

April 12, 1938.

C. W. STUDER ET AL

2,114,118

ODOR DISPENSER

Filed Aug. 6, 1934

2 Sheets-Sheet 1

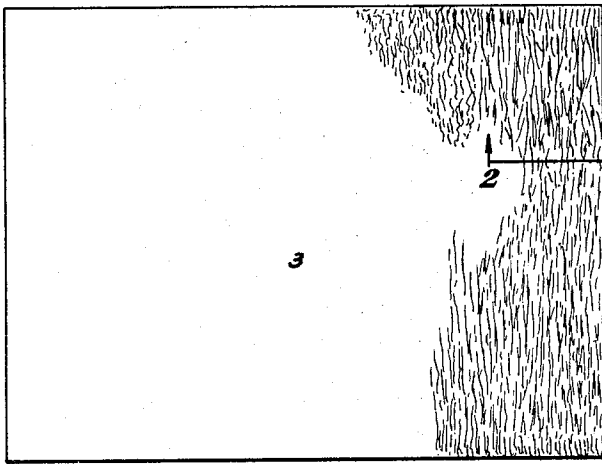


Fig. 1

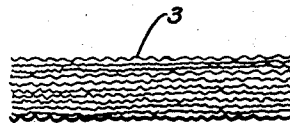


Fig. 2

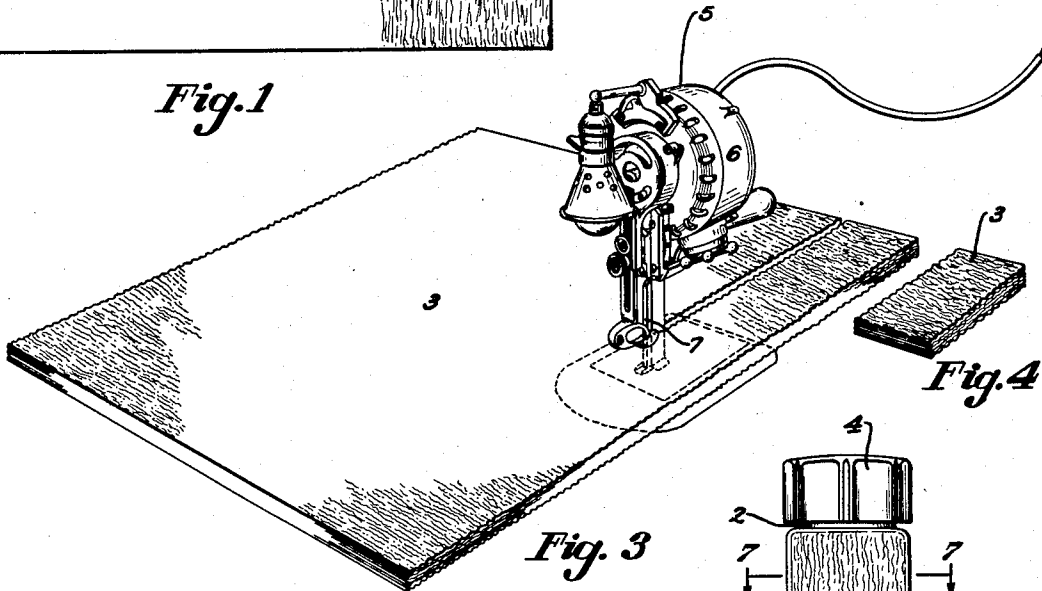


Fig. 3

Fig. 4

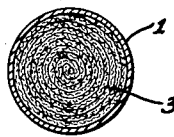


Fig. 7

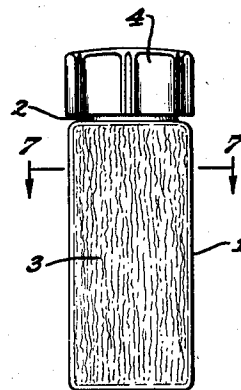


Fig. 6

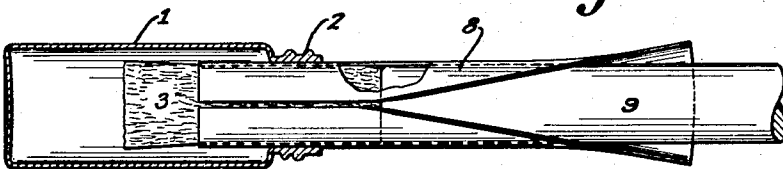


Fig. 5

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2 Sheets-Sheet 2

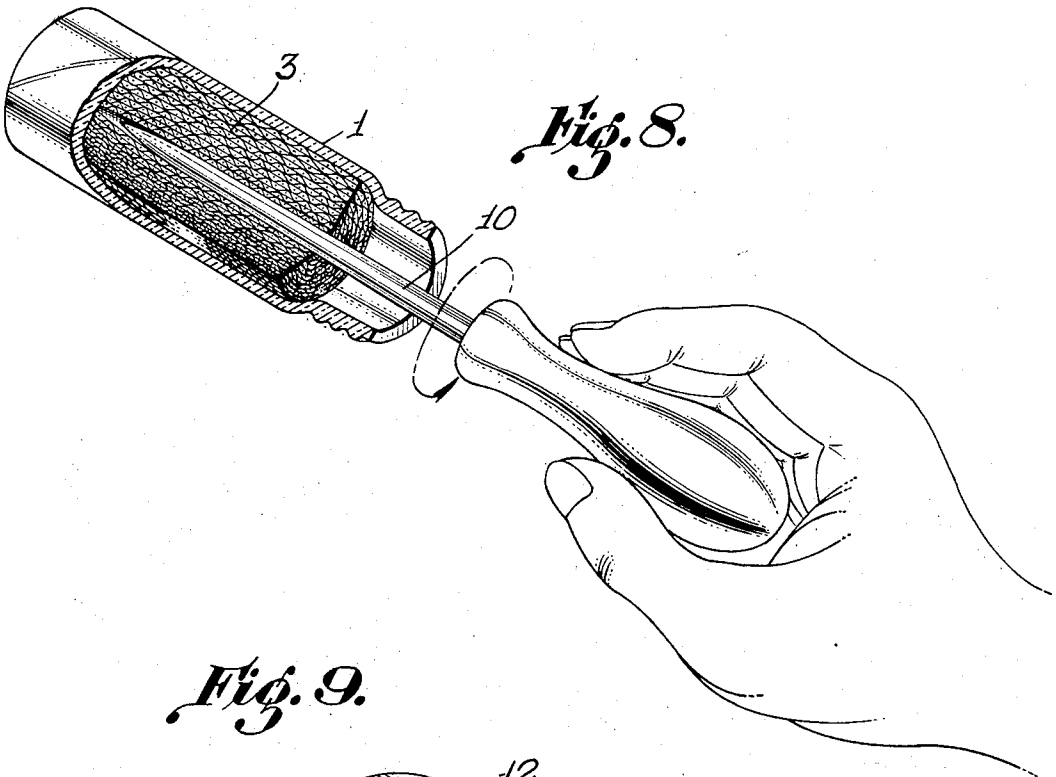
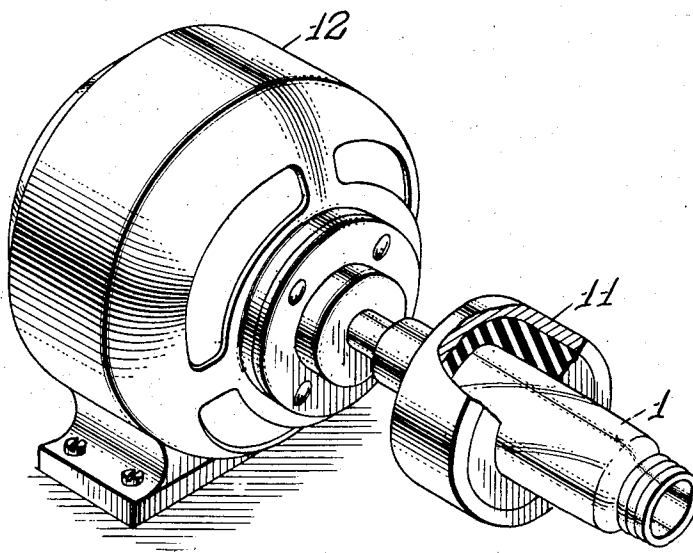


Fig. 9.



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UNITED STATES PATENT OFFICE

2,114,118

ODOR DISPENSER

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Application August 6, 1934, Serial No. 738,574

3 Claims. (Cl. 299—20)

The present invention relates to odor dispensers or air conditioners in general and particularly to a separately salable unit comprising a vial having a removable cover and containing a volatile redolent element. More specifically the invention comprises an odor-dispensing vial filled with an absorbent which is saturated with a volatile oil, the vial being provided with a removable cap to prevent unintentional vaporization when the unit is not in use.

It is an object of the present invention to provide a new and improved odor dispenser. It is another object of the invention to provide a new and improved odor dispenser in which a volatile medium is absorbed by an absorbent capable of surrendering practically all of the medium it contains. Still another object is the provision of an odor dispenser unit having an open mouth adapted to be closed by a cover, the volatile element being carried within the unit so that it cannot fall or run through the open mouth with the container in an inverted position. Still another object is the provision of a new and novel combination of a volatile element and an absorbent therefor. A still further object is to provide a new and improved method of manufacturing air-conditioning units. Still another object is the provision of an improved absorbent for volatile oils which is capable of surrendering practically all of the oil it holds. These and other more specific objects will appear upon reading the following specification and claims and upon considering in connection therewith the attached drawings to which they relate.

In the drawings in which a preferred form of the invention is disclosed:

Figure 1 is a sheet of the absorbent material used in the present invention, the crepe or grain of the material being indicated as running up and down the sheet;

Figure 2 is an enlarged section through the sheet shown in Figure 1, being taken upon the line 2—2 thereof, and shows the plies of material going to make up the sheet;

Figure 3 illustrates the method of cutting the sheet shown in Figure 1 into strips in which the grain runs crosswise;

Figure 4 is a showing of a section of absorbent formed by cutting the strip illustrated in Figure 3;

Figure 5 discloses the method of inserting the absorbent into the vial;

Figure 6 discloses the complete odor dispenser unit with the absorbent within the vial saturated with volatile material and the mouth of the vial closed by a removable cap;

Figure 7 is a section thru the vial upon the line 7—7 of Figure 6;

Figure 8 illustrates a method by which the absorbent material within the vial may be expanded;

Figure 9 illustrates the method by which the absorbent material within the vial may be expanded centrifugally.

According to the present invention the air-conditioning unit comprises a glass vial including a reduced mouth which is exteriorly screw-threaded and which is filled with an absorbent saturated with an unshown volatile oil, the mouth of the vial being closed to prevent unintended vaporization of the oil when the unit is not in use by a removable interiorly threaded cap, which may be of any suitable material such as a phenol condensation product.

The absorbent is an absorbent cellulose product, such as cellulose wadding, which it has been discovered has the very desirable property of delivering up or surrendering practically all of the volatile oil with which it is saturated. The absorbent is usually obtained in a large sheet, as shown in Figure 1, which is composed of the plurality of plies, layers, or sheets of the material, as shown in Figure 2. It has been found that in the use intended 15 plies is the most desirable thickness.

As is clearly illustrated in Figure 1 the material is creped in one direction, which direction is transverse to the fibres of the material. As shown in the figure the crepe runs up and down the sheet. The relationship of the crepe of the absorbent to the container within which it is positioned has been discovered to be of great importance. With the absorbent arranged so that the crepe extends in the direction of the open mouth of the vial, that is, parallel to the longitudinal axis of the vial, the volatile material is found to be more readily delivered to the vial mouth. This is explained on the theory that the material is in effect an infinite number of capillary tubes which run as the crepe runs so that the oil held by the absorbent moves lengthwise of these tubes more easily than cross-wise thereto.

The sheets of absorbent material are much greater in size than the vial and it is necessary that sections be cut from the sheet which are adapted to be positioned therein. This cutting operation is illustrated in Figure 3 in which an electric cutter which includes a motor and a vertically reciprocated sharp blade moves across the sheet of absorbent and transversely

to the crepe or grain thereof. This cutting operation must be done with particularity and by a sharp instrument and preferably without compression of the material. A rotary knife can be substituted for the vertically reciprocating blade 7, but preferably no backer should be provided which can cooperate with the cutting surface to compress the absorbent material. By cutting the absorbent with a sharp edge without compression the tubes of the grain are not compressed and closed and the individual plies are not mashed together, the result being that the flow of volatile oil therethrough is not interfered with.

Each strip cut from the sheet of absorbent material is again cut into a section of reduced length by the cutter, as shown in Figure 4. This section of material has a width which is substantially equal to the length of the glass vial from its bottom surface to the reduced mouth. It has a length sufficient that when the section is rolled spirally upon itself it will completely fill the interior of the vial, as shown in Figures 6 and 7, and will exert only a very slight pressure against the walls of the vial.

The insertion of the absorbent into the container is illustrated in Figure 5. The section of absorbent, see Figure 4, has been rolled upon itself so that each ply of the material forms a spiral, the creping or grain of the material running parallel to the longitudinal axis of the roll. In this roll form the absorbent is encircled by a thin sheet metal member or shaper 8, which is compressed sufficiently to permit its entrance into the mouth 2 of the vial. A plunger 9 is then forced into the shaper 8 and a force exerted thereon to move the absorbent through the shaper and into the interior of the vial, as illustrated in Figure 5. With the absorbent in the vial the natural tendency to fill the interior thereof can be assisted as by the manual insertion of a needle or sharp pointed instrument 10 as is clearly illustrated in Figure 8. Another method of accomplishing the expansion of the absorbent to fill completely the vial is to insert the vial into a resilient chuck 11 mounted upon the shaft of a rotating motor 12, as illustrated in Figure 9. By this last method the high speed rotation of the vial creates a centrifugal force within the absorbent which throws it against the outer walls of the vial.

With the absorbent in the vial the volatile oil is added thereto in sufficient quantities to completely saturate the absorbent. The oil in the vial is positioned partially in the fibres of the individual plies, partially in the voids between the fibres of an individual ply, and partially between the individual plies. The placing of the removable cap 4 upon the threaded mouth 2 of

the vial completes the manufacture of the unit. The removal of the cap exposes the absorbent to atmosphere through the vial mouth and the vaporization of the volatile oil immediately begins. Capillary action results in the delivery of all of the volatile oil to the vial mouth.

The unit may be used in a great many connections but is particularly adapted for use in a suction cleaner in which a moving stream of air can be passed over the absorbent.

We claim:

1. The method of manufacturing an odor dispenser comprising the placing together of two or more plies of a creped absorbent material with the creping running in the same direction to form in effect a multiplicity of capillary tubes extending in the direction of the creping, cutting the material transversely of the creping without compressing by a sharp cutter to avoid closing the capillary tubes to obtain a desired width, rolling the resulting strip into a spiral to form a cylinder with the creping extending longitudinally, enclosing the cylinder in a sleeve and inserting the sleeve into the neck of a vial, forcing the cylinder from the sleeve into the vial, and then expanding the cylinder of absorbent in the container by forcing a pointed elongated element thru the neck of the container and thereinto.

2. The method of manufacturing an odor dispenser comprising the placing together of two or more plies of a creped absorbent material with the creping running in the same direction to form in effect a multiplicity of capillary tubes extending in the direction of the creping, cutting the material transversely of the creping without compressing by a sharp cutter to avoid closing the capillary tubes to obtain a desired width, rolling the resulting strip into a spiral to form a cylinder with the creping extending longitudinally, enclosing the cylinder in a sleeve and inserting the sleeve into the neck of a vial, forcing the cylinder from the sleeve into the vial, and then expanding the cylinder of absorbent outwardly against the walls of the container by centrifugal force thru rotating the cylinder about its major axis at high speed.

3. The method of preparing an absorbent for volatile liquids comprising rolling a strip of creped absorbent material into a cylinder with the crepe extending in the direction of the longitudinal axis thereof, enclosing the cylinder in a sleeve and inserting the sleeve into the neck of a vial, forcing the cylinder from the sleeve into the vial, and expanding the cylinder to fill the vial.

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