$** Material of tube plates **S** Thickness: Front **3 $\frac{1}{4}$** Back **3 $\frac{1}{4}$** Mean pitch of stays **11**
 Pitch across wide water spaces **14 $\frac{1}{2}$** Working pressures by rules **180** Girders to Chamber tops: Material **Run** Depth and
 thickness of girder at centre **8 x 1 $\frac{1}{2}$** Length as per rule **28** Distance apart **8 $\frac{1}{2}$** Number and pitch of Stays in each **2. 9 $\frac{3}{16}$**
 Working pressure by rules **160** Superheater or Steam chest; how connected to boiler **Y** Can the superheater be shut off and the boiler worked
 separately **Y** Diameter **Y** Length **Y** Thickness of shell plates **Y** Material **Y** Description of longitudinal joint **Y** Diam. of rivet
 holes **Y** Pitch of rivets **Y** Working pressure of shell by rules **Y** Diameter of flue **Y** Material of flue plates **Y** Thickness **Y**
 If stiffened with rings **Y** Distance between rings **Y** Working pressure by rules **Y** End plates: Thickness **Y** How stayed **Y**
 Working pressure of end plates **Y** Area of safety valves to superheater **Y** Are they fitted with easing gear **Y**

0410-6282M

DONKEY BOILER— Description *Cyl. multitubular*
 Made at *Stretton* By whom made *Wiley Bros* When made *4.10.92* Where fixed *etc. wheel*
 Working pressure *160* tested by hydraulic pressure to *320* No. of Certificate *524* Fire grate area *27 1/2* Description of safety valves *spring*
 No. of safety valves *2* Area of each *7.67* Pressure to which they are adjusted *160* If fitted with easing gear *28* If steam from main boilers can enter the donkey boiler *no* Diameter of donkey boiler *10.6* Length *10.0* Material of shell plates *S* Thickness *7/8*
 Description of riveting long. seams *d & s tubular* Diameter of rivet holes *1* Whether punched or drilled *d* Pitch of rivets *7 1/2*
 Lap of plating *13 1/2* Per centage of strength of joint Rivets *8 1/2* Plates *8 1/2* Thickness of shell crown plates *1 3/16* Radius of do. *1 1/2* of Stays to do. *15*
 Dia. of stays *2 1/2* Diameter of furnace Top *36* Bottom *—* Length of furnace *6.7* Thickness of furnace plates *3 1/2 + 1/16* Description of joint *d & s* Thickness of furnace crown plates *9/16* Stayed by *1 1/2 stays 8 x 7 1/2 pitch* Working pressure of shell by rules *165*
 Working pressure of furnace by rules *16* Diameter of tubes *3 1/2* Thickness of tube plates *13/16 + 5/8* Thickness of water tubes *—*

SPARE GEAR. State the articles supplied:— *Pair crank trusses, propeller, crank shaft, 2 top end bolts, 2 bottom end bolts, 2 main bearing bolts, set of coupling bolts, 1 Propeller shaft, feed & trip pump valves, springs and 7 bolts spare iron + usual outfit.*

For
R. & W. HAWTHORN, LESLIE & CO., LIMITED,

The foregoing is a correct description,

Manufacturer. *of Main Engine* *J. Marshall* **DIRECTOR**

General Remarks (State quality of workmanship, opinions as to class, &c.) *The machinery of this vessel has been constructed under special survey the materials & workmanship are sound and satisfactory and eligible in my opinion to be classed + LMC 12.92 in the Society's Register.*

It is submitted that this vessel is eligible for THE RECORD. + LMC 12-92

WA
 12.12.92

Certificate (if required) to be sent to *Newcastle office*

The amount of Entry Fee. . . £ 2 : 10 : 0 When applied for, *9 DEC 1892*
 Special £ 34 : 1 : 0
 Donkey Boiler Fee £ 2 : 0 : 0
 Travelling Expenses (if any) £ 0 : 0 : 0
 When received, *13/12/92*

John F. Waller
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping

Committee's Minute **TUES. 13 DEC 1892**

Signed

+ LMC 12, 92



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