

REPORT ON MACHINERY.

6165

No. 6165

No. in Survey held at *Hull* Date, first Survey *Nov. 1st '86* Last Survey *18th March 1887*
 Reg. Book. *402* on the *Iron screw Steamer Pioneer (Hawker)* (Number of Vessels *19*) Tons *112.444*
 Master *Anguish* Built at *Hull* By whom built *J. Shuttleworth* When built *1881*
 Engines made at *Hull* By whom made *C. D. Holmes & Co.* when made *1884*
 Boilers made at *Hull* By whom made *C. D. Holmes & Co.* when made *1884*
 Registered Horse Power *35* Owners *R. & J. Sayer* Port belonging to *Aberdeen*

ENGINES, &c.—

Description of Engines *Compound Inverted Direct Acting Surface Condensing*
 Diameter of Cylinders *15" & 29"* Length of Stroke *18"* No. of Rev. per minute *120* Point of Cut off, High Pressure *7/8"* Low Pressure *1/2"*
 Diameter of Screw shaft *5 1/4"* Diam. of Tunnel shaft *4 7/8"* Diam. of Crank shaft journals *5 1/4"* Diam. of Crank pin *5 1/8"* size of Crank webs *6 7/8" x 3 1/2"*
 Diameter of screw *6" & 7"* Pitch of screw *9' 0" to 10' 0"* No. of blades *4* state whether moveable *No* total surface *20 sq ft*
 No. of Feed pumps *One* diameter of ditto *2 1/6"* Stroke *9"* Can one be overhauled while the other is at work *✓*
 No. of Bilge pumps *One* diameter of ditto *2 1/6"* Stroke *9"* Can one be overhauled while the other is at work *✓*
 Where do they pump from *Engine room Bilge & Hold*
 No. of Donkey Engines *One* Size of Pumps *3" diam 6 1/2" stroke* Where do they pump from *Engine room bilge, holds*
Sea discharge Boiler, Condenser, Deck & overload.
 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 *2 1/2"* Are they connected to condenser, or to circulating pump *Circulating Pump*
 How are the pumps worked *by rocking levers from Piston rod cross heads.*
 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 *awash*
 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 *Suction to Forward* How are they protected *Wood cased*
 Are all pipes, cocks, valves, and pumps in connection with the machinery accessible at all times *Yes in Engine room.*
 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 *Nov Dec Jan 1887.*
 Is the screw shaft tunnel watertight *✓* and fitted with a sluice door *✓* worked from *✓*

BOILERS, &c.—

Number of Boilers *One* Description *Cylindrical Multitubular* Whether Steel or Iron *Steel*
 Working Pressure *90 lbs* Tested by hydraulic pressure to *180 lbs* Date of test *9th Dec 1886*
 Description of superheating apparatus or steam chest *None fitted*
 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 *32 sq ft* Description of safety valves *Spring loaded* No. to each boiler *Two*
 Area of each valve *7.07 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 *6"* Diameter of boilers *10' 0"*
 Length of boilers *9' 3"* description of riveting of shell long. seams *Double lap* circum. seams *End 4 1/2" lap* Thickness of shell plates *7/8"*
 Diameter of rivet holes *1"* whether punched or drilled *drilled* pitch of rivets *4 1/8"* Lap of plating *4"*
 Percentage of strength of longitudinal joint *76%* working pressure of shell by rules *91 lbs* size of manholes in shell *16 x 12*
 No. of compensating rings *2: 1" x 2" 4" x 9 1/6"* No. of Furnaces in each boiler *Two*
 Inside diameter *34"* length, top *6' 4"* bottom *6' 4"* thickness of plates *1/2"* description of joint *Welded* if rings are fitted *✓*
 Greatest length between rings *✓* working pressure of furnace by the rules *108 lbs* combustion chamber plating, thickness, sides *1/2"* back *1/2"* top *1/2"*
 Pitch of stays to ditto, sides *8 1/2"* back *8 1/2"* top *8 1/2"* If stays are fitted with nuts or riveted heads *Nuts* working pressure of plating by rules *106 lbs*
 Diameter of stays at smallest part *1 1/16"* working pressure of ditto by rules *112 lbs* end plates in steam space, thickness *2 1/32"*
 Pitch of stays to ditto *15 1/2"* how stays are secured *all nuts* working pressure by rules *91 lbs* diameter of stays at smallest part *1 7/8"*
 working pressure by rules *103 lbs* Front plates at bottom, thickness *3/4"* Back plates, thickness *7/8"*
 Greatest pitch of stays *8 1/2"* working pressure by rules *90 lbs* Diameter of tubes *3 1/4"* pitch of tubes *4 3/4"* thickness of tube plates, front *3/4"* back *13/16"*
 how stayed *stay tubes* pitch of stays *1 1/4" x 9"* width of water spaces *1 1/2"*
 Diameter of Superheater or Steam chest *length* thickness of plates *description of longitudinal joint* diam. of rivet holes *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 *No Donkey Boiler*

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 easing 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 _____

SPARE GEAR. State the articles supplied:— *Spare gear*

*The vessel efficient with masts and sails as a Hawker.
 Two top end & two bottom end bolts, two main bearing bolts one set coupling bolts
 on set of feed pump valves one set of Bilge pump valves.*

The foregoing is a correct description,

Charles S. Holmes Manufacturer.

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

*New High and Low pressure cylinders, pistons and slide valves
 fitted, The valve and pump gear made good and adjusted.
 Air circulating, feed and Bilge pumps made good. The Pumping
 arrangement made in accordance with the rules, New Bilge injection
 valve fitted, Condenser cleaned out, tubes replaced and repacked.
 Ship side discharge valves overhauled, and new valves fitted to
 the donkey and Bilge pump discharges. The Propeller renewed
 and new end forged on Propeller shaft. Thrust and Crank shafting
 found good, new foundation fitted for Thrust block. New Engine
 room donkey fitted and the whole of the Boiler mountings new*

*New Main Boiler built under special survey of approved
 design has now been placed in this vessel, the safety valves set to
 blow at 90 lbs per square inch. The Machinery and Boiler
 are now in my opinion in safe working condition and the case
 is respectfully submitted for the Notification **NB. 87* LMC-2.87 in the
 Register Book.*

The amount of Entry Fee .. £ 1 : " : " received by me,
 Special .. £ 8 : " : "
 Donkey Boiler Fee .. £ " : " : "
 Certificate (if required) .. £ " : " : " 17/3 1887
 To be sent as per margin.

(Travelling Expenses, if any, £)

Committee's Minute

TUESDAY 22 MARCH 1887

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