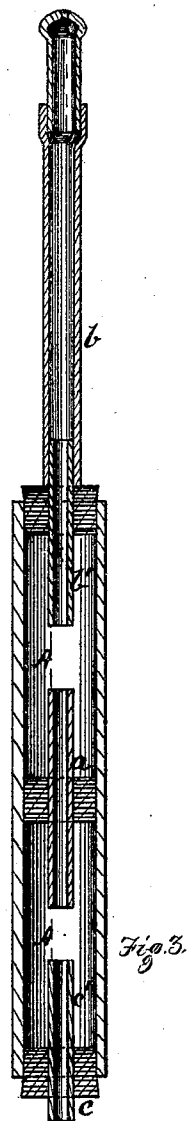
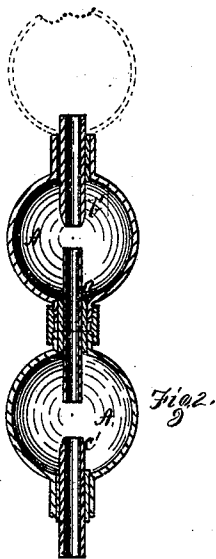
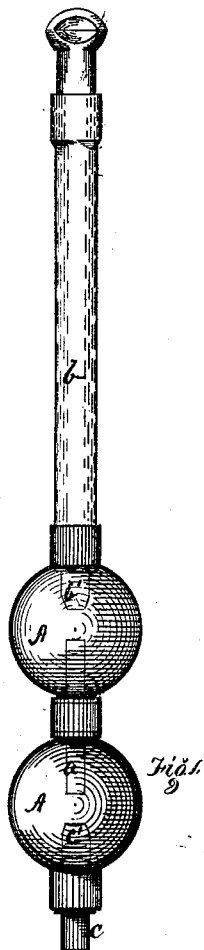


R. L. STEEN.

INHALERS.

No. 179,970.

Patented July 18, 1876.



WITNESSES.

James L. Kay
L. C. Fitter.

INVENTOR.

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UNITED STATES PATENT OFFICE.

ROBERT L. STEEN, OF TOPEKA, KANSAS, ASSIGNOR OF ONE-FOURTH OF HIS RIGHT TO HIMSELF AND THREE-FOURTHS TO A. M. EDISON, OF SAME PLACE.

IMPROVEMENT IN INHALERS.

Specification forming part of Letters Patent No. **179,970**, dated July 18, 1876; application filed June 16, 1876.

To all whom it may concern:

Be it known that I, ROBERT L. STEEN, of Topeka, in the county of Shawnee and State of Kansas, have invented a new and useful Improvement in Inhalers and Fumigators; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawing, forming part of this specification, in which—

Figure 1 is an elevation of an inhaler or fumigator embodying my invention. Fig. 2 is a longitudinal section of the same. Fig. 3 is a modified form of the devices.

Like letters refer to like parts wherever they occur.

My invention relates to that class of apparatus termed "inhalers and fumigators," used for the treatment of diseases of the air-passages, for disinfecting apartments, destroying vermin, and like purposes; and has for its object such a construction and arrangement of the several chambers and connecting-passages that the instrument, when charged with liquids, may be safely carried about the person, or packed and transported without liability of spilling the liquids or injuring the clothing or goods which may be in contact with it.

To this end I connect two or more compartments of an inhaler by a suitable tube or tubes, which extend into the compartments sufficiently far to form a stand-pipe in each compartment, thus preventing the escape of liquid from one compartment to another, no matter what position the inhaler may occupy; and I also extend the air-induction and the inhaling tubes for such a distance into the said compartments that, under all conditions, the liquid is confined to the respective chambers. I thus, by an arrangement of passages with relation to the chambers, secure a free passage and escape for gas or aeriform matters, and hinder the escape of liquids.

I will now proceed to describe my invention, so that others skilled in the art to which it appertains may apply the same.

In the drawing, A A indicate a series of connected receptacles, chambers, or compart-

ments, which may be formed separately and secured together, or by dividing up a tube by means of partitions; but in either case the communication between the compartments is established by means of tubes *a a*, which pass through the partitions and extend beyond the same, so as to form cups or stand-pipes that prevent the escape of liquid. In connection with said compartments, tubes *b c* are employed, as usual, for establishing communication with the exterior of the chamber. These tubes *b c* I prolong or extend within the chambers, as shown at *b' c'*, so as, in turn, to form cups or stand-pipes, which preclude the escape of the liquid.

Figs. 1 and 2 show the preferred shape of my devices, and the literal construction thereof may be described as follows: Each compartment is a bulb, formed of glass with two necks, closed by stoppers perforated for the passage of a tube of glass, and provided with a coupling of metal, or hard rubber, if preferred. Two or more such chambers may then be connected, as shown, by a tube which extends to near the center of each chamber, and the inhaling-tube and air-inlet tubes then inserted through corks, which close the free necks of the bulbs. In the modification a cylinder is used, and the chamber formed by partitions, though which pass centrally glass tubes, in the manner and for the purposes before specified.

Aqua ammonia and an acid are generally employed with this class of devices, and the operation will be described therewith: The stoppers which close the free ends of the receptacles being removed, an acid is placed in one chamber and aqua ammonia in the other. The stoppers are then replaced, and upon either drawing or forcing a current of air through the tubes, the vapors from one chamber are carried into the other, and the vapors of the two, uniting, form ammoniacal fumes, which may be used in the treatment of disease or for other purposes, or may be made the vehicle for administering other drugs.

Though a free passage exists for vapors, it will be apparent that the relation of the tubes is such that no liquid can escape, and conse-

quently, when not in use, the instrument may be safely carried in the pocket without removing the liquids with which it is charged.

It sometimes happens that, in addition to the use of ammoniacal vapors or carbolated vapors, it is desirable to use other medicaments, or the vapors of three or more drugs which do not combine, or of which two or more cannot be placed in one receptacle, in which case the advantages of the construction shown in Figs. 1 and 2 will be apparent, as a bulb may be added, so as to increase the series to any desired number, and this without the exercise of mechanical skill, and without loss of time or injury to the appearance of the article.

If desirable, two or more of the bulbs may be blown with connecting-necks.

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

1. In an inhaler or fumigator having an induction and eduction tube, the combination of two liquid receptacles or chambers, connected

by a tube common to both, said tube extending into each chamber for a distance slightly less than half the length of the chamber, and in opposite ends to the induction and eduction tubes, substantially as and for the purpose specified.

2. In an inhaler or fumigator having an induction and eduction tube, which extend into their respective chambers, the combination of two liquid-receptacles, connected by a straight tube common to both, said tube extending into each receptacle, substantially as and for the purpose specified.

3. An inhaler or fumigator composed of a series of globular chambers, connected by a straight tube or tubes, *a*, substantially as and for the purpose specified.

In testimony whereof I, the said ROBERT L. STEEN, have hereunto set my hand.

ROBERT L. STEEN.

Witnesses:

F. W. RITTER, Jr.,
JNO. W. HAGUE.