

REPORT ON MACHINERY.

No. 4452.

WED. JUL. 17. 1912

Received at London Office

Date of writing Report 6.7.12 When handed in at Local Office 8.7.12 Port of Middlesbrough-on-Tees
 No. in Survey held at Stockton-on-Tees Date, First Survey 11. March Last Survey 12. July 1912
 Reg. Book. on the Steel Screw Steamer "TWICKENHAM" (S.S. No. 470) Tons { Gross 4890.63
 Net 2991.82
 Master H. B. Briggs Built at Stockton By whom built Gusson, Ropner & Sons Ltd. When built 1912
 Engines made at Stockton By whom made Gusson, Blair & Co. Ltd. (No. 1734) when made 1912
 Boilers made at Stockton By whom made Gusson, Blair & Co. Ltd. when made 1912
 Registered Horse Power 434 Owners The British Steamship Co. Ltd. Port belonging to London
 Nom. Horse Power as per Section 28 434 Is Refrigerating Machinery fitted for cargo purposes no Is Electric Light fitted yes

ENGINES, &c.—Description of Engines Tri-compound No. of Cylinders 3 No. of Cranks 3
 Dia. of Cylinders 27-44½-73 Length of Stroke 48 Revs. per minute 62 Dia. of Screw shaft as per rule 14.89 Material of Ing. steel
 Is the screw shaft fitted with a continuous liner the whole length of the stern tube yes Is the after end of the liner made water tight
 in the propeller boss yes If the liner is in more than one length are the joints burned in one yes 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 fits tightly If two
 liners are fitted, is the shaft lapped or protected between the liners yes Length of stern bush 5'-6"
 Dia. of Tunnel shaft as per rule 18.36 Dia. of Crank shaft journals as per rule 14.02 Dia. of Crank pin 16" Size of Crank webs 28½ x 9½ Dia. of thrust shaft under
 collars 15" Dia. of screw 18'-0" Pitch of Screw 18'-0" No. of Blades 4 State whether moveable no Total surface 100 sq
 No. of Feed pumps 2 Diameter of ditto 3¾ Stroke 34 Can one be overhauled while the other is at work yes
 No. of Bilge pumps 2 Diameter of ditto 3¾ Stroke 34 Can one be overhauled while the other is at work yes
 No. of Donkey Engines 2 Sizes of Pumps Ballard 10 x 19 No. and size of Suctions connected to both Bilge and Donkey pumps
 In Engine Room 3 @ 3½ x Dry tank 1 @ 3½ x 2 @ 2½ In Holds, &c. 2 @ 3½ in each hold
Funnel will run @ 2½"
 No. of Bilge Injections 1 sizes 7" Connected to condensers circulating pump yes Is a separate Donkey Suction fitted in Engine room of size yes-4"
Funnel Piece
 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 yes
 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 Four holds How are they protected wood ceiling
 Are all Pipes, Cocks, Valves, and Bumps 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 21.5.12 of Stern Tube 21.5.12 Screw shaft and Propeller 6.6.12
 Is the Screw Shaft Tunnel watertight see hull Rpt. Is it fitted with a watertight door yes worked from top platform

BOILERS, &c.—(Letter for record (r)) Manufacturers of Steel Gusson, John Spencer & Son
 Total Heating Surface of Boilers 7158 Is Forced Draft fitted no No. and Description of Boilers 3 Single ended
 Working Pressure 180 Tested by hydraulic pressure to 360 Date of test 31.5.12 No. of Certificate 4887
 Can each boiler be worked separately yes Area of fire grate in each boiler 64 sq No. and Description of Safety Valves to
 each boiler 2 direct spring Area of each valve 8.29 Pressure to which they are adjusted 185 Are they fitted with easing gear yes
 Smallest distance between boilers or uptakes and bunkers or woodwork 12" Mean dia. of boilers 15'-6" Length 11'-6" Material of shell plates steel
 Thickness 1½" Range of tensile strength 28-32 Are the shell plates welded or flanged no Descrip. of riveting: cir. seams 2 Riv lap
 long. seams 2 Riv 3 Riv Diameter of rivet holes in long. seams 15/16 Pitch of rivets 9½" Lap of plates or width of butt straps 19½ x 1½
5 Rivets per pitch rivets 87.5 Working pressure of shell by rules 184 Size of manhole in shell 16" x 12"
 Per centages of strength of longitudinal joint plate 85.83
 Size of compensating ring flanged No. and Description of Furnaces in each boiler 3 Morrison Material steel Outside diameter 46¾"
 Length of plain part top Thickness of plates bottom 9" Description of longitudinal joint weld No. of strengthening rings ✓
 Working pressure of furnace by the rules 190 Combustion chamber plates: Material steel Thickness: Sides 23/32 Back 23/32 Top 23/32 Bottom 1"
 Pitch of stays to ditto: Sides 8½ x 11 Back 9½ x 9½ Top 9½ x 9½ If stays are fitted with nuts or riveted heads nuts Working pressure by rules 187
 Material of stays IRON Diameter at smallest part 1.72 Area supported by each stay 95 Working pressure by rules 182 End plates in steam space:
 Material steel Thickness 1½" Pitch of stays 17½ x 21 How are stays secured nuts & washers Working pressure by rules 185 Material of stays steel
 Diameter at smallest part 3.04 Area supported by each stay 394.62 Working pressure by rules 192 Material of Front plates at bottom steel
 Thickness 1½" Material of Lower back plate steel Thickness 1½" Greatest pitch of stays 15½ x 9½ Working pressure of plate by rules 237
 Diameter of tubes 3½" Pitch of tubes 4¾ x 4¾ Material of tube plates steel Thickness: Front 1½" Back 1½" Mean pitch of stays 11"
 Pitch across wide water spaces 14½" Working pressures by rules 181 Girders to Chamber tops: Material steel Depth and
 thickness of girder at centre 8" x 1½" Length as per rule 2'-8" Distance apart 9¾ Number and pitch of stays in each 2 @ 9¾
 Working pressure by rules 185 Superheater or Steam chest; how connected to boiler none 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 See Middlesbrough Report No 7177

No.	Description	When made	Where fixed
Made at	By whom made	No. of Certificate	Fire grate area
Working pressure	tested by hydraulic pressure to	Date of test	Description of Safety
Valves	No. of Safety Valves	Area of each	Pressure to which they are adjusted
If fitted with easing gear	If steam from main boilers can enter the donkey boiler	Date of adjustment	
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
Working pressure of shell by rules	Thickness of shell crown plates	Radius of do.	No. of stays to do.
Diameter of furnace Top	Bottom	Length of furnace	Thickness of furnace plates
Working pressure of furnace by rules	Thickness of furnace crown plates	Radius of do.	Stayed by
Diameter of uptake	Thickness of uptake plates	Thickness of water tubes	Dates of survey

SPARE GEAR. State the articles supplied:— Two each of top end, bottom end and main bearing bolts and nuts: one set of coupling bolts & nuts: one set of fuel & bidge pump valves assorted bolts & nuts: iron of various sizes: one tail end shaft: one propeller: one valve spindle: one set con. rod top end & bottom end bushes & 2 eccentric strap bolts

The foregoing is a correct description,
FOR PLAIN & CO., LIMITED.

Wm Nettleship Manufacturer.

Dates of Survey while building	During progress of work in shops	During erection on board vessel	Total No. of visits
12.12.11	12.12.11	12.12.11	38

Dates of Examination of principal parts—Cylinders	1.5.12	Slides	25.4.12	Covers	29.4.12	Pistons	8.5.12	Rods	2.5.12
Connecting rods	8.5.12	Crank shaft	30.5.12	Thrust shaft	16.5.12	Tunnel shafts	19.5.12	Screw shaft	3.6.12
Stern tube	10.5.12	Steam pipes tested	13.6.12	Engine and boiler seatings	21.5.12	Engines holding down bolts	13.6.12		
Completion of pumping arrangements	24.6.12	Boilers fixed	24.6.12	Engines tried under steam	24.6.12				
Main boiler safety valves adjusted	24.6.12	Thickness of adjusting washers	PR 5-9/32: 6.13 5-1/2: 5.13 5-3/8						
Material of Crank shaft	By Steel Identification Mark on Do. 6741	Material of Thrust shaft	By Steel Identification Mark on Do. 8671						
Material of Tunnel shafts	By Steel Identification Marks on Do. 8671	Material of Screw shafts	By Steel Identification Marks on Do. 6741						
Material of Steam Pipes	Solid drawn copper (4 3/4 x 3/32)	Test pressure	400 lb						

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 sound and good. The boilers and main steam pipes were tested by hydraulic pressure, and the engines and boilers examined under steam and all found satisfactory. The machinery is now in a good and safe working condition and eligible in my opinion to have the notation of \pm L.M.C-7.12

The report on the Electric Light is forwarded herewith
It is submitted that this vessel is eligible for THE RECORD \pm L.M.C. 7.12 Ele

The amount of Entry Fee	£ 3-0-0	When applied for	9.9.11
Special	£ 41-14-0	When received	11.9.11
Donkey Boiler Fee	£		
Travelling Expenses (if any)	£		
Committee's Minute	FRI. JUL. 19. 1912		
Assigned	Hmc 7/12		

Wm Morrison
Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

WEB-
WEB-
WEB-
BRAC-
Web-
BUL-
W.T.B-
COIL-
PART-
LONG-
Are tl-
Are tl-
FLAT-
GAR-
Stat-
thid-
way-
Bo-
THE-
OLEA-
DO-
DBLO-
Le-
POOL-
SHO-
FOR-
UP-
Stri-
Dr-
Se-
Str-
FRA-
REV-
Low-
Bow-
Top-
Rig-
Sai-