

REPORT ON MACHINERY.

79

Port of *West Hartlepool*

Received at London Office **2 JUNE 1890**

Held at *Hartlepool & Middlesbrough* Date, first Survey *26th Dec 1889* Last Survey *16th April 1890*

(Number of Visits *20*) *2392*

on the *Screw Steamer "Ruskin"* Tons *1552*

Master *James R. Dixon & Co* Built at *Middlesbrough* By whom built *Messrs. R. Dixon & Co* When built *1890*

Engines made at *Hartlepool* By whom made *Messrs. J. Richardson & Sons* when made *1890*

Boilers made at *Hartlepool* By whom made *Messrs. J. Richardson & Sons* when made *1890*

Registered Horse Power *225* Owners *A. Holland & Co* Port belonging to *London*

ENGINES, &c.—

Description of Engines *Inverted, Triple Expansion, 3 Cylinders & 3 Cranks*
 Diameter of Cylinders *22, 35, 59* Length of Stroke *39* No. of Rev. per minute *65* Point of Cut off, High Pressure *5 strokes* Low Pressure *6 strokes*
 Diameter of Screw shaft *10 1/8* Diam. of Tunnel shaft *10 1/2* Diam. of Crank shaft journals *10 1/8* Diam. of Crank pin *10 1/2* size of Crank webs *16 1/4 x 7 1/4*
 Diameter of screw *16.0* Pitch of screw *15.3* No. of blades *4* state whether moveable *no* total surface *7009 sq. ft*
 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*
 Where do they pump from *For? hold, engine-room, After well, sea, & ballast tanks.*
 No. of Donkey Engines *2* Size of Pumps *(8 1/2 x 7) (3 1/2 x 5)* Where do they pump from *(Ballast tanks, sea, & all bilges) (Sea, tanks, main boilers, hotwell, & all bilges.)*
 Are all the bilge suction pipes fitted with roses *yes* Are the roses always accessible *yes* Are the sluices on Engine room bulkheads always accessible *yes*
 No. of bilge injections *one* and sizes *4 1/2* Are they connected to condenser, or to circulating pump *Circulating pump.*
 How are the pumps worked *By levers from the after piston rod crosshead.*
 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
 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 accessible at all times *yes*
 Are the pipes, cocks, and valves arranged so as to prevent an unintentional connection between the sea and the bilges *yes*
 When were stern tube, propeller, screw shaft, and all connections examined in dry dock *Before launching.*
 Is the screw shaft tunnel watertight *yes* and fitted with a sluice door *yes* worked from *Top platform in Engine Room.*

BOILERS, &c.—

Number of Boilers *Two* Description *Cyl. Mult. Single Ended* Whether Steel or Iron *Steel.*
 Working Pressure *160 lbs.* Tested by hydraulic pressure to *320 lbs.* Date of test *3rd April 1890*
 Description of superheating apparatus or steam chest *none* Heating surface *3592 sq. ft*
 Can each boiler be worked separately *yes* Can the superheater be shut off and the boiler worked separately *no super heater*
 No. of square feet of fire grate surface in each boiler *51* Description of safety valves *Spring* No. to each boiler *2*
 Area of each valve *5.94* Are they fitted with easing gear *yes* No. of safety valves to superheater *—* area of each valve *—*
 Are they fitted with easing gear *—* Smallest distance between boilers and bunkers or ~~woodwork~~ *30* Diameter of boilers *14.0*
 Length of boilers *9.6* description of riveting of shell long. seams *double butt strap* circum. seams *double riv lap* Thickness of shell plates *1 1/32*
 Diameter of rivet holes *1 1/32* whether punched or drilled *drilled* pitch of rivets *1 1/2 in 8 in 6, 2 in 4 in 2 in 4 in 2 in 4 in* Lap of plating *9 3/4*
 Per centage of strength of longitudinal joint *84.88* working pressure of shell by rules *160 lbs.* size of manholes in shell *—*
 Size of compensating rings *—* No. of Furnaces in each boiler *3*
 Outside diameter *3.28* length, top *5.9* bottom *6.4* thickness of plates *9/16* description of joint *welded* if rings are fitted *no*
 Greatest length between rings *—* working pressure of furnace by the rules *183 lbs.* combustion chamber plating, thickness, sides *5/8* back *5/8* top *5/8*
 Pitch of stays to ditto, sides *8 5/8 x 8 1/2* back *8 5/8 x 8 1/2* top *8 1/4 x 8* If stays are fitted with nuts or riveted heads *nuts* working pressure of plating by rules *161 lbs.* Diameter of stays at smallest part *1 3/8* working pressure of ditto by rules *161 lbs.* end plates in steam space, thickness *1 1/4*
 Pitch of stays to ditto *18 1/4 x 16 1/4* how stays are secured *double nuts & washers* working pressure by rules *168 lbs.* diameter of stays at smallest part *2 5/8* working pressure by rules *164 lbs.* Front plates at bottom, thickness *13/16* Back plates, thickness *7/8*
 Greatest pitch of stays *12* working pressure by rules *163 lbs.* Diameter of tubes *3 1/4* pitch of tubes *4 1/2 x 4 3/8* thickness of tube plates, front *1* back *13/16* how stayed *stay the* pitch of stays *13 1/2 x 8 1/4* width of water spaces *1 1/4*
 Diameter of Superheater or Steam chest *—* length *—* thickness of plates *—* description of longitudinal joint *—* diameter of rivet holes *—*
 Pitch of rivets *—* working pressure of shell by rules *—* diameter of flue *—* thickness of plates *—* If stiffened with rings *—*
 Distance between rings *—* working pressure by rules *—* end plates of superheater, or steam chest; thickness *—* how stayed *—*
 Superheater or steam chest; how connected to boiler *—*

Steel

DONKEY BOILER—

Description Single ended, by 10" Multitubular with 2 deficiencies? *Yes*

Made at *Stockton* by whom made *Riley Bros.* when made *14.4.90* where fixed *2* times, butt straps, or plate

Working pressure *80 lbs* tested by hydraulic pressure to *160 lbs* No. of Certificate *1032* fire grate area *204 sq. feet* plate and punched

valves *Spring*. No. of safety valves *2* area of each *4.0 sq. in.* fitted with easing gear *Yes* if steam from main

enter the donkey boiler *No* diameter of donkey boiler *8' 6"* length *8' 0"* description of riveting *Lap* *Double* *materials*

Thickness of shell plates *9/16"* diameter of rivet holes *15/16"* whether punched or drilled *Hand* pitch of rivets *3"* lap of plating *5"*

per centage of strength of joint *68.4* thickness of *steam space* plates *5/8"* stayed by *1 1/8" sq. iron stays* pitch *13 1/2" x 13"*

Diameter of furnace, top *24 1/4"* bottom *15 1/2"* length of furnace *4' 0"* thickness of plates *1/16"* description of joint *Lap* *single*

Thickness of *combustion* crown plates *15/32"* stayed by *1 1/8" sq. stays* *Scientific* *stayed* pitch *8" x 8"* working pressure of shell by rules *81 lbs*

Working pressure of furnace by rules *83 lbs* diameter of uptake *6.5"* thickness of plates *1/2"* thickness of *back* tubes *9/16"*

SPARE GEAR. State the articles supplied:— *One propeller, one screw shaft, one set of connecting rod bolts, One set of main bearing bolts, 1 set coupling bolts, 2 cross head bolts, 1 set feed & bilge pump valves, 1 set piston springs, Bolts & nuts assorted. Bar iron assorted sizes.*

The foregoing is a correct description,

Manufacturer.

Wm. Richardson of Engines & main boilers.

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

Main steam pipes tested by hydraulic pressure to *320 lbs* per square inch and found tight.

The engines and main boilers of this vessel have been constructed under Special Survey and of a good quality of workmanship they have been tried under steam and found to work well and will, in my opinion, be eligible to have *L.M.C. 4.90* recorded in the Register of this Society when the following work has been executed to the satisfaction of a Surveyor of this Society.

Bilge suction pipes in forward hold and after well to be connected to the engine pumps. Shuce valves in stockhold to be made accessible at all times. Screw tunnel to be fitted with a shuce door and made water-tight.

Donkey boiler to be examined under steam. Spare gear to be supplied in accordance with the Rules. The vessel has been taken to *Huddlesbro.* for completion.

Tracing of main boilers appended.

The above mentioned work has now been satisfactorily completed.

Wm. Richardson

30th May 1890

It is submitted that
this vessel is eligible
to have *L.M.C. 4.90*
recorded.

The amount of Entry Fee .. £ *2* : *0* : *0* received by me,

Special .. £ *31* : *8* : *0*

Donkey Boiler Fee .. £ : :

Certificate, (if required) .. £ : : *31.5 1890*

To be sent as per margin.

(Travelling Expenses, if any, £)

Committee's Minute *TUES 3 JUNE 1890*

+ Lmb 4/90

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



Lloyd's Register
Foundation