

# REPORT ON MACHINERY.

No. 12. *M. Loos & Co. 6836.* Received at London **THURSDAY 13 SEP. 1883**  
 No. in Survey held at *Delfshaven* Date, first Survey *17th May* Last Survey *11th Sept. 1883*  
 on the *Steel Screw Steamer "Saturnus"* (Number of Visits *12*) Tons  
 Master *P. Euwes* Built at *Delfshaven* By whom built *Maatschappij, de Haas* When built *9. 83*  
 Engines made at *Delfshaven* By whom made *Maatschappij, de Haas* when made *1883*  
 Makers made at *d.* By whom made *d.* when made *d.*  
 Registered Horse Power *104* Owners *Koninklijke Nederlandsche Stoomboot Maatschappij* Port belonging to *Amsterdam*

**GINES, &c.**  
 Description of Engines *Direct acting, Inverted, Compound surface condensing*  
 Diameter of Cylinders *24" x 50"* Length of Stroke *36"* No. of Rev. per minute *± 65* Point of Cut off, High Pressure *61%* Low Pressure *62%*  
 Diameter of Screw shaft *9 3/8"* Diam. of Tunnel shaft *8 3/4"* Diam. of Crank shaft journals *9 1/4"* Diam. of Crank pin *9 1/4"* size of Crank webs *10 3/4" x 6 1/2"*  
 Diameter of screw *12" - 6"* Pitch of screw *16 feet* No. of blades *4* state whether moveable *no* total surface *41 sq. ft.*  
 of Feed pumps *2* diameter of ditto *3 1/4"* Stroke *20"* Can one be overhauled while the other is at work *yes*  
 of Bilge pumps *2* diameter of ditto *3 1/4"* Stroke *20"* Can one be overhauled while the other is at work *no, very easy to overhaul.*  
 Where do they pump from *Afterwell and engine room (port, midship & starboard)*  
 of Donkey Engines *1 & 1 pulsed.* Size of Pumps *3 1/2" x 10"* pul. *4"* suction *4"* Where do they pump from *sea, hotwell, Afterwell, engine room, ballast tanks & forehold.*  
 Are all the bilge suction pipes fitted with roses *yes* Are the roses always accessible *yes* Are the sluices on Engine room bulkheads always accessible *yes*  
 of bilge injections *1* and sizes *4"* Are they connected to condenser, or to circulating pump *to circulating pumps*  
 Are the pumps worked *by levers from L. P. Crosshead.*  
 Are all connections with the sea direct on the skin of the ship *yes* Are they Valves or Cocks *Valves & Cocks.*  
 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*  
 Are pipes carried through the bunkers *none* How are they protected *—*  
 Are all pipes, cocks, valves, and pumps in connection with the machinery accessible at all times *yes*  
 Are the pipes, cocks, and valves arranged so as to prevent an unintentional connection between the sea and the bilges *yes.*  
 Were stern tube, propeller, screw shaft, and all connections examined in dry dock *—*  
 Is the screw shaft tunnel watertight *yes* and fitted with a sluice door *yes* worked from *from main deck.*

**BOILERS, &c.**  
 Number of Boilers *one* Description *Cylindrical, multitub.* Whether Steel or Iron *Iron.*  
 Working Pressure *75 lbs* Tested by hydraulic pressure to *150 lbs* Date of test *26. 6. 83*  
 Description of superheating apparatus or steam chest *Horizontal, Cylindrical, with iron neck to boiler*  
 Can each boiler be worked separately *—* Can the superheater be shut off and the boiler worked separately *—*  
 Area of square feet of fire grate surface in each boiler *59 sq. ft.* Description of safety valves *Adm's springs* No. to each boiler *four*  
 Area of each valve *12.96 sq. in.* Are they fitted with easing gear *yes* No. of safety valves to superheater *—* area of each valve *—*  
 Are they fitted with easing gear *—* Smallest distance between boilers and bunkers or woodwork *12"* Diameter of boilers *14"*  
 Length of boilers *10' - 3"* description of riveting of shell long. seams *lap. quadr.* circum. seams *lap. dbl.* Thickness of shell plates *1"*  
 Diameter of rivet holes *1 1/4"* whether punched or drilled *drilled* pitch of rivets *5 21/32"* Lap of plating *9 1/4"*  
 Percentage of strength of longitudinal joint *78%* working pressure of shell by rules *88 lbs* size of manholes in shell *12" x 16"*  
 of compensating rings *4 5/8" x 1"* No. of Furnaces in each boiler *three*  
 Inside diameter *3' - 8 1/2"* length, top *4'* bottom *9' - 6"* thickness of plates *7/16"* description of joint *Corrugated* if rings are fitted *no*  
 Greatest length between rings *—* working pressure of furnace by the rules *112 lbs* combustion chamber plating, thickness, sides *7/16"* back *7/16"* top *7/16"*  
 of stays to ditto, sides *7 1/2"* back *7 1/2"* top *4' - 5"* If stays are fitted with nuts or riveted heads *riv. nuts* working pressure of plating by rules *78 lbs*  
 Diameter of stays at smallest part *1 1/8"* working pressure of ditto by rules *106 lbs* and plates in steam space, thickness *3/4"*  
 of stays to ditto *1' - 3 1/2"* how stays are secured *dbl. nuts & wash.* working pressure by rules *96 lbs* diameter of stays at smallest part *2 1/4"*  
 working pressure by rules *99 lbs* Front plates at bottom, thickness *5/8"* Back plates, thickness *5/8"*  
 Greatest pitch of stays *7 1/2"* working pressure by rules *—* Diameter of tubes *3 3/4"* pitch of tubes *4 7/8"* thickness of tube plates, front *3/4"* back *3/4"*  
 how stayed *screw tube* pitch of stays *9 3/4"* width of water spaces *1 1/8"*  
 Diameter of Superheater or Steam chest *4' - 4"* length *8' - 4"* thickness of plates *7/16"* description of longitudinal joint *lap. dbl.* diam. of rivet holes *3/4"*  
 of rivets *2 1/4"* working pressure of shell by rules *88 lbs* diameter of flue *—* thickness of plates *—* If stiffened with rings *—*  
 Distance between rings *—* working pressure by rules *—* end plates of superheater, or steam chest; thickness *1/2"* how stayed *long stay 2 1/2"*  
 Smallest part, *dbl nuts & washers* Superheater or steam chest; how connected to boiler *Elliptical ring 12" x 16"*





# DONKEY BOILER—

Description *Vertical, cylindrical, inner furnace with 3 water tubes*  
 Made at *Deelfhaven* by whom made *Maatschappij, de Maas* when made *9.83* where fixed in *Stokehold*  
 Working pressure *45 lbs* tested by hydraulic pressure to *90 lbs* No. of Certificate *6* fire grate area *22 ft* description of safety  
 valves *lever & weight* No. of safety valves *two* area of each *3.55 sq ft* if fitted with easing gear *yes* if steam from main boilers can  
 enter the donkey boiler *no* diameter of donkey boiler *5'-11"* length *10'-6"* description of riveting *lap, dbl rivettes*  
 Thickness of shell plates *7/16"* diameter of rivet holes *3/4"* whether punched or drilled *punched* pitch of rivets *3"* lap of plating *4/8"*  
 per centage of strength of joint *64%* thickness of crown plates *7/16"* stayed by *4 stays* 2' at bottom of throat.  
 Diameter of furnace, top *4'-4"* bottom *5'-6 1/2"* length of furnace *7'-5-8"* thickness of plates *7/16"* description of joint *lap single riv.*  
 Thickness of furnace crown plates *7/16"* stayed by *4 stays mentioned above.* working pressure of shell by rules *63 lbs*  
 Working pressure of furnace by rules *45 lbs nearly.* diameter of uptake *1'-5 1/2"* thickness of plates *3/8"* thickness of water tubes *3/8"*

SPARE GEAR. State the articles supplied:— *1/2 crankshaft; 1 Tailshaft, 1 propeller; 2 connecting  
 rod top ends bolts & nuts; 2 do. bottom end bolts & nuts; 2 main bearing bolts;  
 1 set of coupling bolts; 1 set of feed & bilge pump valves. A quantity of  
 assorted bolts & nuts and a fair complement of tools and utensils*

The foregoing is a correct description,

*MAATSCHAPPIJ, DE MAAS*

*Lucardij* Manufacturer.

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

*The workmanship and material being of first class quality  
 as far as could be seen, this vessel is eligible in my opinion  
 to be recorded in the society's Register book with  
 + L.M.C. 9.83 in red.*

*It is submitted that this vessel  
 is eligible to have the  
 notation + L.M.C. 9.83  
 recorded.*

*23  
 13/9/83*

The amount of Entry Fee £ *2* : : : received by me,  
 Special .. £ *16* : *1* : :  
 Donkey Boiler Fee .. £ *2* : *2* : :  
 Certificate (X required) .. £ : *2* : *6* : 18

(Travelling Expenses, if any, £ )

Committee's Minute

FRIDAY 11 SEPT 1883

*Gen Committee Minutes Sep 20<sup>th</sup> 1883*

*W. F. D. van Ollefen*  
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

*+ L.M.C. 9.83*