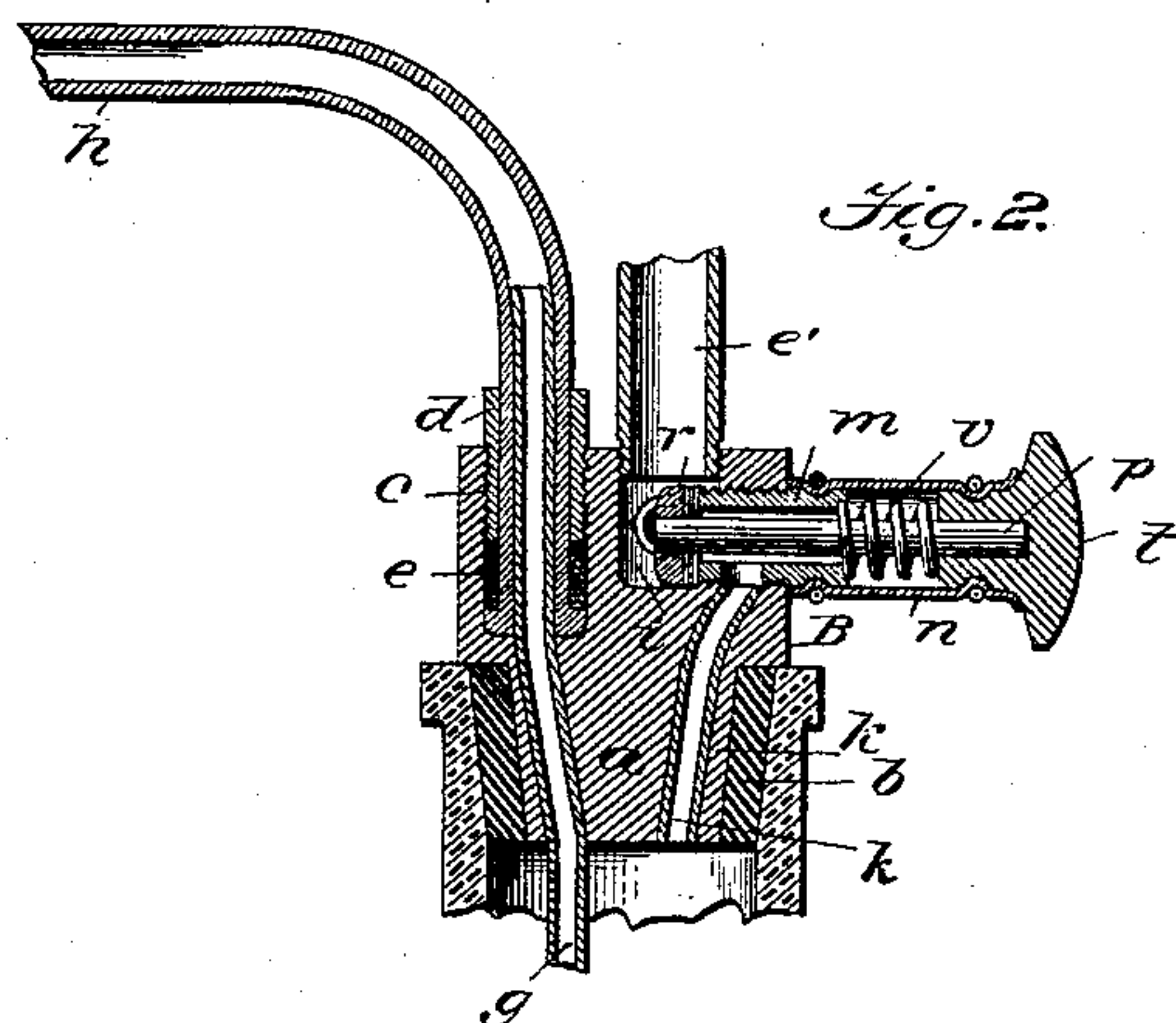
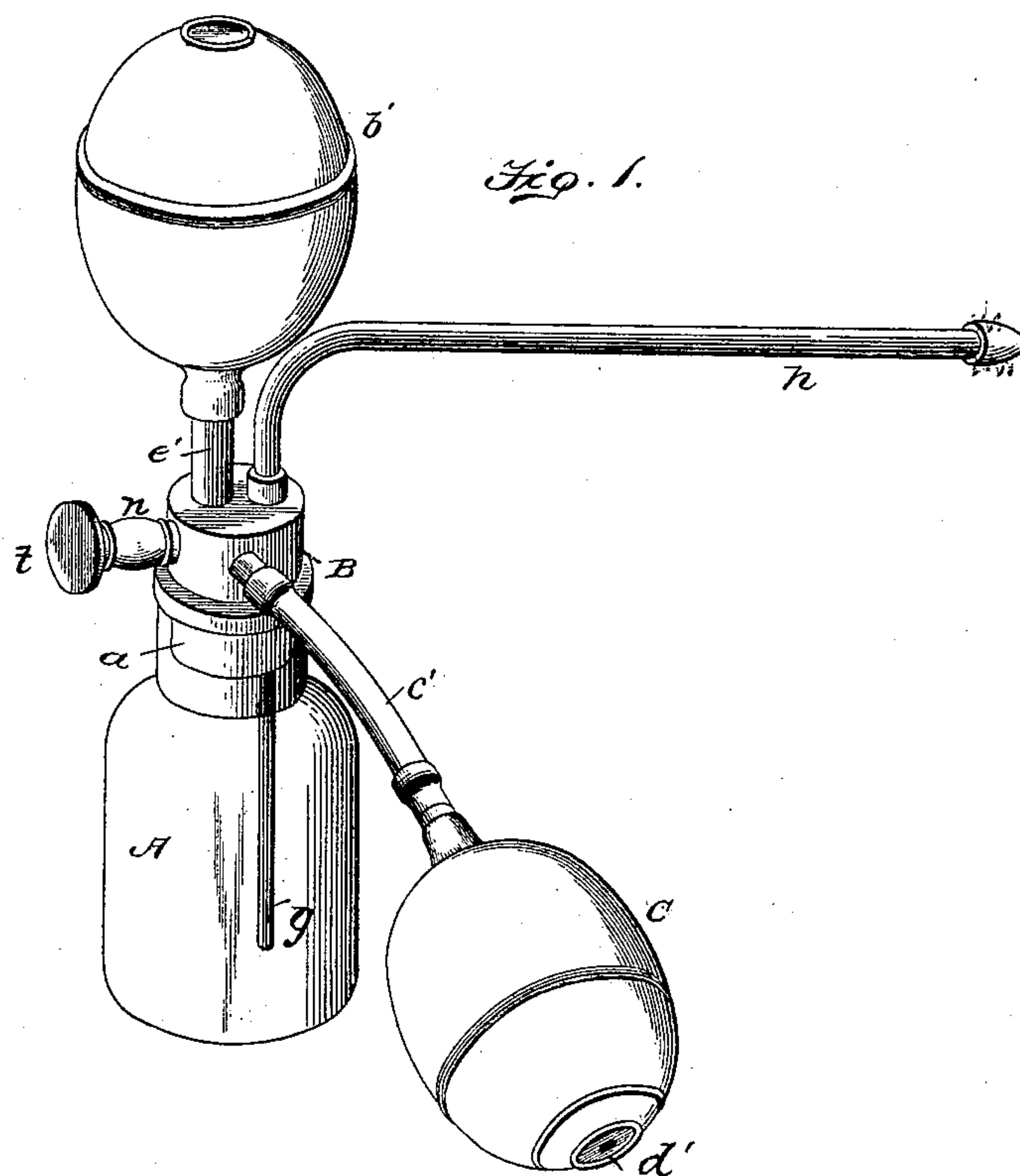


(No Model.)

T. E. OGRAM.
ATOMIZER.

No. 478,940.

Patented July 12, 1892.



Witnesses:

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UNITED STATES PATENT OFFICE.

THOMAS E. OGRAM, OF WASHINGTON, DISTRICT OF COLUMBIA.

ATOMIZER.

SPECIFICATION forming part of Letters Patent No. 478,940, dated July 12, 1892.

Application filed September 16, 1891. Serial No. 405,872. (No model.)

To all whom it may concern:

Be it known that I, THOMAS E. OGRAM, a citizen of the United States, residing at Washington, District of Columbia, have invented certain new and useful Improvements in Atomizers; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to certain improvements in that class of devices known as "atomizers," in which a fluid-receptacle, a storage-bulb, and a compressible bulb are employed; and my said invention has for its objects, first, to permit of the discharge-tube being turned in any direction, so that the fluid may be delivered directly where desired, and at the same time prevent the escape of fluid at the joint, which objects I accomplish by forming a recess in the stopper, fitting a sleeve therein, forming a shoulder upon the lower end of the discharge-tube that turns in said sleeve, and surrounding this end of the tube with a packing located between the shouldered end of the tube and lower end of the sleeve; second, to utilize the entire contents of the storage-bulb without working the compressible bulb and control the admission of air to the fluid-receptacle, whereby the discharge of the fluid may be regulated and produce for quite a while a continuous or an intermittent jet, and this I accomplish by arranging the expansion-bulb upon the top of the stopper and locating a valve in said stopper intermediate of the compressible bulb and expansion-bulb, said valve serving, normally, to close the air-passage from the storage-bulb to the fluid-receptacle and being operated from the outside by means of a push-rod.

In carrying out my invention I proceed as follows, reference being had to the accompanying drawings, forming a part hereof, wherein—

Figure 1 represents a perspective view of my improved device entire, and Fig. 2 an enlarged vertical sectional view thereof.

Referring to the drawings, the letter A indicates a bottle or other receptacle for the fluid, and B a stopper, which may be properly fitted in the mouth thereof. The stopper may be constructed of any suitable material and

of any desired shape or form. In the present instance it is shown as cylindrical in the form of a plug, having a tapering extension *a* at its lower end, which is surrounded with a packing-ring *b*, of rubber or other suitable material, by means of which it may be tightly fitted in the mouth of a bottle or other similar vessel. The plug or stopper is provided with a vertical recess *c*, in which is fitted an externally-screw-threaded sleeve *d*. The said recess is connected by a tube *g*, extending down into the interior of the vessel A, with said vessel.

The letter *g* indicates a bent tube, which extends up through the open end of the recess *c* and sleeves *d*, the projecting end extending into a discharge or jet tube *h*. The lower end of the tube *h* is provided with a shoulder, above which is located a packing-ring *e* to prevent the escape of liquid from the vessel below. This construction permits the jet-tube to be turned in any direction freely, at the same time preventing the escape of fluid at the joint. The plug is also provided with a horizontal recess *i* and an oblique passage *k*, to which may be connected a tube to extend into the vessel which contains the fluid. From the side of the plug extends a projection or boss *m*, to which is secured one end of a flexible sleeve *n*, through which extends a valve-rod *p*, carrying a valve *r*, which bears normally against a suitable valve-seat, keeping the passages to the vessel below normally closed. The valve-rod at its outer end is provided with a shouldered button *t*, to which the other end of the flexible sleeve is attached, the valve-rod being surrounded by a spiral spring *v*, which holds it normally in position.

The letter C indicates a flexible bulb, which is connected with the recess *i* in the plug or stopper by means of a branch tube *c'*. The said bulb at one end is provided with an opening and an inwardly-closing valve *d'*, by means of which air may be admitted to the bulb when expanded and closed when the bulb is contracted, so as to force the air into the chamber or recess *i* before mentioned.

The recess *i* at its upper end is internally screw-threaded for the reception of the externally-screw-threaded lower end of a vertical tube *e'*, which is provided at its upper

end with an expansion-bulb *b'*, which serves as a storage vessel or receptacle for the air driven in by the bulb C, so as to give a continuous and uninterrupted flow of air to the vessel A and insure a continuous emission of fluid therefrom through the atomizer-tube.

The valve and its thumb-button serve as a means for controlling the injection of air into the vessel A and the ejection of the atomized liquid therefrom.

The operation of my invention is as follows: Upon compressing the bulb C air is forced through the recess *i* and tube *e'* into the storage-bulb *b'*. Then upon pushing the button *t* the valve *r* is unseated, permitting the air to enter the vessel and drive out the fluid through the tubes *g* and *h*. By this means it is evident that the fluid in quantities, as desired, may be discharged from the vessel.

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

1. In an atomizer comprising a fluid-receptacle, a storage-bulb, and a compressible bulb, and a valve-chamber and valve located immediately between the expansion-bulb and the compressible bulb, the valve serving, normally, to close the air-passage to the fluid-receptacle, for the purposes specified.

2. In an atomizer comprising a fluid-receptacle, compressible bulb, and storage-bulb, a stopper closing the mouth of the fluid-receptacle, having a recess therein that connects with the storage-bulb and with the interior of the fluid-receptacle, and a valve serving, normally, to close the air-passage to the fluid-receptacle.

3. In an atomizer comprising a fluid-receptacle, compressible bulb, and storage-bulb, and a valve serving, normally, to close the passage to the fluid-receptacle, having a push-rod operated from the outside.

4. In an atomizer comprising a fluid-receptacle, a compressible bulb, and a storage-bulb, the stopper closing the mouth of the fluid-receptacle, having a recess with separate openings that communicate with the compressible bulb and with the storage-bulb and with the interior of the vessel, and a valve arranged in said recess and serving, normally, to close the passage to the fluid-receptacle.

5. In an atomizer comprising a fluid-receptacle, a compressible bulb, and a storage-bulb, the stopper closing the mouth of the fluid-receptacle, having a recess and a valve arranged in said recess, a valve-rod having a spiral spring, and a thumb-button for operating the same.

6. The combination, in an atomizer, of a fluid-receptacle, a stopper closing the mouth of the fluid-receptacle, a compressible bulb arranged at the side of the stopper, a storage-bulb arranged upon the top of the stopper, and a valve located in the stopper and serving, normally, to close the passage to the fluid-receptacle.

7. In an atomizer, the combination, with the receptacle for the fluid, of a stopper closing the mouth of the fluid-receptacle, having a recess communicating with the interior of the vessel, the sleeve fitting therein, the discharge-tube having a shouldered end fitting and turning in said sleeve, and the packing surrounding the tube and located between the shoulder of said tube and the end of the sleeve, for the purposes specified.

8. The combination, in an atomizer, with the valve and valve-rod, said rod projecting exteriorly and by which the valve is operated, of a sleeve inclosing said rod, for the purposes specified.

THOMAS E. OGRAM.

Witnesses:

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