

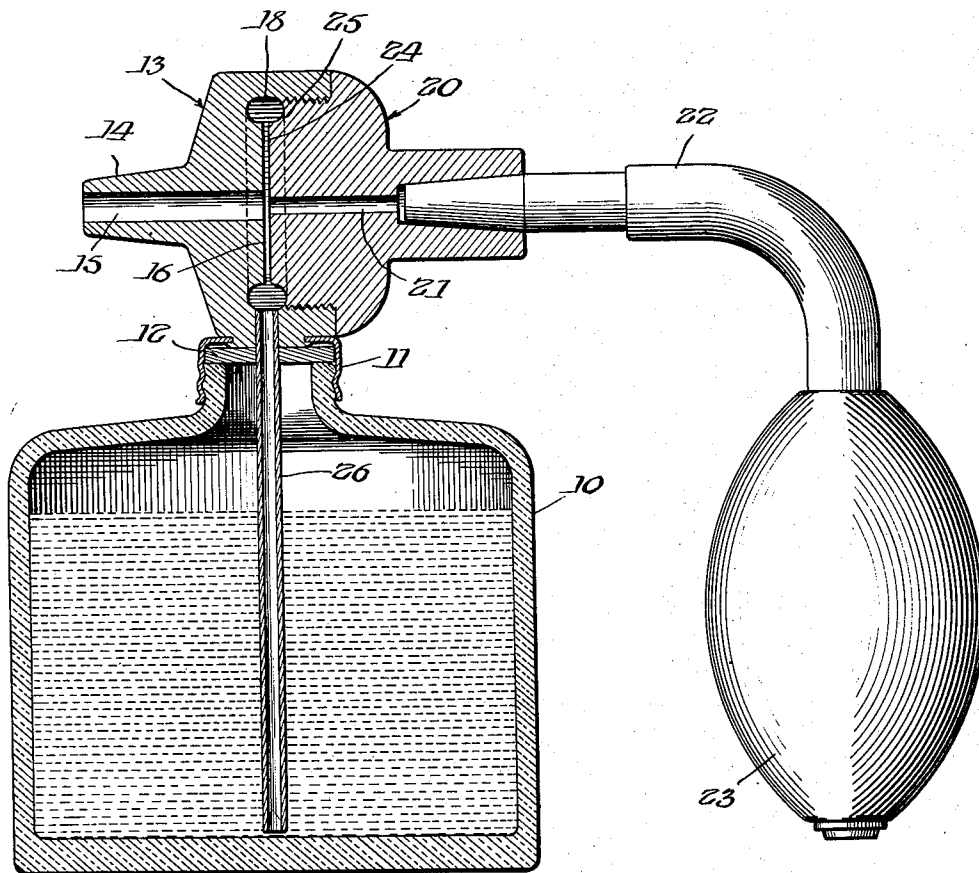
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ATOMIZING DEVICE

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ATOMIZING DEVICE

Harold Holmboe, Chicago, and Andy B. Cosper,
Crestwood, Ill.Original application February 21, 1936, Serial No.
65,156. Divided and this application May 7,
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2 Claims. (Cl. 299—140)

The invention relates to apparatus for atomizing liquids and has particular reference to an improved atomizer for perfumes and similar liquids.

5 An object of the invention is to provide a device for atomizing liquids which will embody novel means maintaining by capillary attraction a supply of liquid where the same may be drawn into the air stream and which will effectively
10 regulate the quantity of liquid delivered thereto.

Another object of the invention is to provide apparatus for atomizing liquids embodying spaced capillary members which will maintain an adequate supply of liquid for injection into
15 the air stream whereby the same will be delivered by said air stream as a finely divided spray.

Another object resides in the provision of an atomizing device which will be relatively simple in construction embodying only a few parts and
20 which will therefore be cheap to manufacture.

With these and various other objects in view, the invention may consist of certain novel features of construction and operation as will be more fully described and particularly pointed
25 out in the specification, drawing and claims appended hereto.

In the drawing which illustrates an embodiment of the invention and wherein like reference characters are used to designate like parts—

30 The figure shown is an elevational view, parts being shown in vertical section, of an atomizer embodying the features of the present invention.

The numeral 10 indicates a jar or container providing a reservoir for the liquid to be
35 atomized. The neck of said jar is formed with threads for receiving the threaded cap 11, there being interposed between the jar and said cap a washer 12. The cap is suitably fixed to one section 13 of the atomizer and which section is
40 formed with a protruding nose portion 14 having a coaxial bore or passage 15 which extends through the said section. The rear of said section is provided with a recess, the base of which provides a flat surface 16 having a groove 18
45 surrounding the flat surface. The walls of the recess in section 13 are provided with threads so that the second section 20 of the atomizer can be suitably threaded to its companion section. This latter section is likewise provided
50 with a coaxial bore 21 which connects with the tubing 22 terminating in the pressure bulb 23. The face 24 of the section is flat and is likewise surrounded by a groove 25 which together with
55 groove 18 forms an annular passage within the

atomizer surrounding the space between the flat surfaces 16 and 24.

When the sections are associated as shown in the drawing, the flat surfaces are spaced relatively close to each other. These surfaces form
5 a capillary space for retaining a quantity of the liquid to be atomized. The groove surrounding said capillary space and formed by 18 and 25 communicates with a depending tube 26 fixed to
10 the section 13 and which passes through the washer 12. Said tube extends into the reservoir 10 and terminates relatively close to the bottom of said jar so that the atomizer will operate until practically all the liquid has been removed
15 from said jar.

It will be noted that the passage 21 of section 20 is much smaller in diameter than passage 15 of section 13. By reason of this construction the air stream flowing through the passages produces a suction effect at the capillary space
20 between the flat surfaces 16 and 24. Accordingly, the air is exhausted from said space, from the passage surrounding said space, and from the tube, whereupon liquid from the reservoir will enter the tube and will eventually be supplied to the air stream flowing through the passage. It will be understood that the annular
25 groove will be maintained substantially full of liquid at all times and that the capillary space is supplied with said liquid by the groove. The capillary space effectively controls the quantity
30 of liquid supplied to the passage 15 and thus the quantity of liquid atomized and delivered as a fine spray by the air stream. However, the supply is continuous as long as a fluid is caused
35 to flow through the passages 21 and 15.

The amount of liquid injected into the fluid, for example, the air stream, and accordingly discharged by said atomizer will vary as the velocity of said stream varies, since the suction
40 induced thereby varies directly as the velocity. Also the size of the spacing between the capillary members will have the effect of varying the quantity of liquid supplied. The passage formed by the capillary grooves 18 and 25 completely
45 surrounds the capillary space and thus the liquid is supplied to said capillary space at all points around the circumference thereof. This form of atomizer has been found to function very satisfactorily in atomizing perfumes and similar
50 liquids and the structure is preferred in applications of this general character.

This is a divisional application of our co-pending case Serial No. 65,156 filed February 21, 1936, relating to Apparatus for atomizing liquids, 55

which is now Patent No. 2,171,932, issued Sept. 5, 1939.

The invention is not to be limited to or by details of construction of the particular embodiment thereof illustrated by the drawing, as various other forms of the device will of course be apparent to those skilled in the art without departing from the spirit of the invention or the scope of the claims.

10 What is claimed is:

1. An atomizer of the character described, comprising longitudinally aligned separate sections, each having a passage therethrough in axial alignment with the other, opposed parallel faces on said sections pierced by said passages, coating abutments on said sections serving to positively maintain a determined capillary spacing between said parallel faces, respective annular grooved portions surrounding said parallel faces of a longitudinal dimension many times greater than the spacing between said faces and serving to maintain a continuous supply of liquid completely encircling the capillary space be-

tween said faces, said passages being constructed and arranged to provide a suction effect in the capillary space, and a duct member leading directly from the annular space formed by said grooved portions to the liquid to be atomized. 5

2. An atomizer of the character described, comprising two longitudinally aligned sections screwed together and having coating abutting portions, each of said sections having an annular grooved portion which intersects a respective flat face, the sections being so proportioned that the space between the opposed flat faces is of capillary magnitude of the order of a few thousandths of an inch, longitudinally aligned passages in said sections piercing said flat faces and constructed and arranged to provide a suction effect in the capillary space between said faces, and a liquid-conveying tube leading directly from the annular space formed by said grooved portions to the liquid to be atomized. 20

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