Feb. 15, 1966 I. M. SPIER 3,235,145

CONTAINER CLOSURE ASSEMBLY

Filed May 4, 1964 2 Sheets-Sheet 1

FIG. 1.

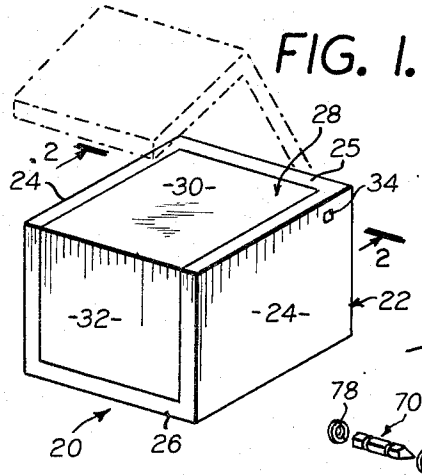


FIG. 2.

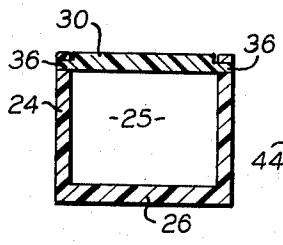


FIG. 3.

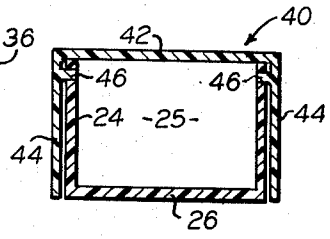


FIG. 4.

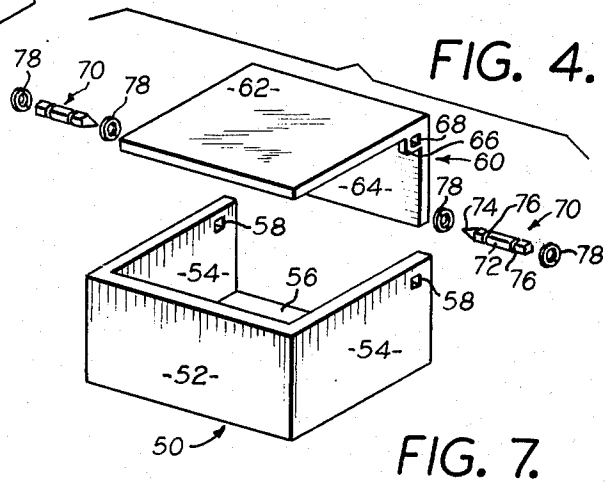


FIG. 5.

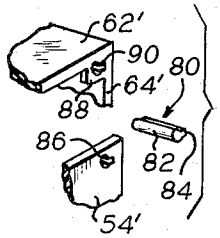


FIG. 6.

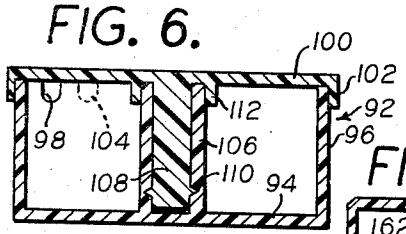


FIG. 7.

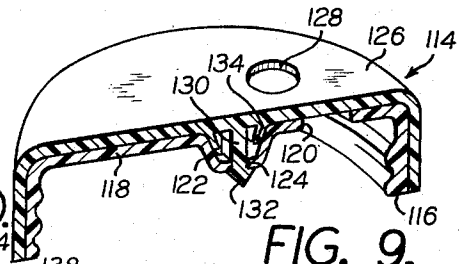


FIG. 10.

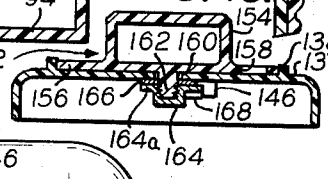


FIG. 8.

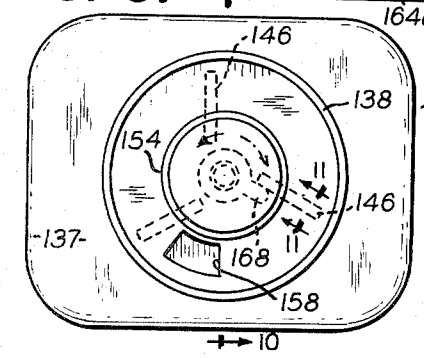
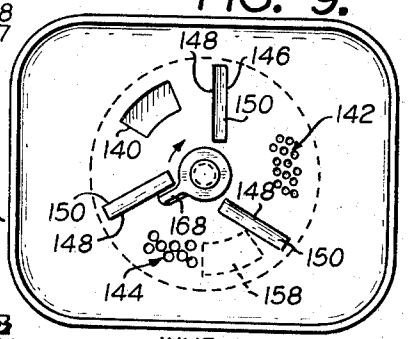


FIG. 11.

FIG. 9.



INVENTOR
I MARTIN SPIER

BY BLUM, MOSCOVITZ, FRIEDMAN, BLUM + KAPLAN
ATTORNEYS.

Feb. 15, 1966 I. M. SPIER 3,235,145

CONTAINER CLOSURE ASSEMBLY

Filed May 4, 1964 2 Sheets-Sheet 2

FIG. 12.

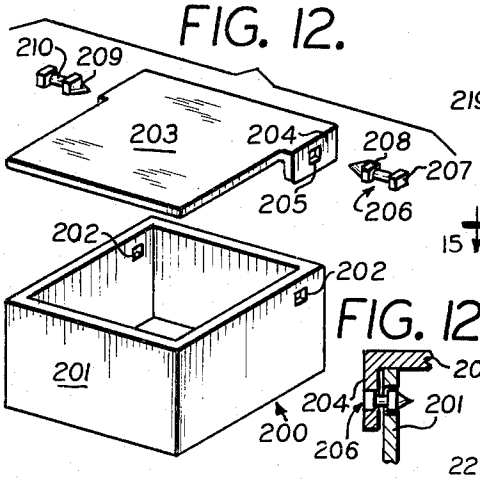


FIG. 12A.

FIG. 13.

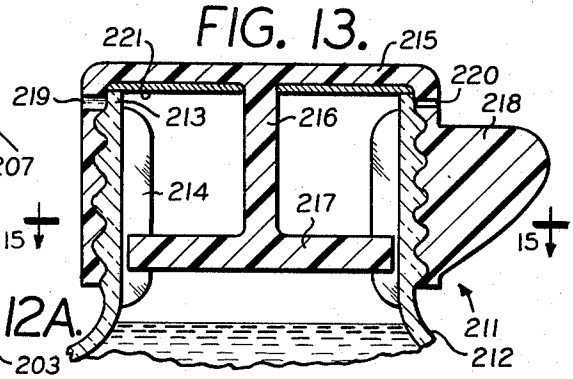


FIG. 14.

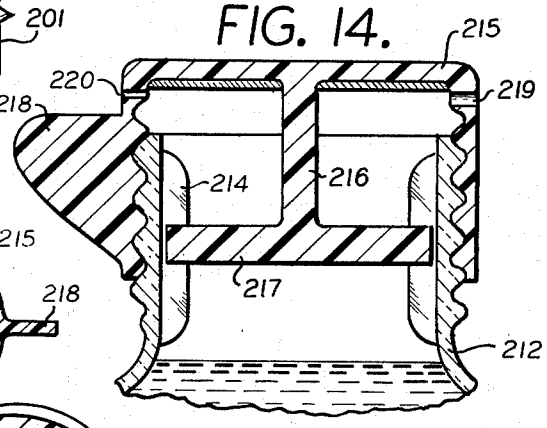


FIG. 15.

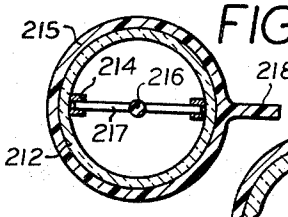


FIG. 16.

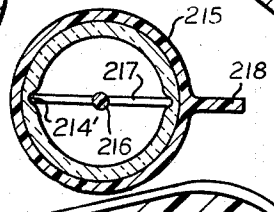


FIG. 17.

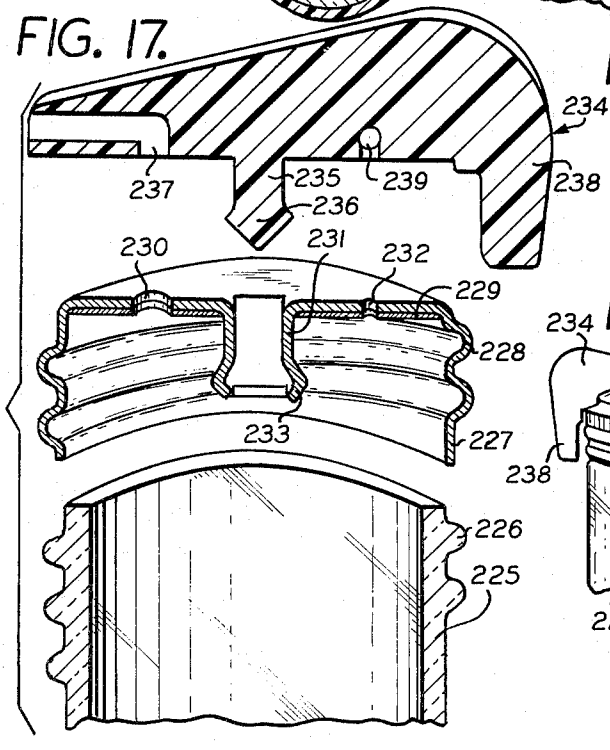


FIG. 18.

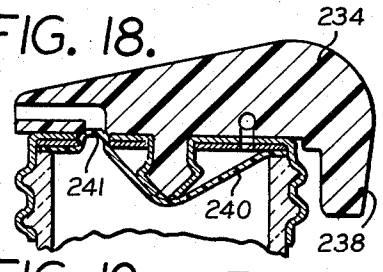


FIG. 19.

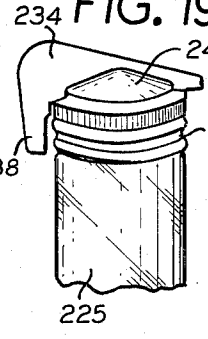
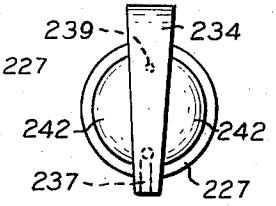


FIG. 20.



INVENTOR
I MARTIN SPIER

BY Blum Moskowitz, Friedman Blum & Kaplan
ATTORNEYS.

United States Patent Office 3,235,145 Patented Feb. 15, 1966

3,235,145

CONTAINER CLOSURE ASSEMBLY

I. Martin Spier, New York, N.Y., assignor to Beacon Plastic & Metal Products Inc., New York, N.Y., a corporation of New York

Filed May 4, 1964, Ser. No. 364,536
26 Claims. (Cl. 222—478)

This application is a continuation-in-part of copending application Serial No. 133,454, filed August 23, 1961, now Patent No. 3,140,020 and entitled Container Closure Assembly.

The present invention relates to assemblies which have components capable of being automatically returned to a predetermined position relative to each other after one of the components has been displaced from its predetermined position relative to the other of the components.

While it is already known that assemblies which are composed of parts which are movable when relative to the other can be constructed so that the parts will be returned to a predetermined position relative to each other in a fully automatic manner, the conventional structure required for this purpose includes a plurality of elements such as, for example, pivot or hinge structure or the like for guiding the elements for movement relative to each other and an additional spring which will be effective to automatically return the parts to a predetermined position relative to each other.

It is a primary object of the present invention to greatly improve constructions of this type by simplifying the latter.

Thus, it is more particularly an object of the present invention to provide a construction where a plurality of different elements need not be assembled together in order to provide for automatic return of a pair of components of given assembly to a given position relative to each other.

Also, it is an object of the present invention to provide a structure of the above type which is extremely simple and inexpensive and in fact capable of being molded so that with mass production methods the cost of the structure of the invention is extremely low.

Yet another object of the present invention is to provide a construction where the principle of the invention is applied to a dispenser which will be automatically closed with the structure of the invention so that the operator need not necessarily remember to close the dispenser.

Yet another object of the present invention is to provide a construction where the parts need not necessarily be made with very great precision, so that in this way also the cost of the structure is maintained at a minimum.

A primary feature of the present invention resides in providing an assembly of a first member and a second member one of which has a predetermined position relative to the other with a solid, one-piece body of resilient twistable material which defines a turning axis for the one of these members which is displaceable relative to the other from its predetermined position, this resilient twistable one-piece body being fixed to the first member, for example, and having a given condition when the one displaceable member is in its predetermined position relative to the other member. A twisting means is fixed, at least in part, to the second of these members and engages the one-piece body for twisting the latter when one of the members is displaced from its predetermined position relative to the other member, the body being twisted at this time beyond the condition which it has when the one member is in its predetermined position relative to the other member, so that upon release of this one member the resilient twistable body will automatically resume its given condition and will at the same time automatically return the one member to its predetermined position relative to the other member.

The invention is illustrated by way of example in the accompanying drawings which form part of the application and in which:

FIG. 1 is a perspective illustration of one possible structure of a dispenser which includes the construction of the invention, the structure of FIG. 1 having a cover which is shown in solid lines in a closed position in FIG. 1 and in dot-dash lines in an open position in FIG. 1.

FIG. 2 is a transverse sectional view taken along the line 2—2 of FIG. 1 in the direction of the arrows.

FIG. 3 is a transverse sectional view similar to FIG. 2 but showing another embodiment of a dispenser according to the invention.

FIG. 4 is an exploded perspective illustration of yet another embodiment of a structure according to the present invention.

FIG. 5 is a fragmentary exploded perspective illustration showing still another embodiment of a structure according to the invention.

FIG. 6 is a transverse sectional view of a dispenser which has another type of structure according to the invention applied thereto.

FIG. 7 is a transverse sectional view of the upper part of yet another embodiment of a dispenser which has the structure of the invention incorporated therein.

FIG. 8 is a top plan view of a dispenser which has yet another embodiment of a structure according to the invention.

FIG. 9 is a plan view of the structure of FIG. 8 as seen from the underside of FIG. 8.

FIG. 10 is a transverse section of the structure of FIG. 8 taken along line 10—10 of FIG. 8 in the direction of the arrows.

FIG. 11 is a fragmentary transverse sectional view, on an enlarged scale as compared to FIG. 8, taken along line 11—11 of FIG. 8 in the direction of the arrows.

FIG. 12 is an exploded perspective illustration of yet another embodiment of a dispenser according to the invention.

FIG. 12A is a fragmentary sectional view on line 12A—12A of FIG. 12.

FIG. 13 is a sectional elevation of a further embodiment of the structure of the invention applied to the neck of a container to control the dispensing of material therefrom.

FIG. 14 shows the structure of FIG. 13 after it has been displaced by the operator to an open position enabling the contents to be dispensed.

FIG. 15 is a sectional plan view taken along 15—15 of FIG. 13 in the direction of the arrows.

FIG. 16 shows a variation of the structure of FIG. 15.

FIG. 17 is an exploded perspective view, in a longitudinal sectional elevation of yet another embodiment of a dispenser according to the invention.

FIG. 18 shows the parts of FIG. 17 assembled.

FIG. 19 shows how the container of the FIGS. 17 and 18 appears from the exterior.

FIG. 20 is a top plan view of the closure member of FIGS. 17–19.

Referring now to FIGS. 1 and 2, there is shown therein a dispenser 20 which includes a container 22 made up of a pair of opposed side walls 24, a bottom wall 26 and a rear wall 25. The side walls 24 define between themselves an opening for the container 22, and this opening is normally closed by a cover 28. The cover 28 has a top wall 30 and a front wall 32, and it is situated between the side walls 24 of the container 22 so as to normally close the opening which is defined between the side walls 24 so as to prevent any of the contents of the container from being dispensed therefrom as long as the cover

28 is in the closed position shown in solid lines in FIG. 1.

The cover 28 is adapted to be turned relative to the container 22 from the solid line position shown in FIG. 1 to the dot-dash line position shown in FIG. 1 in order to open the container 22 by uncovering its opening so that the contents of the container can then be dispensed therefrom, and for this purpose the side walls 24 are respectively formed with a pair of aligned openings 34 which are of noncircular cross section, these openings having a square cross section in the illustrated example.

Referring to FIG. 2, it will be seen that the top wall 30 of the cover 28 has a pair of projections 36 which respectively extend into the aligned openings 34, and in accordance with the invention these projections 36 are respectively in the form of one-piece bodies of solid resilient twistable material. When the cover 28 is in the closed position shown in FIG. 1, these bodies 36 have such a condition that they will retain the cover 28 in its closed position. However, when the cover 28 is turned with respect to the container 22 into the dot-dash line position shown in FIG. 1, the resilient bodies 36 are twisted, and because of their inherent resiliency they tend to resume the condition which they have when the cover 28 is in its closed position, so that upon release of the cover 28 after it has been displaced to the open position shown in dot-dash lines in FIG. 1 the bodies 36 will automatically resume their initial condition and in so doing will automatically return the cover 28 to its closed position shown in solid lines in FIG. 1.

The container 22 may be made of any relatively rigid material such as polystyrene, for example, while the cover 28 may also be made of a similar material, but in order for the entire cover 28 including the members 36 to be made in one piece, it is preferred to make the cover 28 of a material such as polypropylene, so that in this way the material of the cover 28 is more yieldable than that of the container 22. However, it will be noted particularly from FIG. 2 that the thickness of the wall 30, and also of the wall 32 which is not visible in FIG. 2, is considerably greater than that of the bodies 36 which are integral with and project from the opposed sides of the wall 30, so that because of their lesser thickness the bodies 36 are more readily yieldable and can be twisted in opposition to their inherent resiliency during opening of the container.

It is apparent that with this construction of FIGS. 1 and 2 the container 22 and cover 28 form a pair of members where the member 28 normally has the predetermined position shown in solid lines in FIG. 1 relative to the member 22. The solid, one-piece resilient bodies 36 are fixed to the member 28 and define a turning axis for the latter with respect to the member 22, and the portions of the side walls 24 which are formed with the noncircular aligned openings 34 constitute a twisting means which engages the aligned bodies 36 and twists the latter during turning of the member 28 away from the predetermined position thereof shown in solid lines in FIG. 1, so that in this way upon release of the member 28 when it has, for example, the position shown in dot-dash lines in FIG. 1, the resilient bodies 36 will resume their initial condition and will simultaneously and automatically return the member 28 to its predetermined position relative to the member 22 which is shown in solid lines in FIG. 1.

The embodiment of the invention which is illustrated in FIG. 3 is similar to that of FIGS. 1 and 2. The dispenser of FIG. 3 includes a container which may be identical with that of FIG. 1, and the opposed side walls 24, bottom wall 26, and rear wall 25 of such container are visible in FIG. 3, these opposed side walls 24 of the container defining between themselves the opening through which the contents of the container may be dispensed when this opening is uncovered.

The cover 40 of FIG. 3, however, is different from the cover 28. This cover 40 has a top wall 42 and a pair of depending side walls 44 between which the side walls 24 are located, and at its front end the cover 40 may include a front wall similar to the wall 32 and covering the front of the container when the cover 40 is in its closed position which is shown in FIG. 3. The opposed side walls 24 of the container are formed with a pair of aligned openings which may be identical with the openings 34, and the side walls 44 of the cover 40 have integrally formed therewith a pair of aligned elongated bodies 46 which are in the form of solid, one-piece members and which are also resilient and twistable, these one-piece bodies 46 having a noncircular cross section mating with that of the openings 34 and substantially filling these openings, so that in the manner described above the portions of the side walls 24 which are formed with the noncircular openings 34 constitute a twisting means for twisting the bodies 46 when the cover 40 is displaced to an open position uncovering the opening of the container, and in this way upon release of the cover 40 the twisted bodies 46 will resume automatically their initial condition and will simultaneously return the cover 40 automatically to its closed position.

Referring now to the embodiment of the invention which is illustrated in FIG. 4, the dispenser shown therein includes a container 50 having a rear wall 52, a pair of opposed side walls 54, and a bottom wall 56, these side walls 54 defining between themselves the opening of the container through which the contents thereof may be dispensed, as was decribed above in connection with FIG. 1 which shows a container similar to that of FIG. 4. However, it will be noted that in FIG. 4 the pair of opposed side walls 54 are formed with a pair of aligned noncircular openings 58, respectively, which are situated adjacent the front upper corners of the side walls 54, whereas in FIG. 1 the openings 34 are situated near the rear wall 25. A cover 60 cooperates with the container 50 for closing the latter when the cover is in a closed position situated between the side walls 54 in much the same way that the cover 28 is situated between the side walls 24 in order to close the container 22. It will be noted that the cover 60 also has a top wall 62 and a front wall 64, and when the cover 60 is between the side walls 54 with its top wall 62 parallel to the bottom wall 56 and its front wall 64 parallel to the rear wall 52, the container 50 is closed. The cover 60 has at the junction between its walls 62 and 64 a pair of integral portions 66 situated at the opposed side surfaces of the cover 60, and only one of which is visible in FIG. 4, and these portions 66 are respectively formed with a pair of aligned openings 68 which are of noncircular cross section. These openings 68 are of the same cross section as the openings 58, and when the cover 60 is in its closed position the openings 68 are also angularly aligned with the openings 58, all of these openings 58 and 68 being located along a common axis.

With the embodiment of FIG. 4 all of the components described above may be made of a fairly rigid material such as polystyrene, for example. According to this embodiment there are a pair of completely separate elongated solid bodies 70 of resilient twistable material such as polypropylene, for example, and these bodies define the turning axis of the cover 60 relative to the container 50. Each of the bodies 70 has an elongated portion 72 terminating in an inner pointed end 74 and formed with a pair of annular grooves 76. It is to be noted that the elongated portion 72 of the body 70 has a cross section which mates with that of the openings 58 and 68. The pair of bodies 70 may be introduced from opposite directions into the openings 58 from the exterior of the container 50 with the pointed ends 74 being first introduced into the openings 58, so that in this way the assembly of the bodies 70 with the container 50 and the cover 60 is facilitated, and the bodies 70 are in this way introduced into the aligned openings 58 and 68 until the outer grooves 76 of the bodies 70 are respectively situated at the exterior surfaces of the side walls 54. The distance between the pair of grooves 76 of each body 70 is equal

to the thickness of a side wall 54 plus the thickness of a portion 66 of the cover 60, so that when the outer groove 76 is situated at the exterior surface of the side wall 54, the inner groove 76 will be situated at the inner surface of the portion 66 of the cover 60, and with each body 70 in this position snap rings 78 can be placed in the grooves 76, respectively, so as to retain the member 70 assembled with the container 50 and the cover 60.

With the components of the dispenser of FIG. 4 assembled in this way the operator can open the container 50 either by pushing down on the top wall 62 of the cover 60 at the rear free edge of this top wall so that the bottom front edge of the front wall 64 will be displaced forwardly from the front edge of the bottom wall 56, and in this way the dispenser can be opened, or the operator can push the bottom edge of the front wall 64 of the cover 60 inwardly toward the rear wall 52, whereupon the rear free edge of the top wall 62 of the cover 60 will be raised away from the top edge of the rear wall 52 of the container 50, and in this way also the container may be opened, so that with the construction of FIG. 4 the cover 60 can be turned in either one of a pair of directions from its closed position relative to the container 50. Irrespective of the direction in which the cover 60 is turned from its closed position, the one-piece bodies 70 will be twisted beyond the condition which they have when the cover 60 is in its closed position, so that these members 70 will tend to return, by their inherent resiliency, to their initial condition, with the result that when the operator releases the cover 60 the members 70 will automatically return the cover 60 to its closed position. Thus, it can be seen that with this embodiment also the cover 60 and container 50 form a pair of members where the cover 60 has a predetermined position relative to the member 50 and where the solid, one-piece resilient, twistable body 70 may be considered as being fixed to one of these members and as being engaged by a twisting means carried by the other of the members. For example, if the bodies 70 are considered as being fixed to the container 50 in the openings 58 thereof, then the portions 66 of the cover 60 can be considered as a twisting means engaging the members 70 for twisting the latter beyond their initial condition when the cover is turned in either direction from its closed position. However, it could equally well be considered that the bodies 70 are fixed to the cover 60 at the portions 66 thereof, by extending into the opening 68 of these portions 66, and then when the cover 60 is turned from its closed position the portions of the walls 54 which are formed with the openings 58 may be considered as constituting a twisting means for twisting the bodies 70 during turning of the cover 60.

Although in the above-described embodiments the resilient one-piece solid bodies of the invention are of a rectangular or square cross section, these bodies can have any other convenient noncircular cross section, and FIG. 5 illustrates an embodiment where the resilient bodies do indeed have such a different cross section. As may be seen from FIG. 5, the container and cover fragmentarily illustrated therein are substantially identical with that of FIG. 4, and a part of a side wall 54' is visible in FIG. 5 while a part of the top wall 62' and a front wall 64' of the turnable cover are also visible in FIG. 5.

The pair of elongated resilient one-piece solid bodies 80 of FIG. 5, of which only one is shown in FIG. 5, are in the form of elongated members of keyhole cross section. Thus, each body 80 includes an elongated cylindrical portion 82 having integrally formed therewith a rib 84 which projects radially from the cylindrical portion 82, so that in this way the one-piece body 80 has a keyhole cross section. The pair of opposed side walls 54' are formed with a pair of aligned openings 86 which are also of a keyhole cross section, and the portions 88 of the cover are also formed with a pair of aligned openings 90 of keyhole cross section, and the cross sections of the aligned pairs of openings 86 and 90 as well as of the body 80 are all identical so that when the bodies 80 are introduced into the pairs of aligned openings a structure which will operate precisely in the manner described above in connection with FIG. 4 will be provided. It is to be noted, however, that with the structure of FIG. 5 the bodies 80 may have in the openings 86 and 90 a sufficient frictional engagement to reliably prevent any undesired movement of these bodies out of the openings, so that structures such as the retaining rings 78 and the annular grooves 76 are not required with the embodiment of FIG. 5.

In the embodiment of the invention which is illustrated in FIG. 6, the dispenser includes a container 92 having a bottom wall 94 and a cylindrical side wall 96 projecting upwardly from the outer periphery of the bottom wall 94 and preferably formed integrally therewith. This endless cylindrical side wall 96 may be formed at one portion with a notch 98 extending downwardly from its top edge, and this notch 98 forms a discharge opening through which the contents of the container may be discharged.

The dispenser of FIG. 6 further includes a cover having a circular wall 100 extending over the open top end of the container 92 and closing this open top end thereof, and a circular wall 100 of the cover has a depending flange 102 formed integrally therewith and extending at least part way around the side wall 96. This depending flange 102 is formed with an opening 104 which may be aligned with the notch 98 so as to uncover the latter and thus enable the contents of the dispenser to be discharged. The particular dispenser shown in FIG. 6 may contain a granular or powdery material, for example.

In the particular example shown in FIG. 6, the solid-walled, one-piece body of resilient twistable material which defines the turning axis of the cover relative to the container is in the form of an elongated projection 106 fixed to and extending upwardly from the bottom wall 94 in the interior of the container 92 substantially centrally thereof. This solid-walled, one-piece resilient twistable body 106 is formed with a hollow interior of noncircular cross section extending downwardly from the top end of the body 106, and the cover 100 has fixed thereto an elongated projection 108 which extends into the hollow interior of the body 106 and which is of a mating noncircular cross section. The projection 108 may have an annular bead 110 which is received in a groove formed in the interior of the body 106 so as to guarantee that the parts are retained together in the assembled condition shown in FIG. 6. The body 106 may be made of a yieldable resilient material such as polypropylene while the projection 108, and in fact the entire cover may be made of a relatively rigid material such as polystyrene, and thus when the cover is turned to align its opening 104 with the opening 98 the body 106 will be twisted beyond the condition thereof shown in FIG. 6, so that when the operator releases the cover the inherent resiliency of the body 106 will cause the cover to be returned automatically to the position shown in FIG. 6 where the opening 104 is out of alignment with the opening 98 so that the latter is necessarily covered by the depending flange 102. It is to be noted that the body 106 extends all the way up to the bottom surface of the wall 100 of the cover and that this wall 100 has a depending inner flange 112 which closely surrounds the body 106, so that in this way the projection 108 and the body 106 have a relatively large bearing area with respect to each other and lateral shifting to the cover relative to the container is avoided. The depending flange 112 contributes to this result, and in addition it is to be noted that where the dispenser contains a powdery or granular material with the construction of FIG. 6, this material cannot have access to the surfaces of projection 108 and body 106 which engage each other, so that the structure will operate properly even with the presence of such material in the container 92. The exterior surface of the body 106 may be that of a cylinder of circular cross section, and the

depending inner flange **102** can also have a circular cross section. It is the hollow interior of the body **106** and the projection **108** which have a noncircular cross section which may be square or rectangular or even of the keyhole type as described above in connection with FIG. 5.

It is apparent that with the embodiment of FIG. 6 also the cover forms a member which has the predetermined position shown in FIG. 6 with respect to the container member **92**, while the body **106** is fixed to one of these members and forms a turning axis for the movable member and the projection **108** forms a twisting means fixed to the other member and twisting the body **106** when the cover is turned relative to the container.

In the embodiment of the invention which is illustrated in FIG. 7, there is shown a dispenser **114** which includes a container part of which is formed by the member **116**. This member **116** may be formed integrally with the remainder of the container or may be in the form of a top wall of the container which is threaded onto the remainder thereof. For example, the member **116** may be similar to the cover of a jar, or it may form a part of a container which is connected in any suitable way to the remainder of the container. The wall **118** forms the top wall of the container, and this wall **118** is formed with a discharge opening **120** through which the contents of the container may be dispensed. The central depression **122** of the top wall **118** of the container is formed at its bottom horizontal wall with a central opening **124** of noncircular cross section.

The assembly of FIG. 7 includes the rotary cover **26** which has an inverted cup-shaped configuration and which is seated on the upper part **116** of the container, and the top horizontal wall of the cover **126** is formed with an opening **128** adapted to be aligned with the discharge opening **120** in order to uncover the latter and enable the contents of the container to be dispensed.

This wall **126** has a central depending elongated solid, one-piece body **130** made of a resilient twistable material such as, for example, polypropylene, and this elongated body **130** is of a noncircular cross section mating with a noncircular cross section of the opening **124** and passing through and substantially filling the opening **124**. The body **130** terminates at its bottom in an enlarged head **132** of downwardly pointed substantially conical or pyramidal configuration so that in assembling the parts the head **132** can be compressed through the opening **124** to snap beneath the lower surface of the depression **122** and thus maintain the parts in their assembled condition shown in FIG. 7. In the predetermined position of the member **126** with respect to the member **116** which is illustrated in FIG. 7, the elongated solid, one-piece resilient body **130** which is fixed to the member **126** has a given condition, while when the member **126** is turned in a clockwise direction, as viewed from the top of FIG. 7, in order to align the discharge opening **128** with the discharge opening **120**, the member **130** will be twisted beyond the condition thereof shown in FIG. 7 by the twisting means which is formed by the bottom wall of the depression **120** which has the noncircular opening **124**, this twisting means of course being fixed to the wall **118** of the container member **116**, and thus while the operator can retain the openings **120** and **128** in alignment so as to discharge the contents of the container, upon release of the member **126** the body **130** will automatically resume its initial condition and is so doing will automatically return the member **126** to the predetermined position thereof illustrated in FIG. 7 where the opening **128** is out of alignment with the opening **120**, and thus this opening **120** will now be closed.

In the particular embodiment which is shown in FIG. 7, the cover member **126** has an inner downwardly depending flange **134** which is seated within the depression **122** and slidably engages the inner surface of the depression **122** so that in this way the flange **134** serves to provide a guide for the member **126** during its turning movement relative to the member **116**, and it will be noted that it is the body **130** which defines the turning axis of the member **126** relative to the member **116**.

Referring now to FIGS. 8–10, the dispenser **136** illustrated therein includes a container of which only the upper part **137** is illustrated. This upper part **137** may be integral with the remainder of the container or it may be in the form of a removable cap as was the case with the member **116** of FIG. 7. This top part **137** of the container has at its upper face a circular guide flange **138**. Also, the top wall of the container is formed with a discharge opening **140** which is shown most clearly in FIG. 9. As is apparent from FIG. 9 this discharge opening **140** is located at a given zone within the area surrounded by the guiding rib **138**, and the top wall **137** of the container has a pair of additional openings **142** and **144** situated at a pair of additional zones which are angularly distributed with the zone which includes the opening **140** about the central axis of the circular lip **138**. While the opening **140** is in the form of a single relatively large opening, it will be noted that the openings **142** and **144** are in the form of clusters of apertures, and in the particular example illustrated the apertures which constitute the opening **142** are of a smaller size than the apertures which constitute the opening **144**.

The zones which respectively include the openings **140**, **142**, **144** are separated from each other by three elongated projections **146** which are fixed to the underside of the top wall **137** and which project susbtantially radially with respect to the central axis of the circular lip **138**. These elongated substantially radial projections **146** each have the vertical section which is illustrated in FIG. 11. Thus, it may be seen from FIG. 11 each projection **146** is of a triangular vertical section and has one side surface **148** which extends substantially perpendicularly from the underside of the top wall **137** and an opposite side surface **150** which is inclined at an angle other than a right angle to the inner surface of the top wall **137** of the container.

Mounted within the circular guiding lip **138** is a rotary cover member **152** which can conveniently be grasped by a knob **154** which is integral with the cover member **152**, this knob **154** projecting upwardly from a wall **156** of the cover **152** which is of circular configuration at its outer periphery and which is closely surrounded by the guiding lip **138** so that the latter guides the wall **156** for rotary movement. This relatively flat wall **156** of the cover **152** is formed with a discharge aperture **158** which has the configuration shown most clearly in dotted lines in FIG. 9, and in the manner described below, this aperture **158** is adapted to be selectively aligned with any one of the openings **140**, **142**, **144**, at the option of the operator.

The top wall **137** of the container is formed with a central opening **160** which is coaxial with the circular guiding rib **138**, and the wall **156** of the cover **152** has integrally formed therewith a one-piece, solid body **162** of resilient twistable material which extends downwardly through the central opening **160** and which defines the turning axis of the cover **152** with respect to the container wall **137**. The bottom end portion of the body **162** may be threaded so as to fixedly receive a cap **164** which is tightly threaded onto the bottom of the body **162**, and this cap **164** has an outwardly directed flange **164***a* which engages a washer **166** which is situated between the cap **164** and the underside of the top wall **137** of the container.

This cap **164** may be made of a rigid plastic or metal and has integrally formed therewith a projection **168** which extends radially with respect to the body **162**, and as is particularly apparent from FIG. 9, the inner ends of the projections **146** are located closer to the center of the opening **160** than the outer end of the projection **168**.

With this construction, when the operator turns the

cover **152** in one direction, the projection **168** of the cap **164** will first engage the inclined surface **150** of a projection **146**, and because of the resiliency and yieldability of the material of which the projection **146** is formed, this projection will now be compressed by the member **168** which rides over such a projection **146**. On the other hand, if the cover is turned in an opposite direction the projection **168** will engage the perpendicular surface **148** and will not be able to ride over the projection **146**. The arrangement of the surfaces **148** and **150** of the several projections **146** is illustrated in FIG. 9. Thus, as long as the cover is turned in a counterclockwise direction, as viewed in FIG. 9, the projection **168** will always first engage a surface **150** and thus in this direction the operator can continue to turn the cover until the opening **158** of the cover is located in a selected zone where it will cooperate with one of the selected discharge openings **140**, **142**, **144** formed in the top wall **137** of the container. On the other hand, if the operator turns the cover **152** in a clockwise direction, as viewed in FIG. 9, the projection **168** will remain in the zone in which it is located since it will first engage a perpendicular surface **148** and will be incapable of compressing the projection **146**, so that when turned in a clockwise direction the operator will not be able to displace the projection **168** beyond the zone in which it is located. The parts are shown in FIG. 9 where the projection **168** is situated in the zone which includes the opening **144**, and the parts are shown in FIG. 9 in the position they taken when the projection **168** has just moved into engagement with the surface **148**. It will be noted that in this position the opening **158** of the cover has not yet moved into alignment with the opening **144**.

With the parts in this position shown in FIG. 9, as the operator continues to turn the cover in a clockwise direction, as viewed in FIG. 9, the projection **168** will be incapable of moving beyond the projection **146** which it engages, with the result that the body **162** will become twisted as the operator continues to turn the cover **152** to displace the opening **158** in alignment with the opening **144**, and thus when these latter openings are in alignment the body **162** will be twisted to an extent sufficient to return the opening **158** to the position illustrated in FIG. 9 when the operator releases the cover **152**.

Thus, it is evident that with this embodiment also the walls **137** and **156** form a pair of members which have with respect to each other a predetermined position such as that shown in FIG. 9 where the projection **168** engages a surface **148** of one of the projections **146**. The solid, one-piece twistable resilient body **166** is in this case fixed to the member **156**, and the twisting means of this embodiment is formed not only by the projection **146** which is engaged by the projection **168** but also by the projection **168** and the cap **164** which fixes it to the body **162**, so that as a result this twisting means will produce a twisting of the body **162** as the operator continues to turn it with the cover **152** in a clockwise direction, as viewed in FIG. 9, from the predetermined position shown in FIG. 9 to a position where the opening **158** is aligned with the opening **144**, for example. When the body **162** is twisted beyond the condition which it has when the parts are in the position shown in FIG. 9 it will tend to return to its initial condition as a result of its inherent resiliency, so that when the operator releases the cover **152** the body **162** will automatically return the parts of their initial positions shown in FIG. 9. Of course, this structure will operate in the same way irrespective of which of the projections **146** is engaged at its surface **148** by the projection **168**. It is to be noted that with the embodiment of FIGS. 8–11 the twisting means instead of being fixed in its entirety to one or the other of the pair of members one of which is movable relative to the other, is fixed in part to one member and in part to the twistable body itself, so that it is not essential with the structure mentioned to fix the twisting means in its entirety to one of the members.

Referring now to FIG. 12, the dispenser **200** illustrated therein includes a container **201** which has a bottom wall and four side walls extending upwardly therefrom and the container **201** has an open top so that the contents can be dispensed from the interior of the container **201** through its open top. A pair of the opposed side walls of the rigid container **201**, which can be made of any suitable rigid material, are respectively formed with polygonal openings **202** which may have a square configuration, for example, and these openings **202** have a common axis and are located adjacent the upper edges of the pair of opposed side walls which are formed with these openings **202**.

A top wall **203** forms a cover for closing the open top of the container **201**, and this top wall **203** is adapted to be normally situated directly next to the open top of the container **201**. The cover **203** has a pair of opposed, downwardly directed ears **204** respectively formed with polygonal openings **205** which are coaxial with the openings **202** and which have the same configuration. Thus, each opening **205** and the opening **202** of the adjacent side wall form a pair of adjacent openings, and as may be seen from FIG. 12, a pair of elongated, one-piece, resilient, twistable bodies **206** made of a material such as polypropylene, for example, are respectively adapted to be situated in the pairs of adjacent openings and the bodies **206** are each provided with the polygonal portions **207** and **208** which are adapted to be located in the openings **205** and **202**, respectively, so that in this way the body **206** at each side of the container will necessarily become twisted when the operator swings the cover **203** upwardly away from the open top of the container **201** to dispense the contents thereof. Preferably, portion **208** fits slidably but non-turnably within opening **202**; and portion **207** fit tightly within opening **205**. This permits some sliding movement of portion **208** when portion **210** changes length due to torsion or release of torsion thereof. Each body **206** has a cylindrical portion **210** extending between its polygonal portions **207** and **208**, so as to facilitate the turning of the cover **203**, and in addition each body **206** is provided next to its portion **208** with a pointed tip **209** facilitating the insertion of the body into the openings, each tip **209** and projection **208** next to the latter passing first through the opening **205** of the ear **204** before becoming situated in the opening **202**. Of course, the pointed tip **209** will also pass through the opening **202** in order to situate the polygonal portion **208** of the body **206** in the opening **202**.

Referring now to FIGS. 13–15, there is illustrated therein a dispenser **211** which includes the container **212** terminating at its top end in a cylindrical neck **213** through which the contents of the container can be discharged. The neck **213** has fixed thereto, at its interior and at a pair of opposed parts thereof two pairs of elongated ribs **214** which define elongated grooves extending longitudinally of the cylindrical neck parallel to the axis thereof at opposed parts thereof, as is particularly apparent from FIG. 15. The ribs **214** may be fixed to the neck in any suitable manner such as by suitable adhesive.

A cap **215** is threaded onto exterior threads of the neck **213**, and this cap **215** has a top wall adapted to close the container **212** in the position of the cap **215** which is illustrated in FIG. 13. An elongated one-piece resilient twistable body **216** made of a material such as polypropylene, for example, is fixed to the top wall of the cap **215**, as by being formed integrally therewith, and this body **216** extends downwardly along the interior of the neck **213** and has a bottom free end distant from the top wall of the cap **215**. A transverse member **217** which is more rigid than the body **216** is fixed to the bottom free end thereof and extends transversely across the neck. This transversed member **217** may be made of poly-

styrene, for example, and is joined in any suitable way to the bottom end of the body 216 so as to be fixed thereto. Optionally, member 217 may be integral with and of the same material as body 216. Optionally, cap 215 may be formed separately from and fixed to body 216 and made of phenolic resin, metal or other suitable material. The free ends of the transverse member 217 are slidably received in the grooves formed by the pairs of ribs 214, so that the ribs 214 and the free ends of the transverse member 217 form a tongue-and-groove means guiding the transverse member 217 for movement up and down the neck but preventing it from turning about the axis of the neck.

The cap 215 has a finger-piece 218 formed integrally therewith at the exterior of the dispenser 211, and in addition the side wall of the cap 215 is formed adjacent to its top wall with a pair of opposed openings 219 and 220. Finally, a suitable sealing gasket 221 is fixed to the underside of the top wall of the cap 215 for engaging the top, annular surface of the neck for tightly closing the container.

When the parts shown in FIG. 13 are assembled, the transverse member 217 is first twisted relative to the cap 215 before the ends of the transverse member 217 are received in the grooves formed between the ribs 214. The direction of twist of members 217 and 216 is such that when the cap is placed on the container with the ends of member 217 in the grooves between ribs 214, the untwisting of body 216 turns it so as to screw the cap onto the container. In the screwed on condition of the cap shown in FIG. 13, a certain amount of twist is retained in the body 216, with the result that the body 216 presses the sealing gasket 221 against the top of the neck.

In order to use the dispenser the operator will with a thumb or finger press the finger-piece 218 so as to unscrew the cap and displace it to the position shown in FIG. 14, for example, whereby the openings 219 and 220 become situated above the top of the neck permitting the contents to be discharged through the opening 219 while air enters through the opening 220. As soon as the operator releases the finger-piece 218 the energy which is stored in the twisted body 216 immediately spins the cap 215 downwardly onto the threads of the neck automatically closing the container, and the parts in this way are automatically returned to the position shown in FIG. 13.

FIG. 16 shows a structure similar to that of FIGS 13–15, the only difference being that the tongue-and-groove means includes a pair of opposed grooves 214′ in the wall of the neck of the container.

The embodiment of the invention which is illustrated in FIGS. 17–20 includes a container 255 which is formed with exterior threads 226 adjacent its open top end, this container being a conventional jar, for example, and a cap 227 is threaded onto the container 225 so as to partly close the latter, since the top wall of the cap 227 is formed with openings as described below. It is to be noted that the cap 227 is threaded at 228 so that it can be threaded onto the threads 226 of the container 225. At the underside of its top wall the cap carries a sealing gasket 229 which engages the top surface of the container 225 in order to tightly close the latter at its top surface preventing contents from escaping around the top edge of the container 225 downwardly between the latter and the side wall of the cap 227.

The cap 227 is formed in its top wall with a pair of openings 230 and 232 which are spaced from the center of the cap, and the gasket 229 is formed with openings which are aligned with and form extensions of the openings 230 and 232. At its center the top wall of the cap 227 is formed with a downwardly directed tubular extension 231 of noncircular cross section having an open top accessible at the top face of the top wall of the cap 227 and having an enlarged end 223 formed by an outwardly directed annular portion of substantially V-shaped cross section, as is apparent from FIG. 17.

A closure member 234 is adapted to be seated on the top face of the top wall of the cap 227, and this closure member 234 has integrally fixed therewith an elongated body 235 of resilient twistable material, this body 235 being made in one piece and being polypropylene, for example, and the cross section of the body 235 matches that of the tubular extension 231. At its bottom end the body 235 has an enlarged portion 236 which at its exterior is also of a substantially V-shaped cross section so that during insertion of the body 235 into the extension 231 the enlarged portion 236 will be compressed until it reaches the elevation of the enlarged portion 233 of the extension 231, and then the portion 236 of body 235 will snap into the enlarged portion 233 in order to connect the closure member 234 to the cap.

The closure member 234 is formed with an outlet 237 which extends along the interior of the closure member 234 from its bottom surface to its front end surface in the manner shown most clearly in FIG. 17, and when the body 235 is substantially unstressed the outlet 237 is out of register with the opening 230, and thus the closure member 234 is in a closed position closing the opening 230. The closure member 234 has an extension 238 adapted to be engaged by the operator for the purpose of turning the closure member 234 between closed and open positions, and in addition, the closure member 234 is formed with a second passage 239 from its bottom surface to an outer surface which is out of register with the opening 232 when the closure member 234 is in its closed position. However, when the operator turns the closure member to an open position, which may be identified by any suitable indicia on the cap 227 and the closure member 234 which may be brought by the operator into matching relationship with each other, the outlet 237 and passage 239 will respectively register with the openings 230 and 232 so that the contents of the container can be dispensed through the opening 230 and the outlet 237 while air can enter into the container through the passage 239 and through the opening 232.

The assembled structure of FIG. 17 is illustrated in FIG. 18 which also illustrates a sheet of sealing material 240 in the form on any suitable plastic membrane which is initially placed in the container to tightly seal the latter when it is initially filled and before the container is purchased by the ultimate consumer. It is to be noted that initially the membrane 240 will have an upper portion 241 fixed as by heat sealing or the like to the underside of the closure member 234, through the opening 230, so that when the latter is initially turned to place the outlet 237 in register with the opening 230 the membrane 240 will be ruptured and thus the seal will be broken and the contents can be discharged from the container.

Moreover, FIGS. 19 and 20 illustrate lateral extensions 242 integral with and extending laterally from the closure member 234, these extensions having bottom surfaces engaging the top surface of the top wall of the cap 227, so that when the outlets 237 and 239 are out of register with the openings 230 and 232 one or the other or both of the extensions 242 will guarantee that the openings 230 and 232 are covered.

In all of the embodiments described above the one-piece solid body of twistable resilient material can be made of polypropylene and thus can be very inexpensively molded either integrally with the member to which it is fixed or separately therefrom and then fixed thereto. The solid, one-piece body of twistable resilient material in each embodiment defines the turning axis of one of the members relative to the other and thus with the structure of the invention it is possible to pivotally interconnect a pair of elements with the use of a single body which defines not only the turning axis but which also acts as a spring to automatically return the parts to a given predetermined position relative to each other.

From the foregoing it is thought that the construction, operation and many advantages of the device will be apparent to those skilled in the art without further description, and it will be readily appreciated that changes in the size, shape, proportions and minor details may be resorted to without departing from the spirit of the invention as set forth in the accompanying claims.

What is claimed is:

1. An assembly comprising a first member and a second member, one of said members having a predetermined position relative to the other of said members and adapted to be turned from said predetermined position relative to said other member, a solid-walled, one-piece body of resilient twistable material fixed to said first member and defining a turning axis for said one member when the latter is turned from said predetermined position relative to said other member, said body having a given condition when said one member is in said predetermined position relative to said other member and tending to return by its own inherent resiliency to said given condition when twisted beyond said given condition of said body, and twisting means carried at least in part by said second member and engaging said body for twisting the same beyond said given condition when said one member is turned about said axis from said predetermined position relative to said other member, said body, when said one member after having been turned from said predetermined position about said axis is released, automatically resuming said given condition and automatically returning said one member to said predetermined position relative to said other member.

2. An assembly as recited in claim 1 and wherein said body has a noncircular cross section.

3. An assembly as recited in claim 2 and wherein said twisting means is constituted by a portion of said second member which is formed with an opening of noncircular cross section mating with that of said body and receiving said body in its interior, said body substantially filling said opening.

4. An assembly as recited in claim 1 and wherein said body is formed with a hollow interior of noncircular cross section, said twisting means being constituted by a projection fixed to said second member, received in the hollow interior of said body, and having a noncircular cross section mating with that of the hollow interior of said body.

5. An assembly as recited in claim 1 and wherein said twisting means is constituted by a pair of projections one of which is fixed to said body and the other of which is fixed to said second member, said other projection engaging said one projection to prevent turning of said projections relative to each other during turning of said one member from said predetermined position about said axis relative to said other member, so that said projections cooperate to twist said body when said one member is turned about said axis from said predetermined position relative to said other member.

6. A dispenser comprising a container member having an opening through which the contents of said container member may be dispensed, a cover member having with respect to said container member a closed position covering said opening thereof and adapted to be turned relative to said container member to an open position uncovering said opening so that the contents of said container member may then be dispensed therefrom, a solid-walled, one-piece body of resilient twistable material fixed to one of said members and defining a turning axis for said cover member relative to said container member, said body having a given condition when said container member is in said closed position thereof and when twisted beyond said given condition tending to return by its own inherent resiliency to said given position, and twisting means carried at least in part by the other of said members and engaging said body for twisting the same beyond said given condition thereof during turning of said cover member about said axis away from said closed position to said open position uncovering said opening of said container member, whereby when said cover member is released after having been turned about said axis to said open position said body will automatically resume said given condition and will automatically return said cover about said axis to said closed position.

7. A dispenser as recited in claim 6 and wherein said body is of noncircular cross section.

8. A dispenser as recited in claim 7 and wherein said twisting means is constituted by a portion of said other member which is formed with an opening of noncircular cross section mating with the cross section of said body, the latter extending into and substantially filling said opening so that said body will necessarily be twisted beyond said given condition during turning of said cover member about said axis away from said closed position to said open position.

9. A dispenser as recited in claim 6 and wherein said body is formed with a hollow interior of noncircular cross section, said twisting means being constituted by a projection fixed to said other member, extending into said hollow interior of said body, and having a cross section mating with that of said hollow interior of said body so that the latter is twisted during turning of said cover member from said closed position to said open position.

10. A dispenser as recited in claim 6 and wherein said twisting means is constituted by a pair of projections one of which is fixed to said body and the other of which is fixed to said other member, said projections engaging each other during turning of said cover member from said closed to said open position to prevent relative movement between said projections so as to twist said body beyond said condition thereof during turning of said cover member to said open position.

11. A dispenser comprising a container having a pair of opposed side walls which define between themselves an opening through which the contents of the container can be dispensed, said side walls being respectively formed with a pair of aligned openings of noncircular cross section, a cover located between said side walls of said container and having a closed position covering said opening, and said cover fixedly carrying a pair of bodies of resilient twistable material projecting into and substantially filling said openings of said side walls, respectively, and having a cross section mating therewith so that when said cover is turned from a closed position, said projections will become twisted to automatically return said cover to said closed position when said cover is released after having been displaced from said closed position.

12. A dispenser comprising a container having a pair of side walls which define between themselves an opening through which the contents of the container can be dispensed, said side walls being formed with a pair of aligned openings of noncircular cross-section, a cover having a top wall extending over said opening defined between said side walls of said container and having a pair of depending side walls extending downwardly from said top wall and between which said side walls of said container are located, and a pair of solid, one-piece bodies of resilient twistable material fixed to said depending side walls of said cover and extending respectively into said aligned openings of said side walls of said container, said one-piece bodies having a noncircular cross section mating with that of said aligned openings and substantially filling said aligned openings, and said bodies having a given condition when said cover is in a closed position covering said opening defined between said side walls of said container, said cover when turned from said closed position to an open position producing a twist in said bodies beyond said given condition thereof resulting from the maintenance of said bodies in said aligned openings, so that when said cover is thereupon released said bodies will automatically return

the latter to said closed position while said bodies automatically resume said given condition thereof.

13. A dispenser comprising a container having a pair of opposed side walls which define between themselves a container opening through which the contents of said container may be dispensed, said side walls being respectively formed with a pair of aligned openings of noncircular cross section, a cover having a closed position covering said container opening, said cover having a pair of portions aligned with said aligned openings, respectively, and formed with an additional pair of aligned openings of the same cross section as said aligned openings of said container side walls and angularly aligned therewith when said cover is in its closed position, and a pair of elongated bodies of resilient twistable material having a noncircular cross section mating with that of said aligned openings, one of said bodies extending through one of said aligned openings of one side wall of said container and an adjacent aligned opening of said cover while the other of said bodies extends into the opening of the other side wall of said container and the remaining adjacent aligned opening of said cover, and said bodies having a given condition when said cover is in its closed position covering said container opening, said bodies defining a turning axis for said cover relative to said container and being twisted by said portions of said cover beyond said given condition when said cover is turned about said axis from said closed position to an open position uncovering said container opening, so that when said cover is then released, said bodies will automatically resume said given condition and will return said cover to said closed position thereof.

14. A dispenser as recited in claim 13 and wherein said aligned openings and said bodies are of a rectangular cross section.

15. A dispenser as recited in claim 13 and wherein said aligned openings and said bodies are of square cross section.

16. A dispenser as recited in claim 13 and wherein said aligned openings and said bodies are of a keyhole cross section.

17. A dispenser comprising a container having a bottom wall and an endless side wall extending upwardly therefrom and defining an open top of said container, a cover located over said open top of said container and closing said open top thereof, said cover having a depending flange at least partly surrounding said side wall of said container and said flange and side wall being respectively formed with openings which when they are aligned permit the contents of the container to be discharged while when they are out of line close said container, an elongated hollow body of resilient twistable material fixed to said bottom wall of said container in the interior thereof and extending upwardly therefrom, said elongated hollow body having an interior of noncircular cross section and said cover fixedly carrying an elongated projection extending into said hollow body, having a cross section mating with the hollow interior of said body, and substantially filling said hollow interior, so that when said cover is turned from a position where said openings are out of alignment with each other to a position where said openings are aligned with each other said body will be twisted to automatically return said cover, when the latter is released to a position where said openings are out of alignment with each other, and said cover having an inner depending flange closely surrounding the upper end of said body.

18. A dispenser comprising a container having a top wall formed with an opening through which the contents of said container may be dispensed, said top wall having a central depressed portion formed with an opening of non-circular cross section situated at the center of said top wall, and a cover of inverted cup-shaped configuration seated on said top wall of said container and having a depending flange extending downwardly from said top wall of said container and surrounding the latter, said cover being formed with an opening which is out of alignment with said opening of said top wall of said container when said cover is in a closed position and said cover having a depending projection of noncircular cross section extending through said central opening of said top wall and mating with the cross section thereof, said projection being a one-piece body of resilient twistable material which defines a turning axis of said cover relative to said top wall and which is twisted when said cover is turned to align its opening with said first-mentioned top wall opening, so that when said cover is released said projection will automatically return said cover to a closed position where said cover opening is out of alignment with said top wall opening, and said cover having an inner depending flange extending into said depression of said top wall and slidably engaging the latter to guide said cover during turning movement relative to said top wall.

19. A dispenser comprising a container having a top wall formed with at least one discharge opening and with a guide opening spaced from said discharge opening, and a rotary cover member located on said top wall of said container and having a guide pin projecting through said guide opening to guide said cover for turning movement relative to said top wall, said cover having a discharge opening at the same radial distance from said guide opening as said discharge opening of said top wall to be aligned with the latter discharge opening in a predetermined angular position of said cover relative to said top wall, said depending pin being fixed to said cover and being in the form of a one-piece body of resilient twistable material defining a turning axis for said cover, a substantially rigid projection fixed to said pin in the interior of said container at the side of said top wall opposite from said cover, said projection extending radially from said pin, and an elongated projection fixedly carried by said top wall of said container at the interior thereof and located in the path of movement of said projection which is fixed to said pin to prevent the latter projection from moving relative to said projection which is fixed to said top wall so that when said cover is turned to place said discharge openings in alignment with each other said projection fixed to said pin will engage said projection fixed to said top wall for twisting said pin during movement of said discharge opening of said cover into alignment with said discharge opening of said top wall, whereby after said discharge openings are in alignment the operator may release said cover whereupon said pin will automatically displace said cover to a position where its discharge opening is out of alignment with said discharge opening of said top wall.

20. A dispenser as recited in claim 18 and wherein said top wall has at least one additional elongated projection fixed to its underside in the interior of said container and both of said projections which are fixed to said top wall having a triangular cross section provided with one side surface which extends substantially perpendicularly from said top wall and another side surface which is inclined at an angle other than a right angle to said top wall, so that when said cover is turned in one direction to place said projection which is fixed to said pin in engagement with said perpendicular surface of either of said projections fixed to said top wall said pin will be twisted during further turning of said cover in the same direction, whereas when said cover is turned in an opposition direction said projection which is fixed to said pin will ride over said projections which are fixed to said top wall, whereby said discharge opening of said cover can be located at a pair of different zones of said top wall, and said top wall having in addition to said first-mentioned discharge opening, which is situated at one of said zones, a second discharge opening of a different configuration from said first-mentioned discharge opening, whereby said discharge opening of said cover may be selectively aligned with either of said discharge openings of said top wall.

21. A dispenser as recited in claim 20 wherein one

of said discharge openings of said top wall is formed by a plurality of apertures which are clustered together while the other of said discharge openings of said top wall is in the form of a single relatively large opening.

22. A dispenser comprising an open-top container having a bottom wall and four side walls extending upwardly therefrom, a pair of said side walls which are opposed to each other being respectively formed with openings of polygonal configuration adjacent top edges of said opposed side walls, respectively, and said polygonal openings having a common axis, a top wall located over said open top of said container to form a cover therefor, the said top wall having a pair of opposed downwardly directed ears between which said pair of opposed side walls are located and said ears being respectively formed with polygonal openings of the same size and configuration as said openings of said side walls and being coaxial therewith, so that the opening of each ear and the adjacent opening of the adjacent side wall form a pair of adjacent openings, and a pair of solid, one-piece bodies of resilient twistable material respectively located in said pairs of adjacent openings and having portions of polygonal configuration matching that of said openings respectively located therein, so that when said cover is turned about said axis away from said open top of said container to uncover the latter so that the contents thereof may be dispensed therefrom, said cover upon release will be turned back to a covering position by said bodies.

23. A dispenser comprising a container having at its top a neck forming an outlet for the container and said neck being provided with threads at its exterior, a cap threaded onto and surrounding said neck for closing the container, said cap having a top wall and being formed in its side wall adjacent to said top wall with a pair of openings adapted to be situated above the neck of the container when said cap is partly unscrewed from said container so that contents of said container can be dispensed through one of said openings while air enters into said container through the other of said openings, an elongated, one-piece body of resilient twistable material fixed to the top of said cap and extending therefrom downwardly along the interior of said neck, said body having a bottom end distant from said top of said cap, an elongated substantially rigid transverse member fixed to said bottom end of said body and having free ends respectively located adjacent said neck in the interior thereof, an elongated tongue-and-groove means extending longitudinally of said neck in the interior thereof respectively at opposed parts thereof and guiding said free ends of said transverse member for movement longitudinally along said neck, so that when said cap is at least partially unscrewed said body is twisted, whereby upon release of the thus at least partly unscrewed cap said body will automatically turn said cap relative to said neck back to the closed position where said openings are at an elevation which is not higher than the top surface of said neck.

24. A dispenser as recited in claim 23 and wherein said tongue-and-groove means includes a pair of spaced elongated ribs fixed to said neck at each of said opposed parts thereof and receiving a free end of said transverse member in the space between said pair of ribs.

25. A dispenser as recited in claim 24 and wherein said ribs are integral with said neck.

26. A dispenser comprising a container having a top wall formed with a pair of openings both of which are spaced from the center of said top wall, and said top wall carrying at its center a downwardly directed tubular extension which extends into the container, which is of a noncircular cross section, which has an enlarged bottom end, and which has an open top accessible at the exterior of said top wall of said container, and a manually operable closure member extending across the top of said container and engaging the top face thereof, said closure member having fixed thereto an elongated one-piece body of resilient twistable material which projects downwardly through said tubular extension and which is of the same cross section as tubular extension, said body having at its bottom end an enlarged portion received in said enlarged bottom end of said tubular extension, whereby when said closure member is twisted from a closing position to an open position said body will be twisted to return said closure member to said closing position upon release of said closure member, said closure member being formed with a pair of outlets extending from its surface which is next to said top face of said container to the exterior of said closure member and said outlets being out of register with said openings of said top wall when said closure member is in said closing position, said closure member covering said openings when in said closing position thereof, and said outlets being respectively in register with said openings of said top wall when said closure member is turned by the operator in opposition to the resilient force of said body to said open position, so that the contents of the container can be discharged through one of said outlets when said closure member is in said open position while air can enter into the container through the other of said outlets, and so that the container will be closed automatically when the operator releases said closure member.

No references cited.

LOUIS J. DEMBO, *Primary Examiner.*