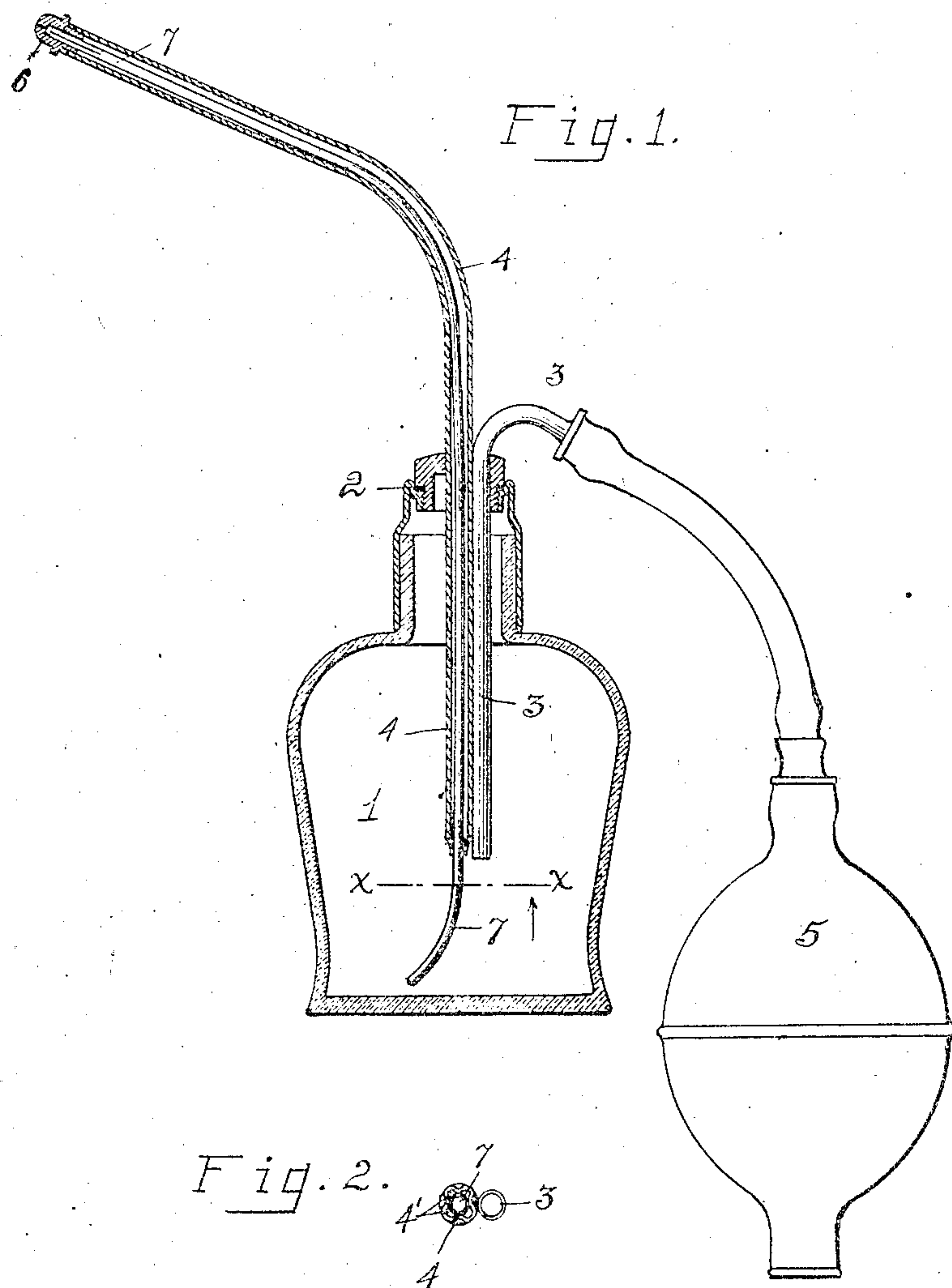


T. A. DE VILBISS.
 INVERTIBLE ATOMIZER.
 APPLICATION FILED MAR. 26, 1908.

904,515.

Patented Nov. 24, 1908.



WITNESSES:

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UNITED STATES PATENT OFFICE.

THOMAS A. DE VILBISS, OF TOLEDO, OHIO, ASSIGNOR TO THE DE VILBISS MANUFACTURING COMPANY, OF TOLEDO, OHIO, A CORPORATION OF OHIO.

INVERTIBLE ATOMIZER.

No. 904,515.

Specification of Letters Patent.

Patented Nov. 24, 1908.

Application filed March 26, 1903. Serial No. 423,353.

To all whom it may concern:

Be it known that I, THOMAS A. DE VILBISS, a citizen of the United States, and a resident of Toledo, in the county of Lucas and State of Ohio, have invented a certain new and useful Invertible Atomizer; and I do hereby 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, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

My invention relates to atomizers, and particularly to those of the compression type in which air is injected into the liquid receptacle to effect a discharge of the liquid from the receptacle in spray or vapor form, and in which the vaporizing action is facilitated by the discharge of air past the discharge end of the liquid-tube. Considerable objection has been made to the use of this form of atomizer due to the liquid escaping from the receptacle through the air injection tube and into the bulb and also through the air-passage surrounding the liquid-tube when the receptacle is inverted or placed on its side, thus prohibiting its use by travelers and requiring care in always maintaining it in upright position when not in use. Numerous attempts have been made to overcome this objectionable feature by the insertion of valves in the tubes, which valves may be worked to close such tubes when desired. This innovation, however, complicates and adds expense to the atomizer, and is not entirely satisfactory in all cases.

The object of my invention is to overcome these objections and difficulties by arranging and disposing the air-tube terminals in such manner relative to the receptacle as to effectually prevent the escape of liquid from the receptacle through said tubes without the use of valves and without adding materially to the cost of manufacture, thus enhancing the practicability and commercial value of atomizers of this type.

The operation, construction and arrangement of the parts of the invention are fully described in the following specification, and illustrated in the accompanying drawing, in which,—

Figure 1 is a central vertical section of an atomizer embodying my invention, and Fig.

2 is an enlarged section on the line *x x* in Fig. 1.

Referring to the drawing, 1 designates the liquid receptacle of usual or any suitable form, the neck opening of which is closed by a suitable cap or closure-member 2. Piercing the cap or closure-member 2 in a suitable manner are the air-injection tube 3 and air-exit tube 4, the former of which has a compression-bulb 5 attached to its outer end, while the latter carries the spray-head 6 at its outer end and incases the smaller liquid-tube 7, the lower end of which extends to near the bottom of the receptacle. A simple and very efficient manner of centering and securely gripping the liquid-tube 7 in the lower end of the tube 4 and at the same time providing openings for the admission of air to said latter tube, consists in crimping the tube 4 for a short distance from its inner end so as to center the tube 7, securely hold the tubes 4 and 7 from relative longitudinal movement, and provide openings 4' to the interior of the air-exit tube, as shown in Fig. 2.

The inner ends of the air-tubes 3 and 4 instead of terminating immediately after passing through the cap or closure-member 2, as is usually the case, extend down into the receptacle and terminate at approximately the center thereof, as shown. By disposing the tube terminals in this manner, the liquid, which is never placed in the receptacle in sufficient quantity to submerge the tube ends when in upright position, is permitted to flow around such centrally disposed ends when the receptacle is tipped or inverted, but is not enabled to submerge the same no matter in what position the receptacle may be placed, thus rendering it practically impossible for the liquid to escape from the receptacle except through the liquid-tube 7, and then only when the atomizer is in use. It is apparent that this forms not only a simple and very efficient atomizer, but also one which readily recommends itself to travelers and to the users of such instruments generally, due to the inability of the liquid contents thereof to accidentally escape therefrom when tipped over or packed in trunks or the like.

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

1. In a compression atomizer, a vessel, a

member closing the neck of said vessel, an
air-injection tube piercing said member and
having one end terminating near the center
of the vessel and its other end terminating
5 without the vessel, an air-bulb attached to
the outer end of said tube, an air-outlet tube
piercing said member and having its inner
end extending down within the vessel and
terminating near the center thereof, a liquid-
10 tube disposed within the air-outlet tube and
having its inner end extended to near the
bottom of the vessel, and a spray-head asso-
ciated with the outlet ends of the air-outlet
and liquid tubes, substantially as described.

15 2. In an atomizer, a vessel, a closure mem-
ber for the neck of the vessel, an air-injec-
tion tube and an air-outlet tube piercing said
member and the latter extending down with-
in the vessel, a liquid-tube disposed within

the air-outlet tube with its inner end ex- 20
tended to near the bottom of the vessel, said
air-outlet tube having its inner end crimped
to form corrugations which center the liq-
uid-tube therein, rigidly grip the liquid-
tube from longitudinal movement therein, 25
and provide radial passages around the
liquid-tube for the admission of air to the
air-outlet tube from the vessel, and a spray-
head associated with the air-outlet and liq-
uid-tubes. 30

In testimony whereof I have hereunto
signed my name to this specification in the
presence of two subscribing witnesses.

THOMAS A. DE VILBISS.

Witnesses:

C. W. OWEN,
HAZEL B. HIETT.