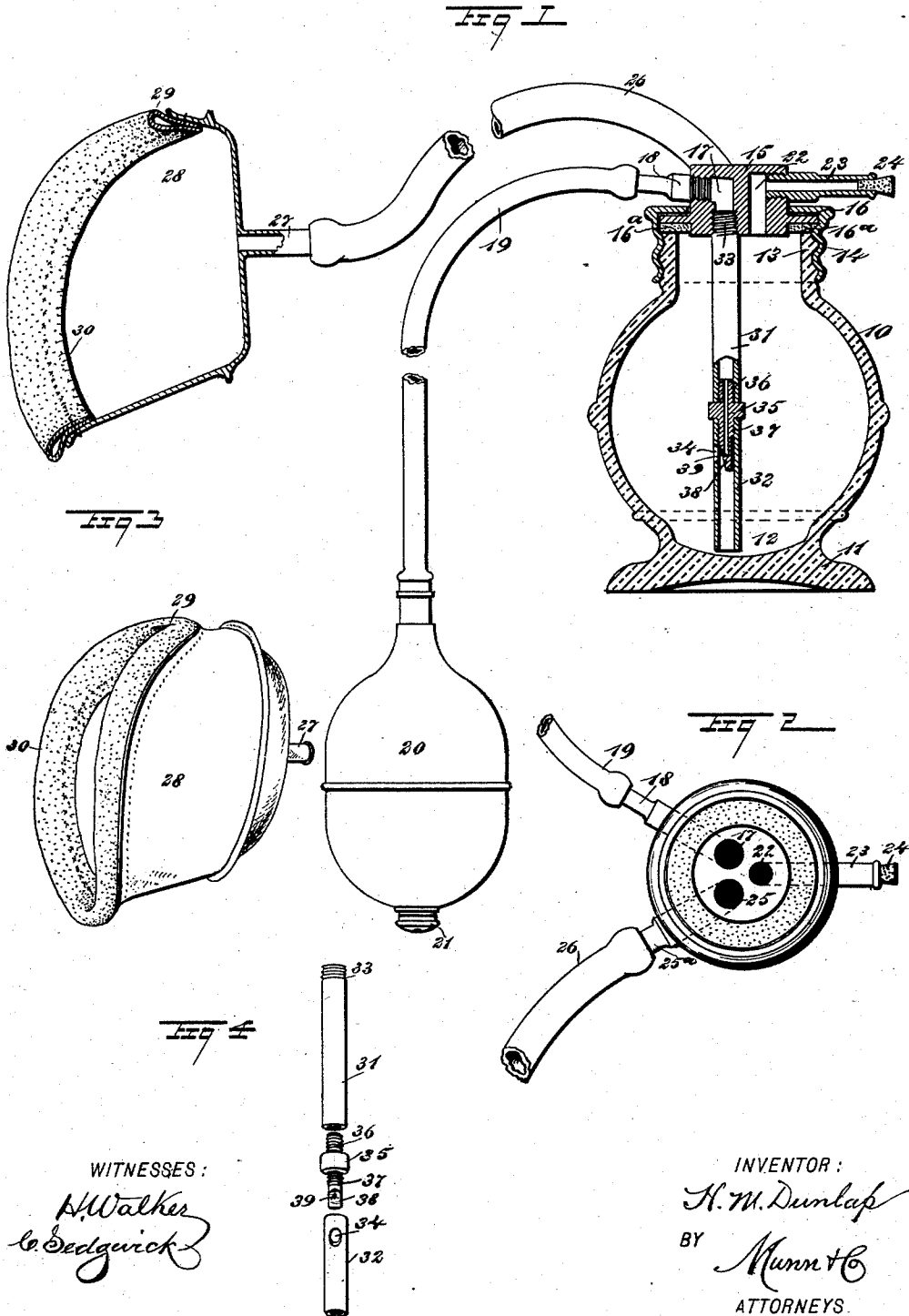


(No Model.)

H. M. DUNLAP.
ATOMIZER.

No. 483,435.

Patented Sept. 27, 1892.



UNITED STATES PATENT OFFICE.

HARLEY M. DUNLAP, OF BATTLE CREEK, MICHIGAN.

ATOMIZER.

SPECIFICATION forming part of Letters Patent No. 483,435, dated September 27, 1892.

Application filed December 12, 1891. Serial No. 414,790. (No model.)

To all whom it may concern:

Be it known that I, HARLEY M. DUNLAP, of Battle Creek, in the county of Calhoun and State of Michigan, have invented a new and Improved Atomizer, of which the following is a full, clear, and exact description.

My invention relates to improvements in that class of atomizers in which the spray is produced within a bottle and forced out so as to be inhaled by a patient.

The object of my invention is to produce a simple atomizer which is durable and comparatively inexpensive, which may be easily operated so that a patient may get the full benefit of the spray, which is not liable to corrode, which may be easily taken apart or put together, and which, in consequence of its easy separableness, may be conveniently used for producing balsamic sprays, as solutions containing balsam are apt to clog spraying-tubes, and my invention provides for easy cleaning.

To this end my invention consists in an atomizer the construction of which will be hereinafter described and claimed.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar figures of reference indicate corresponding parts in all the views.

Figure 1 is a broken sectional view showing the detailed construction of the apparatus. Fig. 2 is a broken inverted plan of the atomizer-head and the cap by which it is secured to the bottle. Fig. 3 is a detail perspective view of the inhaler-mask, and Fig. 4 is a broken detail view of the spraying-tube.

The bottle 10 is of an essentially-globular shape, this shape being given it in order that the bottle may be very strong, and also to enable it to be used with a very small quantity of solution. The bottle has a broad base 11, upon which it may rest firmly, and in the bottom of the bottle is a depression 12, into which the spraying-tube may be thrust, and an extremely-small quantity of solution will, by settling in this depression, enable the atomizer to be successfully worked.

The neck 13 of the bottle 10 is screw-threaded upon the outside, and upon this a cap 14 is secured, the cap being adapted to hold in place the head 15, which is preferably

of hard rubber and which has a flange 16 extending between the top of the cap and the top of the bottle, a gasket 16^a being inserted between the flange and the bottle, so as to produce an air-tight joint. The head 15 projects well above the top of the cap 14, and it is provided with three ports opening from the bottom through the sides, the port 17 being adapted to connect with the spraying-tube, and being adapted, also, to connect with a nipple 18, which projects from one side of the head and connects by means of a rubber tube 19 with the usual air-bulb 20, having a common form of suction-valve 21 at its outer end, so that by repeated compressions the bulb may be made to force a continuous supply of air into the bottle. The port 22 of the head opens directly into the bottle and also connects with a nipple 23, which is screwed into the port and extends in a nearly-horizontal position from the head, the nipple being closed by a cork 24; but when the atomizer is to be used for general purposes the cork is removed, and the nipple 23 may be connected with a reservoir of compressed air or other gas, which will thus flow into the bottle and may be expelled through the outlet-port 25, which port also leads from the bottom of the head through one side thereof, and an outlet-nipple 25^a is screwed into this port and connects with a flexible tube 26, the outer end of which fits on the hollow stem 27 of the mask 28. The mask 28 is of an essentially cup shape and is provided on one side with a V-shaped slot 29, which enables it to be placed over the mouth and nose, the slot fitting nicely upon the nose or beneath the nose, as desired. Near the outer edge of the mask is a cushion 30, which is preferably hollow, and which enables the mask to fit tightly upon the face of a patient without hurting him.

The spraying-tube is made in two parts 31 32, the upper part 31 being screw-threaded at its upper end, as shown at 33 in Fig. 4, so that it may be screwed into the port 17. The tube is long enough so that its lower end will almost touch the bottom of the bottle, and the lower part 32 is provided near its upper end with a side opening 34, through which air may be forced. The parts are connected by

a hollow coupling 35, having a nipple 36 at one end, which screws into the part 31 of the spraying-tube, and at the other end a substantially-similar nipple 37, which screws into the lower member of the spraying-tube, and the lower nipple of the coupling is flattened on one side, as shown at 38, and is provided with a side opening 39, which registers with the opening 34 of the spraying-tube.

10 When the instrument is operated and air forced down the spraying-tube, the current of air which passes out through the openings 39 and 34 sucks up the liquid through the lower portion 32 of the tube and ejects the same forcibly against the side of the bottle, thus producing a very fine spray, which may be readily inhaled by means of the outlet-pipe and mask.

By placing the stopper 24 in the inlet pipe or nipple 23 and then working the apparatus in the manner described air may be forced into the middle ear and accessory cavities connecting with the nasal passages. If desired, the mask may be dispensed with and an ordinary mouthpiece or nasal tube be connected with the outlet-nipple.

The head 15, the various nipples opening

from the head, the spraying-tube 31 32, and the coupling 35 are all made of hard rubber, which will not corrode and which permits the use of oils in the atomizer without injury to it.

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

1. In an atomizer, the combination, with a bottle, of a head secured in the top thereof, the head having ports opening from the bottle through its sides and adapted to connect with an air-supply bulb, a reservoir of air or other gas, and an inhaler-mask, and a spraying-tube secured in the supply-port and extending downward into the bottle, substantially as described.

2. In an atomizer, the two-part spraying-tube having a side opening in the lower member and a hollow coupling connecting the two members, said coupling having a side opening to register with the side opening in the tube, substantially as described.

HARLEY M. DUNLAP.

Witnesses:

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FRED G. FISHER.