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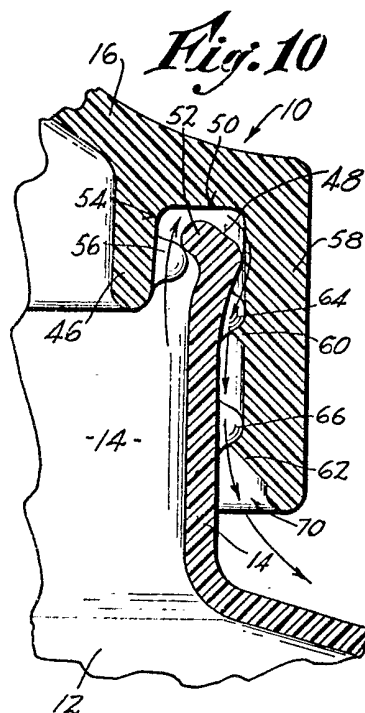
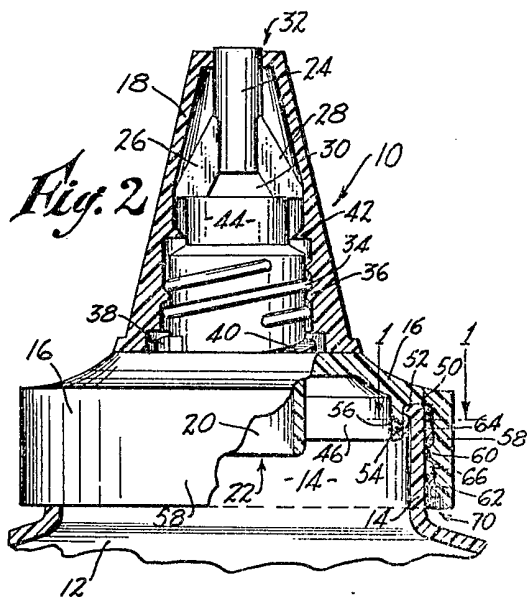
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(54) Hand-held dispenser with automatic venting

(57) A hand-held dispenser (10, 12) for a flowable product, comprises in combination a container (12) having a neck portion (14) at its top, and a cap body having a base portion (16) which is held captive by the neck portion (14) of the container (12) and a screw cap (18) which is turnable with respect to the base portion (16) to allow the product to be dispensed. The base portion (16) and neck portion (14) have cooperable, automatic pressure-relief valving means (48, 50, 52, 54 and 56) responsive to increased gas pressure in the container (12), for venting a quantity of gas when the container (12) is in its upright position.



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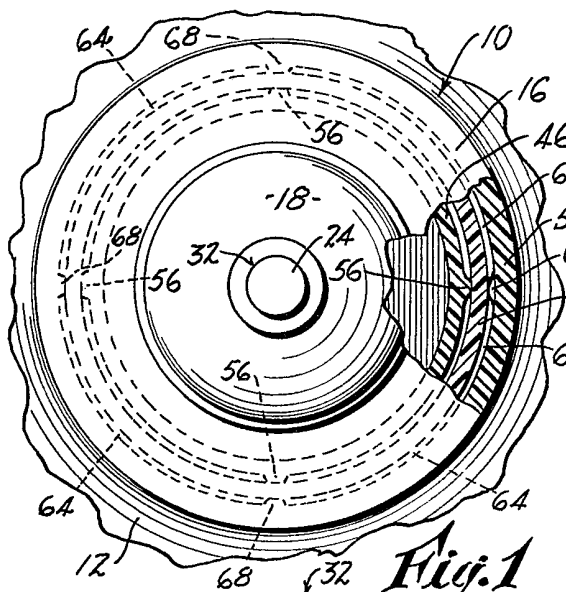


Fig. 1

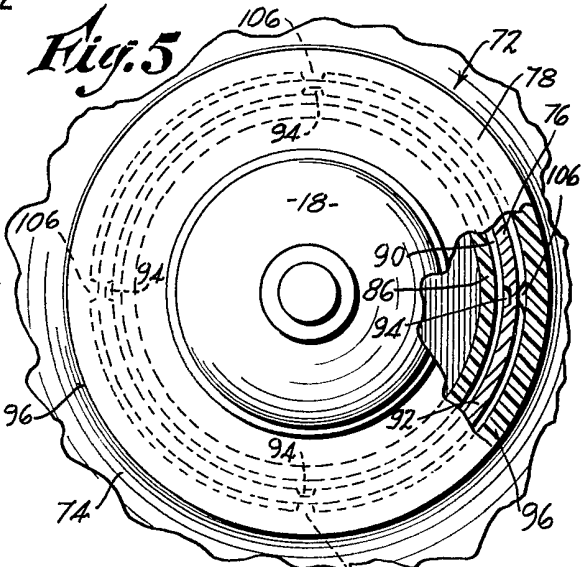


Fig. 5

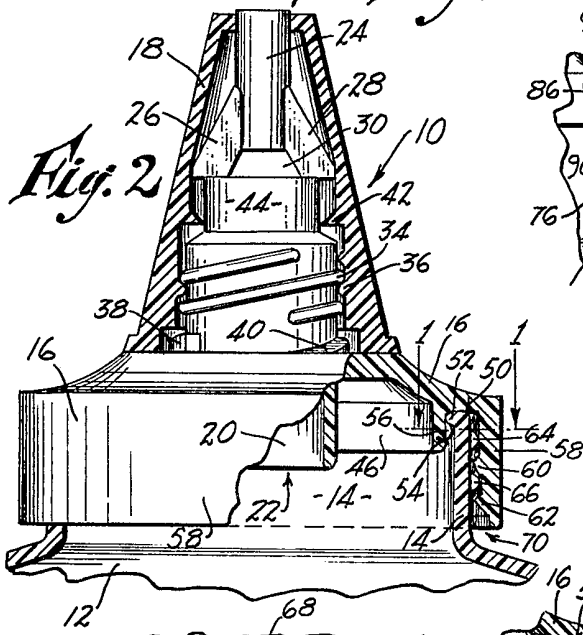


Fig. 2

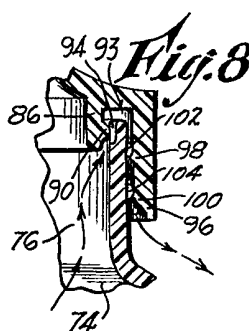


Fig. 8

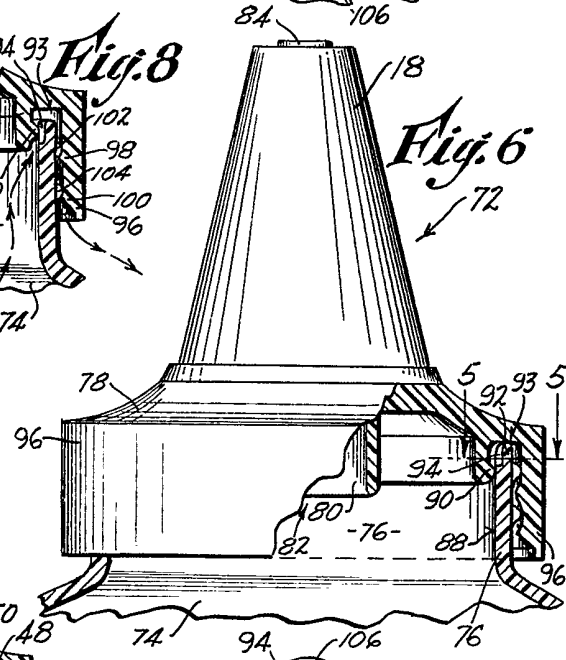


Fig. 6

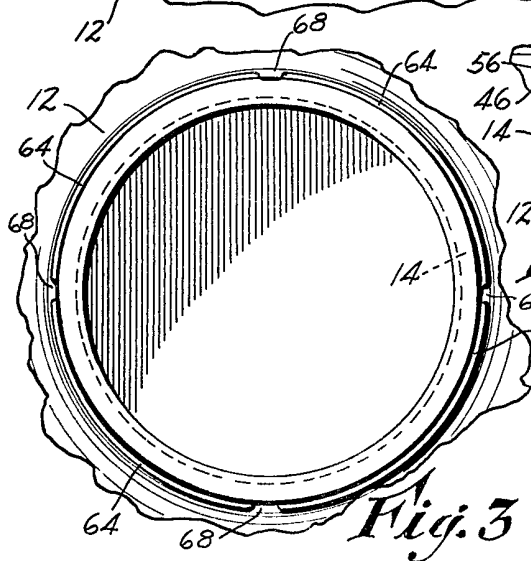


Fig. 3

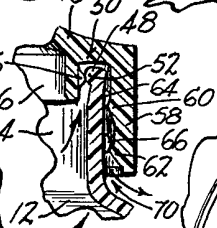


Fig. 4

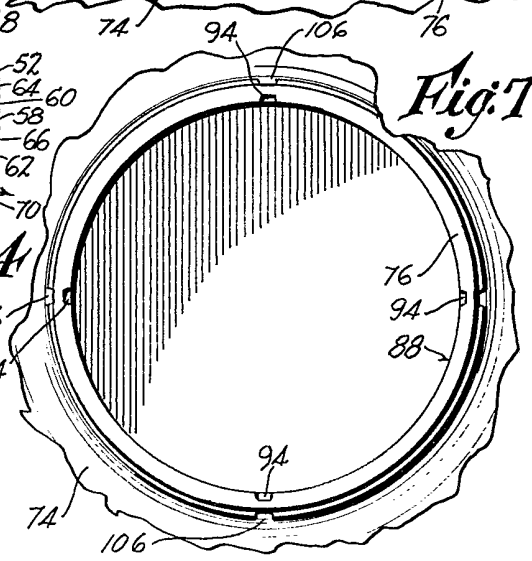


Fig. 7

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Fig. 9

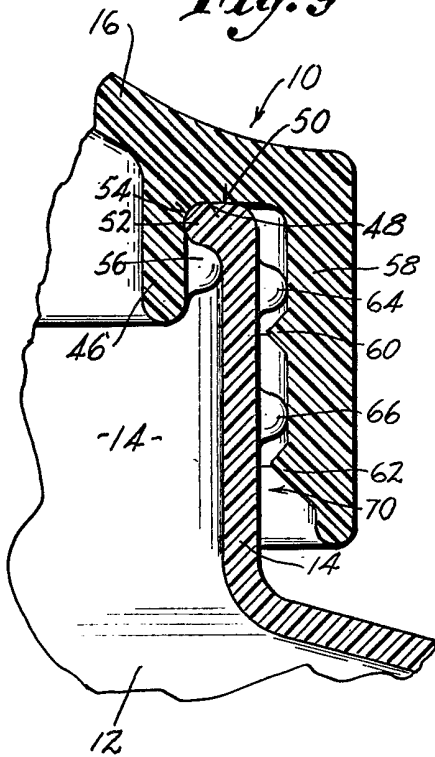


Fig. 10

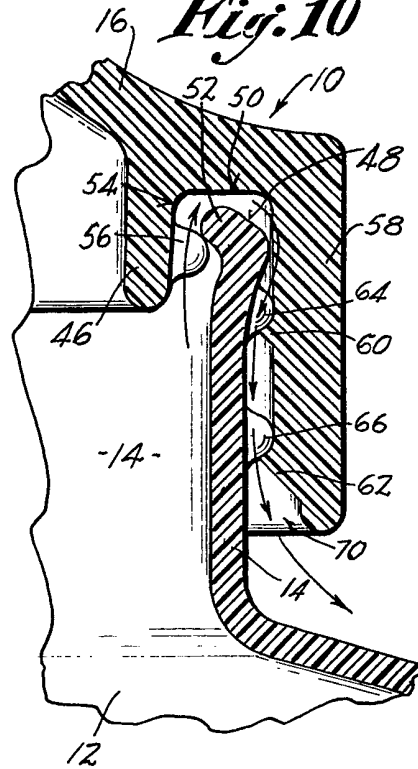


Fig. 11

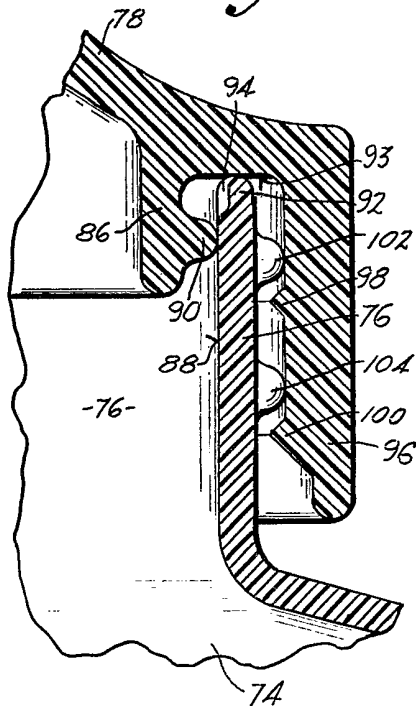
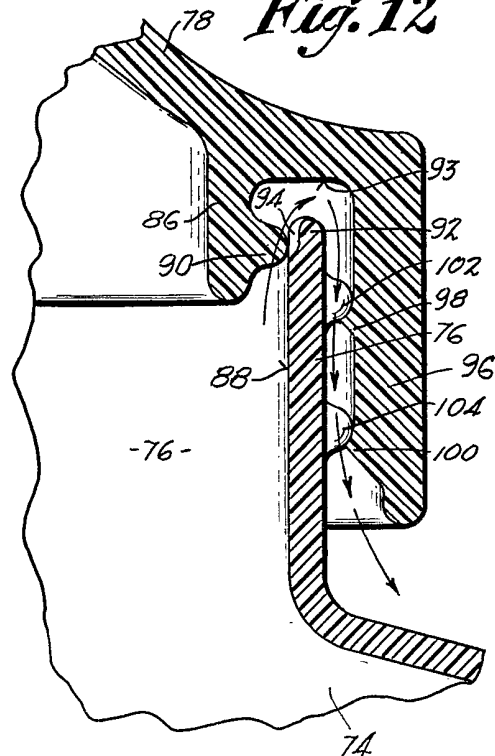


Fig. 12



SPECIFICATION

Hand-held dispenser with automatic venting

5 This invention relates generally to hand-held dispenser for viscous or liquid products, and more particularly to dispensers of the type wherein a separate container having an upstanding neck is fitted with a two-part cap construction comprising a screw cap, 10 and a base part which latter is adapted to be secured to the container neck by means of retention beads, or else alternately screwed in operative position where threads on the neck and base part are provided. In such dispensers, the base part and 15 container normally remain together during shipping and use of the dispenser. The screw cap is held captive on the base part but is moveable thereon between sealing and discharge positions.

Dispensers of this type are well known. Examples 20 of such dispensers are illustrated in the following patents: U.S. Patent No. 3,216,630 issued November 9, 1965, and entitled CLOSURE FOR CONTAINERS; U.S. Patent No. 3,319,843 issued May 16, 1967, and entitled CAPTIVE CLOSURE CAP CONSTRUCTION; 25 U.S. Patent No. 3,351,249 dated November 7, 1967, and entitled CAPTIVE DISPENSING CLOSURE FOR CONTAINERS; U. S. Patent No. 3,370,764 dated February 27, 1968, and entitled DISPENSING SCREW-TYPE CLOSURE CAP; U.S. Patent No. 30 3,406,880 dated October 22, 1968, and entitled DISPENSING CLOSURE CAP; U.S. Patent No. 3,407,967 dated October 29, 1968, and entitled DISPENSING CLOSURE CAP; and U.S. Patent No. 3,598,285 dated August 10, 1971, and entitled CAP- 35 TIVE DISPENSING AND METERING CAP; all of the above patents having been issued to Morton B. Stull; and U.S. Patent No. 4,477,002 dated October 16, 1984, and entitled DISPENSING CAP CONSTRUCTION, issued to Gene Stull.

40 Dispensers of the type described and illustrated in the above patents were frequently employed with substances such as adhesives or glues of one type or another, which were for the most part, non-volatile. That is, problems associated with some of the 45 material gasifying while still in the container were normally not encountered. Accordingly provision for dealing with build-up of excessive pressures was not made, since there was generally no necessity for doing so, and the chances of such containers 50 bursting or breaking along a seam were minimal.

It has been found that with other types of substances, however, namely certain foods, there exists a strong tendency for gas to build up within the container after a period of time. The problem is 55 especially troublesome with the category of foods which includes mustards. With conventional packaging where an adequate seal was employed in order to insure the integrity of the product, there have occurred instances where the container has either 60 burst, or else the caps thereof have been blown off by the pressure in the container. In the case of mustard, such an occurrence represented not only a loss of the particular dispenser involved, but in addition, the contents often were spattered with 65 considerable force against adjacent containers, giv-

ing rise to the need for removing them from the area where the accident occurred, cleaning them individually, and replacing them. The clean up represented an unnecessary waste of time as well as 70 being a nuisance, as can be readily appreciated.

Practically all of the containers of which I am aware do not make provision for the venting of built-up gas inside the container, since in general the manufacturers and distributors are more concerned with the 75 integrity of the package, that is, making sure that the contents are not contaminated by external means, and also that no leakage of the product occurs during the interim between the filling of the dispenser and the purchase and use by the consumer.

80 The above disadvantages and drawbacks of prior hand-held dispensers of the non-venting type are largely obviated by the present invention, which provides a hand-held dispenser for a flowable product, comprising in combination a container for 85 said product, having a neck portion at its top, a cap body having a discharge opening, and having a base portion co-operable with the neck portion of the container to mount the cap body thereon, said base portion and neck portion having co-operable, auto- 90 matic pressure-relief valving means responsive to increased gas pressure in the container, for venting a quantity of said gas when the container is in its upright position.

The invention further provides an automatically 95 venting cap construction for a dispenser, comprising in combination a cap body having an annular sealing surface, a container having a discharge passage closeable by the cap body, said discharge passage having a co-operable annular sealing surface sea- 100 lingly engageable with the sealing surface of the cap body, means defining a projection adjacent one of said surfaces and engageable with the other of said surfaces when the body is raised axially from its sealing position on the discharge passage, such that 105 the projection separates the one sealing surface from the other and at least momentarily breaks the seal therebetween so as to vent gaseous components of the contents of the container when the latter is in an upright position.

110 The invention still further provides an automatically venting cap construction for a dispenser, comprising in combination a cap body having an annular sealing surface, a container having a discharge 115 passage closeable by the cap body, said discharge passage having a co-operable annular sealing surface sealingly engageable with the sealing surface of the cap body, and means defining a recess adjacent one of said sealing surfaces, adapted to underlie the other of said sealing surfaces when the cap body is 120 raised axially from its sealing position on the discharge passage, such that the said recess provides a by-pass passage around the said other sealing surface and at least momentarily breaks the seal therebetween so as to vent gaseous components of the contents of the container when the latter 125 is in an upright position.

Other features and advantages will hereinafter appear.

In order that the invention may be more readily 130 understood, reference will now be made to the

accompanying drawings, in which:

Figure 1 is an enlarged view, partly in top plan and partly in horizontal section, of the automatic venting dispenser construction. The section is taken on the line 1--1 of *Figure 2*.

Figure 2 is a side view, partly in elevation and partly in axial section, of the venting cap and container construction of *Figure 1*, illustrating details of the structure thereof.

Figure 3 is a top plan view of the container and neck portion thereof per se, particularly showing a segmented bead disposed on the latter.

Figure 4 is a fragmentary section of the dispenser of *Figures 1* and *2*, wherein the cap body has been raised axially upward by pressure in the container, and wherein the seal between the co-operable sealing surfaces on the base portion of the cap body and the neck portion has been momentarily broken, enabling venting of gas to occur as indicated by the arrows.

Figure 5 is a view like that of *Figure 1*, of a somewhat modified automatic venting dispenser construction constituting an alternate form.

Figure 6 is a view like that of *Figure 2*, showing certain details of the interior of the dispenser of *Figure 5*.

Figure 7 is a view like that of *Figure 3*, of the container and neck portion employed with the modified venting dispenser construction of *Figures 5* and *6*.

Figure 8 is a view like that of *Figure 4*, showing the cap body of the construction of *Figures 5-7* as having been shifted axially upward, such that a recess on the interior surface of the container neck portion underlies the sealing surface of the cap body, so as to enable venting of gas from the container interior to occur as indicated by the arrows.

Figure 9 is a greatly enlarged fragmentary section of the construction illustrated in *Figures 1-4*, showing more particularly the details of the base portion of the cap body and the neck portion of the container.

Figure 10 is a greatly enlarged fragmentary section of the construction of *Figures 1-4* and *9*, showing the base portion of the cap body as having been shifted axially upward with respect to the neck portion of the container by pressure therewithin, and showing arrows illustrating the direction along which gas from the interior of the dispenser is vented to the outside.

Figure 11 is a view like that of *Figure 9*, except illustrating the modified cap body and neck portion of the container shown in *Figures 5-8*.

Figure 12 is a view like that of *Figure 10*, showing the base portion of the modified cap body of *Figures 5-8* and *11* as having been shifted axially upward with respect to the neck portion of the container by pressure therewithin, and showing arrows illustrating the direction along which gas from the interior of the dispenser is vented to the outside.

Referring first to *Figure 2* there is illustrated a cap construction generally designated by the numeral 10, adapted to be employed with a container 12 having a neck portion 14. Together, the container 12 and cap construction 10 constitute a hand-held

dispenser for a flowable product. The neck portion defines a discharge passage of the container. The cap construction 10 comprises a cap body having a base portion 16 which fits onto and is held captive by the container neck portion 14, and a screw cap 18 which is turnable with respect to the base portion 16. The portion 16 has an inner depending tubular structure 20 defining the lowermost end of a discharge opening 22 that extends upwardly through the portion 16 toward a stopper plug 24 which is mounted on the remainder of the portion by means of a pair of legs 26, 28. Two opposed spaces 30 on opposite sides of the legs 26, 28 constitute openings through which product can flow. The screw cap 18 has a generally conical outer surface, with a discharge passage 32 in its transverse top wall, the passage 32 being normally closed off by the stopper plug 24. On the outer surface of the base portion 16 of the cap body are screw threads 34 adapted to mate with co-operable internal threads 36 on the screw cap 18. Two cam tracks 38, 40 are provided on the base portion, each extending circumferentially through just under 180 degrees, these being engageable by known driver lugs (not shown) on the underside of the screw cap 18. The arrangement is such that as the part 18 is unscrewed, both the threads 34, 36 and the driver lugs and cam tracks 38, 40 operate to force the cap 18 in an axially upward direction in *Figure 2*. Pull-down of the screw cap 18 is effected solely by engagement of the threads 34, 36, inasmuch as the cam tracks 38, 40 are inoperative at such times.

Also, on the inner surface of the screw cap 18 is an annular sealing bead 42 that slides along a cylindrical sealing surface 44, to prevent product in the vicinity of the opening 30 from flowing into the area adjacent the threads 34, 36. Unscrewing of the screw cap 18 raises it axially, thereby removing the stopper plug 24 from the passage 32, and permitting discharge of the contents of the dispenser, all in the usual manner. The open position of the screw cap 18 is not shown in the figures.

Referring again to *Figure 2* there is provided a relief-valve means between the neck portion 14 of the container 12 and the base portion 16 of the cap body, which automatically operates to maintain the container in a sealed condition under normal conditions wherein the pressure therein is roughly equal to that existing outside the container, but to momentarily vent the container in response to build up of pressure therein, and thereafter to re-establish a seal thereof with respect to the exterior of the dispenser.

The base portion 16 is provided with a depending flange 46 that is adapted to be telescopically received in the neck portion 14 of the container 12 as shown in *Figure 2*. *Figure 9* illustrates the depending flange 46 and neck portion 14 in greater detail. The upper surface of the neck portion 14 has in it a lip 48 that seals against the bottom disc-like surface 50 of a groove in the base portion 16. In addition, the neck portion 14 has an inner annular bead, which in the present instance is continuous, that is, essentially uninterrupted. The bead is indicated 52 and seals against the annular surface 54 on the outside of the flange 46. This annular surface is actually cylindrical

in the disclosed embodiment. Disposed below the surface 54 is a projection 56; four such projections 56 are shown in Figure 1, but a greater or lesser number would provide similar results.

5 In operation, when the pressure in the container is essentially the same as that outside the container, the base portion 16 occupies the position shown in Figures 2 and 9, that is, there exists a seal between the surfaces 52 and 54, as well as a seal between the
10 lip 48 and surface 50. The projections 56 do not interfere with either seal, and the integrity of the dispenser is maintained, assuming that the screw cap 18 is disposed in its closed, sealing position as shown in Figure 2. In the event that gaseous
15 components of the contents of the container cause pressure to begin to build up within the dispenser, as has been found to occur with certain substances, namely mustards, an axially upwardly-directed force will be applied to the base portion 16; if the force
20 becomes sufficiently great, the portion 16 will shift upwardly, most likely at one side of the container. When this occurs, at least one of the projections 56 will be applied against the bead 52, and the seal between the surface 54 and bead 52 will at least
25 momentarily be broken, enabling the excess pressure to vent past the bead 52, past the surface 48, and in a downward direction past the outer surface of the container neck portion 14. As soon as sufficient gas has been expelled to equalize the pressures, the
30 projections 56 will restore the base portion 16 to its normal position wherein there again exists a seal between the surface 54 and bead 52, as well as between the surfaces 48 and 50. The resilience of the plastic material of which the container neck portion
35 14 and base portion 16 are formed restores the original positioning of the parts.

In the figures it can be seen that the base portion 16 has an outer wall, indicated 58. The inner surface of the outer wall 58 has two annular beads 60, 62,
40 which are co-operable with similar beads 64, 66 on the outer surface of the neck portion 14. The purpose of the beads 60, 62 and 64, 66 is to provide a positive retention of the base portion 16 on the container 12 at all times, regardless of the pressure conditions
45 existing in the latter. Figure 1 shows that the beads 64, 66 are not continuous; instead, they preferably consist of four arcuate sectors or segments, each extending essentially through 90 degrees and each being separated from the adjacent arcuate sector by
50 a small space or notch. The notches are indicated 68, Figure 1, and they operate to provide vent openings for the gas that is passing downwardly outside of the neck portion 14 when venting is occurring. Even in the case that the beads 62, 66 and 60, 64 engage one
55 another, there would still be venting space available for the escape of the gas, due to the space indicated 70 which always exists between the innermost portion or diameter of the beads 60, 62 and the outer surface of the neck portion 14. Such a circumstance
60 where the beads engage is shown, somewhat exaggerated, in Figure 10. In some of the appended claims, the position of the base portion 16 with respect to the container neck portion 14 corresponding to the showing of Figure 9 is referred to as a
65 fully-seated position, and the position of Figure 10

referred to as an axially-shifted or raised position of the base portion 16 with respect to the neck portion 14.

During venting, the gas will follow a path generally
70 along that indicated by the arrows in Figure 10. Stated in general terms the engageable annular sealing surfaces 52, 54 are in sealing engagement with one another in the absence of excess internal pressure in the container 12, but are displaced from
75 one another by the establishment of pressure sufficient to shift the base portion 16 of the cap body axially upward, such that discontinuities or interruptions in the seal surfaces, taking the form of
80 projections 56 that engage the bead 52, break or crack the seal between parts 52 and 54, at least momentarily. As an alternate construction (not shown), a continuous bead similar to that indicated
85 52 could be incorporated on the outer surface of the flange 46, and projections similar to those labelled 56 formed on the inner surface of the neck portion 14, at the location of the existing bead 52. The seal would be established in an analogous manner, and the momentary breaking of the seal would occur as the base portion 16 is shifted axially upward in
90 Figures 2 and 9.

A modification is illustrated in Figures 5-8 and 11-12. The structure of the screw cap 18 is essentially the same as that of the first embodiment. The dispenser is indicated by the numeral 72; the
95 modified container 74 is provided with a neck portion 76. The base portion 78 of the cap body has an inner depending flange 80 defining a discharge opening 82 which communicates with the area around the stopper plug 84 in Figure 6. In addition,
100 the base portion 78 has a depending cylindrical flange 86 which is telescopically received in the neck portion 76 as illustrated in Figure 11.

Referring again to Figure 6 there is shown a relief-valve means between the neck portion 76 of the container 74 and the base portion 78 of the cap
105 body, which automatically operates to maintain the container in a sealed condition under normal conditions wherein the pressure therein is roughly equal to that existing outside the container, but to momentarily vent the container in response to build-up of
110 pressure therein, and thereafter re-establish the seal between the sealing surfaces of the container neck portion and base portion of the cap body.

There is an annular sealing surface 88 on the
115 interior of the neck portion 76, that is adapted for engagement with a co-operable surface formed by an external bead 90 on the outside of the flange 86 when the base portion 78 occupies a fully seated position on the neck portion 76 as shown in Figure
120 11. In addition to the seal between surfaces 88 and 90, the lip 92 of the neck portion seals with the disc-like surface 93 at the base of the groove in the base portion 78. The bead 90 in the present instance is preferably continuous, that is, extends through
125 360 degrees and is uninterrupted. On the inner surface of the neck portion 76 there is provided a relief or recess indicated 94, there being four such recesses disposed about the periphery of the neck portion 76. These recesses are also shown in Figure
130 7, and constitute by-pass passages, as will be

explained below.

In operation, with normal pressures in the container there is essentially no upwardly directed force applied to the base portion 78 from within the container, and the integrity of the seal between the surfaces 88 and 90 is maintained. However, if sufficient pressure builds within the container, so as to force the base portion 78 upwardly in the figures, generally one side will be shifted first. As this occurs, the bead 90 is brought to a position wherein one of the recesses 94 underlies the bead 90, and the seal between it and the sealing surface 88 is, at least momentarily, broken. At the same time, the seal between the lip 92 and the bottom surface 93 of the groove is disturbed so that gas from the interior of the container can by-pass the bead 90 by flowing through one or more recesses 94, over the lip 92, and downwardly past the outside of the neck portion 76. The general direction of this flow is indicated by the arrows in Figure 12.

As in the previous construction, additional retainer structures are provided on the outer surface of the neck portion 76 and on the outer wall 96. The inner surface of the outer wall 96 has two annular beads 98, 100 which are co-operable with similar beads 102, 104, respectively on the outer surface of the neck portion 76. The beads 98, 100 and 102, 104 provide positive retention of the base portion 78 on the container 74 at all times, which is significant because unlike the prior arrangement, little retention of the base portion 78 by the neck portion 76 is provided by the engagement of the bead surface 90 and surface 88. Figure 5 shows that the beads 102, 104 are not continuous, but instead preferably consist of four arcuate sectors or segments, each extending through 90 degrees, and each being separated from the adjacent arcuate sector by a small space or notch. The notches are indicated 106, and they operate to provide vent openings for the gas that is passing downwardly outside of the neck portion 76 when such venting is occurring. If the beads 100, 104 and 98 and 102 engage one another during venting, there is still maintained the capability for the escape of gas, due to the spaces indicated 106 which always exists between the innermost portion or diameter of the beads 98, 100 and the outer surface of the neck portion 76.

While in the embodiment of Figures 1-4 and 9-10 there occurs deformation of the wall constituting the neck portion 14 of the container, in the embodiment of Figures 5-8 and 11-12 little or no deformation occurs at the location of the sealing surfaces 88, 90. The nature of the difference in function can be readily determined by a comparison of Figures 10 and 12, respectively.

From the above it can be seen that there have been disclosed improved, automatically-venting, hand-held dispensers that are both simple in their structure, and that effectively solve the problem of pressure build-up in the container without sacrificing the integrity of the seal between the base portion of the cap body and the container itself. The integrity of the seal between the cap base portion and container neck is maintained under normal conditions, as where the dispenser is being stored, shipped, or

used by the consumer. The venting occurs automatically and in a perfectly safe manner, by momentarily relieving any pressure build-up in the container as might occur under abnormal conditions; moreover, the pressure relief is provided well ahead of that point which might result in bursting, splitting or other explosive-type destruction of the container, thus eliminating possible spillage and/or splattering of the contents thereof.

The parts can be economically molded and thereafter readily assembled, all to the end of minimizing overall manufacturing and assembly cost. The assembly of the cap body onto the neck portion is carried out preferably by automatic capping equipment, thus further reducing the cost. Moreover, the cap body, once assembled to the neck portion, is reliably and permanently retained thereon, with virtually no possibility of the body being loosened, either inadvertently such as during handling or shipping, or deliberately, as a result of possible tampering.

The dispensers are thus seen to represent a distinct advance and improvement in this field.

Each and every one of the appended claims defines an aspect of the invention which is separate and distinct from all others, and accordingly each claim is to be treated in this manner when examined in the light of the prior art devices in any determination of novelty or validity.

CLAIMS

1. A hand-held dispenser for a flowable product, comprising in combination a container for said product, having a neck portion at its top, a cap body having a discharge opening, and having a base portion co-operable with the neck portion of the container to mount the cap body thereon, said base portion and neck portion having co-operable, automatic pressure-relief valving means responsive to increased gas pressure in the container, for venting a quantity of said gas when the container is in its upright position.

2. A hand-held dispenser as claimed in claim 1, wherein said valving means comprises an annular sealing surface on one of said portions, and a co-operable annular sealing surface on the other of said portions, engageable with the sealing surface on said one portion when the cap body is fully seated on the container neck portion, and a projection disposed on one of said portions adjacent the sealing surface thereof, said projection being engageable with the co-operable sealing surface on the other of said portions and effecting a deformation of at least one of said portions when the cap body is raised axially from the said fully seated position on the neck portion, such that the seal between said portions is broken, thereby enabling said venting to occur.

3. A hand-held dispenser as claimed in claim 1, wherein said valving means comprises an annular sealing surface on one of said portions, and a co-operable annular sealing surface on the other of said portions, engageable with the sealing surface on said one portion when the cap body is fully

seated on the container neck portion, and means defining a recess disposed in one of said portions adjacent the sealing surface thereof, said recess underlying the co-operable sealing surface on the other of said portions when the cap body is raised axially from the said fully seated position on the container neck portion, such that the seal between the said portions is broken, thereby enabling said venting to occur.

4. A hand-held dispenser as claimed in claim 2, wherein said cap body has a depending skirt adapted to telescopically fit into the opening of the container neck portion, one of said annular sealing surfaces comprising a substantially cylindrical area on the outer surface of the said skirt, the other of said annular sealing surfaces comprising a bead on the interior surface of the neck portion, sealingly engageable with said cylindrical area, said projection being located on the outer surface of the said skirt below the said one annular sealing surface, such that when the cap body is raised from the fully seated position on the container neck portion, the projection engages the said bead and deforms at least one of the sealing surfaces, thereby creating an opening constituting the vent for the container.

5. A hand-held dispenser as claimed in claim 3, wherein said cap body has a depending skirt adapted to telescopically fit into the opening of the container neck portion, one of said annular sealing surfaces comprising a bead on the outer surface of the said skirt, the other of said annular sealing surfaces comprising a substantially cylindrical area on the inner surface of the container neck portion, said recess being disposed adjacent the lip of the container neck portion, such that when the cap body is raised from the fully seated position on the container neck portion, the recess underlies the said bead and creates an opening constituting the vent for the container.

6. A hand-held dispenser as claimed in claim 5, and further including means defining three additional recesses in said one portion, said additional recesses being disposed adjacent the sealing surface thereof, said additional recesses underlying the co-operable sealing surface on the other of said portions when the cap body is raised axially from the said fully seated position on the container neck portion.

7. A hand-held dispenser as claimed in claim 4, and further including three additional projections on said one portion and disposed adjacent the sealing surface thereof, said additional projections being engageable with the co-operable sealing surface on the other of said portions and effecting a deformation of at least one of said portions when the cap body is raised axially from the said fully seated position on the neck portion.

8. A hand-held dispenser as claimed in claim 1, and further including means on the underside of the cap body, engageable with the lip of the container neck portion for effecting a seal therewith when the body is fully seated on the said neck portion.

9. A hand-held dispenser as claimed in claim 1, wherein said cap body has an outer annular skirt part, said container neck portion has an outer

surface part, and co-operable means on the inner surface of said annular skirt part and the outer surface part of the container neck portion, for permanently retaining the cap body on the latter, once assembled thereto.

10. A hand-held dispenser as claimed in claim 9, wherein said co-operable retainer means comprises arcuate locking segments on at least one of said parts.

11. A hand-held dispenser as claimed in claim 10, wherein said arcuate locking segments define venting passages therebetween such that gas that has by-passed the lip of the container neck portion can pass freely between the inner surface of the annular skirt part of the cap body and the outer surface part of the said container neck portion.

12. A hand-held dispenser as claimed in claim 1, wherein said cap body has an outer annular skirt part, said outer annular skirt part having an annular bead on its inner surface, the outer surface of said container neck portion having a plurality of arcuate bead segments, said segments being engageable with the annular bead on the skirt part and holding captive the cap body.

13. A hand-held dispenser as claimed in claim 12, wherein the arcuate bead segments are spaced axially from the annular bead to permit limited axial movement of the cap body with respect to the container neck portion, from the fully seated position thereon.

14. An automatically venting cap construction for a dispenser, comprising in combination a cap body having an annular sealing surface, a container having a discharge passage closeable by the cap body, said discharge passage having a co-operable annular sealing surface sealingly engageable with the sealing surface of the cap body, means defining a projection adjacent one of said surfaces and engageable with the other of said surfaces when the body is raised axially from its sealing position on the discharge passage, such that the projection separates the one sealing surface from the other and at least momentarily breaks the seal therebetween so as to vent gaseous components of the contents of the container when the latter is in an upright position.

15. An automatically venting cap construction for a dispenser, comprising in combination a cap body having an annular sealing surface, a container having a discharge passage having a co-operable annular sealing surface sealingly engageable with the sealing surface of the cap body, and means defining a recess adjacent one of said sealing surfaces, adapted to underlie the other of said sealing surfaces when the cap body is raised axially from its sealing position on the discharge passage, such that the said recess provides a by-pass passage around the said other sealing surface and at least momentarily breaks the seal therebetween so as to vent gaseous components of the contents of the container when the latter is in an upright position.

16. A hand-held dispenser as claimed in claim 1, wherein said valving means is normally closed, and the internal pressure in the container acts on the cap body tending to shift it axially of the neck portion so

as to open said valving means.

17. A hand-held dispenser as claimed in claim 1,
and further including positive retainer means on said
container neck portion and base portion, separate
5 and distinct from said automatic pressure-relief
valving means, for maintaining the cap body captive
on the container irrespective of the occurrence of
venting of said gas.

18. A hand-held dispenser as claimed in claim 1,
10 wherein the cap body is mounted on the neck
portion for movement between a fully-seated sea-
ling position and an unseated venting position
thereon, said valving means comprising annular
sealing surfaces on said portions to effect a seal
15 when the cap body is in its fully-seated sealing
position on the container neck portion, and means
for continually biasing the cap body to its fully-
seated position.

19. A hand-held dispenser as claimed in claim 1,
20 wherein the cap body is mounted on the neck
portion for movement between a fully-seated sea-
ling position and an unseated venting position
thereon, said valving means comprising annular
sealing surfaces on said portions to effect a seal
25 when the cap body is in its fully-seated sealing
position on the container neck portion, and means
for automatically returning the cap body to its
fully-seated position after it has vented gas from its
unseated venting position.

30 20. A hand-held dispenser as claimed in claim
19, wherein said means for automatically returning
the cap body to its fully seated position comprises
co-operable interfering protuberances on the cap
body and container neck portion.

35 21. A hand-held dispenser, substantially as
hereinbefore described and with reference to Fi-
gures 1-4, 9 and 10 of the accompanying drawings.

22. A hand-held dispenser, substantially as
hereinbefore described and with reference to Fi-
40 gures 5-8, 11 and 12 of the accompanying drawings.