

# REPORT ON MACHINERY.

39918 Don

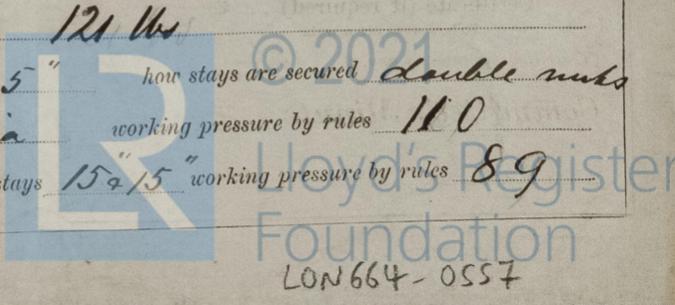
No. 196 (Received in London Office 4. 9. 1880)  
 No. in Survey held at London & Greenhithe, first Survey 17. Sept 1879 Last Survey 17. Aug 1880  
 Reg. Book. 196 on the S. S. Iris Tons \_\_\_\_\_  
 Master \_\_\_\_\_ Built at London When built 1872  
 Engines made at Soho By whom made James Watt & Co when made 1872  
 Boilers made at Deptford By whom made J. P. Navy Co when made 1880  
 Registered Horse Power 200 Owners General Steam Navigation Co Port belonging to London

**ENGINES, &c.—**

Description of Engines Inverted direct acting compound Engines  
 Diameter of Cylinders 46" & 72" Length of Stroke 30" No. of Rev. per minute 70 Point of Cut off, High Pressure \_\_\_\_\_ Low Pressure \_\_\_\_\_  
 Diameter of Screw shaft 11" Diameter of Tunnel shaft 9" Diameter of Crank shaft journals 12" Diameter of Crank pin 12" size of Crank webs 7" x 14"  
 Diameter of screw 13.0" Pitch of screw 16.0" No. of blades 4 state whether moveable no total surface 68 sq ft  
 No. of Feed pumps 2 diameter of ditto 2 1/2" Stroke 30" Can one be overhauled while the other is at work yes  
 No. of Bilge pumps 3 diameter of ditto 2 1/2" Stroke 30" } Can one be overhauled while the other is at work yes  
 Where do they pump from Bilge only  
 No. of Donkey Engines two Size of Pumps 3" & 3 1/2" Where do they pump from Hotwell Bilge  
Sea & Ballast tank  
 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 1 and sizes 4" dia Are they connected to condenser, or to circulating pump circulating pumps  
 How are the pumps worked Circulating, Air, Feed & two Bilge pumps from pistons. The 6" bilge  
from pin on forward end of crank shaft.  
 Are all connections with the sea direct on the skin of the ship yes Are they Valves or Cocks both  
 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 Main Steam & main Feed. How are they protected Iron casing  
 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  
 When were stern tube, propeller, screw shaft, and all connections examined in dry dock in June & August 1880  
 Is the screw shaft tunnel watertight yes and fitted with a sluice door yes worked from the main Deck

**BOILERS, &c.—**

Number of Boilers two Description Return tubular  
 Working Pressure 65 lbs Tested by hydraulic pressure to 130 Date of test 8th March 1880  
 Description of superheating apparatus or steam chest one steam chest to each boiler  
 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 484 ft Description of safety valves Adam's Patent Spring  
 No. to each boiler two area of each valve 14.2 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 7 ft  
 Diameter of boilers 13.2" Length of boilers 10' description of riveting of shell long. seams belle circum. seams double, lap.  
 Thickness of shell plates 15/16 diameter of rivet holes 1 1/8 whether punched or drilled punched. pitch of rivets 3 1/8"  
 Lap of plating 6" per centage of strength of longitudinal joint 71 lbs working pressure of shell by rules 75 lbs  
 Size of manholes in shell 12" x 15" size of compensating rings angle iron 4" x 4" x 5/8"  
 No. of Furnaces in each boiler three outside diameter 36" length, top 6:0" bottom 6:0"  
 Thickness of plates 7/16 description of joint Welded if rings are fitted yes greatest length between rings 3:0"  
 Working pressure of furnace by the rules 97 lbs  
 Combustion chamber plating, thickness, sides 7/16 back 7/16 top 7/16  
 Pitch of stays to ditto sides 9" & 7" back 8" & 8" top curved  
 If stays are fitted with nuts or riveted heads nuts working pressure of plating by rules 65 lbs  
 Diameter of stays at smallest part 1 1/4" dia working pressure of ditto by rules 121 lbs  
 End plates in steam space, thickness 3/4" pitch of stays to ditto 15" & 15" how stays are secured double nuts  
 Working pressure by rules 89 lbs diameter of stays at smallest part 2 1/4" dia working pressure by rules 110  
 Front plates at bottom, thickness 5/8 Back plates, thickness 3/4 greatest pitch of stays 15" & 15" working pressure by rules 89



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Diameter of tubes  $3\frac{1}{2}$ " pitch of tubes  $4\frac{1}{2}$ " &  $4\frac{3}{4}$ " thickness of tube plates, front  $\frac{5}{8}$ " back  $\frac{5}{8}$ "  
 How stayed *stay tubes* pitch of stays  $14$ " &  $18$ " width of water spaces *not ascertained*  
 Diameter of Superheater or Steam chest  $54$ " length  $9:6$ "  
 Thickness of plates  $\frac{1}{2}$ " description of longitudinal joint *double rivet* diameter of rivet holes  $\frac{3}{4}$ " pitch of rivets  $2\frac{1}{2}$ "  
 Working pressure of shell by rules  $95$  lbs Diameter of flue  $6:2$ " thickness of plates  $\frac{3}{16}$ "  
 If stiffened with rings *yes* distance between rings  $7:0$ " Working pressure by rules  
 End plates of superheater, or steam chest; thickness  $\frac{1}{16}$ " How stayed *7 stays 2" diameter*  
 Superheater or steam chest; how connected to boiler *lashed.*

**DONKEY BOILER**— Description *Vertical cylindrical no tubes.*  
 Made at *the J. S. N. Co.* By whom made *Deptford.* when made *1880*  
 Where fixed *Stoke Hold* working pressure *50 lbs per sq. in.* Tested by hydraulic pressure to *100 lbs* No. of Certificate  
 Fire grate area *20 sq ft* Description of safety valves *dead weight* No. of safety valves *two* area of each *3.2 sq inch*  
 If fitted with easing gear *yes.* If steam from main boilers can enter the donkey boiler *no*  
 Diameter of donkey boiler  $72$ " length  $11:6$ " description of riveting *double riveted lap joint*  
 thickness of shell plates  $\frac{1}{2}$ " diameter of rivet holes  $\frac{3}{4}$ " whether punched or drilled *punched*  
 pitch of rivets  $2$ " lap of plating  $4\frac{1}{2}$ " &  $2\frac{1}{2}$ " per centage of strength of joint *62.5*  
 thickness of crown plates  $\frac{3}{8}$ " stayed by *5 stays 1 1/2" diam.*  
 Diameter of furnace, top  $56$ " bottom  $62$ " length of furnace  $3:6$ "  
 thickness of plates  $\frac{1}{2}$ " description of joint *lap double riveted.*  
 thickness of furnace crown plates  $\frac{1}{2}$ " stayed by *uptake, (spherical form)*  
 Working pressure of shell by rules  $67$  lbs working pressure of furnace by rules  $63$  lbs  
 diameter of uptake  $14$ " thickness of plates  $\frac{1}{2}$ " thickness of water tubes

The foregoing is a correct description,

Manufacturer. *of main & donkey boilers only.*

*James J. Millard & Co. Deptford 1879*

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

The engines were opened out & thoroughly overhauled the tail shaft drawn in examined & new propeller fitted, all sea cocks & valves which were below the floors were removed & placed higher up. The crankshaft & thrust block were stripped & found good. All the air & circulating helge & feed pumps were opened out & found good. The cylinders & slides & slidefaces were found in good condition with exception of low pressure cylinder chamber which contained two short cracks in the flange & rib connecting it to the bottom, which defect has been made good by an extra bolt fitted into cylinder. The low pressure cylinder was lined up & the high pressure valve renewed & face laced out again.

The material appears to be good as well as the workmanship.

The engines & boilers are in good order & safe working condition and desirable in our opinion to have NB 508 *Lloyds M C 880* recorded.

*This submitted to the  
 Board is eligible to have  
 the number NB 508 recorded  
 J. S. N. Co. 3/9/80*

The amount of Entry Fee .. £ 3 : : : received by me,  
 Special .. £ 4 : 4 : -  
 Certificate (if required) .. £ : 5 : :  
 To be sent as per margin.  
 (Travelling Expenses, if any, £ 10/-)

*J. J. Millard & Co. Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.*

Committee's Minute

Friday, December 24th, 1880

*Lloyd's Register*

