

REPORT ON MACHINERY.

THURS 28 APRIL 1887

No. 6398

Received at London Office

No. in Survey held at *Hartlepool & Stockton* Date, first Survey *29th Oct 1886* Last Survey *21 April 1887*
 Reg. Book. *"* (Number of Visits *29*) *2126.8*
 ✓ on the *Iron Steamer "Manitoba"* Tons *1386.3*
 Master *Howesgoe* Built at *Hartlepool* By whom built *P. Witney & Co* When built *1887*
 Engines made at *Stockton* By whom made *Blair & Co Limited* when made *1887*
 Boilers made at *Stockton* By whom made *Blair & Co Limited* when made *1887*
 Registered Horse Power *200* Owners *H. Bucknall & Sons* Port belonging to *London*
 Manufacture " *160*

ENGINES, &c.—

Description of Engines *Inverted, Triple Expansion, 3 Cylinders & 3 Cranks.*
 Diameter of Cylinders *21, 35, 57* Length of Stroke *39* No. of Rev. per minute *63* Point of Cut off, High Pressure *1/2 stroke* Low Pressure *1/2 stroke*
 Diameter of Screw shaft *11 3/4* Diam. of Tunnel shaft *11* Diam. of Crank shaft journals *11 1/2* Diam. of Crank pin *12* size of Crank webs *16 1/2 x 7 3/8*
 Diameter of screw *15.0* Pitch of screw *16.0* No. of blades *4* state whether moveable *no* total surface *61 sq. ft.*
 No. of Feed pumps *2* diameter of ditto *2 3/4* Stroke *28* Can one be overhauled while the other is at work *yes.*
 No. of Bilge pumps *2* diameter of ditto *4* Stroke *28* Can one be overhauled while the other is at work *yes.*
 Where do they pump from *Engine room and after well.*
 No. of Donkey Engines *2* Size of Pumps *(7 1/2 x 9) (4 x 8)* Where do they pump from *(Ballast tanks, sea, & all bilges) (Sea, hotwell, & boiler & tanks)*
 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 *6 dia* 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 *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 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 *18th April 1887*
 Is the screw shaft tunnel watertight *yes* and fitted with a sluice door *yes* worked from *Pl. platform of Engine room*

BOILERS, &c.—

Number of Boilers *One* Description *Cyl. mult. Double ended* Whether Steel or Iron *Steel*
 Working Pressure *160 lbs.* Tested by hydraulic pressure to *320 lbs.* Date of test *3rd February 1887*
 Description of superheating apparatus or steam chest *none*
 Can each boiler be worked separately *—* Can the superheater be shut off and the boiler worked separately *no Superheater*
 No. of square feet of fire grate surface in each boiler *65* Description of safety valves *Spring* No. to each boiler *2*
 Area of each valve *7.06* 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 *18* Diameter of boilers *13' 3 3/4*
 Length of boilers *15.11* description of riveting of shell long. seams *double in butt* circum. seams *double in lap* Thickness of shell plates *1 3/16*
 Diameter of rivet holes *1 3/16* whether punched or drilled *drilled* pitch of rivets *100 8, 200 4* Lap of plating *8 5/8*
 Per centage of strength of longitudinal joint *85.1* working pressure of shell by rules *164 lbs.* size of manholes in shell *16 x 12*
 Size of compensating rings *28" x 24" x 1 3/16* No. of Furnaces in each boiler *4*
 Outside diameter *3.10* length, top *5.9* bottom *5.9* thickness of plates *19/32* description of joint *welded* if rings are fitted *no*
 Greatest length between rings *—* working pressure of furnace by the rules *160 lbs.* combustion chamber plating, thickness, sides *9/16* back *—* top *9/16*
 Pitch of stays to ditto, sides *7/2 x 7/2* back *—* top *7/4 x 7/2* 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 5/16* working pressure of ditto by rules *185 lbs.* end plates in steam space, thickness *1 3/16*
 Pitch of stays to ditto *17/4 x 17* how stays are secured *double nuts* working pressure by rules *169 lbs.* diameter of stays at smallest part *2 5/8* working pressure by rules *165 lbs.* Front plates at bottom, thickness *1* Back plates, thickness *—*
 Greatest pitch of stays *—* working pressure by rules *—* Diameter of tubes *3/4* pitch of tubes *4 5/8 x 4 1/2* thickness of tube plates, front *1* back *7/8* how stayed *stay tubes* pitch of stays *9 1/4 x 9* width of water spaces *1 1/4*
 Diameter of Superheater or Steam chest *—* length *—* thickness of plates *—* description of longitudinal joint *—* diam. 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 *—*

STK 914-0069 1/2

Lloyd's Register Foundation

DONKEY BOILER— Description *Coxes patent, four cross tubes*
 Made at *Gateshead* by whom made *Clarke Chapman & Co.* when made *10.1.87* where fixed *in stokehole*
 Working pressure *80 lbs.* tested by hydraulic pressure to *160 lbs.* No. of Certificate *2196* fire grate area *23 sq. ft.* description of safety valves *Spring*
 No. of safety valves *as* area of each *11.04* if fitted with easing gear *40* if steam from main boilers can enter the donkey boiler *no* diameter of donkey boiler *6.3* length *12.6* description of riveting *lap double*
 Thickness of shell plates *1/16* diameter of rivet holes *7/8* whether punched or drilled *punched* pitch of rivets *3 3/16* lap of plating *1 1/4*
 per centage of strength of joint *70* thickness of crown plates *3/8* stayed by *6 stays 1 1/8 dia x uptake*
 Diameter of furnace, top *5.14* bottom *5.4* length of furnace — thickness of plates *1/2 x 9/16* description of joint *lap single*
 Thickness of furnace crown plates *9/16* stayed by *as above* working pressure of shell by rules *87 lbs*
 Working pressure of furnace by rules *100 lbs* diameter of uptake *12* thickness of plates *1/16* thickness of water tubes *1/16*
as reported by Richard First.

SPARE GEAR. State the articles supplied:— *1 set of connecting rod bolts & nuts, 1 set of main bearing bolts & nuts, 1 set of coupling bolts, 1 set of feed & bilge pump valves, 1 set of springs for L.P. piston, 100 bolts & nuts ass? Iron ass?, 1 screw shaft, 1 crank shaft, 1 Propeller.*

The foregoing is a correct description,
A. Gray Manufacturer of Engines & Steam Boilers.

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

The machinery and boilers of this vessel have been constructed under Special Survey, and are of a good quality of workmanship throughout, they have been tried under steam and found to work well and are now in safe and efficient working condition and eligible, in my opinion, to have L.M.C. 4.87 recorded in the Register of this Society

The amount of Entry Fee .. £ 2 : 0 : 0 received by me.
 Special £ 30 : 0 : 0
 Donkey Boiler Fee £ : : :
 Certificate (if required) .. £ : : : 27.4.1887
 To be sent as per margin.

(Travelling Expenses, if any, £)

Committee's Minute

FRIDAY 20 APRIL 1887

L.M.C.

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



No. _____
 No. in Reg. Book _____
 Master _____
 Engines m _____
 Boilers m _____
 Register _____
 ENGIN _____

DONKEY BOILER—

Description *Cylindrical, three cross tubes.*

Made at *Gateshead* by whom made *Clarke, Chapman & Co.* when made *1.4.88* where fixed *In stockhole, Port.*

Working pressure *80 lbs.* tested by hydraulic pressure to *160 lbs.* No. of Certificate *2240* fire grate area *14 sq. ft.* description of safety

valves *spring* No. of safety valves *one* area of each *7.07* if fitted with easing gear *yes* if steam from main boilers can

enter the donkey boiler *no* diameter of donkey boiler *5.3* length *11.6* description of riveting *Lap double*

Thickness of shell plates *3/8"* diameter of rivet holes *3/4"* whether punched or drilled *Punched* ^{*drilled*} pitch of rivets *2 3/4"* lap of plating *3 7/8"*

per centage of strength of joint *72* thickness of crown plates *1/2"* stayed by *5 stays* *1/4" eff.* *Steel*

Diameter of furnace, top *3.11 1/4"* bottom *4.5 3/8"* length of furnace *5.3* thickness of plates *1/32"* description of joint *Lap single*

Thickness of furnace crown plates *1/2"* stayed by *as above* working pressure of shell by rules *85 lbs.*

Working pressure of furnace by rules *85 lbs.* diameter of uptake *14" diam* thickness of plates *3/8"* thickness of water tubes *3/8" diam*

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as reported by *Richard Hirst.*

bearing bolts & nuts, 1 set of coupling bolts, 1 set of lead & filer