

REPORT ON MACHINERY.

21 MARCH 1890

Port of *Shull*

Received at London Office

13

Survey held at *Shull*

Date, first Survey *May 28 89*

Last Survey *11 Mar 1890*

1890

Book.

Number of Visits *37*

895-03

on the *Steel Screw Steamer Liberty*

Tons *373.10*

Survey

Built at *Shull*

By whom built *Charles Co Lim*

When built *1890*

ines made at *Shull*

By whom made *Charles Co Lim*

when made *1890*

ilers made at *Shull*

By whom made *Charles Co Lim*

when made *1890*

Registered Horse Power *210*

Owners *Co-operative Wholesale Soc Lim*

Port belonging to *Goole*

GINES, &c.—

Description of Engines *Triple Compound Inverted Direct Acting*

I.P. 68

Diameter of Cylinders *24.59.6* Length of Stroke *33* No. of Rev. per minute *100* Point of Cut off, High Pressure *.75* Low Pressure *.5*

Diameter of Screw shaft *11* Diam. of Tunnel shaft *10 1/2* Diam. of Crank shaft journals *6 1/2* Diam. of Crank pin *11* size of Crank webs *13.7 1/2*

Diameter of screw *12.6* Pitch of screw *15.9* No. of blades *4* state whether moveable *h* total surface *59.59 ft*

No. of Feed pumps *two* diameter of ditto *5* Stroke *20* Can one be overhauled while the other is at work *Yes*

No. of Bilge pumps *two* diameter of ditto *5 1/2* Stroke *20* Can one be overhauled while the other is at work *Yes*

Where do they pump from *Engine room Bilge. Hold. Tank. Sea.*

No. of Donkey Engines *one* Size of Pumps *4 1/2 x 6* Where do they pump from *Bilge. Hold. Tank.*

Sinks, Hotwell Sea, Discharges to Boiler, Tank, Boiler, Peak, Condenser, Hotwell, 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 *one* and sizes *6* Are they connected to condenser, or to circulating pump *Centrifugal Circulating Pump*

How are the pumps worked *Circulating Pump separate Engine. Other from Intermediate Engine lower*

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 *below*

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 *Discharges to Forward* How are they protected *Wood casing*

Are all pipes, cocks, valves, and pumps in connection with the machinery accessible at all times *Yes in Engine room*

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 *how new Launched 13th Oct 1890*

Is the screw shaft tunnel watertight *Yes* and fitted with a sluice door *Yes* worked from *Main Deck.*

BOILERS, &c.—

Number of Boilers *2 Nos* Description *Cylindrical Multitubular* Whether Steel or Iron *Steel*

Working Pressure *160 lb* Tested by hydraulic pressure to *320 lb* Date of test *24th January 1890*

Description of superheating apparatus or steam chest *none fitted* (Heating Surface *4500 sq feet*)

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 *6629 ft* Description of safety valves *Spring loaded* No. to each boiler *two*

Area of each valve *9.62 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 *8"* Diameter of boilers *14.6"*

Length of boilers *10.6* description of riveting of shell long. seams *all strap etc* circum. seams *all lap* Thickness of shell plates *1 1/2*

Diameter of rivet holes *1 5/16* whether punched or drilled *drilled* pitch of rivets *7 5/8* Lap of plating *18"*

Percentage of strength of longitudinal joint *82.75%* working pressure of shell by rules *162 lb* size of manholes in shell *16" x 12"*

Size of compensating rings *2.4 x 2.6 x 1 5/16* No. of Furnaces in each boiler *Three*

Outside diameter *42"* length, top *7.6* bottom *8.0* thickness of plates *7/8* description of joint *welded* if rings are fitted *Yes*

Greatest length between rings *9* working pressure of furnace by the rules *190 lb* combustion chamber plating, thickness, sides *9/16* back *9/16* top *9/16*

Pitch of stays to ditto, sides *7 1/4* back *7 1/4* top *7 1/4* If stays are fitted with nuts or riveted heads *nuts* working pressure of plating by rules *162 lb*

Diameter of stays at smallest part *1 5/16* working pressure of ditto by rules *180 lb* end plates in steam space, thickness *1 5/16*

Pitch of stays to ditto *16 x 15* how stays are secured *all nut in rule* working pressure by rules *160 lb* diameter of stays at smallest part *2 1/2*

working pressure by rules *184 lb* Front plates at bottom, thickness *13/16* Back plates, thickness *1 1/4*

Greatest pitch of stays *14* working pressure by rules *160 lb* Diameter of tubes *3 1/2* pitch of tubes *4 5/8* thickness of plates, front *1 1/4* back *1 1/4*

how stayed *stay tubes* pitch of stays *13 1/2 x 9 1/2* width of water spaces *10"*

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

HUL402-015

State if report is also sent on the Hull of the Ship

Description of furnaces

Lloyd's Register Foundation

DONKEY BOILER— Description *Cylindrical Iron & Steel Construction Chaudh*
Made at *Shull* by whom made *Charles Co Lim* when made *1890* where fixed *Bu*
Working pressure *80 lb* tested by hydraulic pressure to *160 lb* No. of Certificate *392* fire grate area *17 1/2 sq ft*
valves *Spring loaded* No. of safety valves *two* area of each *3.95* if fitted with easing gear *yes* if steam
enter the donkey boiler *no* diameter of donkey boiler *7.3* length *5.0* description of riveting *able rivet*
Thickness of shell plates *1/2* diameter of rivet holes *15/16* whether punched or drilled *drilled* pitch of rivets *3/16* lap of plate *1 1/2*
per centage of strength of joint *69%* thickness of *head* plates *10/16* stayed by *13 1/2* *steel stays spaced 14" apart*
Diameter of furnace, top *26"* bottom *✓* length of furnace *4.6* thickness of plates *3/16* description of joint *welded*
Thickness of furnace crown plates *15/16* stayed by *stay tubes 7 1/2" pitch* working pressure of shell by rules *81*
Working pressure of furnace by rules *107 lb* diameter of uptake *—* thickness of plates *—* thickness of water tubes *—*

SPARE GEAR. State the articles supplied:— *Two top end bolts, Two bottom end bolts, Two 4" x 1/2" turning bolts, One set coupling bolts, One set of feed pump valves, One set of bridge pump valves, Safety valve springs, set of check valves, Bolts and nuts assorted.*

The foregoing is a correct description,

Manufact

W. Pearson
General Remarks (State quality of workmanship, opinions as to class, &c. *Workmanship Good*)

The Boilers and Machinery of this Vessel have been constructed under Special Survey and placed on board in accordance with the Society's Rules. They are now in my opinion in safe working condition and the case is respectfully submitted for the notification + L.M.C. 3.90. in the Register Book.

This submitted that this vessel is eligible to have + L.M.C. 3.90 recorded
W. J. ...

21 3 90

The amount of Entry Fee *£ 2 : -* received by me, *yes*

Special *£ 30 : 10 : -*

Donkey Boiler Fee *£ 2 : 2 : -*

Certificate (if required) *£ - : - : 18*

To be sent as per margin.

Expenses, if any, £

Fee's Minute

TUES 25 MARCH 1890

+ L.M.C. 3/90

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

Lloyd's Register
Foundation