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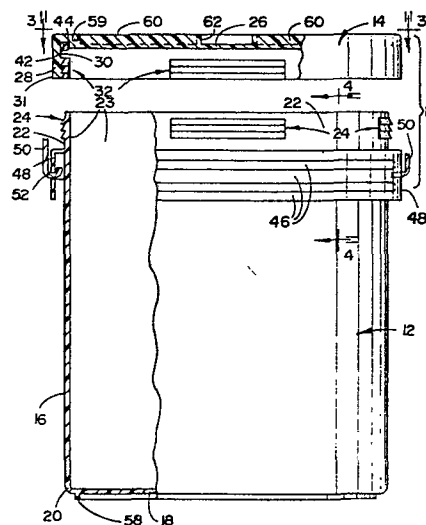
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54 Container including plastic moulded receptacle and cover with buttress retainers.

57 A container (10) disclosed includes a unitary receptacle (12) and a unitary cover (14) which are each molded from resilient plastic with segmented buttress retainers (24, 32) that cooperate to secure the cover upon a snap action closing movement while permitting opening cover movement by manual rotation. The container has particular utility as a paint pail for holding paint, stain, or the like but is also useful for holding food or other contents. Downward cover movement slidably engages inclined flanks on the retainers (32) of the cover with inclined flanks on the retainers (24) of the receptacle to provide the snap action that engages horizontal retaining flanks to secure the cover while permitting subsequent opening movement by cover rotation.



CONTAINER INCLUDING PLASTIC
MOLDED RECEPTACLE AND COVER
5 WITH BUTTRESS RETAINERS

TECHNICAL FIELD

This invention relates generally to a con-
10 tainer that has particular utility for use as
a paint pail for holding paint, stain or the
like and as such will be described in connec-
tion with this usage with the understanding
that the container has other usages such as for
15 storing food or other contents.

BACKGROUND ART

Paint, stain and the like are conventionally
20 sold at the retail level in metal pails of a
one gallon size having an upper edge with a
groove in which an annular edge of a metal
cover is secured by a press fit. Opening of
the cover is performed by prying the cover edge
25 upwardly in order to open the pail so that the
stored paint or stain can be used. Such metal
pails are conventionally made from tin plated
steel which has become more and more expensive
in the recent past. Also, the ever-increasing
30 use of water-based latex paint with steel paint
pails has necessitated the use of a special
coating on the interior of the pail in order
to prevent the water from causing corrosion as

the paint is stored. Another problem with metal paint pails is that such pails tend to
5 dent when struck or dropped.

One prior attempt at making a paint pail from other than metal utilized injection/blow molding of polypropylene plastic in order to
10 overcome the corrosion problem when water-based latex paints are stored. This pail required a molded bead on the inner surface at the upper end of the pail in order to secure an associated cover with the required strength that is neces-
15 sary to pass drop tests that paint pails are subjected to before being accepted commercially by paint manufacturers.

In securing the cover in position, it is
20 also important that the cover be easily removable when desired so that the paint can be used. One might think that helical threads on a plastic paint pail would advantageously permit secure closing of the cover as well as easy
25 opening. However, such a plastic pail and cover construction would not be commercially acceptable as paint manufacturers have extensive capital investments in dispensing machinery that is only capable of closing the cover by
30 a unidirectional movement such as is used with the conventional metal pail and cover fit that is pried open.

United States patents relating to containers, retainers and the like include: 680,386; 1,596,-
5 367; 1,672,839; 2,069,125; 2,148,468; 2,205,685;
2,257,715; 2,304,912; 2,467,392; 2,487,400;
2,542,350; 2,556,765; 2,971,671; 3,288,342;
3,329,302; 3,355,060; 3,380,610; 3,433,385;
3,458,079; 3,804,288; 3,804,289; 3,814,277;
10 3,815,777; 3,868,041; 3,878,963; 3,912,110;
3,931,891; 3,998,355; 4,053,078; and 4,126,246.

DISCLOSURE OF INVENTION

15 An object of the present invention is to provide an improved container including a unitary receptacle and a unitary cover which are each molded from resilient plastic with a construction that permits the cover to be securely
20 fixed to the receptacle by a snap action closing as well as readily released by a rotational opening movement.

The improved container disclosed has particular utility as a paint pail capable of
25 holding paint, stain or the like so as to overcome the cost, corrosion, denting, and cover securement problems that are present with conventional metal paint pails.

30

In carrying out the above object and other objects of the invention, the improved container is disclosed as being embodied by a

paint pail having a plastic receptacle and a plastic cover with segmented buttress retainers
5 for providing the snap action cover closing that securely fixes the cover on the receptacle while permitting relatively easy opening by cover rotation. The buttress retainers on the receptacle project radially in a circumferen-
10 tially spaced relationship on the upper end of a cylindrical side wall thereof whose lower end is closed by a bottom wall of the receptacle to define an upwardly opening shape. Each buttress retainer on the receptacle side wall has
15 a curved shape and includes a generally horizontal retaining flank that faces downwardly and an inclined flank that extends downwardly and radially with respect to the receptacle to the associated retaining flank. The buttress re-
20 tainers on the cover are spaced circumferentially from each other and project radially from an annular lip which extends downwardly from an upper wall of the cover. Each buttress retainer on the cover lip has a curved shape
25 and includes a horizontal retaining flank that faces upwardly and an inclined flank that extends upwardly and radially with respect to the cover lip to the associated retaining flank.

30 Upon closing, the cover of the paint pail is moved downwardly over the receptacle thereof such that the inclined flanks on the buttress retainers of the cover slidably engage the in-

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clined flanks on the buttress retainers of the receptacle so as to ultimately provide a snap
5 action that engages the retaining flanks on the buttress retainers of the cover with the retaining flanks on the buttress retainers of the receptacle in order to secure the cover. The buttress retainers on the cover lip have
10 curved lengths that are shorter than the circumferential spacing between the buttress retainers on the receptacle side wall such that cover rotation disengages the buttress retainers on the cover from the buttress retainers on the
15 receptacle and thereby permits the cover to be moved upwardly for opening.

In one preferred construction disclosed, the buttress retainers on the receptacle are located
20 on a round outer surface of the side wall such that the inclined flanks of these retainers extend downwardly and outwardly with respect to the receptacle to their associated retaining flanks. The buttress retainers on the cover
25 are located on a round inner surface of the downwardly extending annular lip thereof such that the inclined flanks of these retainers extend upwardly and inwardly with respect to the cover lip to their associated retaining
30 flanks. The cover lip has a larger size than the upper end of the receptacle side wall such that the cover lip receives the side wall upon

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downward cover movement thereover and the inclined flanks of the retainers slidably engage
5 each other to provide the snap action that engages the horizontal retaining flanks of the retainers with each other.

The outer surface at the upper end on the
10 receptacle side wall of the first preferred construction of the paint pail includes at least one reinforcing rib and preferably includes a plurality of such reinforcing ribs. Diametrically opposed handle lugs also project
15 outwardly from the upper end on the receptacle side wall and are connected to the reinforcing ribs which provide support thereto as well as resiliently permitting flexing upon the snap action closing of the cover. With the cover
20 closed, the ribs provide the required resistance to flexing in order to maintain the engagement of the retaining flanks on the buttress retainers so as to secure the cover in position.

25 In another preferred construction disclosed, the Buttress retainers on the receptacle are located on a round inner surface of the side wall such that the inclined flanks of these retainers extend downwardly and inwardly with
30 respect to the receptacle to their associated retaining flanks. The buttress retainers on the cover are located on a round outer surface

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of the downwardly extending annular lip there-
of such that the inclined flanks of these
5 retainers extend upwardly and outwardly with
respect to the cover lip to their associated
retaining flanks. The cover lip has a smaller
size than the upper end of the receptacle side
wall such that the cover lip is inserted
10 thereinto upon downward cover movement there-
over and the inclined flanks of the retainers
slidably engage each other to provide the
snap action that engages the horizontal re-
taining flanks of the retainers with each
15 other.

In the second preferred construction, a
stop on one of the round surfaces on which the
retainers are located, i.e. the outer surface
20 of the cover lip, limits the degree of rotation
to ensure full engagement of the retainers for
maximum retention. One or more vent openings
in the cover lip are also provided to allow
trapped air to escape as the cover is closed.

25

In both preferred constructions, the plas-
tic cover of the paint pail includes an annu-
lar groove adjacent the juncture of its upper
wall and downwardly extending lip, the groove
30 being inside the cover lip in the first con-
struction and outside the cover lip in the
second construction. An annular seal is re-
ceived within the groove of the cover so as

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to be compressed against the upper end of the receptacle side wall with the cover secured
5 such that the pail is closed in a sealed condition. A neoprene or an aerobic material are suitable for providing the annular seal. Also, the outer surface at the upper end on the receptacle side wall of the paint pail
10 includes diametrically opposed handle lugs of hollow constructions that project outwardly to secure the ends of a wire handle. An annular rib on the bottom wall of the receptacle and an annular recess on the cover permit
15 stacking of a plurality of the containers.

Both the receptacle and the cover of the paint pail preferably include circumferentially spaced sets of the buttress retainers so that
20 more than one pair of retainers engage each other at each circumferential location to secure the cover in position. In one version, the buttress retainers on both the receptacle and the cover extend circumferentially without
25 any pitch in order to maintain seal compression upon cover rotation so as to be resistant to rotation and consequent opening. Another version has the buttress retainers on both the receptacle and the cover extending circumferentially
30 tially with a pitch in order to provide an unthreading action that releases the seal compression and thereby facilitates cover rotation upon opening.

Polypropylene plastic is preferably utilized to injection mold both the cover and the receptacle with unitary constructions. This plastic material is manufactured from natural gas and its availability is thus not dependent on the supply of crude oil from which other plastics are manufactured. Also, polypropylene plastic has good impact characteristics which is important when utilizing the container as a paint pail so as to be capable of passing the drop tests paint manufacturers normally use. Other resilient plastics can also be utilized, even though polypropylene is preferred, provided the plastic has a secant flexural modulus between about 105,000 and 350,000 pounds per square inch so as to have the requisite flexibility to permit the snap action cover closing as well as the requisite strength to maintain the buttress retainers in engagement with each other so that the cover is retained in its closed condition.

The objects, features, and advantages of the improved container of the present invention will be readily apparent from the following detailed description of the best modes for carrying out the invention when taken in connection with the accompanying drawings.

BRIEF DESCRIPTION OF DRAWINGS

5 Figure 1 is a partially broken away side elevation view of one preferred embodiment of a paint pail that is constructed in accordance with the present invention and shown with a cover thereof in an open position with respect
10 to a receptacle of the pail;

 Figure 2 is an elevational view in section through the paint pail of Figure 1 illustrating the cover thereof secured in a closed position
15 on the receptacle;

 Figure 3 is a top plan view of the paint pail taken along line 3-3 of Figure 1 and partially broken away for illustrative purposes;
20

 Figure 4 is an elevation view taken in section along line 4-4 of Figure 1 illustrating reinforcing ribs of the receptacle;

25 Figure 5 is a partial view illustrating another version of the paint pail which includes buttress retainers having a pitch;

 Figure 6 is a partially broken away side
30 elevation view of another preferred embodiment of a paint pail that is constructed in accordance with the present invention and shown with

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a cover thereof in an open position with respect to a receptacle of the pail;

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Figure 7 is a partial view taken in elevation as in Figure 6 through the paint pail thereof but illustrating its cover secured in a closed position on the receptacle;

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Figure 8 is a top plan view of the paint pail taken along line 8-8 of Figure 6 and partially broken away for illustrative purposes;

15

Figure 9 is an elevation view taken along line 9-9 of Figure 6 illustrating a stop of the cover; and

20

Figure 10 is a partial view illustrating another version of the paint pail which includes buttress retainers having a pitch.

BEST MODES FOR

CARRYING OUT THE INVENTION

25

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Referring to Figure 1 of the drawings, a paint pail for holding paint, stain or the like is constructed in accordance with the present invention and generally indicated by reference numeral 10. Pail 10 may be of any desired size and includes a unitary receptacle 12 and a unitary cover 14 which are each molded from resilient plastic.

Pail receptacle 12 illustrated in Figure 1 includes a generally cylindrical side wall 16 and a bottom wall 18. Side wall 16 has a lower end that is closed by the bottom wall 18 and connected thereto by a rounded junction 20 of an annular shape. Side wall 16 also includes an upper end that defines an open upper end of the receptacle and has round outer and inner surfaces 22 and 23. A plurality of segmented buttress retainers 24 project radially on the outer surface 22 in an outward direction and are arranged in circumferentially spaced sets for use in securing the container cover 14 as is hereinafter described.

Cover 14 of the pail includes an upper wall 26 and an annular lip 28 that extends downwardly from the upper wall and has round inner and outer surfaces 30 and 31. Cover lip 28 has a larger size than the receptacle side wall 16 so as to be capable of receiving the upper end thereof upon downward movement of the cover over the receptacle. Inner surface 30 of the cover lip 28 includes segmented buttress retainers 32 projecting radially in an inward direction and arranged in sets spaced circumferentially with respect to each other so as to cooperate with buttress retainers 24 on the receptacle in securing the cover in closed position.

With further reference to Figure 2, each buttress retainer 24 on the receptacle side wall 16 includes a generally horizontal retaining flank 34 that faces downwardly and an inclined flank 36 that extends downwardly and radially in an outward direction with respect to the receptacle to the associated retaining flank. Each buttress retainer 32 on the cover lip 28 includes a generally horizontal retaining flank 38 that faces upwardly and an inclined flank 40 that extends upwardly and radially in an inward direction with respect to the cover lip to the associated retaining flank.

Upon downward movement of the cover 14 from the position shown in Figure 1 toward the position shown in Figure 2, the cover lip 28 receives the upper open end of the receptacle side wall 16 and the inclined flanks 40 on the buttress retainers 32 of the cover slidably engage the inclined flanks 36 of the buttress retainers 24 on the receptacle so as to ultimately provide a snap action that engages the retaining flanks 38 of the buttress retainers on the cover with the retaining flanks 34 of the buttress retainers on the receptacle in order to secure the cover in position. Buttress retainers 34 on the cover lip 28 have curved lengths that are shorter than the circumferential spacing between the buttress retainers 24 on the receptacle such

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that the secured cover can be rotated to dis-engage the buttress retainers thereof from
5 the buttress retainers of the receptacle and thereby permit opening movement of the cover in an upward direction.

As seen in Figures 1 and 2, the cover 14
10 includes an annular groove 42 adjacent which the cover lip 28 has a juncture with the upper wall 26. Groove 42 is thus inside of the cover lip 28. An annular seal 44 is received within the annular groove 42 so as to be compressed
15 against the upper end of the receptacle side wall 16 with the cover secured in closed position in order to thereby provide a sealed condition of the pail. Seal 44 may be made from a neoprene material or from an aerobic
20 seal material as well as any other suitable material capable of providing the sealed condition with the cover closed.

During closing, the cover 14 can be easily
25 tapped to progressively engage one, then two, etc., pairs of the retainers 24 and 32 until all of the retainers are engaged and the seal 44 fully compressed with the cover secured. Thus, closing of the cover is achieved without
30 requiring any great manual force. Both the upper end of the receptacle side wall 16 which flexes inwardly and the cover lip 28 which flexes outwardly as the closing takes place

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must be resilient to allow the flexing but must also have sufficient strength to maintain
5 the buttress retainers 24 and 32 in engagement after closing is completed.

It will be noted in Figure 1 that the buttress retainers 24 on the receptacle as well
10 as the buttress retainers 32 on the cover do not have any vertical pitch. As such, rotation of the cover 14 for opening movement does not release any of the compressive forces on the seal 44 and the cover is thus retained
15 thereby against rotational movement so as to be held more securely closed.

In an alternate embodiment illustrated in Figure 5, the paint pail 10' includes a receptacle 12' and a cover 14' whose associated buttress retainers 24' and 32' have a vertical pitch that provides an unthreading action which moves the cover upwardly as it is rotated to provide opening. Such upward movement provided
25 by the unthreading action of the pitched buttress retainers lessens the interface force between the associated seal and the upper end of the receptacle side wall 16' so as to thereby facilitate the cover rotation as the opening
30 proceeds.

As seen by combined reference to Figures 1, 2, and 4, the outer surface 22 on the upper

end of the receptacle side wall 16 includes a plurality of annular reinforcing ribs 46
5 located below the buttress retainers 24 and projecting in an outward direction from the receptacle. A pair of diametrically opposed handle lugs 48 also project outwardly from the upper end of the receptacle side wall 16 and
10 are connected to the reinforcing ribs so as to be supported thereby. Bent ends 50 of a handle are received within holes 52 in the handle lugs 48 so that the pail can be carried. Of course, it is also possible to have other
15 handle end and lug constructions. Ribs 46 not only provide support for the handle lugs 48 but also rigidify the receptacle side wall 16 adjacent the buttress retainers 24 so as to provide strength that prevents inward deflection
20 with the cover closed in order to maintain the cover in its sealed condition on the upper end of the receptacle. Ribs 46 also provide strength to the receptacle for carrying by the handle with the cover removed in order to
25 prevent deflection of the receptacle that could cause its liquid contents to spill.

Both the receptacle 12 and the cover 14 are preferably injection molded from polypropylene
30 plastic which has a flexural modulus that permits the flexing required during closing of the cover but which has the required strength to maintain the cover in closed position. While

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polypropylene plastic is the preferred material for injection molding the receptacle and the
5 cover, other plastics can also be used so long as the material has a secant flexural modulus between about 105,000 and 350,000 pounds per square inch so as to have the required resiliency to permit snap action closing of the
10 cover as well as the required strength to maintain the cover in closed position. Use of plastics is also preferable because of their lubricity in order to facilitate the snap action cover closing as the inclined flanks
15 36 and 40 of the buttress retainers slide against each other.

As seen in Figure 3, there are four sets of buttress retainers 24 and 32 on the receptacle and the cover in an equally spaced circumferential relationship. Each buttress retainer 24 and 32 extends for a curved length of about 40° so that there is a spacing of approximately 50° between the retainers on
20 both the receptacle and the cover. This greater spacing between the retainers than their arcuate lengths allows the opening cover movement in the manner previously described once the cover has been rotated from its closed
25 position.
30

As seen in Figure 1, the bottom wall 18 of the pair receptacle 12 includes an annular rib

58 and the upper wall 26 of cover 14 includes an annular recess 59 such that a plurality of the pails can be stacked with the annular recess of each cover receiving the annular ribs on the bottom wall of the next higher pail. Cover 14 also includes ribs 60 arranged in a spoke-like manner projecting radially from a central annular rib 62 as shown in Figure 3 so as to allow the cover to be manually grasped for rotation that releases the cover as previously described.

Also, receptacle side wall 16 preferably has a slight draft, i.e. about 2° , so as to taper from a greater thickness at its lower end to a lesser thickness at its upper end in order to facilitate the plastic injection molding. Annular lip 28 of the cover likewise has a draft so as to taper from its upper end which has a greater thickness to its lower end which has a lesser thickness, a draft of about $1/2^\circ$ being sufficient since the cover lip has a much shorter height than the receptacle side wall.

Closing of the cover 14 by conventional automatic paint dispensing equipment will always be performed by downward cover movement that effects the snap action securement previously described. After an initial opening, the cover can likewise be tapped closed with

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a hammer to effect the snap action closing.
Reclosing can also be performed by moving
5 the cover downwardly with the cover retainers
32 between the receptacle retainers 24 and
then rotating the cover to engage the retainers
without any snap action.

10 Referring to Figures 6 through 10, another
paint pail for holding paint, stain or the like
is also constructed in accordance with the pre-
sent invention and, except as will be noted, is
the same as the paint pail shown in Figures 1
15 through 5 such that it is believed appropriate
to utilize the same reference numerals for
identifying the structure involved. Likewise,
much of the previous description of the paint
pail shown in Figures 1 through 5 is also appli-
20 cable to the paint pail shown in Figures 6
through 10 and will not be repeated.

As seen in Figures 6, 7, and 8, the annular
cover lip 28 of the paint pail 10 illustrated
25 has a smaller size than the receptacle side
wall 16 so as to be capable of insertion into
the upper end thereof upon downward movement
of the cover 14 over the receptacle 12. The
buttress retainers 24 on the upper end of the
30 receptacle side wall 16 are mounted on the
round inner surface 23 of the receptacle side
wall and the inclined flank 36 of each extends

downwardly and inwardly with respect to the receptacle to the associated horizontal retaining flank 34. The buttress retainers 32 on the cover lip 28 are mounted on the round outer surface 31 thereof and the inclined flank 40 of each extends upwardly and outwardly with respect to the cover lip to the associated horizontal retaining flank 38. Upon downward movement of the cover 14, the cover lip 28 is inserted into the upper end of the receptacle side wall 16 such that the inclined flanks 36 and 40 slidably engage each other to provide the snap action closing that first engages one, then two, and finally three sets of the horizontal retaining flanks 34 and 38 at each circumferential location.

As seen in Figures 6 and 7, the annular groove 42 in cover 14 extends about the outside of the cover lip 28 to receive the seal 44 which also extends thereabout such that compression of the seal against the upper end of the receptacle side wall 16 upon the cover closing provides a sealed condition of the pail. One or more vent openings 45 (Figure 7) are provided in the cover lip 28 so as to permit the escape of trapped air as the cover lip is closed with the receptacle filled or almost filled with liquid contents.

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Closing of the pail illustrated in Figures 6 through 10 can also be performed by downward
5 cover movement and subsequent rotation that engages the buttress retainers 24 and 32 with each other. A stop 57 illustrated in Figure 9 on the round outer surface 31 of the cover lip is located adjacent one end of one set of
10 buttress retainers 32 and allows cover rotation to ensure full engagement of the receptacle and cover retainers. Engagement of the associated set of retainers 24 on the receptacle with stop 57 limits the degree of cover rota-
15 tion so as to ensure the secured cover condition. Also, suitable indicia can be provided on the cover upper wall 26 to indicate the opening and closing directions.

20 Also, while the pail illustrated in Figures 6 through 10 preferably can have the unpitched retainers 24 and 32 as shown by the version of Figure 6, it is also possible to have pitched retainers 24' and 32' as seen in the version
25 10' of Figure 10.

While preferred embodiments illustrating the best modes for carrying out the invention have herein been described in detail, those familiar
30 with the art to which this invention relates will recognize various alternative designs and embodiments for practicing the present invention as defined by the following claims.

What is claimed is:

- 5 1. A container comprising: a unitary receptable and a unitary cover each of which is molded from resilient plastic; said receptacle including a generally cylindrical side wall and a bottom wall; the side wall including an
10 upper end that defines an open end of the receptacle; the side wall also including a lower end that is closed by the bottom wall to define a closed end of the receptacle; the upper end of the side wall having round
15 inner and outer surfaces one of which includes a plurality of circumferentially spaced buttress retainers of curved shapes; each buttress retainer on the upper end of the side wall including a generally horizontal retaining flank
20 that faces downwardly and an inclined flank that extends downwardly and radially to the associated retaining flank; said cover including an upper wall and an annular lip that extends downwardly from the upper wall; said
25 annular lip of the cover having round inner and outer surfaces one of which includes circumferentially spaced buttress retainers; each buttress retainer on the cover lip including a generally horizontal retaining flank that faces
30 upwardly and an inclined flank that extends upwardly and radially to the associated retaining flank; the cover being movable downwardly over the receptacle such that the inclined

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flanks of the buttress retainers on the cover lip slidably engage the inclined flanks of the buttress retainers on the receptacle so as to ultimately provide a snap action that engages the retaining flanks on the buttress retainers of the cover with the retaining flanks on the buttress retainers of the receptacle in order to secure the cover on the receptacle; and the buttress retainers on the cover lip having curved lengths that are shorter than the circumferential spacing between the buttress retainers on the receptacle side wall such that the secured cover can be rotated to disengage the buttress retainers thereof from the buttress retainers of the receptacle and thereby permit upward opening movement of the cover.

2. A container as in Claim 1 wherein the cover lip has a larger size than the receptacle side wall so as to be capable of receiving the upper end thereof upon downward movement of the cover over the receptacle; the buttress retainers on the upper end of the receptacle side wall being mounted on the round outer surface thereof and the inclined flank of each receptacle retainer extending downwardly and outwardly with respect to the receptacle to the associated horizontal retaining flank; and the buttress retainers on the cover lip being mounted on the round inner surface thereof and the inclined flank of each cover retainer

extending upwardly and inwardly with respect to the cover lip to the associated horizontal
5 retaining flank so as to be slidably engageable with the inclined flanks on the receptacle retainers upon downward movement of the cover over the receptacle.

10 3. A container as in Claim 2 wherein the outer surface on the upper end of the receptacle side wall includes at least one reinforcing rib, and a pair of diametrically opposed handle lugs that project outwardly from the upper end of
15 the receptacle side wall and which are connected to the reinforcing rib.

4. A container as in Claim 1 wherein the cover lip has a smaller size than the receptacle
20 side wall so as to be capable of insertion into the upper end thereof upon downward movement of the cover over the receptacle; the buttress retainers on the upper end of the receptacle side wall being mounted on the round inner
25 surface thereof and the inclined flank of each receptacle retainer extending downwardly and inwardly with respect to the receptacle to the associated horizontal retaining flank; and the buttress retainers on the cover lip
30 being mounted on the round outer surface thereof and the inclined flank of each cover retainer extending upwardly and outwardly with respect to the cover lip to the associated horizontal

retaining flank so as to be slidably engage-
able with the inclined flanks on the recep-
5 tacle retainers upon downward movement of
the cover over the receptacle.

5. A container as in Claim 4 wherein the
cover lip includes a vent opening located
10 above the buttress retainers thereon so as
to permit air to escape from the interior
of the receptacle as the cover is closed.

6. A container as in Claim 4 wherein one
15 of the round surfaces on which the buttress
retainers are mounted includes a stop for
limiting the rotation of the cover with re-
spect to the receptacle.

20 7. A container as in Claims 2 or 4 wherein
the bottom wall of the receptacle includes an
annular rib and wherein the upper wall of the
cover includes an annular recess such that a
number of the containers can be stacked with
25 the annular rib on the receptacle of each con-
tainer received within the annular recess in
the cover of the next lower container.

8. A container as in Claims 2 or 4 wherein
30 the cover includes an annular groove adjacent
which the lip is connected to the upper wall,
and an annular seal that is received within the

groove of the cover and compressed by the upper end of the receptacle side wall with the cover secured thereto in order to provide a sealed condition.

9. A container as in Claims 2 or 4 wherein the buttress retainers on both the receptacle and the cover extend circumferentially without any pitch so as to maintain compression of the seal as the cover is rotated and thereby securely retain the cover on the receptacle.

10. A container as in Claims 2 or 4 wherein the buttress retainers on both the receptacle and the cover extend circumferentially with a pitch in order to provide an unthreading action as the cover is rotated upon opening so as to release the compression on the seal and thereby facilitate the opening rotation.

11. A container as in Claims 2 or 4 wherein both the receptacle and the cover include circumferentially spaced sets of the buttress retainers.

12. A container as in Claims 2 or 4 wherein the receptacle and cover are each injection molded from polypropylene.

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13. A container as in Claims 2 or 4 wherein
the upper wall of the cover includes spoke-
5 like ribs that can be manually grasped to
rotate the cover.

14. A container as in Claim 13 wherein the
cover also includes a central annular rib from
10 which the spoke-like ribs project.

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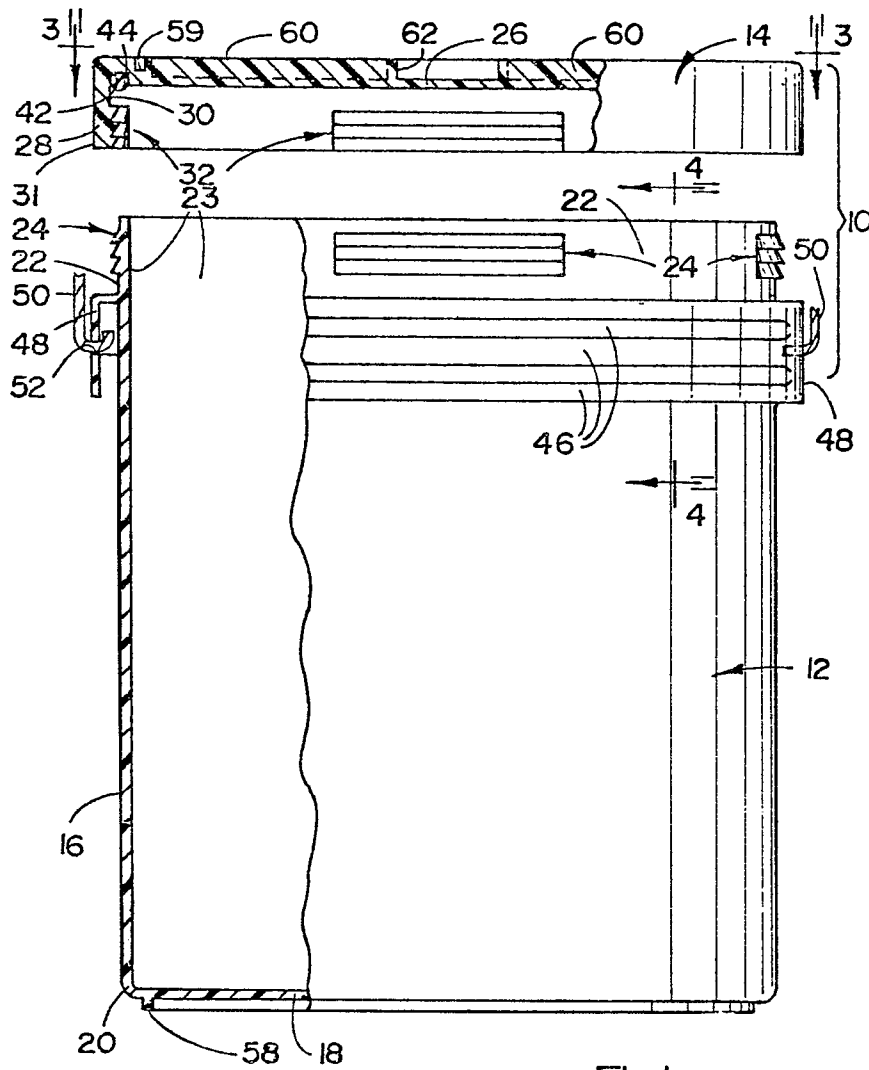


Fig. 1

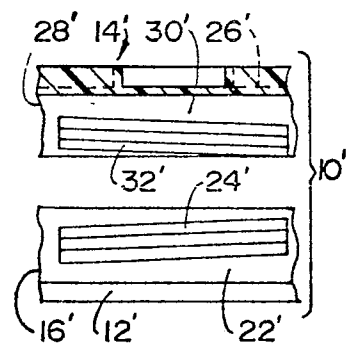


Fig. 5

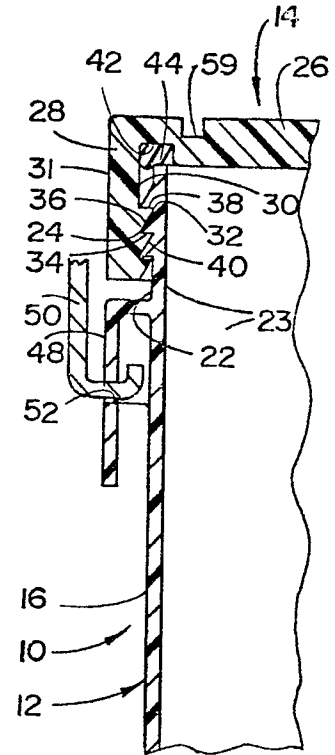


Fig. 2

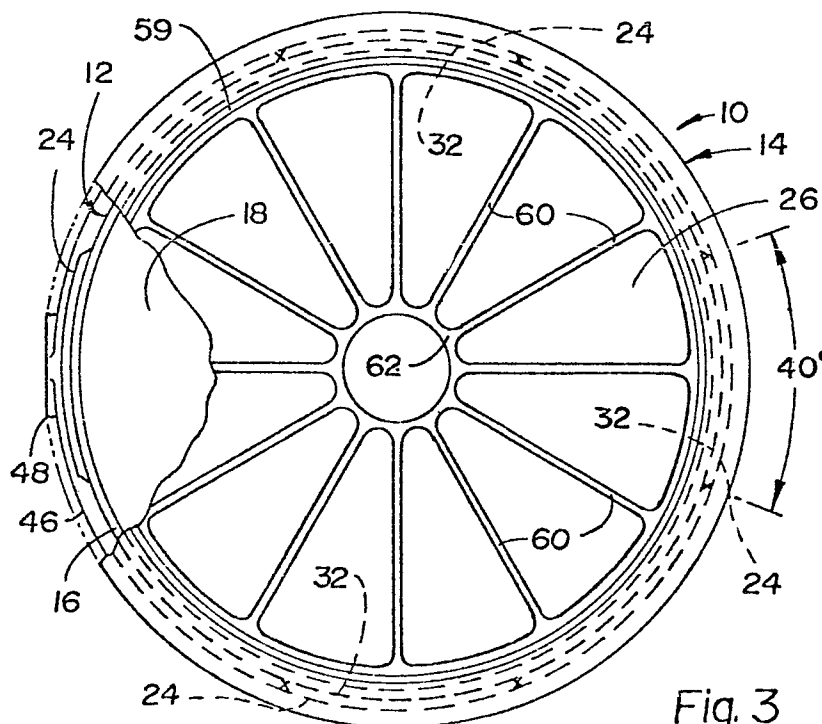


Fig. 3

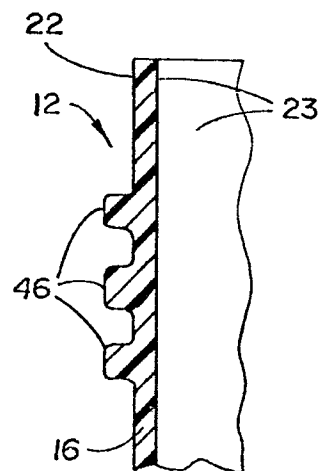


Fig. 4

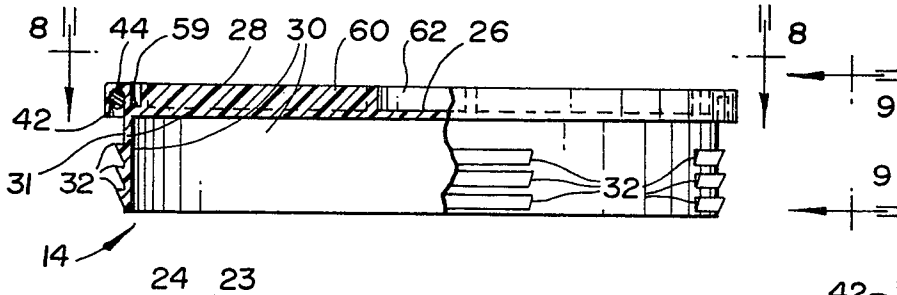


Fig. 6

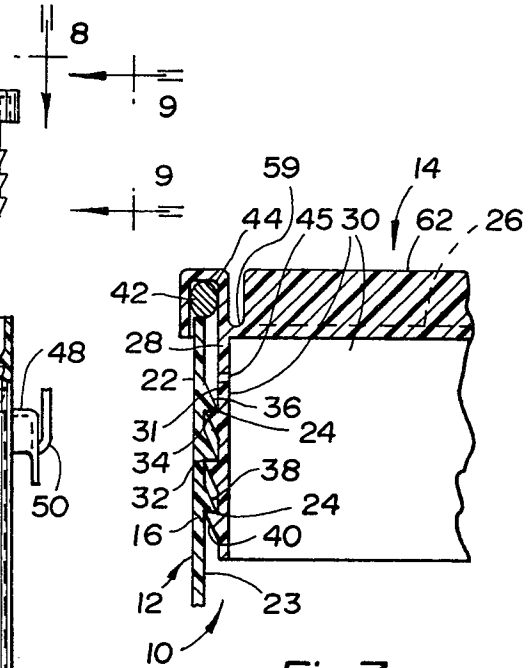


Fig. 7

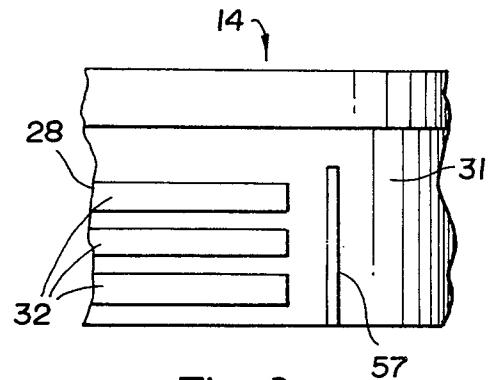


Fig. 9

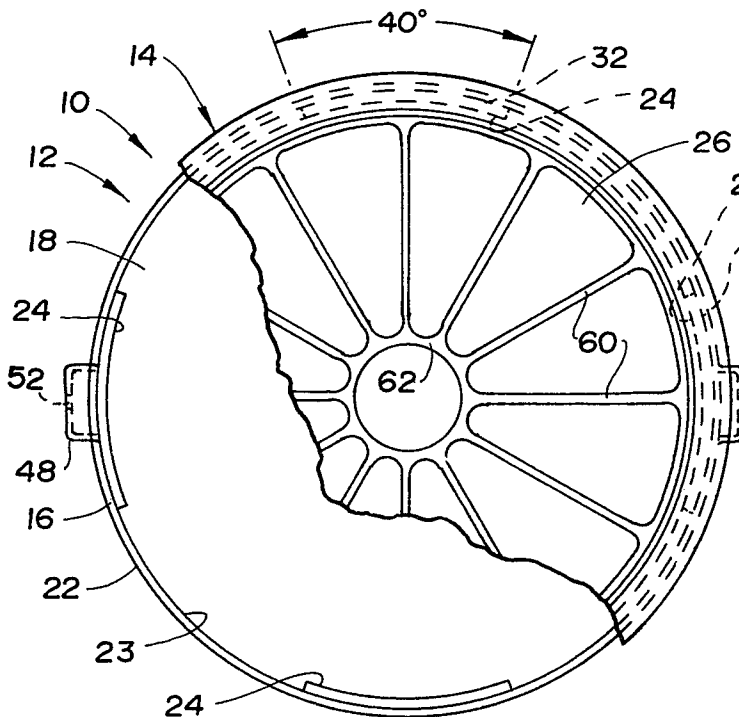


Fig. 8

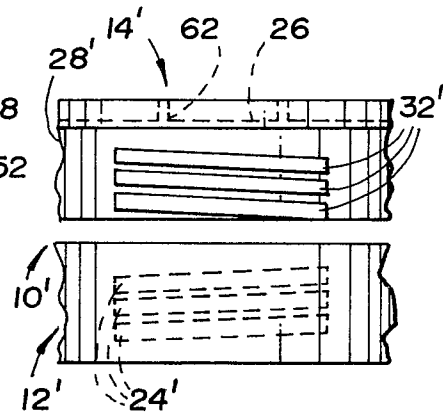


Fig. 10



DOCUMENTS CONSIDERED TO BE RELEVANT			CLASSIFICATION OF THE APPLICATION (Int. Cl. ³)
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	
A	<u>US - A - 3 874 580</u> (WEATHERCHEM CORPORATION) --		B 65 D 45/02
A	<u>GB - A - 1 247 107</u> (GIRAUD, PROVOST & CIE.) --		
D,A	<u>US - A - 3 458 079</u> (BENNETT INDUSTRIES, INC.) --		
A	<u>US - A - 3 376 996</u> (BENNETT INDUSTRIES, INC.) -----		
			TECHNICAL FIELDS SEARCHED (Int. Cl. ³)
			B 65 D 1/00 B 65 D 21/00 B 65 D 25/00 B 65 D 39/00 B 65 D 41/00 B 65 D 45/00 B 65 D 51/00 B 65 D 53/00 B 65 D 85/00
			CATEGORY OF CITED DOCUMENTS
			X: particularly relevant A: technological background O: non-written disclosure P: intermediate document T: theory or principle underlying the invention E: conflicting application D: document cited in the application L: citation for other reasons
X	The present search report has been drawn up for all claims		&: member of the same patent family, corresponding document
Place of search VIENNA		Date of completion of the search 09-12-1980	Examiner MELZER