S. TRASK.

VALVELESS ATOMIZER.

APPLICATION FILED NOV. 6, 1912.

1,169,301. Patented Jan. 25, 1916.

Fig. 1.

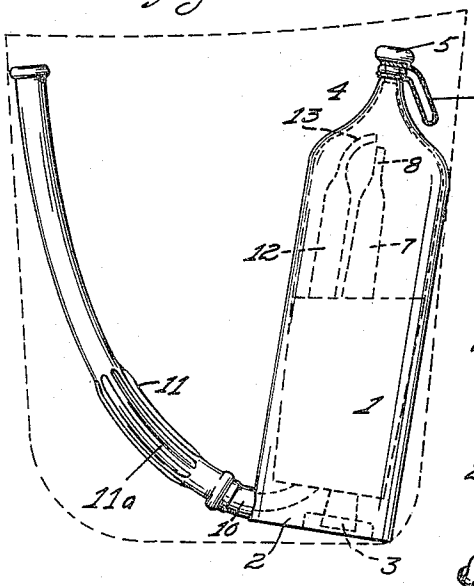


Fig. 6.

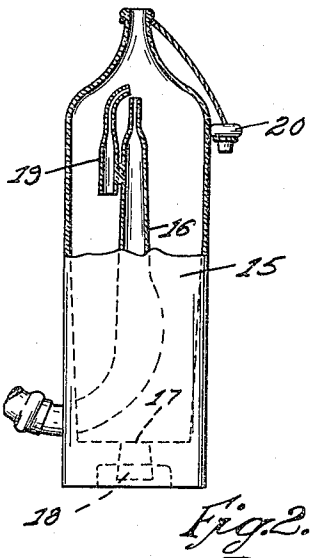


Fig. 7.

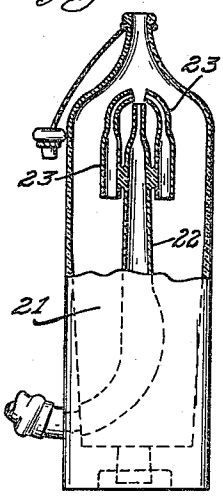


Fig. 4.

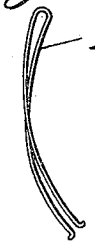


Fig. 2.

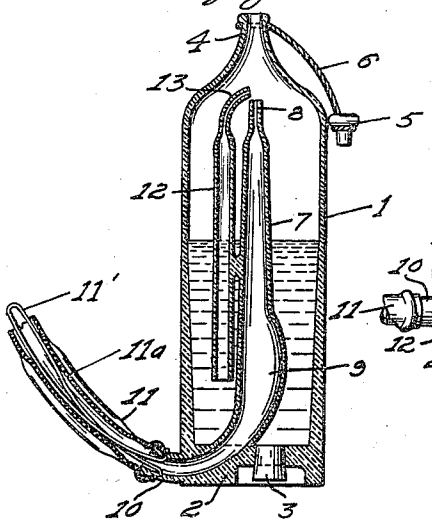


Fig. 3.

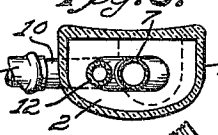
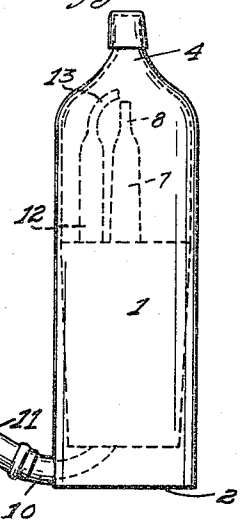


Fig. 5.



WITNESSES:

A. H. Kephart

F. A. Simmey

INVENTOR

SAMPSON TRASK

BY

Carlos P. Griffin

ATTORNEY

THE COLUMBIA PLANOGRAPH CO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

SAMPSON TRASK, OF SAN FRANCISCO, CALIFORNIA.

VALVELESS ATOMIZER.

1,169,301. Specification of Letters Patent. Patented Jan. 25, 1916.

Application filed November 6, 1912. Serial No. 729,764.

To all whom it may concern:

Be it known that I, SAMPSON TRASK, a citizen of the United States, residing at San Francisco, in the county of San Francisco and State of California, have invented a new and useful Valveless Atomizer, of which the following is a specification in such full and clear terms as will enable those skilled in the art to construct and use the same.

This invention relates to a valveless atomizer, the object of which is to provide an atomizer of such shape and construction as to be readily carried in the pocket for use at such times as may be convenient.

It will be understood by those familiar with medicine that it is a very difficult matter for the person using the ordinary bulb atomizer to carry such an atomizer for use throughout the day, and it is also a difficult matter and impracticable personally to use such an atomizer for spraying the inside of the eyelids and the eyeball.

A further object of the invention is to provide a construction which can be easily made almost entirely of glass and which will be sanitary and out of which the fluid is not liable to escape, save at such times as when the atomizer is in use.

A further object of the invention is to provide an atomizer with an air supply tube which will at the same time act as a means for resiliently holding the atomizer upright in the vest pocket, or other pocket in which the atomizer may be placed.

A further object of the invention is to place the liquid supply tube in such a position as to completely empty the receptacle before refilling.

Another object is to make the atomizer of such shape as to stand up by making the base suitably heavy and flat.

Other objects of the invention will appear as the description proceeds.

In the drawings in which the same numeral of reference is applied to the same portion throughout the several views, Figure 1 is a side elevation of the atomizer, dotted lines indicating its position in a pocket, Fig. 2 is a vertical sectional view of the atomizer, Fig. 3 is a horizontal sectional view of the atomizer, Fig. 4 is a view of the spring used in the tube, Fig. 5 indicates a slightly modified form thereof in which the liquid is inserted thereinto through the top opening, Fig. 6 is a side elevation partly in section of a modified form of the invention in which a capillary measuring tube is used, and Fig. 7 is a side elevation partly in section of another atomizer in which two capillary liquid supply tubes are used.

The numeral 1 indicates a flattened bottle having a thickened base 2, through which is an opening closed by the cork 3. The top of the bottle is drawn out to form a small neck 4 in which a cork 5, secured to the bottle by means of a string 6, is placed. The bottle is thickened at the base in order to make it heavy enough to stand alone.

Extending through the base 2 and blown into the bottle is a tube 7. This tube has a small nozzle at 8, an enlarged air chamber at 9 and a projection 10, upon which a suitable stiff rubber tube 11 is placed. On the side of the tube 7 is the liquid supply tube 12, said tube having a curved nozzle at 13 to intercept the air stream from the nozzle 8 and thus draw up liquid from the bottom of the bottle.

Since the opening in the nozzle 8 is very small even though the bottle should be full of liquid practically none of it could escape through the tube 7, and the cork 5 prevents its escape from the mouth of the bottle. However, to hold the bottle upright in the pocket, for it is contemplated that this atomizer may be carried with the person for use from time to time, the tube 11 is made of such stiffness as to act as a live spring and hold the bottle upright as indicated in Fig. 1, the dotted lines indicating a coat or vest pocket and illustrating the way the rubber tube tends to hold the bottle in the proper position, and since the bottle is flat there is no tendency for it to assume any other position than the one indicated in Fig. 1. In order to insure the permanence of the spring effect of the tube, a wire loop 11′ is inserted in the tube 11, the ends of said loop being placed in a groove at the mouth of the glass tube 7 to hold it in place. At the base of the tube 11 it is provided with a suitably ribbed expanding portion 11^a to give a steady air pressure when the atomizer is to be used.

In Fig. 5 there is indicated a slightly modified form in which no opening is provided at the base of the bottle, the liquid being inserted into and removed from the receptacle through the top opening therein. In use the liquid receptacle may be held in one hand, the tube inserted in the mouth and the other hand is thus left free to hold the eyelid away from the eye so that it may

easily receive the spray from the atomizer. It is, of course, equally convenient for spraying the nose and because of its shape it will stand up without falling over.

In the treatment of the eye and nose it is sometimes advisable to use certain determinate quantities of the medicine, and to do this the form of the invention shown in Figs. 6 and 7 may be used. In these forms the bottle 15 is of substantially the same shape as the bottle shown in Fig. 1, except that the air blast tube 16 is extended through the side thereof a little higher up than in the other forms of the invention. This bottle is filled through an opening 17 of the base the same as the bottle shown in Fig. 1, a cork 18 being used as a closure therefor.

Connected with the upper end of the tube 16 is the liquid supply tube 19. This supply tube is of such size as to hold by capillary attraction precisely the quantity of liquid it is desired to use in a given treatment. This bottle is closed by means of a cork 20 and the tube 16 may be provided with the same kind of a flexible tube as that shown in Fig. 1. This atomizer is used by inverting the bottle whereupon the tube 19 will fill, after which the cork 20 may be removed and the given dose sprayed out of the tube. In order to hold the liquid the tube must be very small and for some purposes the tube would not hold a sufficient dose, in which case it might be advisable to use the form of the invention indicated in Fig. 7, in which the bottle 21 is provided with the air supply tube 22 the same as that shown in Fig. 6, but the top of this air supply tube has two liquid supply tubes 23 secured thereto, so that while the capillary effect is made use of in retaining the dosage the quantity is substantially twice as great as in the form shown in Fig. 6.

Having thus described my invention what I claim as new and desire to secure by Letters Patent of the United States, is as follows:

1. In an atomizer, an open mouthed receptacle, a tube extending through the lower portion thereof and having an air chamber and nozzle within said receptacle, a liquid supply tube within the receptacle and having a nozzle in the path of the blast from the first nozzle, and a stiffly flexible tube connected with the first tube and extending laterally away from said receptacle for retaining the receptacle upright in a pocket, substantially as described.

2. In an atomizer, an open mouthed receptacle, a tube extending through the lower portion thereof and having an air chamber and nozzle within said receptacle, a liquid supply tube within the receptacle and having a nozzle in the path of the blast from the first nozzle, a stiffly flexible tube connected with the first tube and extending laterally away from said receptacle for retaining the receptacle upright in a pocket, and a wire loop within the rubber tube to give greater resiliency to the tube, substantially as described.

In testimony whereof I have hereunto set my hand this 28th day of October, A. D. 1912, in the presence of the two subscribed witnesses.

SAMPSON TRASK.

Witnesses:
C. P. GRIFFIN,
HENRY B. LISTER.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."