

# REPORT ON MACHINERY.

No. 835

No. in Survey held at *Sunderland, Tyne*  
Reg. Book. on the *Screw Steamer "Florida"*

Date, first Survey *July 8<sup>th</sup> 1882* Last Survey *Jan 16<sup>th</sup> 1883*  
(Received at London Office 29<sup>th</sup> Jan. 1883)

Master *Dwyer* Built at *Law Walker on Tyne* When built *1882*  
Engines made at *Sunderland* By whom made *H. E. Marine & Co.* when made *1882*  
Boilers made at *D<sup>o</sup>* By whom made *D<sup>o</sup>* when made *1882*  
Registered Horse Power *350* Owners *Nelson, Donkin & Co.* Port belonging to *London*  
Tons *3138*  
*2044*

## ENGINES, &c.—

Description of Engines *Inverted, Compound, Surface Condensing (Allan's patent)*  
Diameter of Cylinder's *40" x 74"* Length of Stroke *54"* No. of Rev. per minute *56* Point of Cut off, High Pressure *2 1/2* strokes Low Pressure *2 1/2* strokes  
Diameter of Screw shaft *15 1/4"* Diameter of Tunnel shaft *14 3/4"* Diameter of Crank shaft journals *15 1/4"* Diameter of Crank pin *15 1/4"* size of Crank webs *28 x 11 1/2"*  
Diameter of screw *17 9/16"* Pitch of screw *22 0"* No. of blades *4* state whether moveable *yes* total surface *75 sq. feet*  
No. of Feed pumps *2* diameter of ditto *4"* Stroke *54"* Can one be overhauled while the other is at work *yes*  
No. of Bilge pumps *2* diameter of ditto *4"* Stroke *54"* Can one be overhauled while the other is at work *yes*  
Where do they pump from *The bilges of all the compartments, engine room, and after wells & Sea.*  
No. of Donkey Engines *2* Size of Pumps *8 dia x 9 stroke* Where do they pump from *the large one, from the sea, Tanks, and bilges of all the holds, engine room, & aft wells & Condenser small one from same places & a separate sea.*  
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 *1* and sizes *4 dia* Are they connected to condenser, or to circulating pump *yes*  
How are the pumps worked *direct from the piston rod crossheads*  
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 fore hold* How are they protected *wooden casings*  
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 *new*  
Is the screw shaft tunnel watertight *yes* and fitted with a sluice door *yes* worked from *top platform of engine room.*

## BOILERS, &c.—

Number of Boilers *Two* Description *double ended, Cylindrical & Multitubular*  
Working Pressure *90 lbs* Tested by hydraulic pressure to *180 lbs* Date of test *13. 10. 82*  
Description of ~~superheating apparatus~~ or steam chest *upright dome*  
Can each boiler be worked separately *yes* Can the superheater be shut off and the boiler worked separately *no superheater*  
Area of square feet of fire grate surface in each boiler *95* Description of safety valves *adam's patent spring valves*  
Area of each valve *23 7/16"* Are they fitted with easing gear *yes*  
Area of safety valves to superheater *—* area of each valve *—* are they fitted with easing gear *—*  
Smallest distance between boilers and bunkers or ~~woodwork~~ *11"*  
Diameter of boilers *13 7/8"* Length of boilers *19 0"* description of riveting of shell long. seams *tube riv lap* circum. seams *double riv lap*  
Thickness of shell plates *1 1/2"* diameter of rivet holes *1 1/4"* whether punched or drilled *drilled* pitch of rivets *4 1/4"*  
Percentage of strength of longitudinal joint *625* working pressure of shell by rules *91 lbs*  
Size of compensating rings *6 x 1 1/4"*  
Number of Furnaces in each boiler *6* outside diameter *3 5/8"* length, top *6 1/2"* bottom *5 1/2"*  
Thickness of plates *7/16"* description of joint *double butt single riv* if rings are fitted *5 in bottom* greatest length between rings *5 1/2"*  
Working pressure of furnace by the rules *109 lbs*  
Combustion chamber plating, thickness, sides *17/32"* back *1/2"* top *1/2"*  
Number of stays to ditto *8 3/4 x 7 1/2"* back *7 3/4 x 7 3/4"* top *Circular 22 rods*  
Are stays fitted with nuts or riveted heads *riv'd heads* working pressure of plating by rules *94 lbs*  
Diameter of stays at smallest part *1 3/8"* working pressure of ditto by rules *135 lbs*  
Plating in steam space, thickness *7/8"* pitch of stays to ditto *15 x 15"* how stays are secured *double nuts*  
Working pressure by rules *121 lbs* diameter of stays at smallest part *2 3/8"* working pressure by rules *117 lbs*  
Bottom plates at bottom, thickness *5/8"* Back plates, thickness *—* greatest pitch of stays *—* working pressure by rules *—*

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Diameter of tubes  $3\frac{1}{4}$  pitch of tubes  $5 \times 4\frac{1}{2}$  thickness of tube plates, front  $\frac{3}{4}$  back  $\frac{3}{4}$   
 How stayed stay tubes pitch of stays  $15 \times 9$  width of water spaces  $1\frac{3}{4} \times 1\frac{1}{4}$   
 Diameter of Superheater or Steam chest  $4 \cdot 0$  length  $7 \cdot 6$   
 Thickness of plates  $\frac{1}{2}$  description of longitudinal joint double rivet lap diameter of rivet holes  $\frac{7}{8}$  pitch of rivets  $2\frac{3}{4}$   
 Working pressure of shell by rules  $120$  lbs 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  $\frac{7}{8}$  How stayed dished to  $4\frac{1}{2}$  ft radius + 3 stays  $1\frac{1}{2}$  square  
 Superheater or steam chest; how connected to boiler by a neck piece  $18$  dia.  $\times$   $\frac{3}{4}$  thick.

**DONKEY BOILER—** Description *Cylindrical Vertical crontubed*  
 Made at *Birkenhead* By whom made *J. Layla & Co* when made *1882*  
 Where fixed *in stokehole* working pressure *50* Tested by hydraulic pressure to *140* No. of Certificate *271*  
 Fire grate area *28* ft. Description of safety valves *Spring valves* No. of safety valves *2* area of each *7 sq. ins.*  
 If fitted with easing gear *yes* If steam from main boilers can enter the donkey boiler *no*  
 Diameter of donkey boiler *6. 6"* length *14. 0"* description of riveting *Vertical seams double rivet lap.*  
 thickness of shell plates  $\frac{7}{16}$  steel diameter of rivet holes  $\frac{7}{8}$  whether punched or drilled *drilled*  
 pitch of rivets  $2\frac{7}{8}$  lap of plating  $4\frac{1}{2}$  per centage of strength of joint *68%*  
 thickness of crown plates  $\frac{5}{8}$  stayed by *10 stay rods.  $2\frac{1}{2}$ " diam and uptake*  
 Diameter of furnace, top *5. 6"* bottom *6 ft.* length of furnace *7. 2"*  
 thickness of plates  $\frac{5}{8}$  description of joint *single rivet lap.*  
 thickness of furnace crown plates  $\frac{5}{8}$  stayed by *10 stay rods  $2\frac{1}{2}$ " diam*  
 Working pressure of shell by rules *151* lbs working pressure of furnace by rules *75* lbs  
 diameter of uptake *15"* thickness of plates  $\frac{3}{8}$  thickness of water tubes  $\frac{3}{8}$

The foregoing is a correct description.  
*Arthur Easton Surveyor & Engineer* Manufacturer. Except of the Donkey Boiler  
*W. H. Kingston*

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

The Machinery of this vessel has been constructed under special survey, the Materials & workmanship are good and efficient.  
 The Engines and Boilers have been tried under steam, and in my opinion are in good order and safe working condition, and eligible for the distinguishing mark **LLOYD'S M.C.B.** in the Register Book of this society.

It is submitted that this vessel is eligible to have the notification of LMC recorded  
 J.M. 29/1/83

The amount of Entry Fee  $\pounds 3 : 0 :$  received by me,  
 Special  $\pounds 37 : 10 :$   
 Certificate (if required)  $\pounds - : - :$  26 Jan 1883  
 To be sent as per margin.  
 (Travelling Expenses, if any,  $\pounds 1 : 15 : 4$ )

Committee's Minute

Tuesday 30th January 1883

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