

REPORT ON MACHINERY.

Port of **NEWCASTLE-ON-TYNE**

Received at London Office **NOV. 12 DEC 1892**

No. in Survey held at **Newcastle**
Reg. Book.

Date, first Survey **26 April** Last Survey **Dec 3rd 1892**

(Number of Vessels **30**)

on the

S.S. Great Northern

Tons { Gross **3022**
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 as fitted 11 $\frac{1}{4}$

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 **fire 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 **new** 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 under** 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 **7.07 $\frac{1}{2}$** 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 **3/8** Description of riveting: circum. seams **C. d 22** long. seams **run joint**

Diameter of rivet holes in long. seams **1/2 x 1/16** Pitch of rivets **9 $\frac{3}{16}$ & 6 $\frac{1}{8}$** Lap of plates or width of butt straps **24 $\frac{3}{8}$ & 16 $\frac{3}{8}$**

Per centages of strength of longitudinal joint rivets **106** Working pressure of shell by rules **163** Size of manhole in shell **end 16 x 12**
plate **83.6**

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 crown **9/32** Description of longitudinal joint **welded** No. of strengthening rings **1**
bottom

Working pressure of furnace by the rules **164** Combustion chamber plates: Material **S** Thickness: Sides **5/8** Back **5/8** Top **5/8** Bottom **3/4**

Pitch of stays to ditto: Sides **9 $\frac{1}{16}$** Back **as plan** Top **as plan** If stays are fitted with nuts or riveted heads **nuts** Working pressure by rules **160**

Material of stays **chd** Diameter at smallest part **1/5/8** Area supported by each stay **84** Working pressure by rules **169** End plates in steam space:

Material **chd** Thickness **1/32** Pitch of stays **as plan** How are stays secured **as 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 **3/4** Material of Lower back plate **S** Thickness **1/6** 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 **3/4** Back **3/4** 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**

Report Received 12/12/92 Sent to London 12/12/92

NW 829-0140



DONKEY BOILER— Description *Cyl. multitubular*
 Made at *Stockton* By whom made *Niley Bros* When made *4.10.92* Where fixed *at school*
 Working pressure *160* tested by hydraulic pressure to *320* No. of Certificate *524* Fire grate area *27 sq* 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 *Y* 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 *7/2*
 Lap of plating *13 1/2* Per centage of strength of joint Rivets *88.9* Plates *86* Thickness of shell crown plates *13/76* 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 *2 1/2 + 1/16* Description of joint *d & l* 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 braces, 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. *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 BOARD. + LMC 12-92
WA
12.12.92

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

The amount of Entry Fee... £ *2 : 10* When applied for, *9 DEC 1892*
 Special ... £ *24 : 1*
 Donkey Boiler Fee ... £ *—*
 Travelling Expenses (if any) £ *—* 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**
L.M.C. 12, 92

