No. 890,704. PATENTED JUNE 16, 1908.

O. W. PETERSON.

GAS PURIFIER.

APPLICATION FILED APR. 5, 1907.

Fig. 1.

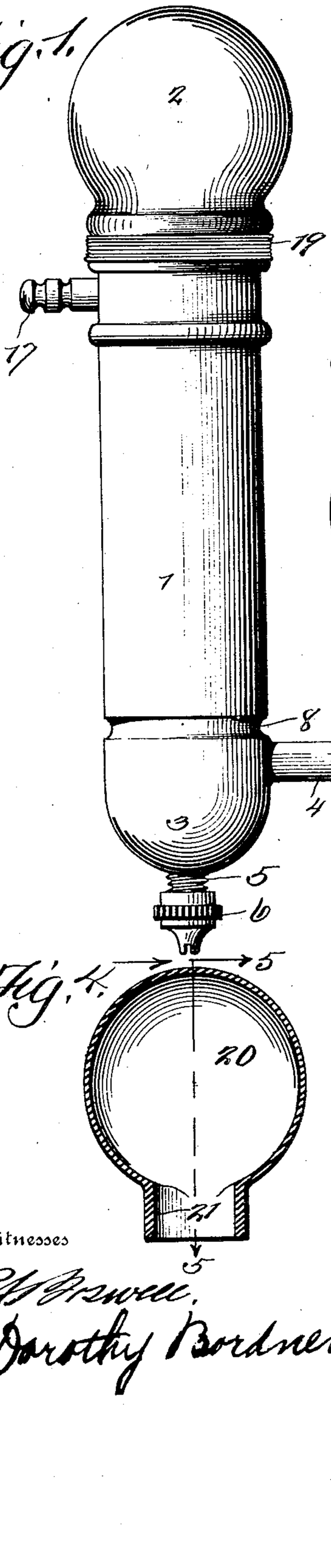


Fig. 2.

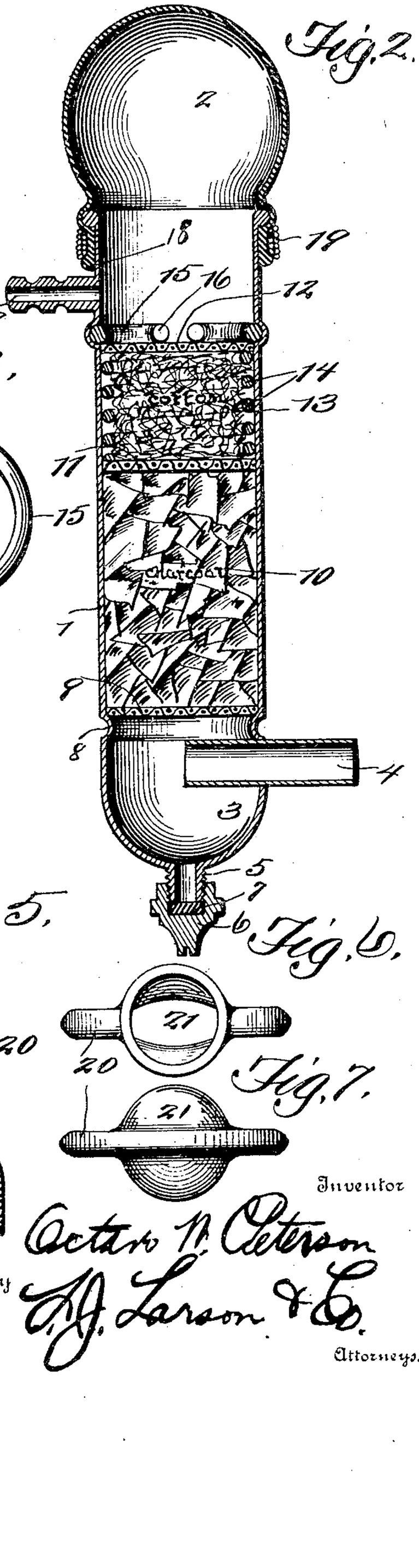


Fig. 3.

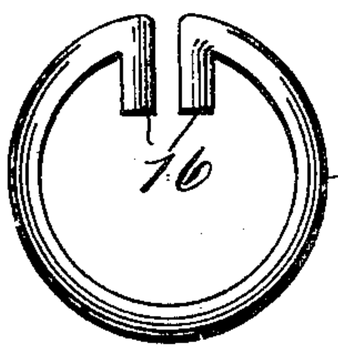


Fig. 4.




Fig. 5.

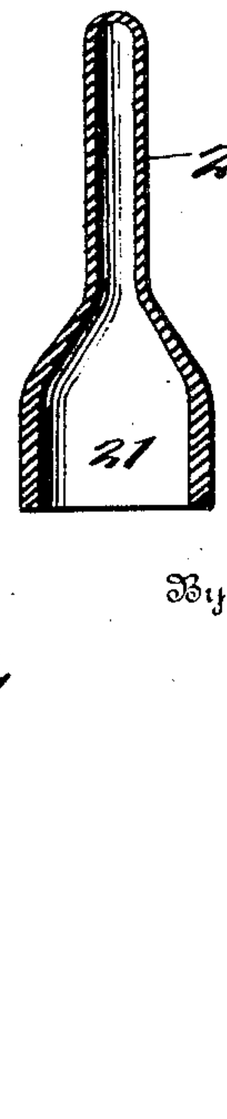


Fig. 6.




Fig. 7.




Witnesses

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# UNITED STATES PATENT OFFICE.

OCTAVE W. PETERSON, OF CHICAGO, ILLINOIS.

## GAS-PURIFIER.

No. 890,704. Specification of Letters Patent. Patented June 16, 1908.

Application filed April 5, 1907. Serial No. 366,557.

*To all whom it may concern:*

Be it known that I, OCTAVE W. PETERSON, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Gas-Purifiers, of which the following is a specification.

This invention relates to new and useful improvements in purifiers and more particularly to a purifier for acetylene gas. In such use the invention is applicable to portable or stationary generating systems and generally speaking, comprises a receptacle closed at its upper end by a collapsible gas bag, preferably of rubber and at its lower end formed to afford a sediment chamber, the body of the receptacle being divided by screening diaphragms into successive compartments within which are contained purifying agents.

The invention has for its object to provide a purifier constructed generally as above noted and embodying a novel construction, combination, and arrangement of parts.

The details of construction will appear in the course of the following description, in which reference is had to the accompanying drawings forming a part of this specification, like characters of reference designating similar parts throughout the several views wherein:—

Figure 1, is a side elevation of a purifier constructed in accordance with the present invention. Fig. 2, is a central longitudinal section thereof. Fig. 3, is a detailed plan view of a split resilient ring which locks the parts within the receptacles. Figs. 4 and 5, are vertical longitudinal and transverse sections of a slightly modified form of gas bag from that shown in Figs. 1 and 2, and Figs. 6 and 7, are respective bottom and top plan views thereof.

The purifier embodied in the present invention comprises a receptacle 1, preferably of cylindrical form, closed at its upper end by a gas bag 2, and at its lower end formed to afford a sediment chamber 3. The pipe 4, from the gas generator (not shown) opens into the sediment chamber 3, or said chamber if desired may be constructed with a nipple to receive said pipe. The chamber 3, terminates in a reduced drainage plug 5, closed by a cap 6, a gasket 7, being employed as a seal. Above the chamber 3, the receptacle 1, is formed with a concave bead 8, which affords a seat for a foraminous screening diaphragm 9. The diaphragm 9, supports a purifying agent 10, preferably charcoal upon which is loosely placed a second foraminous diaphragm 11. The diaphragm 11, co-acts with a similar diaphragm 12, arranged thereabove to afford a compartment for a second purifying agent 13, preferably of cotton. An expansive coil spring 14, is interposed between the diaphragms 11, and 12, and the parts thus assembled are held against displacement by a lock ring 15, which seats in an internally concave bead 16, formed in the receptacle 1. The ring 15, as illustrated more particularly in Fig. 3, is split and at its free ends is formed with angular inturned portions 16, affording finger pieces by means of which said ring may be manipulated to release the parts, such actions facilitated by the expansive pressure of the spring 14.

That portion of the receptacle 1, above the diaphragm 12, co-acts with the bag 2, to afford a distributing chamber from which leads one or more nipples 17, for connection with suitable conductors (not shown) to the lamps. In the preferred embodiment of the invention the bag 2, is of spherical form and is formed at its lower end with a reduced mouth 18, suitably formed to surround the upper end of the receptacle 1, upon which it is held by a wrapping of cord or wire 19, or other suitable fastening means. The bag illustrated in Figs. 4 to 7, comprises a flattened body portion 20, terminating in an annular mouth 21, secured upon the receptacle 1, in the manner above described.

In use the gas in its passage from the generator cools, so that the moisture suspended therein condenses and collects in the chamber 3, any uncondensed moisture is absorbed by the charcoal 10, during the passage of the gas through the receptacle and extraneous matter is taken up by the cotton 13.

The bag 2, in addition to affording a closure for the receptacle affords a means for preventing danger due to exceedingly high pressure. To this end said bag is constructed of rubber as above intimated and will burst before the pressure reaches the danger point.

The spring 14, serves to prevent vibration between the various diaphragms and suspended parts.

Having fully described the invention I claim:—

1. A purifier of the type set forth compris-

ing a receptacle having a displaceable closure, and foraminous screening diaphragms therein adapted to be held in spaced relation by the filtering agent interposed therebetween, means for supporting the lowermost of said diaphragms, said receptacle being formed with internally concave bead, and a split lock having angular inturned ends frictionally engaged in said bead, said ring having portions extending on the receptacle interior so as to bear against the uppermost of said diaphragms.

2. A purifier embodying a receptacle of cylindrical form having an open upper end and a closed lower end, said receptacle above its lower end and below its upper end being formed with two concavo-convex beads the lower of which beads projects on the receptacle interior and the upper of which projects without the receptacle, a diaphragm seating on the lower of said beads and forming in conjunction with the lower ends of said receptacle a sediment chamber, a purifying agent on said diaphragm, a second diaphragn on said agent, a second purifying agent on said second diaphragm, a third diaphragm on said second agent, a split ring engaging in the concave face of said upper bead and projecting on the receptacle interior to engage said third diaphragm, and a gas bag having an annular mouth which is received over the outer portion of the free end of said receptacle.

3. A gas purifier consisting of a receptacle of cylindrical form having an open upper end, a purifying agent in said receptacle, and a rubber bag for closing said upper end, said bag having an annular mouth which engages over the outer portion of said upper end and a body which extends upwardly from said mouth.

4. A gas purifier which consists of a receptacle of elongated form vertically disposed, said receptacle having a closed lower end and an open upper end, a diaphragm in said receptacle above the bottom thereof and forming in conjunction therewith a sediment chamber, a pipe leading into said chamber, a purifying agent on said diaphragm, a second diaphragm on said agent, second purifying agent on said second diaphragm, a third diaphragm on said second agent, said third diaphragm being located below the upper end of the receptacle, a nipple leading into said receptacle between said third diaphragm and the upper end of the receptacle, and a closure for the open end consisting of a frangible bag having its mouth received over the upper end of the receptacle.

5. A gas purifier comprising a receptacle having a closed lower end, a foraminous diaphragm stationarily supported above said closed end and forming a sediment chamber in conjunction with the same, a purifying agent in said receptacle seating on said diaphragm, a second foraminous diaphragm seating on and supported by said purifying agent a second purifying agent of woolly substance seating on said second diaphragm, a third foraminous diaphragm at the top of said second purifying agent, means to limit the upward movement of said third diaphragm, and a coil expansion spring bearing against said second diaphragm to retain the first purifying agent in position against movement and to hold said third diaphragm against its movement limiting means.

6. A gas purifier embodying a receptacle having a closed lower and an open upper end, a foraminous diaphragm stationarily supported above said end to form a sediment chamber in conjunction therewith, a purifying agent on said diaphragm, a second diaphragm seating on and supported by said agent, a second purifying agent on said second diaphragm, a third diaphragm overlying said second agent, means to limit the upward movement of said third diaphragm, expansive means in said receptacle between said second and third diaphragms to maintain said first agent against movement and to hold the third diaphragm to its seat so as to prevent the second agent from becoming packed, and a frangible bag having a mouth closing the entire opening of the upper end and a collapsible body which protrudes beyond said upper end.

In testimony whereof I have signed my name to the specification in the presence of two subscribing witnesses.

OCTAVE W. PETERSON.

Witnesses:
MAX HARTUNG,
F. C. SHAFER.