Rpt. 4.

REPORT ON MACHINERY. No. 17

Port of Cleveland, O. Received at London Office MON. DEC. 16. 1912 19

No. in Reg. Book. 5 Supp. on the S/S GEORGE HAWLEY

Survey held at Ashtabula, O. & Ecorse, Mich. Date, first Survey May 23 Last Survey 7 Nov 1912 (Number of Visits 24)

Master R. J. Johnstone Built at Ashtabula, O. By whom built Great Lakes Engineering Works When built 1912 Tons Gross 2649 Net 1669

Engines made at Ashtabula, O. By whom made Great Lakes Engineering Works when made 1912

Boilers made at Toledo, O. By whom made The Marine Boiler Works Co. when made 1912

Registered Horse Power ✓ Owners Boston Virginia Transportation Co Port belonging to New York

Nom. Horse Power as per Section 28 274 ✓ Is Refrigerating Machinery fitted for cargo purposes no ✓ Is Electric Light fitted yes. ✓

ENGINES, &c.—Description of Engines triple expansion ✓ No. of Cylinders 3 ✓ No. of Cranks 3 ✓

Dia. of Cylinders 21"-34½"-57" ✓ Length of Stroke 42 ✓ Revs. per minute 85 ✓ Dia. of Screw shaft as per rule 12.2 ✓ as fitted 12 ¼ ✓ Material of screw shaft 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 in the propeller boss ✓ 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 ✓ If two liners are fitted, is the shaft lapped or protected between the liners yes ✓ Length of stern bush 4'-3" ✓

Dia. of Tunnel shaft as per rule 10.7 ✓ as fitted none ✓ Dia. of Crank shaft journals as per rule 11.23 ✓ as fitted 11 ¼ ✓ Dia. of Crank pin 11 ¼" ✓ Size of Crank webs 21"x8" ✓ Dia. of thrust shaft under collars 11 ¼" ✓ Dia. of screw 13'-6" ✓ Pitch of Screw 14'-3" Up 13'-6" Aft ✓ No. of Blades 4 ✓ State whether moveable yes ✓ Total surface 64.4 ☐ft ✓

No. of Feed pumps 1 duplex ✓ 1 2½ injector ✓ Diameter of ditto 7½"x4½" ✓ Stroke 10" ✓ Can one be overhauled while the other is at work yes ✓

No. of Bilge pumps 2 ✓ Diameter of ditto 3½" ✓ Stroke 12" ✓ Can one be overhauled while the other is at work yes ✓

No. of Donkey Engines 4 ✓ Sizes of Pumps Donkey 9"x6"x10" Fire 6"x4"x6" Ballast 10"x12"x10" Fuel Wtr. 3½"x4"x6" No. and size of Suctions connected to both Bilge and Donkey pumps In Engine Room 3½" centre 3" P+S. ✓ In Holds, &c. №1 hold 3" P+S, №2 hold 3" P+S. ✓

No. of Bilge Injections 1 ✓ sizes 6" ✓ Connected ~~to condenser, or~~ to circulating pump yes ✓ Is a separate Donkey Suction fitted in Engine room & size yes 3½" ✓

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 yes ✓

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 wing tank suctions ✓ How are they protected channel iron casings ✓

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 24 Sept ✓ of Stern Tube 24 Sept ✓ Screw shaft and Propeller 24 Sept ✓

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 Worth Bros. ✓

Total Heating Surface of Boilers 3908 ✓ Is Forced Draft fitted yes ✓ No. and Description of Boilers 2 Scotch type ✓

Working Pressure 175 lbs ✓ Tested by hydraulic pressure to 265 lbs ✓ Date of test 21 & 26 Sept No. of Certificate 22

Can each boiler be worked separately yes ✓ Area of fire grate in each boiler 41 ☐ft ✓ No. and Description of Safety Valves to each boiler 2 spring loaded ✓ Area of each valve 7.070" ✓ Pressure to which they are adjusted 175 lbs ✓ Are they fitted with easing gear yes ✓

Smallest distance between boilers or uptakes and bunkers or woodwork 6" ✓ Mean dia. of boilers 13'-0 ✓ Length 12'-1 ¼" ✓ Material of shell plates steel ✓

Thickness 1⅛ ✓ Range of tensile strength 28/32 tons ✓ Are the shell plates welded or flanged no. ✓ Descrip. of riveting: cir. seams double, lap ✓ long. seams double, butt. ✓ Diameter of rivet holes in long. seams 1 3/8" ✓ Pitch of rivets 6 13/16" ✓ Lap of plates or width of butt straps 14" ✓

Per centages of strength of longitudinal joint rivets 86 plate 79.8 ✓ Working pressure of shell by rules 180 lbs ✓ Size of manhole in shell 15"x11" ✓

Size of compensating ring 9½"x1" ✓ No. and Description of Furnaces in each boiler 2 Morison ✓ Material steel ✓ Outside diameter 51" ✓

Length of plain part top 6" bottom Gourlay ✓ Thickness of plates crown 37/64" ✓ bottom ✓ Description of longitudinal joint welded ✓ No. of strengthening rings ✓

Working pressure of furnace by the rules 178 lbs Combustion chamber plates: Material steel ✓ Thickness: Sides 5/8" ✓ Back 5/8" ✓ Top 5/8" ✓ Bottom 5/8" ✓

Pitch of stays to ditto: Sides 7½" ✓ Back 7½" ✓ Top 7½" ✓ If stays are fitted with nuts or riveted heads riveted heads ✓ Working pressure by rules 178 ✓

Material of stays steel ✓ Diameter at smallest part 1.39" ✓ Area supported by each stay 64.90 ☐" ✓ Working pressure by rules 185 lbs End plates in steam space: Material steel ✓ Thickness 3/4" + 9/16" ✓ Pitch of stays 15"x16" ✓ How are stays secured screwed + double nuts ✓ Working pressure by rules 198 lbs Material of stays steel ✓

Diameter at smallest part 2 5/8" ✓ Area supported by each stay 240 ☐" Working pressure by rules 202 lbs Material of Front plates at bottom steel ✓

Thickness 3/4" ✓ Material of Lower back plate steel ✓ Thickness 5/8" + ½" ✓ Greatest pitch of stays 11¾"x6¾" ✓ Working pressure of plate by rules 178 lbs

Diameter of tubes 2¾" ✓ Pitch of tubes 3 7/8" ✓ Material of tube plates steel ✓ Thickness: Front 3/4" ✓ Back 3/4" ✓ Mean pitch of stays 10.65" ✓

Pitch across wide water spaces 13¼" ✓ Working pressures by rules 178 lbs Girders to Chamber tops: Material steel ✓ Depth and thickness of girder at centre 8½"x1½" ✓ Length as per rule 29" ✓ Distance apart 7½" ✓ Number and pitch of stays in each 3-7½" ✓

Working pressure by rules 188 lbs 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 ✓

W1221-0167

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 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 None 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 :— 2 connecting rod ~~top~~ end wedges, 2 connecting rod bottom end bolts + nuts, 2 main bearing bolts + nuts, 1 set of coupling bolts, 1 set of feed + bilge pump valves, assorted bolts, nuts, + iron, 2 propeller blades.

The foregoing is a correct description,

Great Lakes Engineering Works Manufacturer. A Jeromattson Chief Engr

Dates of Survey while building — During progress of work in shops— May 23, June 5, 11, 21, July 1, 10, 11, 13, 26, Aug 8, 23 Sept 5, 9, 12, 20, 21, 24, 26

During erection on board vessel — Oct 5, 12, 15, 16, Nov 6, 7.

Total No. of visits 24

Is the approved plan of main boiler forwarded herewith yes

" " " donkey " " " ✓

Dates of Examination of principal parts—Cylinders 23/8/12 Slides 23/8/12 Covers 23/8/12 Pistons 23/8/12. Rods 5/9/12

Connecting rods 5/9/12. Crank shaft 5/9/12 Thrust shaft 20/9/12 Tunnel shafts none Screw shaft 20/9/12 Propeller 23/8/12

Stern tube 23/8/12. Steam pipes tested Oct 15 Engine and boiler seatings 20/9/12. Engines holding down bolts Oct/12

Completion of pumping arrangements 6/11/12 Boilers fixed 15/10/12 Engines tried under steam 7/11/12.

Main boiler safety valves adjusted 6/11/12 DISTANCE BETWEEN NUT + LOCKNUT ~~Thickness of adjusting washers~~ P $\frac{1}{2}$ $\frac{15}{32}$ $\frac{1}{2}$ $\frac{5}{8}$ S

Material of Crank shaft steel Identification Mark on Do. F99 Material of Thrust shaft steel Identification Mark on Do. F99

Material of Tunnel shafts none Identification Marks on Do. ✓ Material of Screw shafts steel Identification Marks on Do. F99

Material of Steam Pipes Wrot Iron ✓ Test pressure 350 lbs. ✓

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

The machinery + boilers of this vessel have been built under Special Survey in accordance with the Rules + approved plans. The workmanship + material are good + the machinery + boilers are eligible, in my opinion, to receive the notation ✠ L.M.C. 11.12. + F.D. in the Register Book.

Cleveland.

Certificate (if required) to be sent to

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

It is submitted that this vessel is eligible for THE RECORD. +LMC 11.12. F.D.

JWD. 16/12/12.

The amount of Entry Fee..	£	$10.00	When applied for, ... 19.....
Special	£	168.50	
Donkey Boiler Fee	£	:	When received, 25/11/12
Travelling Expenses (if any)	£	67.00	

Committee's Minute TUE. DEC. 17. 1912

Assigned +LMC 11.12

John S. Heck

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