

No. 1585

112 1310

THE BRITISH CORPORATION FOR THE SURVEY  
AND  
REGISTRY OF SHIPPING.

Report No. 1459 No. in Register Book 2612

GRANGE TOTT

S.S.

Triandy Lower

Makers of Engines

Plenty & Sons (Newbury)

Works No.

2375

Makers of Main Boilers

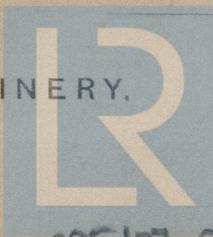
Riley Bros. Ltd.

Works No.

Makers of Donkey Boiler

Works No.

MACHINERY.



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No. 1585

THE BRITISH CORPORATION FOR THE SURVEY  
AND  
REGISTRY OF SHIPPING.

Report No. .... No. in Register Book .....

S.S. ....

Makers of Engines *Plenty & Son Ltd.*

Works No. 2375

Makers of Main Boilers .....

Works No. ....

Makers of Donkey Boiler .....

Works No. ....

MACHINERY.



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No.

THE BRITISH CORPORATION FOR THE SURVEY  
AND  
REGISTRY OF SHIPPING.

Report No. .... No. in Register Book .....

Received at Head Office *12<sup>th</sup> September 1922*

Surveyor's Report on the New Engines, Boilers, and Auxiliary  
Machinery of the ~~Twin~~ <sup>Single Triple</sup> ~~Quadruple~~ Screw

Official No. *143530* Port of Registry *Cardiff*

Registered Owners *The Mandy Shipping Co. Ltd.*

Engines Built by *Plenty & Son Ltd.*

at *Newbury*

Main Boilers Built by *Riley Bros. Ltd.*

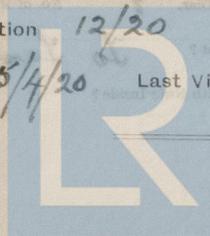
at *Stockton*

Donkey .. ..

at .. ..

Date of Completion *12/20*

First Visit *15/4/20* Last Visit *1/12/20* Total Visits *12*



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## RECIPROCATING ENGINES.

Works No. **2375** No. of Sets **one** Description **Inverted triple expansion surface cooling marine type.**

No. of Cylinders each Engine **3** No. of Cranks **3**  
 Diars. of Cylinders **16 1/2" - 27" - 44"** Stroke **30**

Cubic feet in each L.P. Cylinder **26.4**

Are Spring-loaded Relief Valves fitted to Top and Bottom of each Cylr.?  
 yes

" " " each Receiver?  
 yes

Type of H.P. Valves, **piston**  
 " 1st I.P. " **Andrew + Cameron Balanced slide.**

" 2nd I.P. "

" L.P. " **Double ported slide**

" Valve Gear **Double eccentric Twin Bar Links**

" Condenser **Circular - Steel** Cooling Surface **1050** sq. ft.

Diameter of Piston Rods (plain part) **4 1/4"** Screwed part (bottom of thread) **2.859**

Material " **Steel**

Diars. of Connecting Rods (smallest part) **4 1/4"** Material **Steel**

" Crosshead Gudgeons **4 3/4"** Length of Bearing **9"** Material "

No. of Crosshead Bolts (each) **4** Diars. over Thrd. **1 3/4** Thrds. per inch **5** Material **Steel**

" Crank Pin " " **2** " **2 1/2"** " **4** " "

" Main Bearings **6** Lengths **9 3/4"** each "

" Bolts in each **2** Diars. over Thread **2 1/2"** Threads per inch **4** Material "

" Holding Down Bolts, each Engine **44** Diars. **1"** No. of Metal Checks

Are the Engines bolted to the Tank Top or to a Built Seat? **To Tank Top**

Are the Bolts tapped through the Tank Top and fitted with Nuts Inside?

If not, how are they fitted?

Connecting Rods, Forged by **Yorkshire Engine Co.**

Piston " " **Mitchell Shackleton & Co.**

Crossheads, " " **do**

Connecting Rods, Finished by **Plenty & Son Ltd.**

Piston " " **do**

Crossheads, " " **do**

Date of Harbour Trial **25<sup>th</sup> November 1920**

" Trial Trip **1<sup>st</sup> December 1920**

Trials run **off Brightlingsea**

Were the Engines tested to full power under Sea-going conditions? **Yes.**

If so, what was the I.H.P.? **993.5** Revols. per min. **92.7**

Pressure in 1st I.P. Receiver, **165** lbs., 2nd I.P., **50** lbs., L.P., **9** lbs., Vacuum, **23** ins.

Speed on Trial

If the Conditions on Trial were such that full power records were not obtained give the following estimated data:—

Builders' estimated I.H.P. **750** Revols. per min. **95**

Estimated Speed **10 kts.**



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## TURBINE ENGINES.

Works No.	Type of Turbines		
	No. of H.P. Turbines	No. of I.P.	No. of L.P.

Are the Propeller Shafts driven direct by the Turbines or through Gearing?

Is Single or Double Reduction Gear employed?

Revol. per min. of H.P. Turbines at Full Power

"	"	I.P.	"	"
"	"	L.P.	"	"
"	"	1st Reduction Shaft		
"	"	2nd		"
"	"	Propeller Shaft		

Total Shaft Horse Power

Date of Harbour Trial

" Trial Trip

Trials run at

Speed on Trial

Turbine Spindles forged by

" Wheels forged or cast by

Reduction Gear Shafts forged by

" Wheels forged or cast by

DESCRIPTION OF INSTALLATION.



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## TURBO-ELECTRIC PROPELLING MACHINERY.

No. of Turbo-Generating Sets                      Capacity of each

Type of Turbines employed

Description of Generators

No. of Motors driving Propeller Shafting

Are the Propeller Shafts driven direct by the Motors or through Gearing?

Is Single or Double Reduction Gear employed?

Description of Motors

Revs. per min. of Generators at Full Power

“    “    Motors    “

“    “    Propellers    “

Total Shaft Horse Power                      “

Date of Harbour Trial

“    Trial Trip

Trials run at

Makers of Turbines

“    Generators

“    Motors

“    Reduction Gear

Turbine Spindles forged by

“    Wheels forged or cast by

Reduction Gear Shafts forged by

“    Wheels forged or cast by



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## SHAFTING.

Are the Crank Shafts Built or Solid? *Built*

No. of Lengths in each *three* Angle of Cranks *120°*

Diar. by Rule *8.44"* Actual *8 7/8"* In Way of Webs *9 3/8"*

" of Crank Pins *8 7/8"* Length between Webs *10"*

Greatest Width of Crank Webs *1'-4 1/4"* Thickness *6"*

Least " " *1'-1"* " *6"*

Diar. of Keys in Crank Webs — Length —

" Dowels in Crank Pins *1 1/2"* Length *3 3/8"* Screwed or Plain *Plain*

No. of Bolts each Coupling *6* Diar. at Mid Length *2 1/8"* Diar. of Pitch Circle *15 1/4"*

Greatest Distance from Edge of Main Bearing to Crank Web *3 3/8"*

Type of Thrust Blocks *Horse shoe adjustable shoes*

No. " Rings *5"*

Diar. of Thrust Shafts at bottom of Collars *8 7/8"* No. of Collars *5*

" " Forward Coupling *8 7/8"* At Aft Coupling *8 7/8"*

Diar. of Intermediate Shafting by Rule — Actual — No. of Lengths —

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

Diar. of Propeller Shafts by Rule Actual *9 1/8"* At Couplings *8 7/8"*

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

Diar. over Liners *10 1/8" + 10 3/16"* Length of After Bearings *3'-3"*

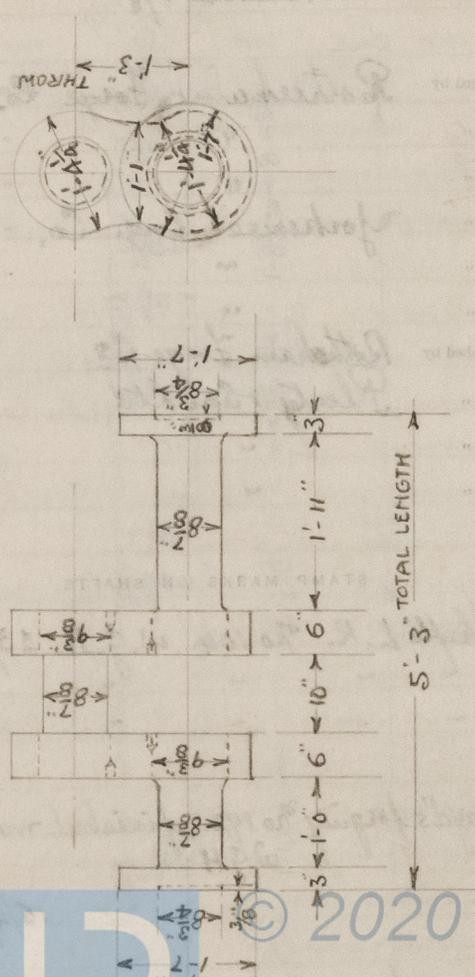
Of what Material are the After Bearings composed? *Lignum vitae*

Are Means provided for lubricating the After Bearings with Oil? *no*

" " to prevent Sea Water entering the Stern Tubes? *no*

If so, what Type is adopted?

## SKETCH OF CRANK SHAFT.



No. of Blades each Propeller **4** Fitted or Solid? **Solid**  
 Material of Blades **Cast Iron** Boss **Cast Iron**  
 Diam. of Propellers **11'-0"** Pitch **13'-0"** Surface (each) **40** S. ft.  
 Coefficient of Displacement of Vessel at  $\frac{3}{4}$  Moulded Depth **.78**

	Forged by	Material	
Crank Shafts	<b>Rotherham Forge Co.</b>	<b>Steel</b>	
" Pins	"	"	4
" Webs	"	"	4
Thrust Shafts	<b>Yorkshire Eng. Co.</b>	"	4
Intermed.,	"	"	4
Propeller	"	"	4
Crank	Finished by <b>Rotherham Forge Co.</b>		4
Thrust	<b>Plenty &amp; Son Ltd</b>		4
Intermed.,	"	"	4
Propeller	"	"	4

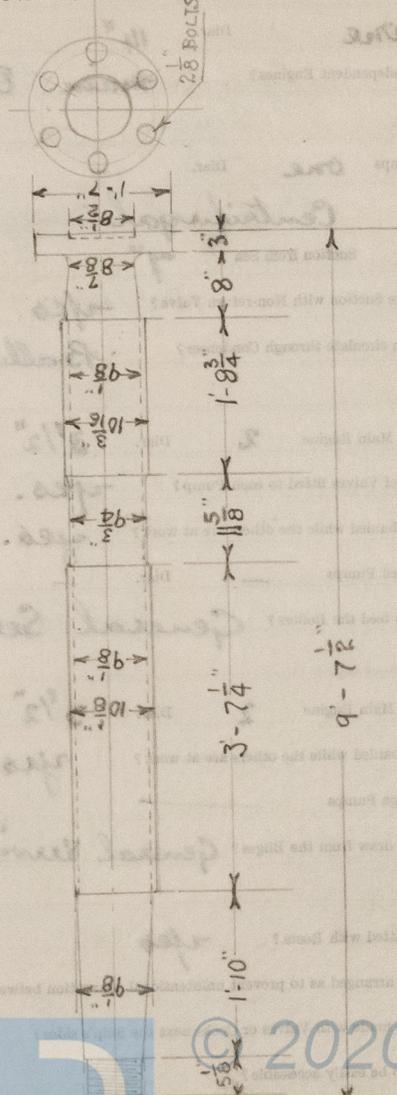
## STAMP MARKS ON SHAFTS.

Crank Shaft's L.R. No 104 W.G.H. 23/7/18 H.P.  
 " " " " " " M.P.  
 " " " " " " L.P.

Thrust Lloyd's forging No 192 finished mark B.C.  
 W.G.H. No 4414  
 15/4/20 J.C.S.

Propeller shaft L.R. forging No 201, finished mark B.C.  
 J.P. No 4411  
 15/4/20 J.C.S.

## SKETCH OF PROPELLER SHAFT.



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## PUMPS, ETC.

No. of Air Pumps *One* Diar. *14"* Stroke *15"*  
 Worked by Main or Independent Engines? *Main Engine*

No. of Circulating Pumps *One* Diar. *-* Stroke *-*

Type of *Centrifugal*

Diar. of *7"* Suction from Sea

Has each Pump a Bilge Suction with Non-return Valve? *yes* Diar. *5"*

What other Pumps can circulate through Condenser? *Ballast Pump*

No. of Feed Pumps on Main Engine *2* Diar. *3 1/2"* Stroke *15"*

Are Spring-loaded Relief Valves fitted to each Pump? *yes.*

Can one Pump be overhauled while the others are at work? *yes.*

No. of Independent Feed Pumps *-* Diar. *-* Stroke *-*

What other Pumps can feed the Boilers? *General Service Donkey*

No. of Bilge Pumps on Main Engine *2* Diar. *3 1/2"* Stroke *15"*

Can one Pump be overhauled while the others are at work? *yes.*

No. of Independent Bilge Pumps *-*

What other Pumps can draw from the Bilges? *General Service & Ballast Donkeys*

Are all Bilge Suctions fitted with Roses? *yes*

Are the Valves, etc., so arranged as to prevent unintentional connection between Sea and Bilges? *yes*

Are all Sea Connections made with Valves or Cocks next the Ship's sides? *yes*

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

Are the Discharge Chests placed above or below the Deep Load Line? *above*

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*



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## BOILERS.

Works No.

No. of Boilers **2** Type *Cylindrical, return tube*  
*Single*  
*Two*

Single or Double-ended

No. of Furnaces in each

Type of Furnaces *Corrograted Deighton*

Date when Plan approved

Approved Working Pressure *180 lbs □*

Hydraulic Test Pressure

Date of Hydraulic Test

„ when Safety Valves set

Pressure at which Valves were set *182 lbs □*

Date of Accumulation Test

Maximum Pressure under Accumulation Test

System of Draught *Natural*

Can Boilers be worked separately?

Makers of Plates

„ Stay Bars

„ Rivets

„ Furnaces

Greatest Internal Diam. of Boilers

„ „ Length „

Square Feet of Heating Surface each Boiler *1185 sq*  
*35 1/2 sq*

„ „ Grate „ „

No. of Safety Valves each Boiler *Two* Diam. *2 3/4*

Are the Safety Valves fitted with Easing Gear? *Yes*

No. of Pressure Gauges, each Boiler *2* No. of Water Gauges *1*

„ Test Cocks „ *2* „ Salinometer Cocks *1*



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Are the Water Gauges fitted direct to the Boiler Shells or mounted on Pillars? *Mounted on pillars*

Are the Water Gauge Pillars fitted direct to the Boiler Shells or connected by Pipes? *Connected by pipes*

Are these Pipes connected to Boilers by Cocks or Valves? *Cocks*

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

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

„ Plates in each Strake *One*

Thickness of Shell Plates Approved

„ „ in Boilers *15/16*

Are the Rivets Iron or Steel?

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

Are the Butt Straps Single or Double? *Double*

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

Thickness of outside Butt Straps *7/8*

„ „ inside „ *7/8*

Are Longitudinal Seams Hand or Machine Riveted? *Hand*

Are they Single, Double, or Treble Riveted?

No. of Rivets in a Pitch *1 1/16 14*

Diar. of Rivet Holes Pitch

No. of Rows of Rivets in Centre Circumferential Seams

Are these Seams Hand or Machine Riveted?

Diar. of Rivet Holes Pitch

No. of Rows of Rivets in Front End Circumferential Seams *Two*

Are these Seams Hand or Machine riveted?

Diar. of Rivet Holes *1 1/16* Pitch *3 1/8*

No. of Rows of Rivets in Back End Circumferential Seams *Two*

Are these Seams Hand or Machine Riveted?

Diar. of Rivet Holes *1 1/16* Pitch *3 1/8*

Size of Manholes in Shell *12 x 16*

Dimensions of Compensating Rings



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Thickness of End Plates in Steam Space Approved

" " " " " in Boilers

1"

Pitch of Steam Space Stays

16"

Diar. " " " " Approved

Threads per Inch

" " " " " in Boilers

2 5/8"

6 T.P.I"

Material of " " "

Steel

How are Stays Secured?

Screwed into both plates & nutted

Diar. and Thickness of Loose Washers on End Plates

" " Riveted " " "

Width " " Doubling Strips " "

Thickness of Middle Back End Plates Approved

" " " " " in Boilers

Thickness of Doublings in Wide Spaces between Fireboxes

Pitch of Stays at

9"

Diar. of Stays Approved

Threads per Inch

" " in Boilers

1 5/8"

9"

Material "

Are Stays fitted with Nuts outside?

Yes

Thickness of Back End Plates at Bottom Approved

" " " " " in Boilers

1"

Pitch of Stays at Wide Spaces between Fireboxes

9"

Thickness of Doublings in " "

Thickness of Front End Plates at Bottom Approved

" " " " " in Boilers

No. of Longitudinal Stays in Spaces between Furnaces

One



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Diar. of Stays Approved Threads per Inch  
 " " in Boilers  $2\frac{5}{8}$  6  
 Material " Steel

Thickness of Front Tube Plates Approved

" " " " in Boilers 1"

Pitch of Stay Tubes at Spaces between Stacks of Tubes 9" with plates omitted

Thickness of Doublings in " " "

" Stay Tubes at " " "

Are Stay Tubes fitted with Nuts at Front End? No

Thickness of Back Tube Plates Approved

" " " in Boilers  $1\frac{3}{16}$ "

Pitch of Stay Tubes in Back Tube Plates 9"

" Plain " 9"

Thickness of Stay Tubes  $5\frac{1}{16}$ "

" Plain " 8 w.g.

External Diar. of Tubes  $3\frac{1}{4}$  plain

Material " Lap welded iron

Thickness of Furnace Plates Approved

" " " in Boilers  $1\frac{1}{32}$ "

Smallest outside Diar. of Furnaces  $3'-3\frac{1}{8}"$

Length between Tube Plates  $6'-10\frac{3}{8}"$

Width of Combustion Chambers (Front to Back)  $2'-2"$

Thickness of " " Tops Approved

" " " " in Boilers  $5\frac{1}{8}"$

Pitch of Screwed Stays in C.C. Tops 8"

Diagonal of Stays Approved

" " in Boilers

Material

Thickness of Combustion Chamber Sides Approved

" " " in Boilers

Pitch of Screwed Stays in C.C. Tops

Diagonal of Stays Approved

" " in Boilers

Material

Thickness of Combustion Chamber Ends Approved

" " in Boilers

Pitch of Screwed Stays in C.C. Tops

Diagonal of Stays Approved

" " in Boilers

Material

Are all screw stays fitted with nuts at ends?

Thickness of Combustion Chamber Bottom

No. of stays over each wing chamber



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## VERTICAL DONKEY BOILERS.

No. of Boilers                      Type

Greatest Int. Diar.                      Height

Height of Boiler Crown above Fire Grate

Are Boiler Crowns Flat or Dished?

Internal Radius of Dished Ends                      Thickness of Plates

Description of Seams in Boiler Crowns

Diar. of Rivet Holes                      Pitch                      Width of Overlap

Height of Firebox Crowns above Fire Grate

Are Firebox Crowns Flat or Dished?

External Radius of Dished Crowns                      Thickness of Plates

No. of Crown Stays                      Diar.                      Material

External Diar. of Firebox at Top                      Bottom                      Thickness of Plates

No. of Water Tubes                      Ext. Diar.                      Thickness

Material of Water Tubes

Size of Manhole in Shell

Dimensions of Compensating Ring

Heating Surface, each Boiler                      Grate Surface

## SUPERHEATERS.

Description of Superheaters

Where situated?

Which Boilers are connected to Superheaters?

Can Superheaters be shut off while Boilers are working?

No. of Safety Valves on each Superheater                      Diar.

Are " " fitted with Easing Gear?

Date of Hydraulic Test                      Test Pressure

Date when Safety Valves set                      Pressure on Valves

## MAIN STEAM PIPES

No. of Pipes

Material

Length, Weight or Diameter

Internal Diam.

Thickness

How are Flanges secured?

Date of Hydraulic Test

Test Pressure

No. of Joints

Material

Length, Weight or Diameter

Internal Diam.

Thickness

How are Flanges secured?

Date of Hydraulic Test

Test Pressure

No. of Joints

Material

Length, Weight or Diameter

Internal Diam.

Thickness

How are Flanges secured?

Date of Hydraulic Test

Test Pressure



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## MAIN STEAM PIPES.

No. of Lengths

3

Material

Copper

Brazed, Welded or Seamless

Solid Drawn

Internal Diam.

5"

Thickness

6 gauge

How are Flanges secured?

Brazed

Date of Hydraulic Test

24/8/20

Test Pressure

360 lbs

No. of Lengths

Material

Brazed, Welded or Seamless

Internal Diam.

Thickness

How are Flanges secured?

Date of Hydraulic Test

Test Pressure

No. of Lengths

Material

Brazed, Welded or Seamless

Internal Diam.

Thickness

How are Flanges secured?

Date of Hydraulic Test

Test Pressure



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## EVAPORATORS.

No. *one* Type *Separate coils* 8 Tons per Day  
 Makers *Caird & Rayner*  
 Working Pressure *10 lbs* Test Pressure Date of Test  
 Date of Test of Safety Valves under Steam

## FEED WATER HEATERS.

No. *One* Type *Exhaust Steam*  
 Makers *Caird & Rayner*  
 Working Pressure *10 lbs* Test Pressure Date of Test

## FEED WATER FILTERS.

No. *One* Type *Duplex* Size  
 Makers *Caird & Rayner*  
 Working Pressure Test Pressure Date of Test

## LIST OF DONKEY PUMPS.

*6 x 4 1/2 x 6* *General Service Duplex*  
*7 x 8 x 8* *Ballast Duplex*



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## LIST OF SPARE GEAR.

No. of Top End Bolts.	No. of Bot. End Bolts.	No. of Cylinder Cover Studs
2	2	
" Coupling Bolts 6	" Main Bearing Bolts 2	" Valve Chest "
" Junk Ring Bolts 6	" Feed Pump Valves 2	" Bilge Pump Valves 2
" H.P. Piston Rings	" L.P. Piston Rings	" L.P. Piston Rings
" " Springs	" " Springs	" " Springs 1 set
" Safety Valve "	" Fire Bars	" Feed Check Valves
" Piston Rods -	" Connecting Rods	" Valve Spindles
" Air Pump Rods -	" Air Pump Buckets -	" Air Pump Valves 3
" Cir. " -	" Cir. " -	" Cir. "
" Crank Shafts	" Crank Pin Bushes	" Crosshead Bushes
" Propeller Shafts	" Propellers one	" Propeller Blades
" Boiler Tubes	" Condenser Tubes 3	" Condenser Ferrules 50

## OTHER ARTICLES OF SPARE GEAR:—

2 sets Valves for Feed Donkey  
 2 do Ballast Donkey  
 12 assorted Iron studs & nuts  
 6 do Brass studs & nuts

## REFRIGERATORS



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## GENERAL CONSTRUCTION.

Have the Machinery and Boilers been constructed in accordance with the requirements of the Rules and the

Approved Plans? *Yes*

If not, give details of the points of difference, and state when these were sanctioned by the Chief

Surveyor.

*Engines commenced to L.R. and completed to B.C. Survey.*

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. *Mainly Locom*

as ascertained by <sup>us</sup>me from personal examination

*Jas. E. Steele*  
 Engineer Surveyor to the British Corporation for the  
 Survey and Registry of Shipping.

## Fees—

MAIN BOILERS.		£	s.	d.
H.S.	Sq. ft.	:	:	
G.S.	"	:	:	
DONKEY BOILERS.				
H.S.	Sq. ft.	:	:	
G.S.	"	:	:	
		£	:	:
ENGINES.				
L.P.O.	Cub. ft.	:	:	
		£	:	:
Testing, &c. ...		:	:	
		£	:	:
Expenses ...		:	:	
		£	:	:
Total ...		£	:	:

It is submitted that this Report be approved,

*Chief Surveyor.*

Approved by the Committee for the Class of M.B.S.\* on the

Fees advised

Fees paid



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 Secretary.





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