

THUR 24 1896

REPORT ON MACHINERY.

Port of Newcastle on Tyne

Received at London Office

See 18 Feb 96

No. in Survey held at Newcastle
Reg. Book.

Date, first Survey 20 February 96

Last Survey Nov. 22 1896

(Number of Vents 34)

60 on the S. S. "Harrington"

Gross 3078.08
Net 3178.70

Master J. E. Elberg Built at Sunderland

By whom built Sunderland S. B. Co.

When built 1896

Engines made at Newcastle

By whom made Wigham Richardson & Co.

when made 1896

Boilers made at D.

By whom made D.

when made 1896

Registered Horse Power 600

Owners W. Lund

Port belonging to London

Nom. Horse Power as per Section 28 516

ENGINES, &c. Description of Engines Quadruple Expansion No. of Cylinders 4
Diameter of Cylinders 25 1/2 - 36 1/2 - 52 - 78 Length of Stroke 54 Revolutions per minute 65 Diameter of Screw shaft 13 3/4
Diameter of Tunnel shaft 13 Diameter of Crank shaft journals 14 1/2 Diameter of Crank pin 14 1/2 Size of Crank webs 9 1/2
Diameter of screw 18 - 6 Pitch of screw 21 - 0 No. of blades 4 State whether moveable Yes Total surface 92
No. of Feed pumps Duplex Diameter of ditto 8 Stroke 21 Can one be overhauled while the other is at work Yes
No. of Bilge pumps 2 Diameter of ditto 4 1/2 Stroke 28 Can one be overhauled while the other is at work Yes
No. of Donkey Engines Two Sizes of Pumps 4 1/2 x 10 5 - 10 2 x 10 5 No. and size of Suctions connected to both Bilge and Donkey pumps
In Engine Room Five 3 1/2 In Holds, &c. No 1 - 2 + 3 hold. Two 3 1/2
after hold one 3 1/2 tunnel well one 2 1/2
No. of bilge injections 1 sizes 6" Connected to condenser, or to circulating pump C.P. Is a separate donkey suction fitted in Engine room & size Yes 3 1/2
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 None
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 one main bilge pipe How are they protected Strong Wood Casings
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
When were stern tube, propeller, screw shaft, and all connections examined in dry dock while building Is the screw shaft tunnel watertight Yes
Is it fitted with a watertight door Yes worked from top platform

BOILERS, &c. (Letter for record S) Total Heating Surface of Boilers 6404
No. and Description of Boilers 3 Cylindrical Single End Working Pressure 200 Tested by hydraulic pressure to 400
Date of test 18-6-96 Can each boiler be worked separately Yes Area of fire grate in each boiler 55 No. and Description of safety valves to
each boiler Two Spring Area of each valve 9-6 Pressure to which they are adjusted 205 Are they fitted
with easing gear Yes Smallest distance between boilers or uptakes and bunkers or woodwork 4 feet Mean diameter of boilers 14-0 1/2
Length 12-0 Material of shell plates Steel Thickness 1 1/2 Description of riveting: circum. seams d lap long. seams d shape
Diameter of rivet holes in long. seams 1 1/2 Pitch of rivets 4 3/4 x 9 1/2 Lap of plates or width of butt straps 21 1/2
Per centages of strength of longitudinal joint 94 Working pressure of shell by rules 215 Size of manhole in shell 16 x 12
Size of compensating ring 7 1/2 x 1 1/2 No. and Description of Furnaces in each boiler 3 Morrison Material S Outside diameter 46 1/8
Length of plain part top 21 1/2 bottom 32 Thickness of plates crown 2 1/2 bottom 3 1/2 Description of longitudinal joint welded No. of strengthening rings ✓
Working pressure of furnace by the rules 232 Combustion chamber plates: Material Steel Thickness: Sides 5/8 Back 1 1/8 Top 5/8 Bottom 5/8
Pitch of stays to ditto: Sides 8 x 8 1/2 Back 9 x 8 1/2 Top 7 1/4 x 8 1/2 If stays are fitted with nuts or riveted heads Nuts Working pressure by rules 202
Material of stays Steel Diameter at smallest part 1-69 Area supported by each stay 77-6 Working pressure by rules 208 End plates in steam space:
Material Steel Thickness 1 1/8 Pitch of stays 16 1/2 x 14 How are stays secured by nuts Working pressure by rules 220 Material of stays Steel
Diameter at smallest part 5-55 Area supported by each stay 231 Working pressure by rules 216 Material of Front plates at bottom Steel
Thickness 7/8 Material of Lower back plate Steel Thickness 1 Greatest pitch of stays as per plan Working pressure of plate by rules app 4
Diameter of tubes 2 1/2 Pitch of tubes 33 1/4 Material of tube plates Steel Thickness: Front 7/8 Back 7/8 Mean pitch of stays 7 1/2
Pitch across wide water spaces 13 1/2 Working pressures by rules 204 Girders to Chamber tops: Material Steel Depth and
thickness of girder at centre 10 5/8 x 1 1/2 Length as per rule 34 1/2 Distance apart 8 1/2 Number and pitch of Stays in each 3 - 7 3/4
Working pressure by rules 224 Superheater or Steam chest; how connected to boiler ✓ 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 ✓
If 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 ✓

Auxiliary DONKEY BOILER— Description *Cylindrical, multibubular Single End.*
 Made at *Newcastle* By whom made *H. & R. M. & Co.* When made *10-6-96* Where fixed *Shakehole*
 Working pressure *200* tested by hydraulic pressure to *400* No. of Certificate *4849* Fire grate area *47* Description of safety valves *spring*
 No. of safety valves *2* Area of each *3.98* Pressure to which they are adjusted *205* If fitted with easing gear *yes* If steam from main boilers can enter the donkey boiler *yes* Diameter of donkey boiler *12. 3 5/8* Length *10. 6* Material of shell plates *Steel* Thickness *1 1/2*
 Description of riveting long. seams *d shape* Diameter of rivet holes *1 1/2* Whether punched or drilled *drilled* Pitch of rivets *9 5/8*
 Lap of plating *19 1/2* shape Per centage of strength of joint *86* Thickness of shell *end* plates *1 1/2* Radius of do. *Pitch* No. of Stays to do. *19 1/2 x 18 1/2*
 Dia. of stays. *8-48* Diameter of furnace Top *37* Bottom *✓* Length of furnace *✓* Thickness of furnace plates *1 1/2* Description of joint *Welded. Main* Thickness of *chamber* furnace *end* plates *1 1/2* Stayed by *as per plan* Working pressure of shell by rules *216*
 Working pressure of furnace by rules *204* Diameter of *tube* *uptake* *3 1/2* Thickness of *tube* *uptake* plates *7/8* Thickness of water tubes *✓*

SPARE GEAR. State the articles supplied:— *Two propeller blades, Air Pump bucket & rod, Air pump bucket & rod, One pair Crank pin brasses, Two top end, Two bottom end, Two main bearing & One set coupling bolts, piston springs, feed & bilge pump Valves, assorted bolts & nuts & a few bars of iron & other small*
 The foregoing is a correct description, of the Engines, Boilers (main) & spare gear }
Engineers Milward & Co. Manufacturers of the same

General Remarks (State quality of workmanship, opinions as to class, &c. *The photo. prints of main & donkey boilers are forwarded herewith.*)

Dates of Survey while building
 During progress of work in shops— *1896- Jan 29. Feb 6. Mar 16. Apr 10. 13. 17. 29. May 27. 31. 18. 21. 27. 28. June 2. 10. 17. 18. 29. July 6. 8. 13. 30. Aug 5. 7. 12. 17. 20. 31. 22*
 During erection on board vessel— *31. Sep 18*
 Total No. of visits *34*

The material & workmanship is good
The engine & safety Valves have been tested under steam
The vessel is fitted with the electric light & the boilers are worked with forced draught on Howden's system.
The Mach. has been built under special survey & is eligible in my opinion for classification & the word ⁺ I.M.C. 9-96

It is submitted that this vessel is eligible for
THE RECORD + I.M.C. 9-96. F.D. Elec. Light.

J.S.
24. 9. 96

Certificate (if required) to be sent to *Switzerland*
 The amount of Entry Fee. . . £ *3 : 0* : *0* When applied for, *8. 9. 18. 96*
 Special £ *45 : 16* : *0*
 Donkey Boiler Fee £ *2 : 2* : *0* When received, *3. Sept. 1896*
 Travelling Expenses (if any) £ *10. 2. 18. 1896*

John H. Heck.
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute

Assigned

WRITTEN. **FRI, SEP 25 1896**

+ I.M.C. 9-96 F.D.