

# REPORT ON MACHINERY.

No. 1992

PHILADELPHIA.

THU. MAR. 6-1913

Port of

PHILADELPHIA.

Date, first Survey June 19-1912 Last Survey Feb 5 1913

No. in Survey held at

Book.

86 on the

S.S. Santa Cruz

(Number of Visits 40)

Gross 5081-93

Net 3284-57

When built 1913-2

ster W. T. Crowley Built at

PHILADELPHIA.

By whom made the Wm. Hamp & Sons S. E. B. C.

when made 1913-2

ines made at PHILADELPHIA.

By whom made

when made 1913-2

lers made at PHILADELPHIA.

Owners Atlantic & Pacific S.S. Co

Port belonging to New York

Rated Horse Power 481

Horse Power as per Section 28 481

Is Refrigerating Machinery fitted for cargo purposes no

Is Electric Light fitted yes

GINES, & C.—Description of Engines

Triple inverted

No. of Cylinders 3

No. of Cranks 3

No. of Cylinders 26-43 1/2-72

Length of Stroke 51

Revs. per minute 73

Dia. of Screw shaft

as per rule 14.7

as fitted 15.0

Material of Iron

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

the propeller boss yes

If the liner is in more than one length are the joints burned yes

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

Length of stern bush 5.7

rs are fitted, is the shaft lapped or protected between the liners

No. of Tunnel shaft

as per rule 13.36

as fitted 13.8

Dia. of Crank shaft journals

as per rule 14

as fitted 14.2

Dia. of Crank pin 14.2

Size of Crank webs 24.10

Dia. of thrust shaft under

ars 14.2

Dia. of screw 14.6

Pitch of Screw 18.0

No. of Blades 4

State whether moveable no

Total surface 78.6

of Feed pumps 3

Diameter of ditto 10.4

Stroke 24

of Bilge pumps 2

Diameter of ditto 4.2

Stroke 27

Can one be overhauled while the other is at work yes

of Donkey Engines 2

Sizes of Pumps 9.9x6, 7.2x10.2x10

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

In Holds, &c. F Peak 1-3

Two 3.2 in each

Engine Room fine - 3.2

old one 3.2 after peak

of Bilge Injections 1

sizes 10

Connected to condenser, or to circulating pump

Is a separate Donkey Suction fitted in Engine room & size

yes - 3.2

all 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

Are they Valves or Cocks both

all connections with the sea direct on the skin of the ship yes

Are the Discharge Pipes above or below the deep water line alone

they fixed sufficiently high on the ship's side to be seen without lifting the stokehold plates yes

Are the Blow Off Cocks fitted with a spigot and brass covering plate yes

How are they protected shut off valves at each

at pipes are carried through the bunkers bilge suction

all Pipes, Cocks, Valves, and Pumps in connection with the machinery and all boiler mountings accessible at all times yes

the Bilge Suction Pipes, Cocks, and Valves arranged so as to prevent any communication between the sea and the bilges yes

tes of examination of completion of fitting of Sea Connections 29. 10. 12

of Stern Tube 29. 10. 12

Screw shaft and Propeller 29. 10. 12

the Screw Shaft Tunnel watertight yes

Is it fitted with a watertight door yes

worked from upper deck

Manufacturers of Steel Work Bros & Lukens Iron & Steel Co

MLERS, & C.—(Letter for record S)

No. and Description of Boilers 3 Mult. Single ended

al Heating Surface of Boilers 6813.6

Is Forced Draft fitted yes

No. of Certificate 38

orking Pressure 180 #

Tested by hydraulic pressure to 270 #

Date of test 30. 10. 12

each boiler be worked separately yes

Area of fire grate in each boiler 53.6

Area of each valve 12.56

Pressure to which they are adjusted 185 #

Are they fitted with easing gear yes

h boiler 2 Direct-acting

Mean dia. of boilers 14.4 5/8

Length 12.6 5/8

Material of shell plates steel

allest distance between boilers or uptakes and bunkers 8.0

Are the shell plates welded or flanged no

Descrip. of riveting: cir. seams lap d. T.

ickness 1 5/8

Range of tensile strength 29.32/10

Pitch of rivets 7 1/8

Lap of plates or width of butt straps 19 1/2

g. seams D.B.S.T.R.

centages of strength of longitudinal joint

rivets 86.0

plate 81.6

Working pressure of shell by rules 199 #

Size of manhole in shell end 16x12

of compensating ring flanged in

No. and Description of Furnaces in each boiler 3 Morrison

Material steel

Outside diameter 44 1/2

ngth of plain part

Thickness of plates

Description of longitudinal joint welded

No. of strengthening rings none

Working pressure of furnace by the rules 212 #

Combustion chamber plates: Material steel

Thickness: Sides 3/4

Back 3/4

Top 3/4

Bottom 3/4

orking pressure of furnace by the rules 212 #

Combustion chamber plates: Material steel

Thickness: Sides 3/4

Back 3/4

Top 3/4

Bottom 3/4

Working pressure by rules 289 #

End plates in steam space:

Material of stays steel

aterial of stays steel

Diameter at smallest part 1.81

Area supported by each stay 56.25

Working pressure by rules 228 #

Material of stays steel

Thickness 1 3/32

Pitch of stays 17x17

How are stays secured D.V.

Working pressure by rules 213 #

iameter at smallest part 2 3/4

Area supported by each stay 289

Working pressure by rules 213 #

Material of Front plates at bottom steel

ickness 1

Material of Lower back plate steel

Thickness 1 3/32

Greatest pitch of stays 15x7

Working pressure of plate by rules 211 #

iameter of tubes 2 3/4

Pitch of tubes 4x4

Material of tube plates steel

Thickness: Front 1

Back 8

Mean pitch of stays 10 1/2

Girders to Chamber tops: Material steel

Depth and

ickness of girder at centre 10 1/4 x 1 3/4

orking pressure by rules 192 #

Superheater or Steam chest; how connected to boiler none

Can the superheater be shut off and the boiler worked

separately

Diameter

Length

Thickness of shell plates

Material

Description of longitudinal joint

Pitch of rivets

Working pressure of shell by rules

Diameter of flue

Material of flue plates

Thickness

How stayed

stiffened with rings

Distance between rings

Working pressure by rules

orking pressure of end plates

Area of safety valves to superheater

Are they fitted with easing gear

Lloyd's Register

Foundation

2020

2020

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VERTICAL DONKEY BOILER—Manufacturers of Steel *North Bros Coalville*

No. *1* Description *Vertical, multitubular*  
 Made at *Thonastrey* By whom made *International Boiler Works* When made *1912* Where fixed *Main deck*  
 Working pressure *100 lb* tested by hydraulic pressure to *150 lb* Date of test *19.8.12* No. of Certificate *39* Fire grate area *3.14 sq ft* Description of  
 Valves *Direct spring* No. of Safety Valves *1* Area of each *1.77 sq ft* Pressure to which they are adjusted *100 lb* Date of adjustment *28.1.13*  
 If fitted with easing gear *yes* If steam from main boilers can enter the donkey boiler *no* Dia. of donkey boiler *30 1/8"* Length *6.0*  
 Material of shell plates *Steel* Thickness *5/16"* Range of tensile strength *28.32* Descrip. of riveting long. seams *Lap 8.7"*  
 Dia. of rivet holes *5/16"* Whether punched or drilled *drill* Pitch of rivets *2"* Lap of plating *2 1/2"* Per centage of strength of joint *70*  
 Working pressure of shell by rules *125 lb* Thickness of shell crown plates *7/16"* Radius of do. *flat* No. of stays to do. *5* Dia. of stays *5/8"*  
 Diameter of furnace *Top 24 3/8" Bottom 24"* Length of furnace *2 1/2'* Thickness of furnace plates *7/16"* Description of joint *Lap 8.7"*  
 Working pressure of furnace by rules *12 1/2 lb* Thickness of furnace crown plates *3/8"* Stayed by *tubes all headed*  
 Diameter of *uptake* tubes *2"* Thickness of uptake plates *1/8"* Thickness of *water* tubes *29.5 BWG* Dates of survey

SPARE GEAR. State the articles supplied:—*Sail shaft. 1 Solid propeller. 2 crosshead pins. 2 crank pin bushes. 12 coupling bolts. 4 M. bearing bolts. 2 crank pins. 2 crosshead bolts. 7 shaft-pulley coupling. 1 Eccentric chap. 1 Valve spindle. 1 Thrust shoe. 1 complete set each of feed valve and any pump valve.*

The foregoing is a correct description.  
*J. J. Mithin* W. CRAMP & SONS S. & E. B. CO.  
 Manufacturer.

Dates of Survey while building { During progress of work in shops—*June 19. 20. 24. 28. July 2. 9. 12. 22. 31. Aug 8. 14. 20. 22. 27. Sept. 3. 7. 11. 13. 17. 20. 24. 30. Oct. 8. 16. 22. 29. 31. 1912*  
 { During erection on board vessel—*Nov 6. 14. 21. 26. Dec 9. 17. 19. 30. 1912. Jan 13. 22. 25. 28. Feb 3. 5. 1913*  
 Total No. of visits *40*

Is the approved plan of main boiler forwarded herewith *yes*  
 " " " donkey " " " *yes*

Dates of Examination of principal parts—Cylinders *24. 9. 12* Slides *24. 9. 12* Covers *24. 9. 12* Pistons *8. 10. 12* Rods *8. 10. 12*  
 Connecting rods *8. 10. 12* Crank shaft *24. 9. 12* Thrust shaft *24. 9. 12* Tunnel shafts *24. 9. 12* Screw shaft *22. 10. 12* Propeller *22. 10. 12*  
 Stern tube *22. 10. 12* Steam pipes tested *19. 12. 13* Engine and boiler seatings *22. 10. 12* Engines holding down bolts *7. 12. 13*  
 Completion of pumping arrangements *28. 1. 13* Boilers fixed *7. 12. 13* Engines tried under steam *Feb 5. 13.*  
 Main boiler safety valves adjusted *26. 1. 13* Thickness of adjusting washers *Port Boiler P 8. 5 7/8. Centre 13h P 2. 5 1/2. Star 13h P 3. 5 1/2*  
 Material of Crank shaft *Steel* Identification Mark on Do. *825* Material of Thrust shaft *Steel* Identification Mark on Do. *825*  
 Material of Tunnel shafts *Steel* Identification Marks on Do. *825* Material of Screw shafts *Iron* Identification Marks on Do. *825*  
 Material of Steam Pipes *Steel* Test pressure *360 lb*

General Remarks (State quality of workmanship, opinions as to class, &c.)  
*This vessel is fitted to burn liquid fuel on the three main boilers. The Dahl system mechanical pressure burners has been installed found to work well for fuel of a flash point not less than 150°F.*

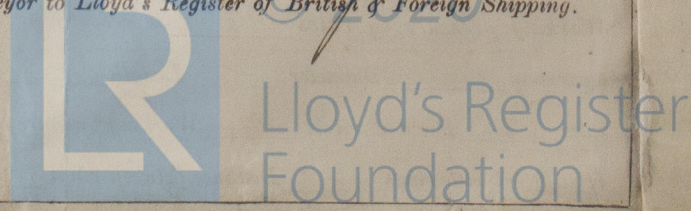
*This machinery has been constructed and fitted on board under special survey the workmanship is found good throughout. The machinery has been tried under steam found to work well which in my opinion renders the vessel eligible for the record + L.M.C 2-13 in the Register Book.*

It is submitted that  
 this vessel is eligible for  
 THE RECORD + L.M.C 2.13.  
 F.D.

The amount of Entry Fee. *\$15.00* : When applied for, *19. 2. 1913*  
 Special *\$220.25* :  
 Donkey Boiler Fee *7. Paid 24.12.12 Bill No 1201* :  
 Travelling Expenses (if any) *\$10.00* :  
 FRI. MAR. 7. 1913

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

Committee's Minute  
 Assigned *+ L.M.C 2.13.*



PHILADELPHIA.

Certificate (if required) to be sent to

(The Surveyors are requested not to write on or below the space for Committee's Minute.)