

# REPORT ON MACHINERY.

No. *2483*

(Received in London Office *12/1/81*)

No. in Survey held at  
Reg. Book.

*Dunbarton*

Date, first Survey *Augt 1880* Last Survey *Sept 9<sup>th</sup> 1881*

on the

*S.S. "Clyde"*

Tons *4123.89*  
*2141.92*

Master

*J.M. Edmund*

Built at

*Dunbarton*

When built

*1881*

Engines made at

*Dunbarton*

By whom made

*Denny & Co*

when made

*1881*

Boilers made at

*Dunbarton*

By whom made

*"*

when made

*1881*

Registered Horse Power

*780*

Owners

*P & O Steam Ship Co.*

Port belonging to

*London*

## ENGINES, &c.—

Description of Engines

*Compound, inverted, direct-acting.*

Diameter of Cylinders *58" 100"* Length of Stroke *5'3"* No. of Rev. per minute *17* Point of Cut off, High Pressure *26.7* Low Pressure *.65*

Diameter of Screw shaft *19"* Diameter of Tunnel shaft *17 1/4"* Diameter of Crank shaft journals *19"* Diameter of Crank pin *19"* size of Crank webs *12" x 25"*

Diameter of screw *19 1/4"* Pitch of screw *2 1/8"* No. of blades *4* state whether moveable *Yes* total surface *94 sq. ft.*

No. of Feed pumps *two* diameter of ditto *6 1/2"* Stroke *2' 7 1/2"* Can one be overhauled while the other is at work *yes*

No. of Bilge pumps *two* diameter of ditto *5"* Stroke *2' 7 1/2"* Can one be overhauled while the other is at work *yes*

Where do they pump from *All compartments*

No. of Donkey Engines

*four*

Size of Pumps

*10" 4 1/2" 5" 6"*

Where do they pump from

*No. 1 feed & overboard from bilge & bottom tank*

*No. 2 feed & overboard from bilge & bottom tank*

*No. 3 wash deck draws from sea*

*No. 4 wash boiler feed*

*No. 5 wash boiler feed*

*No. 6 wash boiler feed*

*No. 7 wash boiler feed*

*No. 8 wash boiler feed*

*No. 9 wash boiler feed*

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 *two* and sizes *8" dia* Are they connected to condenser, or to circulating pump *on suction pipe*

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 *about level*

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 *by*

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 *top platforms*

## BOILERS, &c.—

Number of Boilers

*4*

Description

*all cylindrical (Shell & Steel) double-ended*

Working Pressure

*90 lbs*

Tested by hydraulic pressure to

*180 lbs*

Date of test

*12<sup>th</sup> June 1881*

Description of superheating apparatus or steam chest

*Cylindrical lying fore and aft.*

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 *110 sq. ft.* Description of safety valves *direct spring (Cockburn)*

No. to each boiler *three* area of each valve *4 1/2 sq. in.* Are they fitted with easing gear *yes*

No. of safety valves to superheater *one* area of each valve *one* are they fitted with easing gear *yes*

Smallest distance between boilers and bunkers *on woodwork 4"*

Diameter of boilers *13' 8 1/2"* Length of boilers *16' 10 1/2"* description of riveting of shell long. seams *double butt* circum. seams *double lap*

Thickness of shell plates *7/16" steel* diameter of rivet holes *1 1/16"* whether punched or drilled *drilled* pitch of rivets *4 1/2" x 2 1/2" long*

Lap of plating *12 1/4" butt* per centage of strength of longitudinal joint *73.6* working pressure of shell by rules *99 lbs*

Size of manholes in shell *17" x 13"* size of compensating rings *doubling plates*

No. of Furnaces in each boiler *6* outside diameter *3' 1"* length, top *5' 6"* bottom *all the same length*

Thickness of plates *7/16" bottom 9/16"* description of joint *butt double* if rings are fitted *at bottom* greatest length between rings *5' 4"*

Working pressure of furnace by the rules *110 lbs*

Combustion chamber plating, thickness, sides *7/16" family iron* back *7/16" family iron* top *7/16" family iron*

Pitch of stays to ditto *8 1/4" x 7 3/4"* back *8 1/4" x 7 3/4"* top *8 1/4" x 7 3/4"*

If stays are fitted with nuts or riveted heads *nuts* working pressure of plating by rules *113 lbs*

Diameter of stays at smallest part *1 1/2" screws* working pressure of ditto by rules *134 lbs*

End plates in steam space, thickness *1/16"* pitch of stays to ditto *15 1/2" x 14 1/2"* how stays are secured *doubt nuts washers*

Working pressure by rules *130 lbs* diameter of stays at smallest part *2 3/4" 3" dia* working pressure by rules *260 lbs*

Front plates at bottom, thickness *3/4"* Back plates, thickness *3/4"* greatest pitch of stays *18"* working pressure by rules *102 lbs*



5483 gles

Number of tubes  $3\frac{1}{2}$  pitch of tubes  $4\frac{3}{4}$  thickness of tube plates, front  $\frac{3}{4}$  back  $\frac{7}{16}$   
 How stayed *Stay tubes* pitch of stays  $14\frac{1}{4} \times 14\frac{1}{4}$  width of water spaces  $1\frac{1}{4}$   
 Diameter of Superheater or Steam chest  $4\frac{1}{2}$  length  $20\text{ ft}$  aux  $3\frac{1}{2}$  diam  $\times 6\frac{1}{2}$  high *hemispherical*  
 Thickness of plates  $\frac{9}{16}$  description of longitudinal joint *lap double* diameter of rivet holes  $1$  pitch of rivets  $3\frac{3}{4} \times 1\frac{1}{8}$   
 Working pressure of shell by rules  $134\text{ lb}$  Diameter of flue  $\frac{1}{2}$  thickness of plates  $\frac{1}{2}$   
 If stiffened with rings  $\frac{1}{2}$  distance between rings  $\frac{1}{2}$  Working pressure by rules  $\frac{1}{2}$   
 End plates of superheater, or steam chest; thickness  $\frac{9}{16}$  How stayed *hemispherical,*  
 Superheater or steam chest; how connected to boiler *by wrought iron studs, riveted,*  
**DONKEY BOILER—** Description *Upright, with dome end & cross tubes, welded in.*  
 Made at *Exmouth* By whom made *Denny & Co* when made *1881*  
 Where fixed *Upper Deck* working pressure *60 lbs* Tested by hydraulic pressure to *120 lb* No. of Certificate *586*  
 Fire grate area *11.8 sq. ft* Description of safety valves *Direct Spring* No. of safety valves *one* area of each *7.2 sq. in.*  
 If fitted with easing gear *yes* If steam from main boilers can enter the donkey boiler *no*  
 Diameter of donkey boiler  $5\frac{1}{2}$  length  $11\frac{1}{2}$  description of riveting *lap double.*  
 thickness of shell plates  $\frac{7}{16}$  diameter of rivet holes  $\frac{7}{8}$  whether punched or drilled *punched & riveted.*  
 pitch of rivets  $3\frac{3}{4} \times 1\frac{1}{8}$  lap of plating  $4\frac{1}{2}$  per centage of strength of joint *73*  
 thickness of crown plates  $\frac{7}{16}$  stayed by *Egg end.*  
 Diameter of furnace, top  $3\frac{1}{2}$  bottom  $4\frac{1}{2}$  length of furnace  $4\frac{1}{2}$   
 thickness of plates  $\frac{1}{2}$  description of joint *lap joint*  
 thickness of furnace crown plates  $\frac{1}{2}$  stayed by *dome, & uptake.*  
 Working pressure of shell by rules  $90\text{ lb}$  working pressure of furnace by rules  $104\text{ lb}$   
 diameter of uptake  $1\frac{1}{2}$  thickness of plates  $\frac{1}{2}$  thickness of water tubes  $\frac{1}{2}$

The foregoing is a correct description,

*Denny & Co*

Manufacturer.

**General Remarks** (State quality of workmanship, opinions as to class, &c. *These Engines and Boilers*)  
*have been especially supervised during construction & are*  
*now in good order & safe working condition, and*  
*eligible in my opinion to be noted in Register Book & Lloyd's M*  
*(with a date)*

*It is submitted that this vessel is*  
*eligible to have the notification*  
*of Lloyd's M.C. recorded*  
*RW 2/9/81*

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

Special .. £ 59 : : : No.

Certificate (if required) .. £ : : : 6<sup>th</sup> Sept 1881

To be sent as per margin.

(Travelling Expenses, if any, £ 3 : 3 : 0)

Committee's Minute

Tuesday, September, 13<sup>th</sup> 18 81.+ *Lloyd's*

Robert Edmund Taylor &amp; Son Printers, 19, Old Street, Goswell Road, London, E.C.

James Molloy, A.S.M.

Engineer Surveyor to Lloyd's Register of British &amp; Foreign Shipping.

Clyde District

Lloyd's Register  
Foundation