

# REPORT ON MACHINERY.

(Received in London Office 8/10/81)  
 Date, first Survey 26 July Last Survey 19 August 1881

No. 126

No. in Survey held at Dundee  
 Reg. Book.

Date, first Survey 26 July

Last Survey 19 August 1881

on the *S.S. "Diamond"* Tons 728.62

Master *Webster*

Built at *Dundee*

When built *August 1881*

Engines made at *Dundee*

By whom made *W. B. Thompson* when made "*1881*"

Boilers made at *do*

By whom made "*do*" when made "*do*"

Registered Horse Power *98.*

Owners *P. H. Duncan*

Port belonging to *Dundee*

## ENGINES, &c.—

Description of Engines *Compound Direct-acting Int. Cyl. surface Condensing*

Diameter of Cylinders *25" & 50"* Length of Stroke *42"* No. of Rev. per minute *70* Point of Cut off, High Pressure *22 1/2"* Low Pressure *23"*

Diameter of Screw shaft *10"* Diameter of Tunnel shaft *9 1/2"* Diameter of Crank shaft journals *9 3/4"* Diameter of Crank pin *9 3/4"* size of Crank webs *7" x 11"*

Diameter of screw *12" x 4"* Pitch of screw *16" x 0"* No. of blades *4* state whether moveable *no* total surface *46.5 feet*

No. of Feed pumps *two* diameter of ditto *3 1/2"* Stroke *21"* Can one be overhauled while the other is at work *yes*

No. of Bilge pumps *two* diameter of ditto *3 1/2"* Stroke *21"* Can one be overhauled while the other is at work *yes*

Where do they pump from *all compartments & tanks*

No. of Donkey Engines *two* Size of Pumps *7" x 18" x 8" & 6" x 8 1/2" x 3 1/2"* Where do they pump from *Ballast, all compartments & tanks thro ship side. 7000 = sea Hotwell to boilers and on Deck*

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 *5"* Are they connected to condenser, or to circulating pump *Circulating*

How are the pumps worked *by levers from F.P. piston 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 *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 *no*

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 launch 26 July 1881*

Is the screw shaft tunnel watertight *yes* and fitted with a sluice door *yes* worked from *cylinder platform*

## BOILERS, &c.—

Number of Boilers *one* Description *Circular Tubular*

Working Pressure *90 lb* Tested by hydraulic pressure to *180 lb* Date of test *23 July 1881*

Description of superheating apparatus on steam chest *Horizontal Domb*

Can each boiler be worked separately *no* Can the superheater be shut off and the boiler worked separately *no*

No. of square feet of fire grate surface in each boiler *72 feet* Description of safety valves *Direct spring load. W.B. J.*

No. to each boiler *two* area of each valve *19.6 sq* Are they fitted with casing gear *yes*

No. of safety valves to superheater *no* area of each valve *no* are they fitted with casing gear *no*

Smallest distance between boilers and bunkers or woodwork *6"*

Diameter of boilers *14.6"* Length of boilers *11.3"* description of riveting of shell long. seams *Lap Triple R. circum. seams Lap D.R.*

Thickness of shell plates *17/8" steel* diameter of rivet holes *1 3/8" in 1 1/8"* whether punched or drilled *drilled* pitch of rivets *5 3/8"*

Lap of plating *9 1/2" & 5 1/8"* per centage of strength of longitudinal joint *74 & 73* working pressure of shell by rules *101 lb*

Size of manholes in shell *17" x 13"* size of compensating rings *6" x 5" x 7/8"*

No. of Furnaces in each boiler *three* outside diameter *48"* length, top *7.9 1/2"* bottom *10.6"*

Thickness of plates *7/16" corrugated* description of joint *welded* if rings are fitted *no* greatest length between rings *no*

Working pressure of furnace by the rules *89 lb*

Combustion chamber plating, thickness, sides *1/2"* back *1/2"* top *1/2"*

Pitch of stays to ditto sides *9" x 9"* back *9" x 9"* top *9" x 9"*

If stays are fitted with nuts or riveted heads *nuts both ends* working pressure of plating by rules *95 lb*

Diameter of stays at smallest part *1 1/2" sides 1 3/8"* working pressure of ditto by rules *4288 lb*

End plates in steam space, thickness *3/8"* pitch of stays to ditto *17" x 17"* how stays are secured *thro ends nuts*

Working pressure by rules *94 lb* diameter of stays at smallest part *2 1/8" body 2 1/2" steel* working pressure by rules *743 lb*

Front plates at bottom, thickness *9/16"* Back plates, thickness *9/16"* greatest pitch of stays *1 1/2" x 9"* working pressure by rules *6277 lb*

Form No. 8

DUN107-0220

Diameter of tubes  $3\frac{3}{4}$ " pitch of tubes  $5" \times 5\frac{1}{2}"$  thickness of tube plates, front  $\frac{1}{16}$ " back  $\frac{1}{16}$ "  
 How stayed *2 tubes each* pitch of stays  $10\frac{1}{2} \times 10"$  width of water spaces  $1\frac{1}{2}"$   
 Diameter of ~~Superheater~~ Steam chest  $3' 9"$  length  $8' 3"$   
 Thickness of plates  $\frac{9}{16}"$  description of longitudinal joint *Lap D.P.* diameter of rivet holes  $1"$  pitch of rivets  $3\frac{3}{8}"$   
 Working pressure of shell by rules  $187\text{ lbs}$  Diameter of flue  $\checkmark$  thickness of plates  $\checkmark$   
 If stiffened with rings  $\checkmark$  distance between rings  $\checkmark$  Working pressure by rules  $\checkmark$   
 End plates of ~~superheater~~ steam chest; thickness  $\frac{13}{16}"$  How stayed *By 4 bolt stays the ends  $2\frac{1}{2}"$  Di pitch  $16 \times 10$*   
~~Superheater~~ or steam chest; how connected to boiler *by two malleable necks riveted to shells*

**DONKEY BOILER**— Description *one round vertical*  
 Made at *Dundee* By whom made *W.B. Thompson* when made *August 1881*  
 Where fixed *stowhold* working pressure  $80\text{ lbs}$  Tested by hydraulic pressure to  $160\text{ lbs}$  No. of Certificate *118*  
 Fire grate area *19 feet* Description of safety valves *Direct Spig 2* No. of safety valves *one* area of each  $9.62\text{ sq}$   
 If fitted with easing gear *yes* If steam from main boilers can enter the donkey boiler *no*  
 Diameter of donkey boiler  $6' 0"$  length  $12' 0"$  description of riveting *Long seam lap DR in lap S*  
 thickness of shell plates  $\frac{9}{16}"$  diameter of rivet holes  $\frac{7}{8}"$  whether punched or drilled *Punched*  
 pitch of rivets  $4\frac{3}{8}"$  lap of plating  $4\frac{5}{8} \times 2\frac{5}{8}"$  per centage of strength of joint  $71 \times 71\%$   
 thickness of crown plates  $\frac{5}{8}"$  stayed by *15 bolt stays  $1\frac{3}{4}"$  A.B.T.*  
 Diameter of furnace, top  $4' 5"$  bottom  $5' 3"$  length of furnace  $6' 0"$   
 thickness of plates  $\frac{1}{2}"$  description of joint *lap single riveted*  
 thickness of furnace crown plates  $\frac{9}{16}"$  stayed by *bolt stays to crown of boiler*  
 Working pressure of shell by rules  $91\text{ lbs}$  working pressure of furnace by rules  $78\text{ lbs}$   
 diameter of uptake  $15"$  thickness of plates  $\frac{1}{2}"$  thickness of water tubes  $\frac{3}{8}"$

The foregoing is a correct description,  
*W.B. Thompson* Manufacturer.

**General Remarks** (State quality of workmanship, opinions as to class, &c. *The Boilers and Machinery*)  
 of this vessel have been built in accordance with the requirements of the Rules and is *practically* with boilers submitted for the Committee's approval dated 1/3/81. The workmanship and material, one of the best description. The safety valves have been tested by steam & set to a working pressure of 90 lbs per square inch, and the machinery seen of both and found satisfactory, and in my opinion is eligible to be entered into the Register Book with the distinctive mark *Lloyd's M.C. 8.81* in

*Submitted that this vessel is eligible to have the registration Lloyd's M.C. 8.81*  
*J.M. 8/29/81*

The amount of Entry Fee £ 2 : " : " received by me,  
 Special .. *M.C.* .. £ 14 : 14 : "  
 Certificate (if required) .. £ : 2 : 6 29 Aug 1881  
 To be sent as per margin.  
 (Travelling Expenses, if any, £ )

Committee's Minute Friday, September, 9th 1881.  
*+ Lloyd M.C.*  
*John Sturrock*  
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.  
 Dundee, Dist.

