

REPORT ON MACHINERY.

No. 3312 Belfast Report

No. in Survey held at *Glasgow & Belfast* Date, first Survey *10th Nov^r*
Reg. Book. *10th Nov^r*

Received at London Office *SAT 10 APRIL 1887*
Last Survey *4th March 1887*
(Number of Visits *30*) Tons *336.48*
112.40

on the *Screw Steamer Kathleen*
Master *Ed. Russell* Built at *Belfast* By whom built *Worsman Clark & Coy* When built *1884*
Engines made at *Glasgow* By whom made *John & James Thomson* when made *1884*
Boilers made at *"* By whom made *"* when made *1884*
Registered Horse Power *70* Owners *"* Port belonging to *Belfast*

ENGINES, &c.—

Description of Engines *Compound Inverted Direct Acting*
Diameter of Cylinders *19" + 38"* Length of Stroke *30* No. of Rev. per minute *80* Point of Cut off, High Pressure *14"* Low Pressure *14"*
Diameter of Screw shaft *4 1/2"* Diam. of Tunnel shaft *4"* Diam. of Crank shaft journals *4 1/2"* Diam. of Crank pin *4 1/2"* size of Crank webs *5 1/2" x 9"*
Diameter of screw *10 1/2"* Pitch of screw *16 1/2"* No. of blades *4* state whether moveable *Yes* total surface *30 1/2"*
No. of Feed pumps *One* diameter of ditto *3"* Stroke *15"* Can one be overhauled while the other is at work *Yes*
No. of Bilge pumps *One* diameter of ditto *4"* Stroke *15"* Can one be overhauled while the other is at work *Yes*
Where do they pump from *All Compartments*
No. of Donkey Engines *One* Size of Pumps *4 1/2" x 8" Stroke & 8 1/2"* Where do they pump from *Sea Bilge & Ballast Tanks*

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 *1 3/4"* Are they connected to condenser, or to circulating pump *To Circulating pump*
How are the pumps worked *By levers*
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 *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*
That pipes are carried through the bunkers *None* How are they protected *None*
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 *While on landways March 2nd 1887*
Is the screw shaft tunnel watertight *Yes* and fitted with a sluice door *Yes* worked from *Main Deck*

BOILERS, &c.—

Number of Boilers *One* Description *Round Horizontal* Whether Steel or Iron *Steel*
Working Pressure *90 lbs* Tested by hydraulic pressure to *180 lbs* Date of test *4th March 1887*
Description of superheating apparatus or steam chest *None*
Can each boiler be worked separately *Yes* Can the superheater be shut off and the boiler worked separately *Yes*
Area of square feet of fire grate surface in each boiler *52 1/2"* Description of safety valves *Direct Spring* No. to each boiler *Two*
Area of each valve *4"* Are they fitted with easing gear *Yes* No. of safety valves to superheater *None* area of each valve *None*
Are they fitted with easing gear *Yes* Smallest distance between boilers and bunkers or woodwork *13"* Diameter of boilers *12.6"*
Length of boilers *9.6"* description of riveting of shell long. seams *Double riveted* circum. seams *Double riveted* Thickness of shell plates *1 3/16"*
Diameter of rivet holes *1 1/16"* whether punched or drilled *Drilled* pitch of rivets *1 1/2"* Lap of plating *Straps 10 1/4" x 9 1/16"*
Percentage of strength of longitudinal joint *46.4%* working pressure of shell by rules *95 lbs* size of manholes in shell *16" x 12"*
No. of compensating rings *Angle piece* No. of Furnaces in each boiler *Three*
Inside diameter *3 3/4"* length, top *6.6"* bottom *8.6"* thickness of plates *9 1/16"* description of joint *Single riveted butt* rings are fitted *3" x 3" x 1/2"*
Greatest length between rings *None* working pressure of furnace by the rules *93 lbs* combustion chamber plating, thickness, sides *9 1/16"* back *9 1/16"* top *9 1/16"*
Pitch of stays to ditto, sides *8" x 9"* back *8" x 8"* top *8" x 9"* If stays are fitted with nuts or riveted heads *Nuts* working pressure of plating by rules *95 lbs* Diameter of stays at smallest part *1 1/4"* working pressure of ditto by rules *98 lbs* end plates in steam space, thickness *1 3/16"*
Pitch of stays to ditto *16" x 16"* how stays are secured *Double nuts* working pressure by rules *92 lbs* diameter of stays at smallest part *2 1/4"* screw working pressure by rules *105 lbs* Front plates at bottom, thickness *1 1/16"* Back plates, thickness *1 1/16"*
Greatest pitch of stays *None* working pressure by rules *None* Diameter of tubes *3 1/4"* pitch of tubes *4 1/2" x 4 1/2"* thickness of tube plates, front *1 1/16"* back *1 1/16"* how stayed *By tubes* pitch of stays *13 1/2" x 9"* width of water spaces *6"*
Diameter of Superheater or Steam chest *None* length *None* thickness of plates *None* description of longitudinal joint *None* diam. of rivet holes *None*
Pitch of rivets *None* working pressure of shell by rules *None* diameter of flue *None* thickness of plates *None* If stiffened with rings *None*
Distance between rings *None* working pressure by rules *None* end plates of superheater, or steam chest; thickness *None* how stayed *None*
Superheater or steam chest; how connected to boiler *None*

R. B. A.



DONKEY BOILER— Description *Vertical*
 Made at *Glasgow* by whom made *John & James Thomson* when made *1884* where fixed *in the hold*
 Working pressure *60 lbs* tested by hydraulic pressure to *120 lbs* No. of Certificate *1448* fire grate area *12 ft²* description of safety
 valves *Direct Spring* No. of safety valves *one* area of each *4"* if fitted with easing gear *yes* if steam from main boilers can
 enter the donkey boiler *no* diameter of donkey boiler *4' 5"* length *4' 3"* description of riveting *single riveted laps*
 Thickness of shell plates *3/16"* diameter of rivet holes *1 3/16"* whether punched or drilled *drilled* pitch of rivets *2 5/8"* lap of plating *2 1/2"*
 per centage of strength of joint *47.6* thickness of crown plates *3/16"* stayed by *3 stays 1 3/4" & Uptake*
 Diameter of furnace, top *3' 8"* bottom *4 ft* length of furnace *3 1/2 ft* thickness of plates *3/16"* description of joint *single laps*
 Thickness of furnace crown plates *3/16"* stayed by *as above* working pressure of shell by rules *82 lbs*
 Working pressure of furnace by rules *42 lbs* diameter of uptake *11"* thickness of plates *3/16"* thickness of water tubes *3/16"*

SPARE GEAR. State the articles supplied: *Four connecting rod bolts top & bottom one set coupling
 bolts, one set of feed & bilge pump valves with seats, a quantity of assort
 bolts & nuts, 2 Propeller with studs & nuts*

The foregoing is a correct description,
John & James Thomson Manufacturer.

General Remarks (State quality of workmanship, opinions as to class, &c. *These Engines & Boilers are of
 good workmanship and materials and are now in good order and
 safe working condition and eligible in our opinion to be noted in
 The Register "LLOYD'S M.C." 4/87*

The sea cocks & valves and stem tube were fitted before launching
 at Belfast in a satisfactory manner.
James Morrison

*It is submitted that this vessel
 is eligible to be in the register
 + same 4.07 recorded*

Lloyd's

The amount of Entry Fee .. £ 1 : 0 : 0 received by me,
 Special .. £ 10 : 10 : 0
 Donkey Boiler Fee .. £ 0 : 0 : 0
 Certificate (if required) .. £ 0 : 0 : 0 4/4/1887
 To be sent as per margin.
 (Travelling Expenses, if any, £ ..)

James Morrison
 Engineer Surveyor to Lloyd's Register of British & Foreign
 Clyde District

Committee's Minute FRIDAY 22 APRIL 1887
 DONKEY BOILER + *Morrison*

