

## REPORT ON MACHINERY.

No. 9689.

Port of HamburgReceived at London Office TUES. 21 MAY 1907No. in Survey held at TönniesDate, first Survey 26<sup>th</sup> Jan 06Last Survey 6<sup>th</sup> May 1907

Reg. Book.

Supp. 65 on the Steel S.S.Levenson(Number of Visits 10)Gross 2153Tons Net 1357When built 1907Master W. Gade Built at TönniesBy whom built Eiderwerft A.G.Engines made at TönniesBy whom made Eiderwerft A.G.when made 1907Boilers made at TönniesBy whom made Eiderwerft A.G.when made 1907Registered Horse Power 130Owners Norddeutsche Frachtdampfschiffahrt A.G.Port belonging to LevensonNom. Horse Power as per Section 28 130Is Refrigerating Machinery fitted for cargo purposes noIs Electric Light fitted noENGINES, &c.—Description of Engines Triple ExpansionNo. of Cylinders 3No. of Cranks 3Dia. of Cylinders 18 3/4", 30 1/2", 49 1/2" Length of Stroke 35 1/2" Revs. per minute 85-90 Dia. of Screw shaft 10 1/2" Material of screw shaft SteelIs 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 tightin 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 partbetween the bearings in the stern tube, is the space charged with a plastic material insoluble in water and non-corrosive — If twoliners are fitted, is the shaft lapped or protected between the liners — Length of stern bush 51"Dia. of Tunnel shaft 10 1/2" Dia. of Crank shaft journals 10 1/2" Dia. of Crank pin 10 1/2" Size of Crank webs 6 1/2" x 11 1/2" Dia. of thrust shaft undercollars 10 1/2" Dia. of screw 13 1/2" Pitch of Screw 13 1/2" No. of Blades 4 State whether moveable no Total surface 27 sq. ft.No. of Feed pumps 2 Diameter of ditto 2 3/4" Stroke 17 1/4" Can one be overhauled while the other is at work yesNo. of Bilge pumps 2 Diameter of ditto 2 3/4" Stroke 17 1/4" Can one be overhauled while the other is at work yesNo. of Donkey Engines 2 Sizes of Pumps — No. and size of Suctions connected to both Bilge and Donkey pumpsIn Engine Room 4 - 2 off 2 1/2", 2 off 2 3/4", 2 off 2 1/2", 2 off 2 1/2" In Holds, &c. 4 - 2 1/2" - 2 1/2" - 2 1/2" - 2 1/2"No. of Bilge Injections 1 sizes 4" Connected to — or to circulating pump yes Is a separate Donkey Suction fitted in Engine room & size yes, 2 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 noneAre all connections with the sea direct on the skin of the ship yes Are they Valves or Cocks bothAre 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 aboveAre 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 yesWhat 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 yesAre the Bilge Suction Pipes, Cocks, and Valves arranged so as to prevent any communication between the sea and the bilges yesDates of examination of completion of fitting of Sea Connections 14/2.07 of Stern Tube 14/2.07 Screw shaft and Propeller 14/2.07Is the Screw Shaft Tunnel watertight yes Is it fitted with a watertight door yes worked from top of cylinder platformBOILERS, &c.—(Letter for record S) Manufacturers of Steel Messrs. Thyssen & Co., WilhelmshavenTotal Heating Surface of Boilers 3120 sq. ft. Is Forced Draft fitted no No. and Description of Boilers 2 Single end, multitubularWorking Pressure 185 lbs Tested by hydraulic pressure to 370 lbs Date of test 14.3.07 No. of Certificate —Can each boiler be worked separately yes Area of fire grate in each boiler 43.9 sq. ft. No. and Description of Safety Valves toeach boiler 2 spring loaded Area of each valve 9.9 sq. in. Pressure to which they are adjusted 185 lbs Are they fitted with easing gear yesSmallest distance between boilers or uptakes and bunkers or woodwork 14" Mean dia. of boilers 12 1/2" Length 10 1/2" Material of shell plates SteelThickness 1 1/2" Range of tensile strength 44-50 tons Are the shell plates welded or flanged — Descrip. of riveting: cir. seams lap, dbl. riv.long. seams lap, dbl. riv. Diameter of rivet holes in long. seams 1 1/8" Pitch of rivets 12 1/2" Lap of plates or width of butt straps 16 1/2"Per centages of strength of longitudinal joint 106.4% Working pressure of shell by rules 203.8 lbs Size of manhole in shell 11 1/8" x 15 1/8"Size of compensating ring 8 1/2" x 1 1/2" No. and Description of Furnaces in each boiler 2 Morrison Material Steel Outside diameter 47 1/2"Length of plain part 4 1/2" Thickness of plates 1 1/2" Description of longitudinal joint welded No. of strengthening rings noneWorking pressure of furnace by the rules 209.8 lbs Combustion chamber plates: Material Steel Thickness: Sides 7" Back 6 1/2" Top 7" Bottom 8 1/2"Pitch of stays to ditto: Sides 8 1/2" x 7 1/2" Back 7 1/2" x 6 1/2" Top 8 1/2" If stays are fitted with nuts or riveted heads nuts Working pressure by rules 185 lbsMaterial of stays Steel Diameter at smallest part 1 1/4" Area supported by each stay 49 sq. in. Working pressure by rules 261.2 lbs End plates in steam space:Material Steel Thickness 8 1/2" Pitch of stays 15" How are stays secured by nuts Working pressure by rules 191.6 lbs Material of stays SteelDiameter at smallest part 2 1/2" Area supported by each stay 225 sq. in. Working pressure by rules 202.6 lbs Material of Front plates at bottom SteelThickness 9" Material of Lower back plate Steel Thickness 8" Greatest pitch of stays 24" Working pressure of plate by rules 469.5 lbsDiameter of tubes 3 1/4" Pitch of tubes 4 1/2" Material of tube plates Steel Thickness: Front 9" Back 8 1/2" Mean pitch of stays 8 1/2"Pitch across wide water spaces 9 1/2" Working pressures by rules 304.8 lbs Girders to Chamber tops: Material Steel Depth andthickness of girder at centre 7 1/2" x 1 1/2" Length as per rule 26 1/2" Distance apart 7 1/2" Number and pitch of stays in each 2 - 8 1/2"Working pressure by rules 221.4 lbs Superheater or Steam chest; how connected to boiler — Can the superheater be shut off and the boilerseparately — Diameter — Length — Thickness of shell plates — Material — Description of longitudinal joint — Diam. of rivetholes — 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 —

# VERTICAL DONKEY BOILER—

Manufacturers of Steel

*No Donkey Boiler fitted.*

No.	Description			When made	Where fixed
Made at	By whom made				
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 Propeller, 1 Propeller shaft, 1 Length crankshaft, 2 Caste each for cover, and top and bottom ends used main bearings, 1 slide rod to fit all slides, 1 rod each for air & steam pump, 2 sets campling bolts, 1 set piston springs & jacking bolts for all 2 pistons, 1 set piston rings for 2 pistons, valves, 2 linkblock liners, 3/2 brass each for cover and top and bottom ends, 1 set valves each for air, steam & feed pumps, 1 set 12 for helix pumps, 3 levers for crossheads, 2 1/2 loadmaster tubes & ferrules also main Boiler tubes, 3 springs for boiler escape valves, 2 springs for steam or safe valves, 1 spring for main Safety valves, 1 set fire bars, large number of studs & bolts for covers, stuffing boxes, valves of air and circulating pumps, main plates, bars, rivets, bolts &c. as needed.

The foregoing is a correct description,

*Guarantee*

Manufacturer.

Dates of Survey while building  
During progress of work in shops— 24/4, 17/8, 15/10, 29/11, 21/12, 26, 27/1, 25/1, 9/2, 22/2, 14/2, 4/3.07.  
During erection on board vessel— 12/4, 24/4, 4/5.07  
Total No. of visits 13

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

" " " donkey " " "

Dates of Examination of principal parts—Cylinders 9/2.07 Slides 22/2.07 Covers 22/2.07 Pistons 9/2.07 Rods 9/2.07  
Connecting rods 25/1.07 Crank shaft 9/2.07 Thrust shaft 22/2.07 Tunnel shafts 27/12/06 Screw shaft 22/2.07 Propeller 22/2.07  
Stern tube 14/2.07 Steam pipes tested 4/5.07 Engine and boiler seatings 22/2.07 Engines holding down bolts 12/4.07  
Completion of pumping arrangements 24/4 & 4/5.07 Boilers fixed 12/4.07 Engines tried under steam *yes*  
Main boiler safety valves adjusted *yes* Thickness of adjusting washers ?

Material of Crank shaft *Steel* Identification Mark on Do. 2872 Material of Thrust shaft *Steel* Identification Mark on Do. 2866  
Material of Tunnel shafts *Steel* Identification Marks on Do. 2812/15 Material of Screw shafts *Steel* Identification Marks on Do. 2822/26  
Material of Steam Pipes *Copper* Test pressure 380 lbs.

**General Remarks** (State quality of workmanship, opinions as to class, &c.) The quality of materials and workmanship of these Engines and Boilers are satisfactory and, having been constructed under Special Survey, fit for a vessel entered in the Society's Register Book. The detailed results of tests of the Steel Boiler Materials, signed by the Surveyors, are in my hands, the Fitting Certificates of Shafting will be found attached.

In consequence of the builders not giving timely notice of the date of the trial trip the Hamburg Engineer Surveyors were unable to attend and to complete the Survey. It remains to adjust the Safety valves under steam and to measure the distance rings of same, also to verify that the Spare gear provided by the Rules is on board. The vessel proceeded from trial direct to Hethel in order to prevent the cancelling of a Charterparty, the Safety valves of the Boilers having been adjusted by the Government Surveyors. I informed the Little Surveyors of the requirements for completion and asked to undertake the examinations at Hethel, etc to report to the head office. — I beg to recommend that the vessel be cleared and *L.M.C. 5.07* be entered in R. B. subject to the Little Surveyors Report on the completion of Survey being satisfactory.

The amount of Entry Fee... £ 42. —  
Special ... £ 409. —  
Donkey Boiler Fee ... £ :  
Travelling Expenses (if any) £ 281. —

When applied for, 14/5.1907

When received, 17/5.1907

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

*No. 220*

Committee's Minute

WED. 22 MAY 1907

Assigned

*L.M.C. 5.07*

MACHINERY CERTIFICATE  
WRITTEN.

*L. Köhler*  
Lloyd's Register  
Foundation

Certificate (if required) to be sent to Hamburg Office, when completed.