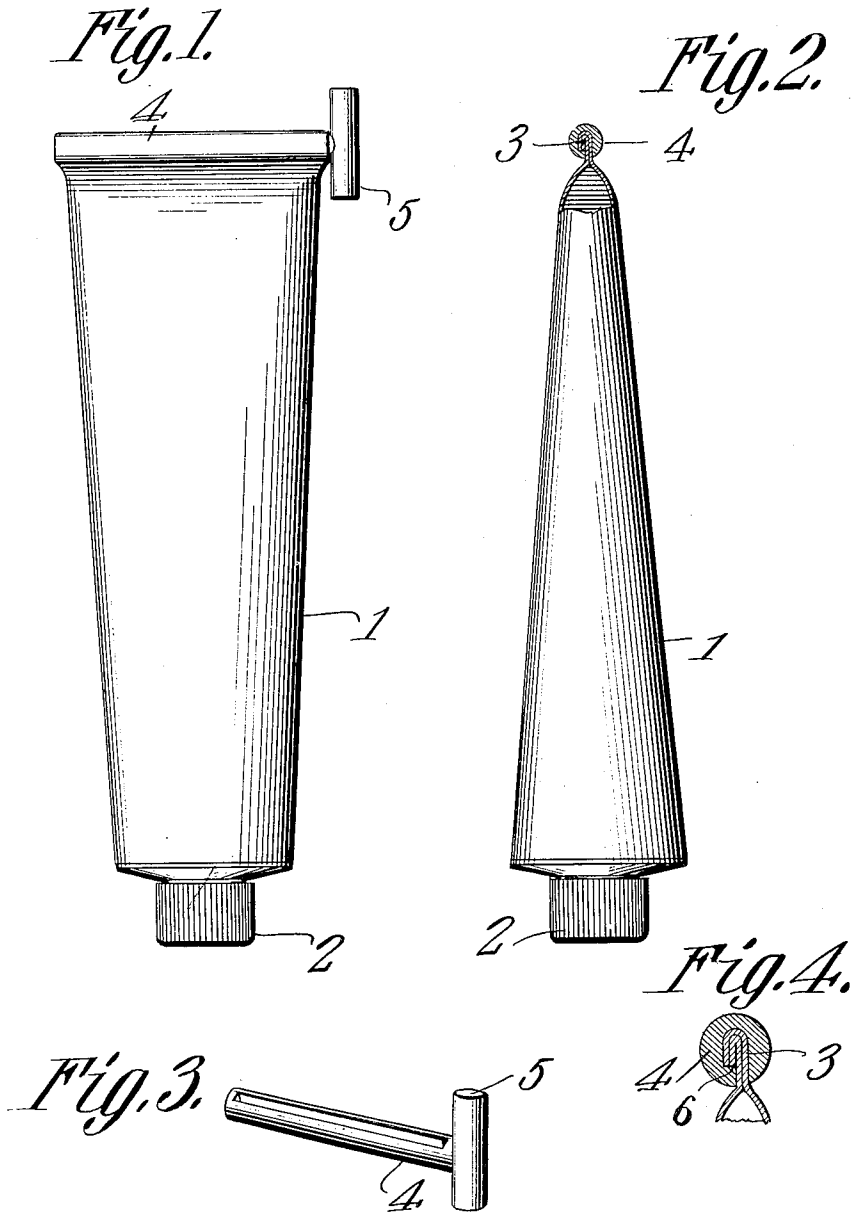


W. S. MORRISON.
 COLLAPSIBLE TUBE.
 APPLICATION FILED SEPT. 6, 1907.

955,530.

Patented Apr. 19, 1910.



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UNITED STATES PATENT OFFICE.

WINFIELD SCOTT MORRISON, OF OAKLAND, CALIFORNIA.

COLLAPSIBLE TUBE.

955,530.

Specification of Letters Patent.

Patented Apr. 19, 1910.

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To all whom it may concern:

Be it known that I, WINFIELD SCOTT MORRISON, a citizen of the United States, residing at Oakland, in the county of Alameda and State of California, have invented a new and useful Collapsible Tube, of which the following is a specification.

This invention relates to dispensing cans of that class known as paint tubes, such as are usually employed to contain artists' colors, tooth paste and similar toilet preparations, and other liquid or viscid compounds, which are ejected from the mouth of the tube by compressing its opposite end between the thumb and finger. It has been found that the permanently closed end of such tubes often leaks by reason of the nature of the contained material, and the fact that the end is reliably closed, or more commonly, by the pressure in that end which is set up in the act of squeezing or rolling the tube to dispense the contents from the other end. Efforts have hitherto been made to reinforce said closure in various ways to avoid this difficulty, and I am aware of one instance in which tin or type metal was molded around the flattened end of the tube. It was claimed in that case that the tube and the part molded thereon became homogeneous, but I have found that it is not always the case that the seal will adhere to the tube reliably.

The object of the present invention is to employ such a seal and attach it to the tube in such manner that it is practically impossible to dislodge it, and that the tube is reliably sealed at all times, still without greatly enhancing the cost of the device or employing any expensive machinery to carry out the invention.

In the following specification is set forth my preferred plan for accomplishing the desired object as shown in the accompanying drawings, in which:

Figure 1 is a side elevation of the tube provided with such seal. Fig. 2 is an edge view showing the lower end and the seal in section. Fig. 3 is a perspective view of the seal, and Fig. 4 is an enlarged sectional detail through the upper portion of Fig. 2.

Referring to the drawings, the numeral 1 designates the tube which is of the soft metal such as lead or foil commonly employed for this purpose, and at one end it has an open mouth, closed by a removable cap 2 as usual and forming no part of the present inven-

tion. The opposite or what might be called the lower end of the tube is flattened out and the flattened portion folded back upon itself as at 3 so that the extreme end of the tube forms a shoulder 6 facing away from the fold and toward the body of the tube as best seen in Fig. 4. The seal of solder or other equivalent material which may be melted and which will cool and set quickly is then applied by use of a mold (not shown). The lower end of the tube is inserted in this mold and held therein by any suitable means, and the molten solder poured in and allowed to cool and set around it so as to envelop the fold and shoulder completely and to extend from end to end thereof. By preference, the seal is formed with a cylindrical body by giving a proper shape to the interior of the mold, so that in its finished condition it surrounds the fold 3 and shoulder 4 as best seen in Fig. 4. An amplification of the idea which may be employed, consists in shaping the mold to form a handle 5 of solder integral with the seal itself and at the same operation, so that the complete seal and handle will have the appearance of the device illustrated in Fig. 5. Soft metal of this character usually expands slightly as it cools and the result will be that as the mold is closed tightly around the folded end of the tube the solder in cooling will be automatically compressed thereon and there-around so as to reliably hold the folded ends of the metal of the tube together and to cause the metal of the seal to flow in or above the shoulder 6, thereby not only absolutely sealing any crack that may exist at the extremity of the tube where folded back but also forming a shoulder in the seal which engages with and behind that on the tube to positively prevent its dislodgment. This is a contingency which often occurs where the shoulder is omitted, as explained above, but my present invention avoids its occurrence while still permitting the tube and seal to be homogeneously connected in case they are of the proper materials to thus unite. Obviously the seal may be used as a rod upon which to roll the body of the tube for ejecting its contents when in use, and this action will be facilitated if the handle 5 is formed as a part thereof.

Although I lay no claim to the handle, the cylindrical seal rod may itself be employed as the key on which to roll the tube for ejecting purposes; and it is obvious that such

rolling action throws a considerable strain onto the junction between the seal and the tube, and hence the presence of the interlocking shoulders is serviceable to prevent
5 their dislodgment.

The novelty herein may be summarized as follows:

A collapsible tube having one end flattened and the flattened part folded back upon it-
10 self to form a shoulder, combined with a seal

of solder or like metal molded around said fold and shoulder and enveloping them from end to end.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature 15 in the presence of two witnesses.

WINFIELD SCOTT MORRISON.

Witnesses:

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PURCELL ROWE.