

May 11, 1937.

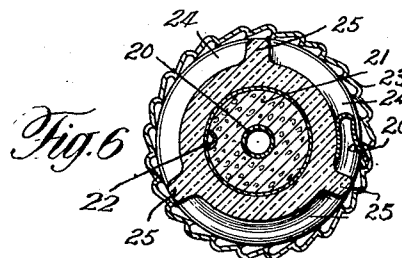
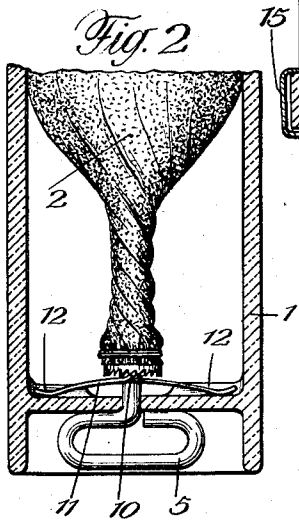
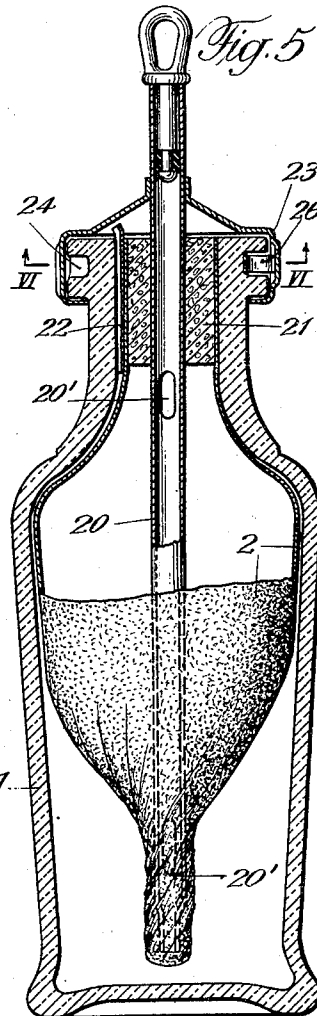
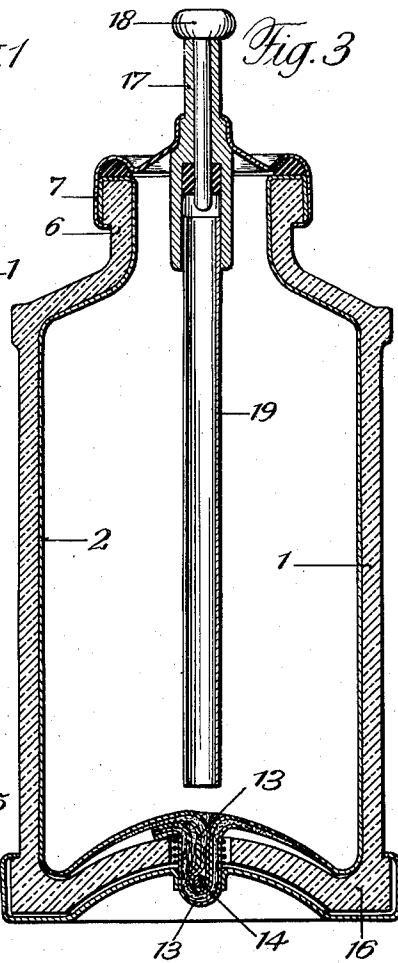
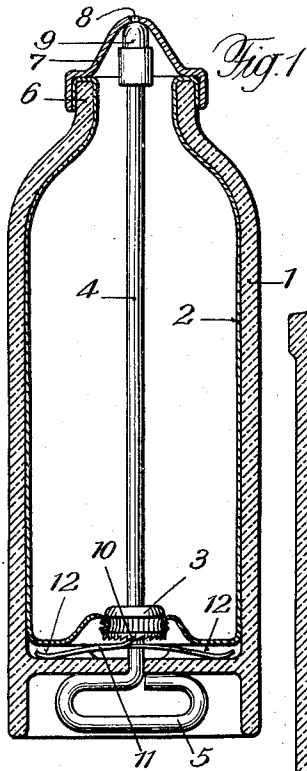
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2,080,134

DEVICE FOR DISPENSING PASTY OR LIQUID SUBSTANCES

Filed April 18, 1936

2 Sheets-Sheet 1



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2 Sheets-Sheet 2

Fig. 7

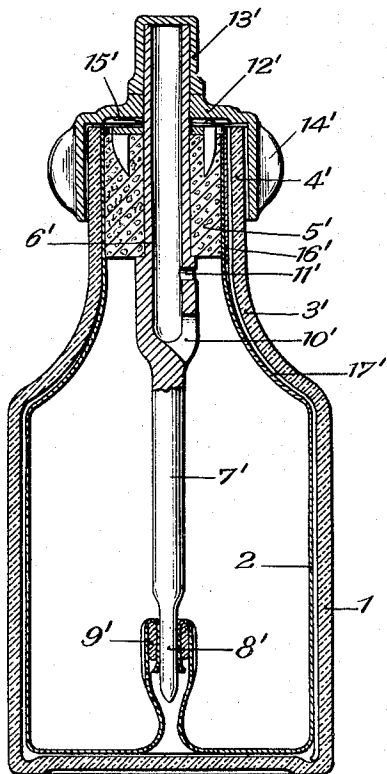


Fig. 8

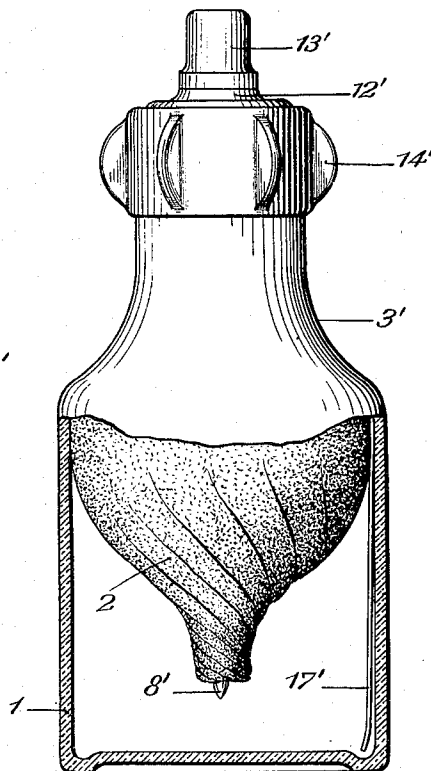
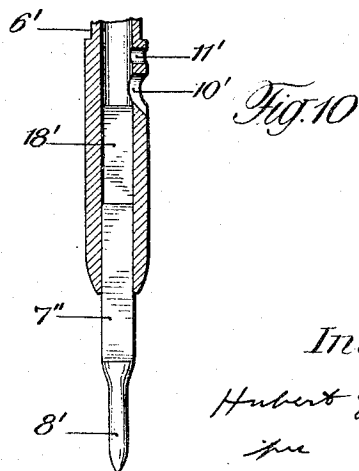
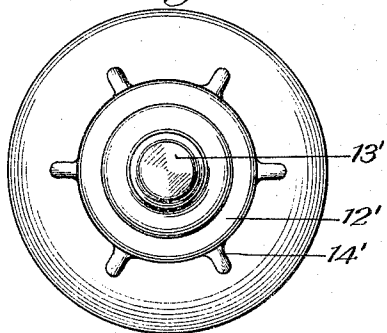


Fig. 9



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UNITED STATES PATENT OFFICE

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DEVICE FOR DISPENSING PASTY OR
LIQUID SUBSTANCES

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8 Claims. (Cl. 221-60)

This invention relates to devices for dispensing pasty or liquid substances.

For dispensing pasty and liquid substances, several devices have already been proposed. The present invention is concerned with devices of this kind wherein the substances are contained in a bag which is provided with a resilient wall and inserted in a solid enclosure and is wound up by twisting it for the purpose of squeezing out the content of the bag.

According to the invention an appliance is provided round which the bag is wound, the lower end of the bag being, advantageously, secured to the lower portion of the appliance.

Advantageously, the solid enclosure is in the form of a container provided with a neck through which the appliance is inserted, the upper end of the bag being fastened to the neck of the container. Preferably the appliance is provided with slots or apertures for adapting the appliance to serve at the same time for educting the squeezed out content of the bag.

The device serves, for example, for dispensing mustard, cosmetic pastes, oils or the like, that is, for materials which are to be squeezed out of the container in small quantities without permitting the access of air and soiling the container by the dispensed substance.

For such devices it is further required that the bag begins to wind on the appliance with its lower end first, as only in this event the content of the bag is properly squeezed out.

During winding up the bag its length is shortened in which way internal stresses can arise which may finally destroy the bag.

It is therefore necessary to provide adequate measures for eliminating this drawback.

This may be effected by spacing the lower end of the appliance to which the bag is fastened some distance from the bottom of the container, the portion of the bag extending down from the point of fastening serving as a reserve for compensating the shortening of the bag during winding it up. Advantageously, only the upper portion of the appliance is of tubular shape, the lower portion of the same being in the form of a massive rod the lower end of which is reduced so as to be flat in cross-section at the point of fastening of the lower end of the bag.

Further features provided with the same end in view are explained in the description of the embodiments of the invention given hereinafter.

In the accompanying drawings four embodiments of the invention are illustrated by way of example only, in which

Fig. 1 shows a vertical section of a first embodiment;

Fig. 2 shows the lower part of Fig. 1 with the bag partly wound up;

Fig. 3 shows a vertical section of a second embodiment;

Fig. 4 is a view of a detail of Fig. 3;

Fig. 5 shows a vertical section of a third embodiment;

Fig. 6 shows a horizontal section on the line VI—VI of Fig. 5;

Fig. 7 shows a vertical section of the fourth embodiment with the bag in condition prior to being wound up;

Fig. 8 shows in its upper part the device in elevation and in its lower part in vertical section with the bag partly wound up;

Fig. 9 shows a plan view of Fig. 7, and

Fig. 10 is a view of a modified detail.

Referring to the first embodiment as shown in Figs. 1 and 2 a solid enclosure is provided by a container 1 which is made of glass, earthenware, compressed material or the like and in which a bag 2 for the reception of pasty or liquid substances is inserted. This bag, preferably, consists of impregnated thin, densely woven cotton fabric; but any material may, however, be used for making the bag that can be worked into thin, very pliant and liquid-tight walls, as used for example for producing artificial entrails or watertight receptacles, cellulose derivatives being particularly adapted for the intended purpose. The lower end of the bag is secured to a thickening 3 on a thin rod 4 which provides the appliance about which the bag is wound and which can be turned and pulled out of the container to some extent by means of a handle piece 5. The upper end of the bag is secured to the neck 6 of the container, preferably in such manner, that a capsule 7 is forced over the folded-over margin of the bag. The capsule 7 is provided with an upper discharge opening 8 which is closed by means of a soft valve body 9 carried by the rod 4. The thickening 3 is provided with a lower toothed portion. This toothed portion cooperates with pawl-like projections 10 on a leaf spring 11 to the end that the handle piece 5 can be turned only in one direction. The leaf spring 11 is held in position with the aid of recesses or curved portions 12 on the bottom of the container.

By turning the handle piece, i. e. the rod 4 together with the thickening, the bag is wound up in the manner of the strands of a rope, as shown in Fig. 2, in which way the volume of the bag is decreased and the content thereof squeezed

out. Since simultaneously with turning the handle piece tension sets up, the rod moves downwardly, so that by means of the thickening 3 the spring force of the spring 11 is increased and the discharge opening 8 is given free by the valve body 9. On the handle piece being released from the forces acting thereon, the leaf spring forces the rod upwardly thereby closing the discharge valve.

10 With the aid of the ratchet device provision is made that the bag can be twisted but not untwisted. By this means is obtained that the volume of the bag is decreased more and more and that its content can flow out without ever flowing back. The container cannot be re-filled without further provisions, so that it is practically impossible to replace a high-quality trade-mark article with which it had been filled by an inferior material.

20 In order to cause the bag to twist from below to above, i. e. towards the discharge opening, it must contact with the inner wall of the container. If the bag is wound up without touching the wall of the container, it may happen that the twisting in the manner of the strands of a rope begins at the upper end of the bag which would result in the discharge opening becoming completely clogged.

30 The embodiment shown in the Figs. 3 and 4 differs from the preceding one principally in that the appliance about which the bag is wound serves at the same time for educting the squeezed out portion of the bag content.

35 The bag 2 is positioned inside the container 1. The lower end portion of the bag is constricted, at 13, a pin 14 being passed transversely through this constricted portion. By means of the pin 14 the bag 2 is secured to a cap 15 which is rotatably mounted on the exterior periphery of the bottom portion 16 of the container. This cap 15, which is preferably made of sheet metal, is provided with pawl members, not shown, which engage into notches in the bottom of the vessel in which way is obtained that the bag can be wound up in the manner of the strands of a rope only in one sense of rotation by turning the bottom member.

50 The upper end of the bag is clamped between the capsule 7 and a rim on the neck of the container. The capsule is provided with a neck on which a discharge nozzle 17 comprising a closure pin 18 is mounted.

55 In the lower hollow-cylindrical space of the discharge nozzle 17 a tube 19 is loosely inserted which is provided with a longitudinal slot (Fig. 4).

60 On winding up the bag for squeezing out its content, it was found that the bag begins to twist first at its upper instead of at its lower end. If this happens, the upper end of the bag is constricted so that its content is prevented from flowing out.

65 In employing, however, a slitted or perforated tube which is situated in the longitudinal axis of the bag, the latter is caused to wind on this central tube while being twisted, thereby delivering its content through the longitudinal slot in the tube towards the discharge nozzle.

70 Naturally, any expedient acting to prevent a total constriction of the bag clogging the discharge passage thereof may be used instead of the slitted rotatable central tube.

75 In both embodiments previously described, in the bottom of the container a perforation is provided

through which the appliance for winding up, that is, securing the bag protrudes. Packing the perforated portion tightly meets with considerable difficulty and, moreover, quantity production of the containers is complicated by the necessity of providing a central perforation and is thus accordingly rendered more expensive.

10 These difficulties are eliminated in the embodiment shown in the Figs. 5 and 6 in that the appliance about which the bag is wound for squeezing out the bag content is inserted through the container neck. To the lower end of the appliance, which may be, for example, a tube, the lower end of the bag is secured, whereas the upper end of the bag is secured to the container neck.

20 In the Figs. 5 and 6 the numerals 1 and 2 refer again to the container and to the bag respectively. The latter is connected with its lower end with the lower end of the tube 20 and is held in the neck of the container by a plug 21. The inner diameter of the neck of the container is several times the diameter of the lower end of the tube which relation is essential for the bag winding on the tube properly, that is, from the bottom up. For communication with the interior of the bag the tube 20 is provided with apertures 20'. For circulation of air a passage 22 is provided between the bag and the neck of the container, for example, in the form of a narrow vaulted sheet metal channel.

30 With the central tube 20 a serrated capsule 23 is connected for serving as a handle piece. The neck of the container is provided with a groove 24 which is subdivided into sections by means of ribs 25, as shown in Fig. 6. In these sections a locking spring 26 is mounted which engages into flutes, that is, notches in the interior circumference of the capsule to the effect that turning the central tube or the container is rendered possible only in one sense of rotation. The central tube 20 is passed through the soft packing 21, which may consist, for example, of cork, so as to be easily rotatable and well sealed against outside.

45 The operation of the device is best effected, in such manner, that the capsule 23 is firmly held with one hand while with the other hand the container is turned in which way the bag is wound on the central tube and its content is squeezed out.

50 In the embodiment shown in the Figs. 7 to 10, by 1 the enclosure is designated which may be in the form of a container which is made of glass, earthenware, a compressed material or the like and in which a bag 2 having a flexible wall is inserted which contains the pasty or liquid substance. If the latter consists, for example, of mustard, the container is advantageously made of brown glass in order to avoid the albuminous substances being destroyed by action of light. Furthermore, it is advantageous to dull the exterior surface of the container in grained manner, in order to hide the bag from view from outside. The bag may be made of any suitable impregnated fabric the impregnation of which is adapted to the material to be received by the bag.

65 At 3' the wall of the container gradually merges with the neck 4' of the container which is closed by a plug 5'. In the latter, the appliance about which the bag is wound for squeezing out its content is rotatably mounted. This appliance is provided in its upper part with a tube 6' which ends downwardly in a massive rod 7' and the lower

end of which is reduced, at 8', so as to be flat, for securing the lower end of the bag 2 by means of a ferrule 9' pushed over this end. The upper end of the bag is clamped between the plug 5' and the container neck 4'. The tube 6' is provided with a relatively large aperture 10' through which the content of the bag enters the interior of the tube during being squeezed out and through which the bag is filled with the pasty or liquid substance. Through a further aperture 11' in the tube the air can escape which is displaced from the bag during filling the same. A capsule 12' is firmly connected with the tube 6' and is guided for rotation on the exterior surface of the container neck 4'. The tube 6' is closed by a further thimble-shaped capsule 13' which is loosely pushed on its upper end portion, this capsule being removed prior to the withdrawal of the pasty or liquid substance. On its outer side, the capsule 12' is provided with wing-shaped projections 14' so as to permit of holding the container and turning the capsule for squeezing out the content of the bag with one hand alone.

In order to provide that the capsule 12' can be turned and thus the bag 2 is wound up in but one direction, in the plug 5' a leaf spring 15' is fastened which projects upwardly to some extent and is forced into notches provided in the capsule, but not shown in the drawings, by snap action.

In the plug 5' also in this case a passage, which is, for example, in the form of a sheet metal channel 16', is depressed, in order to admit air between the bag 2 and the container 1. With a view to lead the air down to the bottom of the container, for example, a paraffine coated cord 17' is inserted between the bag and the container. The same effect can also be obtained, if, instead of a cord, a thickened portion is provided in the fabric of the bag, for example, by folding it into a seam or else a slim highly flexible rod or tube is inserted.

The above-described measures serve the purpose to ensure that the bag is wound up beginning with its lower end. During turning the capsule 12' the rod 7' is turned in unison, thereby winding on itself first the lower end of the bag. The pressure inside the bag then rises and forces the latter against the bearing surface of the portion of the container joining the cylindric interior wall of the latter with its neck, thus preventing the bag from twisting at this portion and permitting the twisting to begin but at the lower end of the container. Since the lower end of the rod 7' is spaced some distance from the bottom of the container, the portion of the bag extending downwardly from its point of fastening acts as a reserve which permits the bag to shorten in length during being wound up without undue stresses setting up in the bag material.

A further measure for avoiding undue stresses setting up in the bag is depicted in Fig. 10 which shows a further modification of the rod about which the bag 2 is wound. The rod 7'' to the flat reduced end portion 8' of which the bag is secured is of a square cross section and is guided in an extension of the tube 6' having a mating square aperture 18'. If during winding up tension arises in the bag the rod 7'' can shift upwardly.

It is obvious that instead of providing a square cross section any other cross section may be adopted which keeps the rod 7'' from turning relative to the extension of the tube 6', but permits this rod to shift axially.

I do not limit myself to the particular size, shape, number or arrangement of parts as shown and described, all of which may be varied without going beyond the scope of my invention as shown, described and claimed.

What I claim is:

1. In a device for dispensing pasty as well as liquid substances, a solid container having a neck, a bag having a flexible wall, for containing the substance to be dispensed, said bag being disposed in said container and fastened at its upper end to said neck, a passage for admitting air between said bag and said neck, an apertured tube insertable exclusively through said neck and connected at its lower portion with a lower bag portion, means for sealing said tube in said neck, and means on said tube for turning the same relative to said container for winding up said bag by twisting it for thus squeezing out its content.

2. In a device for dispensing pasty as well as liquid substances, a solid container, a bag having a flexible wall, for containing the substance to be dispensed held in said container, an appliance for winding up said bag by twisting it to squeeze out its content, and connected with a lower bag portion, and locking means cooperating with said appliance to permit turning said appliance only in one sense of direction.

3. In a device for dispensing pasty as well as liquid substances, a solid container, a bag having a flexible wall, for containing the substance to be dispensed held in said container, an appliance for winding up said bag by twisting it for thus squeezing out its content and connected with a lower bag portion, said appliance having notches, and a pawl for cooperation with said notches to permit turning said appliance only in one direction.

4. In a device for dispensing pasty as well as liquid substances, a solid container having a recessed neck, a bag having a flexible wall, containing the substance to be dispensed, disposed in said container and fastened at its upper end to said neck, an appliance extending through said neck, for winding up said bag by twisting it and thus squeezing out its content and connected at its lower portion with a lower bag portion, a capsule having a notched interior circumferential portion connected to said appliance, and a pawl mounted in the recesses of said neck for cooperation with the notches of said capsule to permit turning said appliance only in one direction.

5. In a device for dispensing pasty as well as liquid substances, a solid container having a neck, a bag having a flexible wall, for containing the substance to be dispensed, disposed in said container and fastened at its upper end to said neck, an appliance having a tubular upper part and a rod-shaped lower part extending through said neck for winding up said bag by twisting it and thus squeezing out its content and having a lower reduced portion of flat cross-section, spaced some distance from the bottom of said container, and connected to a lower portion of said bag, and a terminal portion on said bag extending below said lower bag connection and serving as a reserve for compensating any shortening in length of said bag, while the latter is wound up.

6. In a device for dispensing pasty as well as liquid substances, a solid container having a neck, a bag having a flexible wall, for containing the substance to be dispensed, disposed in said container and fastened at its upper end to said

neck, a passage for admitting air between said container and said bag extending to the bottom of the former, an appliance extending through said neck for winding up said bag by twisting it and thus squeezing out its content in cooperation with said air passage and having a lower portion spaced some distance from the bottom of said container, and connected to a lower portion of said bag, and a terminal portion on said bag extending below said lower bag connection and serving as a reserve for compensating any shortening in length of said bag, while the latter is wound up.

7. In a device for dispensing pasty as well as liquid substances, a solid container having a neck, a bag having a flexible wall, for containing the substance to be dispensed, disposed in said container and fastened at its upper end to said neck, a passage for admitting air between said container and said bag provided by a bead-like thickening of the bag material, an appliance extending through said neck for winding up said bag by twisting it and thus squeezing out its

content in cooperation with said air passage and having a lower portion spaced some distance from the bottom of said container, and connected to a lower portion of said bag, and a terminal portion on said bag extending below said lower bag connection and serving as a reserve for compensating any shortening in length of said bag, while the latter is wound up.

8. In a device for dispensing pasty as well as liquid substances, a solid container having a neck, a bag having a flexible wall, for containing the substance to be dispensed inserted in said container and fastened at its upper end to said neck, an appliance having a tubular upper part and a massive rod-shaped lower part displaceably arranged in said upper part, the appliance being insertable exclusively through said neck and connected at its lower part with a lower bag portion for winding up said bag by twisting it for thus squeezing out its content, while said lower part is displaced in said upper part, when tension arises in said bag.

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