

# REPORT ON MACHINERY

No. in Survey held at Sunderland Date, first Survey 23<sup>rd</sup> January 06 Last Survey 14<sup>th</sup> Sept 1906  
 Reg. Book. on the S.S. "India" (Number of Visits 39)  
 Master Wm Nightingale Built at North Shields By whom built Smith's Dock Co. L<sup>d</sup>  
 Engines made at Sunderland By whom made Messrs Mac Coll & Pollock when made 1906  
 Boilers made at Sunderland By whom made Messrs Mac Coll & Pollock when made 1906  
 Registered Horse Power 70 Owners G. H. Birt & H. H. Hestall Port belonging to Milford Haven  
 Is Refrigerating Machinery fitted for cargo purposes no Is Electric Light fitted no

Inverted triple expansion No. of Cylinders 3 ✓ No. of Cranks 3

No. of Bilge Injections one sizes 2 1/2" Connected to condenser, or to circulating pump pump Is a separate Donkey Suction fitted in Engine room & size 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 ✓

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 one suction from flush well How are they protected wood cappings

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 28.8.06 of Stern Tube 7.9.06 Screw shaft and Propeller 7.9.06

Is the Screw Shaft Tunnel watertight ✓ Is it fitted with a watertight door ✓ worked from ✓

BOILERS, &c. — (Letter for record 5) Manufacturers of Steel James Beardmore & Co.

Total Heating Surface of Boilers 1330 <sup>sq ft</sup> Is Forced Draft fitted no No. and Description of Boilers one S.E. Cylindrical Mult

Working Pressure 180 lbs Tested by hydraulic pressure to 360 lbs Date of test 31. 8. 06 No. of Certificate 2521

Can each boiler be worked separately ✓ Area of fire grate in each boiler 35 <sup>sq ft</sup> No. and Description of Safety Valves to each boiler 2 spring Area of each valve 3.98 <sup>sq in</sup> 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 9' Mean dia. of boilers 12' 6" Length 10' 3" Material of shell plates steel

Thickness 1 1/2" Range of tensile strength 28 <sup>tons</sup> / 32 Are the shell plates welded or flanged no Descrip. of riveting: cir. seams d. & l. long. seams L. & d. & s. Diameter of rivet holes in long. seams 1 1/8" Pitch of rivets 7 3/4" Lap of plates or width of butt straps 15 3/4"

Per centages of strength of longitudinal joint rivets 92.5 <sup>%</sup> plate 85 <sup>%</sup> Working pressure of shell by rules 182.9 lbs Size of manhole in shell 16 x 12"

Size of compensating ring 7 x 1 1/2" No. and Description of Furnaces in each boiler 2 plain Material steel Outside diameter 41 1/2"

Length of plain part <sup>top</sup> 6.0" <sup>bottom</sup> 7.3" Thickness of plates <sup>crow</sup> 49 <sup>%</sup> <sup>bottom</sup> 64 <sup>%</sup> Description of longitudinal joint weld No. of strengthening rings ✓

Working pressure of furnace by the rules 184 lbs Combustion chamber plates: Material steel Thickness: Sides 1 1/8" Back 1 1/8" Top 1 1/8" Bottom 1"

Pitch of stays to ditto: Sides 9 x 9 3/4" Back 12 x 7 3/4" Top 8 1/2 x 9" If stays are fitted with nuts or riveted heads nuts Working pressure by rules 180 <sup>lbs</sup>

Material of stays steel Diameter at smallest part 1.51 <sup>in</sup> / 1.63 <sup>in</sup> Area supported by each stay 85 <sup>sq in</sup> / 94 <sup>sq in</sup> Working pressure by rules 2010 <sup>lbs</sup> / 109 <sup>lbs</sup> End plates in steam space: Material steel Thickness 1 3/8" Pitch of stays 18 3/4" x 18" How are stays secured d. & w. Working pressure by rules 187 lbs Material of stays steel

Diameter at smallest part 2.78 <sup>in</sup> Area supported by each stay 387 <sup>sq in</sup> Working pressure by rules 180.7 lbs Material of Front plates at bottom steel

Thickness 27 <sup>%</sup> / 32 <sup>%</sup> Material of Lower back plate steel Thickness 13 <sup>%</sup> / 16 <sup>%</sup> Greatest pitch of stays 13 1/4" Working pressure of plate by rules 193.5 lbs

Diameter of tubes 3 1/4" Pitch of tubes 4 5/8" x 4 1/2" Material of tube plates S Thickness: Front 27 <sup>%</sup> / 32 <sup>%</sup> Back 27 <sup>%</sup> / 32 <sup>%</sup> Mean pitch of stays 11 5/8"

Pitch across wide water spaces 15 1/2" Working pressures by rules 198 lbs Girders to Chamber tops: Material steel Depth and thickness of girder at centre 9 x 1 1/2" Length as per rule 31 3/4" Distance apart 9' Number and pitch of stays in each 2 - 8 3/4"

Working pressure by rules 183 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 ✓

Lloyd's Reg Foundation W1275-0269

W1275-0269



# VERTICAL DONKEY BOILER—

Manufacturers of Steel *home fitted*

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	No. of Safety Valves	Area of each	Pressure to which they are adjusted	Date of adjustment	
If fitted with easing gear	If steam from main boilers can enter the donkey boiler	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:— 1 Propeller, 2 top end, 2 bottom end, 2 main bearing & 1 set of Coupling bolts, 1 set feed and bilge pump Valves, 1 main feed Check & 1 Donkey feed check Valve, 1 set each air & circulating pump Valves, Bolts & nuts assorted & sizes

The foregoing is a correct description,

MAO COLL & POLLOCK, LTD

Manufacturer.

Dates of Survey while building	During progress of work in shops	Director	1906: Jan. 23, 25; Feb. 11, 23; Mch. 9, 27; Apr. 3, 5, 6, 12, 23; May, 2, 10, 15, 28, 29; June 1, 7, 8, 15, 19, 23, 30;
	During erection on board vessel		July 6, 12, 19, 30; Aug. 1, 10, 17, 22, 28, 31; Sept. 5, 6, 7, 10, 12, 14.
Total No. of visits	39	Is the approved plan of main boiler forwarded herewith <i>Yes</i>	

Dates of Examination of principal parts—Cylinders	19.7.06	Slides	19.7.06	Covers	3.4.06	Pistons	10.8.06	Rods	19.7.06
Connecting rods	19.7.06	Crank shaft	30.6.06	Thrust shaft	30.7.06	Tunnel shafts	nil	Screw shaft	10.8.06
Propeller	6.9.06	Stern tube	30.7.06	Steam pipes tested	10.9.06	Engine and boiler seatings	7.9.06	Engines holding down bolts	10.9.06
Completion of pumping arrangements	14.9.06	Boilers fixed	10.9.06	Engines tried under steam	14.9.06				
Main boiler safety valves adjusted	14.9.06	Thickness of adjusting washers	S - 1/2"; P - 2/16"						
Material of Crank shaft	Steel	Identification Mark on Do.	162 J.W.D.		Material of Thrust shaft	Steel	Identification Mark on Do.	233 P.A.	
Material of Tunnel shafts	✓	Identification Marks on Do.	✓		Material of Screw shafts	Steel	Identification Marks on Do.	234 P.A.	
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 constructed under special survey, the workmanship and material used are both of good quality, the Engines have been tried under steam and worked satisfactorily*

*We beg to recommend that this vessel is eligible in our opinion, to have the record L.M.C. 10.06 in the Register Book*

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

The amount of Entry Fee..	£	1	When applied for.	18.9.06
Special .. .. .	£	10	When received.	13.10.06
Donkey Boiler Fee .. .. .	£			
Travelling Expenses (if any) £				

TUES. 16 OCT 1906

Committee's Minute

Assigned

MACHINERY CERTIFICATE WRITTEN.

*Leonard Challoross*  
*R. W. Coombes*  
Engineer Surveyors to Lloyd's Register of British & Foreign Shipping.



Lloyd's Register Foundation

Certificate (if required) to be sent to the Surveyors are requested not to write on or below the space for Committee's Minute.