

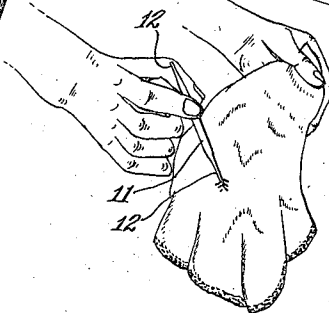
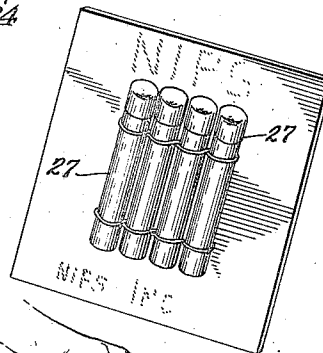
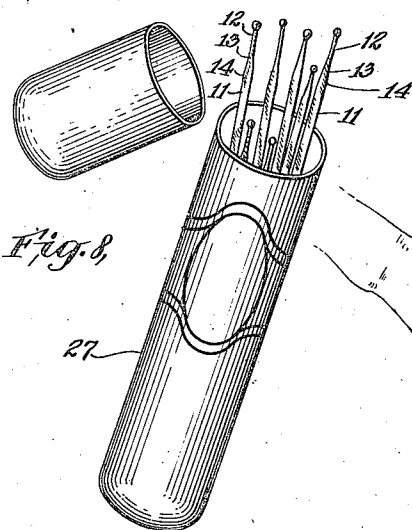
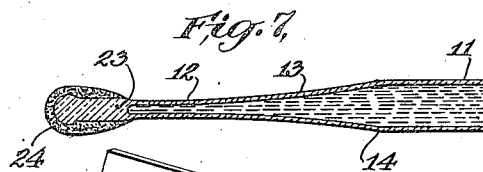
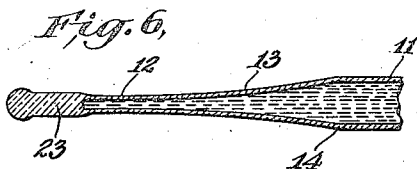
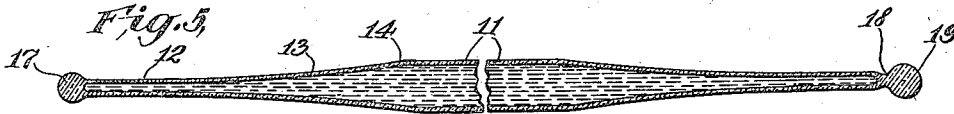
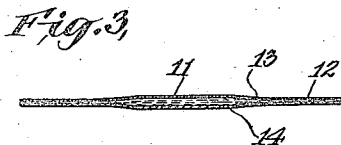
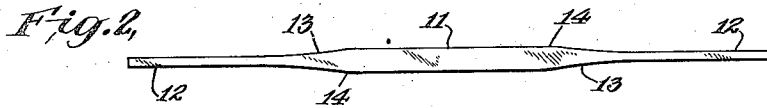
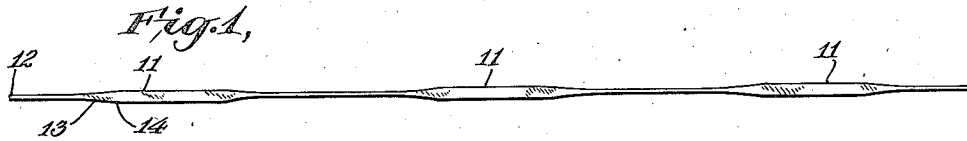
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W. GOODCHILD

MANUFACTURE OF CAPILLARY CONTAINERS AND DISPENSERS

Filed Feb. 25, 1921



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MANUFACTURE OF CAPILLARY CONTAINERS AND DISPENSERS.

Application filed February 25, 1921. Serial No. 447,856.

To all whom it may concern:

Be it known that I, WALTER GOODCHILD, a citizen of the United States, and a resident of Oakland, in the county of Bergen and State of New Jersey, have invented certain new and useful Improvements in the Manufacture of Capillary Containers and Dispensers, of which the following is a specification, reference being had therein to the accompanying drawing.

The invention relates to receptacles that are specially designed to contain and dispense perfumes, or other precious liquids and fluids, which it is expedient or advisable to use but sparingly at any one application. To speak only of perfumes, with which the present invention is chiefly concerned, it is well known that according to custom they are put up and sold in fluid-ounce quantities, contained in bottles of various shapes, more or less tightly corked or stoppered. This antiquated method of handling and using valuable perfumery is extravagantly wasteful and irrational. A considerable quantity of the bottled perfume inevitably evaporates, because of frequent removal and replacement of the cork or stopper, and the subtle vapors then escaping cause a constant depreciation, which is greatly aggravated if through inadvertence or neglect the bottle is left uncovered. Then a bottle may be overturned and the contents thereof spilled. Besides, there is no guide ordinarily connected with a bottle indicating what is the correct amount of perfume to use, whether it be fresh and strong, or old and aired. Therefore, one can only guess the proper amount, which often leads to using less than what is needed and falling short of the end desired, or else to applying more than good taste calls for, which is suggestive of vulgarity. These are some of the defects which the present invention aims to remedy.

An important object of the invention is to provide a convenient and economical way of using an expensive perfume, permitting it to be readily accessible and employed in limited quantities sufficient to satisfy all ordinary requirements.

Another object is to produce an improved article of the class referred to, enabling the manufacturer thereof to take a small amount of rare perfume and subdivide the same into

tiny portions, each capable of yielding the fragrance suitable for any known purpose and yet correctly gauged to avoid excessive use, thereby eliminating waste and keeping within the bounds prescribed by true elegance of manners and refined propriety.

Still another object is the provision of a practical substitute for the old-time perfumery bottle, which shall be both a container and a dispenser, being made to hold, until wanted, enough of a choice perfume to answer for any one occasion, and eventually adapted to release the same for gradual application, in such a manner as to insure perfect distribution.

A further object is the production of a combined container and dispenser of tenuous dimensions, including a slender body with diminutive extremities, adapted to receive a perfume and retain it by capillarity, and to be sealed hermetically at opposite points, whereby the perfume shall be rendered proof against evaporation, though of minute quantity and kept for an indefinite period, the contents becoming available through breakage of the seals and the draining thereof being promoted by simple contact at either end with the fabric or garment to which the perfume is applied.

An additional object is to devise a container and dispenser of elongate tubular formation, a certain number of which will admit of a predetermined volume of finest perfume being divided into fractional amounts received therein, the separate tubes constituting as many units of uniform capacity, with ample contents in each for a single application, thereby making it possible to procure in comparatively inexpensive quantity what is generally regarded as exclusive perfumery, the several units forming together, when neatly sheathed or incased, a dainty little packet of small enough compass to find room in a lady's purse or handbag, so that it may be treated as a portable toilet article for casual usage at the opportune time and place, the packets being all symmetrical and consequently lending themselves to advantageous display upon a card or in show-cases pertaining to establishments where articles of this character are usually obtainable.

Other objects and advantages of the in-

vention will in part be obvious and in part be more fully brought out in the following description.

The invention consists in the novel improvements, parts, combinations, and features of construction herein shown and described.

Referring to the drawing,—

Figure 1 is a side view of glass tubing, which is contracted at regular intervals to form bodies of approximately equal lengths separated by reduced portions that can also be equally parted, the latter constituting capillary terminals to the said bodies when severed from one another;

Fig. 2 is an enlarged view of a section of the said tubing, from which can be evolved a capillary container and dispenser of the type before mentioned;

Fig. 3 is a longitudinal section of a tubular container and dispenser of normal size, the same being shown filled with a liquid, as perfume, retained therein by capillarity, though both ends of the tube are still open;

Fig. 4 is a side view of a like tube with sealed ends;

Fig. 5 is a broken sectional view, considerably enlarged to show clearly the individual formation of each seal on the tube;

Fig. 6 is a fragmentary sectional view, representing a modified form of seal;

Fig. 7 is a view similar to the preceding, showing an addition to this modified form;

Fig. 8 illustrates a convenient way of grouping a number of containers and dispensers, filled, sealed, and placed together in a sheath or case;

Fig. 9 indicates how the packets of containers and dispensers, charged with perfumes, can be displayed on a card, in various assortments; and

Fig. 10 shows an approved method of applying the perfume to a handkerchief or any fabric directly from the container and dispenser after breaking the seals thereof at both extremities.

This improved container and dispenser is readily made of glass tubing, which initially may be of uniform diameter throughout, equal for instance to the thickest portion of the tubes represented in Figs. 1, 2, and 3. The portion here referred to is designated by the numeral 11, and intended to constitute the body of the container and dispenser. It is deemed preferable to produce a number of tubes simultaneously, in order to expedite the manufacture, and, therefore, glass tubing of sufficient length is selected to admit of being cut up in as many distinct sections as can be conveniently handled by the operator. In carrying out the present invention, the process followed in producing a plurality of tubes is to subject the glass tubing to partial fusion at regular intervals, drawing it in the meantime, so that the heated portions

will become thinner than those which are unheated. The result, as exemplified in Fig. 1, is to reduce the tubing both externally and internally, thereby making it of differential bores and diameters occurring in alternate succession throughout its length. The reduced portions are denoted by the reference numeral 12. These portions interconnect the thicker body portions 11, to which they are joined by tapering necks 13 and sloping shoulders 14, naturally formed in drawing the unheated from the heated parts of the tubing. The latter having been partly fused and drawn, as recited, the reduced portions 12 and cut in two, so as to divide up the tubing into similar sections, each having a relatively thick body 11, reduced terminals 12, and intermediate necks and shoulders 13, 14, gradually inclined between the same. Each section thus constitutes a distinct tube. The body portion 11 of each may be made to vary in capacity, but the reduced portions 12 are always drawn sufficiently fine to form capillary ends or terminals.

The filling of the separate tubes, with perfume, may be effected according to any approved process, for instance by suction or pressure, or a combination thereof through any suitable instrumentality. Owing to the capillary nature of the extremities 12 of the tubes, it is not necessary to seal them immediately after filling, as the perfume will be retained even if both ends of a tube are temporarily left open, and laid down flat in the manner shown in Fig. 3. But, in practice, it is preferred to seal one end of each tube as soon as the filling thereof is accomplished, the other end of the tube remaining open until a number of similarly filled tubes, closed at one extremity, can be gathered for a continuous operation in closing the opposite extremity. The first end may be sealed in any known manner. For example, this end may simply be exposed to a flame, so as to close it by fusion, and leave thereon a small protuberance 17, as indicated in Figs. 4 and 5.

To produce an effective and reliable seal with a flame applied to the second end of the tube, that is, the second to be closed, requires particular care and attention, because of the perfume then filling the tube and subject to expansion under heat, which unless relieved would prevent perfect fusion. In order to effect the sealing properly, part of the tube adjoining the said second end is preheated, so as to relieve it of surplus filling, which is temporarily replaced by the expanding contents of the tube. Then the end is subjected simultaneously to the action of cold air and heat, so that the expanded contents will be contracted, which allows the tube also to be contracted, as at 18, and further closed by fusion toward the outer extremity, as at 19, Figs. 4 and 5. A jet or blast of cold air will cause the required contraction of the liquid

and chilling of the preheated part of the tube, while the outer extremity thereof is fused, for instance, by a flame directed against it. In fusing the latter-named extremity, a spherical protuberance may also be formed thereon, similar to that at the opposite end of the tube, previously mentioned. It will be understood that the cooling of the intermediate portion 18 contracts the tube end while it is relieved of internal pressure by contraction of the filling. Consequently, the melting glass at the extremity last subjected to the flame is driven inward, by the external atmospheric pressure, to the extent of closing all pores or interstices that would permit leakage.

Either one or both of the seals may be supplemented by solid glass stems 23, as shown in Figures 6 and 7. These stems, if resorted to, will afford a favorable hold on each seal when breaking the same, preparatory to drawing the contents of a tube. An outer covering, as represented at 24, Fig. 7, may also be employed, if desired, to provide additional protection to either seal. This may well consist of a dense coating of colloid, or other matter capable of rendering the tube thoroughly impervious, and further serving to ward off injury to the fingers when breaking the ends of the tube.

In order to dispense advantageously the perfume contained in the tube, both ends thereof must be severed from the body to obtain the requisite air pressure, and the open-ended tube should be drawn over the article to be scented, in the manner suggested in Fig. 10. It will be understood that the dimensions of the tube are such as to produce between its walls and the liquid therein a capillary attraction which is constantly greater than the weight of the liquid. Consequently, the container does not become spontaneously emptied, even if held upright with its ends open, when in normal condition. But, the perfume will flow out easily, provided one of the unsealed extremities of the tube be maintained in actual contact with the article. As the flow is interrupted by breaking the contact, it is obvious that several articles may be perfumed by a dextrous person, from a single container and dispenser.

A practical and convenient method of forming a packet of a number of tubes, filled with perfume as described, is illustrated in Fig. 8. As suggested in this view, a dozen or more of the containers and dispensers can be lodged in a small case or sheath, as 27, from which they can be readily extracted, whenever required. A light cylindrical case of the form shown can easily be carried in a purse or hand-bag, where it will ever be available. A number of these cases may also be attached to a card, in the manner repre-

sented in Fig. 9, for display in a pharmacy or fancy goods store, where the same can be obtained.

Having thus described my invention, what I claim, and desire to secure by Letters Patent of the United States, is:

1. As a new article of manufacture, a container and dispenser for perfumes, consisting of a tubular receptacle with capillary ends hermetically sealed, the connecting portion between the latter being of such size that the contents will not spontaneously flow out of the tube when it is held in a substantially vertical position with its said ends open in normal condition.

2. A line of capillary tubing reduced in diameter both externally and internally at regular intervals apart to produce a plurality of hollow bodies approximately equal in length and cross-sectional area, and interconnecting portions proportionately restricted inward and outward, the latter being severable in twain and thereby causing the tubing to yield separate tubular sections of substantially uniform capacity with capillary extremities of correlated dimensions.

3. A container and dispenser for perfume in liquid form, consisting of an attenuate tube with ends of reduced caliber, the dimensions of the tube being such as to produce between its walls and the therein contained liquid a capillary attraction constantly greater than the weight of the liquid so that the container will not become spontaneously emptied when held upright with its ends open in normal state.

4. A container and dispenser for a liquid comprising an elongate cylindrical capillary body of substantially uniform cross-sectional area throughout, slightly tapering capillary sections gradually conducting the liquid out of the ends of said body in the direction of the longitudinal axis thereof, and approximately straight tubular terminals of corresponding capillarity extending outwardly from said sections.

5. A container of the character described including a tubular receptacle reduced diametrically from the middle portion thereof to form a frangible section contiguous to either end, and a sealed portion of augmented dimensions at said end affording a firm hold thereon beyond the point of fracture of said section.

6. A container and dispenser of the character described consisting of a capillary tube of substantially uniform diameter throughout its major portion, tapering frangible sections at the opposite ends thereof, sealed terminals to said sections extending outwardly from the same, and closures of such mass as to form finger grips at the extremities of said terminals.

WALTER GOODCHILD. [L. S.]