

REPORT ON MACHINERY.

Received at London Office

THURS 8, APRIL 1886

To. 6012
 No. in Survey held at West Hartlepool Date, first Survey 24th Sep. 1885 Last Survey 13th March 1886.
 eg. Book. 54 on the Screw Steamer "Charles Howard" (Number of Visits 23) Tons 1304
 aster (Paddle) Built at Sunderland By whom built W. Pile When built 1866
 Engines made at Greenwich By whom made Kincaid, Donald & Co. when made 1877
 Oilers made at West Hartlepool By whom made Central Marine Engineering Co. when made 1886
 Registered Horse Power 120 Owners A. Stuart Port belonging to Sunderland

ENGINES, &c.—

Description of Engines Vertical, Single Tandem, Compound
 Diameter of Cylinders 27 $\frac{1}{2}$ x 49 $\frac{1}{2}$ Length of Stroke 40 No. of Rev. per minute 56 Point of Cut off, High Pressure $\frac{1}{10}$ of stroke Low Pressure $\frac{3}{10}$ of stroke
 Diameter of Screw shaft 9" Diam. of Tunnel shaft 9 $\frac{1}{4}$ " Diam. of Crank shaft journals 9 $\frac{1}{2}$ " Diam. of Crank pin 10" size of Crank webs 11 $\frac{1}{4}$ x 8"
 Diameter of screw 12.8" Pitch of screw 20.6" No. of blades 4 state whether moveable ~~no~~ total surface 44 sq. ft.
 No. of Feed pumps 2 diameter of ditto 2 $\frac{1}{2}$ " Stroke 40" Can one be overhauled while the other is at work ~~no~~
 No. of Bilge pumps 2 diameter of ditto 2 $\frac{1}{2}$ " Stroke 40" Can one be overhauled while the other is at work ~~yes~~
 Where do they pump from Fore hold, Engine-room & after well.
 No. of Donkey Engines Size of Pumps Where do they pump from (Sea, ballast tanks, and all the bilges) (Sea, hotwell & bilges)
 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 one and sizes 4" Are they connected to condenser, or to circulating pump Circulating pump.
 How are the pumps worked By piston rod crosshead
 Are all connections with the sea direct on the skin of the ship ~~yes~~ Are they Valves or Cocks both
 Are they sized 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 below
 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 20th February 1886.
 Is the screw shaft tunnel watertight ~~yes~~ and fitted with a sluice door ~~yes~~ worked from middle platform in Engine Room.

BOILERS, &c.—

Number of Boilers One Description Cyl. Mult. Single Ended Whether Steel or Iron Steel.
 Working Pressure 65 lbs. Tested by hydraulic pressure to 130 lbs. Date of test 21st December 1885.
 Description of superheating apparatus or steam chest none
 Can each boiler be worked separately Can the superheater be shut off and the boiler worked separately ~~no~~ superheated
 No. of square feet of fire grate surface in each boiler 53.7 Description of safety valves Spring No. to each boiler 2
 Area of each valve 15.9 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 inches Diameter of boilers 15.0"
 Length of boilers 10.0" description of riveting of shell long. seams double butt ~~circum.~~ seams double butt ~~lap~~ Thickness of shell plates 5/8"
 Diameter of rivet holes 7/8" whether punched or drilled drilled pitch of rivets 3 3/4" Lap of plating 4 7/8"
 Percentage of strength of longitudinal joint 96.2 working pressure of shell by rules 66 lbs. size of manholes in shell none
 No. of compensating rings No. of Furnaces in each boiler 3
 Outside diameter 3.7 1/8" length, top 6.0" bottom 8.10" thickness of plates 7/16" description of joint butt strap if rings are fitted ~~no~~
 Greatest length between rings working pressure of furnace by the rules 65 lbs combustion chamber plating, thickness, sides 7/16" back 7/16" top 7/16"
 Pitch of stays to ditto, sides 8 1/4 x 8 1/4 back 8 1/4 x 8 1/4 top 9 x 9 If stays are fitted with nuts or riveted heads ~~no~~ except ~~none~~ working pressure of plating by rules 65 lbs.
 Diameter of stays at smallest part 1.009 working pressure of ditto by rules 78 lbs end plates in steam space, thickness 20/32"
 Pitch of stays to ditto 16 7/8 x 16" how stays are secured double nut ~~working~~ pressure by rules 65 lbs. diameter of stays at smallest part 2.17
 Working pressure by rules 72 lbs. Front plates at bottom, thickness 5/8" Back plates, thickness 5/8"
 Greatest pitch of stays 12 1/4" working pressure by rules 66 lbs. Diameter of tubes 3 1/4" pitch of tubes 4 1/2 x 4 1/2" thickness of tube plates, front 2 1/32" back 1/16"
 How stayed stay tubes pitch of stays 9 x 13 1/2" width of water spaces 1 1/4"
 Diameter of Superheater or Steam chest length thickness of plates description of longitudinal joint diam. of rivet holes
 Pitch of rivets working pressure of shell by rules 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 how stayed
 Superheater or steam chest; how connected to boiler

DONKEY BOILER— Description *Cylindrical, Vertical, Blake's Patent, (Steel)*
 Made at *Manchester* by whom made *James Blake* when made *3.12.85* where fixed *On main deck*
 Working pressure *65 lbs.* tested by hydraulic pressure to *1140 lbs.* No. of Certificate *535* fire grate area *14 sq. ft.* description of safety
 valves *Spring* No. of safety valves *one* area of each *7.07* if fitted with easing gear *yes* if steam from main boilers
 enter the donkey boiler *no* diameter of donkey boiler *6.0* length *14.6* description of riveting *double riv. lap*
 Thickness of shell plates *3/8* diameter of rivet holes *3/4* whether punched or drilled *punched* pitch of rivets *2 1/2* lap of plating *1 1/2*
 per centage of strength of joint *67* thickness of crown plates *3/8* stayed by *Hemispherical shape*
 Diameter of furnace, top *2.1* bottom *4.3* length of furnace *2.9* thickness of plates *7/16* description of joint *single riv. lap*
 Thickness of furnace crown plates *7/16* stayed by *stays* *1 1/4* dia. pitch *8 x 8* working pressure of shell by rules *70 lbs.*
 Working pressure of furnace by rules *80 lbs.* diameter of uptake *1.4* thickness of plates — thickness of water tubes —

SPARE GEAR. State the articles supplied:—

The foregoing is a correct description,
 PER PRO CENTRAL MARINE ENGINEERING CO. Manufacturer. *of main boiler*
Thomas Mudd

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

A new main boiler has been constructed under Special Survey and fitted on board this vessel, the workmanship of the same is good. A new donkey boiler has also been fitted on board.

Vessel placed in graving dock, screw shaft drawn a new end welded on the same. Stern bush lined up. Sea-connections overhauled. Propeller, crank and tunnel shafting, cylinders, pistons, slide valve pumps, and condensers, examined and found in good condition. Foundation plate, of engine, which was cracked, has been renewed. Examined the engine and the main and donkey boilers under steam. adjusted all the safety valves, and found them to work well.

The machinery and boilers of this vessel are in safe and efficient working condition and in my opinion, to have the notifications *L.C. 3.86.* recorded in the Register of this vessel.

The amount of Entry Fee. . . £ : : received by me, }
 Special . . . £ 9 : 0 : 0 }
 Donkey Boiler Fee . . . £ : : }
 Certificate (if required) . . . £ : 2 : 6 } 7-4-1886
 (To be sent as per margin.)
 (Travelling Expenses, if any, £)

Committee's Minute

FRIDAY 9 APRIL 1886

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

LR-TAF-SAS-49