T. W. BIGONEY.

CONTAINER AND PROCESS FOR MAKING THE SAME.

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1,327,190.

Patented Jan. 6, 1920.

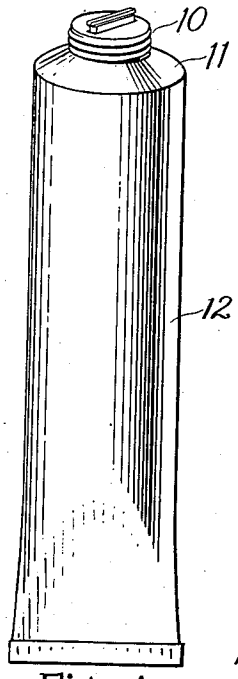


Fig 1

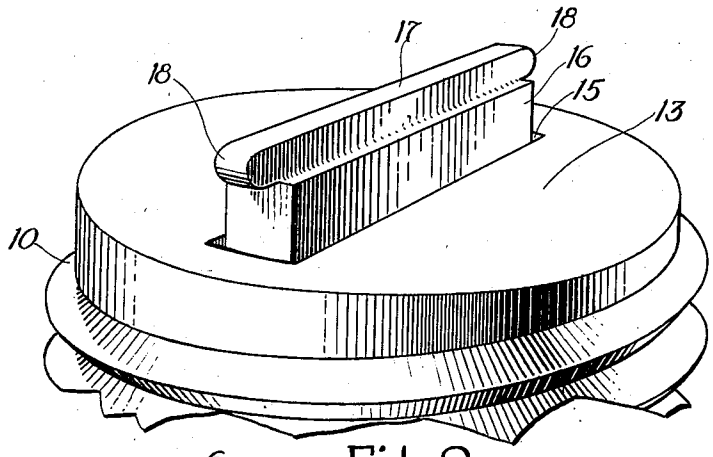


Fig 2

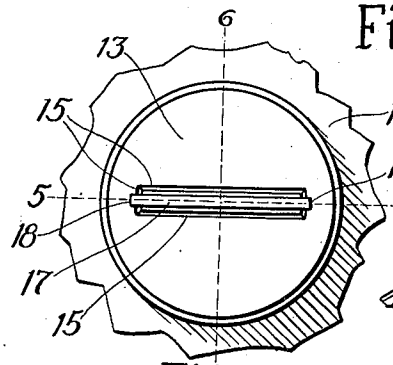


Fig 4

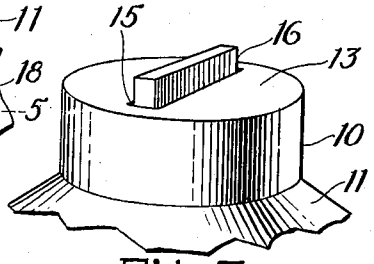


Fig 3

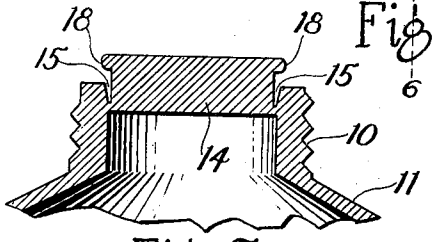


Fig 5

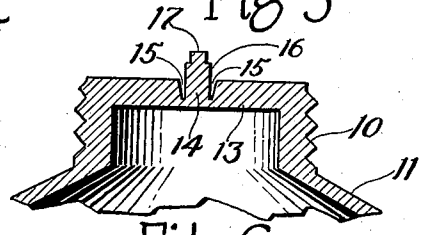


Fig 6

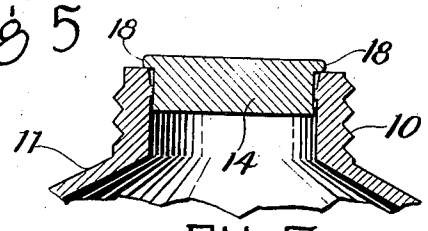


Fig 7

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CONTAINER AND PROCESS FOR MAKING THE SAME.

1,327,190. Specification of Letters Patent. Patented Jan. 6, 1920.

Application filed March 15, 1917. Serial No. 154,928.

To all whom it may concern:

Be it known that I, THOMAS W. BIGONEY, a citizen of the United States, and resident of New York, borough of Manhattan, in the county of New York and State of New York, have invented certain new and useful Improvements in Containers and Processes for Making the Same, of which the following is a specification.

This invention relates to certain improvements in containers and processes for manufacturing the same, and more particularly to a type of container used for shipment and storage of material in a hermetically sealed condition.

The main object of my invention is to so construct the container that the opening may be easily and quickly produced without the use of any tools whatsoever, to facilitate or permit the discharging or dispensing of the contents.

Containers have heretofore been manufactured and used in which the desired opening is produced by the removal or displacement of an integral part of a wall of the container, such removal or displacement being facilitated by weakened lines, defining, in whole or in part, the opening. In some such constructions, a strip has been torn out of the wall and wound up with a key and in others a plug part has been forced into the interior of the container by the use of a sharp or pointed instrument or tool.

In my improved construction, the part to be removed is forced inwardly, but, as an important feature of my invention, I so form, shape, or design the part to be removed that it presents an outwardly projecting portion extending beyond the plane of the contiguous surface of the container wall and by means of which certain very important advantages are secured.

One such advantage is that the projecting portion may present a surface upon which gradual or suddenly-applied pressure may be exerted and confined to break the material along the weakened line and dislodge the desired parts to produce the opening. It may also serve to limit the inward movement of the part after the latter has been detached and may serve as a means for facilitating the extraction of the detachable part.

In the preferred embodiment of my invention, the wall, detachable part and projecting portion are integral and formed from a single mass of metal and the projecting portion serves all three of the functions above recited, namely pressure-receiving, movement-limiting and removal-facilitating.

In certain embodiments of my invention, any one of these functions may be the principal or primary one and the others be of only secondary importance, if present at all. Although it will be evident that my invention is applicable to various forms and kinds of containers for various materials in liquid, solid, pulverulent or plastic condition, yet it possesses special advantages when embodied in a collapsible tube for the shipment, storage and dispensing of such plastic material as shaving cream, tooth paste, etc.

In the accompanying drawings, to which reference is to be had, I have illustrated one embodiment of my invention but desire this embodiment to be considered in an illustrative, rather than in a limiting, sense. In these drawings,

Figure 1 is a perspective view of a complete device;

Fig. 2 is a perspective view on a very much larger scale and showing only the top part thereof in its completed condition;

Fig. 3 is a view similar to Fig. 2, but showing the parts prior to completion and as they come from the first pair of dies;

Fig. 4 is a top plan view of the construction shown in Fig. 2;

Figs. 5 and 6 are central longitudinal sections on the lines 5—5 and 6—6 respectively of Fig. 4; and

Fig. 7 is a view similar to Fig. 6 but showing the detachable part broken loose.

In the specific form illustrated in the drawings, I have embodied my invention in an ordinary form of collapsible tube of the kind used for tooth-paste, shaving cream, library paste, vaseline, etc. The tube includes a neck portion 10, an annular shoulder or breast portion 11 and a thin collapsible body wall 12. In the complete tube, the exterior of the neck is threaded to receive a cap (not shown) and the opposite end of the body is folded over or otherwise sealed after the filling of the tube.

In my improved construction, the neck 10 has a transverse wall 13 integral with the neck and hermetically sealing the interior of the tube. This wall has a detachable part 14 circumscribed or defined by a weakened line extending part way through the wall 13. This weakening is preferably formed by a groove 15 extending downwardly into the

wall from the upper or outer surface. In some special forms of my construction, the weakened line might extend upwardly from the inner surface.

The detachable part 14 is preferably of elongated shape and presents two substantially parallel, opposite sides so that when said part is removed, there will be formed a slot extending transversely of the wall 13 and all substantially the same size and shape as the slot now commonly formed in tubes of this character to cause the ejected material to assume a ribbon form.

The detachable part 14 has an upwardly projecting portion extending above the level or plane of the contiguous portion of the upper surface of the wall 13. This upwardly extending portion presents a surface upon which suddenly or gradually applied pressure may be confined and exerted in breaking loose the detachable part 14. As the portion 16 projects above the surface, pressure may be readily applied to it without exerting material pressure upon the upper surface of the wall 13, or said portion 16 may be struck a sharp blow by any hard object or the tube may be inverted and tapped against any hard surface to break loose the detachable part and force it inwardly.

It will be noted that the extreme outer end of projecting part has a transverse dimension approximating that of the length of the detachable part at the point where the latter is to be broken loose. Thus, if in striking the outer end of the projection the blow is largely or entirely at one extremity of the outer end surface of the projection the break takes place only at that end. A second blow may be struck and purposely placed at the other extremity of the outer end surface of the projection so as to complete the break. In other words the pressure or blow may be brought to bear at points disposed approximately directly above or close to the point of breakage.

By having the weakened line 15 project inwardly from the outer surface of the wall 13, the outer or discharge end of the resulting opening will have a smooth and regular shape and the ejected material will have a smooth and uniform ribbon shape. Any irregularity of the surface at the breaking point will be spaced inwardly a short distance from the actual discharge end of the opening, and therefore will not materially affect the shape or cause any irregularity of the ribbon form of the material as it is discharged.

In order to limit the inward movement of the detached part and to facilitate the extraction of said part after it is broken loose, the projecting part has a laterally extending projection, flange, or lip, which will engage with the outer surface of the wall 13 when the part 14 has been broken loose and forced inwardly. This engagement will not only limit the inward movement of the detached part and prevent it from falling into the contents, particularly if the latter be of a liquid nature, but it will also present means whereby one may slip the thumb nail beneath the projecting part and lift the detached part up out of the opening.

This laterally projecting stop may be formed in various ways, but preferably the outer end of the projecting portion 16 is squeezed or pressed laterally to form a central lip or flange 17 and force the stem of the metal endwise so that the said flange has projecting end portions 18 serving as the stops.

In the manufacture of my improved container, a piece of ductile metal, such as tin, is placed in a female die and the male die or plunger member is forced inwardly to force the metal to conform to the shape of the female die and permit the excess of metal to flow backwardly along the male die to form the peripheral wall of the tube. The female die is preferably of such shape that after the first or pressing operation, the upper end of the neck will appear substantially as shown in Fig. 3. The threads are then cut on the neck 10 and the end of the projecting portion is subjected to pressure between a pair of die members to displace the outer end and produce the overhanging flanges or lips 18.

These may be only at the ends as shown or may be of any other suitable character so that they will act as stops, as shown particularly in Fig. 7, and both prevent the unlimited inward movement of the detached part and present a portion beneath which the finger nail may be inserted to lift out the detached part.

It will be noted that all portions of the interior of the container are symmetrical in respect to the axis so that it is not necessary to bring the male die member to any predetermined orientation. No tools are necessary, either to detach the part 14 and to produce the discharging or dispensing opening, or to remove the detached part after it has been broken loose. The integral formation of the wall 13 and its detachable part avoids the possibility of any leakage or evaporation of the contents and produces a perfect hermetic seal. After the part has once been removed, it may of course be thrown away and the tube closed in the ordinary manner and by the usual screw cap, at such times as the contents are not being discharged and until the container is empty.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:

1. A process of making a container which includes first pressing a piece of metal to

form the body of the wall with a groove therein constituting a weakened line connecting a detachable part to the encircling body portion of the wall, said detachable part projecting outwardly from the plane of the outer surface of the body of the wall, and then laterally displacing a portion of the metal of said projecting portion to a point laterally disposed beyond said weakened line, and spaced from said surface.

2. A container having a wall formed from a single mass of metal, pressed to form a body portion and a detachable portion encircled by a groove extending partway through the wall and along which the wall may be broken by inward pressure on said detachable portion, said portion extending outwardly to a point beyond the plane of the outer surface of the body of the wall, and presenting an impact or pressure receiving outer end, said outer end having a transverse dimension greater than the transverse dimension adjacent to said groove whereby the inward movement of said detachable part is limited.

3. A container having an integral portion of one wall thereof projecting outwardly from the adjacent surrounding surface, and having a head or outer end portion of larger transverse dimension than the portion adjacent to said surface, and said wall having a weakened line therein encircling said portion, whereby said portion may be forced inwardly to break the wall along said weakened line, and after the breaking the further inward movement will be limited by said head.

4. In a device of the character described, the combination with a container proper, of a hollow neck communicating with the interior of said container, a narrow elongated plug mounted on said hollow neck and integral therewith, and connected thereto by a weakened line encircling said plug, said plug adapted to be forced inwardly to break the wall along the weakened line and leave an elongated slot, and said plug having laterally projecting flanges at its outer end imparting to the outer end of the plug a transverse dimension greater than the corresponding dimension of said slot.

5. A paste tube having a comparatively thin peripheral wall, an external threaded neck portion, and a transverse imperforate end wall, all pressed from a single mass of metal, said end wall having a detachable portion encircled by a groove extending partway through said end wall and along which said end wall may be broken by inward impact or pressure on said detachable portion endwise of the latter, said detachable portion having a transverse dimension at its outer end approximating the transverse dimension of the opening formed by breaking along said groove.

Signed at New York, in the county of New York, and State of New York, this 14th day of March, A. D. 1917.

THOMAS WARNOCK BIGONEY.