

# REPORT ON MACHINERY.

(Received at London Office) **WEDNESDAY 21 OCT 1883**

No. 025      No. in Survey held at Hamburg      Date, first Survey 8<sup>th</sup> July      Last Survey 12<sup>th</sup> Oct 1883  
 Reg. Book.      on the S. S. Union      (Number of Visits)      Tons 307.21  
 Master P. S. Barm      Built at Kiel      When built 1883  
 Engines made at Kiel      By whom made Geb. Howaldt when made 1883  
 Boilers made at Kiel      By whom made Geb. Howaldt when made 1883  
 Registered Horse Power 40      Owners H. Sandberg      Port belonging to Hamburg

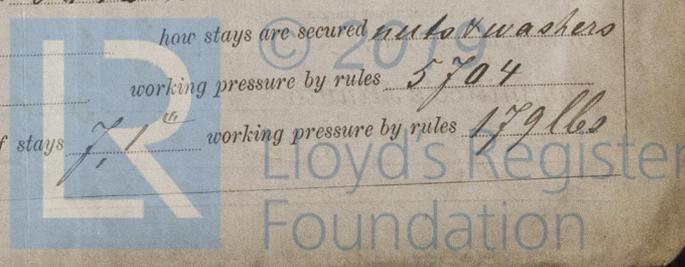
**ENGINES, &c.—**

Description of Engines Direct acting, inverted Cylinders  
 Diameter of Cylinders 15 1/4 x 27 1/8 Length of Stroke 15 3/4 No. of Rev. per minute 125 Point of Cut off, High Pressure 1/3 Low Pressure 1/2  
 Diameter of Screw shaft 4 1/4 Diameter of Tunnel shaft 4 9/16 Diameter of Crank shaft journals 4 1/4 Diameter of Crank pin 4 3/4 size of Crank webs 4 1/4  
 Diameter of screw 7 3/8 Pitch of screw 7 1/8 No. of blades 4 state whether moveable no total surface 40 sq  
 No. of Feed pumps 1 diameter of ditto 2 1/2 Stroke 12 1/2 Can one be overhauled while the other is at work yes  
 No. of Bilge pumps 1 diameter of ditto 2 1/2 Stroke 12 1/2 Can one be overhauled while the other is at work  
 Where do they pump from From all departments  
 No. of Donkey Engines 1 Size of Pumps 4 7/16 x 2 3/8 Where do they pump from From all departments

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  
 No. of bilge injections 2 and sizes 3 & 5      Are they connected to condenser, or to circulating pump to circulating Pump  
 How are the pumps worked One by eccentric, one by lever  
 Are all connections with the sea direct on the skin of the ship yes      Are they Valves or Cocks 1 Valve and 1 Cock on the skin  
 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 air pump and bilge      Are the blow off cocks fitted with a spigot and brass covering plate no  
 Are all pipes, cocks, valves, and pumps in connection  
 Are the pipes, cocks, and valves arranged so as to prevent an unintentional connection between the sea and the bilges yes  
 When were stern tube, propeller, screw shaft, and all connections examined in dry dock new  
 Is the screw shaft tunnel watertight yes      and fitted with a sluice door yes      worked from deck

**BOILERS, &c.—**

Number of Boilers 2      Description multitubular circular boilers  
 Working Pressure 90 lbs      Tested by hydraulic pressure to 165 lbs      Date of test 21<sup>st</sup> Sept 1883  
 Description of superheating apparatus or steam chest  
 Can each boiler be worked separately yes      Can the superheater be shut off and the boiler worked separately  
 No. of square feet of fire grate surface in each boiler 104 sq      Description of safety valves direct acting valves, spring loaded  
 No. to each boiler two      area of each valve 4 43 sq      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 between Boiler and Bunker 5"  
 Diameter of boilers 74 8"      Length of boilers 78 5"      description of riveting of shell long. seams double riveted circum. seams single riveted  
 Thickness of shell plates 19/32"      diameter of rivet holes 1"      whether punched or drilled drilled      pitch of rivets 2, 95"  
 Lap of plating 6"      per centage of strength of longitudinal joint 66 1/2%      working pressure of shell by rules 93, 85 lbs  
 Size of manholes in shell 11" x 15"      size of compensating rings 15" x 19" x 5/8"  
 No. of Furnaces in each boiler 1      outside diameter 35 1/2"      length, top 53 1/4"      bottom  
 Thickness of plates 3/8"      description of joint welded      if rings are fitted      greatest length between rings  
 Working pressure of furnace by the rules Fox's patent furnace  
 Combustion chamber plating, thickness, sides 9/16"      back 19/32"      top 9/16"  
 Pitch of stays to ditto, sides      back 7 1/8"      top  
 If stays are fitted with nuts or riveted heads riveted heads      working pressure of plating by rules 179 lbs  
 Diameter of stays at smallest part 1 3/16"      working pressure of ditto by rules 3066 lbs  
 End plates in steam space, thickness 23/32"      pitch of stays to ditto 15"      how stays are secured nuts & washers  
 Working pressure by rules 94 lbs      diameter of stays at smallest part 2 1/8"      working pressure by rules 5704  
 Front plates at bottom, thickness 23/32"      Back plates, thickness 1/32"      greatest pitch of stays 7 1/8"      working pressure by rules 179 lbs



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Diameter of tubes  $3\frac{1}{4}$  outside pitch of tubes  $4\frac{9}{16}$  thickness of tube plates, front  $\frac{23}{32}$  back  $\frac{11}{16}$   
 How stayed stay tubes pitch of stays width of water spaces  
 Diameter of Superheater or Steam chest dome  $29\frac{1}{8}$  length  $31\frac{1}{2}$   
 Thickness of plates  $\frac{5}{16}$  description of longitudinal joint singleriveted diameter of rivet holes  $1$  pitch of rivets  $2.95$   
 Working pressure of shell by rules 108 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  $\frac{7}{16}$  How stayed  
 Superheater or steam chest; how connected to boiler riveted to the boiler

**DONKEY BOILER—**

Description none  
 Made at By whom made when made  
 Where fixed working pressure Tested by hydraulic pressure to No. of Certificate  
 Fire grate area Description of safety valves No. of safety valves area of each  
 If fitted with casing gear If steam from main boilers can enter the donkey boiler  
 Diameter of donkey boiler length description of riveting  
 thickness of shell plates diameter of rivet holes whether punched or drilled  
 pitch of rivets lap of plating per centage of strength of joint  
 thickness of crown plates stayed by  
 Diameter of furnace, top bottom length of furnace  
 thickness of plates description of joint  
 thickness of furnace crown plates stayed by  
 Working pressure of shell by rules working pressure of furnace by rules  
 diameter of uptake thickness of plates thickness of water tubes

The foregoing is a correct description,

*George Howaldt* Manufacturer.

*G. H. Howaldt*

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

of very good material and of good workmanship and built according to Lloyd's Rules the Boilers have been tested under hydraulic and were found tight. The safety valves were adjusted under steam. In my opinion the Vessel ought to be marked with  
**✠ L.M.C. 10. 83** in the Register book

It is submitted that this vessel is eligible to have the notification + £m 6 10. 83 recorded.  
 25/11/10/83

The amount of Entry Fee .. £ : : received by me,

Special .. £ 6 : 0 : 0

Certificate (if required) .. £ : : 18

To be sent as per margin.

(Travelling Expenses, if any, £ 3. 0. 0.)

Committee's Minute

FRIDAY 2 NOV 1893 18

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

