

Received at London Office

MUN. 27 III 1908

Date of writing Report 11<sup>th</sup> July 1908 When handed in at Local Office

Port of Hamburg

No. in Survey held at

Fleensburg

Date, First Survey 31<sup>st</sup> Dec. 07Last Survey 8<sup>th</sup> July 1908

Reg. Book.

Supp. 32 on the S.S. "Niagara"

(Number of Visits 24)

Gross 6655

Net 4119

Master H. Schaus

Built at

Fleensburg

By whom built

Fleensburger Schiffbau Ges.

When built 1908

Engines made at

Fleensburg

By whom made

Fleensburger Schiffbau Ges.

when made 1908

Boilers made at

Fleensburg

By whom made

Fleensburger Schiffbau Ges.

when made 1908

Registered Horse Power 620

Owners Deutsch-Amerika Petroleum Ges.

Port belonging to Hamburg

Nom. Horse Power as per Section 28 620

Is Refrigerating Machinery fitted for cargo purposes no

Is Electric Light fitted yes

## ENGINES, &amp;c.—Description of Engines Quadr. Expansion

No. of Cylinders 4

No. of Cranks 4

Dia. of Cylinders 24, 34, 51, 74

Length of Stroke 54

Revs. per minute 72

Dia. of Screw shaft

as per rule 15 3/4

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

If two

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

Length of stern bush 5' 6"

Dia. of Tunnel shaft

as per rule 13 7/8

Dia. of Crank shaft journals

as per rule 14 1/4

Dia. of Crank pin 5"

Size of Crank webs 21 1/2 x 9 1/2

Dia. of thrust shaft under

collars 15 1/4

Dia. of screw 19 1/2

Pitch of Screw 15 1/2

No. of Blades 4

State whether moveable yes

Total surface 92 sq. ft.

No. of Feed pumps 2

Diameter of ditto 4"

Stroke 28"

Can one be overhauled while the other is at work yes

No. of Bilge pumps 2

Diameter of ditto 4 1/4"

Stroke 28"

Can one be overhauled while the other is at work yes

No. of Donkey Engines 7

Sizes of Pumps see Specifications

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

In Engine Room 9 off 3 1/2", 1 off 8 1/2", 2 off 8 1/2" from bunkers, 1 off 6" and 1 off 5" from

No. of Bilge Injections 1 sizes 8 1/2" Connected to condenser, or to circulating pump yes Is a separate Donkey Suction fitted in Engine room &amp; 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 the sluices on Engine room bulkheads always accessible yes

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

Are they Valves or Cocks Locks and 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 none

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

Dates of examination of completion of fitting of Sea Connections 16.08

of Stern Tube 16.08

Screw shaft and Propeller 24.08

Is the Screw Shaft Tunnel watertight yes, with Is it fitted with a watertight door into tunnel worked from through bulkhead from Deck

BOILERS, &amp;c.—(Letter for record 18) Manufacturers of Steel Hoppers Tjesssen &amp; Co. Furnaces: The Leeds Forge Co. Ltd.

Total Heating Surface of Boilers 9016 sq. ft. Is Forced Draft fitted yes No. and Description of Boilers 3 single ended multitubular

Working Pressure 215 lbs

Tested by hydraulic pressure to 430 lbs

Date of test 22.2.08

No. of Certificate

Can each boiler be worked separately yes

Area of fire grate in each boiler 61.33 sq. ft.

No. and Description of Safety Valves to

each boiler 2 spring loaded

Area of each valve 12.6 sq. in. Pressure to which they are adjusted 215 lbs

Are they fitted with easing gear yes

Smallest distance between uptakes and bunkers or woodwork 2' 0"

Mean dia. of boilers 15 1/2"

Length 12' 2"

Material of shell plates Steel

Thickness 1.44"

Range of tensile strength 28-32 tons

Are the shell plates welded or flanged

Descrip. of riveting: cir. seams lap, dbl. riv.

long. seams dbl. riv. Diameter of rivet holes in long. seams 1 1/8"

Pitch of rivets 20.8"

Lap of plates or width of butt straps 33.5"

Per centages of strength of longitudinal joint

rivets 121.7%

plate 91.1%

Working pressure of shell by rules 227.3 lbs

Size of manhole in shell 19 1/2 x 15 1/8"

Size of compensating ring 8 7/8 x 8 7/8"

No. and Description of Furnaces in each boiler 3 horizontal

Material Steel Outside diameter 47.25"

Length of plain part

top 5"

bottom 12"

Thickness of plates

crown 7"

Description of longitudinal joint welded

No. of strengthening rings none

Working pressure of furnace by the rules 239.8

Combustion chamber plates: Material Steel Thickness: Sides .65" Back .64" Top .65" Bottom 1"

Pitch of stays to ditto: Sides 7.8"

Back 7.5"

Top 7.8"

If stays are fitted with nuts or riveted heads both

Working pressure by rules 228.9 lbs

Material of stays Steel

Diameter at smallest part 1.6"

Area supported by each stay 31.4 sq. in. Working pressure by rules 309.8

End plates in steam space:

Material Steel

Thickness 1.09"

Pitch of stays 16"

How are stays secured All stays riveted

Working pressure by rules 216.1 lbs

Diameter at smallest part 3"

Area supported by each stay 13.2 sq. in.

Working pressure by rules 326.8

Material of Front plates at bottom Steel

Thickness 1.02"

Material of Lower back plate Steel

Thickness .94"

Greatest pitch of stays 19"

Working pressure of plate by rules 243.9

Diameter of tubes 2 1/2"

Pitch of tubes 3.8"

Material of tube plates Steel

Thickness: Front 1.02"

Back .94"

Mean pitch of stays 7.6"

Pitch across wide water spaces 13.5"

Working pressures by rules 225.5 lbs

Girders to Chamber tops: Material Steel

Depth and

thickness of girder at centre 10.6"

Length as per rule 35"

Distance apart 7.5"

Number and pitch of stays in each 3-7.8"

Working pressure by rules 352 lbs

Superheater or Steam chest; how connected to boiler

Can the superheater be shut off and the boiler worked

separately

Diameter

Length

Thickness of shell plates

Material

Description of longitudinal joint

Diam. of rivet

holes

Pitch of rivets

Working pressure of shell by rules

Diameter of flue

Material of flue plates

Thickness

If stiffened with rings

Distance between rings

Working pressure by rules

End plates: Thickness

How stayed

Working pressure of end plates

Area of safety valves to superheater

Are they fitted with easing gear

Foundation

W594-0119 (1/2)



No.	Description									
Made at	By whom made			When made			Where fixed			
Working pressure	tested by hydraulic pressure to			Date of test		No. of Certificate		Fire grate area		Description of Safety
Valves	No. of Safety Valves		Area of each		Pressure to which they are adjusted			Date of adjustment		
If fitted with easing gear	If steam from main boilers can enter the donkey boiler				Dia. of donkey boiler			Length		
Material of shell plates	Thickness		Range of tensile strength			Descrip. of riveting long. seams				
Dia. of rivet holes	Whether punched or drilled			Pitch of rivets		Lap of plating		Per centage of strength of joint		Rivets Plates
Working pressure of shell by rules	Thickness of shell crown plates			Radius of do.		No. of stays to do.		Dia. of stays		
Diameter of furnace Top	Bottom		Length of furnace		Thickness of furnace plates			Description of joint		
Working pressure of furnace by rules	Thickness of furnace crown plates			Stayed by						
Diameter of uptake	Thickness of uptake plates			Thickness of water tubes			Dates of survey			

SPARE GEAR. State the articles supplied:—1/4<sup>th</sup> Crankshaft, 1 Piston Shaft, 1 Propeller shaft, 1 Propeller, 4 Prop. Blades, 1 set studs for 1 blade centre, 1 set piston springs & rings, 2 connecting rods & bushes, 1 disc & shaft for centrifugal circuit pump, 1 set of main bearing brasses, 2 sets of main rod big & 1 set of 5<sup>th</sup> bottom end brasses, 2 main bearing bolts, 4 cones, 1 set of 5<sup>th</sup> bottom end bolts, 2 side rods, 2 side rod end and link block, 1 eccentric shaft & connecting rods, 2 sets of connecting bolts, 3 Main Boiler Safety valve springs, 1 Spring for each of 4 safety valves, 1 set of feed and tilt pump valves and seats, 1 set of feed check valves for all Boilers, 1 set of air pump valves, 25 tons of new lugs with 100 coarse glands, 25 Main Boiler lugs, 12 set fire bars, a large quantity of spare engine articles for all engines.

The foregoing is a correct description,  
**Flensburger Schiffsbau-Gesellschaft**  
 Manufacturer.

Dates of Survey while building	During progress of work in shops - -	20/2.07, 31/10, 10/11, 21/12, 22/2, 5/3, 13/3, 23/3, 9/4, 15/4, 29/4, 30/4, 4/5, 19/5, 23/5, 1/6. 08.
	During erection on board vessel - -	15/6, 14/6, 24/6, 26/6, 3/7, 7/7, 8/7. 08
	Total No. of visits	24

Is the approved plan of main boiler forwarded herewith yes

Dates of Examination of principal parts—Cylinders 23/2.08 Slides 24.08 Covers 13/2.08 Pistons 23/2.08 Rods 5/2.08  
Connecting rods 9/2.08 Crank shaft 15/4.08 Thrust shaft 29/4.08 Tunnel shafts 23/2.08 Screw shaft 23/5.08 Propeller 19/5.08  
Stern tube 1/6.08 Steam pipes tested 24.08 Engine and boiler seatings 19/5.08 Engines holding down bolts 14/6.08  
Completion of pumping arrangements 24/6.08 Boilers fixed 15/6.08 Engines tried under steam 5/4.08  
Main boiler safety valves adjusted 7/7.08 Thickness of adjusting washers 17/2.08 Identification Mark on Do. 23/1.08  
Material of Crank shaft Steel Identification Mark on Do. 22/2.08 Material of Thrust shaft Steel Identification Mark on Do. 23/1.08  
Material of Tunnel shafts Steel Identification Marks on Do. 22/2.08 Material of Screw shafts Steel Identification Marks on Do. 23/1.08  
Material of Steam Pipes Steel Test pressure 430 lbs.

General Remarks (State quality of workmanship, opinions as to class, &c. *Materials and workmanship*)  
of these Engines and Boilers are of very best description, the general  
outfit is very acceptable. I attended a very satisfactory trial trip on the  
8<sup>th</sup> July 1908, when the vessel was ballasted to her deep load line, the En-  
gines developing 2080 I.H.P. when running at 73 revolutions per minute.

The detailed results of tests of the Steel Boiler materials, signed by the testing officers, are in my hands. The Forging Certificate of shipping and other heavy forgings will be found attached.

The pumping arrangements both for bulk oil cargo and bilges, double bottoms and engine, boilers and bunkers, fresh tanks and oil fuel tanks are very complete. For particulars of auxiliary pumps please see the attached continuation.

I adjusted the Safety valves of Main and Docking Boilers on the 20th July.  
The Machinery of this vessel having been constructed under Special Per-  
mits in accordance with the Society's Rules, I beg to recommend that they be

The amount of Entry Fee..	£. 6.8.-	When applied for,	9/7	1908	claimed <i>£. M.C. 7.08.</i> in Register Book
Special .....	£. 10.71.-				<i>Mr. Bennett.</i>
Donkey Boiler Fee ..	£. 4.4.-	When received,	12/7	1908	Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.
Travelling Expenses (if any)	£. 3.76.-				<i>L. Köhler</i>

Committee's Minute \_\_\_\_\_ TUES. 28 JUL 1908

Assigned \_\_\_\_\_ + L.M.C. 7.08

\_\_\_\_\_ F.D. Elec. Light

MACHINE. \_\_\_\_\_

WRITTEN. \_\_\_\_\_

Lloyd's Register Foundation



Port of *Hamburg* Continuation of Report No. *10368* dated *11<sup>th</sup> July 08.* on the

*S.S. "Niagara" (First Entry on Machinery)*

*Specification of Steam Donkey Pumps:*

a./	1	Simple, double acting, Wicks, 8" diam. by 24" stroke.	} Fuel, bilge, ballast, deck & general services.
b./	1	" " " " 8" " " 24" "	
c./	1	" " " " 8" " " 24" "	
d./	1	duplex, " " 7" diam by 12" stroke for Ballast and bilge	
e./	1	" " " " 6" " " 12" " " Boiler feed pump.	
f./	1	" " " " 5 3/4" " " 6" " " Oil Tank & decumulator.	
g./	1	" " " " 8 1/2" " " 12" " " Forward Tank & gen. service.	
h./	4	" " " " 10" " " 18" " " Oil cargo and ballast service in Oil cargo tanks and Cofferdams.	

*J. M. Kuehn*

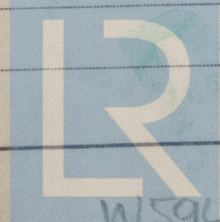
*J. Köhler*

It is submitted that  
this vessel is eligible for  
THE RECORD. ✠ L.M.C. 7.08.  
ELEC. LIGHT.  
F.D.

*HC. 28.7.08*

*KS*

*28.7.08*



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