

## REPORT ON MACHINERY.

No. 2307

Received at London Office JAN. - 3 JAN. 1916

Date of writing Report 13/12 1915 When handed in at Local Office 18/12 1915 Port of Philadelphia  
 No. in Survey held at Wilmington Del Date, First Survey 29. 1. 1915 Last Survey Dec 1<sup>st</sup> 1915  
 Reg. Book. 38 on the S.S. SILVER SHELL  
 Master P. Gibson Built at Wilmington By whom built Harlan Hullingsworth Corp When built 1915-12  
 Engines made at Wilmington By whom made Harlan Hullingsworth Corp when made 1915-12  
 Boilers made at - do - By whom made - do - when made 1915-12  
 Registered Horse Power Owners Shell Co of California Port belonging to Wilmington Del  
 Nom. Horse Power as per Section 28 550 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted Yes

Engines, &c.—Description of Engines Triple No. of Cylinders 3 No. of Cranks 3  
 Dia. of Cylinders 24.45 74 Length of Stroke 48 Revs. per minute 70 Dia. of Screw shaft as per rule 5.5 as fitted 5.5 Material of steel  
 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  
 Is the propeller boss fitted with a continuous liner the whole length of the stern tube No 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 fitted close If two  
 liners are fitted, is the shaft lapped or protected between the liners has liner fitted but not continuous Length of stern bush 5.6  
 Dia. of Tunnel shaft as per rule 13.8 13.29 Dia. of Crank shaft journals as per rule 14.32 13.95 Dia. of Crank pin 4.2 Size of Crank webs 28.2 9.6 Dia. of thrust shaft under  
 collars 14.2 Dia. of screw 17.9 Pitch of Screw 17.0 No. of Blades 4 State whether moveable Yes Total surface 100 sq ft  
 No. of Feed pumps 2 Diameter of ditto 8.10 Stroke 21 Can one be overhauled while the other is at work Yes  
 No. of Bilge pumps 2 Diameter of ditto 4 Stroke 26 Can one be overhauled while the other is at work Yes  
 No. of Donkey Engines 3 Sizes of Pumps 8.6 12.4 10.12 12 No. and size of Suctions connected to both Bilge and Donkey pumps  
 In Engine Room 3-3.2 1-3 1.4 2 In Holds, &c. Fore peak 3.2 A peak 3.2  
 W.T. flat in No 1 hold two 2  
 No. of Bilge Injections 1 sizes 9 Connected to condenser, or to circulating pump pump Is a separate Donkey Suction fitted in Engine room & size 7.4 4.2  
 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 Yes  
 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 none How are they protected —  
 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 23.8.15 of Stern Tube 23.8.15 Screw shaft and Propeller 23.8.15  
 Is the Screw Shaft Tunnel watertight none Is it fitted with a watertight door worked from —

BOILERS, &c.—(Letter for record S) Manufacturers of Steel Lukens Iron & Steel Co  
 Total Heating Surface of Boilers 8332 sq ft Is Forced Draft fitted Yes No. and Description of Boilers 3 Single ended  
 Working Pressure 180 lbs Tested by hydraulic pressure to 270 lbs Date of test Sept. 1. 15 No. of Certificate 45  
 Can each boiler be worked separately Yes Area of fire grate in each boiler 64 sq ft No. and Description of Safety Valves to  
 each boiler 2 direct spring Area of each valve 9.6 Pressure to which they are adjusted 180 lbs Are they fitted with easing gear Yes  
 Smallest distance between boilers or uptakes and bunkers or woodwork 3.0 Mean dia. of boilers 5.732 Length 11.7 Material of shell plates steel  
 Thickness 1/32 Range of tensile strength 28.32 tons Are the shell plates welded or flanged no Descrip. of riveting: cir. seams A.T. Lap  
 long. seams 138 T.R. Diameter of rivet holes in long. seams 1/8 Pitch of rivets 8 1/2 Lap of plates or width of butt straps 19 1/2  
 Per centages of strength of longitudinal joint rivets 99. Working pressure of shell by rules 192 lbs Size of manhole in shell 16.12  
 Size of compensating ring 36 x 3 1/2 1/32 No. and Description of Furnaces in each boiler 3 Division Material steel Outside diameter 49  
 Length of plain part top 19 bottom 32 Thickness of plates crown 19 bottom 32 Description of longitudinal joint welded No. of strengthening rings none  
 Working pressure of furnace by the rules 193 lbs Combustion chamber plates: Material steel Thickness: Sides 3/32 Back 3/32 Top 3/32 Bottom 3/32  
 Pitch of stays to ditto: Sides 7 1/2 7 1/2 Back 7 1/2 7 1/2 Top 9 7 1/2 If stays are fitted with nuts or riveted heads riveted Working pressure by rules 196 lbs  
 Material of stays steel Diameter at smallest part 1.52 Area supported by each stay 56.25 Working pressure by rules 216 lbs End plates in steam space:  
 Material steel Thickness 1/8 Pitch of stays 7 1/2 16 1/2 How are stays secured D.N.W Working pressure by rules 196 lbs Material of stays steel  
 Diameter at smallest part 2 3/4 Area supported by each stay 289 lbs Working pressure by rules 214 lbs Material of Front plates at bottom steel  
 Thickness 7/8 Material of Lower back plate steel Thickness 7/8 Greatest pitch of stays 32.7 1/2 Working pressure of plate by rules 199 lbs  
 Diameter of tubes 2 1/2 Pitch of tubes 32 x 32 Material of tube plates steel Thickness: Front 7/8 Back 3/32 Mean pitch of stays 10 3/8  
 Pitch across wide water spaces 13 1/2 6.4 Working pressures by rules 251 lbs Girders to Chamber tops: Material steel Depth and  
 thickness of girder at centre 9 1/2 x 1 1/8 Length as per rule 33 Distance apart 9 Number and pitch of stays in each 3. 7 1/2  
 Working pressure by rules 226 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



IS A DONKEY BOILER FITTED? *no*

If so, is a report now forwarded? *✓*

SPARE GEAR. State the articles supplied:—

*1 eccentric strap. 1 set of crank shaft. 1 tail shaft. 1 piston rod. 1 valve spindle, 1 air pump rod. 1 bilge pump ram. 2 crank pin braces. 2 set crossh braces. 1 set coupling bolts & nuts. 2 main bearing, 2 crank pin & 2 crosshead bolts & nuts. 1 set feed, bilge & all air pump valves and a quantity of assorted bolts & iron.*

The foregoing is a correct description,

*Harlan & Hollingsworth Corp*  
*by Henderson Lewis, Secretary, Manufacturer.*

Dates of Survey while building { During progress of work in shops -- *Jan 29. Feb 25. Mar 4. 15. 31. April 7. 15. 21. June 2. 7. 24. July 8. 16. 21. 29. Aug 5. 10. 12. 23. 1915*  
During erection on board vessel -- *Sept. 10. 17. 22. 29. Oct. 7. 11. 15. 19. 25. 28. Nov 5. 12. 17. 23. 26. Dec 1st 1915*  
Total No. of visits *35.*

Is the approved plan of main boiler forwarded herewith *yes*

" " " donkey " " " *✓*

Dates of Examination of principal parts—Cylinders *17. 6. 15* Slides *17. 6. 15* Covers *17. 6. 15* Pistons *2. 6. 15* Rods *17. 6. 15*

Connecting rods *17. 6. 15* Crank shaft *7. 6. 15* Thrust shaft *7. 6. 15* Tunnel shafts *✓* Screw shaft *16. 7. 15* Propeller *16. 7. 15*

Stern tube *23. 8. 15* Steam pipes tested *15. 10. 15* Engine and boiler seatings *9. 10. 15* Engines holding down bolts *5. 11. 15*

Completion of pumping arrangements *1. 12. 15* Boilers fixed *5. 11. 15* Engines tried under steam *1. 12. 15*

Main boiler safety valves adjusted *26. 11. 15* Thickness of adjusting washers *PF  $\frac{7}{16}$  A  $\frac{5}{8}$ . Centre F  $\frac{7}{16}$  A  $\frac{7}{16}$ . Ch F  $\frac{3}{8}$  A  $\frac{7}{16}$*

Material of Crank shaft *Steel* Identification Mark on Do. *1193 R.H.* Material of Thrust shaft *Steel* Identification Mark on Do. *1193 R*

Material of Tunnel shafts *✓* Identification Marks on Do. *✓* Material of Screw shafts *Steel* Identification Marks on Do. *1193 R*

Material of Steam Pipes *Steel solid drawn* Test pressure *540 lbs*

Is an installation fitted for burning oil fuel *yes* Is the flash point of the oil to be used over 150°F. *yes*

Have the requirements of Section 49 of the Rules been complied with *yes*

Is this machinery duplicate of a previous case *no* If so, state name of vessel

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

*The machinery of this vessel has been constructed fitted on board under Special Survey. The workmanship is sound & good. The machinery has been tried under steam, safety valves adjusted & oil fuel system tried out. Found to work well & the machinery is now recommended to be classed + LMC 12.15, fitted for liquid fuel flash point above 150°F in the Register Book.*

It is submitted that  
this vessel is eligible for

THE RECORD + LMC 12.15. F.D.

Fitted for oil fuel 12.15. F.P. above 150°F.

The amount of Entry Fee ... \$ 15.00 : When applied for,  
Special ... \$ 237.50 : 14.12.1915  
Donkey Boiler Fee ... : :  
Travelling Expenses (if any) \$ 44.00 : When received,  
16.12.1915

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

Committee's Minute TUE. - 4 JAN. 1916

Assigned

*+ L.N. 6. 12. 15*

*Fitted for oil fuel 12.15 F.P. above 150°F.*



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Lloyd's Register  
Foundation

PHILADELPHIA

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

MACHINERY CERTIFICATE  
PRINTED.