April 14, 1959 M. KUSCHEL 2,881,953

TUBES OF ANY SUITABLE MATERIAL

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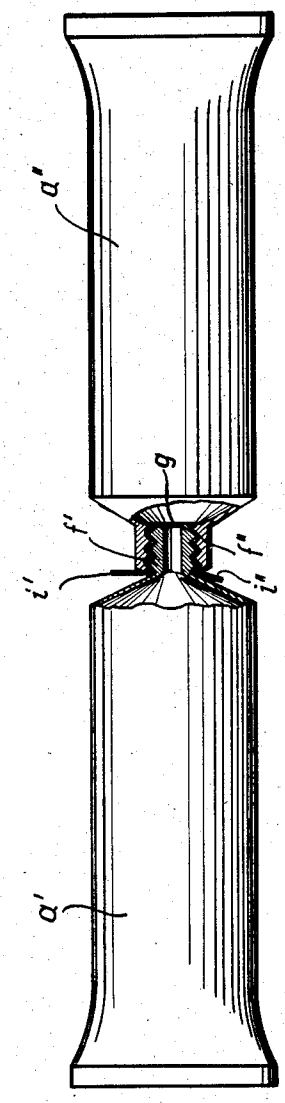


FIG. 2

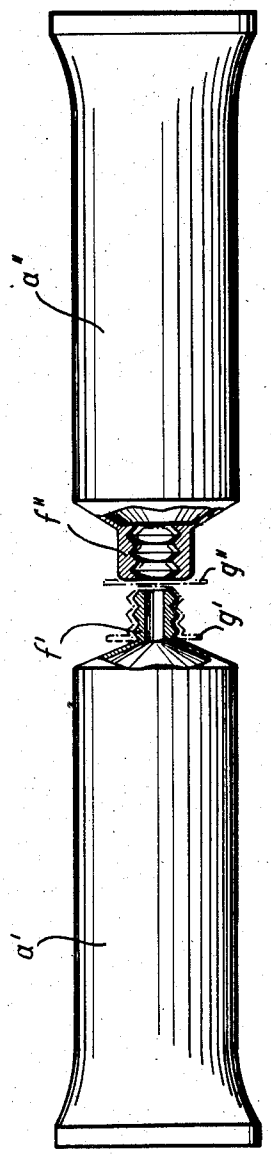


FIG. 1

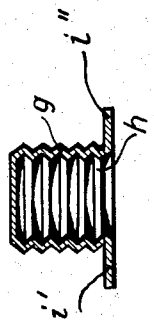


FIG. 4

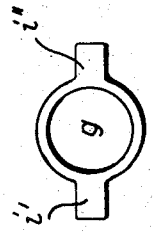


FIG. 3

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TUBES OF ANY SUITABLE MATERIAL

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1 Claim. (Cl. 222—94)

The present invention relates to improvements in tubes of any suitable material, particularly for holding creamy or pasty substances.

The tubes generally known prior to this invention are usually closed by screw caps which are screwed upon the threaded nozzle of the tubes, and when unscrewed therefrom are easily misplaced and frequently lost. Thus, the screw caps of tubes holding tooth paste or shaving cream are often dropped in the sink and washed down the drain. Although there have been various proposals of devices for holding the cap attached to the tube even after it has been unscrewed or otherwise loosened therefrom, these devices did not prove successful in actual practice because, on the one hand, they complicated the mass production of the tubes or rendered the operation of filling the tubes and originally closing the same by machines too difficult, and because, on the other hand, either the cap which remained attached to the tube while being squeezed or the holding device was soiled or gummed up by the contents of the tube.

It is an object of the present invention to provide a new, simple, and inexpensive closure for such tubes which avoids entirely the necessity of screw caps or other separate closures which might easily be lost, and which, with or without special devices for attaching such closures to the tubes to prevent such loss, increase the cost of production of the tubes as a whole.

It is a further object of the invention to provide a new closure for two tubes simultaneously, in which each of these tubes serves to close the other tube.

Another object of the invention is to provide a double tubular container, for example, for creamy or pasty materials for personal use, such as tooth paste, shaving cream, hair or skin cream, or the like, which are either of an entirely different kind and intended for different purposes, or of a similar kind, such as, for example, two different kinds of skin cream which are to be used either at different parts of the body or at the same part at different times or occasions, such as face creams for day or night use, respectively.

The present invention therefore constitutes a valuable feature for advertising purposes, serving to promote the simultaneous sale of two products of the same firm, and also enabling the user to have both products instantly at hand so as to be used successively and without danger that one or the other might be misplaced, or to have two products of a similar nature readily available to choose from at different times of the day. The invention is further valuable to travelers as it assures that of two necessary toilet articles, for example, tooth paste and shaving cream, neither of them might be forgotten at home or at a hotel room and both will be carried along and may both be quickly found in a suitcase.

A further object of the invention is to provide a simple and inexpensive closure for tubes of any kind or material which simultaneously connects and seals two

tubes and thus reduces the expense of sealing them individually after being filled.

These and other objects of the invention are obtained by the usual provision of outer screw threads on the reduced end of one tube, and corresponding inner screw threads on the end of the other tube so as to permit both tubes to be screwed together, one then serving as a simple closure for the other.

If both tubes contain the same or a similar filling, no additional means need to be provided to seal the unused tube while the other tube is unscrewed therefrom and while it is being used. If, however, the two tubes contain different substances which should not mingle or come in contact with each other prior to being sold or used, the present invention further provides a small diaphragm or the like intermediate the two tubes. This may be carried out in actual practice by providing a single diaphragm either over the outer end of the tube, the nozzle of which carries outer screw threads, or at the inner end of the nozzle of the other tube which has corresponding inner screw threads, or by providing such diaphragms on both tubes at the mentioned points. These diaphragms may either consist of the same material as the tube and may be provided thereon in the process of manufacture of the tube itself, in which case the diaphragm of the respective tube which is to be opened for use may be perforated by any kind of pointed instrument, or a small separate diaphragm may be merely attached to the other end of the tube carrying the outer threads. If for any reason the fillings of the two tubes should also not come in contact with each other after they have both been opened, a separate little diaphragm may be placed on the tube with the threaded male end or a small pin or plug may be inserted in the open end thereof which will then prevent an actual contact of the substances in the two tubes, while the real closure of this tube as well as of the other tube is then effected by screwing both tubes together at their nozzle ends.

A preferred embodiment of a diaphragm for fully separating the contents of the tubes from each other at all times consists of a thin cylindrical cap with screw threads impressed thereon which correspond to those on the two tubes. One end of this caplike diaphragm should be closed, while a projecting portion on the other end, for example, in the form of a pair of radially extending arms, may serve as a handle for manipulating the diaphragm. This diaphragm is then screwed over the male nozzle of one tube, whereupon the female nozzle of the other tube is screwed over the threaded outer surface of the diaphragm. The closed end of the diaphragm will then overlie and close the open end of the male end of the one tube. By holding the handle of the diaphragm in a fixed position relative to one tube while the other tube is being unscrewed therefrom, one of the tubes will always remain firmly closed while the other tube is being used. In other words, the diaphragm will then always remain attached either to the outer threads of one tube or to the inner threads of the other tube.

These as well as further objects, features, and advantages of the present invention will now be described in detail with reference to the accompanying drawings, in which—

Fig. 1 shows a side view of a pair of tubes designed according to the invention in a position to be screwed upon each other;

Fig. 2 shows a similar view of a pair of tubes which are threadedly secured to each other by means of an intermediate diaphragm according to the invention;

Fig. 3 shows a plan or end view of the diaphragm; while

Fig. 4 shows a central longitudinal section through the diaphragm.

Referring to the drawings, Fig. 1 shows the simplest form of the invention, in which two tubes *a'* and *a''* may be connected and combined with each other so that one will serve as a closure for the other. For this purpose, the nozzle *f'* of tube *a'* is provided with outer screw threads and the nozzle *f''* of tube *a''* with corresponding inner screw threads, so that the nozzle of one tube may be screwed into or over the nozzle of the other tube. If both tubes of one set are to contain the same or a similar material, each tube may then be filled either individually in the conventional manner from their rear end, whereupon the two tubes are screwed together, or both tubes while screwed together may be filled simultaneously.

If, however, the contents of the two tubes are not to come in contact with each other either during the filling operation or at any time prior to being used, the nozzles of one or both tubes may be provided with a suitable diaphragm to close the same. In its simplest form, such a diaphragm may simply be placed on the open end of the nozzle *f'* of tube *a'* either in the form of a thin circular membrane or as a thin coating of a plastic material which adheres to the open nozzle *f*.

The operation of filling the tubes in the conventional manner from the rear end of each tube may, however, be facilitated if the nozzles *f'* and *f''* of tubes *a'* and *a''* will both be closed by diaphragms. For this purpose, the outer end of the nozzle *f'* of tube *a'* is provided with a diaphragm *g'*, while the inner end of the nozzle *f''* of tube *a''* is provided with a diaphragm *g''*. Both of these diaphragms should be of a material which may be easily pierced by a suitable pointed instrument, and they preferably consist of the same material as the tubes and are preferably provided thereon during the manufacture thereof as an integral part of the tubes. The two tubes may then be filled with different substances without any danger that the substance in one tube may come in contact with that in the other tube until the diaphragms *g'* and *g''* have been pierced.

According to the embodiment of the invention as shown in Fig. 2, two tubes *a'* and *a''* are similarly connected so as to close each other and are likewise provided with outer screw threads on the nozzle *f'* of tube *a'* and inner screw threads on the nozzle *f''* of tube *a''*. In this case, however, a single diaphragm *g*, as shown particularly in Figs. 3 and 4, is interposed between both tubes so as to close them and to separate their contents from each other. This diaphragm *g* is of substantially cylindrical shape and has a set of screw threads *h* impressed therein so as to form inner and outer threads, the inner threads corresponding with the outer threads on the nozzle *f'* of tube *a'*, while the outer threads correspond with the inner threads on the nozzle *f''* of tube *a''*. One end of this caplike diaphragm is closed, while the other end may be provided with a suitable handle. This handle, for example, may consist of two flat arms *i'* and *i''* which extend radially outward from the end of the

cylindrical portion, as shown in Figs. 3 and 4. After tubes *a'* and *a''* have both been filled from their rear ends, the filled tubes may be connected and thus sealed by first screwing the diaphragm *g* on or in the nozzle of one tube and by then screwing the nozzle of the other tube in or on the diaphragm *g*.

If the user then wishes to open only one of the tubes, he will grasp one tube in each hand with one or two fingers extending from that tube which is to remain closed and resting on the arms *i'* and *i''* to hold the caplike diaphragm *g* in a fixed position on the nozzle of such tube, while the other hand turns the other tube and thereby unscrews its nozzle from the diaphragm *g*. The same caplike diaphragm *g* thus serves as a closure for both tubes when connected to each other, as well as a closure for either one of the tubes, the contents of which are not to be used at such time. Obviously, if both tubes are to be opened, this may easily be done by first unscrewing one tube from the diaphragm *g*, and by then unscrewing the diaphragm from the nozzle of the other tube.

The diaphragm *g* may be made of any suitable material of sufficient strength to permit it to be screwed and unscrewed repeatedly. The handle arms *i'* and *i''* should likewise be of sufficient strength to resist being bent during the opening or closing operation.

Although my invention has been illustrated and described wtih reference to the preferred embodiments thereof, I wish to have it understood that it is in no way limited to the details of such embodiments, but is capable of numerous modifications within the scope of the appended claims.

Having thus fully disclosed my invention, what I claim is:

In combination with a pair of collapsible paste-containing tubes, a reduced nozzle integral with one end of each tube, external threads on one nozzle, internal threads on the other nozzle of a size to enable the nozzles to be screwed together, a cap having an imperforate end and formed with external and internal screw threads corresponding to and for threaded engagement with the threads on said nozzles respectively said cap being screw threadedly engaged upon the external threads of the nozzle of one tube and into the internal threads of the nozzle on the other tube thereby to prevent the paste in the tubes from contacting each other, and a projection extending radially of the open end of the cap to a position to be engaged for manipulation thereof.

References Cited in the file of this patent

UNITED STATES PATENTS

801,227	Drummond	Oct. 10, 1905
1,594,791	Miller	Aug. 3, 1926
2,773,521	Persson	Dec. 11, 1956

FOREIGN PATENTS

626,622	Germany	Aug. 31, 1936
322,456	France	Feb. 5, 1903