June 7, 1938. V. MENDL 2,119,643

PRESSURE OPERATED DIFFUSER OF TOILET LIQUIDS

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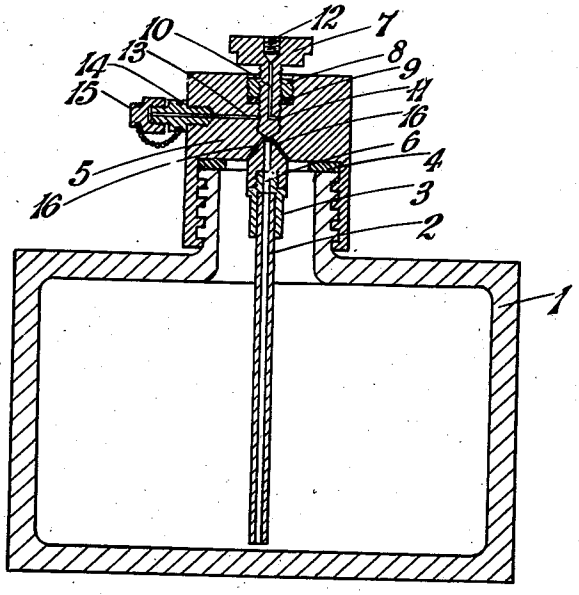

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PRESSURE-OPERATED DIFFUSER OF TOILET-LIQUIDS

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1 Claim. (Cl. 299—95)

This invention relates to spraying devices for use with bottles and like containers adapted to contain volatile liquid perfumes, eau de Cologne, lotions and the like.

The chief object of the invention is to provide a spraying device and container in which the liquid in the container is delivered in a finely atomized spray by the action of a gaseous pressure medium within the container and in which a finely adjustable valve device enables a quick and readily operated opening and closing of a supply conduit connecting the interior of the container to a mixing space with which also communicates a discharge passage and passages admitting some of the gaseous pressure medium to the mixing space to obtain a highly efficient atomizing action on the liquid as it leaves the supply conduit. Another object of this invention is to provide a spraying device with a single valve and seating.

In order that this invention may be clearly understood and readily carried into effect I have appended hereto a drawing showing in sectional elevation embodiment of the invention.

Referring to the drawing, the container is represented as a perfume bottle 1 having a threaded neck to which is affixed a closure cap 5, which effectively seals the bottle by means of a washer 4. An uptake tube 2 depends from the cap 5 and opens at its lower end near the base of the container 1, its upper end being sealed in a flanged and skirted cap 3 threaded into a central boss on the base of the cap 1. This cap 3 is bored in continuity with the bore of the tube 2 and with a central bore 6 in the cap 1.

The upper end of the bore 6 is normally sealed by the conical lower end of the screw 7, this screw having its thread tightly embraced by a packing ring 9 compressed by an annular collar or gland nut 8 threaded into a centrally tapped recess in the top of the cap 5.

The container 1 has a charge of compressed air or other suitable gaseous pressure medium in addition to its charge of liquid and consequently if the screw 7 is slightly rotated, e. g. by a milled head, some of the liquid in the container will be forced up the tube 2 and will enter the space in the cap 5 surrounding the now raised conical lower end of the screw 7. Debouching from this said space is a restricted outlet orifice 13 terminating at its outer end in a nozzle 14 fitted with a threaded closure cap 15, whereby liquid forced up the tube 2 will be to a certain extent atomized about the conical lower end of the screw 7 and will escape out through the nozzle 14 assuming the cap 15 is removed.

The atomizing action and rate of flow of the liquid are increased by providing one or more restricted passages 16 in the cap 5, extending upwardly and inwardly from the base of the cap to the conical seating formed inside the cap to receive the conical lower end of the screw 7 when it seals the passage 6. By this means the liquid and gaseous pressure medium are intimately mixed as they pass to the nozzle 14.

For the purpose of recharging the container 1 with compressed air or other suitable pressure medium a central bore 10 is formed in the screw 7 and the upper end of this bore is closed by a grub screw 12 having a conical lower end sealing the bore 10. The lower end of this bore 10 has a lateral outlet 11 communicating with the space surrounding the lower end of the screw 7, consequently if the grub screw 12 is removed, the screw 7 slightly raised and the cap 15 affixed an air compressor or pump can be connected to the cap 7 in place of the grub screw 12 and a further supply of compressed air can be admitted to the container 1.

By means of the present invention the spraying of a perfume or other liquid agent can be effected by a simple adjustment of the screw 7, and it is apparent that for a normally dimensioned scent bottle the milled head of the screw 7 can be manipulated by the forefinger of the hand holding the bottle.

What I claim is:—

Means for spraying scents comprising a receptacle containing the liquid scent and a gaseous pressure medium, a closure cap on said receptacle, a dispersion nozzle in said cap, a mixing space in said cap, a restricted conduit connecting the lower part of the interior of the receptacle to said mixing space, a number of restricted passages connecting the space in the receptacle charged with gaseous pressure medium to said mixing space, a valve in said mixing space, a valve seating common to the outlet ends of said restricted conduit and passages, said restricted passages being oblique in relation to the axis of travel of the liquid from said conduit to said mixing space, and means for operating said valve to adjust said valve to simultaneously connect said conduit and passages to said mixing space and also to connect said dispersion nozzle to said space, said valve and the means operating it comprising a screw with a conical valve head normally seated in the upper or outlet ends of said conduit and passages, a substantially axial bore extending along said screw to the top of the screw from a lateral opening above the conical head or end, and a threaded closure member in the top of said bore.

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