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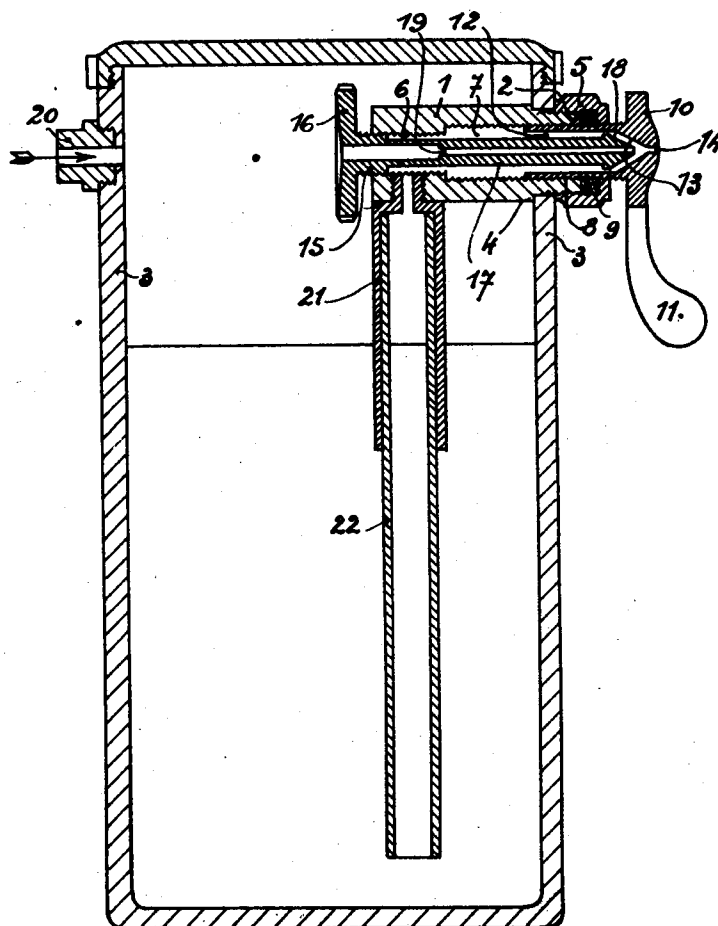
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ATOMIZER

Filed Sept. 8, 1927

2 Sheets-Sheet 1

*Fig. 1*



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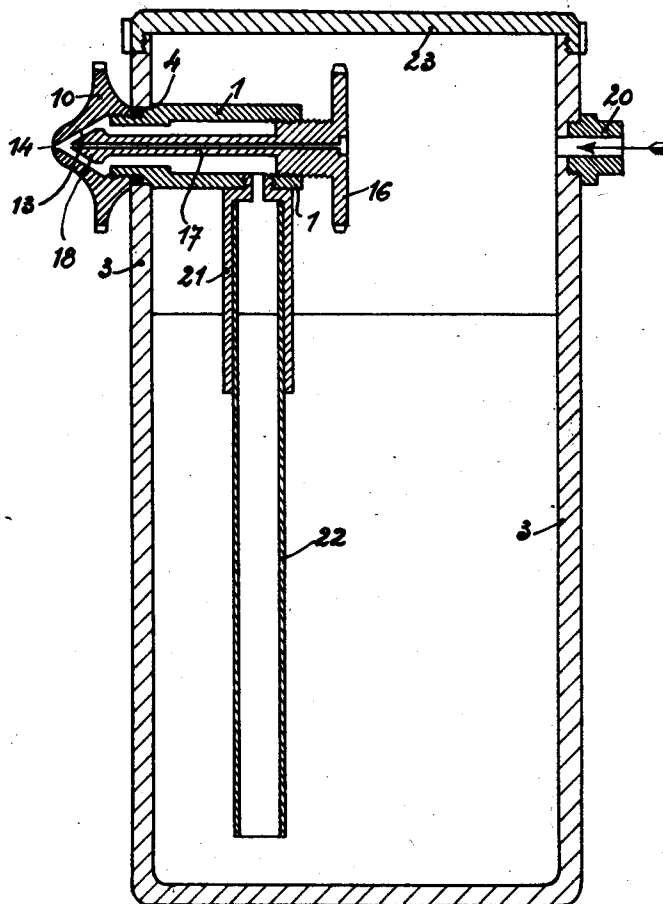
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Fig. 2



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## UNITED STATES PATENT OFFICE.

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## ATOMIZER.

Application filed September 8, 1927, Serial No. 218,271, and in France February 25, 1927.

The objects of my invention are:

First, to provide an atomizing device designed to be adapted on liquid atomizers of all kinds characterized by the fact that it allows of regulating the atomized jet at any time and at the user's will, by a simple action of screwing or unscrewing.

Second, to provide an arrangement which consists in causing the gaseous stream to flow in the axis of the outlet whilst the compressed liquid is admitted concentrically to it in such a manner as to come in contact with a nozzle of conical shape provided at the outlet.

The apparatus according to my invention comprises a frame carrying an inlet needle valve for the gaseous stream and a cap provided with an inner conical bearing which may be adjusted in relation to each other, either from the outside, the needle valve being in that case stationary and the cap movable or from the interior the cap then being stationary and the needle valve movable. The various parts of the device are assembled in an air-tight manner but they may nevertheless be easily and rapidly taken apart for repairing or cleaning purposes.

The appended drawings show as examples, two modes of construction of an atomizing apparatus arranged according to the invention.

Fig. 1 is a longitudinal sectional view of the first mode of execution of the atomizer in which the regulation is effected from the exterior.

Fig. 2 is a similar view of the second mode of execution in which the regulation is effected from the interior of the perfume container.

The apparatus shown in Fig. 1 comprises a tubular frame or body 1 provided with a screwthreaded bearing 2 which extends through the wall of the perfume reservoir 3 upon which rests on the inner side a shoulder 4 of the body 1, a nut 5 ensuring in combination with said shoulder the locking of the parts upon said wall.

The body 1 is provided inside with two longitudinal screwthreaded portions 6, 7 designed to receive a screwthreaded tubular member 8 which passes through an air-tight packing 9 clamped by the bottom shoulder of the nut 5. The tube 8 carries a head 10 which may either be milled or connected with a hand lever 11, it is provided with a cylindrical bore 12 and at its lower end with a conical head communicating with the atmosphere by an orifice 14 of very reduced section.

In the portion 6 of the body 1 screws a member 15 provided on the one hand with a head 16 for example to allow its manipulation and on the other hand with a cylindrical smooth extension 17 of lesser diameter terminating in a head 18 which forms a slight shoulder upon said part and presents the shape of a cone whose conicity is equal to that of the seat 13. A longitudinal bore 19 extends from the head 18 to the head 16 in the vicinity of which it is provided with an enlargement ending in a large flaring portion. The opposite wall of the reservoir or container is provided opposite the head 16 and co-axially with the device with an inlet nozzle for the compressed air or gas. Lastly, the body 1 is provided with a small transverse screwthreaded portion upon which is screwed the end of a tubular member 21 in which is fitted a glass or metal tube for the admission of the liquid in the bore of the body 1. It will be easily understood that the compressed gas will also cause the liquid to ascend in said bore in such a manner as to cause it to reach with a certain rapidity the conical head 13 in the shape of a very thin cylindrical film owing to the slight play existing between the head 18 of the needle valve and the bore 12 of the cap. The impact upon the head 13 will draw back the small fluid streams towards the center where they are atomized and carried outwards by the gaseous current admitted through the axial passage 19 of the needle valve 18.

It will be apparent that it suffices in order to regulate the atomized jet to tighten the screwthreaded cap 10 or to unscrew it by means of the lever 11 according as it is desired to increase or not the discharged jet. At the end of the operation the cap must be screwed tightly until the head 13 becomes locked upon the nozzle 18 the whole apparatus being thus hermetically locked.

In the modified form of construction shown in Fig. 2, the general disposition is essentially the same with the difference that the cap 10 is stationary and acts in the same manner as the nut 5 in the first case. The regulation is effected here by means of the needle valve by operating from the inside the head 16 which is integral with it after taking off the cover 23.

The operation of the device is the same as before.

It will be seen that in both cases the needle valve and the cap may be taken apart without any difficulty for looking over and cleaning the orifices.

Although for the purpose of more fully disclosing my invention I have illustrated in the drawing accompanying and forming a part of this specification two specific embodiments of said invention which have proved very efficient in practice, it will be understood that I do not limit myself to the particular constructions herein disclosed inasmuch as many modifications may be made therein without departing from the principle of my invention.

What I claim and desire to secure by Letters Patent of the United States is:—

1. An atomizing device comprising a liquid container, means having a duct therethrough in communication with the interior of the container below the liquid line therein and a discharge orifice opening to the atmosphere, a valve member having a passage therethrough adapted to control the discharge orifice, said passage through the valve member communicating with the interior of the container above the liquid line therein, and means through which fluid under pressure can be introduced into the container.

2. An atomizing device for liquids comprising a container, a tubular body extending through a wall of the container, a tube communicating with said tubular body extending into the container to a point below the normal height of liquid in the container, a discharge orifice at the end of the tubular body opening to the atmosphere, a needle valve disposed in the tubular body designed to control the discharge orifice in said tubular body, and a passage extending lengthwise through said needle valve and opening inside the liquid container above the normal height of the liquid therein.

3. An adjustable atomizing device for liquids comprising a container, a tubular body extending through a wall of the container, a tube in communication with said tubular body extending into the container to

a point below the normal height of the liquid in said container, a discharge orifice at the end of said tubular body opening to the atmosphere, a needle valve disposed in the tubular body and movable longitudinally relatively thereto for controlling the discharge orifice in said tubular body, and a passage extending lengthwise through the needle valve and opening in the liquid container above the normal height of the liquid therein.

4. An adjustable atomizing device for liquids comprising a liquid container, a tubular body secured in the wall of the liquid container and extending into the interior thereof, a discharge orifice at the outer end of said tubular body, an adjustable head at the discharge end of the tubular body, said head having on its interior a conical seat, a tube in communication with the interior of the tubular body extending into the container to a point below the normal surface of the liquid therein, a needle valve in the tubular body having a conical head for cooperation with the interior conical seat on the adjustable head, and a passage extending lengthwise through the needle valve and opening inside the liquid container above the normal surface of the liquid therein.

5. An adjustable atomizing device for liquids comprising a liquid container, a tubular body secured in the wall of the liquid container and extending into the interior thereof, a discharge orifice at the outer end of the tubular body, an adjustable head at the discharge end of the tubular body having an internal seating face, a tube in communication with the interior of the tubular body and extending into the container to a point below the normal surface of the liquid therein, a needle valve in the tubular body having one end provided with a seat for cooperation with the seat on the adjustable head, a nut locking the tubular body upon the container, and a packing about said tubular body adapted to be compressed by the nut and provide a stuffing box around the adjustable head.

In witness whereof, I have hereunto signed my name.

R. LEMOINE, NÉE TROUILLET.