Dec. 30, 1952 A. CHRISTEN 2,623,784

PERFUME ATOMIZER

Filed Nov. 3, 1949

Fig. 2

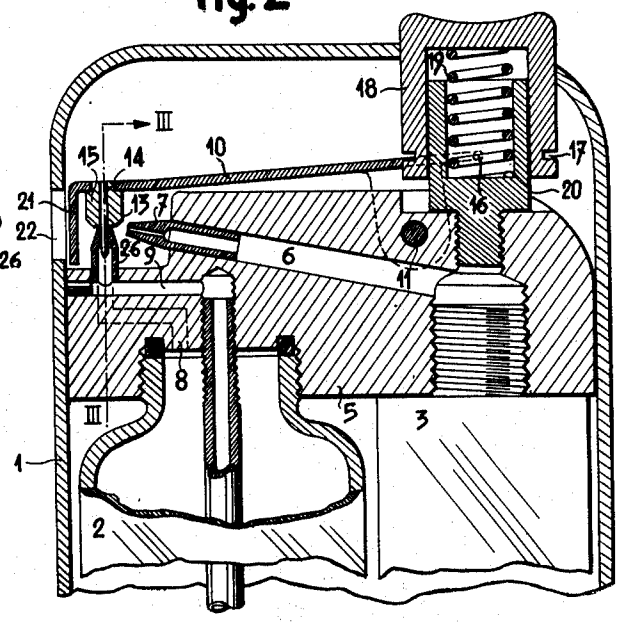


Fig. 3

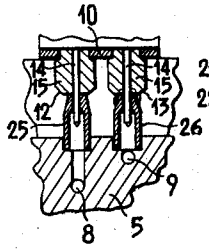


Fig. 1

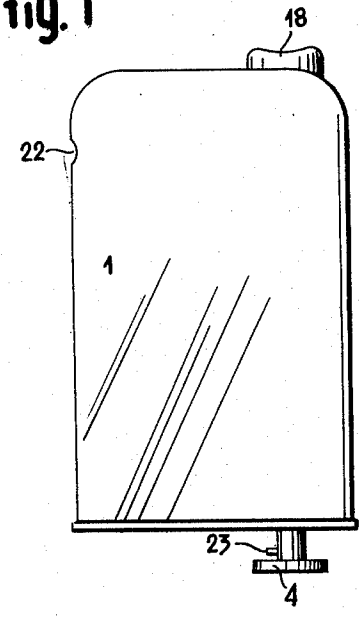
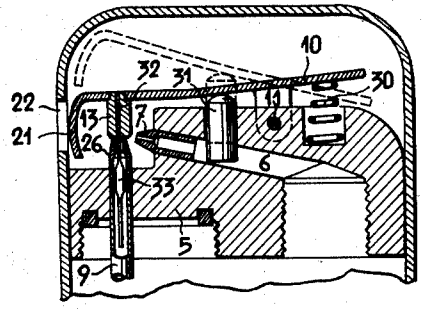


Fig. 4



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PERFUME ATOMIZER

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2 Claims. (Cl. 299—88)

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A large number of types of atomizers or scent sprays have already been proposed for atomizing perfumes and scents and they are generally satisfactory when they are used daily, but their operation becomes faulty when by reason of a protracted duration of nonuse, dry perfume drops clog the suction tube provided for the perfume entering the container of the atomizer or again the tube feeding air to said container.

Such atomizers include generally a perfume container into which opens a pipe for feeding into it the air that is to take the place of the atomized perfume and a perfume delivery tube through which said perfume is sucked by a jet of air produced when a hand controlled pump is actuated, the piston of which is submitted to the action of a spring and slides inside a cylinder.

Now my invention has for its object an atomizer of the type disclosed that is capable of removing the above mentioned drawback by reason of the fact that it includes means for closing the tubes through which the air is admitted and the perfume is delivered.

I have illustrated diagrammatically in accompanying drawing by way of example two preferred embodiments of my improved atomizer. In said drawings:

Fig. 1 is an outer view of my improved atomizer or scent spray.

Fig. 2 is a part sectional view through the plane containing the axis of the piston and that of the scent container.

Fig. 3 is a part sectional view through line III—III of Fig. 2.

Fig. 4 is a part sectional view of a second embodiment of a scent spray according to my invention.

In accompanying drawing only those members and parts necessary for a proper understanding of the invention have been illustrated in order to avoid an unnecessary overloading of the drawing.

The atomizer or scent spray illustrated in Figs. 1, 2 and 3 includes as in the case of other atomizers a casing 1 provided with an inner container 2 for the scent and a pump including a cylinder 3 inside which slides a piston that is not illustrated and that is submitted to the action of a spring and is controlled by hand operated member 4. The cylinder 3 and the container 2 are carried by a common support 5 provided with an air delivery channel 6 connecting the cylinder chamber 3 with a nozzle 7 on the outside of the support 5 while two further channels 8 and 9 open inside the container 2. The channel 8

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is adapted to provide for the entrance of air inside the container 2 while the scent is being sucked through the chanel 9 and lower tubular extension thereof by reason of the pressure exerted by the air jet passing out of the nozzle 7. The casing 1 is provided with an opening or gate 22 registering with output end of the nozzle 7.

As illustrated, the atomizer or scent spray according to the invention is provided with means for closing the channels 8 and 9 that are submitted to an elastic action for holding said channels normally closed. These closing means are constituted in the embodiment illustrated by way of example by two closing members 12 and 13 carried by an actuating member, in the case illustrated a lever 10 pivotally mounted on a spindle 11, rigid with the support member 5. Each closing member 12, 13 carries a needle valve 14 and a washer 15 of yielding and elastic material. The member 12 cooperates with an air inlet nozzle 25 associated with the channel 8 while the member 13 cooperates with a nozzle 26 associated with the scent channel 9.

The lever 10 carries at one end a semi-circularly recessed part provided with two studs 16 engaging freely a groove 17 provided in the control member 18 submitted to the action of a spring 19 and sliding over a guide member 20 rigid with the carrier 5. The lever 10 carries furthermore a shutter member 21 adapted to close the gate 22 in the casing wall referred to hereinabove.

The operation of the atomizer described is as follows:

In its inoperative position illustrated in the drawing, the spring 19 projects the control member 18 through the wall of casing 1 whereby the needle valves 14 are held by the lever 10 inside the bores provided in the corresponding nozzles 25, 26 and furthermore the packings or washers 15 are urged against the ends of said nozzles. Thus the channels 8 and 9 are completely sealed and the possible losses of the scent contained in the container 2 through evaporation are negligible.

After disengagement of the two parts of a bolt of which only the part 23 is illustrated, and that holds the hand operated control member 4 into its collapsed position against the action of its spring, the operator should set his or her forefinger on the control member 18 and his or her thumb on the now released member 4 after which the operator exerts a double thrust in antagonism with the action of the spring 19 and

with that of the spring returning the pump piston back.

Inspection of accompanying drawings shows that such a thrust produces

The rocking of the lever 10 through an axial shifting of the pusher member 18 and thereby a release of the needle valves 14 that move away from the corresponding nozzles and also an uncovering of the gate or opening 22.

The actuation of the pump piston in antagonism with its spring so as to produce the delivery of a stream of air through the nozzle 7 and thereby a suction of the scent through the channel 9, which provides the atomization and projection of the scent through the gate 22 of the casing.

When the operator releases the control members 4 and 18, the spring 19 produces the reengagement of the needle valves inside the corresponding nozzles while the return spring of the pump moves the member 4 back into its starting position as illustrated in Fig. 1.

Thus through each actuation of the pump the operator produces automatically the opening of the channels 8 and 9, while their closing is obtained automatically by the spring 19 as soon as the operator releases the member 4 controlling the atomizer pump. The succession of such engagements and releases of the needle valves inside the corresponding nozzles produces an automatic cleaning of said nozzles whereby if for any unforeseeable reason whatever a dried drop of scent were to close one of said nozzles, a further actuation of the atomizer provides automatically for their cleaning and restores consequently the atomizer into its prior operative conditions.

In the embodiment illustrated in Fig. 4, the lever 10 pivotally secured at 11 to the common support 5 is submitted directly to the action of a spring 30 bearing against said support 5. The member controlling said lever is constituted by an auxiliary piston 31 slidably carried in a recess provided in the support 5 and opening into the air-delivery channel 6.

The closing members 12 and 13 are similar to those described with reference to Figs. 2 and 3; however they are provided with needle valves 32, the length of which is sufficient for them to remain always engaged inside the corresponding nozzles 25 and 26 while in contradistinction, their diameters are clearly smaller than the diameter of the channels bored in said nozzles 26 and 26.

Furthermore, the channels 8 and 9 are rectilinear so as to avoid as far as possible any settling of scent drops therein.

The operation of this atomizer is similar to that of the atomizer described with reference to Figs. 1, 2, 3; however the actuation of the lever 10 in opposition to its return spring 30 is performed through the auxiliary piston 31 that is submitted to the air pressure prevailing in the channel 6 when the atomizer pump is being operated. This provides consequently an entirely automatic actuation of the lever 10. As described hereinabove, and as illustrated in Fig. 4, the needle valves 32 remain always in engagement with the inside of the nozzles 25 and 26. The length of said needle valves is sufficient for them to pass throughout the channels 8 and 9 and to enter the actual scent container when the said channels 8 and 9 are closed, as illustrated in full lines. Thus when the lever

10 is actuated the movements of said needle valves produce a cleaning of the channels 8 and 9 throughout their length. To allow the suction of scent through the nozzle 26, the diameter of the bore through the latter should be larger than that of the needle valve 32 passing through it. Furthermore in order to prevent said needle valve from forming too considerable a hindrance in the path of the air jet passing out of the nozzle 7, said needle valve is provided with a flat part 33 located immediately above the nozzle 26 when the closing member is raised and inoperative. This flat part 33 does not form then an objectionable hindrance for the jet of air passing out of the nozzle 7. Obviously said flat part 33 should have a breadth that is not greater than the bore in the nozzle 26. Furthermore, the needle valves are secured to the lever 10 through the agency of the sealing members 15 made of yielding and elastic material whereby said needle valves do not risk by any means becoming wedged inside the nozzles through a possible angular movement of the lever 10.

From the preceding disclosure and from inspection of accompanying drawing, it is readily apparent that the atomizer or scent spray disclosed has considerable advantages over the conventional arrangements of similar type. Obviously the two embodiments described by way of example hereinabove may be modified in their structural details without unduly modifying thereby the scope of the invention as defined in accompanying claims.

What I claim is:

1. In a perfume atomizer, the combination, comprising, a container, an air inlet conduit extending through the wall of the container, a perfume outlet conduit extending through the wall of the container at least the perfume conduit having adjacent the outlet a portion of uniform cross section, an air conduit extending through the wall of the container and having an outlet opening adjacent to the perfume outlet, and lever means movably mounted on the container and in one position adjacent the perfume outlet, needles carried by the lever means and respectively penetrating and thereby cleaning the outlets of their related air inlet conduit and perfume outlet conduit, elastic washers carried by the lever means for mounting each needle and closing their related inlet and outlet when the lever means is inactive, said needles being of a length substantially equal to the lengths of their conduits, and the needle in the perfume outlet having a flattened portion defining a plane parallel to the access of the air outlet, and, upon movement of the lever means from closing position being placed in front of the air outlet and in a plane parallel to the axis thereof.

2. In a perfume atomizer according to claim 1 wherein the lever means is fulcrumed on the container, and a plunger for controlling the lever and subject to the pressure within the air outlet conduit when the atomizer is operated.

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REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
1,859,973	Kollstede	May 24, 1932
1,900,087	Aronson	Mar. 7, 1933