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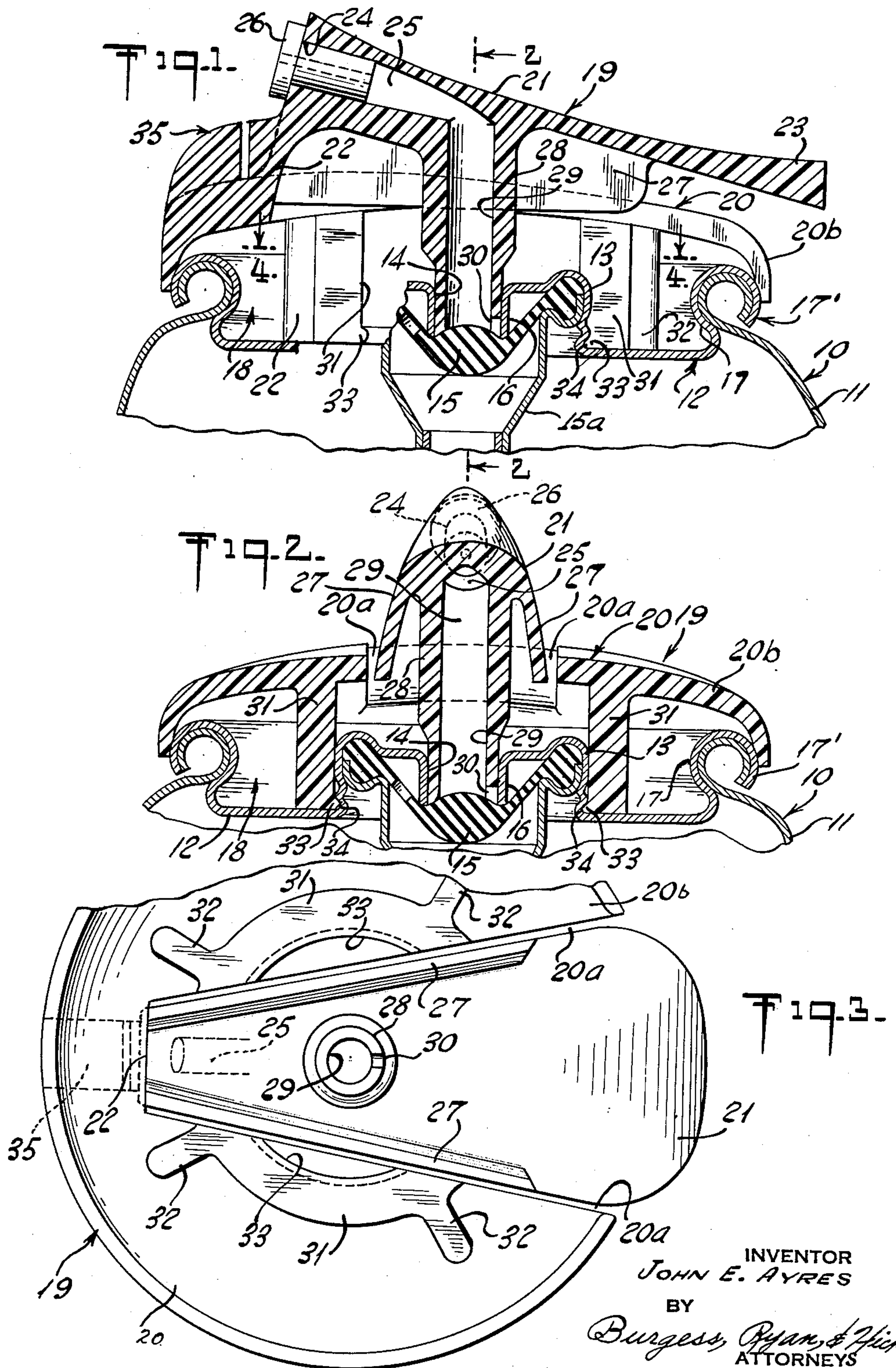
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LEVER-ACTUATED DISPENSER FOR PRESSURIZED PACKAGE

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2 Sheets-Sheet 1



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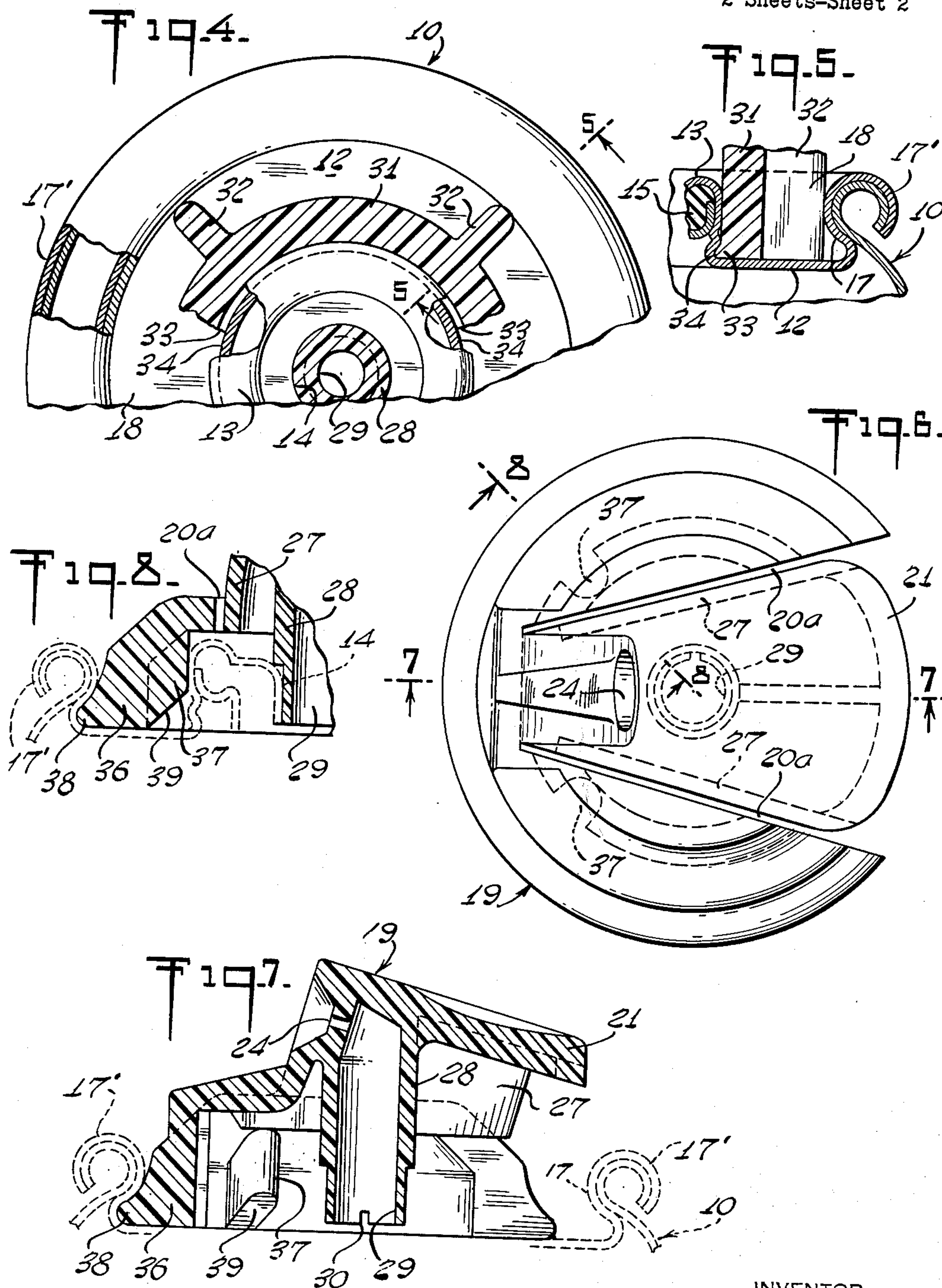
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LEVER-ACTUATED DISPENSER FOR PRESSURIZED PACKAGE

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The present invention relates to a lever-actuated dispenser for a pressurized package and relates, more particularly, to a dispenser having a manually operable lever for actuating a valve which controls the discharge of the contents of a pressurized package.

An object of the present invention is to provide a dispenser incorporating a manually operable lever and valve-actuating plunger which can be molded as a single piece from a plastic material. Another object of the invention is to provide a lever-actuated dispenser which incorporates novel means for attaching and holding the dispenser in operating position on a pressurized package.

Other objects and advantages of the invention will be apparent and best understood from the following description and the accompanying drawings in which:

FIG. 1 is a side view in vertical section of a lever-actuated dispenser embodying the invention mounted on a container;

FIG. 2 is a section view taken along the line 2-2 of FIG. 1;

FIG. 3 is a bottom view of the dispenser shown in FIG. 1;

FIG. 4 is a fragmentary view in section taken along the line 4-4 of FIG. 1;

FIG. 5 is a fragmentary view in section taken along the line 5-5 of FIG. 4;

FIG. 6 is a plan view of another form of a lever-actuated dispensing cap embodying the present invention;

FIG. 7 is a section view taken along the line 7-7 of FIG. 6; and

FIG. 8 is a section view taken along the line 8-8 of FIG. 7.

Referring now to the drawings in detail, there is a container 10 of a type which is customarily used for dispensing commodities from pressurized packages under pressure from propellants such as Freon and the like.

The container is of conventional construction and comprises a cylindrical body 11 of metal having an opening in the top thereof in which a closure member or cap 12 is located. The closure member, which is formed of sheet metal, has a cylindrically shaped neck portion or hollow hub 13 extending upwardly in the center thereof which contains a discharge passageway 14. The discharge passageway is defined by a downwardly extending annular flange 16. A valve member 15 of resilient rubber-like material is located inside the hub and is held in engagement under tension with the lower end of the flange by a retaining member 15a. The valve member normally closes the discharge passageway, but can be depressed to move it out of engagement with the flange and thus, open the discharge passageway.

The closure member or cap also has an upwardly extending annular flange 17 at its outer edge and the top edge 17' of said flange is crimped over the top edge of the container body to secure the closure member to the container body. Thus, the upper surface of the closure member or cap contains an annular recess 18 which is bounded at its inner and outer peripheries, respectively, by the upstanding sides of the central hub or neck and the outer flange.

In general, a lever-actuated dispenser made in accordance with the present invention comprises a split body,

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engagement with the upstanding sides of the annular recess in the top of the closure member, a lever which is pivotally attached or hinged to the body at a point spaced from the outlet of the discharge passageway in the closure member and a valve operating plunger which is carried by said lever in alignment with the discharge passageway in the closure member.

In the embodiment illustrated in FIGS. 1 through 5, the dispenser 19 includes a split body 20 having a portion for attaching the dispenser to the container which extends downwardly into the annular recess in the top of the container closure member. A skirt 20b extends outwardly from the base portion and, as illustrated, the outer edges of the skirt may be shaped to fit over the crimped connection between the closure member and the container body.

The split in the split body is formed by a wedge-shaped slot 20a which extends diametrically across the body and the skirt from one side thereof to and through the other side thereof. Thus, the wedge-shaped slot is closed at one end and forms an opening at its other end which extends throughout the height of the body and the skirt.

An actuating lever 21 is pivoted to the body at the closed end of the slot by a hinge 22. The lever extends diametrically across the body and the skirt in said slot with the free end 23 thereof projecting slightly beyond the outer edge of the skirt. Thus, the lever is movable in said slot in a generally vertical direction with respect to the body and the skirt.

The actuating lever has an upwardly extending face at its hinged end which contains a discharge outlet 24 communicating with a discharge passageway 25 in the lever. If desired, an orifice member 26 therein may be mounted in the discharge outlet in the lever.

The actuating lever slopes downwardly from the upwardly extending face as it extends rearwardly and diverges outwardly toward its free end so as to provide a movable tail piece which is shaped to be readily engaged and depressed by the thumb or finger of a person holding the container. The lever may be provided with side pieces 27 which extend downwardly along the sides thereof to or slightly below the upper edges of the slot in the body and skirt.

A tubular valve operating plunger 28 is formed as part of the actuating lever and extends downwardly therefrom at a point intermediate the ends of the lever in alignment with the discharge passageway in the container closure member. The lower end of the plunger extends through the annular flange defining the discharge outlet in the closure cap for engagement with the center of the valve member. The lower end of the plunger is shaped so as to make a tight fit with the sides of the annular flange in the closure member to prevent the contents of the container from being discharged between the opposing sides of the plunger and the flange. The upper part of the plunger is enlarged so as to engage with the flange and thus, limit downward movement of the plunger and the lever with respect to the closure member.

The tubular plunger is open at its lower end and forms a discharge passageway 29 which communicates with the discharge passageway in the lever. The lower end of the plunger which engages with the valve member is provided with one or more notches or slots 30 to permit the contents of the container to flow between the valve member and the end of the plunger and into the discharge passageway in the plunger when the valve member is moved out of engagement with the flange by depressing the tail end of the lever.

The portion of the split body which extends downwardly into the annular recess in the top of the closure

member comprises two arcuately-shaped ribs 31 which engage with the central hub or necked portion on opposite sides thereof. The ribs are provided with outwardly extending radial projections or lugs 32 adjacent their ends which engage with the outer wall of the annular recess and force the ribs into engagement with the sides of the central hub or necked portion. In order to insure close engagement between the ribs and the hub, the ribs may be arched slightly more than the curvature of the sides of the hub and the ribs will then conform to the shape of the hub when they are forced into engagement therewith by engagement of the lugs with the outer side of the recess.

If desired, the lower ends 33 of the ribs may be shaped to fit into a depression 34 at the bottom of the sides of the hub. By this arrangement, an extremely snug and secure fit is obtained between the dispenser and the closure member which prevents the dispenser from being displaced under normal operating conditions even though the dispenser body is split by the wedge-shaped slot formed therein.

As shown in FIG. 1, a stop 35, which extends upwardly from the skirt portion of the dispenser in front of the operating lever, may be provided to prevent the operating lever from being raised to a point where the lower end of the valve operating plunger would be removed from the discharge passageway in the closure cap.

In use, a pressurized package having a lever-actuated dispenser embodying the present invention is operated as follows: The container is held in one hand by the user and the tail or free end of the actuating lever is depressed by a finger or thumb. This moves the valve operating plunger downwardly and forces the valve member out of engagement with the lower end of the annular flange defining the discharge passageway in the container closure member. The contents of the container will then flow, under influence of pressure from within the container, through the notches in the end of the tubular valve operating plunger and through the discharge passageways in the plunger and the lever to the discharge outlet in the front face of the lever. When the tail end of the operating lever is released, the resiliency of the valve member aided by pressure from within the container automatically closes the valve and raises the tail end of the lever to its initial position for further operation as desired.

In the embodiment of the invention illustrated in FIGS. 6-8, the skirt portion of the dispenser has been eliminated and the means for holding the dispenser in place on the container comprises a split body having a rib 36 which extends around the body from one side of the wedge-shaped slot 20a to the other side thereof. In this instance, the outer surface of the rib engages with the outer side wall of the annular recess in the closure member and is provided with spaced inwardly extending projections or lugs 37 which engage with the sides of the central hub and thus, force the rib into engagement with the outer side wall of the annular recess.

The lower end 38 of the rib may be shaped to fit into a recess at the bottom of the outer side wall of the annular recess. The projections or lugs are located inwardly from the ends of the rib to permit the ends of the rib to be squeezed together to aid in attaching the dispenser to the container. The lower ends 39 of the projections should also be beveled to permit easier insertion of the ribs in the annular recess.

Other parts of the dispenser and the operation thereof are the same as described previously and such description need not be repeated.

It will be understood that various changes and modifications may be made in the embodiments of the invention illustrated and described herein without departing from the spirit or scope of the invention as defined by the following claims.

I claim:

1. In a lever-actuated dispenser cap for a pressurized container having a discharge passageway formed in the top thereof with an annular recess defined by spaced upstanding side walls surrounding said discharge passageway and a valve normally closing said discharge passageway, the improvement which comprises a split, one-piece molded body, said body containing an elongated slot extending diametrically across the top thereof, said slot having an open end extending through one side of the body and being closed at the other end thereof, a lever flexibly hinged to the body at the closed end of the slot and extending rearwardly across the body through said slot, said lever having a discharge passageway formed therein and having a free end extending at least to the open end of the slot, said free end being movable vertically with respect to the body, a valve-actuating plunger carried by the lever in alignment with the discharge passageway in the container, said plunger being hollow and forming a discharge passageway communicating with the discharge passageway in the lever, and means for attaching the body to the container, said means including an arcuately-shaped rib carried by the body and extending downwardly therefrom on opposite sides of the slot and projections formed on said rib, said rib and projections being shaped to fit into the annular recess in the top of the container and to engage with the side walls thereof.

2. In a lever-actuated dispenser cap, the improvement as defined in claim 1 wherein the lever has an upwardly extending portion adjacent the hinged end thereof and which includes stop means formed on the body adjacent the closed end of the slot in the body, said stop means extending upwardly from the body in opposing relation to the upwardly extending portion of the lever and engaging therewith upon movement of the lever for a given distance in an upward direction with respect to the body.

3. In a lever-actuated dispenser cap, the improvement as defined in claim 1 wherein the valve-operating plunger has a lower end extending into the discharge passageway in the container and said lower end of the plunger seals against the sides of said passageway with a sliding fit, said plunger also having an enlarged portion above its lower end, said enlarged portion engaging with a portion of the container surrounding the discharge passageway and thereby limiting downward movement of the lever with respect to the body.

4. The combination with a pressurized container having a valve-controlled discharge passageway formed in the top thereof with an annular recess defined by spaced upstanding walls surrounding said discharge passageway of a dispenser cap comprising a split one-piece molded body containing an elongated slot in the top thereof, said slot being open at one end and extending diametrically across the body to a closed end thereof; a valve-actuating lever located in said slot and being hinged to the body at the closed end of the slot, said lever having a free end extending beyond the body through the open end of the slot and having a discharge passageway formed therein, said free end being movable with respect to the body, a valve-actuating plunger carried by the lever intermediate its ends in alignment with the discharge passageway in the container, said plunger being hollow and forming a discharge passageway communicating with the discharge passageway in the lever, and means for attaching the body to the container, said means including a pair of arcuately-shaped ribs carried by the body and extending on opposite sides of the slot in the body in spaced relation to the valve-actuating plunger and spaced projections carried by and extending outwardly from the ribs adjacent the ends thereof, said ribs and projections being shaped to fit into the annular recess in the top of the container and to engage with the side walls thereof.

5. The combination as defined in claim 4 wherein the arcuately shaped ribs have a greater curvature than the curvature of an inner side wall of the annular recess and

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are flattened into gripping engagement with said inner side wall by engagement of the projections with the opposite side wall of the recess.

6. In a pressurized package of the type employing a container having a top, a central hub formed in the top of said container, said hub containing a valve-controlled opening, an upstanding flange formed in the top of the container and extending around the central hub in spaced relation thereto, said flange and hub having opposing sides defining an annular recess in the top of the container, the improvement which comprises a dispenser cap mounted on top of the container, said dispenser cap including a split body having an elongated slot extending across the top thereof, said slot defining an opening in one side of the body and terminating at a closed end at the other side of the body, a valve-actuating lever hinged to the body at the closed end of the slot and extending across the body through said slot, to the open end thereof, said lever having a discharge outlet in an end face adjacent the hinged end thereof and containing a discharge passageway communicating with said discharge outlet, a tubular valve-operating plunger carried by the lever and extending downwardly therefrom and into the opening in the central hub on the top of the container, and a pair of arcuate ribs carried by the body and being located on opposite sides of the plunger in spaced relation thereto, said ribs having spaced projections formed thereon adjacent their ends, said projections and ribs fitting into the annular recess in the top of the container and engaging with the opposite sides thereof.

7. In combination with a pressurized container having a valve-controlled discharged passageway formed therein and spaced upstanding side walls surrounding said discharge passageway and defining an annular recess in the container, a lever-actuated dispenser cap which comprises a one-piece body molded from a flexible plastic material, said body being split into two portions by an elongated

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slot which extends diametrically across the body from one side thereof and through the body at an opposite side thereof, said portions being joined at said one side of the body and being separated by the slot at the opposite side of the body, a valve-actuating lever located in said slot and being flexibly hinged to the body at said one side thereof, said lever extending across the body through said slot at least to the opposite side of the body and being movable vertically relative to the body in said slot, a downwardly extending valve-actuating plunger carried by the lever intermediate its ends in alignment with a valve-controlled discharge passageway in the container, and means for attaching the split, one-piece body to the container, said means including a pair of arcuately-shaped ribs formed on the body and extending downwardly therefrom, said ribs being located on opposite sides of the elongated slot and having projections formed thereon, said ribs and projections fitting into an annular recess surrounding the discharge passageway in the container and engaging with spaced side walls defining said recess whereby the body is held against displacement from the container in operation of the lever and the two portions of the body are held in fixed positions relative to each other.

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