

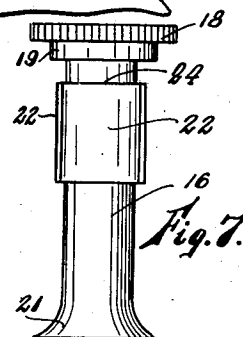
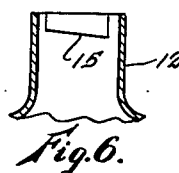
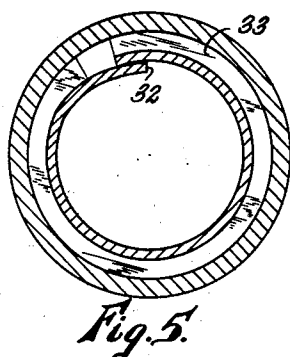
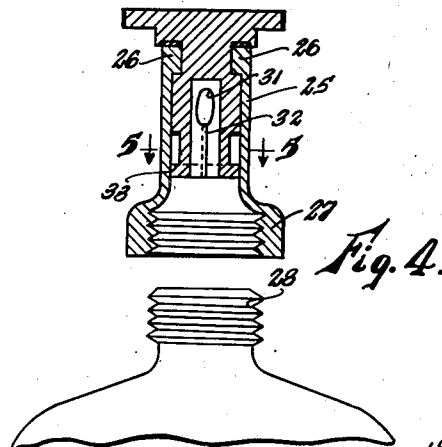
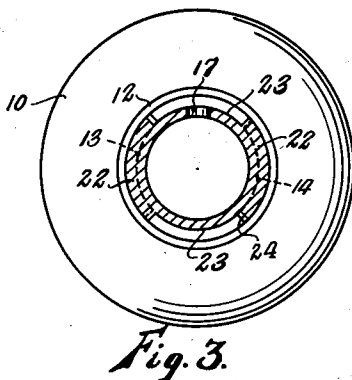
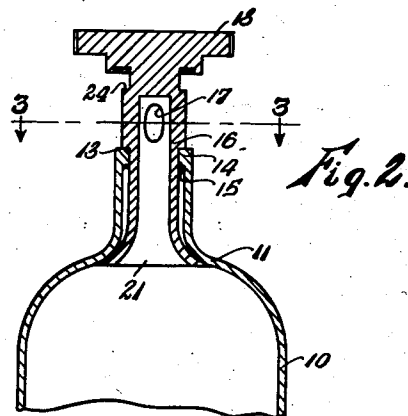
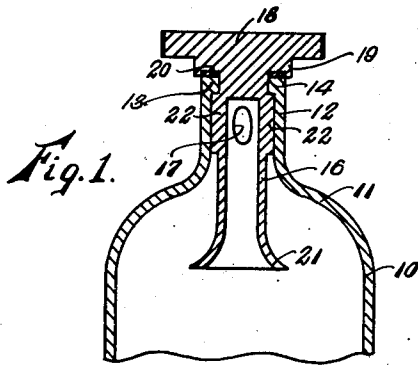
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PASTE DISPENSING MEANS

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PASTE DISPENSING MEANS

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14 Claims. (Cl. 221-60)

This invention relates to a tube for dispensing paste and other semi-liquid substances and has for an object the provision of such a tube having closure means which are nonremovably associated with the mouth of the tube and which may be so disposed as to likewise serve as the dispensing means.

Another object is to provide means of the kind described adapted to be firmly positioned both in the operative and in the closed position.

Another object is to provide a dispensing tube in which threaded closure and associated means have been eliminated.

Another object is to provide an independent paste dispensing and closure device adapted to be associated with any tube having a threaded neck, said device being adapted to replace the cap normally provided on tubes and obviating the necessity for removing and replacing a cap each time material is dispensed from the tube.

Another object is to produce dispensing devices of the kind indicated in an efficient manner and at a minimum of expense.

These and other objects are attained by the means described herein and illustrated in the accompanying drawing, in which:

Fig. 1 is a vertical cross-sectional view through the upper portion of a tube embodying my invention, the dispensing means being shown in closed position.

Fig. 2 is a view similar to Fig. 1 showing the dispensing means in an operative position.

Fig. 3 is a cross-sectional view taken on line 3-3 of Fig. 2.

Fig. 4 is a vertical cross-sectional view through an independent closure and dispensing device of the present invention, the top portion of an ordinary tube being shown in association therewith.

Fig. 5 is a cross-sectional view taken on line 5-5 of Fig. 4.

Fig. 6 is a vertical cross-sectional view through the neck of a tube of this invention.

Fig. 7 is a detail view of the sleeve member of this invention, said last two figures being adapted to illustrate the cooperating beveled lock means of this invention.

With reference to the drawing, this present invention provides for a tube body 10 formed with a shoulder 11 and a neck 12. A pair of oppositely disposed segmental flanges or abutments 13 and 14 project inwardly of the neck at the top thereof. The lower faces of these projections may be beveled or angularly cut as at 15 (Fig. 6).

A sleeve 16 is slidably embraced by the neck 12. This sleeve at one side is provided with a dis-

persing aperture 17 preferably of an elongated oval shape. Shortly above this aperture the sleeve is closed by a cap 18 integral with the sleeve. The cap may be formed with a reduced annular portion 19 having an annular groove adapted to receive a cork washer 20 or the like. The lower end of sleeve 16 is formed with a flared portion 21.

Intermediate the ends of the sleeve, the latter is formed with an enlargement comprising longitudinal ridges 22 having intervening ways 23 therebetween. The ridges 22 are adapted to be received between the abutments 13 and 14 of the neck 12 and the ways 23 are adapted to receive said abutments so that the neck and sleeve are associated in splined relationship.

When the sleeve 16 is pushed into the neck of the tube, the upper ends of the ridges 22 pass into a plane immediately beneath the lower faces of the abutments 13 and 14, that is, the abutments 13 and 14 are received in the reduced portion of the sleeve beneath the cap so that when the sleeve is partially rotated, the upper faces 24 of said ridges and the lower faces 15 of said abutments become firmly engaged, the snug engagement being increased by virtue of said angular faces 15. At this time the cap, that is to say the portion 19 thereof, is moved downwardly against the top edge of the neck 12 and the washer 20 is resiliently bound against said edge.

When the sleeve is turned in the opposite direction by means of the cap 18, and drawn outwardly of the neck, the flared portion 21 of the sleeve frictionally engages the inner faces of the shoulder 11 of the tube as shown in Fig. 2 for limiting outward movement of the sleeve. The length of the sleeve below the ridges 22 is so calculated that the bottom faces of the ridges 22 project from the neck 12 just sufficiently to allow said faces, upon turning of the sleeve, to engage the upper faces of the abutments 13 and 14 as seen in Figs. 2 and 3. This is the operative or dispensing position of the sleeve, it being seen that the aperture 17 is now clear of the neck.

It will be observed that the sleeve may be locked both in the operative and in the closed position. Furthermore, after the tube has been used and the sleeve is turned and moved inwardly of the neck, the aperture 17 passes against the lateral faces of the abutments 13 or 14 whereby any remainder of the dispensed material is sheared off cleanly when the sleeve is pushed in. By reference to Fig. 2 it will be apparent that the resilient engagement of the flared portion 21 of the sleeve against the inner face of the tube

shoulder 11, precludes entry of paste up into the neck portion of the tube and directs the dispensed material directly into the sleeve 16.

The device illustrated in Figs. 4 and 5, as previously intimated, is adapted for use on any tube having a threaded neck, said device replacing the cap normally provided with tubes. This independently usable device consists of a collar 25 having abutments 26 at its top similar to the abutments 13 and 14 heretofore described. The lower end of the collar is flared and given the form of a cap 27 which is internally threaded so as to be receivable upon a threaded tube neck 28 of corresponding size. The sleeve 29 is formed with ridges 30 similarly to the structure above described and in a similar manner cooperating with the abutments 26. The sleeve is likewise provided with a dispensing aperture 31 and from the bottom of this aperture to the lower end of the sleeve, the latter is split and the split edges overlap as indicated at 32. The extreme lower end of the sleeve is turned outwardly to provide the flange 33 which is in spaced relationship with the lower ends of the ridges 30. It is preferable that the lower portion of the sleeve be somewhat flared originally and formed of resilient material so that when the sleeve is placed within the collar the lower end will tend to spread and the flange 33 frictionally engage the inner face of the collar. It will now be seen that when the sleeve is actuated outwardly of the collar, the flange 33 will limit the outward movement by engagement against the lower faces of the abutments 26. At this time the lower faces of the ridges 30 are in position, upon turning of the sleeve, to engage snugly against the top faces of abutments 26 for locking the sleeve in dispensing position. In assembling the collar and sleeve, the split edges at the bottom of the sleeve are overlapped and the tube end resiliently pressed into contracted diameter to permit passage of the flange 33 downwardly into the collar past the abutments 26.

Devices of this invention may be produced from suitable material, either of metal or of composition, such as bakelite. The inconvenience of removing and replacing the cap each time a tube is used, such as is now the common practice, has been eliminated. This invention is adapted for very efficient manufacture and it is obvious that in use, the operation of the dispensing means requires but a fraction of a second.

The devices of this invention may be modified in a number of ways, such as by providing only a single ridge and a single receiving groove on the corresponding member and in other ways that become readily apparent by the disclosure of the present invention.

These and other modifications, however, are believed to be comprised within the spirit and scope of the present invention.

What is claimed is:

1. A paste dispensing tube formed with a shoulder and neck, a pair of oppositely disposed abutments projecting inwardly of the neck at the top thereof, a sleeve embraced by and slidable in said neck and provided with a lateral dispensing aperture and at the lower end with a flared portion limiting outward movement of the sleeve, said sleeve being formed intermediate its ends with longitudinal ridges receivable between and ways adapted to receive said neck abutments, a cap integral with and closing the top of the sleeve, the lower ends of said ridges upon full outward movement and turning of the sleeve being adapted to seat firmly upon the upper faces of said abut-

ments for locking the sleeve in dispensing position, and the upper ends of said ridges upon inward movement and turning of the sleeve being adapted to engage the under faces of said abutments for binding the cap upon the top of the neck and locking the sleeve in closed position.

2. A paste dispensing tube formed with a neck, a sleeve embraced by and slidable in the neck and provided with a lateral dispensing aperture, a cap on the outer end of the sleeve, and means operative upon partial rotations of the sleeve for locking the sleeve in an outwardly projecting dispensing position and in an enclosed inoperative position, the cap in the closed position of the sleeve being bound against the top edge only of the neck.

3. A paste dispensing tube formed with a neck, a sleeve embraced by and slidable in the neck and provided with a closed outer end and with a lateral dispensing aperture, and means operative upon partial rotations of the sleeve for locking the sleeve in an outwardly projecting dispensing position and in an enclosed inoperative position.

4. A dispensing and closure device for tooth paste tubes and comprising a collar having threaded engagement means at its lower end for association with the threaded neck of a tube, abutment means projecting inwardly of the collar at the top thereof, a sleeve embraced by and slidable in said collar and provided with a closed outer end and with a lateral dispensing aperture, means on the inner end of the sleeve for limiting outward movement of the sleeve by contact with said abutment means, and means operative upon partial rotations of the sleeve for locking the sleeve in an outwardly projecting dispensing position and in an enclosed inoperative position.

5. A dispensing and closure device for paste tubes and comprising a collar formed at one end with means for engaging the neck of a tube, an abutment projecting inwardly of the collar at the top thereof, a sleeve embraced by and slidable in the collar and provided with a lateral dispensing aperture, a lateral projection on the inner end of the sleeve for limiting outward movement of the sleeve by engagement with said abutment, the sleeve intermediate its ends being formed with lateral ridges providing a way for receiving said abutment, and a cap fixed to and closing the outer end of the sleeve, the lower ends of said ridges upon full outward movement and turning of the sleeve being adapted to seat firmly upon the upper face of said abutment for locking the sleeve in dispensing position, and the upper ends of said ridges upon inward movement and turning of the sleeve being adapted to engage the under face of said abutment for binding said cap on the top of the neck, and locking the sleeve in closed position.

6. The combination of a paste tube, a neck or collar attached to the tube, an abutment projecting inwardly of the top of the neck, a sleeve embraced by and slidable in the neck and provided with a lateral dispensing aperture, means limiting movement of the sleeve outwardly of the neck, the sleeve intermediate its ends being formed with lateral ridges providing a way for receiving said abutment, and a cap fixed to and closing the outer end of the sleeve, the lower ends of said ridges upon full outward movement and turning of the sleeve being adapted to seat firmly upon the upper face of said abutment for locking the sleeve in dispensing position, and the upper

ends of said ridges upon inward movement and turning of the sleeve being adapted to engage the under face of said abutment for binding said cap on the top of the neck, and locking the sleeve in closed position.

7. A paste dispensing tube formed with a shoulder and neck, a pair of oppositely disposed abutments projecting inwardly of the neck at the top thereof, a sleeve embraced by and slidable in said neck and provided with a lateral dispensing aperture and at the lower end with a flared portion, said sleeve being formed intermediate its ends with longitudinal ridges receivable between and ways adapted to receive said neck abutments, a cap integral with and closing the top of the sleeve, said flared portion of the sleeve being adapted to frictionally engage the inner face of said tube shoulder for limiting outward movement of the sleeve and for precluding entry of the dispensable material between the sleeve and neck, the lower ends of said ridges upon full outward movement and turning of the sleeve being adapted to seat firmly upon the upper faces of said abutments for locking the sleeve in dispensing position, and the upper ends of said ridges upon inward movement and turning of the sleeve being adapted to engage the under faces of said abutments for binding the cap upon the top of the neck and locking the sleeve in closed position.

8. A dispensing and closure device for paste tubes and comprising a collar formed at one end with means for engaging the neck of a tube, an abutment projecting inwardly of the collar at the top thereof, a sleeve embraced by and slidable in the collar and provided with a lateral dispensing aperture, a laterally projecting flange on the inner end of the sleeve for limiting outward movement of the sleeve by engagement with said abutment and for limiting upward passage of dispensable material in the collar, the sleeve intermediate its ends being formed with lateral ridges providing a way for receiving said abutment, and a cap fixed to and closing the outer end of the sleeve, the lower end of the sleeve being longitudinally split and the split edges overlapped to effect entry of the flanged end of the sleeve into the collar and to provide for resilient expansion of said flanged end into frictional engagement with the inner face of said collar, the lower ends of said ridges upon full outward movement and turning of the sleeve being adapted to seat firmly upon the upper face of said abutment for locking the sleeve in dispensing position, and the upper ends of said ridges upon inward movement and turning of the sleeve being adapted to engage the under face of said abutment for binding said cap on the top of the neck, and locking the sleeve in closed position.

9. A paste dispensing tube formed with an open neck, an abutment projecting inwardly of the neck, a sleeve embraced by and slidable in the neck and provided with a lateral dispensing aperture, a cap fixed to the outer end of the sleeve and adapted for use in moving the sleeve outwardly of the neck whereby said aperture is exposed in dispensing position, means limiting outward movement of the sleeve, lateral longitudinal ridges formed on the sleeve and providing a way for receiving said abutment to permit inward and outward movement of the sleeve, said ridges terminating short of said cap and being adapted, when the sleeve is pushed in and turned, to engage beneath said abutment for locking the sleeve in non-dispensing position, and said cap at this time being adapted to be held in firm

engagement against the top of the neck for closing the tube.

10. A paste dispensing tube formed with an open neck, an abutment projecting inwardly of the neck at the top thereof, a sleeve embraced by and slidable in the neck and provided with a lateral aperture from which paste may be dispensed when the sleeve is in outwardly projecting position, a laterally projecting flange on the inner end of the sleeve for limiting outward movement of the sleeve by engagement with said abutment, and lateral longitudinal ridges on the sleeve terminating short of the outer end of the sleeve and providing a way for receiving said abutment to permit inward and outward movement of the sleeve, the outer ends of said ridges upon inward movement and rotation of the sleeve being adapted to engage beneath said abutment for locking the sleeve against longitudinal outward movement.

11. A paste dispensing tube formed with an open neck, an abutment projecting inwardly of the neck at the top thereof, a sleeve embraced by and slidable in the neck and provided with a lateral aperture from which paste may be dispensed when the sleeve is in outwardly projecting position, a laterally projecting flange on the inner end of the sleeve for limiting outward movement of the sleeve by engagement with said abutment, lateral longitudinal ridges on the sleeve terminating short of the outer end of the sleeve and providing a way for receiving said abutment to permit inward and outward movement of the sleeve, and a cap fixed to the outer end of the sleeve, the outer ends of said ridges upon inward movement and rotation of the sleeve being adapted to engage beneath said abutment for locking the sleeve against longitudinal outward movement and for binding the cap against the outer end of the neck.

12. A paste dispensing tube formed with an open neck, an abutment projecting inwardly of the neck at the top thereof, a sleeve embraced by and slidable in the neck and provided with a lateral aperture from which paste may be dispensed when the sleeve is in outwardly projecting position, a laterally projecting member on the inner end of the sleeve for limiting outward movement of the sleeve by engagement with said abutment, and lateral longitudinal ridges on the sleeve terminating short of the outer end of the sleeve and providing a way for receiving said abutment to permit inward and outward movement of the sleeve, the lower end of the sleeve being longitudinally split and the split edges overlapped to effect entry of said inner end into said neck and to provide for expansion of the entered inner end whereby the laterally projecting member thereon is brought into frictional engagement with the inner face of the neck, and the outer ends of said ridges upon inward movement and rotation of the sleeve being adapted to engage beneath said abutment for locking the sleeve against longitudinal outward movement and for binding the cap against the outer end of the neck.

13. A paste dispensing tube formed with an open neck, an abutment projecting inwardly of the neck, a sleeve embraced by and slidable in the neck and provided with a lateral aperture from which paste may be dispensed when the sleeve is in outwardly projecting position, means on the inner end of the sleeve for limiting outward movement of the sleeve by engagement with said abutment, and a lateral enlargement on the sleeve and provided with a way for receiving said abut-

ment to permit inward and outward movement of the sleeve, said enlargement, upon inward movement and rotation of the sleeve being adapted to engage beneath said abutment for locking the sleeve against longitudinal outward movement.

14. A paste dispensing tube formed with an open neck, an abutment projecting inwardly of the neck, a sleeve slidably receivable in the neck and formed with a lateral way for receiving said abutment to provide for inward and outward movement of the sleeve relative to the neck, means on the inner end of the sleeve for limiting

outward movement thereof by engagement with said abutment, a cap on the outer end of the sleeve, the sleeve being provided with a lateral aperture for dispensing paste when the sleeve is in outwardly drawn position, and a reduced portion on the sleeve below the cap, said reduced portion being adapted to receive said abutment when the sleeve is pushed in whereby the sleeve may be turned and locked against longitudinal outward movement.

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