

# REPORT ON MACHINERY.

No. 3245

THURS 9 SEPT 1886

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No. in Survey held at *Glasgow & Belfast* Date, first Survey *22<sup>nd</sup> Decr 1885* Last Survey *7<sup>th</sup> Sept 1886*  
 Reg. Book. (Number of Visits *44*) *654.53*  
 Tons *423.28*

on the *Screw Steamer "Ethelbald"*  
 Master *S. Smith* Built at *Belfast* By whom built *Worthman & Clark* When built *1886*  
 Engines made at *Glasgow* By whom made *Houlson & Corbett* when made *1886*  
 Boilers made at *"* By whom made *"* when made *1886*  
 Registered Horse Power *95* Owners *Colvils London & Co* Port belonging to *Glasgow*

## ENGINES, &c.—

Description of Engines *Triple Expansion*  
 Diameter of Cylinders *15" 24" 40"* Length of Stroke *33"* No. of Rev. per minute *80* Point of Cut off, High Pressure *1/16"* Low Pressure *9/16"*  
 Diameter of Screw shaft *8 1/2"* Diam. of Tunnel shaft *7 1/2"* Diam. of Crank shaft journals *8 5/16"* Diam. of Crank pin *8 5/16"* size of Crank webs *52" x 9 1/2"*  
 Diameter of screw *10" 8"* Pitch of screw *13 1/2"* No. of blades *4* state whether moveable *Yes* total surface *32.5*  
 No. of Feed pumps *One* diameter of ditto *2 3/4"* Stroke *18"* Can one be overhauled while the other is at work *—*  
 No. of Bilge pumps *One* diameter of ditto *2 3/4"* Stroke *18"* Can one be overhauled while the other is at work *—*  
 Where do they pump from *All Compartments*  
 No. of Donkey Engines *One* Size of Pumps *8 x 4 x 10"* Where do they pump from *Sinks, Sea, Bilges & Holdalls*

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 *13"* Are they connected to condenser, or to circulating pump *& Circulating*  
 How are the pumps worked *By Levers*  
 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 *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 *Upper platform*

## BOILERS, &c.—

Number of Boilers *One* Description *Round Horizontal* Whether Steel or Iron *Steel*  
 Working Pressure *150 lbs* Tested by hydraulic pressure to *310 lbs* Date of test *4<sup>th</sup> August 1886*  
 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. of square feet of fire grate surface in each boiler *450* Description of safety valves *Direct Spring* No. to each boiler *Two*  
 Area of each valve *4"* 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 *10"* Diameter of boilers *12' 3"*  
 Length of boilers *9' 9"* description of riveting of shell long. seams *Double riveted* circum. seams *Double riveted* Thickness of shell plates *1 1/2"*  
 Diameter of rivet holes *1 3/16"* whether punched or drilled *Fitted* pitch of rivets *6 3/4" x 3 3/8"* Lap of plating *19" x 3/16" Staps*  
 Per centage of strength of longitudinal joint *82* working pressure of shell by rules *156 lbs* size of manholes in shell *16" x 12"*  
 Size of compensating rings *Double piece* No. of Furnaces in each boiler *Three*  
 Outside diameter *3 1/2"* length, top *6' 9"* bottom *9 1/2"* thickness of plates *8 1/16"* description of joint *Corrugated* if rings are fitted *—*  
 Greatest length between rings *—* working pressure of furnace by the rules *166 lbs* combustion chamber plating, thickness, sides *8 1/16"* back *8 1/16"* top *8 1/16"*  
 Pitch of stays to ditto, sides *4" x 4"* back *4" x 4"* top *4" x 4"* If stays are fitted with nuts or riveted heads *Nuts* working pressure of plating by rules *10 3/16 lbs*  
 Diameter of stays at smallest part *1 3/8"* working pressure of ditto by rules *190 lbs* end plates in steam space, thickness *1 1/16"*  
 Pitch of stays to ditto *1 1/2" x 1 1/2"* how stays are secured *By double nuts* working pressure by rules *150 lbs* diameter of stays at smallest part *2 3/4"* Solid working pressure by rules *208 lbs* Front plates at bottom, thickness *1 1/16"* Back plates, thickness *1 1/16"*  
 Greatest pitch of stays *1 1/2" x 4"* working pressure by rules *—* Diameter of tubes *3 1/2"* pitch of tubes *4 3/4" x 4 3/4"* thickness of tube plates, front *1 5/16"* back *1 3/16"* how stayed *By tubes* pitch of stays *9 1/2" x 9 1/2"* width of water spaces *6*  
 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 *—*



**DONKEY BOILER**— Description *Round vertical (cross tube)*  
Made at *Clayton* by whom made *Hutson & Corbett* when made *1886* where fixed *In Stockhold*  
Working pressure *80 lbs* tested by hydraulic pressure to *160 lbs*. No. of Certificate *1729* fire grate area *12 ft<sup>2</sup>* description of safety  
valves *Direct Spring* No. of safety valves *One* area of each *4"* if fitted with easing gear *Yes* if steam from main boilers can  
enter the donkey boiler *No* diameter of donkey boiler *5 ft* length *9' 6"* description of riveting *Double & Single*  
Thickness of shell plates *9/16"* diameter of rivet holes *13/16"* whether punched or drilled *Drilled* pitch of rivets *3"* lap of plating *1"*  
per centage of strength of joint *70* thickness of crown plates *1/16"* stayed by *Uptake + 6 (2" dia solid stays)*  
Diameter of furnace, top *3' 8"* bottom *4 ft* length of furnace *4' 6"* thickness of plates *8/16"* description of joint *Lap Single*  
Thickness of furnace crown plates *9/16"* stayed by *as above* working pressure of shell by rules *84 lbs*  
Working pressure of furnace by rules *83 lbs* diameter of uptake *12"* thickness of plates *9/16"* thickness of water tubes *9/16" x 9 1/2" dia*

**SPARE GEAR.** State the articles supplied: *Two connecting rod bolts & nuts top & bottom 2 main  
bearing bolts one set coupling bolts 3 Piston bolts & nuts Half set piston  
springs for each piston One feed & one bilge pump valve also four pump  
valves 2 Propeller blades assorted bolts nuts, iron &c*

The foregoing is a correct description,

*H. Hutson & Corbett* Manufacturer.  
*Wm. Hutson*

**General Remarks** (State quality of workmanship, opinions as to class, &c. *These Engines & Boilers are of  
good workmanship & materials and are now in good order & safe  
working condition and eligible in my opinion to be noted in the  
Register Book* *Lloyds M.C. 9/86*

The amount of Entry Fee .. £ 1 : - : - received by me,  
Special .. £ 14 : 5 : -  
Donkey Boiler Fee .. £ - : - : -  
Certificate (if required) .. £ - : - : - 4/9/1886  
To be sent as per margin.  
(Travelling Expenses, if any, £ - 8/-)

Committee's Minute

FRIDAY 10 SEPT 1886

+ *J. M.*

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

*Clyde District*

Lloyd's Register  
Foundation