

REPORT ON MACHINERY.

No. 17415
3518

Received at London Office

Date of writing Report *Nov 6 1919* When handed in at Local Office *Nov 6 1919* Port of *New York N.Y.*

No. in Survey held at *Schenectady N.Y.* Date, First Survey *Feb 24* Last Survey *Nov 6 1919*
Reg. Book. *S.S. Daniel Webster* (Number of Visits *37*)

Master *J.W. Nichols* Built at *Gloucester* By whom built *Pusey & Jones Co* When built *1919*
Tons { Gross *8289.21*
Net *6147.0*

Engines made at *Schenectady N.Y.* By whom made *General Electric Co* when made *1919*
Boilers made at *Bayonne N.J.* By whom made *Babcock & Wilcox Co* when made *1919*

Registered Horse Power _____ Owners *U.S. Shipping Board* Port belonging to *Gloucester City N.Y.*
Shaft Horse Power at Full Power *3000* Is Refrigerating Machinery fitted for cargo purposes *No* Is Electric Light fitted *Yes*

URBINE ENGINES, &c.—Description of Engines *Turbine 12425. Head Turbine gear 2559.* No. of Turbines *One.*

Diameter of Rotor Shaft Journals, H.P. *8"* L.P. *✓* Diameter of Pinion Shaft *7"*
Diameter of Journals *H.S.P. 4" 6.10"* Distance between Centres of Bearings *H.S.P. 33" 6.50"* Diameter of Pitch Circle *H.S.P. 7.833" 9.57.666"*
Diameter of Wheel Shaft *16 1/2"* Distance between Centres of Bearings *L.S.P. 45 1/2"* Diameter of Pitch Circle of Wheel *L.S.P. 10.75" 9.54.75"*
Width of Face *20.5"* Diameter of Thrust Shaft under Collars *14"* Diameter of Tunnel Shaft *as per rule 13.2" as fitted 13.5"*
No. of Screw Shafts *one* Diameter of same *as per rule 14.5" continuous line as fitted 15"* Diameter of Propeller *17.4 1/2"* Pitch of Propeller *13.4"*
No. of Blades *4* State whether Moveable *Yes* Total Surface *84.4 sq ft* Diameter of Rotor Drum, H.P. *✓* L.P. *✓* Astern *✓*
Thickness at Bottom of Groove, H.P. *✓* L.P. *✓* Astern *✓* Revs. per Minute at Full Power, Turbine *3374.5* Propeller *90*

ARTICULARS OF BLADING.

	H.P.			L.P.			ASTERN.		
	ACTIVE HEIGHT OF BLADES.	PITCH DIAMETER AT TIP.	NO. OF ROWS.	HEIGHT OF BLADES.	DIAMETER AT TIP.	NO. OF ROWS.	ACTIVE HEIGHT OF BLADES.	PITCH DIAMETER AT TIP.	NO. OF ROWS.
ST EXPANSION	<i>1.0-1.75"</i>	<i>2'-11 1/2"</i>	<i>2</i>				<i>1.125-1.75"</i>	<i>3'-3"</i>	<i>2</i>
ND "	<i>.875"</i>	<i>3'-9"</i>	<i>1</i>				<i>3.5"</i>	<i>3'-3"</i>	<i>1</i>
RD "	<i>1.75"</i>	<i>3'-10 1/2"</i>	<i>1</i>						
TH "	<i>3.25"</i>	<i>4'-0"</i>	<i>1</i>						
TH "	<i>7.125"</i>	<i>4'-2"</i>	<i>1</i>						
TH "									
TH "									

To. and size of Feed pumps *2 @ 12x8x24"*
To. and size of Bilge pumps *2 @ 10x8 1/2x10"*
To. and size of Bilge suction in Engine Room *1 Bl. Room 4-3/2 11 Spec 3 1/2*
In Holds, &c. *2-3/2 in each hold*

No. of Bilge Injections *1* sizes *10"* Connected to condenser, or to circulating pump *✓* Is a separate Donkey Suction fitted in Engine Room & size *Yes 3 1/2"*
Are all the bilge suction pipes fitted with roses *Yes* Are the roses in Engine room always accessible *Yes*
Are all connections with the sea direct on the skin of the ship *Yes* Are they Valves or Cocks *both 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 *below*
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*
How are they protected *Steel covering*
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*
Is the Screw Shaft Tunnel watertight *Yes* Is it fitted with a watertight door *Yes* worked from *top platform*

BOILERS, &c.—(Letter for record *S*) Manufacturers of Steel *Central Iron & Steel Co*

Total Heating Surface of Boilers *8706 sq ft* Is Forced Draft fitted *Yes* No. and Description of Boilers *3 Babcock & Wilcox*
Working Pressure *205 lbs* Tested by hydraulic pressure to *460 lbs* Date of test *2-10-19* No. of Certificate *378*
Can each boiler be worked separately *Yes* Area of fire grate in each boiler *87.5 sq ft* No. and Description of Safety Valves to each boiler *double spring loaded* Area of each valve *7.06 sq in* Pressure to which they are adjusted *210 lbs* Are they fitted with easing gear *Yes*
Greatest distance between boilers or uptakes and bunkers or woodwork _____ Mean dia. of boilers _____ Length _____ Material of shell plates _____
Thickness _____ Range of tensile strength _____ Are the shell plates welded or flanged _____ Descrip. of riveting: cir. seams _____
Pitch of rivets _____ Lap of plates or width of butt straps _____

Working pressure of furnace by the rules _____ Combustion chamber plates: Material _____ Thickness: Sides _____ Back _____ Top _____ Bottom _____
Pitch of stays to ditto: Sides _____ Back _____ Top _____ If stays are fitted with nuts or riveted heads _____ Working pressure by rules _____
Material of stays _____ Diameter at smallest part _____ Area supported by each stay _____ Working pressure by rules _____ End plates in steam space _____
Material _____ Thickness _____ Pitch of stays _____ How are stays secured _____ Working pressure by rules _____ Material of stays _____
Diameter at smallest part _____ Area supported by each stay _____ Working pressure by rules _____ Material of Front plates at bottom _____
Thickness _____ Material of Lower back plate _____ Thickness _____ Greatest pitch of stays _____ Working pressure of plate by rules _____
Diameter of tubes _____ Pitch of tubes _____ Material of tube plates _____ Thickness: Front _____ Back _____ Mean pitch of stays _____
Pitch across wide water spaces _____ Working pressures by rules _____ Girders to Chamber tops: Material _____ Depth and _____
Thickness of girder at centre _____ Length as per rule _____ Distance apart _____ Number and pitch of stays in each _____
Working pressure by rules _____ Steam dome: description of joint to shell _____ % of strength of joint _____ Diameter _____
Thickness of shell plates _____ Material _____ Description of longitudinal joint _____ Diameter of rivet holes _____ Pitch of rivets _____
Working pressure of shell by rules _____ Crown plates: Thickness _____ How stayed _____



SUPERHEATER. Type Loote Date of Approval of Plan New York Tested by Hydraulic Pressure to 600 lbs
 Date of Test 2-10-19 Is a Safety Valve fitted to each Section of the Superheater which can be shut off from the Boiler Yes
 Diameter of Safety Valve 1/2" Pressure to which each is adjusted 210 lbs Is Easing Gear fitted Yes

IS A DONKEY BOILER FITTED? None If so, is a report now forwarded?

SPARE GEAR. State the articles supplied:— 2 studs & nuts for each size of rotor bearing; 2 studs & nuts main gear bearing; 2 studs & nuts pinion bearing; 1 set of coupling bolts; 20 of total run of bolts & nuts for each gear case joint & turbine casing joint; 2 thermometers for oil cooling system; 1 set of bearing bushes for gear wheel, rotor & pinion shaft; 2 set of packing rings for each gland of rotor shaft complete; 1 set of turbine thrust collar; 1 set of feed & bilge pump valves; 1 set of valves for lubricating oil pumps; a quantity of assorted bolts & nuts; bars & plates of mild steel; 2 ordinary thrust collars; 2 propeller blades.

The foregoing is a correct description,
General Electric Co. Manufacturer. Chief Engineer
per S. A. Berg

Dates of Survey while building
 During progress of work in shops - - 7-11-17: 23-11-17: 6-12-17: 18-12-17: 7-2-18: 28-3-18: 4-4-18: 6-4-18
 During erection on board vessel - - 6-6-18: 17-7-19: 29-7-19: 18-9-18 1919. Feb 24. Feb 19. 26. Apr. 3. 16. 24. 25. May 1. 1919. June 3. 11. 20. 27. July 15. 26. 31. Aug 7. 26. Sept. 3. 9. 30. Oct. 2. 6. 14. 18. 20. 22. 28. 31. Nov. 4. 6.
 Total No. of visits 31 Is the approved plan of main boiler forwarded herewith Yes

Dates of Examination of principal parts—Casings 18-9-18 Rotors 18-9-18 Blading 6-6-18 Gearing 23-11-18
 Rotor shaft 7-17-19 Thrust shaft 3-6-19 Tunnel shafts 14-10-19 Screw shaft 7-10-19 Propeller 7-10-19
 Stern tube 4-8-19 Steam pipes tested 15-10-19 Engine and boiler seatings 26-8-19 Engines holding down bolts 7-10-19
 Completion of pumping arrangements 31-10-19 Boilers fixed 26-8-19 Engines tried under steam 31-10-19
 Main boiler safety valves adjusted 31-10-19 Thickness of adjusting washers Lock nuts
 Material and tensile strength of Rotor shaft Steel 80,000 lbs. J Identification Mark on Do. T.G.D.
 Material and tensile strength of Pinion shaft " 85,000 " Identification Mark on Do. T.G.D.
 Material of Wheel shaft Steel Identification Mark on Do. T.G.D. Material of Thrust shaft Steel Identification Mark on Do. J.R.
 Material of Tunnel shafts Steel Identification Marks on Do. J.R. Material of Screw shafts Steel Identification Marks on Do. W.C.
 Material of Steam Pipes Steel Test pressure 630 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 a duplicate of a previous case Yes If so, state name of vessel "Abraham Lincoln"

General Remarks (State quality of workmanship, opinions as to class, &c.) These engines have been constructed under special survey in accordance with the approved plans. The materials and workmanship are sound and good. The engines have been forwarded to Percy Jones Esq. Gloucester, N.S. to be fitted on board Philadelphia. The machinery and boilers of this vessel have been securely fitted on board and proved satisfactory under steam trial. It is submitted that the vessel be eligible for a record of + LMC-1. Fitted for oil fuel-11-19 flash point above 150°F. in the Register Book.

The amount of Entry Fee ... £ \$ 15.00
 Special ... New York \$ 175.00
 Donkey Boiler Fee ... Phila \$ 84.50
 Travelling Expenses (if any) £ \$ 10.00
 When applied for, 19
 When received, 29/11/20
 J. H. P. ... Wm. Stewart
 Engineer Surveyors to Lloyd's Register of Shipping.
 J. Adamson

Committee's Minute New York NOV 25 1919
 Assigned + LMC 11.19
 MACHINERY TEST
 WRITTEN
 9-12-19

