No. 717,474. Patented Dec. 30, 1902.

G. S. TOLMAN & G. K. JONES.

ATOMIZER.

(Application filed May 6, 1902.)

(No Model.)

Fig. 1.

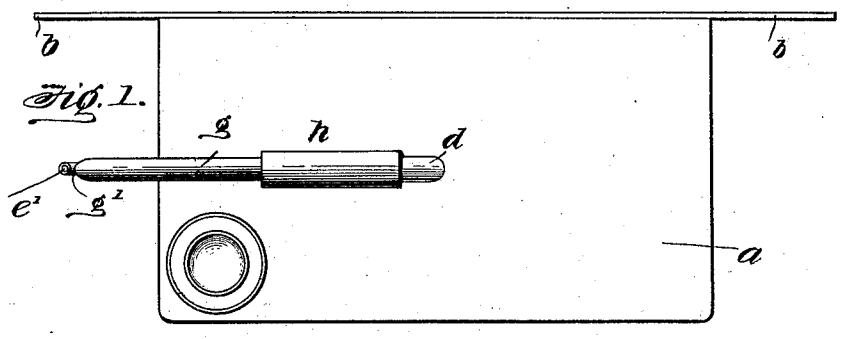


Fig. 2.

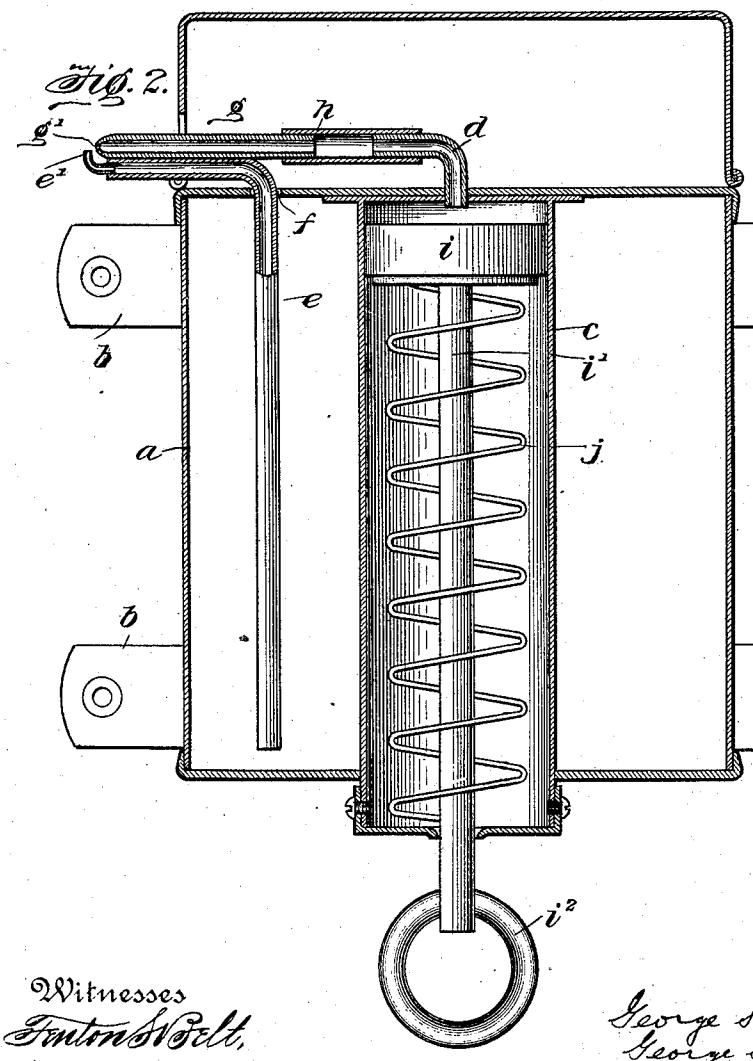
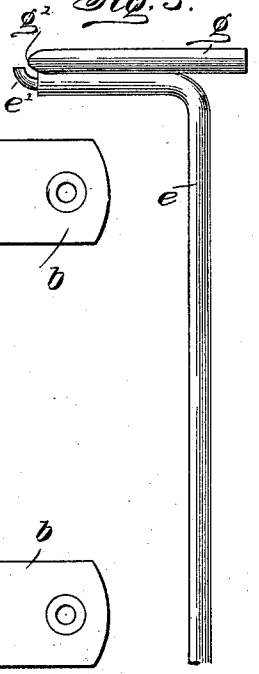


Fig. 3.



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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

GEORGE S. TOLMAN, OF WINTHROP, AND GEORGE K. JONES, OF SOMERVILLE, MASSACHUSETTS; SAID JONES ASSIGNOR TO SAID TOLMAN.

ATOMIZER.

SPECIFICATION forming part of Letters Patent No. 717,474, dated December 30, 1902.

Application filed May 6, 1902. Serial No. 106,191. (No model.)

To all whom it may concern:

Be it known that we, GEORGE S. TOLMAN, of Winthrop, in the county of Suffolk, and GEORGE K. JONES, of Somerville, in the county of Middlesex, in the State of Massachusetts, have invented certain new and useful Improvements in Atomizers, of which the following is a specification.

This invention relates to an atomizer adapted to be affixed to a wall or other support for the purpose of deodorizing or disinfecting the surrounding air.

The invention consists in the improvements which we will now proceed to describe and claim.

Of the accompanying drawings, forming a part of this specification, Figure 1 represents a vertical section of our improved atomizer. Fig. 2 represents a top view of the same. Fig. 3 represents a view showing the liquid-tube and the air-delivering nozzle removed from the reservoir.

The same reference characters indicate the same parts in all the figures.

In the drawings, *a* represents a reservoir, which may be made of sheet metal or other suitable material and is preferably of rectangular form and provided with ears *b b*, whereby it may be attached to a wall or other support.

c represents an air-pump cylinder which extends vertically through the reservoir *a*, the upper end of the cylinder being attached to the top of the reservoir, while its lower end passes through the bottom of the reservoir, as shown in Fig. 1.

d represents a fixed air-tube section attached to the top of the reservoir and communicating with the pump-cylinder *c*, the section *d* being bent horizontally at its upper portion.

e represents a liquid-discharge tube which is inserted in an orifice *f*, formed in the top of the reservoir *a*, and extends nearly to the bottom of the reservoir, its upper portion being bent horizontally and provided at its outer end with a contracted nozzle *e'*.

g represents an air-tube section which is soldered or otherwise attached to the upper portion of the liquid-tube *e* and has a nozzle *g'* at its outer end, the nozzle *g'* being arranged to cause a movement of air across the nozzle *e'*, so that when air is drawn inwardly through the nozzle *g'* it causes a sufficient suction to raise the liquid in the tube *e* to the nozzle *e'*, and when air is forced outwardly through the nozzle *g'* it causes a flow of the liquid outwardly through the nozzle *e'* and atomizes and distributes the liquid. The tube-section *g* is preferably connected with the tube-section *d* by a section *h* of elastic tubing, which detachably embraces the adjacent ends of the tube-sections *d* and *g*, the said sections *d*, *h*, and *g* constituting a continuous air-conduit, so that when a piston *i* in the cylinder *c* is forced downwardly it draws air through said conduit into the cylinder, and when the piston is forced upwardly it forces air from the cylinder through the said conduit.

The piston *i* has a rod *i'*, having a pull or handle i^2, by which it may be depressed.

j is a spring which is arranged to raise the piston after it has been pulled down and released.

When a discharge of atomized liquid is desired, the operator pulls downwardly on the handle i^2, thus drawing air inwardly through the air-conduit *g h d*, raising the liquid to the nozzle *e'* and compressing the spring *j*, the rigid connection of the reservoir to its support enabling the operator to depress the piston against the pressure of a relatively strong spring. The apparatus is thus set for action and operates automatically when the handle is released, the spring raising the piston and forcing air outwardly through the said conduit. The air-jet immediately commences to atomize the liquid raised to the nozzle *e'* by the downward movement of the piston, so that no time is lost, the entire upward movement of the piston being utilized in causing a prolonged discharge of atomized liquid.

The described provision whereby the operator is enabled to set the apparatus for action, the setting operation including the raising of the liquid to the nozzle *e'*, is important, because it enables a prolonged and effective distribution of the liquid to be effected by a

single action of the spring, so that the operator's time is economized, particularly when the supply of liquid has been considerably reduced, it being obvious that if a part of the upward movement of the piston had to be used for raising the liquid to the nozzle e' the quantity of liquid distributed by a single action of the spring would be proportionately reduced and that the operator would be obliged to wait for the spring to act and then reset the apparatus before obtaining a sufficient distribution of the liquid. The utility of this provision will be further apparent when it is considered that a single attendant may be in charge of a large number of atomizers. It is also obvious that the said provision prevents the liability of an insufficient distribution of liquid through carelessness of the attendant when the liquid in the reservoir is low.

We are aware that it has been proposed to mount an elastic atomizer-bulb and a liquid-reservoir on a fixed support and to provide means whereby an operator may compress the bulb to cause an atomizing discharge of air over the liquid nozzle or outlet of the reservoir, the release of the bulb causing it to expand and draw air into the bulb and across the said liquid-nozzle, as shown in Letters Patent of the United States No. 448,784.

The liquid-tube e is preferably inserted loosely in the orifice f, so that it may be removed with the tube-section g, as indicated in Fig. 3.

We claim—

An atomizer comprising a liquid-reservoir having means for attachment to a support, a liquid-tube inserted loosely in an orifice in the top of the reservoir and detachable therefrom, said tube terminating in a nozzle above the reservoir, an air-tube section affixed to the liquid-tube and movable therewith, said section having a nozzle arranged to coöperate as described with the nozzle of the liquid-tube, an air-pump cylinder extending vertically through the reservoir and having an air-tube section at its upper end, a flexible elastic air-tube section connecting the said fixed tube-section with the movable section having the air-nozzle and detachably connected with said sections, whereby the air-nozzle and liquid-pipe may be readily disconnected and removed from the reservoir, a piston in the cylinder having a rod extending through the lower end of the cylinder, and a spring adapted to raise the piston in the cylinder, substantially as described.

In testimony whereof we have affixed our signatures in presence of two witnesses.

GEORGE S. TOLMAN.
GEORGE K. JONES.

Witnesses:
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