

## REPORT ON MACHINERY. No. 2426.

JAN 23 1917

Received at London Office

Date of writing Report Dec. 29th 1916 When handed in at Local Office San Francisco Port of SAN FRANCISCO

No. in Survey held at San Francisco, Date, First Survey July 31st Last Survey Dec. 23rd 1916

Suppl. 42 on the s/s "H. C. FOLGER", Union Iron Works Co's No. 129 (Number of Visits 29)

Gross Tons 7185  
Net Tons 4456

Master C. Adolfsen Built at San Francisco, By whom built Union Iron Works Co. When built 1916

Engines made at Schenectady, NY. By whom made General Electric Co. when made 1916

Boilers made at San Francisco, By whom made Union Iron Works Co. when made 1916

Shaft Registered Horse Power 2600 Owners Atlantic Gulf Refining Co. Port belonging to Philadelphia, Pa.

Shaft Horse Power at Full Power Is Refrigerating Machinery fitted for cargo purposes no. Is Electric Light fitted yes

TURBINE ENGINES, &c.—Description of Engines Geared Turbines No. of Turbines -

Diameter of Rotor Shaft Journals, H.P. L.P. Diameter of Pinion Shaft -

Diameter of Journals - Distance between Centres of Bearings - Diameter of Pitch Circle -

Diameter of Wheel Shaft - Distance between Centres of Bearings - Diameter of Pitch Circle of Wheel -

Thickness of Face - Diameter of Thrust Shaft under Collars 14 1/2" 13.26 Diameter of Tunnel Shaft - as per rule 12.645

of Screw Shafts one Diameter of same as per rule 13.53 14.1 if fitted with condenser Diameter of Propeller 17'0" Pitch of Propeller 14'0"

of Blades four State whether Moveable yes Total Surface 85 sq. ft. Diameter of Rotor Drum, H.P. L.P. Astern -

Thickness at Bottom of Groove, H.P. L.P. Astern - Revs. per Minute at Full Power, Turbine - Propeller -

## PARTICULARS OF BLADING.

## H.P.

## L.P.

## ASTERN.

|           | HEIGHT OF BLADES. | DIAMETER AT TIP. | NO. OF ROWS. | HEIGHT OF BLADES. | DIAMETER AT TIP. | NO. OF ROWS. | HEIGHT OF BLADES. | DIAMETER AT TIP. | NO. OF ROWS. |
|-----------|-------------------|------------------|--------------|-------------------|------------------|--------------|-------------------|------------------|--------------|
| EXPANSION |                   |                  |              |                   |                  |              |                   |                  |              |
| D         |                   |                  |              |                   |                  |              |                   |                  |              |
| D         |                   |                  |              |                   |                  |              |                   |                  |              |
| H         |                   |                  |              |                   |                  |              |                   |                  |              |
| H         |                   |                  |              |                   |                  |              |                   |                  |              |
| H         |                   |                  |              |                   |                  |              |                   |                  |              |
| H         |                   |                  |              |                   |                  |              |                   |                  |              |
| H         |                   |                  |              |                   |                  |              |                   |                  |              |

No. and size of Feed pumps 2-independent vertical. 12"x7"x18"

No. and size of Bilge pumps 3-independent. 2 @ 7x6x10 1 @ 6x5 1/2 x6

No. and size of Bilge suction in Engine Room & Boiler room: 3-3 1/2" 2-3" in bunkers

In Holds, &c. 2-3" in Pump Room. 2-3 1/2" in Cofferdams

3-3 1/2" in Forehold 1-3 1/2" in Forepeak 1-2" in chain locker 1-3 1/2" in after peak.

No. of Bilge Injections one sizes 12" Connected to condenser or circulating pump yes Is a separate Donkey Suction fitted in Engine Room & size yes 3 1/2"

Are all the bilge suction pipes fitted with roses yes Are the roses in Engine room always accessible yes

Are all connections with the sea direct on the skin of the ship yes Are they Valves or Cocks valves.

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 - How are they protected -

Are all 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

Is the Screw Shaft Tunnel watertight - Is it fitted with a watertight door - worked from -

OILERS, &c.—(Letter for record S) Manufacturers of Steel Worth Brothers, Philadelphia, Pa.

Total Heating Surface of Boilers 8325 sq. ft. Forced Draft fitted yes No. and Description of Boilers 3-Marine, multitubular.

Working Pressure 220 lbs. Tested by hydraulic pressure to 330 lbs. Date of test Sept 27-30 Oct No. of Certificates 54, 55, 56.

Can each boiler be worked separately yes Area of fire grate in each boiler 165 sq. ft. No. and Description of Safety Valves to each boiler 2-spring loaded Area of each valve 9.6 sq. in. Pressure to which they are adjusted 220 lbs. Are they fitted with easing gear yes

Smallest distance between boilers or uptakes and bunkers or woodwork - Mean dia. of boilers 15' 1 1/2" Length 11' 9" Material of shell plates steel

Thickness 1-19/32 Range of tensile strength 28-32 Are the shell plates welded or flanged no Descrip. of riveting: cir. seams DRL

long. seams TRDBS Diameter of rivet holes in long. seams 1-9/16" Pitch of rivets 10" Lap of plates or width of butt straps 22 3/8"

Per centages of strength of longitudinal joint 88.8 Working pressure of shell by rules 241 Size of manhole in shell 16" x 12"

plates 84.4

Size of compensating ring flanged No. and Description of Furnaces in each Boiler 3-Morison Material steel Outside diameter 48 1/16"

Length of plain part top - Thickness of plates 21/32" Description of longitudinal joint weld. No. of strengthening rings -

bottom -

Working pressure of furnace by the rules 222.6 Combustion chamber plates: Material steel Thickness: Sides 11/16 Back 11/16 Top 11/16 Bottom 15/16

Pitch of stays to ditto: Sides 7 7/8 x 6 3/4 Back 7 9/16 x 7 3/4 Top 8 x 6 3/4 If stays are fitted with nuts or riveted heads rivet heads Working pressure by rules 220

Material of stays steel Diameter at smallest part 1 5/8 Area supported by each stay 57.5 Working pressure by rules 256 End plates in steam space

Material steel Thickness 1 1/4 Pitch of stays 17 1/2 x 17 1/8 How are stays secured d. nuts Working pressure by rules 236 Material of stays steel

Diameter at smallest part 3 1/4" Area supported by each stay 299.69 sq. in. Working pressure by rules 287 Material of Front plates at bottom steel

Thickness 13/16 Material of Lower back plate steel Thickness 13/16" Greatest pitch of stays 15" Working pressure of plate by rules 252

Diameter of tubes 3" Pitch of tubes 4 7/8 x 4 1/16 Material of tube plates steel Thickness: Front 13/16 Back 7/8" Mean pitch of stays 10

Pitch across wide water spaces 13" Working pressures by rules 236 Girders to Chamber tops: Material steel Depth and thickness of girder at centre 12"x 1 1/2" Length as per rule 34" Distance apart 8" Number and pitch of stays in each 4 @ 6 3/4"

Working pressure by rules 345 Steam dome: description of joint to shell - % of strength of joint - Diameter -

Thickness of shell plates - Material - Description of longitudinal joint - Diameter of rivet holes - Pitch of rivets -

Working pressure of shell by rules - Crown plates: Thickness - How stayed -



SUPERHEATER. Type U.I.Wks. Date of Approval of Plan 14/6/16 Tested by Hydraulic Pressure to 660 lbs 4a  
Date of Test Oct 27th Nov. 3rd Is a Safety Valve fitted to each Section of the Superheater which can be shut off from the Boiler yes  
Diameter of Safety Valve 1" Pressure to which each is adjusted 270 lbs. Is Easing Gear fitted no

IS A DONKEY BOILER FITTED? no. If so, is a report now forwarded?

SPARE GEAR. State the articles supplied:— 1-set main coupling bolts. 1-set feed & bilge pump valves.  
Tail shaft complete with nut. 1-set thrust collars complete for main turbine. 1-set steam turbine  
bearings. 1-high speed pinion. 1-high speed shaft with couplings. 1-set high speed bearings.  
2-low speed shaft pinion bearings. 1-low speed shaft bearing. 1-set air pump valves. 50-conde  
tubes. 2-propeller blades. Quantity assorted bolts and nuts. Iron of various sizes.

The foregoing is a correct description,  
UNION IRON WORKS CO.

By Geo. J. Ames Manufacturer.  
Engineer-in-Chief.

Dates of Survey while building { During progress of work in shops - - July 31 Aug 9-16-18-23-28-30 Sept 7-14-20-27 Oct 4-9-12-19-27 Nov 3  
During erection on board vessel - - Oct 24-27 Nov 3-7-11-22-28 Dec 4-16-17-18-19-23  
Total No. of visits twenty-nine (29) Is the approved plan of main boiler forwarded herewith yes

Dates of Examination of principal parts—Casings Rotors Blading Gearing  
Rotor shaft Thrust shaft Aug 30. Tunnel shafts - Screw shaft Oct 12. Propeller Dec 16  
Stern tube Oct 12. Steam pipes tested Dec 4th Engine and boiler seatings Oct 12 Engines holding down bolts Nov 3rd  
Completion of pumping arrangements Nov 29 Boilers fixed Nov 29 Engines tried under steam Dec 3rd.  
Main boiler safety valves adjusted Dec. 18th Thickness of adjusting washers locknuts.  
Material and tensile strength of Rotor shaft Identification Mark on Do.  
Material and tensile strength of Pinion shaft Identification Mark on Do.  
Material of Wheel shaft Identification Mark on Do. Material of Thrust shaft steel Identification Mark on Do.  
Material of Tunnel shafts - Identification Marks on Do. - Material of Screw shafts steel Identification Marks on Do.  
Material of Steam Pipes steel Test pressure 660 lbs.  
Is an installation fitted for burning oil fuel yes Is the flash point of the oil to be used over 150°F. yes  
Have the requirements of Section 49 of the Rules been complied with yes  
Is this machinery a duplicate of a previous case no. If so, state name of vessel -

General Remarks (State quality of workmanship, opinions as to class, &c.)

This vessel is fitted with Curtis Geared Turbine. The Machinery & Boilers were constructed under special survey, of materials tested to meet requirements. Workmanship sound throughout. On completion the machinery was thoroughly tested under working conditions with satisfactory results. In the opinion of the undersigned the machinery is eligible to be classed in the Register Book with notation of \*LMC 12-16. Fitted for oil fuel 12-16, F.P. above 150°F. Electric Light.

1. Geared Steam Turbine THE BROOK + LMC 12.16. F.D.  
Fitted for oil fuel 12.16. F.P. above 150°F.

The amount of Entry Fee ... £ \$15.00 : When applied for,  
Special ... £ 230.00 :  
Donkey Boiler Fee ... £ : :  
Travelling Expenses (if any) £ : :  
Sunday fee 10.00

Committee's Minute New York JAN 11 1917

Assigned

+ Lmc. 12.16 Fitted for oil fuel 12.16 F.P. above 150°F

MACHINERY CERTIFICATE  
WRITTEN

Lloyd's Register  
Foundation