

REPORT ON MACHINERY.

(Received in London Office 8/10/81)

No. 126

No. in Survey held at Dundee
Reg. Book.

Date, first Survey 26 Feb 7

Last Survey 19th August 1881

on the

S.S. "Diamond"

Tons 728.62

ster

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 *" "* when made *" "*

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 *sol* 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* *Ballast* Size of Pumps *7" x 18" & 8" x 18"* Where do they pump from *Ballast. all compartments*

& tanks this ship side. 7000 = sea water 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 *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 launch 26th 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*

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

ription of ~~superheating apparatus~~ steam chest *Horizontal Domb*

Can each boiler be worked separately *yes* Can the superheater be shut off and the boiler worked separately *yes*

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

No. to each boiler *two* area of each valve *19.6 sq* 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 *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" x 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"* description of joint *welded* if rings are fitted *—* greatest length between rings *—*

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 *this ends nuts*

Working pressure by rules *94 lb* diameter of stays at smallest part *2 1/8" body 2 1/2"* working pressure by rules *7431 lb*

Front plates at bottom, thickness *5/16"* Back plates, thickness *7/16"* greatest pitch of stays *1 1/2" x 9"* working pressure by rules *6277 lb*

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~~ on 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 lb 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~~ on steam chest; thickness $\frac{13}{16}"$ How stayed *by 4 bolt stays the ends $2\frac{1}{2}"$ in pitch 16×10*
~~Superheater~~ on 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 *sliphold* working pressure 80 lb Tested by hydraulic pressure to 160 lb 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 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 D.P. 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 $4' 6"$ 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 lb working pressure of furnace by rules 78 lb
 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 to the satisfaction of the Committees of approval dated 1/3/81. The workmanship and material are of the best description. The safety valves have been tested by steam & set to a working pressure of 90 lb per square inch, and the machinery seen & found satisfactory, and in my opinion is eligible to be entered into the Register Book with the distinctive Mark of Lloyd's M.C. 8.81 in

Submitted that this vessel is eligible to have the registration mark of Lloyd's M.C. 8.81
9/9/81

The amount of Entry Fee £ 2 : " : " received by me,
 Special .. £ 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's M.C.

John Sturrock
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.