

REPORT ON MACHINERY.

Port of West Hartlepool

FRIDAY 2 NOV 1894

Received at London Office

No. in Survey held at West Hartlepool

Date, first Survey 4th April Last Survey 29th Oct 1894

Reg. Book.

(Number of Visits 54)

on the Steamer "Sundall"

Master J. Harrison Built at A. A. Pool By whom built J. Furness & Co

Tons { Gross 2389.6
Net 1534.4

Engines made at A. A. Pool By whom made J. Richardson & Sons Ltd when made 1894

Boilers made at do By whom made do when made 1894

Registered Horse Power 220 Owners Stephen W. Furness Port belonging to A. Hartlepool

Nom. Horse Power as per Section 28 220

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

Diameter of Cylinders 22.35.59 Length of Stroke 39 Revolutions per minute 59 Diameter of Screw shaft as per rule 10.38
 Diameter of Tunnel shaft as per rule 9.86 Diameter of Crank shaft journals 10 3/8 Diameter of Crank pin 10 3/4 Size of Crank webs 7 1/2 x 16 1/2
 Diameter of screw 15.6 Pitch of screw 16.0 No. of blades 4 State whether moveable no Total surface 64.5

No. of Feed pumps 2 Diameter of ditto 2 3/4 Stroke 23 Can one be overhauled while the other is at work yes

No. of Bilge pumps 2 Diameter of ditto 3 3/4 Stroke 23 Can one be overhauled while the other is at work yes

No. of Donkey Engines 2 Sizes of Pumps 3 1/2 x 7, 8 1/2 x 7 No. and size of Suctions connected to both Bilge and Donkey pumps

In Engine Room 2 - 2 3/4 x 2 - 3 In Holds, &c. Two peak one 2 1/2. No. 1 & 2 wells forward one in each well at centre 3 1/2. No. 3 & 4 wells aft; one each 3 1/2. Tunnel & aft peak each 2 1/2. size 3"

No. of bilge injections 1 sizes 6" Connected to condenser, or to circulating pump Pump Is a separate donkey suction fitted in Engine room & size yes 3"

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 Below

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 none How are they protected -

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 New Ship Is the screw shaft tunnel watertight yes

Is it fitted with a watertight door yes worked from Upper platform

BOILERS, &c. — (Letter for record (S.)) Total Heating Surface of Boilers 3357 sq

No. and Description of Boilers Cylindrical Simple ended Working Pressure 160 Tested by hydraulic pressure to 320

Date of test 21.7.94 Can each boiler be worked separately yes Area of fire grate in each boiler 44.5 No. and Description of safety valves to each boiler 2 Spring

Area of each valve 4.07 Pressure to which they are adjusted 165 lbs Are they fitted with easing gear yes Smallest distance between boilers or uptakes and bunkers or woodwork 9" Mean diameter of boilers 13.9"

Length 9.9 Material of shell plates Steel Thickness 1 1/8 Description of riveting: circum. seams Lap double long. seams B.P. Sells

Diameter of rivet holes in long. seams 1 1/4 Pitch of rivets 7 3/8 Lap of plates or width of butt straps 19 1/2"

Per centages of strength of longitudinal joint rivets 85.6 plate 85.5 Working pressure of shell by rules 165 Size of manhole in ends 16 x 12

Size of compensating ring - No. and Description of Furnaces in each boiler 3 Morrison Material Steel Outside diameter 3.6"

Length of plain part top 6.0 bottom 6.3 Thickness of plates crown 1 1/2 bottom 1 1/2 Description of longitudinal joint Welded No. of strengthening rings -

Working pressure of furnace by the rules 199 Combustion chamber plates: Material Steel Thickness: Sides 5/8 Back 19/32 Top 5/8 Bottom 13/16

Pitch of stays to ditto: Sides 8" Back 8 3/8" Top 8 3/4" If stays are fitted with nuts or riveted heads nuts Working pressure by rules 168

Material of stays Steel Diameter at smallest part 1 3/8 Area supported by each stay 710 Working pressure by rules 166 End plates in steam space: Material Steel Thickness 1 1/8 Pitch of stays 18 1/4 x 16 1/2 How are stays secured By 3 nuts Working pressure by rules 160.5 Material of stays Steel

Diameter at smallest part 2 5/8 Area supported by each stay 301 Working pressure by rules 161 Material of Front plates at bottom Steel

Thickness 13/16 Material of Lower back plate Steel Thickness 7/8 Greatest pitch of stays 12 1/2" Working pressure of plate by rules 169

Diameter of tubes 3 1/4 Pitch of tubes 4 1/2" Material of tube plates Steel Thickness: Front 31/32 Back 3/4 Mean pitch of stays 9"

Pitch across wide water spaces 14 1/4" Working pressures by rules 165 Girders to Chamber tops: Material Steel Depth and thickness of girder at centre 7 1/2 x 1 3/4 Length as per rule 2.4 Distance apart 8 3/4" Number and pitch of Stays in each 2-pitch 8"

Working pressure by rules 199 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 -

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 - Area of safety valves with easing gear -

DONKEY BOILER— Description *Vertical with six crop tubes*
 Made at *Stockton* By whom made *J. Hudson & Co L^{rs}* When made *1894* Where fixed *St. Richard*
 Working pressure *80* tested by hydraulic pressure to *160* No. of Certificate *853* Fire grate area *234* Description of safety valves *Spring*
 No. of safety valves *2* Area of each *5.94* Pressure to which they are adjusted *80 lb* If fitted with easing gear *yes* If steam from main boilers can enter the donkey boiler *no* Diameter of donkey boiler *4.0"* Length *14.0* Material of shell plates *Steel* Thickness *15"*
 Description of riveting long seams *Lap double* Diameter of rivet holes *13/16"* Whether punched or drilled *Punched* Pitch of rivets *2 3/4"*
 Lap of plating *4 1/4"* Per centage of strength of joint Plates *68.5* Thickness of shell crown plates *9/16"* Radius of do. *5.9"* No. of stays to do. *7*
 Dia. of stays *1 3/4"* Diameter of furnace Top *5.3"* Bottom *6.4 1/2"* Length of furnace *6.0"* Thickness of furnace plates *32* Description of joint *Lap Single* Thickness of furnace crown plates *5/8"* Stayed by *Same as shell* Working pressure of shell by rules *83 lb*
 Working pressure of furnace by rules *82 lb* Diameter of uptake *15"* Thickness of uptake plates *7/16"* Thickness of water tubes *3/8"*

SPARE GEAR. State the articles supplied:— *Propeller, 2 main bearing bolts & nuts, 2 top end bolts & nuts, 2 bottom end bolts & nuts, 1 set of shaft coupling bolts & nuts, 1 set of feed valves, 1 set of valve valves, piston springs, nuts, bolts, & iron assorted.*

The foregoing is a correct description,
 For **THOMAS RICHARDSON & SONS, LIMITED** Manufacturer.

General Remarks (State quality of workmanship, opinions as to class, &c.) *The machinery has been specially surveyed during construction the material and workmanship good and renders the vessel eligible in our opinion to have the Record L.M.C. 10-94 in the Register Book of the Society.*

It is submitted that this vessel is eligible for THE RECORD + L.M.C 10-94

R.A.
2-11-94

[Large handwritten signature]

MACHINERY CERTIFICATE WRITTEN.

Certificate (if required) to be sent to

The amount of Entry Fee..	£	2:	When applied for,	30-10-94
Special	£	31:	When received,	31-10-94
Donkey Boiler Fee	£	:		
Travelling Expenses (if any)	£	:		

Richard Sims & J. S. Blackie
 Engineer Surveyors to Lloyd's Register of British & Foreign Shipping.

TUES. 6 NOV 1894

+ L.M.C 10-94

Committee's Minute
 Assented

