

REPORT ON MACHINERY.

No. 425

No. in Survey held at Newcastle
Reg. Book.

Date, first Survey Aug. 26th

(Received in London Office) 11/57
Last Survey 14th Dec. 1880

on the Screw Steamer "Northern".

Tons 2221
1462

Master J. W. Watson

Built at Newcastle

When built 1880

Engines made at Newcastle

By whom made Palmer's & Co. when made 1880

Boilers made at Newcastle

By whom made Do when made 1880

Registered Horse Power 240

Owners Harris & Dixon

Port belonging to London

ENGINES, &c.—

Description of Engines Compound Inverted Surface Condensing

Diameter of Cylinders 26" & 56" Length of Stroke 60" No. of Rev. per minute 56 Point of Cut off, High Pressure $\frac{9}{16}$ Low Pressure $\frac{9}{16}$

Diameter of Screw shaft 12" Diameter of Tunnel shaft 11" Diameter of Crank shaft journals 12 $\frac{1}{4}$ " Diameter of Crank pin 12 $\frac{1}{4}$ " size of Crank webs 9 $\frac{3}{4}$ " x 15"

Diameter of screw 16" Pitch of screw 19" No. of blades 4 state whether moveable yes total surface 67 sq. feet

No. of Feed pumps 2 diameter of ditto 4 $\frac{1}{2}$ " Stroke 24" Can one be overhauled while the other is at work yes

No. of Bilge pumps 2 diameter of ditto 4 $\frac{1}{2}$ " Stroke 24" Can one be overhauled while the other is at work yes

Where do they pump from engine space, tunnel well and after hold well and all tanks

No. of Donkey Engines 2 Size of Pumps 4 $\frac{1}{2}$ " x 8" x 12" Where do they pump from engine space, after

hold well, tunnel well, and all tanks

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 6 $\frac{1}{4}$ " Are they connected to condenser, or to circulating pump circulating

How are the pumps worked levers over condenser.

Are all connections with the sea direct on the skin of the ship yes Are they Valves or Cocks screw valves and 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

How are the 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

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 engine room top platform

BOILERS, &c.—

Number of Boilers 2 Description cylindrical, return tubes over furnaces, & double ended (Steel) Iron Stays

Working Pressure 115 lbs Tested by hydraulic pressure to 230 Date of test 6.10.80. No. of Certificate 476

Description of superheating apparatus steam chest horizontal dome

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 54 Description of safety valves spring

No. to each boiler 2 area of each valve 14 sq. ins. 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 10" & 10 $\frac{3}{4}$ " Length of boilers 17'1" description of riveting of shell long. seams lap, triple rivd circum. seams double riveted

Thickness of shell plates $\frac{29}{32}$ " diameter of rivet holes 1 $\frac{1}{16}$ " whether punched or drilled drilled pitch of rivets 3 $\frac{3}{4}$ "

No. of plating 8 $\frac{1}{2}$ " per centage of strength of longitudinal joint 71 working pressure of shell by rules 117 lbs.

No. of manholes in shell 11 $\frac{1}{4}$ " x 15 $\frac{1}{2}$ " size of compensating rings 6 x 1

No. of Furnaces in each boiler 4 outside diameter 3'1" length, top 6'0" bottom 8'3"

Thickness of plates $\frac{9}{16}$ " description of joint double butt if rings are fitted half greatest length between rings 3'0"

Working pressure of furnace by the rules 122 lbs.

Combustion chamber plating, thickness, sides $\frac{1}{2}$ " back $\frac{1}{2}$ " top $\frac{1}{2}$ "

No. of stays to ditto sides 8' x 6" back 7' x 7" top curved

Are stays fitted with nuts or riveted heads riveted heads working pressure of plating by rules 143 lbs.

Diameter of stays at smallest part 1 $\frac{1}{8}$ " working pressure of ditto by rules 120 lbs.

No. of plates in steam space, thickness $\frac{13}{16}$ " pitch of stays to ditto 14 $\frac{1}{2}$ " x 13 $\frac{1}{2}$ " how stays are secured double nuts & washers

Working pressure by rules 120 lbs. diameter of stays at smallest part 2 $\frac{1}{4}$ " working pressure by rules 114 lbs.

No. of plates at bottom, thickness 3 $\frac{1}{4}$ " Back plates, thickness greatest pitch of stays working pressure by rules

Wxc 777-0044

Diameter of tubes $3\frac{1}{2}$ " pitch of tubes $4\frac{3}{4}$ " thickness of tube plates, front $1\frac{3}{16}$ " back $1\frac{3}{16}$ "
How stayed Tube stamp pitch of stays $14\frac{1}{2} \times 9\frac{1}{2}$ " width of water spaces 11"
Diameter of ~~Superheater~~ Steam chest 14" 0" length 5' 10"
Thickness of plates $\frac{9}{16}$ " description of longitudinal joint Lap down diameter of rivet holes $1\frac{3}{16}$ " pitch of rivets $2\frac{3}{4}$ "
Working pressure of shell by rules 125 lbs. Diameter of flue — thickness of plates —
If stiffened with rings — distance between rings — Working pressure by rules —
End plates of ~~superheater~~ steam chest; thickness $\frac{3}{4}$ " How stayed 5, $2\frac{1}{8}$ stamp
~~Superheater~~ steam chest; how connected to boiler Steam pipes

DONKEY BOILER— Description Cylindrical with return tubes over furnace
Made at Palmer's S. W. By whom made Palmer's when made December 1880
Where fixed main deck working pressure 85 lbs. Tested by hydraulic pressure to 170 lbs. No. of Certificate 477
Fire grate area 22 sq. ft. Description of safety valves Spring No. of safety valves 1 area of each $7\frac{1}{2}$ sq. ins
If fitted with easing gear yes If steam from main boilers can enter the donkey boiler no
Diameter of donkey boiler 6" 6" length 7' 0" description of riveting double butt
thickness of shell plates $\frac{9}{16}$ " diameter of rivet holes $\frac{5}{8}$ " whether punched or drilled drilled
pitch of rivets $2\frac{5}{8}$ " lap of plating $3\frac{1}{2}$ " per centage of strength of joint 76
thickness of crown plates — stayed by —
Diameter of furnace, 26 bottom 26 length of furnace 5' 0"
thickness of plates $\frac{1}{2}$ " description of joint Lap
thickness of furnace crown plates — stayed by —
Working pressure of shell by rules 89 lbs. working pressure of furnace by rules 170 lbs.
diameter of uptake — thickness of plates — thickness of water tubes stay tubes $\frac{5}{16}$ thick

The foregoing is a correct description,

Manufacturers.

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

The machinery of this vessel has been specially surveyed during construction the materials and workmanship good and render the vessel eligible in my opinion to have the notification + Lloyd's M.B. recorded in the Society's Register Book.

It is submitted that this vessel is eligible to have the notification + Lloyd's M.B. recorded in the Register Book
J.M. 8/1/81

The amount of Entry Fee £ 3 : - : - received by me,

Special Jan. 1881 £ 32 : - : -

Certificate (if required) free - : - : - 6th Jan'y 1881

To be sent as per margin.

(Travelling Expenses, if any, £)

Committee's Minute

Tuesday January, 11th. 1881.

Lloyd's

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

David Furness

North Shields

Lloyd's Register
Foundation