

REPORT ON MACHINERY.

3636

No. 3636

No. in Survey held at *Apr & Workington*
Reg. Book.

Received at London *FRIDAY 17 SEPT 1883*
Date, first Survey *28th Sept 1882* Last Survey *16th Aug 1883*
(Number of Visits *21*)

on the *S. S. "Scale Force"* Tons *89.67*
Master - *Lee* Built at *Workington* By whom built *R. Williams & Son* When built *1883*
Engines made at *Workington* By whom made *J. W. Young* when made *1883*
Boilers made at *Workington* By whom made *"* when made *1883*
Registered Horse Power *50* Owners *Kenraugh & Co.* Port belonging to *Whitehaven*

ENGINES, &c.—

Description of Engines *Compound Inverted Direct Acting*
Diameter of Cylinders *18" & 34"* Length of Stroke *24"* No. of Rev. per minute *85* Point of Cut off, High Pressure *5/8"* Low Pressure *5/8"*
Diameter of Screw shaft *1 3/8"* Diam. of Tunnel shaft *none* Diam. of Crank shaft journals *1 1/8"* Diam. of Crank pin *1 1/8"* size of Crank webs *8" x 4 1/4"*
Diameter of screw *8.6"* Pitch of screw *13.5 per foot* No. of blades *4* state whether moveable *no* total surface *21.5* sq feet
No. of Feed pumps *one* diameter of ditto *2"* Stroke *2 1/4"* Can one be overhauled while the other is at work *no*
No. of Bilge pumps *two* diameter of ditto *2"* Stroke *2 1/4"* Can one be overhauled while the other is at work *no*
Where do they pump from *Engine Room & Cargo Hold*
No. of Donkey Engines *one* Size of Pumps *4" x 6"* Where do they pump from *Sea, Ballast Tank, 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 *3 1/2"* Are they connected to condenser, or to circulating pump *Circulating pump*
How are the pumps worked *By crosshead*
Are all connections with the sea direct on the skin of the ship *yes* Are they Valves or Cocks *both 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*
What pipes are carried through the bunkers *none* How are they protected *no*
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 *On ship before vessel was launched Oct 10th August*
Is the screw shaft tunnel watertight *no tunnel* and fitted with a sluice door *no* worked from *no*

BOILERS, &c.—

Number of Boilers *one* Description *Round Horizontal Multitubular* Whether Steel or Iron *Iron*
Working Pressure *80 lbs* Tested by hydraulic pressure to *160 lbs per sq. in.* Date of test *9th July 1883*
Description of superheating apparatus or steam chest *Round Horizontal Recirculating*
Can each boiler be worked separately *no* Can the superheater be shut off and the boiler worked separately *no Superheater*
Area of square feet of fire grate surface in each boiler *32* Description of safety valves *Direct Spring* No. to each boiler *two*
Area of each valve *9.6 sq"* Are they fitted with easing gear *yes* No. of safety valves to superheater *no* area of each valve *no*
Are they fitted with easing gear *no* Smallest distance between boilers and bunkers or woodwork *9"* Diameter of boiler *10.0"*
Length of boiler *9.6"* description of riveting of shell long. seams *double riveted* circum. seams *Double* Thickness of shell plates *3/4"*
Diameter of rivet holes *7/8"* whether punched or drilled *punched* pitch of rivets *3 1/8"* Lap of plating *9 1/2" Straps*
Percentage of strength of longitudinal joint *71* working pressure of shell by rules *84 lbs* size of manholes in shell *12" x 16"*
Size of compensating rings *3" x 3 3/4" x 7/8"* No. of Furnaces in each boiler *two*
Outside diameter *13 1/2"* length, top *6.2"* bottom *8.2"* thickness of plates *1/2"* description of joint *Welded* if rings are fitted *no*
Greatest length between rings *no* working pressure of furnace by the rules *97 lbs* combustion chamber plating, thickness, sides *1/2"* back *1/2"* top *1/2"*
Pitch of stays to ditto, sides *8 1/2" x 7 1/2"* back *9" x 8 1/2"* top *9" x 7 1/2"* If stays are fitted with nuts or riveted heads *nuts* working pressure of plating by rules *94 lbs* Diameter of stays at smallest part *1 1/4"* working pressure of ditto by rules *93 lbs* end plates in steam space, thickness *5/8"*
Pitch of stays to ditto *12 3/4" x 12"* how stays are secured *Double nuts* working pressure by rules *86 lbs* diameter of stays at smallest part *1 3/4"* working pressure by rules *94 lbs* Front plates at bottom, thickness *5/8"* Back plates, thickness *5/8"*
Greatest pitch of stays *10"* working pressure by rules *120 lbs* Diameter of tubes *3 1/4"* pitch of tubes *4 1/2"* thickness of tube plates, front *5/8"* back *5/8"* how stayed *Stay Lugs* pitch of stays *13 1/2" x 13 1/2"* width of water spaces *5 1/2"*
Diameter of Superheater or Steam chest *29"* length *4.0"* thickness of plates *1/2"* description of longitudinal joint *Lap double* diam. of rivet holes *3/4"*
Pitch of rivets *3"* working pressure of shell by rules *155 lbs* diameter of flue *no* thickness of plates *no* If stiffened with rings *no*
Distance between rings *no* working pressure by rules *no* end plates of superheater, or steam chest; thickness *1/2"* how stayed *no stays*
Superheater or steam chest; how connected to boiler *By neck piece*



DONKEY BOILER— Description *Round Upright*
 Made at *Green* by whom made *J. F. Young* when made *1883* where fixed in *Hoboken*
 Working pressure *50 lbs* tested by hydraulic pressure to *100 lbs* No. of Certificate *1119* fire grate area *6.17* feet description of safety
 valves *Direct Spring* No. of safety valves *One* area of each *7.4* if fitted with easing gear *Yes* if steam from main boilers can
 enter the donkey boiler *No* diameter of donkey boiler *3.3* length *7.11* description of riveting *Double & Single*
 Thickness of shell plates *5/16* diameter of rivet holes *3/4* whether punched or drilled *Punched* pitch of rivets *2 7/8* lap of plating *4*
 per centage of strength of joint *73* thickness of crown plates *3/8* stayed by *Uptake*
 Diameter of furnace, top *2.9* bottom *2.11* length of furnace *4.0* thickness of plates *5/16* description of joint *Single*
 Thickness of furnace crown plates *3/8* stayed by *as above* working pressure of shell
 Working pressure of furnace by rules *66 lbs* diameter of uptake *10* thickness of plates *5/16* thickness of water tube

SPARE GEAR. State the articles supplied:— *2 Connecting rods top & bottom and Bolts & Nuts, 1 set of
 bearing bolts, 1 set of Coupling bolts, 1 set of feed & bilge pump valves, 1 set of
 bolts, nuts & washers.*

The foregoing is a correct description,

Manufacturer.

J. F. Young

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

See Certificate filed in accordance with the Society's rules. J.F.
The Engines & Boilers have been specially surveyed during construction. Quality of workmanship good, and the Machinery & Boilers are now in good order, and safe working condition, & are in my opinion, eligible to be noted in the Register Book. L.M.C. 8.83.

It is submitted that this vessel is eligible to have the certificate + L.M.C. 8.83 recorded.

*29
17/9/83*

The amount of Entry Fee £ 1 : : Total received by me,
 Special .. £ 8 : : at
 Donkey Boiler Fee .. £ : : " *Greenock*
 Certificate (if required) .. £ Gratis: *22/8/1883*
 To be sent as per margin.

Committee's Minute *1-1-0 of Special Fee to be permitted to Barrow.*
 TUESDAY 18 SEPT 1883 18
L.M.C.

Arthur W. Green
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.
 Greenock District.