

F. C. DORMENT.
 ATOMIZER.
 APPLICATION FILED APR. 10, 1909.

945,380.

Patented Jan. 4, 1910.

Fig. 1

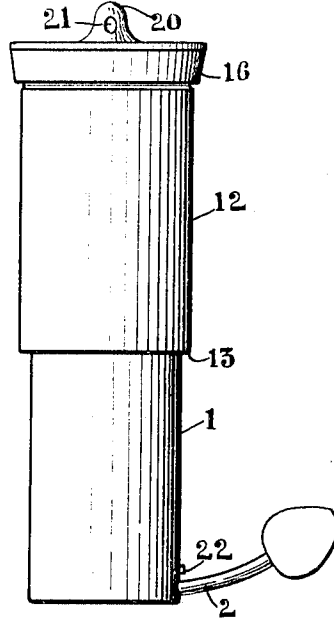
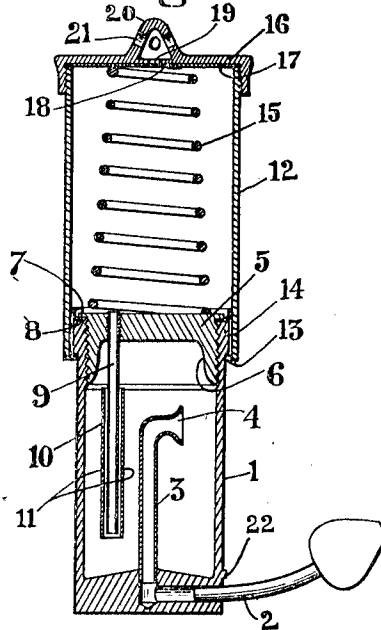


Fig. 3



Fig. 2



WITNESSES:

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INVENTOR

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BY

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UNITED STATES PATENT OFFICE.

FRANK C. DORMENT, OF DETROIT, MICHIGAN, ASSIGNOR, BY MESNE ASSIGNMENTS,
TO DUFF REMEDY COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

ATOMIZER.

945,380.

Specification of Letters Patent.

Patented Jan. 4, 1910.

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To all whom it may concern:

Be it known that I, FRANK C. DORMENT, a citizen of the United States of America, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Atomizers, of which the following is a specification, reference being had therein to the accompanying drawings.

In atomizers or nebulizers of ordinary type so far as known to me there is no provision for preventing entrance of liquid into the spray tubes and more especially is this true in instruments of this sort designed for the pocket.

This invention relates to an atomizer having special provision for checking the entrance of liquid into the tubes and also for providing a very large volume of spray in proportion to the amount of medicament used, as well as to certain features which protect the packing from contacting with the contents.

The invention consists in the matters hereinafter set forth and more particularly pointed out in the appended claims.

In the drawings, Figure 1 is a view in elevation in extended position of an atomizer embodying features of the invention. Fig. 2 is a view in longitudinal section thereof. Fig. 3 is a view in cross-section through a vaporizing tube.

Referring to the drawings, a cylindrical reservoir 1 has a removable nozzle 2 of appropriate shape frictionally engaging a lateral aperture near the base of the reservoir which opens at about the axial center into an outlet tube 3 extending well up toward the top of the cylinder. A mouth 4 of the outlet tube is outturned laterally and bell-shaped. A hollow cap 5 provided with a tubular flange 6 is screw-threaded into the top of the reservoir 1 and has a lateral rim 7 which acts as a retainer for a soft packing ring or gasket 8. An air tube 9 removably secured by suitable means in the cap 5 extends well into the body of the cylinder. An outer vaporizing tube 10 is concentrically secured on this air tube 9 the preferable construction being that indicated wherein the outer tube 10 is flattened to grip the inner tube 9 at opposite points. Spray apertures 11 formed in the sides of the two tubes, which are open at the ends, complete the vaporizing means.

An outer compression cylinder 12 has telescopical engagement with the cylinder 1, an inner annular flange 13 at its lower end acting as a stop against the shoulder 14 formed on the cylinder 1, and a spiral spring 15, which is tapered so as to close noiselessly, is in compression between the reservoir cap 5 and a detachable head 16 on the compression cylinder. A packing disk 17 confined by the head 16 against the cylinder end has a central tongue or flap 18 acting as a valve against the central aperture 19 on the head, a hollow boss 20 with air inlets 21 admitting air to the cylinder through this valve. A lug 22 at the lower end of the reservoir is adapted to pass through a suitable slot in the retaining flange 13 of the compression cylinder 12 so that the latter may be given a part turn and locked in compressed position for carrying in the pocket.

One feature of the invention is the large quantity of vapor produced when using the double tubes, in proportion to the small amount of medicament in the reservoir.

Another feature is the shape of the cap for the reservoir which prevents contact of the reservoir contents with the packing.

Another very important detail is the arrangement of the tubes which prevents escape of liquid through the spray nozzle when the atomizer is being carried in the pocket.

Obviously, changes in the details of construction may be made without departing from the spirit of the invention, and I do not care to limit myself to any particular form or arrangement of parts.

What I claim as my invention is:—

1. An atomizer comprising a cylindrical reservoir permanently closed at its lower end, an outlet tube extending from the lower end upward in the reservoir and having a laterally turned bell-mouth upper end, a nozzle extending laterally from the lower end of the reservoir that is connected by an aperture in the reservoir base with the outlet tube, a hollow cap detachably secured in the upper end of the reservoir, a packing ring secured on the cap by an annular rim thereon, an air tube opening through the cap extending toward the lower end of the reservoir, an outer vaporizing tube concentrically secured on the air tube, said concentric tubes having aligned apertures in their walls, a spring-retained compression

cylinder telescoping over the upper end of the reservoir, an air inlet valve in the head of the compression cylinder, an annular shoulder on the upper end of the reservoir, an inner annular flange on the lower end of the compression cylinder adapted to engage the reservoir shoulder, and a lug on the lower end of the reservoir adapted to pass through a slot in said flange.

2. An atomizer comprising a cylindrical reservoir permanently closed at its lower end, an outlet tube extending from the lower end upward in the reservoir and having a laterally turned bell-mouth upper end, a nozzle extending laterally from the lower end of the reservoir that is connected by an aperture in the reservoir base with the outlet tube, a cap having an annular projecting rim at its upper end and a depending annular flange adapted for screw-threaded engagement with the upper end of the reservoir, a packing ring secured in the cap by the annular rim, an air tube opening through the cap extending toward the lower end of the reservoir, an outer vaporizing tube concentrically secured on the air tube, said concentric tubes having alined apertures in their walls, a spring-returned compression cylinder telescoping over the end of the reservoir, an air inlet valve in the head of the compression cylinder, means limiting the outward movement of the compression cylinder and means adapted to lock the two cylinders in compressed position.

3. An atomizer comprising a cylindrical reservoir permanently closed at its lower end, an outlet tube extending from the lower end upward in the reservoir and having a laterally turned bell mouth upper end, a nozzle extending laterally from the lower end of the reservoir that is connected by an aperture in the reservoir base with the outlet tube, a cap having an annular projecting rim at its upper end and a depending annular flange adapted for screw-threaded engagement with the upper end of the reservoir, a packing ring secured on the cap by the annular rim, an air tube opening through the cap extending toward

the lower end of the reservoir, an outer vaporizing tube concentrically secured on the air tube by means affording passages between the tubes for the entire length of the outer tube, said concentric tubes having alined apertures in their walls, a spring-returned compression cylinder telescoping over the upper end of the reservoir, and an inlet valve in the head of the compression cylinder, means limiting the outward movement of the compression cylinder and means adapted to lock the two cylinders in compressed position.

4. An atomizer comprising a cylindrical reservoir permanently closed at its lower end, an outlet tube extending from the lower end upward in the reservoir and having a laterally turned bell-mouth upper end, a nozzle extending laterally from the lower end of the reservoir that is connected by an aperture in the reservoir base with the outlet tube, a cap having an annular projecting rim at its upper end and a depending annular flange adapted for screw-threaded engagement with the upper end of the reservoir, a packing ring secured on the cap by the annular rim, an air tube opening through the cap and extending toward the lower end of the reservoir, an outer vaporizing tube concentrically secured on the air tube by means affording passages between the tubes for the entire length of the outer tube, said concentric tubes having alined apertures in their walls, a spring-returned compression cylinder telescoping over the upper end of the reservoir, an air inlet valve in the lower head of the compression cylinder, an annular shoulder on the upper end of the reservoir, an inner annular flange in the lower end of the compression cylinder adapted to engage the reservoir shoulder, and a lug on the lower end of the reservoir adapted to pass through a slot in said flange.

In testimony whereof I affix my signature in presence of two witnesses.

FRANK C. DORMENT.

Witnesses:

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A. M. SHANNON.