

UNITED STATES PATENT OFFICE.

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ATOMIZER.

SPECIFICATION forming part of Letters Patent No. 625,621, dated May 23, 1899.

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To all whom it may concern:

Be it known that I, WILLIAM E. WHITTIER, of New York, (Brooklyn,) in the county of Kings and State of New York, have invented a new and Improved Atomizer, of which the following is a full, clear, and exact description.

The object of the invention is to provide a new and improved atomizer arranged for atomizing a liquid and vaporizing another in a very simple manner.

The invention consists of certain parts and details and combinations of the same, as will be fully described hereinafter and then pointed out in the claims.

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

Figure 1 is a sectional side elevation of the improvement on the line 1 1 of Fig. 2. Fig. 2 is a plan view of the same. Fig. 3 is a cross-section of part of the improvement on the line 3 3 of Fig. 2. Fig. 4 is an inverted sectional plan view of the improvement on the line 4 4 of Fig. 1. Fig. 5 is an enlarged sectional side elevation of the air-discharge nozzle for the bottle contained within the vessel of the atomizer. Fig. 6 is an inverted plan view of the same, and Fig. 7 is a sectional side elevation of a modified form of the improvement.

The apparatus is provided with a vessel A, adapted to contain the liquid to be atomized, and the neck of the vessel A is normally closed by a stopper B, held in a cap C, fitted upon a gasket D, of flexible material, and placed on the upper edge of the vessel A. A yoke E extends over the top of the cap C and is provided on its side arms with inwardly-extending lugs E', adapted to pass downward through registering recesses C' A' in the cap C and the neck of the vessel A and to then pass under the shoulder A², formed on the neck of the bottle, so as to securely lock the cap C and its stopper B in place on the neck of the vessel A. It is understood that a slight turn is given to the yoke E after the lugs E' reach the lower end of the recess A' to pass under the shoulder A² of the vessel.

Into the liquid contained in the vessel A extends the liquid-outlet pipe F, secured in

the air-pipe head G, passing to the cap C and extending part way into the stopper B, as plainly shown in Fig. 3, the said head G being provided with an offset G' for connection with the tube of the bulb I, used for forcing air into the said head G and down into the vessel A to press on the liquid contained therein, so as to force the liquid up into and through the pipe F. The upper end of the pipe connects with the pipe H, extending through the head G, and the air-discharge pipe G², leading from the head. Now it is evident that when the bulb I is pressed part of the air passes into the vessel A and part passes out of the pipe G², and at the same time the liquid is forced through the pipes F and H to be atomized at the outer end of the pipe G² in the usual manner.

In the vessel A is set a bottle J, adapted to contain the liquid to be vaporized, and the mouth of this bottle is preferably closed by the lower end of the stopper B, the latter being recessed for this purpose. Into the bottle J extends an air-pipe K, passing through the stopper B and cap C to the outside thereof, to be connected at its outer end with the tube of the bulb I to force the air through the pipe K into and through the liquid contained in the bottle J. The stopper B is provided with an opening B', leading from the inside of the bottle J to a pipe L, screwed or otherwise secured in the cap C, the pipe being provided at its outer end with a discharge-nozzle L' for the vapors. The lower end of the pipe K is provided with a nozzle K', screwed or otherwise removably connected therewith and provided in its bottom with a contracted outlet K², leading to a recess K³, formed in the under side of the nozzle and extending to the edge thereof. An opening K⁴ is also formed in the side of the pipe K next to the nozzle K', as plainly illustrated in Fig. 5, so that the air forced down the pipe K can pass through the openings K⁴ and K² and recess K³ into the liquid contained in the bottle J, so as to vaporize the liquid, the vapors passing out through the opening B' into the pipe L to be discharged therefrom at the nozzle L'. The air passes in very fine streams into the liquid contained in the bottle J, so that a proper vaporizing of the liquid takes place. If the nozzle K' should become clogged, it can be

readily removed and cleaned and reattached to the pipe K.

By having the recess or groove K³ in the under side of the nozzle I secure the advantage of discharging the air against and along the bottom of the receptacle, thus agitating any sediment that may be formed and preventing said sediment in most cases from clogging the air-outlets of the pipe and nozzle.

In vaporizing large quantities of the liquid I prefer the arrangement shown in Fig. 7, in which the vaporizing air-inlet pipe K⁵ extends into the outer or larger vessel A³, having in its stopper a suitable vapor-outlet, as shown.

The pipe K⁵ has two separate bores K⁶ K⁷, having their adjacent ends standing at angles to each other and terminating in a nozzle-head K⁸, extending horizontally from the pipe K⁵. Now when air is forced through the bore K⁶ then a suction is created in the bore K⁷, so that the liquid in the vessel A³ is drawn up into the said bore and out through the angular upper end of the nozzle-head, to be vaporized by the air coming through the bore K⁶, the vapor passing through the head K⁸, over the level of the liquid, to the walls of the vessel A³, to then rise to the outlet and pass out of the same.

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

1. In an atomizer, the combination of the inner receptacle, the outer receptacle surrounding the same, an air-inlet pipe leading to the inner receptacle, a similar pipe leading to the outer receptacle, said pipes being adapted for connection with an air-supply and separate outlets from the inner and the outer receptacles, each of said outlets terminating in a separate discharge-nozzle exteriorly of said

receptacles whereby the medicaments or the like contained in said receptacles may be applied successively, substantially as set forth.

2. In an atomizer, the combination of the receptacle having an outlet and an air-inlet pipe adapted to be connected at one end with an air-supply, and provided at its other end with a nozzle having a contracted bore communicating directly with the longitudinal bore of said inlet-pipe, the nozzle further having a groove open at the bottom and extending from said contracted bore to the edge of the nozzle, substantially as described.

3. In an atomizer, the combination of the receptacle and the air-inlet tube leading into the same, and adapted to be connected with an air-supply said tube having a longitudinal bore, a radial groove open at the bottom and communicating with the outlet end of the said bore, and a lateral outlet extending from the said bore above the said radial groove, and an outlet-pipe leading from a receptacle substantially as described.

4. In an atomizer, the combination of the inner receptacle, the inlet and outlet tubes therefor, the outer receptacle, the air-inlet tube passing into the outer receptacle exteriorly of the inner receptacle, said tubes being adapted for connection with an air-supply, an air-discharge tube connected to said air-inlet tube, a nipple or connection at the junction of the air-inlet tube with the air-discharge tube, and a liquid-outlet tube extending axially within the air-discharge tube, substantially as described.

WILLIAM E. WHITTIER.

Witnesses:

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