

# REPORT ON MACHINERY.

No. *6542*  
 No. in Survey held at *Stockton & Newcastle* Date, first Survey *26<sup>th</sup> Jan<sup>y</sup>* Last Survey *3<sup>rd</sup> Sept 1887*  
 Reg. Book. *on the* *Iron Steamer "Gipshire"* (Number of Vessels *18*) Tons *2425*  
 Master *Wm. Mullar* Built at *Newcastle* By whom built *James Swan & Hunter* When built *1887*  
 Engines made at *Stockton* By whom made *Messrs Blair & Co. Ltd.* when made *1887*  
 Boilers made at *Stockton* By whom made *Messrs Blair & Co. Ltd.* when made *1887*  
 Registered Horse Power *400* Owners *Turnbull, Martin & Co* Port belonging to *Glasgow*  
*320*

## ENGINES, &c.—

Description of Engines *Triple Expansion, 3 Cylinders & 3 Cranks.*  
 Diameter of Cylinders *27" 44" 71"* Length of Stroke *48"* No. of Rev. per minute *60* Point of Cut off, High Pressure *1/2 stroke* Low Pressure *3/4 stroke*  
 Diameter of Screw shaft *14 1/4"* Diam. of Tunnel shaft *13 1/2"* Diam. of Crank shaft journals *14"* Diam. of Crank pin *14 1/2"* size of Crank webs *23 1/2" x 9 3/4"*  
 Diameter of screw *18.0"* Pitch of screw *20.0"* No. of blades *4* state whether moveable *yes* total surface *83 sq. ft.*  
 No. of Feed pumps *2* diameter of ditto *3 1/2"* Stroke *34"* Can one be overhauled while the other is at work *yes*  
 No. of Bilge pumps *2* diameter of ditto *5"* Stroke *34"* Can one be overhauled while the other is at work *yes*  
 Where do they pump from *1st & main holds, After well, Engine room, ballast tanks & sea.*  
 No. of Donkey Engines *2* Size of Pumps *(9x10") (5x8")* Where do they pump from *(Ballast tanks, all bilges & sea)* *(All tanks, sea, hotwell & 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 *7/8"* 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 *Valves & Cocks*  
 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 *bilge suction to 1st holds* How are they protected *By wood casing.*  
 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 *Porton dock 21.9.87*  
 Is the screw shaft tunnel watertight *✓* and fitted with a sluice door *yes* worked from *upper platform*

## BOILERS, &c.—

Number of Boilers *Three* Description *Cyl. mult. Double Ended* Whether Steel or Iron *Steel.*  
 Working Pressure *160 lbs.* Tested by hydraulic pressure to *320 lbs.* Date of test *29<sup>th</sup> August 1887.*  
 Description of superheating apparatus or steam chest *none*  
 Can each boiler be worked separately *yes* Can the superheater be shut off and the boiler worked separately *no Superheater.*  
 No. of square feet of fire grate surface in each boiler *54 sq. ft.* Description of safety valves *Spring* No. to each boiler *2*  
 Area of each valve *8.29* 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~~ *12"* Diameter of boilers *11.9 1/8"*  
 Length of boilers *15.6"* description of riveting of shell long. seams *double butt strap* circum. seams *double is. lap* Thickness of shell plates *1 1/16"*  
 Diameter of rivet holes *1 1/16"* whether punched or drilled *drilled* pitch of rivets *1 row 7" 2 rows 3 1/2"* Lap of plating *1 5/8"*  
 Per centage of strength of longitudinal joint *84.8* working pressure of shell by rules *165 lbs.* size of manholes in shell *16" x 12"*  
 Size of compensating rings *28" x 24" x 1 1/16"* No. of Furnaces in each boiler *4*  
 Outside diameter *3.2"* length, top *5.8"* bottom *5.8"* thickness of plates *7/32"* description of joint *welded* if rings are fitted *no*  
 Greatest length between rings *—* working pressure of furnace by the rules *171 lbs.* combustion chamber plating, thickness, sides *9/16"* back *—* top *9/16"*  
 Pitch of stays to ditto, sides *7 1/2" x 7 1/4"* back *—* top *7 1/2" x 7 1/4"* If stays are fitted with nuts or riveted heads *nuts* working pressure of plating by rules *172 lbs.* Diameter of stays at smallest part *1 5/16"* working pressure of ditto by rules *198 lbs.* end plates in steam space, thickness *1 1/16"*  
 Pitch of stays to ditto *15 3/4" x 15 1/2"* how stays are secured *double nuts & washers* working pressure by rules *163 lbs.* diameter of stays at smallest part *2 1/2"* working pressure by rules *181 lbs.* Front plates at bottom, thickness *1"* Back plates, thickness *—*  
 Greatest pitch of stays *—* working pressure by rules *—* Diameter of tubes *3"* pitch of tubes *4 3/8" x 4 1/4"* thickness of tube plates, front *1"* back *13/16"* how stayed *stay tube* pitch of stays *8 3/4" x 8 1/2"* 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 *—*  
 No. 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 *—*

NW 6798-0123



# DONKEY BOILER—

Description *Cylindrical, multitubular, 2 furnaces x 2 combustion chambers*  
 Made at *Stoke Newington* by whom made *Messrs. Riley Bros.* when made *22.8.87* where fixed *On deck*  
 Working pressure *100 lbs.* tested by hydraulic pressure to *200 lbs.* No. of Certificate *1457* fire grate area *20 sq. ft.* description of safety valves *Spring*  
 enter the donkey boiler *no* No. of safety valves *two* area of each *5.4* if fitted with easing gear *yes* if steam from main boilers can  
 diameter of donkey boiler *8.0* length *8.0* description of riveting *double riv. butt*  
 Thickness of shell plates *9/16* diameter of rivet holes *13/16* whether punched or drilled *drilled* pitch of rivets *2 1/16* lap of plating *4*  
 per centage of strength of joint *76* thickness of crown plates *7/16* stayed by *3 stays 1 1/4" dia.*  
 Diameter of furnace, top *2.3* length *4.0* thickness of plates *1/2"* description of joint *single riv. butt*  
 Thickness of furnace crown plates *9/16* stayed by *riders 9/16" pitch*  
 Working pressure of furnace by rules *115 lbs.* diameter of uptake *—* thickness of plates *—* working pressure of shell by rules *102 lbs.*

## SPARE GEAR.

State the articles supplied:— *Two propeller blades, One crank shaft, One screw, One air-pump bucket, head valve, & foot valve. One set of connecting rod bolts, One set of coupling bolts.*

The foregoing is a correct description,

*R. Blair & Co. Ltd.*  
*11, Moir Street, Glasgow.*

Manufacturer. of Engines & main 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 of a good quality of workmanship, the machinery and main boilers have been tried under steam and found to work well and the vessel in my opinion, is eligible to have the notification *L.M.C. 9.8* recorded in the Register Book when the following work has been executed to the satisfaction of a Surveyor of this Society.  
 (Main pipes and easing gear of the main boiler safety valves to be fitted. Two lengths of donkey engine air large piping, to deck, and the steam piping from main boilers to the refrigerating engines, to be fitted. Sea connections at forward and after ends of stokehole to be made accessible. Chocks, securing the main boilers in a fore and aft direction, to be fitted. Twice door of screw tunnel to be fitted. Mountings of the donkey boiler to be fitted and tested under steam. Two main bearing bolts, One set of feed and bilge pump valves, One set of piston springs, Bolts and nuts and iron of various sizes to be supplied. The vessel has proceeded to Newcastle for completion.

The above mentioned fittings have been satisfactorily completed, Spare gear supplied, donkey boiler safety valves adjusted under steam and set to working pressure.

*Richard Hirst*

The amount of Entry Fee .. £ 3 : 0 : 0 *received by me,*

Special .. £ 40 : 0 : 0

Donkey Boiler Fee .. £ — : — : —

Certificate (if required) .. £ *gratis* — : — : —

To be sent as per margin.

(Travelling Expenses, if any, £)

Committee's Minute

TUESDAY 4 OCT 1887

*+ L M C*

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