

REPORT ON MACHINERY.

MON. 19 NOV 1900

Port of Philadelphia

Received at London Office MON. 19 NOV 1900

No. in Survey held at Philadelphia Date, first Survey March 10. 1899 Last Survey Octob 11. 1900

Book. 47 on the Machinery + Boilers of the Steel Twin Screw Steamship Sierra (Number of Visits 13.5) Tons { Gross 5989 Net 3756

Master H.C. Koudette Built at Philadelphia By whom built The W. Cramp & Sons S. & S. Bldg. When built 1900

Machinery made at Philadelphia By whom made The W. Cramp & Sons S. & S. Bldg. when made 1900

Boilers made at Philadelphia By whom made The W. Cramp & Sons S. & S. Bldg. when made 1900

Registered Horse Power 1036 Owners Oceanic Steam Ship Co. Port belonging to San Francisco

Net Horse Power as per Section 28 1036 Ref. Mech. Tested

Engines, &c. — Description of Engines Triple Expansion No. of Cylinders Six

Diameter of Cylinders 28" 46" 75" Length of Stroke 48" Revolutions per minute 100 Diameter of Screw shaft 14.2 as per rule 14.2 as fitted 14.2

Diameter of Tunnel shaft 13 1/2" Diameter of Crank shaft journals 14 1/2" Diameter of Crank pin 15" Size of Crank webs 9" 10 1/2" 12" thick

Diameter of screw 14 1/2" Pitch of screw 21 1/2 p. No. of blades 3 State whether moveable No. Total surface 69 sq ft.

No. of Feed pumps Two Comp. Diameter of ditto 12" x 12" Stroke 18" Can one be overhauled while the other is at work They are independent pumps.

No. of Bilge pumps One Comp. Diameter of ditto 6 1/2" x 12" Stroke 12" Can one be overhauled while the other is at work it is independent pump.

No. of Donkey Engines 1 Ballast Pump Sizes of Pumps 2 1/2" x 8 1/2" x 10" / independent No. and size of Suctions connected to both Bilge and Donkey pumps 12" x 8 1/2" x 10" / pipes

Engine Room as per approved Pumping arrangement In Holds, &c. in all Holds & Reels, as per approved Pumping arrangement.

No. of bilge injections two sizes 10 each Connected to condenser or to circulating pump Is a separate donkey suction fitted in Engine room & size 3 1/2"

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 Yes

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

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 pipes at pipes are carried through the bunkers Bilge & Tank Suctions How are they protected strong wood 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

Were stern tube, propeller, screw shaft, and all connections examined in dry dock Sept. 11. 1900 Is the screw shaft tunnel watertight Yes

Is the tunnel fitted with a watertight door Yes worked from Engine Room Platform

Boilers, &c. — (Letter for record (S)) Total Heating Surface of Boilers 15000 sq ft. Horizontal feed water

No. and Description of Boilers Eight, Cylindrical, multitubular Working Pressure 175 lb. Tested by hydraulic pressure to 350 lb.

Were each boiler be worked separately Yes Area of fire grate in each boiler 510 sq ft. No. and Description of safety valves to boiler two, Marine type

Area of each valve 9.62 sq ft. Pressure to which they are adjusted 175 lb. Are they fitted with easing gear Yes

Smallest distance between boilers or uptakes and bunkers on woodwork 10" Mean diameter of boilers 13' 7 5/32"

Material of shell plates Steel Thickness 1 7/32" Description of riveting: circum. seams none long. seams table riv. double strap

Diameter of rivet holes in long. seams 1 3/16" Pitch of rivets 7 1/2" Lap of plates on width of butt straps 16 1/2"

Percentages of strength of longitudinal joint ribs 94.94 Working pressure of shell by rules 178.62 Size of manhole in shell 16" x 12"

of compensating ring 40 7/8 x 33 3/8 x 1 5/32" No. and Description of Furnaces in each boiler two Corrugated Material Steel Outside diameter 43 1/32"

Thickness of plain part top 6" 10" Thickness of plates bottom 3 3/4" Description of longitudinal joint welded No. of strengthening rings Corrugated

Working pressure of furnace by the rules 183 lb. Combustion chamber plates: Material Steel Thickness: Sides 9/16" Back 9/16" Top 9/16" Bottom 9/16"

of stays to ditto: Sides 7 1/4 x 7 5/8" Back 7 x 7 1/4" Top 7 1/4 x 7 5/8" If stays are fitted with nuts or riveted heads Nuts Working pressure by rules 2148

Material of stays Steel Diameter at smallest part 1.263 Area supported by each stay 0.75 sq ft. Working pressure by rules 2061.92 End plates in steam space:

Material Steel Thickness 1" Pitch of stays 14" x 14 1/2" How are stays secured double nuts Working pressure by rules 219 lb. Material of stays Steel

Diameter at smallest part 2 1/2" Area supported by each stay 203 sq in. Working pressure by rules 240 lb. Material of Front plates at bottom Steel

Thickness 5/8" Material of Lower back plate Steel Thickness 9/16" Greatest pitch of stays 7" x 7 1/4" Working pressure of plate by rules 214 lb.

Diameter of tubes 2 1/2" Pitch of tubes 3 1/2" x 3 3/4" Material of tube plates Steel Thickness: Front 5/8" Back 5/8" Mean pitch of stays outer rows all stay tubes

Distance across wide water spaces 13" Working pressures by rules as per approved plan Girders to Chamber tops: Material Steel Depth and

Thickness of girder at centre 9" x 1 1/4" Length as per rule 2' 8 3/8" Distance apart 7 1/4" Number and pitch of Stays in each 3, 7 5/8"

Working pressure by rules 188 lb. Superheater or Steam chest; how connected to boiler none Can the superheater be shut off and the boiler worked

DONKEY BOILER Description *Cylindrical Multitubular*
 Made at *Philadelphia* By whom made *The W. Cramp & Sons S. & E. Dk* When made *1900* Where fixed *off Barb*
 Working pressure *175* Tested by hydraulic pressure to *350* No. of Certificate *-* Fire grate area *30* Description of safety valves *Marine type*
 No. of safety valves *one* Area of each *9.62* Pressure to which they are adjusted *175* If fitted with easing gear *Yes* If steam from main boiler
 enter the donkey boiler *Yes* Diameter of donkey boiler *9 ft 11 1/8* Length *10 ft* Material of shell plates *Steel* Thickness *7/8*
 Description of riveting long seams *table riv double strap* Diameter of rivet holes *1 1/16* Whether punched or drilled *drilled* Pitch of rivets
 Lay of plating *15 3/4* Per centage of strength of joint Rivets *94.57* Thickness of shell plates *15/16* Radius of do. *13* Pitch of stays to do. *13*
 Dia. of stays *2 1/4* Diameter of furnace *3 ft 4* Bottom *4* Length of furnace *6' 10"* Thickness of furnace plates *1/2* Description
 joint *welded* Thickness of furnace crown plates *-* Stayed by *Compression* Working pressure of shell by rules *17*
 Working pressure of furnace by rules *188.4* Diameter of uptake *-* Thickness of uptake plates *-* Thickness of water tubes *3"*

SPARE GEAR. State the articles supplied:—
*1 set of valves for each Pump, 3 Valve Spindles, 3 Set Piston Packing Comp
 2 Crankpin boxes with bolts, 2 Crankpin boxes with bolts, one Crankpin Box
 1 Piston rod, 1/2 set packing bolts, 1 Crankshaft Guide, 50 Boiler tubes, 15 Stay tubes, 200 Condenser tubes, 1 Set Coupling bolts, 2 Set
 Springs, M. B., 1 Spring D. B., 1 H.C. Strap, 2 Thrust shoes, 4 Thrust valves, M. B., 1 G. D. B., 6 tubes D. B. from repairs for repairs.
 1 Set of gauges for Crankshafts, 14 Coils Evaporator, 4 Coils from W. Cond. For Blower Expirs, 2 Piston rods, 2 Crankshafts, 2 Coils, Pist
 The following spare parts are kept for the 3 Sister Vessels, half at each end Port. 2 tail shafts, 2 Crankshafts, two
 hand Propellers, two left hand Propellers.*
 The foregoing is a correct description,
W. Cramp & Sons Ship & Engine Builders Manufacturer.

General Remarks (State quality of workmanship, opinions as to class, &c.)
*The Machinery & Boilers of this Vessel are of modern design, and the
 Material & Workmanship is satisfactory. All Pumps are independent of Main Eng
 Steam Heating Gas, Evaporators, Feed Heaters, automatic Filing Apparatus, Complete Water Service
 The Shaping is of Steel, as per Plans, and the Material has been tested, as per annexed Test
 The Boilers have been completed according to approved Plans, and the Material has a
 been tested as per annexed Test Sheets. The Workmanship is satisfactory, and the
 have been tested by hydraulic Pressure, to twice the Working Pressure, with satisfactory Results.
 Boilers and Engines are well fitted, to strong Foundations, and on a trial trip
 the entire Installation worked in an efficient manner.*

*Letters relating to this case are dated, April 5. Sept. 15. 1899. Feb. 17 & 24. 1900
 I would recommend that the Record + L.M.C. 10.1900 be made in this case.*

It is submitted that
 this vessel is eligible for
 THE RECORD, *LMC 10.00. F.D. Elec Light-Prop

Certificate (if required) to be sent to

The amount of Entry Fee	£ 3 : -	When applied for,	21.11.00
Special	£ 71 : 16	When received,	21.11.00
Donkey Boiler Fee	£ 2 : 2		
Travelling Expenses (if any)	£ :		

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

Committee's Minute
 Assigned
 23 NOV 1900
 + LMC 10.00

PHL1132/37

