See Sto. 1st E. Rpt. No. 3629.

Rpt. 4.

REPORT ON MACHINERY.

No. 158

Date of writing Report 30/5/ 1921 When handed in at Local Office 30/5/ 1921 Port of Cleveland Ohio

No. in Reg. Book. Survey held at Hamilton Ohio Date, First Survey 17th [illegible] 21 Last Survey 24 may 1921 Number of Visits

on the ENG. No 4970 HULL No 23.

Master Built at ~~New York~~ OAKLAND By whom built Union Construction Coy When built

Engines made at Hamilton Ohio By whom made Hooven Owen & Rentschler Co when made 1921

Boilers made at By whom made when made

Registered Horse Power Owners Port belonging to

Nom. Horse Power as per Section 28 Is Refrigerating Machinery fitted for cargo purposes Is Electric Light fitted

ENGINES, &c.—Description of Engines Triple Expansion Vertical No. of Cylinders 3 No. of Cranks 3

Dia. of Cylinders 27"–45"–74" Length of Stroke 48" Revs. per minute 80 Dia. of Screw shaft as per rule / as fitted Material of screw shaft

Is the screw shaft fitted with a continuous liner the whole length of the stern tube 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 Length of stern bush

Dia. of Tunnel shaft as per rule 13.3" 13.39 as fitted Dia. of Crank shaft journals as per rule 14" 14.06 as fitted 14½" Dia. of Crank pin 14½" Size of Crank webs 27½ x 9½" Dia. of thrust shaft under collars Dia. of screw Pitch of Screw No. of Blades State whether moveable Total surface

No. of Feed pumps 2 Diameter of ditto 11 Stroke 26 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 Sizes of Pumps No. and size of Suctions connected to both Bilge and Donkey pumps

In Engine Room In Holds, &c.

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

Are all the bilge suction pipes fitted with roses Are the roses in Engine room always accessible Are the sluices on Engine room bulkheads always accessible

Are all connections with the sea direct on the skin of the ship Are they Valves or Cocks

Are they fixed sufficiently high on the ship's side to be seen without lifting the stokehold plates Are the Discharge Pipes above or below the deep water line

Are they each fitted with a Discharge Valve always accessible on the plating of the vessel Are the Blow Off Cocks fitted with a spigot and brass covering plate

What pipes are carried through the bunkers How are they protected

Are all Pipes, Cocks, Valves, and Pumps in connection with the machinery and all boiler mountings accessible at all times

Are the Bilge Suction Pipes, Cocks, and Valves arranged so as to prevent any communication between the sea and the bilges

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

BOILERS, &c.—(Letter for record) **Manufacturers of Steel**

Total Heating Surface of Boilers **Is Forced Draft fitted** **No. and Description of Boilers**

Working Pressure 180# Tested by hydraulic pressure to Date of test **No. of Certificate**

Can each boiler be worked separately **Area of fire grate in each boiler** No. and Description of Safety Valves to each boiler Area of each valve Pressure to which they are adjusted Are they fitted with easing gear

Smallest 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 long. seams Diameter of rivet holes in long. seams Pitch of rivets Lap of plates or width of butt straps

Per centages of strength of longitudinal joint rivets / plate Working pressure of shell by rules Size of manhole in shell

Size of compensating ring **No. and Description of Furnaces in each boiler** Material Outside diameter

Length of plain part top / bottom Thickness of plates crown / bottom Description of longitudinal joint No. of strengthening rings

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 Area 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

Area 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 Diam. of rivet holes

Pitch of rivets Working pressure of shell by rules Crown plates Thickness How stayed

SUPERHEATER. Type Date of Approval of Plan Tested by Hydraulic Pressure to

Date of Test Is a Safety Valve fitted to each Section of the Superheater which can be shut off from the Boiler

Diameter of Safety Valve Pressure to which each is adjusted Is Easing Gear fitted

IS A DONKEY BOILER FITTED? *If so, is a report now forwarded?*

SPARE GEAR. *State the articles supplied:—* Two top end bushes with bolts & nuts. Two bottom end bushes with bolts & nuts. Two main bearing bolts & nuts. Six coupling bolts & nuts. Set of valves for air & bilge pumps. Set of springs & rings for H.P. I.P. & L.P. pistons. Valve stem, link block brasses, & eccentric strap complete. Air pump rod. Bilge pump plunger. Guide shoe. 1/3 length crank shaft. Follower studs & nuts for pistons, & studs & nuts for stuffing box.

The foregoing is a correct description,

Hooven Owens Rentschler Co

[signature]

Manufacturer.

Dates of Survey while building — *During progress of work in shops* 1921 March 17. April 4. 19 27. May 12. 24

During erection on board vessel —

Total No. of visits —

Is the approved plan of main boiler forwarded herewith —

Dates of Examination of principal parts—*Cylinders* 27/4/21, 13/5/21, 24/5/21 *Slides* 19/4/21, 13/5/21, 24/5/21 *Covers* 4/4/21, 12/5/21, 24/5/21 *donkey* " " " *Pistons* 19/4/21, 24/5/21 *Rods* 19/4/21, 24/5/21

Connecting rods 7/4/21, 24/4/21, 25/5/21 *Crank shaft* 13/5/21, 24/5/21 *Thrust shaft* 24/4/21, 24/5/21 *Tunnel shafts* — *Screw shaft* — *Propeller* —

Stern tube — *Steam pipes tested* — *Engine and boiler seatings* — *Engines holding down bolts* —

Completion of pumping arrangements — *Boilers fixed* — *Engines tried under steam* —

Completion of fitting sea connections — *Stern tube* — *Screw shaft and propeller* —

Main boiler safety valves adjusted — *Thickness of adjusting washers* —

Material of Crank shaft Steel *Identification Mark on Do.* Lloyds (S) *Material of Thrust shaft* Steel *Identification Mark on Do.* Lloyds (S)

Material of Tunnel shafts — *Identification Marks on Do.* — *Material of Screw shafts* — *Identification Marks on Do.* —

Material of Steam Pipes — *Test pressure* —

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

Have the requirements of Section 49 of the Rules been complied with —

Is this machinery duplicate of a previous case — *If so, state name of vessel* —

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

The above Engines have been built under Special Survey. The workmanship & materials used in their construction, so far as can be seen, are sound & efficient. When they have been satisfactorily installed in the vessel, proved satisfactory under working conditions & spare gear supplied as required by the Rules, this vessel will be eligible in my opinion for Record ✠ LMC. (with date)

Certificate (if required) to be sent to —

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

See Sto Mach. 1st E.
Rpt. No. 3629.

The amount of Entry Fee ... £ : : When applied for, 19

Special ... £ : :

Credited to Newland

Donkey Boiler Fee ... £ : : When received, 19

Travelling Expenses (if any) £42 : 55 : Acc No 751 $50.90

2/5 LMC fee to be

Committee's Minute 42.55 New York NOV - 1 1921

Assigned See S.No. 3629

E. Drummond.

Engineer Surveyor to Lloyd's Register of Shipping.

FRI. 9 DEC. 1921