

REPORT ON MACHINERY.

(Received in London Office) Rec'd 21st MAY, 1883

No. in Survey held at *Hull & Sunderland* Date, first Survey *24th Feb/82* Last Survey *11th May 1883*
 on the *Steam Ship N° 61 by Messrs Osborne, Graham & Co. Penryn* Tons *1780.8*
 Master *G. Brooker* Built at *Sunderland* When built *1883*
 Engines made at *Sunderland* By whom made *J. W. & F. Wilson* when made *1883*
 Milers made at *Hull* By whom made *C. D. Holmes & Co.* when made *1883*
 Registered Horse Power *150* Owners *Myers Bros* Port belonging to *Sunderland*

GINES, &c.—

Description of Engines *Inverted Compound Surface Condensing*
 Diameter of Cylinders *32" x 60"* Length of Stroke *39"* No. of Rev. per minute *60* Point of Cut off, High Pressure *2/3 stroke* Low Pressure *2/3 stroke*
 Diameter of Screw shaft *10 1/2"* Diameter of Tunnel shaft *10 1/4"* Diameter of Crank shaft journals *10 1/2"* Diameter of Crank pin *10 1/2"* size of Crank webs *12 1/2" x 7"*
 Diameter of screw *15.0"* Pitch of screw *17.0"* No. of blades *4* state whether moveable *not* total surface *56 sq. feet*
 Number of Feed pumps *2* diameter of ditto *3 1/2"* Stroke *26"* Can one be overhauled while the other is at work *yes*
 Number of Bilge pumps *2* diameter of ditto *3 1/2"* Stroke *26"* Can one be overhauled while the other is at work *yes*
 Where do they pump from *The bilges of the engine room, aft well & fore hold, and tanks.*
 Number of Donkey Engines *2* Size of Pumps *12 dia. x 10 stroke* Where do they pump from *The large pump draws from the bilges of all Compartments, & Ballast tanks. small one from Sea. hotwell & Bilers*
 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*
 Number of bilge injections *2* and sizes *4 1/2 dia.* Are they connected to condenser, or to circulating pump *to circulating pump*
 Are the pumps worked *by levers attached to the piston rod & crosshead of the after engine.*
 Are all connections with the sea direct on the skin of the ship *yes* Are they Valves or Cocks *valves & 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*
 What pipes are 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 *top platform of Engine room*

ILERS, &c.—

Number of Boilers *2* Description *Circular, multitubular, ordinary marine type*
 Working Pressure *80 lbs.* Tested by hydraulic pressure to *160 lbs.* Date of test *16th February 1883.*
 Description of ~~superheating apparatus~~ steam chest *Cylindrical with flat ends*
 Can each boiler be worked separately *yes* Can the superheater be shut off and the boiler worked separately *no Superheater*
 Number of square feet of fire grate surface in each boiler *44* Description of safety valves *Spring valves by J. W. & F. Wilson*
 Number to each boiler *2* area of each valve *15.9 sq. ins.* Are they fitted with easing gear *yes*
 Number of safety valves to superheater *—* area of each valve *—* are they fitted with easing gear *—*
 Smallest distance between boilers and bunkers or ~~woodwork~~ *18"*
 Diameter of boilers *12.9* Length of boilers *10.3* description of riveting of shell long. seams *butt joints with double lap* circum. seams *double riveted laps*
 Thickness of shell plates *7/8"* diameter of rivet holes *15/16"* whether punched or drilled *drilled* pitch of rivets *3 1/2" (long) 3 1/2" - circum. (3 1/2")*
 Number of plating *10 1/2 straps* per centage of strength of longitudinal joint *71* working pressure of shell by rules *82 lbs.*
 Number of manholes in shell *17 x 14"* size of compensating rings *angle iron 4" x 4" x 3/4"*
 Number of Furnaces in each boiler *3* outside diameter *40 inches* length, top *6' 9"* bottom *9' 6"*
 Thickness of plates *1/2 inch* description of joint *welded* if rings are fitted *shells are abraded* greatest length between rings *6' 7"*
 Working pressure of furnace by the rules *80 lbs.*
 Combustion chamber plating, thickness, sides *1/2"* back *1/2"* top *1/2 in*
 Thickness of stays to ditto sides *9" x 9" to 9 1/2"* back *9" x 9" to 9 1/2"* top *rounded*
 Are stays fitted with nuts or riveted heads *nuts* working pressure of plating by rules *85 to 95 lbs. - 100 approved for 80 lbs.*
 Diameter of stays at smallest part *1 1/2"* working pressure of ditto by rules *80 lbs.*
 Thickness of plates in steam space, thickness *15/16"* pitch of stays to ditto *19" x 19"* how stays are secured *all the nuts machine*
 Working pressure by rules *87 lbs.* diameter of stays at smallest part *2 1/2 inches* working pressure by rules *81 lbs.*
 Bottom plates at bottom, thickness *7/8"* Back plates, thickness *7/8"* greatest pitch of stays *12" x 9"* working pressure by rules *83 lbs.*

Diameter of tubes $3\frac{1}{2}$ inches pitch of tubes $4\frac{7}{8} \times 4\frac{7}{8}$ thickness of tube plates, front $\frac{5}{8}$ back $\frac{5}{8}$
 How stayed *stay tubes from ends* pitch of stays 15 between webs width of water spaces $1\frac{3}{8}$
 Diameter of ~~Superheater~~ Steam chest $2' 5"$ length $7' 0"$
 Thickness of plates $\frac{1}{2}$ inch description of longitudinal joint *double riveted lap* diameter of rivet holes $\frac{7}{8}$ pitch of rivets $3\frac{1}{4}$ in longitudinal
 Working pressure of shell by rules $127\frac{1}{2}$ Diameter of flue \times thickness of plates \times
 If stiffened with rings \times distance between rings \times Working pressure by rules \times
 End plates of ~~superheater~~ or steam chest; thickness $\frac{3}{4}$ How stayed *4. 2 in Stays*
 Superheater or steam chest; how connected to boiler *By neck piece 18 dia. & $\frac{3}{4}$ thick.*

DONKEY BOILER— Description *Cylindrical, Vertical, Multitubular (Patent Convector)*
 Made at *Hyde* By whom made *Jos. Adamson & Co* when made *28th Feb 1883*
 Where fixed *in Stokholm* working pressure *50 lbs* Tested by hydraulic pressure to *100 lbs* No. of Certificate *320*
 Fire grate area *9.6 sq ft* Description of safety valves *Hewitt & Co's Patent* No. of safety valves *one* area of each *7 sq in*
 If fitted with easing gear *yes* If steam from main boilers can enter the donkey boiler *no*
 Diameter of donkey boiler *5' 6"* length *11' 10"* description of riveting *double riveted lap*
 thickness of shell plates $\frac{3}{8}$ diameter of rivet holes $\frac{3}{4}$ whether punched or drilled *drilled*
 pitch of rivets $2\frac{3}{8}$ lap of plating $3\frac{3}{4}$ per centage of strength of joint *68*
 thickness of crown plates $\frac{9}{16}$ stayed by *uptake & 9 tube stays*
 Diameter of furnace, top *5' 1"* bottom *5' 1"* length of furnace *5' 0"*
 thickness of plates — description of joint *vertical tubes*
 thickness of furnace crown plates $\frac{9}{16}$ stayed by *uptake & 9 tube stays*
 Working pressure of shell by rules *65 lbs* working pressure of furnace by rules —
 diameter of uptake *9"* thickness of plates $\frac{1}{2}$ thickness of water tubes $\frac{1}{4}$

The foregoing is a correct description,

M. H. Milner & Co. Manufacturers, *Exempt of Main & Donkey Boilers*

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

The Machinery of this vessel has been constructed under special survey.
 The Engines and Boilers have been tried under steam and in
 our opinion are in good order and safe working condition, and
 eligible for the distinguishing mark **LM.C. 5.83** in the
 Register Book of this Society.

Photo print of the Main boilers returned herewith

The amount of Entry Fee .. £ 3 : 0 : received by me, *Hall*
 Special .. £ 6 : 6 :
 Certificate (if required) .. £ 16 : 4 : *Sunderland*
 To be sent as per margin. *18th May 1883*

(Travelling Expenses, if any, £)

Committee's Minute

TUESDAY 22 MAY 1883

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It is submitted that the vessel
 is eligible to have the notification
 + 2 lbs 5.45 recorded
 21/5/43