

No. 584

THE BRITISH CORPORATION FOR THE SURVEY
AND
REGISTRY OF SHIPPING.

Report No. 554 No. in Register Book 1077

S.S. *"Canadian"*

Makers of Engines *Wallsend Slipway & Eng
C^o. Ltd*

Works No. *645*

Makers of Main Boilers *Wallsend Slipway
& Eng C^o. Ltd*

Works No. *645*

Makers of Donkey Boiler

Works No.

MACHINERY.



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Received at Head Office

11th September 1904

Surveyor's Report on the New Engines, Boilers, and Auxiliary
Machinery of the Steel Screw Steamer
"Canadian"

Port of Registry

Newcastle on Tyne

Registered Owners

J. W. Norcross

Surveyor's District

Newcastle

Date of Completion of Engines

8-07

" " " " Main Boilers

8-07

" " " " Donkey "

Trial Run at

off Whitley Bay

Date

12-8-07

First Visit

20-3-07

Last Visit

13-8-07

Total Number of Visits

24

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ENGINES.

Made by *Wallernd Slipway & Eng Co. Ltd.*
 " at *Wallernd* Works No. *645*
 Description *Invented direct acting triple expansion S. E.*

No. of Cylinders, each Engine *3* Diars. *19" 32" 52"* Stroke *26"*
 Cub. feet in each L.P. Cylr. *44' 2* Revs. per Min. *93* I.H.P. *1100*
 Pressure in I.P. Receiver at full Power *65* 2nd I.P. L.P. *13'*
 Thickness of Metal in H. P. Cylr. *1"* I.P. *1 1/4"* " " *1 1/4"*
 " " " " Liner *1 1/8"* " " "
 " " " " Valve Chest *1"* " *1"* " " *1"*
 Are Spring-loaded Relief Valves fitted to Top and Bottom of each Cylr.? *yes*
 " " " " each Receiver? *yes*

Number of Bolts in H. P. Cylr. Cover *19* I.P. *19* 2nd I.P. L.P. *21*
 " " " " " *1 1/4"* " *1 1/4"* " " *1 1/4"*
 Pitch " " " " *4 1/2"* " *5 7/8"* " " *8 7/16"*
 Type of H.P. Valves (Piston or Slide) *piston*
 " Valve Gear *ordinary link motion*

Diameter of Piston Rods (plain part) *5"* At Bottom of Thread *3' 68*
 Makers " *J. Spencer & Sons* Material *1'S.*

Diameter of Connecting Rods (smallest part) *5"* Material *1'S.*
 Makers " " *J. Spencer & Sons*
 Diar. of Crosshead Gudgeons *5 1/4"* Length of Bearing *9 3/4"* Material *1'S.*

No. of Top End Bolts (each Rod) *2* Effective Diar. *2' 68* Material *1'S.*
 " " " " *2* " *2' 68* " *1'S.*
 " Main Bearings *6* Lengths *10 1/4"*
 " Bolts in each *2* Effective Diar. *2' 18* Material *1'S.*

No. of Holding Down Bolts, each Engine *48* No. of Metal Checks *48*
 " " " " *1 1/4"* Average Pitch *14' 120"*
 Are the Engines bolted directly to the Tank Top? *yes* *10 3/4"*
 Are the Bolts tapped through the Tank Top and fitted with Nuts inside? *yes* *1-3*
 Date of Test of Tank by Water Pressure with Holding Down Bolts in place *10 1/2"*

SKETCHES.



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SKETCHES.

SHAFTING.

Are Crank Shafts Built? *yes* No. of Lengths in each *3* Angle of Cranks *120°*

Diar. of Crank Shafts by Rule *9.88* Actual *10 1/2"* Diar. in Way of Webs *10 3/4"*

Makers of " *John Spencer & Sons* Material *1. S.*

Diar. of Crank Pins *10 1/2"* Diar. in Way of Web *10 1/2"*

Makers of " *John Spencer & Sons* Material *1. S.*

Width across Crank Webs at Centre of Shaft *2 1/2"* Thickness *4"*

" " " " Crank Pins *2 1/2"* *4"*

" " " " Narrowest part *2 1/2"* *4"*

Makers of Crank Webs *John Spencer & Sons* Material *1. S.*

Diar. or Breadth of Keys in Crank Webs *2 1/4"* Length *4 1/4"*

" of Dowel Pins in Crank Pins Length Screwed or Plain

No. of Bolts in each Coupling *6* Diar. at Mid Length *2 5/8"* Diar. of Fitch Circle *15 1/2"*

Material of Coupling Bolts *2. S.*

Crank Shafts Finished by *Wallernd Slipway & Eng Co. Ltd*

Greatest Distance from edge of Main Bearing to Crank Web *1/4"*

Description of Thrust Blocks *Horse Shoe*

Number " " Rings *four*

Diar. of Thrust Shafts by Rule *9.88* Actual (at bot. of Collars) *10 1/2"* Over Collars *19"*

" " at Forward Coupling *10 1/2"* After Coupling *10 1/2"*

No. of Thrust Collars *4* Thickness *2 1/4"* Distance apart *4"*

Thrust Shafts Forged by *John Spencer & Sons* Material *1. S.*

" Finished by *Wallernd Slipway*

Diar. of Intermediate Shafting by Rule *none* Actual

No. of Lengths, each Engine No. of Tunnel Bearings

Diar. of Bearings Length Distance apart

No. of Bolts, each Coupling ✓ Diar. at Mid Length ✓ Diar. of Pitch Circle ✓

Intermediate Shafts Forged by ✓ Material ✓

„ „ Finished by ✓

Diar. of Propeller Shafts by Rule ~~11-065~~ ¹¹⁻²⁹ Actual $11\frac{1}{2}''$ At Couplings $10\frac{1}{2}''$

Are Propeller Shafts fitted with Continuous Brass Liners? *yes*

Diar. over Liners $12\frac{7}{8}''$ Length of After Bearings $3'10''$

Of what Material are the After Bearings composed? *lignum vitae*

Distance from After Bearing in Stern Tube to nearest Tunnel Bearing $4'4\frac{1}{2}''$

Are the After Bearings lubricated with Oil or Sea Water? *Sea water*

What means are adopted to prevent Sea Water entering the Stern Tubes? *none*

Propeller Shafts Forged by *John Spencer & Sons* Material *I. S.*

„ „ Finished by *Walland Slipway & Dry Dock Co. Ltd*

No. of Propellers *One* Diar. $13'0''$ Pitch $12'9''$

„ Blades, each Propeller *4* Fitted or Solid *fitted*

Material of Blades *cast iron* Boss *cast iron*

Surface, each Propeller *60 #* Diar. of Propeller Rule Diar. of Crank Shaft = *15*

Coefficient of Displacement of Vessel at $\frac{1}{2}$ Moulded Depth *.828*



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TURBINE ENGINES.

Type _____

No. of H.P. Turbines _____

No. of L.P. Turbines _____

No. of Astern „ _____

How arranged _____

Revs. per Min. _____

Horse Power _____

Diar. of H.P. Turbine Drums _____ MATERIAL _____ THICKNESS OF METAL _____

Material of H.P. Turbine Casings _____ „ _____

Lengths of Blades in H.P. Turbines _____

No. of Rows of Blades of each Length _____

Pitch of „ „ „ _____

Diar. of L.P. Turbine Drums _____ MATERIAL _____ THICKNESS OF METAL _____

Material of L.P. Turbine Casings _____ „ _____

Lengths of Blades in L.P. Turbines _____

No. of Rows of Blades of each Length _____

Pitch of „ „ „ _____

Diar. of Astern Turbine Drums _____ MATERIAL _____ THICKNESS OF METAL _____

Material of Astern Turbine Casings _____ „ _____

Lengths of Blades in Astern Turbines _____

No. of Rows of Blades of each Length _____

Pitch of „ „ „ _____

Diar. of Turbine Spindles _____ Length of Bearing _____

No. of Thrust Collars on each Spindle _____ Thickness _____ Distance apart _____

Diar. of Spindles at Bottom of Collars _____ Diar. over Collars _____

Spindles Forged by _____ Material _____

„ Finished by _____

SKETCHES.



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PUMPS ETC

No. of Air Pumps *one* Diar. *16"* Stroke *20"*
 Type of " *Single acting*
 Diar. of Air Pump Rod *2 3/4"* Material *gunny metal*
 How are Air Pumps Worked? *by main Engines*

No. of Centrifugal Circulating Pumps *one* Maker *Hoy Watson & Co.*
 " Reciprocating " Diar. Stroke
 Diar. of Circulating Pump Rods *Spindle 2 1/4"* Material *brass*
 How are Circulating Pumps Worked? *direct off Single Cylinder Engine.*

Diar. of Circulating Pump Suction from Sea *8"*
 Has each Circulating Pump a Bilge Suction with Non-return Valve? *yes* Diar. *5 1/2"*

No. of Feed Pumps on each Engine *none* Diar. Stroke
 Where do they pump from?
 " " discharge to?
 Are Spring-loaded Relief Valves fitted to each Pump?
 Can one Pump be overhauled while the others are at work?

No. of Bilge Pumps on each Engine *2* Diar. *3"* Stroke *20"*
 Where do they pump from? *all bilges and Sea.*
 " " discharge to? *to deck and overboard.*
 Can one Pump be overhauled while the others are at work? *yes*

No. of Bilge Injections connected to Condensers Diar.
 Are all Bilge Suctions fitted with Roses? *yes*
 Are the Valves, Cocks, and Pipes so arranged as to prevent unintentional connection between Sea and Bilges? *yes*

Are all Sea Connections made with Valves or Cocks fitted direct to the Hull Plating? *yes*

Are they placed so as to be easily seen and accessible? *yes*

Are the Discharge Chests placed above the Deep Load Line? *yes*

Are they fitted direct to the Hull Plating and easily accessible? *yes*

Are all Blow-off Cocks or Valves fitted with Spigots through the Hull Plating and Covering Plates or Flanges on the outside? *yes*

Warrington Vertical Duplex, main Feed Pump 7 1/2" x 5" 12"

Pumps from hotwell & Condenser and discharges to main Boilers & overboard.



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BOILERS.

Boilers made by *Wallsend Slipway & Eng Co. Ltd.*
 " at *Wallsend.*
 Works No. *645*
 Date when Plan approved *5-3-07*
 Boiler Plates, Iron or Steel *Steel*
 Makers of Shell Plates *John Spencer & Sons*
 " Internal Plates " " "
 " Furnaces " " "
 " Stay Bars " " "
 " Rivets *J. Miller & Co.*
 Material tested by (B.C., B.T., etc.) *B.C. & B.T.*
 No. of Boilers *Two*
 Single or Double-ended *Single ended*
 No. of Furnaces, each Boiler *3*
 Type of Furnaces *Plain*
 Approved Working Pressure *180 lbs*
 Hydraulic Test Pressure *360 lbs*
 Date of Hydraulic Test *2-5-07*
 " when Safety Valves set *7-8-07*
 Pressure on Valves *180 lbs*
 Date of Steam Accumulation Test *7-8-07*
 Max. Pressure under Accumulation Test *185 lbs*
 System of Draught *natural*
 Can Boilers be worked separately? *yes*
 Greatest Inside Diam. of Boilers *12' 9 3/4"*
 " " Length " *9' 11 1/8"*
 Square Feet of Heating Surface, each Boiler *1500*
 " Grate " " *51 sq*



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No. of Safety Valves, each Boiler *2*

Diar. " " " *2 3/4"*

Area " " " *11.8*

Are the Valves fitted with Easing Gear? *yes*

No. of Pressure Gauges, each Boiler *One*

" Water " " *One*

" Test Cocks, " *Two*

" Salinometer Cocks, " *One*

Are Water Gauge Pillars attached by Pipes to Steam and Water Spaces? *no*

Are these Pipes connected to Boilers by Cocks or Valves?

Are Blow-off Cocks or Valves fitted on Boiler Shells?

No. of Strakes of Shell Plating in each Boiler *One*

" Plates in each Strake *Two*

Thickness of Shell Plates by Rule *16.3*
76

" " Approved *1 1/8"*

" " in Boilers *1 1/8"*

Are the Rivet Holes Punched or Drilled? *drilled*

Are Rivets Iron or Steel? *Steel*

Are the Longitudinal Seams Butt or Lap Joints? *Butt*

Are the Double Butt Straps of equal width? *yes*

Thickness of outside Butt Straps *1 1/8"*

" inside " *1 1/16"*

Are Longitudinal Seams Hand or Machine Riveted? *machine*

Are they Single, Double, or Treble Riveted? *Treble*

Diar. of Rivet Holes *1 1/32*

Pitch " *8 3/8"*

Width of Overlap *18"*

Percentage of Strength in Longitudinal Seams *85.4% Plate 92.3% Rivet*

No. of Rows of Rivets in Hand or Machine Riveted? *Hand Riveted*

Diar. of Rivet Holes *1 1/32*

Pitch " *8 3/8"*

Width of Overlap *18"*

No. of Rows of Rivets in Hand or Machine Riveted? *Hand Riveted*

Diar. of Rivet Holes *1 1/32*

Pitch " *8 3/8"*

Width of Overlap *18"*

Dimensions of Components Here *10" x 12"*

Thickness of End Plates in Steam Space by Rule *1 1/8"*

" " in Boilers *1 1/8"*

Thickness of Steam Space Straps *1 1/8" x 1 1/8"*

ER. Diar. " " by Rule *1 1/8"*

" " Approved *1 1/8"*

" " in Boilers *1 1/8"*

Material of " " *Steel*

How are Straps Secured? *Butt*

Disc and Thickness of Loose Washers on End Plates *4"*

Riveted " " *Hand Riveted*

Width of " " *18"*



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No. of Rows of Rivets in Circumferential Seams *Two*
 Are these Seams Hand or Machine Riveted? *Back machine, Front hand*
 Diar. of Rivet Holes *1 5/16"*
 Pitch " *4.47*
 Width of Overlap *6 1/4"*
 No. of Rows of Rivets in End Circumferential Seams *Two*
 Are these Seams Hand or Machine Riveted? *Back machine, Front hand*
 Diar. of Rivet Holes *1 5/16"*
 Pitch " *4.47"*
 Width of Overlap *6 1/4"*
 Size of Manholes in Shell *16" x 12"*
 Dimensions of Compensating Rings, *9 in c. nails door & doubling*

Thickness of End Plates in Steam Space by Rule *17.75/16*
 " " " " " Approved *15/32"*
 " " " " " in Boilers *15/32"*
 Pitch of Steam Space Stays *18" x 14 1/4"*
 Eff. Diar. " " " by Rule *2.63*
 " " " " " Approved *3.047*
 " " " " " in Boilers *3.047*
 Material of, " " *Steel*

How are Stays Secured? *nuts & washers in & out.*
 Diar. and Thickness of Loose Washers on End Plates *1/4"*
 " " Riveted " " "
 Width " " Doubling Strips " "

Thickness of Middle Back End Plate by Rule *13/16*
 " " " " " Approved *7/8*
 " " " " " in Boilers *7/8*

Handwritten notes and calculations on page 19, including '13 1/2 x 1 1/4' and various other figures.



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Thickness of Doublings in Wide Spaces between Fireboxes

✓ No. 2 & 4

Pitch of Stays at " " " " ✓

13 3/8 x 9 1/4

Eff. Diar. of Stays by Rule ✓

1.69

" " " Approved ✓

1.71

" " " in Boilers ✓

Steel

Material " ✓

Are Stays fitted with Nuts outside? ✓

yes

Thickness of Back End Plates at Bottom by Rule

13.9 / 76

" " " " Approved

1/8"

" " " " in Boilers

1/8"

Pitch of Stays at Wide Spaces between Fireboxes

one 2 3/4" stay

Thickness of Doublings in " " ✓

Thickness of Front End Plates at Bottom by Rule

* 15.7 / 76

" " " " Approved

1"

" " " " in Boilers

1"

No. of Long. Stays in Spaces between Furnaces

one

Eff. Diar. of Stays by Rule

2.00

" " " " Approved

2.547

" " " " in Boilers

2.547

Material of " ✓

Steel

Thickness of Front Tube Plates by Rule

* 13 / 76

" " " " Approved

1"

" " " " in Boilers

1"

Pitch of Stay Tubes at Spaces between Stacks of Tubes

13 1/2" centres

Thickness of Doublings in " " " " ✓

5/16"

" Stay Tubes at " " " " ✓

Faint, mostly illegible text on page 21, including some handwritten notes and a large blue 'LR' logo watermark.



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Thickness of Combustion Chamber Sides Approved *Centre 2 1/2" Wings 2 2/3"*

" " " " in Boilers

Pitch of Screwed Stays in C.C. Sides *9" x 8 1/2"*

Eff. Diar. " " by Rule *1.54*

" " Approved *1 3/4"*

" " in Boilers

Material " " *Steel*

Thickness of Combustion Chamber Backs by Rule *10 7/16"*

" " Approved *11 1/16"*

" " in Boilers

Pitch of Screwed Stays in C.C. Backs *Centre 9 1/4" x 7 1/8" Wings 9 1/4" x 9 1/4"*

Eff. Diar. " " by Rule *1.54*

" " Approved *Centre rows 17/8" Inner 1 3/4"*

" " in Boilers

Material " " *Steel*

Are all Screwed Stays fitted with Nuts inside C.C. *yes*

Thickness of Combustion Chamber Bottoms *7/8"*

No. of Girders over each Wing Chamber *Three*

" " Centre " *Two*

Depth and Thickness of Girders *8" x 3/4"*

Material of Girders *Steel*

No. of Stays in each *2*

No. of Stay Tubes, each Boiler *Wings 29 Centre 33.*

" " Plain " " *" 44 " 41*

Size of lower Manholes *16" x 12"*

VERTICAL DONKEY BOILERS

If the Donkey Boilers are Vertical the following particulars should be stated in addition to those on

previous pages applicable to such boilers. --
Type of Boiler
Height of Boiler Crown above Fire Grate
Are Boiler Crown Flat or Dishd?
Internal Radius of Dishd Crown
Description of Beams to Boiler Crown
Diar. of Heat Hole
Height of Firebox Crown above Fire Grate
Are Firebox Crown Flat or Dishd?
External Radius of Dishd Crown
No. of Crown Stays
External Diar. of Firebox at Top
No. of Water Tubes
Material of Water Tubes
No. of Screwed Stays in Firebox Sides
Are they fitted with Nuts inside?

SUPERHEATERS



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MAIN STEAM PIPES. *Stampful JK*

No. of Lengths	4
Material	Ingot Steel
Brazed, Welded, or Seamless	Solid drawn
Internal Diam.	4"
Thickness	$\frac{1}{4}$ "
How are Flanges Secured?	Screwed & Expanded
Date of Hydraulic Test	No 1 & 2 18.7.07 No 3 & 4 19.7.07
Test Pressure	650 lbs

REFRIGERATORS. ✓

No. of Machines Makers

Description

When any part of the Vessel is to be used for the Carriage of Refrigerated Cargo the following particulars should be stated:—

Total Cubic Capacity of Refrigerated Spaces

Nature, Construction, Thickness, &c., of Insulation

SUPERHEATERS. ✓

Are all Pipes, Air Trunks, &c., well secured and protected from risk of damage?

Are all Bilge Suction, Sounding, and Air Pipes in Insulated Spaces properly insulated?

Are Thermometer Tubes so arranged that Water cannot enter and freeze in the Tubes?

Are Sluice Valves fitted on any of the Bulkheads of Insulated Spaces?

Are these fitted with Brass Non-return Valves?

Are they always accessible?

Are the Bilges and Bilge Rose Boxes always accessible?

Are the Steam Suctions to Bilges fitted with Non-return Valves?

Is the Machine Room effectively separated from Insulated Spaces?

" " properly Ventilated and Drained?

No. of Steam Cylinders, each Machine

Diars.

" Compressors,

Diam. of Crank Shafts

No. of Cranks

Give particulars of Pumps in connection with Refrigerating Plant, and state whether worked by Refrigerating Machines or independently

Brand	Type	Capacity	Speed	Power	Efficiency	Remarks
1	Vertical	45	16	22.5	7/16	1050 100%

Are Brine and other Regulating Valves placed so as to be accessible without entering the Insulated Spaces?

Date of Test under Working Conditions

Fall of Temperature in Insulated Spaces

Time required to obtain this Result

Articles of Spare Gear for Refrigerating Plant carried on board



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SKETCHES.

ELECTRIC LIGHTING.

Installation Fitted by *Falconer, Cross & Co. Newcastle*
 No. and Description of Dynamos *One multipolar compound wound*
 Makers of Dynamos *Boothroyd Hyslop & Co. Liverpool*
 Capacity „ *59* Amperes, at *110* Volts, *350* Revols. per Min.
 Current Alternating or Continuous *continuous*
 Position of Dynamos *Top platform in Eng Room on Star'd Side*
 „ Main Switch Board *near dynamo*
 No. of Circuits to which Switches are provided on Main Switch Board *4*

Particulars of these Circuits:—

No. of Circuit.	Name of Circuit.	Number of Lights.	Candle Power.	Current Required, Amps.	Size of Conductor.	Current Density.	Conductivity of Conductor.	Insulation Resistance per Mile.
1	<i>Forecastle</i>	<i>45</i>	<i>16</i>	<i>22.5</i>	<i>7/16</i>	<i>amps 1000</i>	<i>100%</i>	
2	<i>Eng. Room</i>	<i>19</i>	<i>16</i>	<i>9.5</i>	<i>7/20</i>			
3	<i>Cargo Lights</i>	<i>22</i>	<i>16</i>	<i>11</i>	<i>7/20</i>			
4	<i>Saloon & Cabins</i>	<i>23</i>	<i>16</i>	<i>11</i>	<i>7/20</i>			

Total No. of Lights

108

No. of Motors driving Fans, &c.

No. of Heaters

Current required for Motors and Heaters

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Positions of Auxiliary Switch Boards, with No. of Switches on each *independant*

Switches in each cabin.

Are Cut-outs fitted as follows?—

On Main Switch Board, to Cables of Main Circuits

yes

On Aux. " " each Auxiliary Circuit

yes

Wherever a Cable is reduced in size

yes

To each Lamp Circuit

yes

To both Flow and Return Wires of all Circuits when the Double-Wire System is adopted

yes

Are the Fuses of Standard Sizes?

yes

Are all Switches and Cut-outs constructed of Non-inflammable Material?

yes

Are they placed so as to be always and easily accessible?

yes

Smallest Single Wire used, No. *18* S.W.G., Largest, No. *18* S.W.G.

How are Conductors in Engine and Boiler Spaces protected?

Armoured cables

" " Saloons, State Rooms, &c. " ?

lead covered

What special protection is provided in the following cases?—

(1) Conductors exposed to Heat or Damp *armoured & lead covered*

(2) " " passing through Bunkers or Cargo Spaces *Iron pipes*

(3) " " Deck Beams or Bulkheads *Armoured cables*

Are all Joints in Cables properly soldered and thoroughly Insulated so that the efficiency of the Cables is unimpaired? *no joints*

Are all Joints in accessible positions, none being made in Bunkers or Cargo Spaces?

Are all Hull Connections for Single-Wire Systems made with Screws of large Surface?

Are the Dynamos, Motors, Main and Branch Cables, so placed that the Compasses are not injuriously affected by them? *yes*

Have Tests been made to prove that this condition has been satisfactorily fulfilled? *yes*

Has the Insulation Resistance over the whole system been tested? *yes*

What does the Resistance amount to? *500000* Ohms.

Is the Installation supplied with a Voltmeter? *yes*

" " " an Ampere Meter? *yes*

Date of Trial of complete Installation *12-8-07* Duration of Trial *3 1/2 hours*



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EVAPORATORS. ✓

No. *1* Type *Vertical* Tons per Day *100*
 Makers *Worthington & Co.*
 Working Pressure *150* Test Pressure *200* Date of Test *1908*
 Date of Test of Safety Valves under Steam *1908*

FEED WATER HEATERS. ✓

No. *1* Type *Vertical*
 Makers *Worthington & Co.*
 Working Pressure *150* Test Pressure *200* Date of Test *1908*

DONKEY

No. of Donkeys *One*
 Type *Vertical*
 Makers *Worthington & Co.*
 Single or Duplex *Duplex*
 " Double-Acting *double acting*
 Diar. of Steam Cylinders *6"*
 " Pumps *9"*
 Stroke of " *6"*
 Where do they pump from? *all tanks, bilges & Sea.*

Where do they discharge to? *through condenser and overboard.*

Capacity, Tons per Hour of Ballast Donkey ✓

Diar. of Pipe required by Rule for

FEED WATER FILTERS. ✓

No. *2* Type *Horizontal* Size *12"*
 Makers *Worthington & Co.*
 Working Pressure *150* Test Pressure *200* Date of Test *1908*

FORCED DRAUGHT FANS. ✓

No. of Fans *2* Diar. *12"* Revols. per min. *1000*
 How are Fans driven? *Electric*

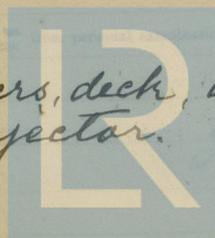
PUMPS.

Feed Donkey
One
Vertical
Worthington & Co.
Duplex
double acting
9"
6"
6"
from sea, tanks, hotwell & condenser,

to boilers, deck, overboard and ash ejector.

largest Ballast Tank

Velocity of Water in Pipe



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SPARE GEAR.

No. of Top End Bolts	2	No. of Bot. End Bolts	2
" Main Bearing Bolts	2	" Coupling Bolts	one set
" Cylr. Cover Bolts Studs	6	" Valve Chest Cover Bolts Studs	6
" Feed Pump Valves	one set	" Bilge Pump Valves	one set
" Safety Valve Springs	one set	" Fire Bars	one set
" Piston Rings	✓	" Junk Ring Bolts Studs	6
" Piston Rods	✓	" Connecting Rods	✓
" Valve Spindles	✓	" Air Pump "	✓
" Air Pump Valves	one set	" " " Buckets	✓
" Crank Pin Bushes	✓	" Crosshead Bushes	✓
" Crank Shafts	✓	" Propeller Shafts	✓
" Propellers	✓	" " Blades	two
" Boiler Tubes	✓	" Condenser Tubes	✓

OTHER ARTICLES OF SPARE GEAR:—

20 condenser ferrules
 one set feed donkey and ballast
 donkey valves, 2 check valve lids
 a quantity of assorted plate and bar
 iron, bolts nuts and studs.

GENERAL CONSTRUCTION.

Have all the Requirements under Sections 31 and 32 of the Rules been complied with? *yes*
 If not, give details of the points of difference, and state when these were sanctioned by the Chief

Surveyor ✓

Are the Steam Pumping Arrangements in accordance with the approved Plan? *yes*

If not, state in what respects they differ and when such differences were sanctioned by the Chief

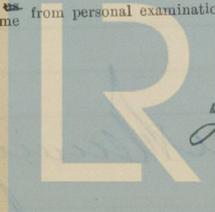
Surveyor ✓

Are the Materials used in the Construction of Engines and Boilers, so far as could be seen, sound and trustworthy? *yes*

Is the Workmanship throughout thoroughly satisfactory? *yes*

The above correctly describes the Machinery of the S.S.

as ascertained by ^{us}me from personal examination.



Thos. George
 Engineer Surveyor to the British Corporation for the
 Survey and Registry of Shipping.

Fees—

MAIN BOILERS.

H.S. 3000 Sq. ft. 15 : 0 : 0

G.S. 102 " 6 : : :

DONKEY BOILERS.

H.S. ✓ Sq. ft. : : :

G.S. ✓ " : : :

£ 15 : 0 : 0

ENGINES.

L.P.C. 442 Cub. ft. 13 : 0 : 0

Testing, &c. : : :

£ : : :

Expenses ... : : :

Total ... £ 28 : 0 : 0

It is submitted that this Report be approved,

John King
Chief Surveyor.

Approved by the Committee,

for the class of M B U*
on the 11th September 1907.

Fees applied for 15-8-7

Fees paid 17-8-7

John Manning
Secretary.

*Lees Ash Ejector fitted in
Stokkhold.*



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Ben has Spectator
Stock

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102

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It is submitted that this Report be approved.

Walter Henry

Approved by the Committee for the Library of B.I.P.
on the 11th September 1917

Walter Henry

Walter Henry

Walter Henry

Walter Henry

Walter Henry



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