

# REPORT ON MACHINERY.

Port of

PHILADELPHIA

Received at London Office 6 JUN 1903

No. in Survey held at

Camden N. J.

Date, first Survey Aug 12<sup>th</sup> 1902 Last Survey May 18<sup>th</sup> 1903

Book.

on the

S. S. LIGONIER

Tons

Gross 8787.  
Net 2396.8

Master L. G. Johnson

Built at

Camden

By whom built

New York Shipbuilding Co. When built 1903.5

Machinery made at

Camden

By whom made

New York Shipbuilding Co. when made 1903.5

Engines made at

Camden

By whom made

New York Shipbuilding Co. when made 1903.5

Indicated Horse Power

✓

Owners

J. M. Caffey Petroleum Co. Port belonging to Port Arthur

Horse Power as per Section 28

455

Is Refrigerating Machinery fitted

no

Is Electric Light fitted

yes

ENGINES, &amp;c.—Description of Engines

Triple, single screw

No. of Cylinders 3

No. of Cranks 3

Diameter of Cylinders 25", 42 1/2", 72"

Length of Stroke 48"

Revs. per minute 75

Dia. of Screw shaft

as per rule 14 3/8"

Lgth. of stern bush 6' 9 1/4"

Tunnel shaft as fitted none

Dia. of Crank shaft journals

as per rule 14"

Dia. of Crank pin 15"

Size of Crank webs 11" x 18 1/2"

Dia. of thrust shaft under

14 3/4"

Dia. of screw 17" 0"

Pitch of screw 18" 6"

No. of blades 4

State whether moveable yes

Total surface 80 sq ft

Feed pumps 2

Diameter of ditto 8" x 5"

Stroke 12"

Can one be overhauled while the other is at work yes

Bilge pumps 2

Diameter of ditto 4 1/2"

Stroke 22"

Can one be overhauled while the other is at work yes

Donkey Engines 3

Sizes of Pumps 8" x 5" x 12", 10" x 7" x 10"

No. and size of Suctions connected to both Bilge and Donkey pumps

Engine Room 5-3 1/2'

In Holds, &amp;c. fore peak one 3 1/2', fore hold one 3 1/2'

pump room one 3 1/2'. Cargo pump room two 3' x two 1 1/2'

Bilge injections 1 size 8"

Connected to condenser, or to circulating pump pump Is a separate donkey suction fitted in Engine room &amp; size yes, 3 1/2'

Are the bilge suction pipes fitted with roses yes

Are the roses in Engine room always accessible yes

Are the sluices on Engine room bulkheads always accessible none

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

How are they protected ✓

Are the pipes carried through the bunkers none

Are the pipes, cocks, valves, and pumps in connection with the machinery and all boiler mountings accessible at all times yes

Are the bilge suction pipes, cocks, and valves arranged so as to prevent any communication between the sea and the bilges yes

Were the stern tube, propeller, screw shaft, and all connections examined before launch Is the screw shaft tunnel watertight no tunnel

worked with a watertight door ✓

worked from ✓

BOILERS, &amp;c.—

(Letter for record S)

Total Heating Surface of Boilers

6070 sq ft

Is forced draft fitted yes

Description of Boilers

Two single ended, mult.

Working Pressure 200 lbs

Tested by hydraulic pressure to 400 lbs

Test 18.2.03 Can each boiler be worked separately yes

Area of fire grate in each boiler 78 sq ft

No. and Description of safety valves to

Two, direct spring

Area of each valve 19.6 sq in

Pressure to which they are adjusted 205 lbs

Are they fitted with easing gear yes

Distance between boilers or uptakes and bunkers or woodwork 10 ft

Mean dia. of boilers 16" 3"

Length 12' 3"

Material of shell plates steel

1/5" Range of tensile strength 27,32

Are they welded or flanged no

Descrip. of riveting: cir. seams D &amp; T. R

long. seams D. B. S., T. R

of rivet holes in long. seams 1/8"

Pitch of rivets 10"

Lap of plates or width of butt straps 23"

Tests of strength of longitudinal joint

rivets 95.

plate 83.7

Working pressure of shell by rules 217 lbs

Size of manhole in shell 16" x 12"

Compensating ring 36 1/2" x 32 1/2" x 1 1/8"

No. and Description of Furnaces in each boiler 4 Morrison's

Material steel Outside diameter 43 1/2"

plain part top nil

Thickness of plates crown 9"

bottom 7 1/2"

Description of longitudinal joint welded

No. of strengthening rings none

pressure of furnace by the rules 204 lbs

Combustion chamber plates: Material steel

Thickness: Sides 9"

Back 9"

Top 9"

Bottom 9"

Working pressure by rules 214 lbs

ays to ditto: Sides 6 1/8" x 6 1/8"

Back 7 3/8" x 6 3/8"

Top 6 1/8" x 7 1/2"

If stays are fitted with nuts or riveted heads nuts

Working pressure by rules 269 lbs

of stays steel

Diameter at smallest part 1 3/32" eff

Area supported by each stay 47 sq in

Working pressure by rules 269 lbs

End plates in steam space:

steel Thickness 1/32"

Pitch of stays 16" x 16"

How are stays secured D. N

Working pressure by rules 253 lbs

Material of stays steel

at smallest part 2 3/4" eff

Area supported by each stay 256 sq in

Working pressure by rules 231 lbs

Material of Front plates at bottom steel

3/4" Material of Lower back plate steel

Thickness 3/4" dhl

Greatest pitch of stays 13 1/8" x 6 3/8"

Working pressure of plate by rules 210 lbs

Pitch of tubes 4" x 4 1/4"

Material of tube plates steel

Thickness: Front 3/4"

Back 3/4"

Mean pitch of stays 8 1/8"

across wide water spaces 13 1/2"

Working pressures by rules 232 lbs

Girders to Chamber tops: Material steel

Depth and

s of girder at centre 6 1/2" x 1 1/8" 2 plates

Length as per rule 25 3/4"

Distance apart 7 1/2"

Number and pitch of Stays in each 3-6 1/8"

g pressure by rules 209 lbs

Superheater or Steam chest; how connected to boiler none

Can the superheater be shut off and the boiler worked

Diam. of rivet

Pitch of rivets

Length

Thickness of shell plates

Material

Description of longitudinal joint

Diam. of rivet

Pitch of rivets

Working pressure of shell by rules

Diameter of flue

Material of flue plates

Thickness

ed with rings

Distance between rings

Working pressure by rules

End plates: Thickness

How stayed

pressure of end plates

Area of safety valves to superheater

Are they fitted with easing gear

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Foundation



**DONKEY BOILER—** No. 1 Description *Roberts Water Tube Boiler*  
 Made at *New York* By whom made *The Roberts Safety Water Tube Boiler Co.* When made *1903-5* Where fixed *Main deck*  
 Working pressure *100* Tested by hydraulic pressure to *500* No. of Certificate *✓* Fire grate area *14 sq* Description of safety valves *Direct Spring*  
 No. of safety valves *2* Area of each *4.9* Pressure to which they are adjusted *100* If fitted with easing gear *Yes* If steam from main boilers can enter the donkey boiler *no*  
 Dia. of donkey boiler *19 1/4* Length *5-9* Material of shell plates *Steel* Thickness *3/8* Range of tensile strength *27-30* Descrip. of riveting long. seams *double riveted* Dia. of rivet holes *3/4* Whether punched or drilled *drill* Pitch of rivets *2 1/2*  
 Lap of plating *✓* Per centage of strength of joint *✓* Rivets *✓* Thickness of shell *steel* plates *1/2* Radius of do. *drum* No. of Stays to do. *✓*  
 Dia. of stays. *✓* Diameter of furnace Top *✓* Bottom *✓* Length of furnace *✓* Thickness of furnace plates *✓* Description of joint *✓* Thickness of furnace crown plates *✓* Stayed by *✓* Working pressure of shell by rules *286 1/2*  
 Working pressure of furnace by rules *✓* Diameter of uptake *✓* Thickness of uptake plates *✓* Thickness of water tubes *1/4* *A.M.C.*

**SPARE GEAR.** State the articles supplied:— *12 Coupling bolts, 2 main bearing, 2 crosshead and 2 crank pin bolts omits, 16 propeller studs omits, 6 feed & bilge pump valves one set piston springs and assortment bolts & rivets.*

The foregoing is a correct description,  
*New York Shipbuilding Co.* Manufacturer.  
*by DeLooney May. Supt. Insp.*

Dates { During progress of work in shops - - }  
 of Survey { During erection on board vessel - - }  
 while building { Total No. of visits

Is the approved plan of main boiler forwarded herewith *no*

" " " donkey " " " *no*

**General Remarks** (State quality of workmanship, opinions as to class, &c. *Boiler plans retained for dealing with sister ship.*

Material of screw shaft *steel* Is the screw shaft fitted with a continuous liner the whole length of the stern tube *Yes*  
 Is the after end of the liner made water tight in the propeller boss *Yes* If the liner is in more than one length are the joints burned *✓*  
 If the liner does not fit tightly at the part between the bearings in the stern tube, is the space charged with a plastic material insoluble in water and non-corrosive *fitted close* If two liners are fitted, is the shaft lapped or protected between the liners *✓*

The machinery of this vessel is fitted aft.

This vessel is fitted to burn oil fuel in the main boilers, steam being used for spraying the oil. An efficient evaporator of a capacity equal to 30 tons per day has been fitted to make up the loss of water. The Rockwell System of burners is used.

The oil fuel pumps are quite separate from the ordinary pumps.

The machinery of this vessel has been constructed & fitted on board under Special Survey the workmanship is sound & good throughout. The machinery has been tried under steam as required by the Rules & found satisfactory & is in my opinion eligible for the record of *L.N.C. 503* in the Register Book.

The owners letter regarding the flash point of the oil fuel is sent with this report.

The amount of Entry Fee... \$15.00 : When applied for, 20.5.1903  
 Special ... \$24.00 :  
 Donkey Boiler Fee ... \$10.50 : When received, 22.5.1903  
 Travelling Expenses (if any) \$22.50 :  
 Including \$20 Total \$262.00  
 Committee's Minute

TUES. 9 JUN 1903

Assigned

*+ L.N.C. 503 7D*

*Fitted for liquid fuel*

*Subject*

MACHINERY CERTIFICATE  
 ISSUED

*Robert Haig.*  
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

It is submitted that  
 this vessel is eligible for  
 THE RECORD. + L.N.C. 503

Subject to annual Survey of Machinery

FD ELEC LIGHT  
 Fitted for *liquid fuel*  
 of *Machinery*  
 L.M.  
 9.6.03  
 Foundation