

# REPORT ON MACHINERY.

No. 403

No. in Survey held at Dunde Date, first Survey 18<sup>th</sup> April Last Survey 17<sup>th</sup> Sept. 1885

Reg. Book. MS on the S.S. Shieldrake (Number of Visits 1080) Tons 606

Master Hore Built at Dunde By whom built W.B. Thompson When built 1885

Engines made at Dunde By whom made W.B. Thompson when made 1885

Boilers made at do. By whom made do. when made 1885

Registered Horse Power 160 Owners Cork S.S. Co (Lim) Port belonging to Cork

## ENGINES, &c.—

Description of Engines Compound, Surface condensing, direct acting, inverted cyls.

Diameter of Cylinders 29" & 57" Length of Stroke 48" No. of Rev. per minute 77 Point of Cut off, High Pressure 6 Low Pressure 4.5

Diameter of Screw shaft 11" Diam. of Tunnel shaft 10 3/4" Diam. of Crank shaft journals 11" Diam. of Crank pin 11" size of Crank webs 12 1/2" x 7 3/4"

Diameter of screw 13-9" Pitch of screw 18" No. of blades 4 state whether moveable do total surface 607"

No. of Feed pumps 2 diameter of ditto 3 1/4" Stroke 30" Can one be overhauled while the other is at work ye.

No. of Bilge pumps 2 diameter of ditto 3 1/4" Stroke 30" Can one be overhauled while the other is at work ye.

Where do they pump from All compartments

No. of Donkey Engines Two Size of Pumps 9" x 7 1/2" & 4" x 4" Where do they pump from Bilge, Sea, & hotwell, and from 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

Are there any bilge injections no and sizes 5" Are they connected to condenser, or to circulating pump Circulating pump.

How are the pumps worked Severs from L.P. Engine.

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

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 while building

Is the screw shaft tunnel watertight yes and fitted with a sluice door yes worked from Top platform

## BOILERS, &c.—

Number of Boilers One Description Cylindrical multichamber D.E. Whether Steel or Iron Steel

Working Pressure 90 lbs. Tested by hydraulic pressure to 180 lbs. Date of test 12<sup>th</sup> Augt 1885

Description of superheating apparatus or steam chest None

Can each boiler be worked separately ✓ Can the superheater be shut off and the boiler worked separately ✓

No. of square feet of fire grate surface in each boiler 1157<sup>ft</sup> Description of safety valves Spring No. to each boiler 1

Area of each valve ✓ 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 10" Diameter of boilers 14'-8"

Length of boilers 15'-6" description of riveting of shell long. seams Lap, tight riv. circum. seams Lap, tight riv. Thickness of shell plates 3 1/2"

Diameter of rivet holes 1 5/16 whether punched or drilled drilled pitch of rivets 4 3/4" Lap of plating 8 3/4"

Percentage of strength of longitudinal joint 72% working pressure of shell by rules 94 lbs. size of manholes in shell 17" x 13"

Size of compensating rings 5" x 4" x 3/4" No. of Furnaces in each boiler 6

Outside diameter 43" length, top 6'-2" bottom 6'-2" thickness of plates 5/16" description of joint Butt, shop S.R. if rings are fitted no.

Greatest length between rings ✓ working pressure of furnace by the rules 94 lbs. combustion chamber plating, thickness, sides 3 3/4" back ✓ top 3 3/4"

Pitch of stays to ditto, sides 9 1/2" back ✓ top 9 1/2" If stays are fitted with nuts or riveted heads no working pressure of plating by rules 90 lbs. Diameter of stays at smallest part 1 3/8" working pressure of ditto by rules 5200 end plates in steam space, thickness 2 5/8"

Pitch of stays to ditto 16" x 15 1/2" how stays are secured double nuts working pressure by rules 90 lbs. diameter of stays at smallest part 2 3/16" working pressure by rules 6112 lbs. Front plates at bottom, thickness 5/8" Back plates, thickness 5/8"

Greatest pitch of stays ✓ working pressure by rules ✓ Diameter of tubes 3 3/4" pitch of tubes 5 1/4" thickness of tube plates, front 3/4" back 3/4" how stayed by tubes & nuts pitch of stays 15 3/4" x 10 1/2" 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 ✓

Pitch of rivets ✓ 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 *Vertical (Patent)*  
 Made at *Exeter* by whom made *Clark Chapman & Co.* when made *1885* where fixed *on an deck*  
 Working pressure *60 lbs.* tested by hydraulic pressure to *120 lbs.* No. of Certificate *1890* fire grate area *14 1/2* description of a  
 valves *Spring* No. of safety valves *Two* area of each *7.0 sq* if fitted with easing gear *yes* if steam from main boiler  
 enter the donkey boiler *no* diameter of donkey boiler *5-6* length *10-6* description of riveting *Cap. d. l. w.*  
 Thickness of shell plates *3/8* diameter of rivet holes *3/16* whether punched or drilled *D.* pitch of rivets *2 3/4* lap of plating *3 5/8*  
 per centage of strength of joint *75%* thickness of crown plates *9/16* stayed by *6 gusset stays*  
 Diameter of furnace, top *16* bottom *4-9* length of furnace *7-8 1/2* thickness of plates *7/16* description of joint *Cap single*  
 Thickness of furnace crown plates *7/16* stayed by *conical top* working pressure of shell by rules *80 lbs.*  
 Working pressure of furnace by rules *60 lbs.* diameter of uptake *16* thickness of plates *3/8* thickness of water tubes *—*

**SPARE GEAR.** State the articles supplied:— *As per Rule.*

The foregoing is a correct description,  
*W. Cooper* Manufacturer  
*Wm. H. B. Chapman*

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

*The machinery of this vessel has been built under Special Survey, and is now in good working order and flexible in my opinion to be classed and marked. \* L.M.C. 9-85*

*The workmanship and materials are of good description.*

*The Safety valves have been set under steam to a working pressure of 90 lbs per square inch.*

*The Donkey boiler Safety valve has been set to a working pressure of 60 lbs per square inch under steam.*

*The Shafting was examined while being turned.*

*This is submitted that this vessel is eligible to have the notification from 20th 12/10/85*

The amount of Entry Fee .. £ 2 : 0 : 0 received by me,  
 Special .. £ 24 : 0 : 0  
 Donkey Boiler Fee .. £ : :  
 Certificate (if required) .. £ : : 3<sup>rd</sup> Oct 1885  
 To be sent as per margin.

(Travelling Expenses, if any, £ )

Committee's Minute TUESDAY 13 OCT 1885

*W. J. Darling*

*W. J. Darling*  
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

