

# REPORT ON MACHINERY.

No. 24498

Port of Glasgow

Received at London Office

TUES. 16 OCT 1906

No. in Survey held at Glasgow  
Reg. Book.

Date, first Survey 9<sup>th</sup> Dec 05 Last Survey 6<sup>th</sup> Oct 1906

on the S.S. "Berne"

(Number of Visits)

Master Dublin Built at Dublin By whom built Dublin Dockyard Co. (N<sup>o</sup> 56.) When built 1906

Engines made at Glasgow By whom made Ross & Duncan (N<sup>o</sup> 673) when made 1906

Boilers made at Glasgow By whom made Ross & Duncan (N<sup>o</sup> 1065) when made 1906

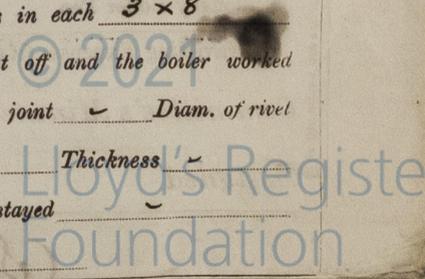
Registered Horse Power 127 Owners John Harrison & Co. Port belonging to London

Nom. Horse Power as per Section 28 127 Is Refrigerating Machinery fitted for cargo purposes no Is Electric Light fitted no

**ENGINES, &c.**—Description of Engines Triple expansion No. of Cylinders 3 No. of Cranks 3  
 Dia. of Cylinders 17"-27 1/2"-44" Length of Stroke 33" Revs. per minute 90 Dia. of Screw shaft as per rule 9 7/16" Material of screw shaft Iron  
 Is the screw shaft fitted with a continuous liner the whole length of the stern tube no Is the after end of the liner made water tight in the propeller boss no  
 If the liner is in more than one length are the joints burned ✓ If the liner does not fit tightly at the part between the bearings in the stern tube, is the space charged with a plastic material insoluble in water and non-corrosive yes red lead two liners are fitted, is the shaft lapped or protected between the liners ✓ Length of stern bush 3'-4 1/2"  
 Dia. of Tunnel shaft as per rule 8.624 Dia. of Crank shaft journals as per rule 9.056 Dia. of Crank pin 9 1/2" Size of Crank webs 6 1/8" x 13 1/2" Dia. of thrust shaft under collars 9 1/2" Dia. of screw 11'-6" Pitch of Screw 13'-3" No. of Blades 4 State whether moveable no Total surface 50 sq. ft.  
 No. of Feed pumps 2 Diameter of ditto 3" Stroke 16 1/2" Can one be overhauled while the other is at work yes  
 No. of Bilge pumps 2 Diameter of ditto 3 1/2" Stroke 16 1/2" Can one be overhauled while the other is at work yes  
 No. of Donkey Engines 3 Sizes of Pumps 5 1/4" x 3 1/2" x 5" dup. No. and size of Suctions connected to both Bilge and Donkey pumps  
 In Engine Room One 2 1/4" One 2 1/2" 3" x 2" x 3" In Holds, &c. Two, 2" fore hold, Two, 2" after hold.

No. of Bilge Injections 1 size 4 1/2" Connected to condenser, or to circulating pump yes Is a separate Donkey Suction fitted in Engine room & size One 2 1/2"  
 Are all the bilge suction pipes fitted with roses yes Are the roses in Engine room always accessible yes Are the sluices on Engine room bulkheads always accessible none  
 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 Hold Suctions How are they protected Wood casing  
 Are all Pipes, Cocks, Valves, and Pumps in connection with the machinery and all boiler mountings accessible at all times yes  
 Are the Bilge Suction Pipes, Cocks, and Valves arranged so as to prevent any communication between the sea and the bilges yes  
 Dates of examination of completion of fitting of Sea Connections Dublin Report of Stern Tube ditto Screw shaft and Propeller ditto  
 Is the Screw Shaft Tunnel watertight none Is it fitted with a watertight door ✓ worked from ✓

**BOILERS, &c.**—(Letter for record N.) Manufacturers of Steel Stewart & Lloyds L<sup>td</sup>  
 Total Heating Surface of Boilers 2056 sq. ft. Is Forced Draft fitted no No. and Description of Boilers One single ended  
 Working Pressure 180 lbs Tested by hydraulic pressure to 360 lbs Date of test 28-4-06 No. of Certificate 7788  
 Can each boiler be worked separately no Area of fire grate in each boiler 63 1/4 sq. ft. No. and Description of Safety Valves to each boiler double spring loaded Area of each valve 6.49 sq. in. Pressure to which they are adjusted 185 lbs Are they fitted with easing gear yes  
 Smallest distance between boilers or uptakes and bunkers or woodwork 4'-0" Mean dia. of boilers 15'-6" Length 10'-6" Material of shell plates Steel  
 Thickness 1 1/2" Range of tensile strength 28-32 Are the shell plates welded or flanged no Descrip. of riveting: cir. seams D. R. long. seams T. R. D. B. S. Diameter of rivet holes in long. seams 1 5/16" Pitch of rivets 9/8" Lap of plates or width of butt straps 19"  
 Per centages of strength of longitudinal joint rivets 88 plate 85.6 Working pressure of shell by rules 180 lbs Size of manhole in shell 16" x 12"  
 Size of compensating ring 7 1/4" x 1 1/4" No. and Description of Furnaces in each boiler 3. Ironiron Material Steel Outside diameter 49 1/2"  
 Length of plain part top ✓ bottom ✓ Thickness of plates crown 9/16" Description of longitudinal joint weld No. of strengthening rings ✓  
 Working pressure of furnace by the rules 180 lbs Combustion chamber plates: Material Steel Thickness: Sides 5/8" Back 5/8" Top 5/8" Bottom 27/32"  
 Pitch of stays to ditto: Sides 8" x 8 3/4" Back 8 3/8" x 8 3/8" Top 8" x 8 7/8" If stays are fitted with nuts or riveted heads nuts Working pressure by rules 184 lbs  
 Material of stays Iron Diameter at smallest part 2.07" Area supported by each stay 73 sq. in. Working pressure by rules 212 lbs End plates in steam space: Material Steel Thickness 1 1/16" Pitch of stays 16" x 18" How are stays secured D. nuts & washers Working pressure by rules 184 lbs Material of stays Steel  
 Diameter at smallest part 5-18" Area supported by each stay 288 sq. in. Working pressure by rules 180 lbs Material of Front plates at bottom Steel  
 Thickness 13/16" Material of Lower back plate Steel Thickness 3/4" Greatest pitch of stays 14 1/4" Working pressure of plate by rules 194 lbs  
 Diameter of tubes 3 1/2" Pitch of tubes 4 3/4" x 4 5/8" Material of tube plates Steel Thickness: Front 17/16" & 13/16" Back 13/16" Mean pitch of stays 10"  
 Pitch across wide water spaces 14 1/2" Working pressures by rules 192 lbs Girders to Chamber tops: Material Iron Depth and thickness of girder at centre 8" x 2 1/2" Length as per rule 32 1/2" Distance apart 8 7/8" Number and pitch of stays in each 3 x 8"  
 Working pressure by rules 185 lbs Superheater or Steam chest, how connected to boiler ✓ Can the superheater be shut off and the boiler worked separately ✓ Diameter ✓ Length ✓ Thickness of shell plates ✓ Material ✓ Description of longitudinal joint ✓ Diam. of rivet holes ✓ Pitch of rivets ✓ Working pressure of shell by rules ✓ Diameter of flue ✓ Material of flue plates ✓ Thickness ✓  
 If stiffened with rings ✓ Distance between rings ✓ Working pressure by rules ✓ End plates: Thickness ✓ How stayed ✓  
 Working pressure of end plates ✓ Area of safety valves to superheater ✓ Are they fitted with easing gear ✓



VERTICAL DONKEY BOILER— Manufacturers of Steel

No. \_\_\_\_\_ Description \_\_\_\_\_

Made at \_\_\_\_\_ By whom made \_\_\_\_\_ When made \_\_\_\_\_ Where fixed \_\_\_\_\_

Working pressure tested by hydraulic pressure to \_\_\_\_\_ Date of test \_\_\_\_\_ No. of Certificate \_\_\_\_\_ Fire grate area \_\_\_\_\_ Description of Safety Valves \_\_\_\_\_

Valves *Single spring loaded* No. of Safety Valves *1* Area of each *11.04* Pressure to which they are adjusted *77 lbs* Date of adjustment *4-10-06*

If fitted with easing gear *no* If steam from main boilers can enter the donkey boiler *no* Dia. of donkey boiler \_\_\_\_\_ Length \_\_\_\_\_

Material of shell plates \_\_\_\_\_ Thickness \_\_\_\_\_ Range of tensile strength \_\_\_\_\_ Descrip. of riveting long. seams \_\_\_\_\_

Dia. of rivet holes \_\_\_\_\_ Whether punched or drilled \_\_\_\_\_ Pitch of rivets \_\_\_\_\_ Lap of plating \_\_\_\_\_ Per centage of strength of joint \_\_\_\_\_ Rivets \_\_\_\_\_ Plates \_\_\_\_\_

Working pressure of shell by rules \_\_\_\_\_ Thickness of shell crown plates \_\_\_\_\_ Radius of do. \_\_\_\_\_ No. of stays to do. \_\_\_\_\_ Dia. of stays \_\_\_\_\_

Diameter of furnace Top \_\_\_\_\_ Bottom \_\_\_\_\_ Length of furnace \_\_\_\_\_ Thickness of furnace plates \_\_\_\_\_ Description of joint \_\_\_\_\_

Working pressure of furnace by rules \_\_\_\_\_ Thickness of furnace crown plates \_\_\_\_\_ Stayed by \_\_\_\_\_

Diameter of uptake \_\_\_\_\_ Thickness of uptake plates \_\_\_\_\_ Thickness of water tubes \_\_\_\_\_ Dates of survey \_\_\_\_\_

SPARE GEAR. State the articles supplied:— *Two connecting rod top end bolts & nuts, two connecting rod bottom end bolts & nuts, two main bearing bolts, one set of coupling bolts, one set of feed & bilge pump valves, a quantity of assorted bolts & nuts, one spare propeller, etc.*

The foregoing is a correct description,  
*James Duncan* Manufacturer.

Dates of Survey while building

During progress of work in shops - -	1905: Dec. 9, 14, 1906: Jan 9, 24, 31 Feb. 5, 14, 21 Mar. 2, 13, 22 Apr. 28 June
	During erection on board vessel - -
	13 Sep. 17, 20, 26, 29 Oct. 4, 6

Total No. of visits *19* Is the approved plan of main boiler forwarded herewith *no*

Dates of Examination of principal parts—Cylinders *24-1-06* Slides *14-2-06* Covers *13-3-06* Pistons *13-3-06* Rods *13-3-06*

Connecting rods *13-3-06* Crank shaft *21-1-06* Thrust shaft *22-3-06* Tunnel shafts *none* Screw shaft *22-3-06* Propeller *22-3-06*

Stern tube *22-3-06* Steam pipes tested *29-9-06* Engine and boiler seatings *17-9-06* Engines holding down bolts *20-9-06*

Completion of pumping arrangements *4-10-06* Boilers fixed *20-9-06* Engines tried under steam *6-10-06*

Main boiler safety valves adjusted *4-10-06* Thickness of adjusting washers *Port valve 7/16" Starb. valve 13/32"*

Material of Crank shaft *Iron* Identification Mark on Do. *673* Material of Thrust shaft *Iron* Identification Mark on Do. *673*

Material of Tunnel shafts *none* Identification Marks on Do. *✓* Material of Screw shafts *Iron* Identification Marks on Do. *673*

Material of Steam Pipes *Copper* Test pressure *400 lbs.*

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

*The machinery of this vessel has been built under special survey the materials and workmanship are of good description, they have been securely fitted on board, and satisfactorily tried under steam.*

*It is in my opinion eligible for notation & L. M. C. 10, 06 in the Register Book*

It is submitted that this vessel is eligible for THE RECORD H.L.M.C 10.06 ELEC. LIGHT.

The amount of Entry Fee... £ 2: : : When applied for. 15. OCT. 1906

Special... £ 18. 12: : : 19: : : 19: : :

Donkey Boiler Fee... £ : : : When received. 18. 10. 1906

Travelling Expenses (if any) £ : : : 19: : : 19: : :

Committee's Minute

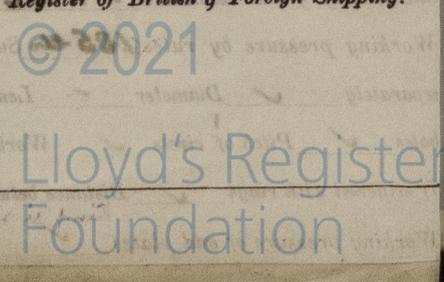
Assigned *+ d.M.C. 10.06.*

*James Cairns*  
Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

FRI. 19 OCT 1906

MACHINERY CERTIFICATE WRITTEN 19

(Subject to classification of hull)



Certificate (if required) to be sent to

The Surveyors are requested not to write on or below the space for Committee's Minute.