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F. W. TODT ET AL

2,049,529

COLLAPSIBLE TUBE

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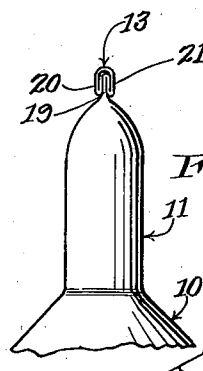
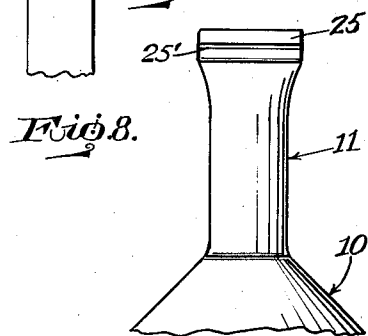
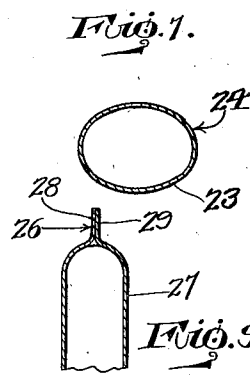
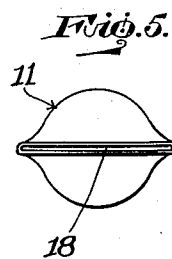
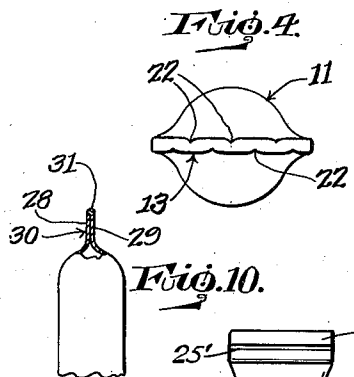
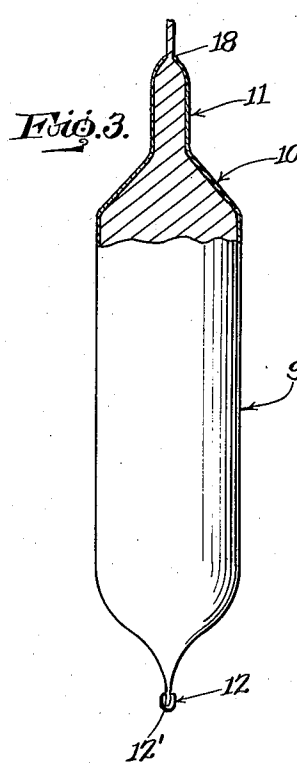
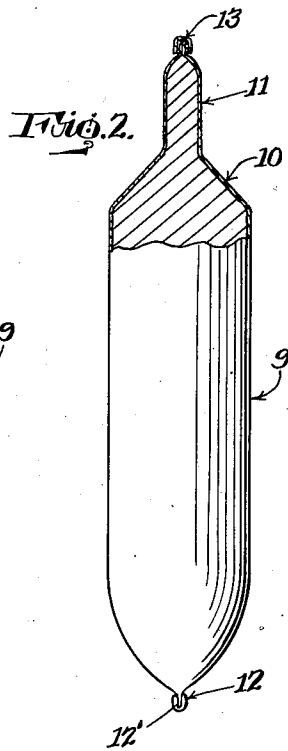
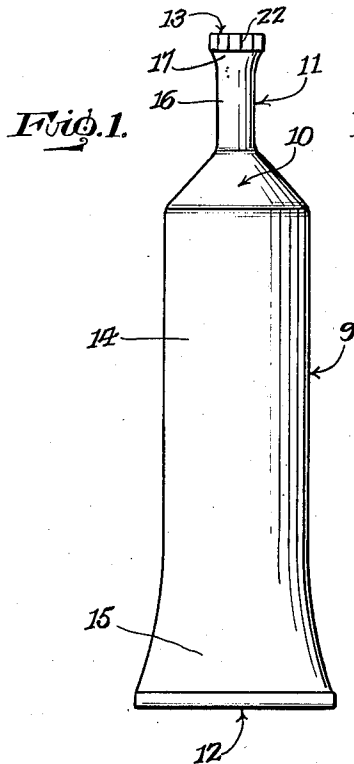


Fig. 9.

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COLLAPSIBLE TUBE

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3 Claims. (Cl. 221-60)

This invention relates to a collapsible tube or container for tooth paste or other similar products, and has for its object to provide, in a manner as hereinafter set forth, a tube of the class referred to, of a single piece of stock and of a construction whereby the peripherally threaded neck and closure cap now generally employed are dispensed with, whereby a material saving in cost of manufacture is had.

Further objects of the invention are to provide, in a manner as hereinafter set forth, a tube of the class referred to which is simple in its construction, compact, conveniently opened when occasion requires, durable, readily collapsed when opened for expelling the contents therefrom and inexpensive to manufacture.

To the above ends essentially and to others which may hereinafter appear, the invention consists of such parts and such combination of parts which fall within the scope of the invention as claimed.

In the drawing:

Figure 1 is a front elevation of the tube when sealed,

Figure 2 is a side elevation, partly in vertical section, of the tube when sealed,

Figure 3 is a view similar to Figure 2 with the seal at the outlet end of the tube removed,

Figure 4 is a top plan view of the tube, upon an enlarged scale, showing the outlet seal therefor,

Figure 5 is a top plan view of the tube, upon an enlarged scale, with the outlet seal removed,

Figure 6 is a fragmentary view, in side elevation and upon an enlarged scale, looking towards one end of the outlet seal for the tube,

Figure 7 is a sectional detail, in plan, illustrating a modified form of neck,

Figure 8 is a fragmentary view, in front elevation and upon an enlarged scale, illustrating a modified form of outlet seal,

Figure 9 is a vertical sectional view illustrating still another modified form of outlet seal for the container, and

Figure 10 is a fragmentary view in side elevation illustrating still another modified form of outlet seal for the container.

The tube is formed from a single piece of stock of soft metal of a gauge which may be readily shaped and bent to form the complete tube and also of a gauge to permit severing the outlet seal for the tube.

With reference to Figures 1 to 6, the tube includes a body part 9, a breast part 10, an elongated neck part 11, a bottom closure 12 and a severable outlet seal 13 of oblong contour. The

said closure and seal parts are integral with the tube. The body part 9 is formed of a portion 14 of circular cross section and a portion 15 of flared tapered contour. The portion 14, at its forward end, merges into the rear end of the breast part 10. The portion 14, at its rear end, merges into the forward end of portion 15. The breast part 10 is of frusto-conoidal contour and merges at its forward end into the rear end of neck part 11. The latter is formed with a circular portion 16 and a portion 17 which is flared in front and rear elevations (Figures 4 and 5) and of tapered contour in vertical section (Figures 2 and 3) to form an elongated narrow outlet 18 (Figure 5) when the outlet seal 13 is severed from the neck part 11. The rear and forward ends of portion 16 merge respectively into the forward end of breast part 10 and the rear end of portion 17.

The rear end of portion 15 of body part 9 merges into the forward side of bottom closure 12. The forward end of portion 17 of the neck part 11 merges into the rear side of the outlet seal 13. The closure 12 is provided by overlapping and compressing, in close relation, parts 12' of the material forming the tube at the rear end of body part 9. The outlet seal 13 is provided by overlapping and compressing, in close relation, parts of the material forming the tube at the forward end of neck part 11. The parts of the material forming the outlet seal 13 are designated 19, 20 and 21 and are secured together by sets of spaced transverse crimps 22. The part 19 is the central part of seal 13 and is arranged between and extends rearwardly from the parts 20, 21. The part 19 is adapted to be severed to remove the seal 13 from neck part 11 when it is desired to expel the contents of the tube.

With reference to Figure 7, the portion 23 of the neck part 24, shown thereby, corresponds to the portion 16 of neck part 11 with the exception that it is of oval form instead of circular.

With reference to Figure 8, the construction shown thereby is the same as that shown in Figure 1 with the exception that the outlet seal 25 thereof is formed with a single crimp 25' extending lengthwise thereof.

With reference to Figure 9, the construction shown thereby consists of providing the outlet seal 26 at the outer end of the elongated neck 27 by drawing, from the outer end of the neck, opposed portions 28, 29 of the stock in flatwise abutting engagement which not only closes the neck at its outer end but also provides the outlet seal 26. The neck, inwardly of and in close proximity to the seal 26, is capable of being severed to remove

the outlet seal when it is desired to conveniently expel the contents of the container by collapsing the body part 9. Otherwise than as stated, the container shown in Figure 9 would be the same as that disclosed by Figures 1 and 2.

With reference to Figure 10, the form of outlet seal 30 shown thereby is the same as that shown in Figure 9, with the exception that the outer end edges of the portions 28, 29 are connected together by any suitable means, as at 31, whereby a closure is provided.

It is furthermore to be understood that at the point of joinder of the outlet seal with the neck, such part of the container may be weakened in any suitable manner to permit the outlet seal to be readily removed when desired.

What we claim is:

1. A collapsible tube comprising a single integral unit formed of an elongated body part having inherent portions thereof closing its rear end, a frusto-conoidal breast part merging at its inner end into the forward end of said body part, an elongated neck portion merging at its rear end into the forward end of the breast part, said neck portion having the major portion of its length of uniform and of relatively small diameter with respect to said body and breast parts, the remaining part of the length of said neck portion consisting of a hollow tapered stretch merging into a hollow flared stretch merging into a flat forward closed stretch of oblong contour, said flat stretch aligning at its sides with the sides of said flared stretch at the forward end of the latter, said flat stretch formed of overlapped abutting inherent portions of said unit and providing a seal capable of being severed from the unit at the outer end of said flared stretch and thereby provide an outlet for the tube.
2. A collapsible tube comprising a single integral unit formed of an elongated body part having inherent portions thereof closing its rear end, a frusto-conoidal breast part merging at its in-

ner end into the forward end of said body part, an elongated neck portion merging at its rear end into the forward end of the breast part, said neck portion having the major portion of its length of uniform and of relatively small diameter with respect to said body and breast parts, the remaining part of the length of said neck portion consisting of a hollow tapered stretch merging into a hollow flared stretch merging into a flat forward closed stretch of oblong contour, said flat stretch aligning at its sides with the sides of said flared stretch at the forward end of the latter, said flat stretch formed of overlapped abutting inherent portions of said unit and providing a seal capable of being severed from the unit at the outer end of said flared stretch and thereby provide an outlet for the tube, said flat stretch being formed at its lengthwise median with a crimp for securing said abutting inherent portions together.

3. A collapsible tube comprising a single integral unit formed of an elongated body part having inherent portions thereof closing its rear end, a frusto-conoidal breast part merging at its inner end into the forward end of said body part, an elongated neck portion merging at its rear end into the forward end of the breast part, said neck portion having the major portion of its length of uniform and of relatively small diameter with respect to said body and breast parts, the remaining part of the length of said neck portion consisting of a hollow tapered stretch merging into a hollow flared stretch merging into a flat forward closed stretch of oblong contour, said flat stretch aligning at its sides with the sides of said flared stretch at the forward end of the latter, said flat stretch formed of abutting inherent portions of said unit and providing a seal capable of being severed from the unit at the outer end of said flared stretch and thereby provide an outlet for the tube.

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