

Oct. 23, 1962

D. GOLDSTEIN

3,059,816

COMBINATION CONTAINER CLOSURE AND POURING DEVICE

Filed Feb. 19, 1957

6 Sheets-Sheet 1

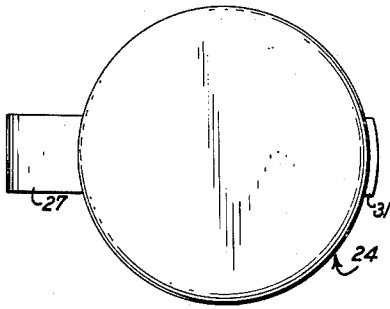


Fig. 1

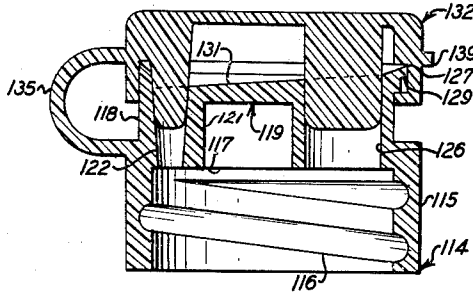


Fig. 11

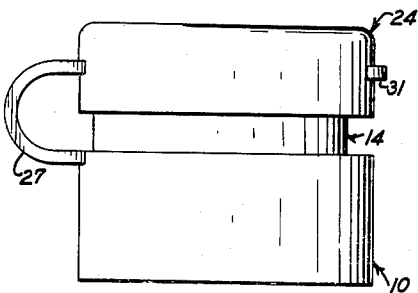


Fig. 2

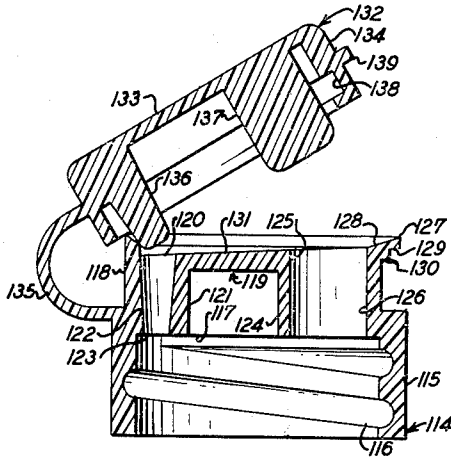


Fig. 12

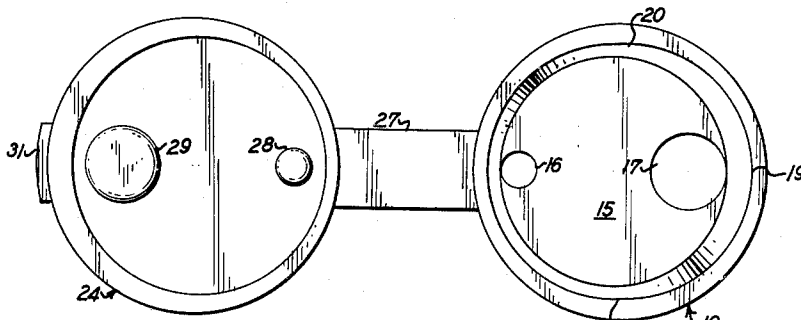


Fig. 3

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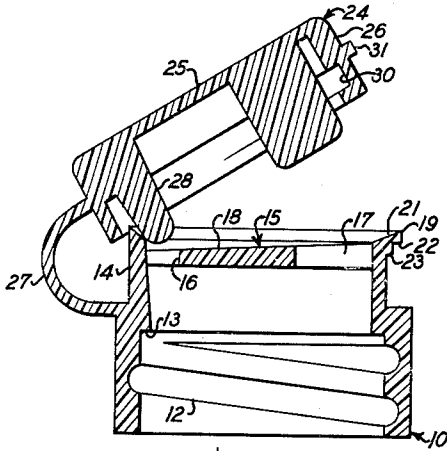


Fig. 4

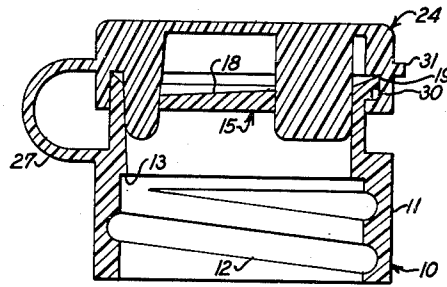


Fig. 5

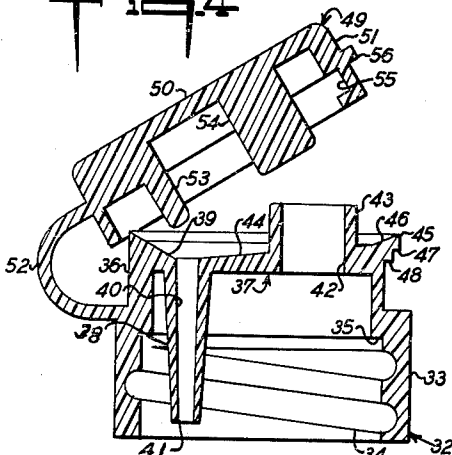


Fig. 6

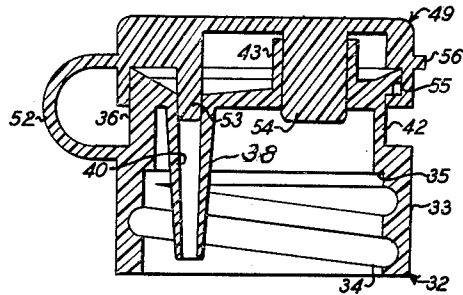


Fig. 7

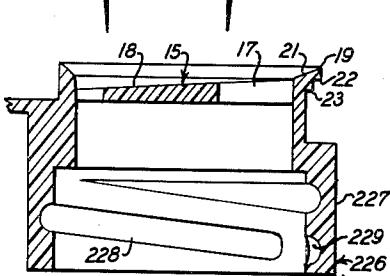


Fig. 25

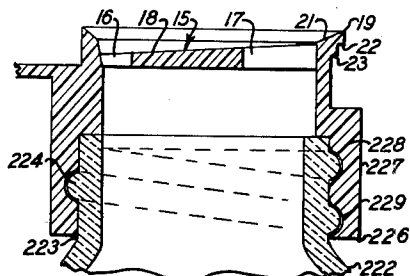


Fig. 26

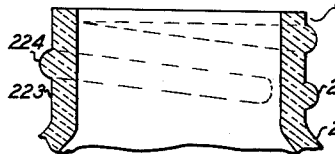


Fig. 25

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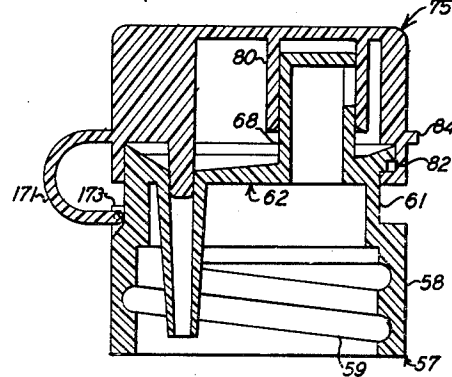
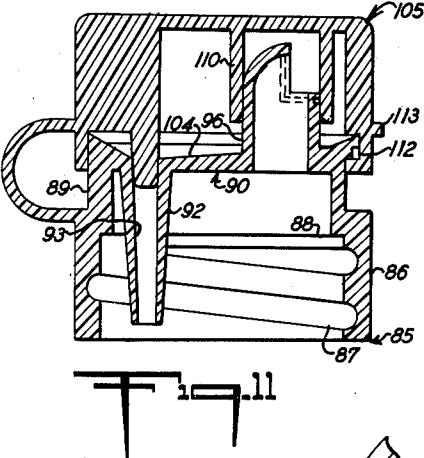
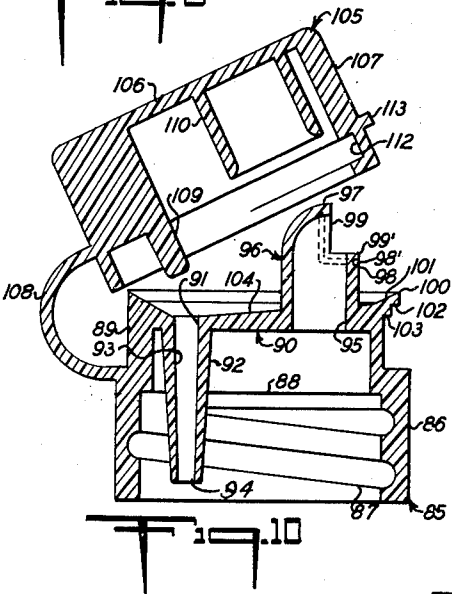
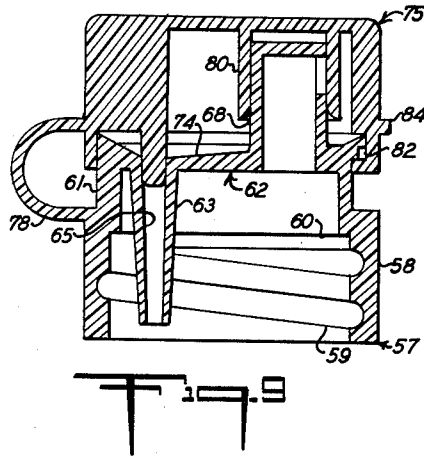
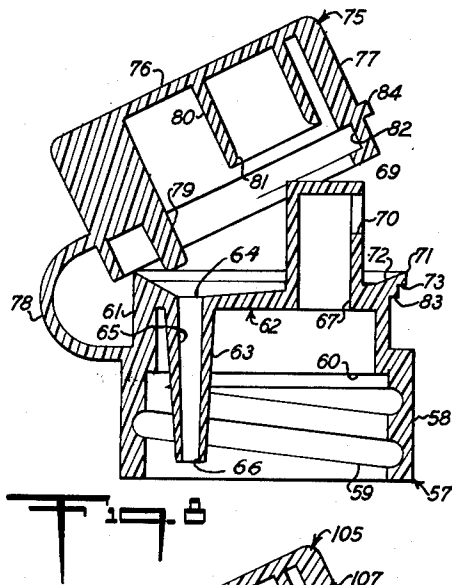
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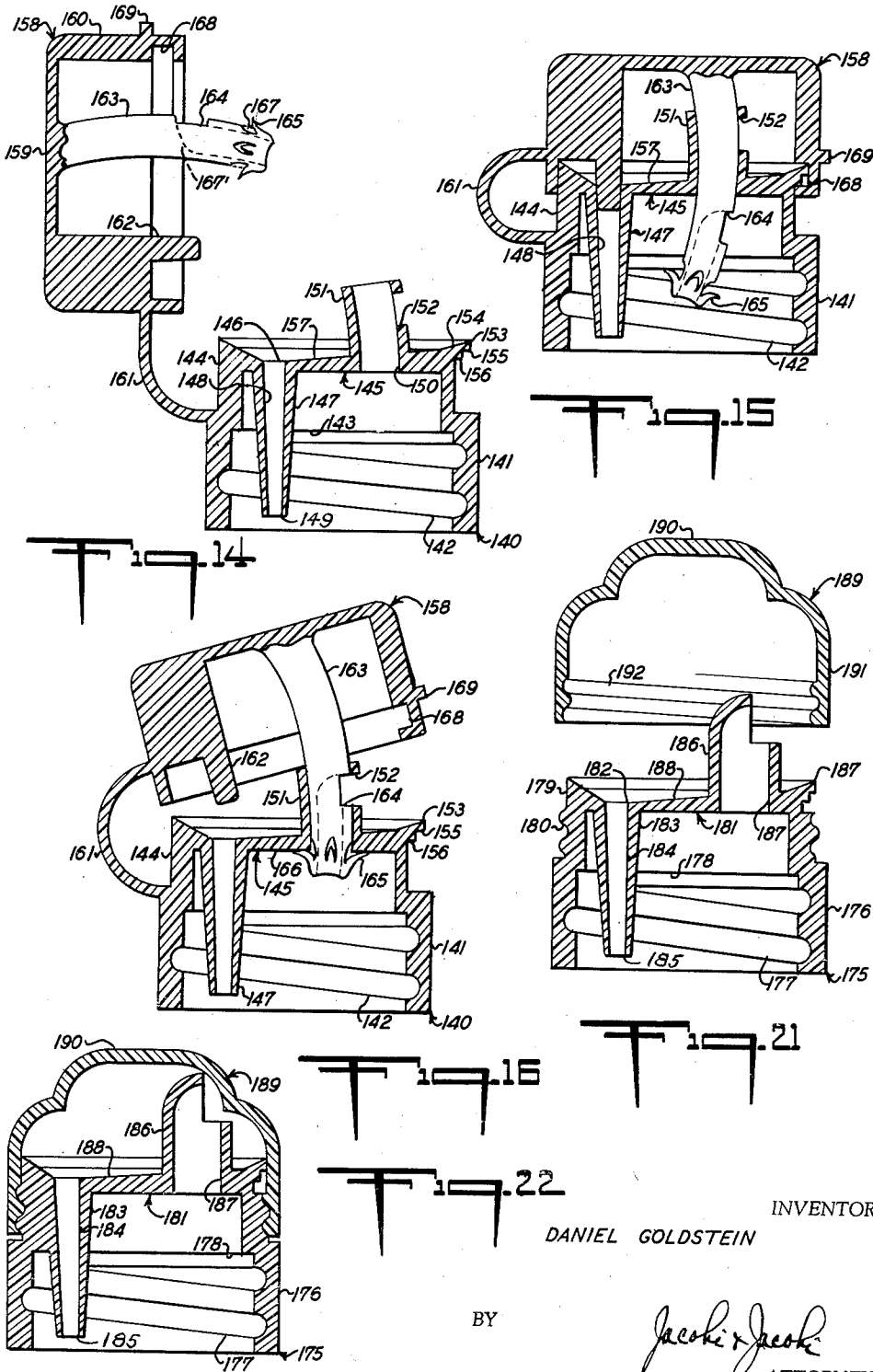
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COMBINATION CONTAINER CLOSURE AND POURING DEVICE

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6 Sheets-Sheet 4



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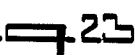
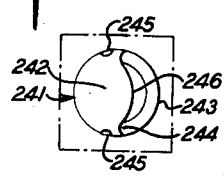
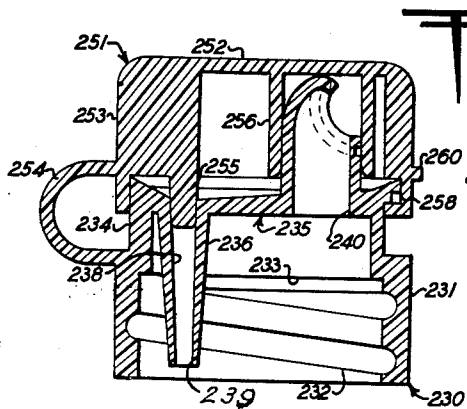
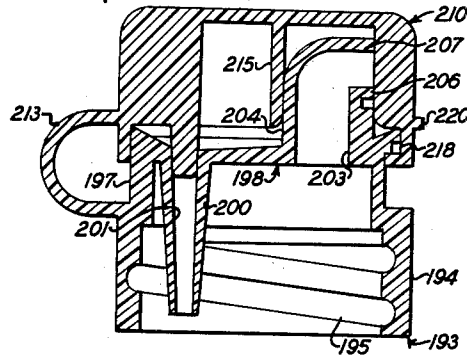
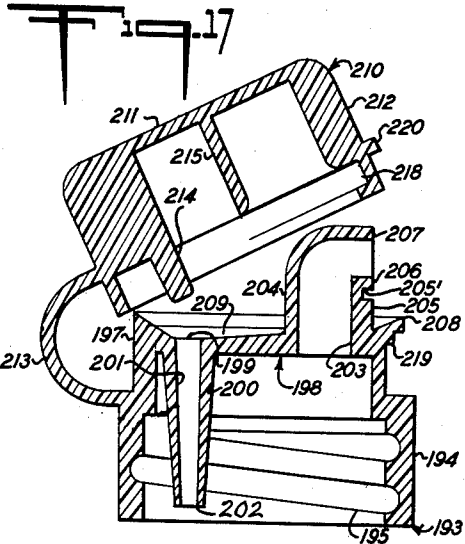
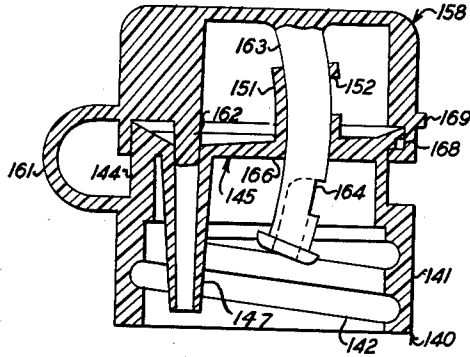
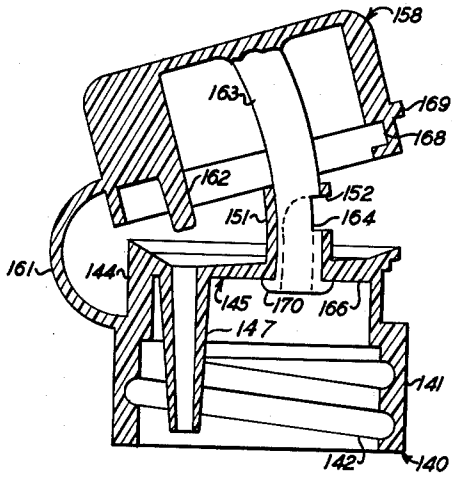
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COMBINATION CONTAINER CLOSURE AND POURING DEVICE

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6 Sheets-Sheet 5



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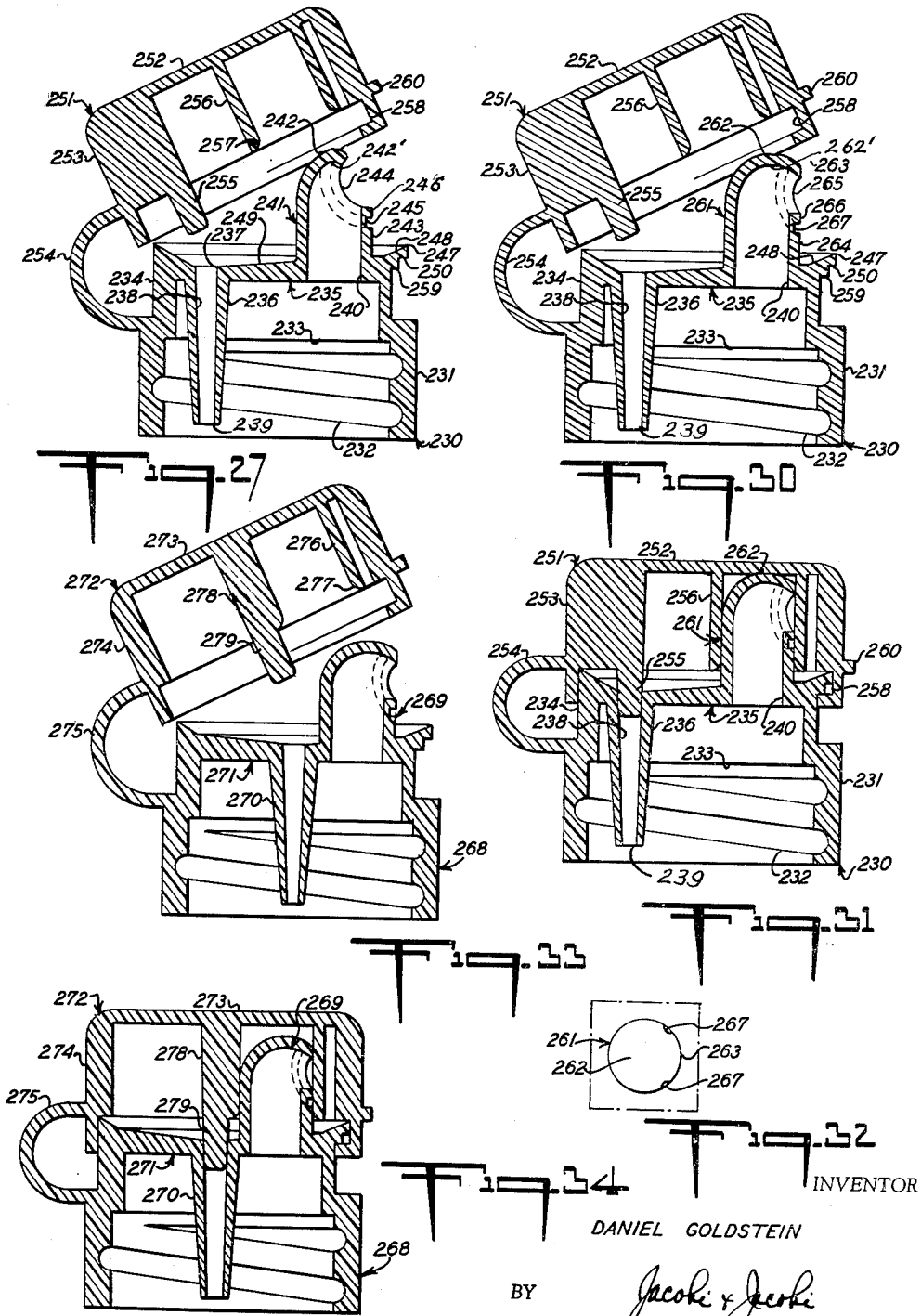
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COMBINATION CONTAINER CLOSURE AND POURING DEVICE

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6 Sheets-Sheet 6



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3,059,816

**COMBINATION CONTAINER CLOSURE AND POURING DEVICE**

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16 Claims. (Cl. 222-109)

This invention relates to the shipping, storage and dispensing of fluent materials and more particularly to a combination container closure and pouring device which facilitates dispensing the contents of the container and, at the same time, provides for proper sealing thereof, in order to protect the contents during periods between dispensing thereof.

Heretofore, many different types of container closures and pouring devices have been proposed and utilized, but many of these were not entirely satisfactory, due to the fact, that undue drippage occurred and furthermore, the same did not adequately seal the container during periods between dispensing operations. Furthermore, many of these prior art devices did not provide for a proper cutoff of the material being dispensed when the container was moved from a dispensing position to an upright position, with the result that the liquid or other material being dispensed was spilled or wasted, which resulted in increasing the cost of the material and at the same time, introduced a sanitary problem in keeping the surface of the container and label as well as the area or surfaces utilized for dispensing in a clean and dry condition.

Prior art devices for facilitating the pouring or dispensing of materials, such as a liquid, from a bottle or other container were frequently provided with elongated vent tubes extending from the device a substantial distance into the bottle or container and such vent tubes extended a substantial distance beyond the confines of the pouring device and container closure, with the result that the same could not be automatically applied to the bottle or container, since this operation is normally performed by tumbling the closures and pouring devices in order to orient the same preparatory to feeding to a capping machine, with the result that closures and pouring devices of this nature were applied manually to the bottles or containers thereby materially increasing the cost of production. Previously used pouring devices and container closures were frequently made in two parts, or as a separate bottle cap and pouring device, one part being applied to the bottle or other container and the other part constituting a separable cap for closing the pouring device when the same was not in use. This structure frequently resulted in loss of the cap with the result that the entire device was rendered substantially useless. Furthermore, the majority of these prior art container closures and pouring devices were formed of a substantially rigid or hard material which necessitated providing a gasket or other sealing device within the closure in order to provide a proper seal with the container to prevent leakage of liquid or other material therefrom. The necessity for providing such gaskets or other sealing means further increased the cost of production of such prior art devices.

The prior art devices of this nature did not provide a combination container closure and pouring device and consequently, the provision of such a device materially reduces the cost of manufacture, since the same may be formed in a single molding operation and applied to the container as a single unit by automatic machinery.

It is accordingly an object of the present invention to provide a combination container closure and pouring device which may be conveniently and economically manufactured from readily available materials and which

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may be applied to a bottle or other container by automatic machinery.

A further object of the invention is the provision of a combination container closure and pouring device which provides a vent for admitting air to the interior of the container and a pouring opening provided with cutoff means to prevent drippage of the material being dispensed.

A still further object of the invention is the provision of a combination container closure and pouring device provided with cutoff means for preventing drippage of liquid or other material being dispensed and further provided with means for returning residual liquid or material to the container.

Another object of the invention is the provision of a combination container closure and pouring device provided with a body for attachment to the bottle or other container and integrally connected cap means for closing the pouring device upon completion of a dispensing operation.

A further object of the invention is the provision of a combination container closure and pouring device which may be manufactured from yieldable material thereby providing a seal between the device and the container to prevent leakage of the contents thereof.

A still further object of the invention is the provision of a combination container closure and pouring device provided with means for directing a stream of material to be dispensed in a desired direction.

Another object of the invention is the provision of a combination container closure and pouring device incorporating a body for attachment to a bottle or other container, with the body being provided with a vent opening and a dispensing opening and a cap hingedly mounted on the body and provided with means for sealing both the vent opening and the pouring opening.

A further object of the invention is the provision of a combination container closure and pouring device incorporating a body for attachment to a bottle or other container and a cap hingedly mounted on the body, the cap being provided with means for sealing a vent opening in the body and with valve means for opening and closing a dispensing tube attached to the body.

A still further object of the invention is the provision of a combination container closure and pouring device including a body for attachment to a bottle or other container, the body being provided with a vent opening and a pouring spout, the spout being so formed as to create a vacuum to draw back liquid upon completion of the pouring operation thereby preventing drippage.

Another object of the invention is the provision of a combination container closure and pouring device provided with a body attachment to the bottle or other container and cap means movably connected to the body for closing the pouring device upon completion of a dispensing operation, the structure being such as to permit one hand operation of the cap to open or close the same.

Further objects and advantages of the invention will be apparent from the following description taken in conjunction with the accompanying drawing wherein:

FIG. 1 is a top plan view of a combination container closure and pouring device constructed in accordance with this invention and with the device in closed position;

FIG. 2 is a side elevational view of the device shown in FIG. 1;

FIG. 3 a top plan view of the device shown in FIG. 1 and with the cap in open position;

FIG. 4 a longitudinal sectional view of the device shown in FIG. 1, with the cap in open dispensing position;

FIG. 5 a sectional view similar to FIG. 4, and with the cap in closed sealing position;

FIG. 6 a longitudinal sectional view of a modified

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form of the invention having an open ended dispensing tube;

FIG. 7 a sectional view similar to FIG. 6, with the cap in closed sealing position;

FIG. 8 a longitudinal sectional view of a further modified form of the invention having a dispensing tube closed at the upper end with a dispensing opening at the side thereof and with the cap in open dispensing position;

FIG. 9 a sectional view similar to FIG. 8, with the cap in closed sealing position;

FIG. 10 a longitudinal sectional view of another modified form of the invention having a pouring spout with a curved hood at the upper end thereof and showing the cap in open dispensing position;

FIG. 11 a sectional view similar to FIG. 10, with the cap in closed sealing position;

FIG. 12 a longitudinal sectional view of a still further modified form of the invention having an internal vent tube and an internal dispensing tube with the cap in open dispensing position;

FIG. 13 a sectional view similar to FIG. 12 with the cap in closed sealing position;

FIG. 14 a longitudinal sectional view of another modified form of the invention having a pouring spout open at the upper end and with a dispensing opening in the front sidewall thereof and showing the cap and tubular valve member depending therefrom in position prior to assembly with the pouring spout;

FIG. 15 a sectional view similar to FIG. 14, but showing the cap in closed sealing position and with the tubular valve member inserted in the pouring spout and in position to close the dispensing opening;

FIG. 16 a sectional view similar to FIG. 15, but showing the cap in open dispensing position and with the tubular valve member in position to open the dispensing aperture;

FIG. 17 a longitudinal sectional view similar to FIG. 16 but showing a modified form of means for preventing outward movement of the cap and tubular valve member beyond a predetermined point;

FIG. 18 a sectional view similar to FIG. 15 and showing the cap and tubular valve member in closed sealing position;

FIG. 19 a longitudinal sectional view showing a modified form of hinge means for connecting the cap to the body of the closure and pouring device;

FIG. 20 a fragmentary top plan view of the modified form of hinge means shown in FIG. 19;

FIG. 21 a longitudinal sectional view of another modified form of the invention showing a body incorporating a vent opening and a pouring spout, together with a sealing cap threadedly received on the body and with the cap removed for dispensing operations;

FIG. 22 a sectional view similar to FIG. 21, and showing the cap in closed sealing position;

FIG. 23 a longitudinal sectional view of a still further modified form of the invention showing a hooded pouring spout together with means for facilitating sealing of the spout upon completion of a dispensing operation and with the cap in open dispensing position;

FIG. 24 a longitudinal sectional view similar to FIG. 23, and showing the cap in closed sealing position;

FIG. 25 an exploded longitudinal sectional view showing a dispensing device and the upper end of a container, together with means for preventing inadvertent movement of the pouring device with relation to the container;

FIG. 26 a view showing the pouring device of FIG. 25 applied to the container and locked in place against inadvertent movement with respect thereto;

FIG. 27 a longitudinal sectional view of one form of the invention incorporating a modified form of hooded pouring spout having a cutoff groove and with the cap in open dispensing position;

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FIG. 28 a view similar to FIG. 27, with the cap in closed sealing position;

FIG. 29 a fragmentary top plan view showing the contour of the hooded spout of FIG. 27;

FIG. 30 a longitudinal sectional view of one form of the invention incorporating a further modified form of hooded pouring spout having a cutoff groove and with the cap in open dispensing position;

FIG. 31 a view similar to FIG. 27 with the cap in closed sealing position;

FIG. 32 a fragmentary top plan view showing the contour of the hooded spout of FIG. 30;

FIG. 33 a longitudinal sectional view of a still further modified form of the invention with the cap in open dispensing position; and

FIG. 34 a sectional view similar to FIG. 33 with the cap in closed sealing position.

With continued reference to the drawing, there is shown in FIGS. 1 to 5 a combination container closure and pouring device constructed in accordance with this invention and which may well comprise a generally cylindrical hollow body 10 formed of a yieldable material, such as a suitable plastic, but, of course, if desired, such body may be made of any other suitable material. The body 10 is provided with a skirt portion 11 having internal threads 12 therein which may engage complementary threads on the neck of a bottle or other container and adjacent the upper end of the skirt portion 11 is an internal annular shoulder 13 which serves to engage the upper end of the neck of a bottle or other container to provide a seal therebetween and prevent leakage of the contents.

The upper portion 14 of the body 10 is reduced in diameter, and spaced inwardly from the upper end of the body 10 is a transverse partition 15. The partition 15 is provided at the rear thereof adjacent the sidewall of the upper portion 14 of the body 10 with a relatively small vent opening 16 and also provided in the partition 15 at the forward side thereof adjacent the sidewall of the upper portion 14 of the body 10 and opposite the vent opening 16, a relatively large pouring opening 17. It is to be noted, that the upper surface 18 of the partition 15 is inclined from the sidewall of the upper portion 14 of the body 10 toward the vent opening 16.

Provided on the upper end of the upper portion 14 of the body 10 is an eccentric flange 19 and as best shown in FIG. 3, the ends 20 of the flange 19 merge into the upper portion 14 of the pouring opening 17. The upper surface 21 of the flange 19 and the upper end of the portion 14 is formed with a flat bevel inclined downwardly and inwardly toward the upper surface 18 of the partition 15. The outer edge of the flange 19 provides a pouring lip having a sharp edge and spaced below this lip in a relatively short distance, is an inwardly extending eccentric shoulder 22 which provides for cutoff of material being poured and prevents drippage thereof when the bottle or other container is returned to upright position. Disposed at the lower side of the flange 19 below the shoulder 22 and adjacent the upper portion 14 of the body 10 is an outwardly extending eccentric shoulder 23, the purpose of which will be later described.

A hollow cap 24 having a top wall 25 and a sidewall 26 is hingedly secured to the body 10 by an integral flexible strap 27 which permits swinging movement of the cap 24 with relation to the body 10. Depending from the top wall 25 of the cap 24 is a plug 28 to be received in the vent opening 16 when the cap 24 is in closed position to close such vent opening and also depending from the top wall 25 of the cap 24 is a plug 29 to be received in the pouring opening 17 to close the same when the cap 24 is in closed position. If desired, the plugs 28 and 29 may be tapered or rounded at their lower ends to facilitate insertion in the vent opening 16 and pouring opening 17.

The sidewall 26 of the cap 24 is provided with an in-



wardly opening eccentric recess 30 to receive the eccentric shoulder 23 on the upper portion 14 of the body 10 when the cap 24 is in closed position and, as clearly shown in FIG. 5, this will serve to releasably hold the cap 24 in closed position. In order to facilitate manipulation of the cap 24, there may be provided an outwardly extending finger engaging projection 31 on the front surface of the sidewall 26.

In operation, it is only necessary to open the cap 24 by exerting an upward pressure on the finger engaging projection 31 which, due to the yieldability of the material, will result in disengaging the recess 30 from the shoulder 23 and thereafter liquid or other material may be dispensed through the pouring opening 17 and the sharp edge of the pouring lip 19, together with the shoulder 22 will serve to cutoff the flow of liquid when the container is tilted to a vertical position and any liquid remaining within the flange 19 will flow downwardly to the vent opening 16 and into the container by reason of the inclination of the upper surface 18 of the partition 15.

While the yieldable quality of the body 10 will provide an adequate seal between the shoulder 13 and the upper end of a container, if the body 10 is made of relatively rigid or hard material, a suitable sealing gasket, not shown, may be applied to the shoulder 13 and will engage the upper end of the container to provide an adequate seal.

A modified form of the invention is shown in FIGS. 6 and 7 in which a generally cylindrical hollow body 32 is provided with a skirt portion 33 having internal threads 34 therein to engage the neck of a bottle or other container and also provided with a shoulder 35 for engaging the upper end of such bottle or container to provide an adequate seal and prevent leakage of the contents. The upper portion 36 of the body 32 is reduced in diameter, and spaced inwardly from the upper end, is a transverse partition 37. A tube 38 extends inwardly from the partition 37 below a vent opening 39 provided in such partition and a tapered bore 40 in the tube 38 in alignment with the vent opening 39 provides an opening 41 at the inner end substantially smaller than the vent opening 39. Provided at the forward side of the partition 37 adjacent the sidewall of the upper portion 36 of the body 32 is a pouring opening 42 and extending upwardly from the partition 37 in alignment with the pouring opening 42 is a pouring spout 43 which is open at the upper end. As described above, the upper surface 44 of the partition 37 is inclined from the sidewall of the upper portion 36 of the body 32 toward the vent opening 39.

Provided on the upper edge of the upper portion 36 of the body 32 at the front thereof, adjacent the pouring spout 43 is an outwardly extending eccentric flange 45 and the upper surface 46 of the flange 45 is formed with a flat bevel inclined downwardly toward the surface 44. The outer edge of the flange 45 provides a lip having a sharp edge and spaced below this lip a relatively short distance is an inwardly extending eccentric shoulder 47 which, together with the lip provides for cutoff of material which may dribble over the edge of the spout 43 and contact the flange 45.

Disposed below the flange 45 is an eccentric shoulder 48, the purpose of which will presently appear.

A hollow cap 49 having a top wall 50 and a sidewall 51 is hingedly mounted on the body 32 by an integral flexible strap 52 and such strap 52 permits swinging movement of the cap 49 with relation to the body 32. Depending from the top wall 50 of the cap 49 is a tapered plug 53 to be received in the vent opening 39 and tapered bore 40 to close the same when the cap 49 is in closed position and also depending from the top wall 50 of the cap 49 is a plug 54 to be received in the pouring spout 43, as clearly shown in FIG. 7, to close the same and prevent leakage of the contents of the container to which

the device is attached. An eccentric recess 55 is provided in the sidewall 51 of the cap 49 and as shown in FIG. 7, when the cap 49 is in closed position, the recess 55 serves to receive the shoulder 48 and releasably lock the cap 49 in closed position. In order to facilitate manipulation of the cap 49, a finger engaging projection 56 may be provided on the sidewall 51.

In operation, liquid or other material in the container will be dispensed through the pouring spout 43 with the upper edge thereof serving to cutoff the flow of liquid when the container is tilted to a vertical position and any drippage will flow downwardly toward the vent opening 39 and into the container, due to the inclination of the upper surface 44 of the partition 37. It is also to be noted, that the tapered formation of the bore 40 in alignment with the vent opening 39 serves to prevent flow of liquid or other material through the vent opening, since the inner opening 41 is substantially smaller than the vent opening 39 and consequently, the surface tension of the liquid being dispensed will prevent flow thereof through the vent opening. Also, this formation of the vent opening and bore serves to provide a relatively large volume of air toward the outer end of the bore 40, which air will rush into the container to break the vacuum therein upon dispensing of the contents and this feature will further prevent flow of liquid or other material through the vent opening.

A further modified form of the invention is shown in FIGS. 8 and 9 and in this form of the invention there is provided a generally cylindrical hollow body 57 similar to those described above, and the body 57 is provided with a skirt 58 having internal screw threads 59 for engaging the neck of a bottle or other container and a shoulder 60 is provided for engaging the end of the bottle neck or other container to provide a seal therebetween and prevent leakage of the contents of the container. The upper portion 61 of the body 57 is reduced in diameter and spaced inwardly from the upper end is a partition 62. A tube 63 extends inwardly from the partition 62 below a vent opening 64 provided in the partition 62 and a tapered bore 65 is provided in the tube 63 in alignment with the vent opening 64. The opening 66 at the inner end of the bore 65 is substantially smaller than the vent opening 64 and operates to prevent passage of liquid or other material being dispensed therethrough in the same manner as that described above.

A relatively large pouring opening 67 is provided in the partition 62 adjacent the sidewall of the upper portion 61 of the body 57 opposite the vent opening 64 and extending upwardly from the partition 62 and integral therewith is a dispensing or pouring spout 68 in alignment with the pouring opening 67 and closed at the upper end 69. A dispensing aperture 70 is provided in the front wall of the pouring spout 68.

Provided on the upper end of the reduced portion 61 of the body 57 at the front thereof, is an outwardly extending eccentric flange 71, the upper surface 72 of which is formed with a flat bevel inclined downwardly and inwardly toward the partition 62. The flange 71 provides a lip having a sharp edge and spaced below the lip is an eccentric shoulder 73 which operates in the same manner as that described above. The upper surface 74 of the partition 62 is inclined from the sidewall of the upper portion 61 of the body 57 toward the vent opening 64 and will serve to direct any liquid spilled from the pouring operation toward the vent 64 and through the bore 65 into the bottle or container to which the device is attached.

A cap 75 is provided with a top wall 76 and a sidewall 77 and the cap 75 is hingedly attached to the body 57 by an integral flexible strap 78 which serves to permit swinging movement between the cap 75 and the body 57.

Depending from the top wall 76 of the cap 75 is a tapered plug 79 which is received in the vent opening 64 and bore 65 in the tube 63 to close the same when the cap is in closed position and also depending from the

top wall 76 of the cap 75, is a sleeve 80 which, as shown in FIG. 9, is tightly received over the pouring spout 68 and serves to close the dispensing aperture 70 and prevent leakage of liquid from the bottle or container to which the device is applied. The lower end of the sleeve 80 may be beveled, as shown at 81, in order to facilitate passage of the same over the upper end of the pouring spout 68.

The sidewall 77 of the cap 75 is provided with an internal eccentric recess 82 which serves to receive a shoulder 83 provided on the upper portion 61 of the body 57 below the eccentric flange 71. As shown in FIG. 9, this serves to releasably lock the cap 75 in closed position on the body 57. In order to facilitate manipulation of the cap 75, there may be provided an outwardly extending finger engaging projection 84 on the sidewall 77.

The form of the invention shown in FIGS. 8 and 9 operates in much the same manner as that described above, except that upon tilting of the bottle or other container to dispense material therefrom, such material is directed toward the side through the dispensing aperture 70 and any drippage will be caught by the flange 71 and returned to the vent opening 64 by reason of the inclination of the upper surface 74 of the partition 62, such material flowing through the bore 65 into the bottle or other container.

A still further modified form of the invention is shown in FIGS. 10 and 11 in which there is provided a generally cylindrical hollow body 85 having a skirt 86 provided with internal screw threads 87 for engaging a bottle or other container to secure the device thereto and also provided on the body 85 is a shoulder 88 for engaging the upper end of the bottle or other container to seal the same and prevent leakage of the contents thereof. The upper portion 89 of the body 85 is reduced in diameter and spaced inwardly from the upper end is a transverse partition 90. Located at one side of the partition 90 adjacent the sidewall of the upper portion 89 is a vent opening 91 in a tube 92 having a tapered bore 93 therein in alignment with the vent opening 91. The opening 94 at the inner end of the bore 93 is substantially smaller than the vent opening 91 which serves to prevent outward flow of liquid from the container to which the device is attached in the manner described above.

A relatively large pouring opening 95 is provided in the partition 90 adjacent the sidewall of the upper portion 89 of the body 85 opposite the vent opening 91 and extending upwardly from the partition 90 in alignment with the pouring opening 95 is a pouring spout 96. Spout 96 is provided with a curved hood 97 at the upper end and the front wall 98 of the spout 96 and a portion of the hood 97 is cut away, as shown at 99, in order to provide a dispensing aperture with the hood serving to divert the flow of material being dispensed to provide a dispensing aperture. Surrounding the dispensing aperture provided by the cut away portion 99 and spaced therefrom is a groove 98' which, together with the ridge 99' serves to sharply cut off flow of material being dispensed when the bottle or other container is returned from dispensing to upright position.

Provided on the upper end of the reduced portion 89 of the body 85 at the front thereof, is an outwardly extending eccentric flange 100 and the upper surface 101 of the flange 100 is formed with a flat bevel inclined downwardly and inwardly toward the partition 90. The flange 100 provides a lip having a sharp edge and spaced below the lip is an eccentric shoulder 102 which operates in the same manner as that described above. Disposed below the flange 100 is a shoulder 103, the purpose of which will presently appear. The upper surface 104 of the partition 90 is inclined from the sidewall of the upper portion 89 of the body 85 toward the vent opening 91, in order to direct any spilled liquid toward such vent opening and permit return of the same through the bore

93 to the bottle or other container to which the device is attached.

A hollow cap 105 is provided with a top wall 106 and a sidewall 107 and the cap 105 is hingedly secured to the body 85. Depending from the top wall 106 of the cap 105 is a tapered plug 109 which, as shown in FIG. 11, is received in the vent opening 91 and tapered bore 93 to close the same when the cap 105 is in closed position and also depending from the top wall 106 of the cap 105 is a sleeve 110 which, as shown in FIG. 11, tightly engages the pouring spout 96 when the cap 105 is in closed position to close the dispensing aperture in the spout 96. The lower end of the sleeve 110 may be beveled, as at 111, to facilitate passage of the same over the pouring spout 96 during closing movement of the cap 105.

Provided on the inner surface of the sidewall 107 of the cap 105 is an eccentric recess 112, which, as shown in FIG. 11, receives the eccentric shoulder 103 on the upper portion 89 of the body 85 to releasably lock the cap 105 in closed position. In order to facilitate manipulation of the cap 105, there may be provided an outwardly extending projection 113 on the sidewall 107.

The form of the invention shown in FIGS. 10 and 11 operates in substantially the same manner as that described above in connection with the other forms of the invention.

A still further modified form of the invention is shown in FIGS. 12 and 13 in which there is provided a generally cylindrical hollow body 114 having a skirt 115 on the inner surface of which is provided threads 116 for engaging the neck of a bottle or other container to secure the device thereto and also provided in the body 114 is a shoulder 117 for engaging the upper end of the bottle or other container to seal the same and prevent leakage of contents therefrom.

The upper portion 118 of the body 114 is reduced in diameter and spaced inwardly from the upper end of the upper portion 118 is a transverse partition 119. Provided in the partition 119 at the rear adjacent the sidewall of the upper portion 118 of the body 114 is a vent opening 120 and disposed below the vent opening 120 is an inwardly extending tube 121 having a tapered bore 122 therein in alignment with the vent opening 120 and the opening 123 at the inner end of the bore 122 is substantially smaller than the vent opening 120 in order to prevent outward flow of liquid in the manner described above. A boss 124 extends inwardly from the partition 119 opposite the tube 121 and in alignment with a relatively large pouring opening 125 provided in the partition 119 and a bore 126 in the boss 124 provides, in effect, an inwardly extending pouring spout.

An outwardly extending eccentric flange 127 is provided at the upper end of the upper portion 118 of the body 114 at the front thereof and the upper surface 128 of the flange 127 is formed with a flat bevel inclined downwardly and inwardly toward the partition 119. The flange 127 provides a lip having a sharp edge and spaced below the lip is an eccentric shoulder 129 which operates in the same manner as that described above. Disposed below the flange 127 is an eccentric shoulder 130, the purpose of which will be presently described. The upper surface 131 of the partition 119 is inclined from the sidewall of the upper portion 118 of the body 114 toward the vent opening 120, in order to direct liquid or other material being dispensed back into the container through the vent opening 120 and tapered bore 122.

A hollow cap 132 is provided with a top wall 133 and a sidewall 134 and the cap 132 is hingedly attached to the body 114 by an integral strap 135 which serves to permit swinging movement of cap 132 with relation to the body 114. Depending from the top wall 133 of the cap 132 is a tapered plug 136 which, as shown in FIG. 13, is received in the vent opening 120 and tapered bore 122 to close the same when the cap is in closed position and

also depending from top wall 133 of cap 132 is a plug 137 which, as shown in FIG. 13 is received in the pouring opening 125 and bore 126 is to close the same when the cap 132 is in closed position.

The sidewall 134 of the cap 132 is provided with an internal eccentric recess 138 which, as shown in FIG. 13, serves to receive the eccentric shoulder 130 on the upper portion 118 of the body 114 when the cap 132 is in closed position thereby releasably holding the cap in such position. In order to facilitate manipulation of the cap 132 there may be provided a finger engaging projection 139 on the sidewall 134.

The form of the invention shown in FIGS. 12 and 13 operates in substantially the same manner as those described above, except that the sharp edge of the eccentric flange 127, together with the shoulder 129 provides a pouring lip which serves to cutoff the flow of liquid or other material when the container is tilted to a vertical position and the material remaining within the confines of the flange 127 flows to the vent opening 120, by reason of the inclination of the upper surface 121 of the partition 119 and through the tapered bore 122 into the bottle or container to which the device is attached.

Another modified form of the invention is shown in FIGS. 14, 15 and 16 in which there is provided a generally cylindrical hollow body 140 provided with a skirt 141 having internal screw threads 142 to facilitate attachment thereof to the neck of a bottle or other container and a shoulder 143 is provided in the body 140 for engaging the upper end of the bottle or other container to seal the same and prevent leakage of the contents. The upper portion 144 of the body 140 is reduced in diameter and spaced inwardly from the upper end of the upper portion 144 is a transverse partition 145. A vent opening 146 is provided in one side of the partition 145 adjacent the sidewall of the upper portion 144 of the body 140 and extending inwardly below the vent opening 146 is a tube 147 having a tapered bore 148 therein in alignment with the vent opening 146. The inner opening 149 of the bore 148 is substantially smaller than the vent opening 146 in order to prevent outward flow of liquid or other material, in the manner described above.

A pouring opening 150 is provided in the partition 145 adjacent the sidewall of the upper portion 144 of the body 140 opposite the vent opening 146 and extending upwardly from the pouring opening 150 is a pouring spout 151 open at the upper end. The spout 151 is provided with a dispensing aperture 152 in the front wall thereof and it is to be noted, that as clearly shown in FIG. 14, the spout 151 is inclined rearwardly for a purpose to be presently described.

The upper end of the reduced portion 144 of the body 140 is provided at the front thereof with an outwardly extending eccentric flange 153 and the upper surface 154 of the flange 153 is formed with a flat bevel inclined downwardly and inwardly toward the partition 145. The flange 153 provides a lip having a sharp edge and spaced below the lip is an eccentric shoulder 155 which operates in the same manner as that described above. Disposed below the flange 153 is an eccentric shoulder 156, the purpose of which will be presently described. It is also to be noted, that the upper surface 157 of the partition 145 is inclined from the sidewall of the upper portion 144 of the body 140 toward the vent opening 146, in order to direct liquid or other material to such vent opening and through the tapered bore 148 into the bottle or other container to which the device is attached.

A hollow cap 158 is provided with a top wall 159 and a sidewall 160 and the cap 158 is hingedly attached to the body 140 by an integral strap 161 which permits swinging movement of the cap 158 with relation to the body 140. Depending from the top wall 149 of the cap 148 is a tapered plug 162, which, as shown in FIG. 15, is received in the vent opening 146 and tapered bore 148

to close the same when the cap 158 is a tubular valve member 163 which, as shown in FIGS. 15 and 16, is slidably received within the pouring spout 151. The tubular valve member 163 is provided with an opening 164 in the sidewall thereof, which in the dispensing position, as shown in FIG. 16, registers with the dispensing aperture 152 in the spout 151. Consequently, in this position, liquid or other material will flow through the interior of the valve member 163 and through the opening 164 and the dispensing aperture 152 in the spout 151. The tubular valve member 163 is provided adjacent the lower end thereof with a plurality of outwardly extending fingers 165 which, as shown in FIG. 16, engage the lower surface 166 of the partition 145 to prevent outward movement of the cap 158 and valve member 163 beyond a point where the opening 164 registers with the dispensing aperture 152. In order to permit assembly of the valve member 163 through the pouring spout 151, the wall of the valve member 163 opposite the fingers 165 may be provided with recesses 167 which serve to receive the fingers 165 during insertion of the valve member through the pouring spout 151 and thereafter the fingers 165 spring outwardly to the position shown in FIGS. 15 and 16.

While the passage in the tubular valve member 163 is shown as terminating in a curved end 167' adjacent the opening 164 to, in effect, provide a hood, it is to be understood, that the passage may extend the entire length of the valve member 163 or may terminate in a flat end as desired.

An eccentric internal recess 168 is provided in the sidewall 160 of the cap 158 and the recess 168 serves to receive the eccentric shoulder 156 on the body 141, as shown in FIG. 15, to releasably retain the cap 158 in closed position. In order to facilitate manipulation of the cap 158, there may be provided an outwardly extending finger engaging projection 169 on the sidewall 160.

The form of the invention shown in FIGS. 17 and 18 is substantially identical with that described above in connection with FIGS. 14, 15 and 16, except that the outwardly extending fingers 165 at the lower end of the tubular valve member 163 are replaced by an outwardly extending annular flange 170 which may be formed on the lower end of the tubular valve member 163 after insertion of the same through the pouring spout 151, or, of course, the flange 170 may comprise a separate member attached to the lower end of the tubular valve member 163 in any desired manner. However, the most convenient way of providing the flange 170 is to utilize a heated die to form the lower end of the tubular valve member 63 in the manner shown in FIGS. 17 and 18. Aside from this feature, the form of the invention shown in FIGS. 17 and 18 is constructed and operates in the same way as the form of the invention shown in FIGS. 14, 15 and 16.

FIGS. 19 and 20 show a variation in the type of hinge connection between the cap and the body of the device and while this hinge connection may be utilized with any of the forms of the invention shown and described herein, for purposes of illustration only, the hinge structure is shown in connection with the form of the invention previously described and shown in FIGS. 8 and 9. Consequently, like reference numerals will be utilized for designating like parts in FIGS. 19 and 20. In FIGS. 8 and 9, the hinge strap 78 connecting the cap 75 and the body 57 is of flexible material, but in FIGS. 19 and 20, the strap 171 connecting the cap 75 and the body 57 is of flexible or substantially rigid material and is secured at one end to the cap 75. The opposite end of the strap 171 is provided with oppositely extending projections 172 and the body 57 is provided with spaced outwardly extending ears 173 having opposed recesses 174 for pivotally receiving the projections 172 on the strap 171. Consequently, it will be seen that the strap 171, together with the pivotal mounting thereof provides a hinge connection between

the cap 75 and the body 57. It is only necessary to utilize this form of hinge connection where the cap 75 and body 57 cannot both be formed of a material sufficiently flexible, such that the integral strap connecting the cap and body will permit suitable swinging movement.

The form of invention shown in FIGS. 21 and 22 deals primarily with the type of cap employed and the manner of securing the same to the body of the device and, as shown in these figures, there may be provided a body 175 having a skirt 176 provided with internal screw threads 177 for securing the same to the upper end of a bottle or other container and in common with the other forms of the invention, there may be provided a shoulder 178 for engaging the upper end of the bottle or other container to seal the same against leakage of the contents. The upper portion 179 of the body 175 is reduced in diameter and provided thereon are external threads 180, the purpose of which will presently appear.

As in the previously described forms of the invention, there is provided a transverse partition 181 spaced inwardly from the upper end of the upper portion 179 of the body 175 and a vent opening 182 is provided in the partition at one side thereof adjacent the sidewall of the body and a tube 183 extends inwardly from the partition 181, the tube 183 having a tapered bore 184 in alignment with the vent opening 182. The opening 185 at the inner end of the bore 184 is substantially smaller than the diameter of the vent opening 182, in order to prevent outward flow of liquid or other material, as described above. A pouring spout 186 is provided in alignment with a pouring opening 187 in the partition 181 and the pouring spout 186 may be of any of the forms described above. There is also provided an outwardly extending flange 187 having a sharp edge and the upper surface 188 of the partition 181 is inclined from the sidewall of the upper portion 179 of the body 175 toward the vent opening 182 to direct liquid or other material to such opening.

A hollow cap 189 is provided with a top wall 190 and a sidewall 191 and the sidewall 191 is provided with internal screw threads 192 for engaging the external screw threads 180 on the reduced upper portion 179 of the body 175, in order to secure the cap 189 in place thereon, as shown in FIG. 22. This serves to close both the vent openings 182 and the pouring spout 186.

In the form of the invention shown in FIGS. 23 and 24, there is provided a body 193 having a skirt 194 provided with internal screw threads 195 for facilitating attachment of the same to a bottle or other container. Also provided on the body 193 is a shoulder 196 for engaging the upper end of the bottle or other container to seal the same against leakage of the contents. The upper portion 197 of the body 193 is reduced in diameter and spaced inwardly from the upper end thereof, is a transverse partition 198. Provided in the partition 198 adjacent the sidewall of the upper portion 197 is a vent opening 199 and disposed below the vent opening 199 is a tube 200 provided with a tapered bore 201 in alignment with the vent opening 199, the inner opening 202 of the bore 201 being substantially smaller in diameter than the diameter of the vent opening 199, in order to prevent outward flow of liquid or other material in the manner described above.

A pouring opening 203 is provided in the partition 198 adjacent the sidewall of the upper portion 197 of the body 193 opposite the vent opening 199 and extending upwardly from the partition 198 in alignment with the pouring opening 203 is a hooded pouring spout 204. The front wall 205 of the pouring spout 204 is provided with a transverse groove 205' and an outwardly extending lip 206 disposed in spaced relation to the outer end 207 of the hood of the spout 204 to provide a dispensing aperture. As in the other forms of the invention, there is provided a lip having a sharp edge and the upper surface 209 of the partition 198 is inclined from the sidewall of

the upper portion 197 of the body 193 toward the vent opening 199.

A hollow cap 210 is provided with a top wall 211 and a sidewall 212 and the cap 210 is hingedly secured to the body 193 by an integral flexible strap 213 which permits swinging movement of the cap 210 with relation to the body 193. Depending from the top wall 211 of the cap 210 is a tapered plug 214 which, as shown in FIG. 24, is received in the vent opening 199 and tapered bore 201 to close the same when the cap is in closed position and also depending from the top wall 211 of the cap 210 is a sleeve 215 to be received over the pouring spout 204, as shown in FIG. 24, when the cap 210 is in closed position. The lower edge 217 of the sleeve 215 may be beveled to facilitate passage of the same over the pouring spout 204 during closing movement of the cap 210. The cap 210 is provided with an internal eccentric recess 218 for receiving the eccentric shoulder 219 on the body 193 to releasably secure the cap 210 in closed position, as described above in connection with the other forms of the invention. In order to facilitate manipulation of the cap 210, there may be provided an outwardly extending finger engaging projection 220 on the sidewall 212.

With particular reference to FIGS. 25 and 26, there is shown a container, such as a bottle 222, having a neck 223 provided with external screw threads 224 and spaced from the inner ends 224 and in alignment therewith is a dimple 225.

A closure for the container 222 may take the form of any of the combination closures and pouring devices described above, or may, if desired, merely comprise a closure cap and for simplicity of explanation, has been shown as comprising a body 228 for engaging the screw threads 224 on the neck 223 of the container 222. The skirt 227 is also provided with an internal recess 229 spaced from the end of the thread 228 and in alignment therewith.

The body 226 may be assembled with the container 222 by engaging the threads 224 and 228 and relatively rotating the same to tighten the body 226 of the closure on the container 222 until such time as the dimple 225 snaps into the recess 229 which will serve to lock the body 226 against the inadvertent movement relative to the container 222. This locking feature is particularly advantageous where the body 226 of the closure is formed of certain plastics which are yieldable and have a tendency to revert to their original form, if distorted during application to the container, which in some instances, might result in loosening of the closure and permit leakage of the contents of the container. However, by providing a locking feature, as described above, such loosening or relative movement between the closure and the container is prevented.

Another modified form of the invention is shown in FIGS. 27, 28 and 29 and in this form of the invention there is provided a generally cylindrical hollow body 230, similar to those described above and the body 230 is provided with a skirt 231 having internal threads 232 for engaging the threads on the neck of a bottle and a shoulder 233 for engaging the upper end of the bottle neck to provide a seal. The upper portion 234 of the body 230 is reduced in diameter and spaced inwardly from the upper end of the portion 234 is a partition 235. A vent tube 236 depends from the partition 235 in alignment with a vent opening 237 provided therein and the bore 238 in the tube 236 terminates at the lower end 239 in an opening substantially smaller than the vent opening 237.

A relatively large pouring opening 240 and a pouring spout 241 integral with the partition 235 extends upwardly in alignment with the pouring opening 240. The upper end of the spout 241 is closed by a hood 242 and a portion of the hood 242 and the front wall 243 of the spout 241 is cut away to provide a dispensing opening 244 which opens forwardly and upwardly. Spaced from the opening 244 is a groove 245 which extends substantially around the dispensing opening 244 and provides a ridge

246 adjacent thereto and the ridge 246, together with the groove 245 operates to provide a sharp cutoff for material being dispensed through the opening 244.

It is to be noted, that the hood 242 curves downwardly adjacent the edge of the dispensing opening 244 to provide a recess 242' in the upper end of the spout 241. The purpose and operation of this recess 242' will presently appear.

Provided on the upper end of the reduced portion 234 of the body 230, at the front thereof, is an outwardly extending eccentric flange 247, the upper surface 248 of which is formed with a flat bevel inclined downwardly and inwardly toward the partition 235. The upper surface 249 of the partition 235 is inclined from the sidewall of the upper portion 234 of the body 230 toward the vent opening 237 and will serve to direct any liquid spilled from the pouring operation toward the vent opening 237 and through the bore 238 into the bottle or container to which the device is attached. The flange 247 provides a lip having a sharp edge and spaced below the lip is an eccentric shoulder 250 which operates in the same manner as that described above.

A cap 251 is provided with a top wall 252 and a sidewall 253 and the cap 251 is hingedly attached to the body 230 by a strap 254 which serves to permit swinging movement between the cap 251 and the body 230.

Depending from the top wall 252 of the cap 251 is a tapered plug 255 which is received in the vent opening 237 and bore 238 in the tube 236 to close the same when the cap is in closed position and also depending from the top wall 252 of the cap 251 is a sleeve 256 which, as shown in FIG. 28, is tightly received over the pouring spout 241 and in engagement with the ridge 246 to close the dispensing opening 244 and prevent leakage of liquids from the bottle or other container to which the device is applied. The lower end of the sleeve 256 may be beveled, as shown at 257, in order to facilitate passage of the same over the upper end of the pouring spout 241.

The sidewall 253 of the cap 251 is provided with an internal eccentric recess 258 which serves to receive a shoulder 259 provided on the upper portion 234 of the body 230 below the eccentric flange 247. As shown in FIG. 28, this serves to releasably lock the cap 251 in closed position on the body 230. In order to facilitate manipulation of the cap 251 there may be provided an outwardly extending finger engaging projection 260 on the sidewall 253.

The form of the invention shown in FIGS. 27, 28 and 29 operates in much the same manner as that described above, except that upon tilting of the bottle or other container to dispense material therefrom, such material is directed outwardly and toward the side through the dispensing opening 244 and the ridge 246 and groove 245 serves to prevent substantially all drippage when the bottle or other container is returned to vertical position. It also appears that the no-drip feature of the pouring spout 241 is enhanced by a syphon or suction action in that, when the bottle or other container is returned to upright position, the material within the pouring spout 241 flowing back into the bottle appears to create a suction which tends to pull all material adjacent the dispensing opening 244 back into the spout thereby preventing substantially all drippage. This syphon or suction action appears to be primarily due to the provision of the recess 242'. In the event there is any drippage from the pouring spout 241, the material will flow downwardly to the upper surface 249 of the partition 235 and due to the inclination thereof through the vent opening 237 and into the bottle or other container.

The form of the invention shown in FIGS. 30, 31 and 32 is substantially identical with that shown in FIGS. 27, 28 and 29, except that the pouring spout 261 is provided with a complete hood 262, the outer edge 263 of which is an alignment with the front wall 264 of the

spout 261. A dispensing opening 265 is provided in the front wall 264 of the spout 261 and the pouring opening 265 is surrounded by a ridge 266 and a groove 267 which operates in the same manner as that described above in connection with FIGS. 27, 28 and 29. It is to be noted, that in this form of the invention the downward curvature of the hood 262 provides a recess 262' in the upper end of the spout 241 which is substantially larger than the recess 242' in the upper end of spout 241 and this enlarged recess materially increases the syphon or suction action described above.

A still further modified form of the invention is shown in FIGS. 33 and 34 in which the structure of the body 268 and pouring spout 269 is substantially identical to that shown in FIGS. 30 and 31, but it is to be noted, that the vent tube 270 depends from the partition 271 adjacent the center thereof and in close proximity to the base of the pouring spout 269.

A cap 272 is provided with a top wall 273 and a sidewall 274 and the cap 272 is hingedly connected to the body 268 by a strap 275, in a manner similar to that described above. A sleeve 276 depends from the top wall 273 of the cap 272 and the sleeve 276, as shown in FIG. 34, closely surrounds the pouring spout 269 when in closed position, to seal the same against leakage and the lower edge of the sleeve 276 may be beveled, as shown at 277, to facilitate passage thereof over the pouring spout 269. The rear wall 278 of the sleeve 276 is considerably thicker than the front wall thereof and depending from this rear wall 278 is a tapered plug 279 which enters the vent tube 270 when the cap 272 is in closed position, as shown in FIG. 34, to close the vent tube 270 and prevent leakage of material therethrough.

The operation of the form of the invention shown in FIGS. 33 and 34 is substantially the same as that described above in connection with the other forms of the invention, the main difference being in the formation of the sleeve for closing the pouring spout and the plug for closing the vent tube. The location of the vent tube at the center of the partition 271 also facilitates handling and orientation of the device in automatically applying the same to a container.

While the upper surface of the partition in the body of the various devices of this invention has been shown as inclined from the sidewall of the body toward the vent opening, obviously, such upper surface may if desired, be concave and furthermore, the flat bevel provided on the upper surface of the eccentric flange may be a continuation of the concave or inclined upper surface of the partition. It is further to be noted, that the structure of the various forms of the invention provided a relatively simple flip top lid which may be conveniently manipulated by the fingers of one hand grasping a bottle or other container by the neck thereof and the lid may be either opened or closed by such one hand operation thereby leaving the other hand free to perform other functions. The invention as described above, provides a relatively simple combination closure and pouring device which results in a minimum of spillage and drippage and which operates to return substantially all spillage, if any, to the interior of the container. The device also serves to provide a suitable seal to prevent leakage or evaporation of the contents of the container during periods between dispensing thereof.

It will be obvious to those skilled in the art that various changes may be made in the invention without departing from the spirit and scope thereof and therefore the invention is not limited by that which is shown in the drawing and described in the specification, but only as indicated in the appended claims.

What is claimed is:

1. A combination container closure and pouring device comprising a generally cylindrical hollow body, means adjacent the lower end of said body for securing said body to the open end of a container, a transverse

partition in said body spaced inwardly from the upper end, a relatively small vent opening in said partition, an inwardly extending tube on said partition below said vent opening, a tapered bore in said tube in alignment with said vent opening, the opening at the inner end of said bore being substantially smaller than said vent opening, a relatively large pouring opening in said partition at the front adjacent the sidewall of said body opposite said vent opening, a cylindrical pouring spout closed at the upper end and extending upwardly in alignment with said pouring opening and integral with said partition, a dispensing aperture in the front sidewall of said spout adjacent the upper end, the upper surface of said partition being inclined from the sidewall of said body toward said vent opening, an outwardly extending eccentric flange on the upper end of said body at the front adjacent said pouring opening, the ends of said flange merging into the sidewall of said body, the upper surface of said flange having a flat bevel inclined downwardly and inwardly toward the upper surface of said partition and the lower surface of said flange having an eccentric shoulder to provide a lip having a sharp edge, a second outwardly extending shoulder at the lower side of said flange adjacent the sidewall of said body, a hollow cap having a top wall and a sidewall for surrounding the upper portion of the sidewall of said body when in closed position, a tapered plug depending from said top wall to be received in said vent opening and bore to close the vent opening and bore, a sleeve depending from said top wall to tightly enclose said spout and close said aperture, an eccentric recess in the side wall of said cap for receiving said second shoulder to releasably hold said cap in closed position and a flexible strap integral with said body and cap to provide a hinge permitting movement of said cap to open or close said vent opening and aperture.

2. A combination container closure and pouring device comprising a generally cylindrical hollow body, means adjacent the lower end of said body for securing said body to the open end of a container, a transverse partition in said body spaced inwardly from the upper end, a relatively small vent opening in said partition, an inwardly extending tube on said partition below said vent opening, a tapered bore in said tube in alignment with said vent opening, the opening at the inner end of said bore being substantially smaller than said vent opening, a relatively large pouring opening in said partition at the front adjacent the sidewall of said body opposite said vent opening, a cylindrical pouring spout closed at the upper end and extending upwardly in alignment with said pouring opening and integral with said partition, a dispensing aperture in the front sidewall of said spout adjacent the upper end, the upper surface of said partition being inclined from the sidewall of said body toward said vent opening, an outwardly extending eccentric flange on the upper end of said body at the front adjacent said pouring opening, the ends of said flange merging into the sidewall of said body, the upper surface of said flange being inclined downwardly and inwardly toward the upper surface of said partition and the lower surface of said flange having a shoulder to provide a lip having a sharp edge, a hollow cap having a top wall and a sidewall for surrounding the upper portion of the sidewall of said body when in closed position, a tapered plug depending from said top wall to be received in said vent opening and bore to close the vent opening and bore, a sleeve depending from said top wall to tightly enclose said spout and close said aperture and hinge means connecting said body and cap to permit movement of said cap to open or close said vent opening and aperture.

3. A combination container closure and pouring device comprising a generally cylindrical hollow body, means adjacent the lower end of said body for securing said body to the open end of a container, a transverse partition in said body spaced inwardly from the upper end,

a relatively small vent opening in said partition, an inwardly extending tube on said partition below said vent opening, a tapered bore in said tube in alignment with said vent opening, the opening at the inner end of said bore being substantially smaller than said vent opening, a relatively large pouring opening in said partition at the front adjacent the sidewall of said body opposite said vent opening, a cylindrical pouring spout closed at the upper end and extending upwardly in alignment with said pouring opening and integral with said partition, a dispensing aperture in the front sidewall of said spout adjacent the upper end, the upper surface of said partition being inclined from the sidewall of said body toward said vent opening, an outwardly extending flange on the upper end of said body, the upper surface of said flange being inclined downwardly and inwardly toward the upper surface of said partition and the lower surface of said flange having a shoulder to provide a lip having a sharp edge, a hollow cap having a top wall and a sidewall for surrounding the upper portion of the sidewall of said body when in closed position, a tapered plug depending from said top wall to be received in said vent opening and bore to close the vent opening and bore, a sleeve depending from said top wall to tightly enclose said spout and close said aperture and hinge means connecting said body and cap to permit movement of said cap to open or close said vent opening and aperture.

4. A combination container closure and pouring device comprising a generally cylindrical hollow body, means adjacent the lower end of said body for securing said body to the open end of a container, a transverse partition in said body spaced inwardly from the upper end, a vent opening in said partition, an inwardly extending tube on said partition below said vent opening, a tapered bore in said tube in alignment with said vent opening, the opening at the inner end of said bore being substantially smaller than said vent opening, a pouring opening in said partition at the front adjacent the sidewall of said body opposite said vent opening, a pouring spout closed at the upper end and extending upwardly in alignment with said pouring opening and secured to said partition, a dispensing aperture in the front sidewall of said spout, an outwardly extending flange on the upper end of said body, the upper surface of said flange being inclined downwardly and inwardly toward the upper surface of said partition and the lower surface of said flange having a shoulder to provide a lip having a sharp edge, a hollow cap having a top wall and a sidewall for surrounding the upper portion of the sidewall of said body when in closed position, a plug depending from said top wall to be received in said vent opening and bore to close the vent opening and bore, a sleeve depending from said top wall to tightly enclose said spout and close said aperture and hinge means connecting said body and cap to permit movement of said cap to open or close said vent opening and aperture.

5. A combination container closure and pouring device comprising a generally cylindrical hollow body, means adjacent the lower end of said body for securing said body to the open end of a container, a transverse partition in said body spaced inwardly from the upper end, a relatively small vent opening in said partition at the rear adjacent the sidewall of said body, an inwardly extending tube on said partition below said vent opening, a tapered bore in said tube in alignment with said vent opening, the opening at the inner end of said bore being substantially smaller than said vent opening, a relatively large pouring opening in said partition at the front adjacent the sidewall of said body opposite said vent, a cylindrical pouring spout having a curved hood at the upper end and extending upwardly in alignment with said pouring opening and integral with said partition, a portion of the hood and wall of said spout being cut away at the front to provide a dispensing aperture, a ridge



and groove surrounding said dispensing aperture, the upper surface of said partition being inclined from the sidewall of said body toward said vent opening, an outwardly extending eccentric flange on the upper end of said body at the front adjacent said pouring opening, the ends of said flange merging into the sidewall of said body substantially midway between said pouring opening and said vent opening, the upper surface of said flange having a flat bevel inclined downwardly and inwardly toward the upper surface of said partition and the lower surface of said flange having an eccentric shoulder to provide a lip having a sharp edge, a second outwardly extending shoulder at the lower side of said flange adjacent the sidewall of said body, a hollow cap having a top wall and a sidewall for surrounding the upper portion of the side wall of said body when in closed position, a tapered plug depending from said top wall to be received in said vent opening and bore to close the vent opening and bore, a sleeve depending from said top wall to tightly enclose said spout and close said aperture, an eccentric recess in the sidewall of said cap for receiving said second shoulder to releasably hold said cap in closed position, a finger engaging projection on the sidewall of said cap and a flexible strap integral with said body and cap to provide a hinge permitting movement of said cap to open or close said vent opening and aperture.

6. A combination container closure and pouring device comprising a generally cylindrical hollow body, means adjacent the lower end of said body for securing said body to the open end of a container, a transverse partition in said body spaced inwardly from the upper end, a vent opening in said partition at the rear adjacent the sidewall of said body, an inwardly extending tube on said partition below said vent opening, a tapered bore in said tube in alignment with said vent opening, the opening at the inner end of said bore being substantially smaller than said vent opening, a pouring opening in said partition at the front adjacent the sidewall of said body opposite said vent opening, a pouring spout having a curved hood at the upper end and secured to said partition, a portion of the hood and wall of said spout being cut away at the front to provide a dispensing aperture, an outwardly extending flange on the upper end of said body, the upper surface of said flange being inclined downwardly and inwardly toward the upper surface of said partition and the lower surface of said flange having a shoulder to provide a lip having a sharp edge, a hollow cap having a top wall and a sidewall for surrounding the upper portion of the sidewall of said body when in closed position, a plug depending from said top wall to be received in said vent opening and bore to close the vent opening and bore, a sleeve depending from said top wall to tightly enclose said spout and close said aperture and hinge means connecting said body and cap to permit movement of said cap to open or close said vent opening and aperture.

7. A combination container closure and pouring device comprising a cylindrical hollow body, means adjacent the lower end of said body for securing said body to the open end of a container, a transverse partition in said body spaced inwardly from the upper end, a relatively small vent opening in said partition at the rear adjacent the sidewall of said body, an inwardly extending tube on said partition below said vent opening, a tapered bore in said tube in alignment with said vent opening, the opening at the inner end of said bore being substantially smaller than said vent opening, a relatively large pouring opening in said partition at the front adjacent the sidewall of said body opposite said vent opening, a cylindrical pouring spout having a curved hood at the upper end and extending upwardly in alignment with said pouring opening and integral with said partition, the sidewall of said spout at the front terminating in spaced relation to said hood to provide a dispensing aperture, an outwardly extending pouring lip on the upper edge of

the sidewall of said spout below said hood, an enlargement on the sidewall of said spout below said pouring lip in spaced relation thereto, the upper surface of said partition being inclined from the sidewall of said body toward said front opening, an outwardly extending eccentric flange on the upper end of said body at the front adjacent said pouring opening, the ends of said flange merging into the sidewall of said body substantially midway between said pouring opening and said vent opening, the upper surface of said flange having a flat bevel inclined downwardly and inwardly toward the upper surface of said partition and the lower surface of said flange having an eccentric shoulder to provide a lip having a sharp edge, a second extending shoulder at the lower side of said flange adjacent the sidewall of said body, a hollow cap having a top wall and a sidewall for surrounding the upper portion of the sidewall of said body when in closed position, a tapered plug depending from said top wall to be received in said vent opening and bore to close the vent opening and bore, a sleeve depending from said top wall to tightly enclose said spout and the enlargement thereon and close said aperture, an eccentric recess in the sidewall of said cap for receiving the second shoulder on the sidewall of said body to releasably hold said cap in closed position, a finger engaging projection on the sidewall of said cap and a flexible strap integral with said body and cap to provide a hinge permitting movement of said cap to open or close said vent opening and aperture.

8. A combination container closure and pouring device comprising a generally cylindrical hollow body, means adjacent the lower end of said body for securing said body to the open end of a container, a transverse partition in said body spaced inwardly from the upper end, a vent opening in said partition at the rear adjacent the sidewall of said body, an inwardly extending tube on said partition below said vent opening, a tapered bore in said tube in alignment with said vent opening, the opening at the inner end of said bore being substantially smaller than said vent opening, a pouring opening in said partition at the front adjacent the sidewall of said body opposite said vent opening, a pouring spout having a curved hood at the upper end and extending upwardly in alignment with said pouring opening and secured to said partition, the sidewall of said spout at the front terminating in spaced relation to said hood to provide a dispensing aperture, an outwardly extending pouring lip on the upper edge of the sidewall of said spout below said hood, an enlargement on the sidewall of said spout below said pouring lip in spaced relation thereto, an outwardly extending flange on the upper end of said body, the upper surface of said flange being inclined downwardly and inwardly toward the upper surface of said partition and the lower surface of said flange having a shoulder to provide a lip having a sharp edge, a hollow cap having a top wall and a sidewall for surrounding the upper portion of the sidewall of said body when in closed position, a tapered plug depending from said top wall to be received in said vent opening and bore to close the vent opening and bore, a sleeve depending from said top wall to tightly enclose said spout and the enlargement thereon and close said aperture and hinge means connecting said body and cap to permit movement of said cap to open or close said vent opening and aperture.

9. A combination container closure and pouring device comprising a generally cylindrical hollow body, means adjacent the lower end of said body for securing said body to the open end of a container, a transverse partition in said body spaced inwardly from the upper end, a relatively small vent opening in said partition at the rear adjacent the sidewall of said body, an inwardly extending tube on said partition below said vent opening, a tapered bore in said tube in alignment with said vent opening, the opening at the inner end of said bore being substantially smaller than said vent opening, a relatively large pour-

ing opening in said partition at the front adjacent the sidewall of said body opposite said vent, a cylindrical pouring spout having a curved hood at the upper end and extending upwardly in alignment with said pouring opening and integral with said partition, a circular dispensing aperture in the front wall of said spout adjacent said hood, a ridge and groove surrounding said dispensing aperture, the front upper edge of said hood being curved downwardly to provide a recess in the upper end of said spout, the upper surface of said partition being inclined from the sidewall of said body toward said vent opening, an outwardly extending eccentric flange on the upper end of said body at the front adjacent said pouring opening, the ends of said flange merging into the sidewall of said body substantially midway between said pouring opening and said vent opening, the upper surface of said flange having a flat bevel inclined downwardly and inwardly toward the upper surface of said partition and the lower surface of said flange having an eccentric shoulder to provide a lip having a sharp edge, a second outwardly extending shoulder at the lower side of said flange adjacent the sidewall of said body, a hollow cap having a top wall and a sidewall for surrounding the upper portion of the sidewall of said body when in closed position, a tapered plug depending from said top wall to be received from said vent opening and bore to close the vent opening and the bore, a sleeve depending from said top wall to tightly close said spout and close said aperture, an eccentric recess in the sidewall of said cap for receiving said second shoulder to releasably hold said cap closed position, a finger engaging projection on the sidewall of said cap and a flexible strap integral with said body and cap to provide a hinge permitting movement of said cap to open or close said vent opening and aperture.

10. A combination container closure and pouring device comprising a generally cylindrical hollow body, means adjacent the lower end of said body for securing said body to the open end of a container, a transverse partition in said body spaced inwardly from the upper end, a relatively small vent opening in said partition, an inwardly extending tube on said partition below said vent opening, a tapered bore in said tube in alignment with said vent opening, the opening at the inner end of said bore being substantially smaller than said vent opening, a relatively large pouring opening in said partition at the front adjacent the sidewall of said body opposite said vent opening, a cylindrical pouring spout having a curved hood at the upper end extending upwardly in alignment with said pouring opening and integral with said partition, a dispensing aperture in the front wall of said spout adjacent said hood, a ridge and groove surrounding said dispensing aperture, the front upper edge of said hood being curved downwardly to provide a recess in the upper end of said spout, the upper surface of said partition being inclined from the sidewall of said body toward said vent opening, an outwardly extending flange on the upper end of said body, the upper surface of said flange being inclined downwardly and inwardly toward the upper surface of said partition and the lower surface of said flange having a shoulder to provide a lip having a sharp edge, a hollow cap having a top wall and a sidewall for surrounding the upper portion of the sidewall of said body when in closed position, a tapered plug depending from said top wall to be received in said vent opening and bore to close the vent opening and bore, a sleeve depending from said top wall to tightly enclose said spout and close said aperture and hinge means connecting said body and cap to permit movement of said cap to open or close said vent opening and aperture.

11. A combination container closure and pouring device comprising a generally cylindrical hollow body, means adjacent the lower end of said body for securing said body to the open end of a container, a transverse partition in said body spaced inwardly from the upper end, a relatively small vent opening in said partition, an

inwardly extending tube below said vent opening, a tapered bore in said tube in alignment with said vent opening, the opening at the inner end of said bore being substantially smaller than said vent opening, a relatively large pouring opening in said partition adjacent said vent opening, a cylindrical pouring spout having a curved hood at the upper end and extending upwardly in alignment with said pouring opening and integral with said partition, a portion of the hood and wall of said spout being cut away at the front to provide a dispensing aperture, a ridge and groove surrounding said dispensing aperture, the upper surface of said partition being inclined from the sidewall of said body toward said vent opening, an outwardly extending eccentric flange on the upper end of said body at the front adjacent said pouring opening, the ends of said flange merging into the side wall of said body, the upper surface of said flange having a flat bevel inclined downwardly and inwardly toward the upper surface of said partition and the lower surface of said flange having an eccentric shoulder to provide a lip having a sharp edge, a second outwardly extending shoulder at the lower side of said flange adjacent the sidewall of said body, a hollow cap having a top wall and a sidewall for surrounding the upper portion of the sidewall of said body when in closed position, a sleeve depending from said top wall to tightly enclose said spout and close said aperture, a tapered plug integral with said sleeve to be received in said vent opening and bore to close the vent opening and bore, an eccentric recess in the sidewall of said cap for receiving said second shoulder to releasably hold said cap in closed position, a finger engaging projection on the sidewall of said cap and a flexible strap integral with said body and cap to provide a hinge permitting movement of said cap to open or close said vent opening and aperture.

12. A combination container closure and pouring device comprising a generally cylindrical hollow body, means adjacent the lower end of said body for securing said body to the open end of a container, a transverse partition in said body spaced inwardly from the upper end, a vent opening in said partition, an inwardly extending tube on said partition below said vent opening, a tapered bore in said tube in alignment with said vent opening, the opening at the inner end of said bore being substantially smaller than said vent opening, a pouring opening in said partition adjacent said vent opening, a pouring spout having a curved hood at the upper end and extending upwardly in alignment with said pouring opening and secured to said partition, a portion of the hood and wall of said spout being cut away at the front to provide a dispensing aperture, an outwardly extending flange on the upper end of said body, the upper surface of said flange being inclined downwardly and inwardly toward the upper surface of said partition and the lower surface of said flange having a shoulder to provide a lip having a sharp edge, a hollow cap having a top wall and a sidewall for surrounding the upper portion of the sidewall of said body when in closed position, a sleeve depending from said top wall to tightly enclose said spout and close said aperture, a plug integral with said sleeve and extending below the same to be received in said vent opening and bore to close the vent opening and bore and hinge means connecting said body and cap to permit movement of said cap to open or close said vent opening and aperture.

13. A combination container closure and pouring device comprising a generally cylindrical hollow body, means adjacent the lower end of said body for securing said body to the open end of a container, a transverse partition in said body adjacent its upper end, a pouring opening in said partition, a non-collapsible pouring spout closed at its upper end and extending upwardly in alignment with said pouring opening and fixedly secured to said partition, a dispensing aperture in the front sidewall of said spout permanently located clearingly above said



body, vent means in said body, a hollow cap having a top wall and a side wall for surrounding the upper portion of said body when in closed position, means for releasably locking said cap to said body in closed position, and sleeve-like means within said cap radially inwardly of said side wall and extending to said cap top wall and frictionally engaging the spout and frictionally and sealingly encircling said spout and sealing said dispensing aperture when said cap is in closed position.

14. A combination container closure and pouring device comprising a generally cylindrical hollow body, means adjacent the lower end of said body for securing said body to the open end of a container, a transverse partition in said body adjacent its upper end, a vent opening in said partition, an inwardly extending tube on said partition below said vent opening, a tapered bore in said tube in alignment with said vent opening, the opening at the inner end of said bore being substantially smaller than said vent opening, a pouring opening in said partition at the front adjacent the side wall of said body opposite said vent opening, a pouring spout closed at its upper end and extending upwardly in alignment with said pouring opening and secured to said partition, a dispensing aperture in the front side wall of said spout, a hollow cap having a top wall and a side wall for surrounding the upper portion of the side wall of said body when in closed position, means for releasably locking said cap to said body in closed position, a plug depending from said top wall to be received in said vent opening and bore to close the same when said cap is in closed position, and means within said cap frictionally and sealingly encircling said spout and sealing said dispensing aperture when said cap is in closed position.

15. A combination container closure and pouring device comprising a generally cylindrical hollow body, means adjacent the lower end of said body for securing said body to the open end of a container, a transverse partition in said body adjacent its upper end, a pouring opening in said partition, a non-collapsible pouring spout closed at its upper end and extending upwardly in alignment with said pouring opening and fixedly secured to said partition, a dispensing aperture in the front side wall of said spout permanently located clearing above said body, vent means in said body, an outwardly extending flange on the upper end of said body, the upper surface of said flange being inclined downwardly and inwardly toward the upper surface of said partition and the lower surface of said flange having a shoulder to provide a lip

having a sharp edge, vent means in said body, a hollow cap having a top wall and a side wall for surrounding the upper portion of said body when in closed position, means for releasably locking said cap to said body in closed position, and sleeve-like means within said cap radially inwardly of said side wall and extending to said cap top wall and frictionally engaging the spout and frictionally and sealingly encircling said spout and sealing said dispensing aperture when said cap is in closed position.

16. In a pouring device for attachment to the top of a bottle for pouring liquid therefrom, a pouring spout having a bore and an elongated tubular peripheral wall having an open bottom and having a transverse top closure wall, said peripheral wall having a dispensing aperture extending to said top wall, said bore being of generally uniform diameter throughout its length, the edge of said dispensing aperture being smooth and thin and approximately bore-sized, the inner surface of said top wall having a concave, dome-shaped recess located substantially above the level of said aperture, the wall of said recess extending from the uppermost part of said recess smoothly downwardly to the upper part of the edge of said dispensing aperture, said recess merging smoothly with the bore wall of said spout, the wall of said bore to either side circumferentially of said aperture curving concavely and smoothly radially inwardly in the direction toward said top wall, said pouring device having vent means, said bore, recess and aperture being sized and shaped to permit an unbroken, non-turbulent stream of liquid to flow through said spout to said aperture with the liquid completely filling said bore and said aperture while said spout is tilted for pouring, said pouring device being thereby effective upon return of said pouring device from tilted to upright position to retain the last drop of liquid from passing out through said aperture.

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