

REPORT ON MACHINERY.

25731 Jun

No. 267.

No. in Survey held at *Hartlepool*

Reg. Book.

Date, first Survey *2 Nov*

(Received in London Office *8/3/88*)

Last Survey *23 Feb 1880*

on the Machinery of the *S. S. George Lowland*

Tons *592.54 Gross*

Master *Meldrum*

Built at *Leith*

When built *1880 - 1 mo*

Engines made at *Hartlepool*

By whom made *Richardson & Sons* when made *1880*

Boilers made at *Do*

By whom made *Do* when made *1880*

Registered Horse Power *95*

Owners *Geo. Lowland*

Port belonging to *London*

ENGINES, &c.—

Description of Engines *Compound. Inverted. Surface Condensing*

Diameter of Cylinders *25" & 48"* Length of Stroke *30"* No. of Rev. per minute *11 1/2* Point of Cut off, High Pressure *1/2 stroke* Low Pressure *1/2 stroke*

Diameter of Screw shaft *8"* Diameter of Tunnel shaft *7 1/2"* Diameter of Crank shaft journals *8"* Diameter of Crank pin *8"* size of Crank web *8 1/2 x 5 7/8*

Diameter of screw *12" 0"* Pitch of screw *14" 0"* No. of blades *4* state whether moveable *No* total surface *44 sq feet*

No. of Feed pumps *1* diameter of ditto *3 1/4"* Stroke *22 1/4"* Can one be overhauled while the other is at work *Yes*

Feed pump can be made into bilge pump
No. of Bilge pumps *1* diameter of ditto *3 1/4"* Stroke *22 1/4"* Can one be overhauled while the other is at work *Yes*

Bilge pump can be made into feed pump
Where do they pump from *Fore peak, fore hold, after hold & wings & centre of engine room*

No. of Donkey Engines *Two* Size of Pumps *3 1/2" x 9" & 3" x 7"* Where do they pump from *Large donkey pumps from ballast*

bunkers & engine room, small donkey from fore peak, fore hold, after hold & wings & centre of engine room

Are all the bilge suction pipes fitted with roses *Yes* Are the roses always accessible *Yes. In engine room* Are the sluices on Engine room bulkheads always accessible *Yes*

No. of bilge injections *2* and sizes *4 1/2"* Are they connected to condenser, or to circulating pump *Circulating pump*

How are the pumps worked *By levers attached to crosshead on low pressure piston rods*

Are all connections with the sea direct on the skin of the ship *Yes* Are they Valves or Cocks *Stop 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 *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*

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 *Now*

Is the screw shaft tunnel watertight *No* and fitted with a sluice door *Yes* worked from *Above level of load line*

BOILERS, &c.—

Number of Boilers *One* Description *Horizontal, Cylindrical, Multitubular*

Working Pressure *10 lbs per sq. in* Tested by hydraulic pressure to *140 lbs per sq. in* Date of test *18th December 1879*

Description of superheating apparatus or steam chest *Vertical steam dome, contracted at ends*

Can each boiler be worked separately *"* Can the superheater be shut off and the boiler worked separately *No Superheater*

No. of square feet of fire grate surface in each boiler *47.25* Description of safety valves *Spring*

No. to each boiler *Two* area of each valve *15 sq in* Are they fitted with casing gear *Yes*

No. of safety valves to superheater *No superheater* area of each valve *"* are they fitted with casing gear *"*

Smallest distance between boilers and bunkers or woodwork *12"*

Diameter of boilers *12" 10"* Length of boilers *9' 6"* description of riveting of shell long. seams *Double* circum. seams *Double*

Thickness of shell plates *3/4"* diameter of rivet holes *1 1/8 full* whether punched or drilled *Drilled* pitch of rivets *5"*

Lap of plating *Double butt shape* per centage of strength of longitudinal joint *1/8* working pressure of shell by rules *7 1/2 lbs*

Size of manholes in shell *15" x 11"* size of compensating rings *Rectangular plate 30 x 21 x 3/4"*

No. of Furnaces in each boiler *Three* outside diameter *37"* length, top *5' 9"* between furnaces bottom *9' 7"* between furnaces

Thickness of plates *Top 7/16" bottom 1/2"* description of joint *Lap Double riveted* rings are fitted *Bottom plate* greatest length between rings *5' 0"* between angle iron

Working pressure of furnace by the rules *80 lbs*

Combustion chamber plating, thickness, sides *7/16"* back *7/16"* top *7/16"*

Pitch of stays to ditto sides *1 3/4" x 7/4" widest pitch* back *7 3/4" x 7 3/4"* top *8 1/2" x 8 3/4"*

If stays are fitted with nuts or riveted heads *Side & back riveted top fitted with nuts* working pressure of plating by rules *7 1/2 lbs*

Diameter of stays at smallest part *1 1/8"* working pressure of ditto by rules *80 lbs*

End plates in steam space, thickness *13/16"* pitch of stays to ditto *18" x 18"* how stays are secured *Nuts & washers*

Working pressure by rules *73 lbs* diameter of stays at smallest part *2 1/4"* working pressure by rules *73 lbs*

Front plates at bottom, thickness *7/16"* Back plates, thickness *3/4" & 5/8"* greatest pitch of stays *10"* working pressure by rules *90 lbs*

Diameter of tubes $3\frac{1}{4}$ " pitch of tubes $4\frac{1}{2} \times 4\frac{1}{2}$ thickness of tube plates, front $\frac{1}{16}$ back $\frac{1}{16}$
 How stayed *Stay tubes* pitch of stays $9 \times 13\frac{1}{2}$ width of water spaces $1\frac{1}{4}$ between tubes
 Diameter of ~~Superheater or~~ Steam ~~chest~~ 3.0 " length 5.6 over all
 Thickness of plates $\frac{1}{16}$ description of longitudinal joint *lap double riveted* diameter of rivet holes $\frac{13}{16}$ pitch of rivets $2\frac{5}{8}$
 Working pressure of shell by rules 141 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 $\frac{1}{2}$ " How stayed *No stays*
~~Superheater or~~ steam ~~chest~~ how connected to boiler *By flanged plate $4 \times 4 \times 78$.*

DONKEY BOILER— Description *Round vertical two cross tubes*
 Made at *Leith* By whom made *Hannage & Ferguson* made *23 December 1879*
 Where fixed *In Stockholm* working pressure *40 lbs* Tested by hydraulic pressure to *80 lbs* No. of Certificate *56*
 Fire grate area *1139 sq ft* Description of safety valves *Direct & lever weight* No. of safety valves *One of each* area of each *Direct 3. Lever 4.*
 If fitted with easing gear *Yes* If steam from main boilers can enter the donkey boiler *No*
 Diameter of donkey boiler *4.6*" length *9.6* description of riveting *lap single riveted*
 thickness of shell plates $\frac{7}{16}$ " diameter of rivet holes $\frac{3}{4}$ whether punched or drilled *punched*
 pitch of rivets 2 " lap of plating $2\frac{1}{2}$ " per centage of strength of joint *70 in plates 40 in rivets*
 thickness of crown plates $\frac{7}{16}$ stayed by *disched top*
 Diameter of furnace, top 36 " bottom 48 " length of furnace 4.6
 thickness of plates $\frac{7}{16}$ description of joint *lap single riveted*
 thickness of furnace crown plates $\frac{7}{16}$ stayed by *disched*
 Working pressure of shell by rules 48 lbs working pressure of furnace by rules "
 diameter of uptake 12 " thickness of plates $\frac{3}{8}$ thickness of water tubes "

The foregoing is a correct description,
Thos Richardson & Co Manufacturers of Engines & Main Boilers only

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

Materials & workmanship good.
The Machinery & Boilers are in good order and safe with
condition and in our opinion eligible for the notification Lloyd
M.C. in the Register Book

The Machinery of this vessel has been built in accordance with the rules submitted that she is eligible to have Lloyd's M.C. 2.80 in the Register Book. M 8.3.80

The amount of Entry Fee £ 2 : " : " received by me,
 Special " " £ 4 : 15 : "
 Certificate (if required) " " £ " : 2 : 6 18
 To be sent as per margin.
 (Travelling Expenses, if any, £)

Committee's Minute Tuesday, March, 9th 1880.

James Ham
John Sturrock Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.