

(No Model.)

3 Sheets—Sheet 1

J. HEARNE.
CENTER SEAL.

No. 501,342.

Patented July 11, 1893.

Fig. 1

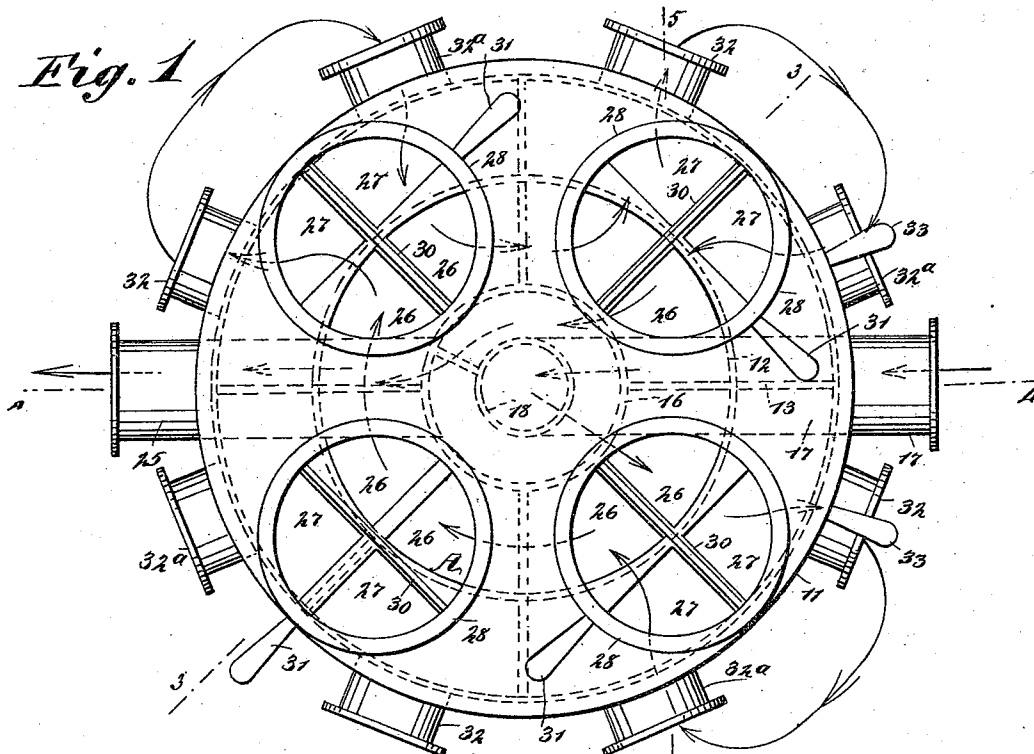
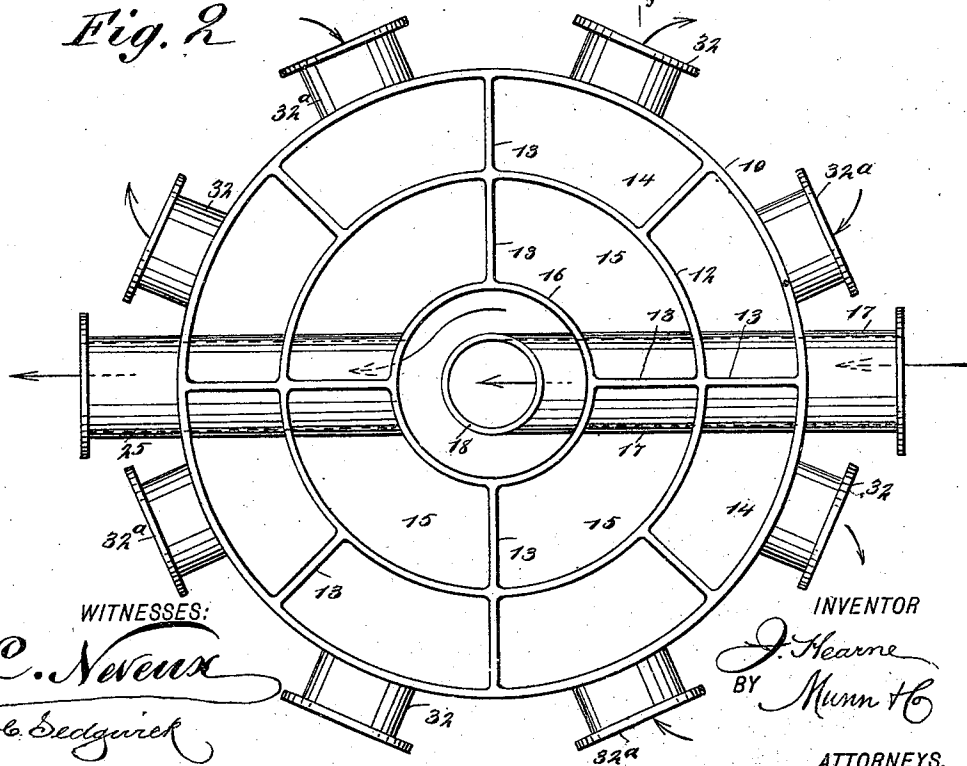


Fig. 2



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ATTORNEYS.

(No Model.)

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Fig. 5

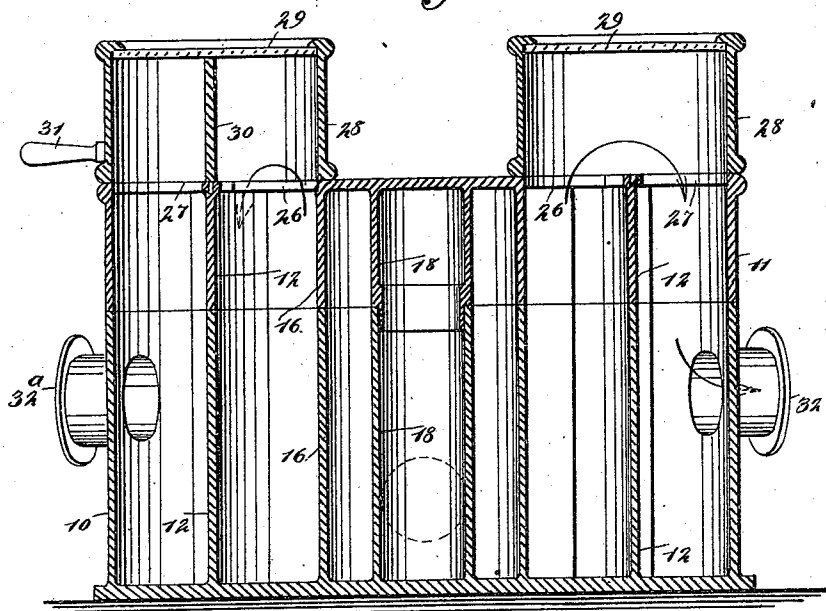
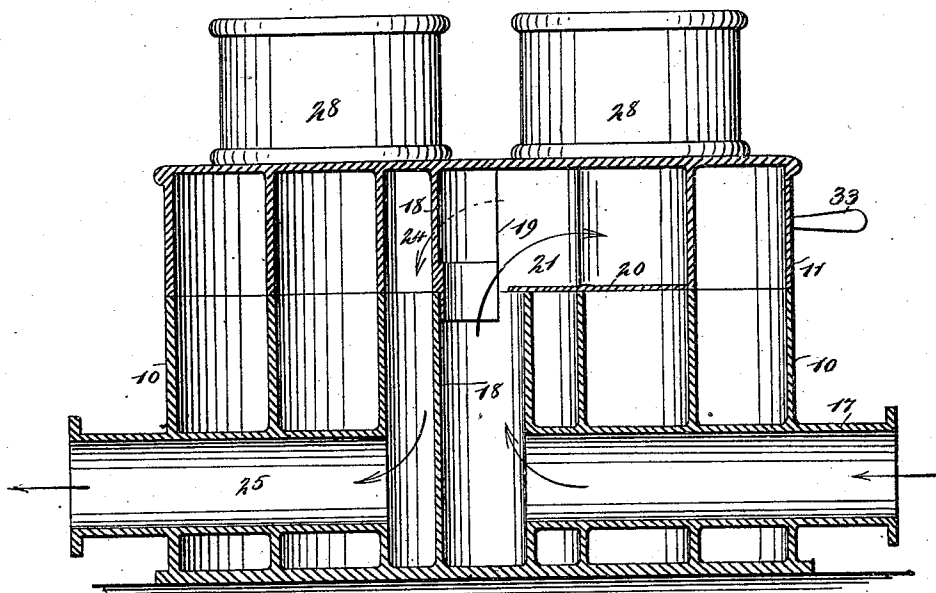


Fig. 4



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(No Model.)

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Fig. 5

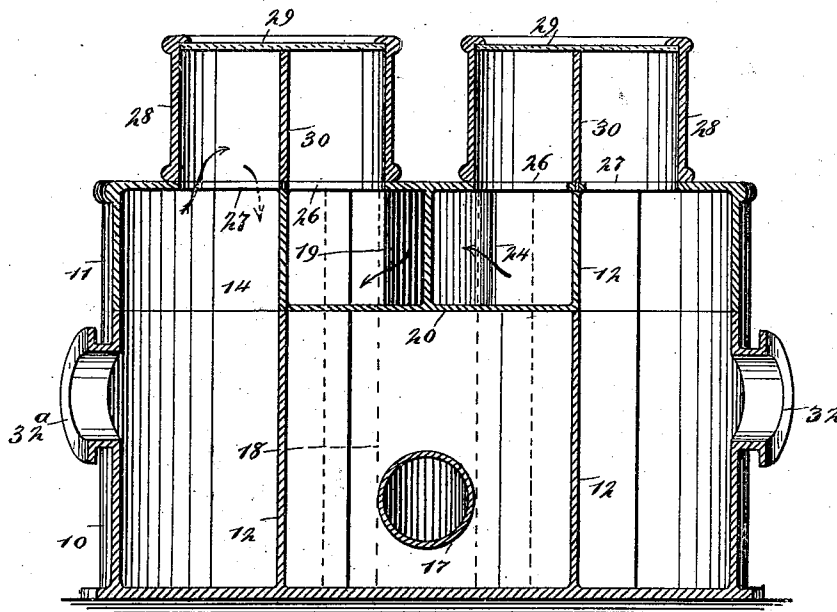
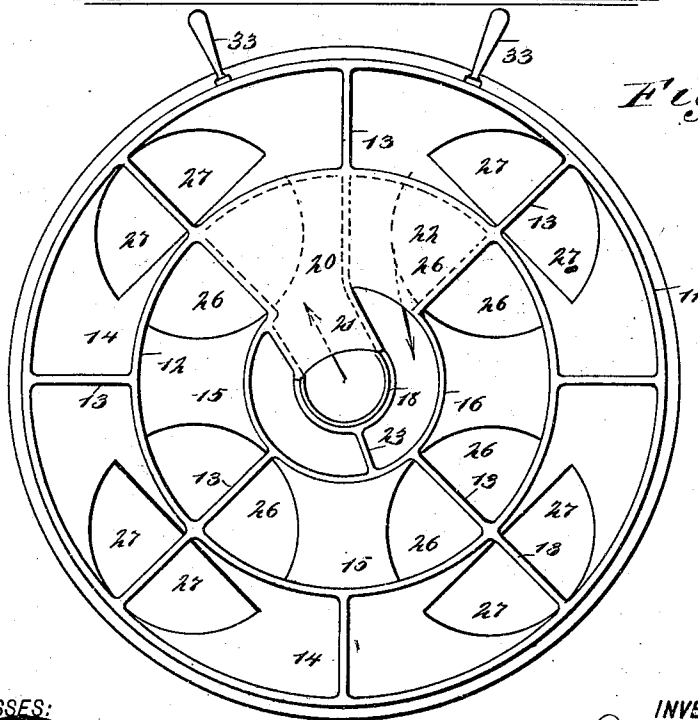


Fig. 6



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UNITED STATES PATENT OFFICE.

JOHN HEARNE, OF BOSTON, MASSACHUSETTS, ASSIGNOR OF ONE-HALF TO
WILLIAM J. STRONG, OF NEW YORK, N. Y.

CENTER-SEAL.

SPECIFICATION forming part of Letters Patent No. 501,342, dated July 11, 1893.

Application filed March 25, 1893. Serial No. 467,585. (No model.)

To all whom it may concern:

Be it known that I, JOHN HEARNE, of Boston, in the county of Suffolk and State of Massachusetts, have invented a new and Improved
5 Center-Seal, of which the following is a full, clear, and exact description.

My invention relates to improvements in that class of valves known as "center seals," which are used in connection with a plurality
10 of gas purifiers, to direct the gas into and out of said purifiers, and the object of my invention is to produce a simple and easily operated seal, which may be made of a capacity to connect with any necessary number of purifiers, which is provided with a gas inlet and
15 outlet arranged in such a manner that the gas may flow unobstructedly through the seal, and which has a plurality of supplemental and easily operated valves by which the gas may
20 be directed to any desired number of purifiers, or may be cut off from one or all of the purifiers without interfering with its flow through the seal, and this arrangement is especially advantageous as it enables the operation of purifying to be carried on through
25 certain of the purifiers, even though the others should be out of repair or unfit for use.

To these ends, my invention consists in certain features of construction and combinations of parts, which will be hereinafter described and pointed out in the claims.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar figures and letters of reference indicate corresponding parts in all the
35 views.

Figure 1 is a plan view of the center seal embodying my invention. Fig. 2 is a plan view, with the top portion removed. Fig. 3
40 is a vertical cross section on the line 3—3 in Fig. 1. Fig. 4 is a vertical section on the line 4—4 in Fig. 1. Fig. 5 is a vertical section on the line 5—5 in Fig. 1; and Fig. 6 is an inverted plan view of the top or cover of the
45 seal.

The seal is provided with a suitable shell 10, which has a top or cover portion 11, the interior construction of which is substantially like that of the bottom portion of the seal,
50 but this top portion may be turned on the lower portion so as to bring the purifier ports

into a desired position in relation to the gas inlet and outlet, as hereinafter described. The shell 10 is provided with a vertical annular partition 12, and with a plurality of radial
55 partitions 13, thus dividing the shell into two series of chambers 14 and 15, the series being placed concentric, and the chambers are entirely separated from each other by the partitions named.

In the center of the seal is a vertical partition or tube 16 which serves as an outlet tube, and the main gas inlet pipe 17 extends inward through one side of the shell and terminates in a vertical inlet pipe or tube 18,
60 which extends up centrally through the outlet tube 16, as shown clearly in Figs. 2 and 3.

The top 11 has the partitions 12 and 13, which are placed exactly as in the lower portion of the shell, and when the partitions
65 above and below register, the chambers 14 and 15 are continuous from the top to the bottom of the seal.

The tube 18 at its upper end, that is, that portion of the tube which is carried by the
75 top or cover 11, is cut away on one side, as shown at 19, to provide for the passage of gas, this arrangement being best shown in Fig. 4, and two adjacent chambers 15 of the upper
80 portion of the shell are provided with a transverse partition 20 at this point, and the partition 20, as well as the two side partitions is extended inward, as shown at 21 in Fig. 6, to connect with the side opening in the pipe
85 18, so that the gas which flows in through the said pipe will pass into the upper part of one of the chambers 15, and to provide for the outlet, the plate or partition 20 is extended
90 across the second chamber 15, and this chamber is placed in communication with the outlet tube 16, as shown clearly in Fig. 6. The tube 18 is braced opposite the cut-away portion by a rib 23, extending from the wall of said tube to the wall of the tube 16. The
95 chamber 15 connecting with the outlet tube 16 through the passage 24, see Fig. 5, is the last chamber through which the gas passes after going through the purifiers, and from this point it passes downward through the tube
100 16 and out through the outlet tube or pipe 25.

In the top of the seal, near the intersection of the partitions 13 and 12, are holes or ports 26

and 27, which are arranged in pairs, the ports 26 communicating with two adjacent chambers 15, and the ports 27 with two adjacent chambers 14. Pivoted on the top of the case above these ports are revoluble supplemental valves 28, which have closed tops 29, and each valve is provided with a vertical transverse partition 30, which is adapted to register with a partition 13, or to lie against the top of the case at right angles to said partition, thus separating the chambers 15 completely from the chambers 14. It will be seen that when the partition 30 registers with the partition 13, the gas may flow from one chamber 15 through the valve and into the opposite chamber 14, but when the partition 30 is at right angles to the partition 13, the gas will flow upward from one chamber 15 through the valve 28, and back into the next chamber 15. The valves 28 are each provided with a handle 31, by which they may be turned, and their position may be determined by the handle and a suitable mark on the seal top.

The chambers 14 are in connection with gas purifiers (not shown) and as illustrated the seal is adapted to connect with four purifiers, although it may be made of any capacity. The gas under the arrangement shown will therefore flow out from one of the chambers 14 through an outlet pipe or port 32, and back to the next chamber through a port or pipe 32^a, thence through one of the valves 28, and so through the next purifier, as will be described presently.

The top 11 may be turned by means of any suitable mechanism, and as the seal is usually a somewhat massive affair, gearing is generally employed to turn the top. The top is provided with indicators or pointers 33, which project outward and which are spaced so that one will be above a pipe or port 32 when the other is above the next pipe or port 32^a. One of these indicators is directly opposite the inlet opening or port 17 in the pipe 18, and consequently the position of these indicators or pointers will show the point at which the gas enters the seal, and the first purifier to which the gas naturally flows. If the gas is to be sent to all the purifiers, the several valves 28 are set with their partitions 30 parallel with the partitions 13, and the top 11 is adjusted so that the upper and lower portions of the partitions 12 and 13 register, so that the chambers 14 and 15 are continuous from top to bottom. The gas then will flow inward through the pipes 17 and 18, pass through the opening or port 19, through the port or passage 21 to the upper part of one of the chambers 15, thence up through a port 26 above the seal top, thence through the adjacent port 27 to the outer chamber 14, thence out through one of the ports or pipes 32, through the purifier connected with the said pipe, thence back through the next pipe 32^a to another chamber 14, thence up through the opposite side of the valve 28, thence back through a port 26 to the next chamber 15,

thence through the next valve 28 and the next pair of pipes 32 and 32^a and the purifier connected therewith, and so on around the entire seal and the whole series of purifiers until the gas which passes the last valve 28 enters the upper portion of the last chamber 15 above the partition 22, and from here the gas passes out through the port 24, the outlet tube 16 and the outlet pipe 25.

The gas may be shut off from any purifier by simply turning one of the valves 28 above the pipes connected with said purifier, so that the partition 30 is at right angles to the partition 13 beneath, which is illustrated at A, in Fig. 1. When this is done the gas which passes upward into the valve from the chamber 15 beneath, cannot pass the partition 30 to one of the holes 27, but passes through one side of the valve and into the next hole or port 26 to the adjacent chamber 15, and so on to the next set of purifiers, and it will be readily seen that in this way the valves 28 may be adjusted if desired so as to shut off all the purifiers and permit a free flow of gas through the seal, or any particular one or more can be shut off if desired.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. A center seal for gas purifiers, comprising a shell having a revoluble top, a plurality of inner and outer concentric chambers, a plurality of valves arranged upon the shell and adapted to direct the flow of gas from an inner to an outer chamber or from one inner chamber to the next inner chamber, an inlet pipe adapted to deliver into an upper compartment of one of the inner chambers, an outlet pipe in connection with an upper compartment of an adjacent inner chamber, and ports or pipes opening into the outer chambers and adapted to connect with gas purifiers, substantially as specified.

2. A center seal of the kind described, comprising a shell having a revoluble top portion, inner and outer concentric chambers arranged within the shell and formed by radial and concentric partitions, compartments formed in the upper portions of two adjacent inner chambers, inlet and outlet tubes placed concentrically in the center of the seal, the inlet tube delivering into one of said upper compartments and the outlet tube being in connection with the other of said compartments, a gas supply pipe connected with the inlet tube, a gas outlet pipe connected with the outlet tube, ports produced in the top of the seal and above the intersecting partitions, each valve having a transverse partition, and ports or pipes connected with the outer chambers of the seal and adapted to connect with gas purifiers, substantially as specified.

3. A center seal for gas purifiers, comprising a shell having a plurality of inner and outer concentric chambers, a transverse partition arranged in the upper part of two in-

ner chambers so as to form compartments in
said chambers, an inlet tube arranged verti-
cally in the seal and connected with one of
the said compartments, a supply pipe con-
5 nected with the inlet tube, an outlet tube ar-
ranged around the inlet tube and connected
with the other of said compartments and with
an outlet pipe, ports leading from the outer
chambers of the seal and adapted to connect
10 with gas purifiers, ports produced in the seal
top near the walls of adjacent chambers, and
revoluble valves arranged above said ports
and adapted to connect the inner and outer
chambers or to connect the inner chambers
15 and shut off the outer chambers, substantially
as specified.

4. A center seal for purifiers, consisting of
the shell 10 having the revoluble top 11 and

provided with the inner and outer chambers
15, 14, two of the chambers 15 being divided 20
by the partition 20, the central vertical out-
let tube 16, the laterally extending outlet pipe
25 connected with the tube 16, the inlet tube
18 within the tube 16 and having its upper
part cut away at 19, and the inlet pipe 17 con- 25
nected with the tube 18, and the revoluble
valves 29 above the top of the casing and pro-
vided with the vertical partition 30, the said
valves being adapted to establish communica-
tion between the inner and outer chambers 15 30
and 14 or with two of the inner chambers 15,
substantially as herein shown and described.

JOHN HEARNE.

Witnesses:

CHARLES LAWSON,
SIMON REDFEARN.