(No Model.)

J. H. LEHMAN.

GAS REGULATOR.

No. 420,412. Patented Jan. 28, 1890.

Fig. 1.

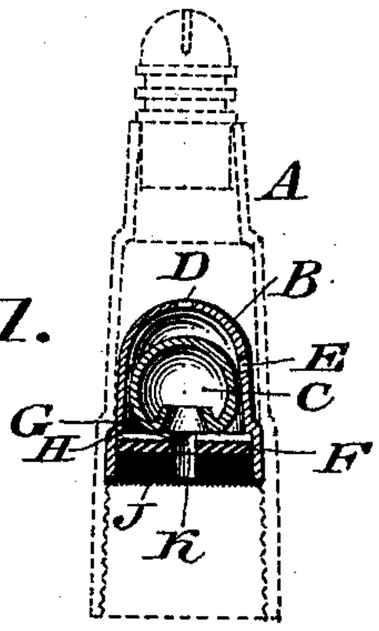


Fig. 2.

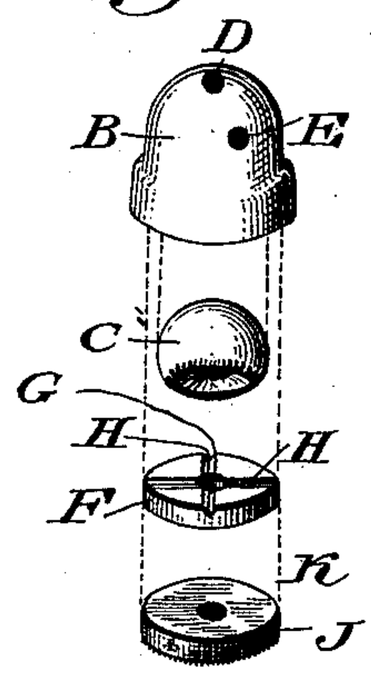


Fig. 3.

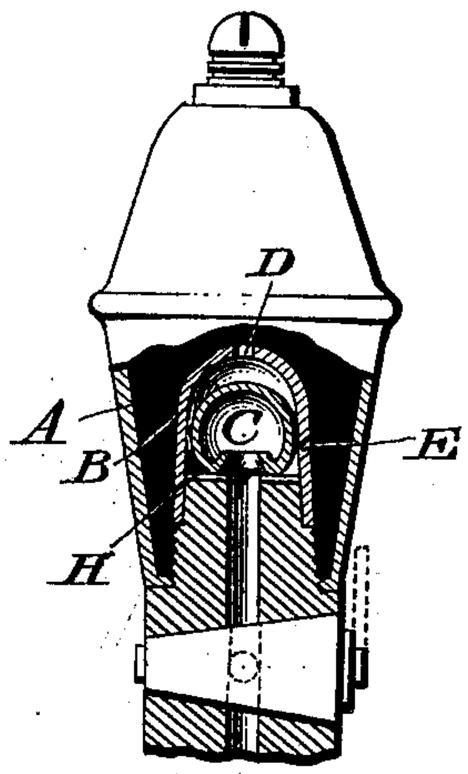


Fig. 4.

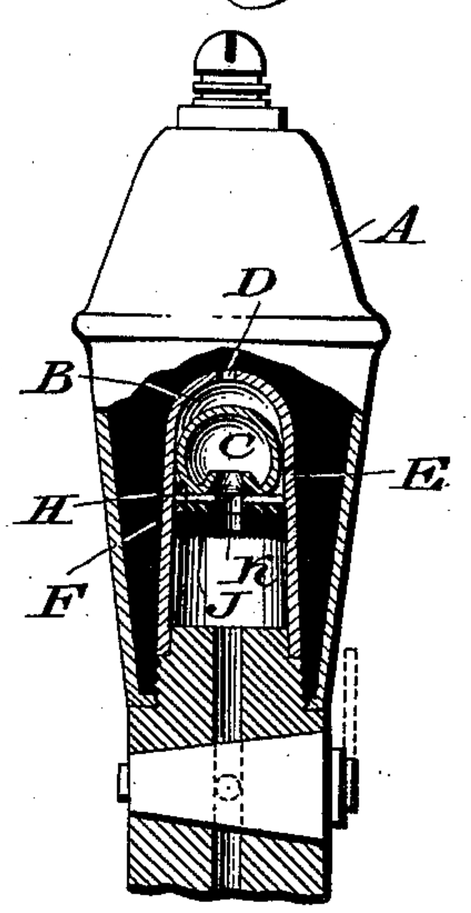
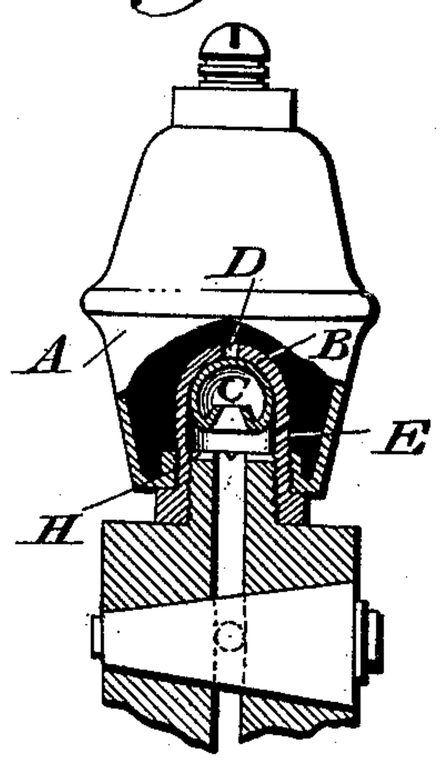


Fig. 5.



WITNESSES:

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JOSEPH HUFTY LEHMAN, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR OF ONE-HALF TO CLARENCE B. KUGLER, OF SAME PLACE.

GAS-REGULATOR.

SPECIFICATION forming part of Letters Patent No. 420,412, dated January 28, 1890.

Application filed October 9, 1889. Serial No. 326,391. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH HUFTY LEHMAN, a citizen of the United States, residing in the city and county of Philadelphia, State of Pennsylvania, have invented a new and useful Improvement in Gas-Regulators, which improvement is fully set forth in the following specification and accompanying drawings.

My invention consists of a gas-regulator formed of a burner having therein a rising and falling valve and a valve-seat, the latter being provided with ducts, respectively, at the top and side, the operation being such that the flow of gas will be equitably maintained during the varying changes of pressure.

It also consists in providing the valve with means for directing the gas centrally to the top of the same.

It further consists of means for collecting the coal-tar and other solid matters flowing with the gas into the burner.

Figures 1, 3, 4, and 5 represent vertical sections of gas-regulators embodying my invention, the same being shown applied to different forms of burners. Fig. 2 represents a perspective view of a regulator, the parts being separated.

Similar letters of reference indicate corresponding parts in the several figures.

Referring to the drawings, A designates a gas-burner, within which is secured a shell B, forming a seat for the valve C, and having a port or duct D in the top and a port or duct E in the side. The valve C is somewhat spherical and hollow, and has an opening in its under side, whereby it is in communication with the shell or seat B, it being noticed that the lower portion of the burner is also in communication with said shell or seat B. At or near the base of the seat B is secured a valve-seat F, having a central bore G and channels H on its upper face. Below said valve-seat is a washer J, provided with a central bore K and having its under face roughened; or the entire washer may be formed of material that presents a roughened under surface.

The operation is as follows: Gas enters the burner from below, as usual, it then passing through the bores of the washer J and seat F, and from thence enters the valve C, against which its pressure is exerted, whereby said valve rises from the seat H, on which it is primarily supported. When the pressure is normal, the gas may escape from the seat B through the ducts D E, and thus supply the burner. Should, however, the pressure increase, the valve is raised by the same and comes in contact with the top of the seat, thus closing the duct D. The gas, however, may escape in limited quantities through the side duct E, which remains uncovered, whereby the light continues. When the pressure is reduced, the valve drops, thus uncovering the top port D and allowing the gas to pass therethrough, as before. Should the valve C fully return upon the valve-seat F, the channels H permit the passage of gas into the shell D, and consequently supply the burner through the ports D E. The wall in the opening of the base of the valve is extended upwardly, forming a nozzle L, whereby the gas is directed to the top of the valve, causing the valve to move true as it rises and falls, due to the change of the pressure of gas.

The washer J serves to trap and collect coal-tar and other solid matters and impurities in the gas, the same gathering on the lower face of the washer as the gas impacts thereagainst.

As the valve C is hollow and filled with gas, it is buoyant in its nature, and consequently sensitive in its action.

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

1. A gas-regulator consisting of a valve and valve-seat within the gas-burner, said valve being hollow and said seat having outlets or ducts at top and side, substantially as described.

2. A gas-regulator operative within a gas-burner, consisting of a hollow valve and seats above and below the same, the upper seat having eduction-ports, respectively, at different places, whereby when the valve rises it

may close one of the ports, the other port remaining uncovered at all times, substantially as described.

3. A gas-regulator consisting of a shell with openings in its top and sides, a valve-seat within said shell near the base thereof, and having a central bore with horizontal channels, and a hollow spherical valve with opening in its base, said valve normally resting on said seat, said parts being combined substantially as described.

JOSEPH HUFTY LEHMAN.

Witnesses:
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