

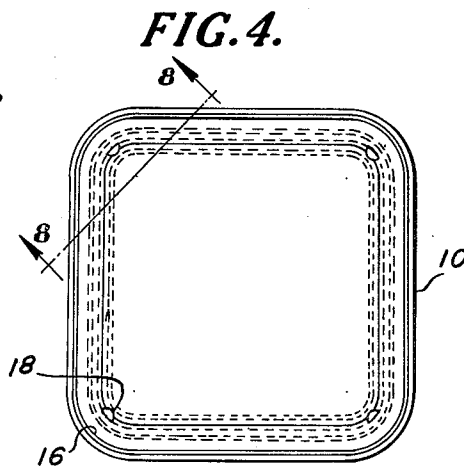
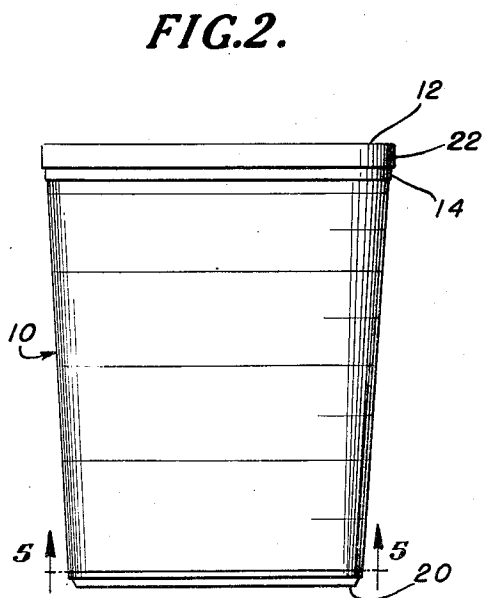
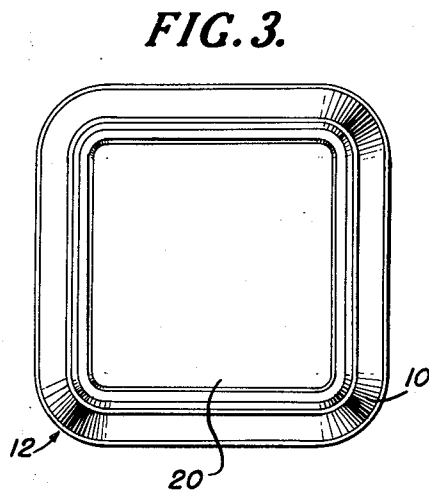
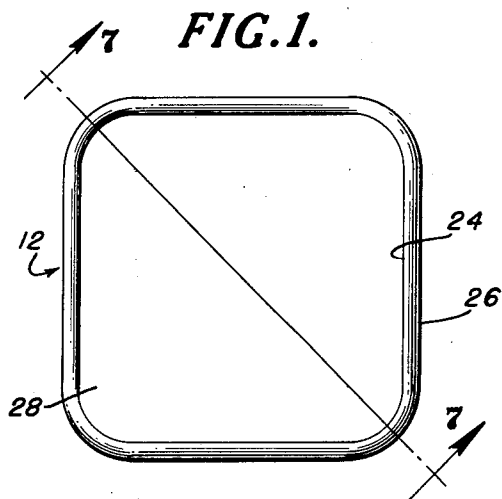
Oct. 23, 1956

D. W. HILL
CONTAINER

2,767,755

Filed Aug. 6, 1953

2 Sheets-Sheet 1



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2 Sheets-Sheet 2

FIG. 6.

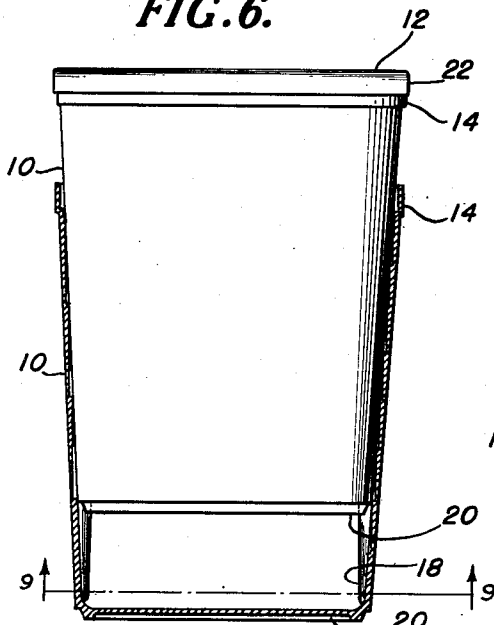


FIG. 5.

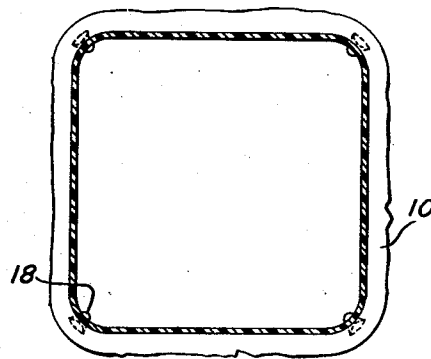


FIG. 9.

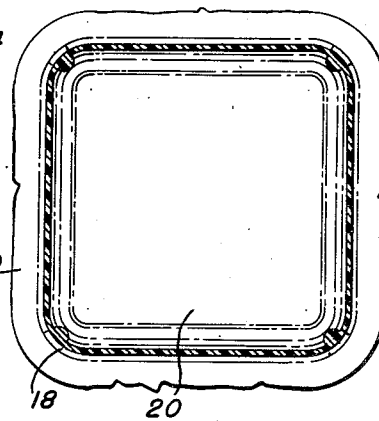


FIG. 7.

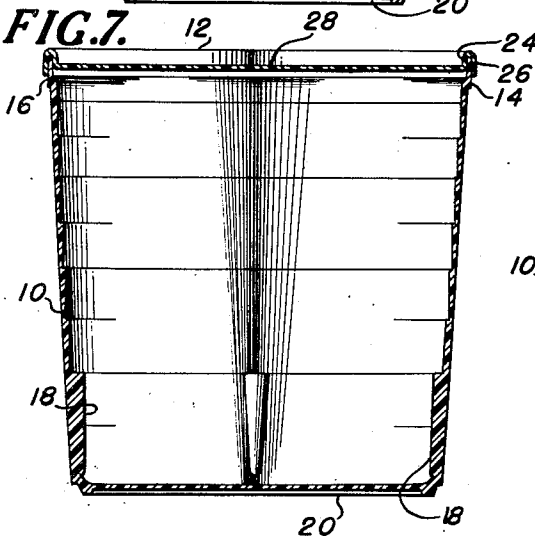
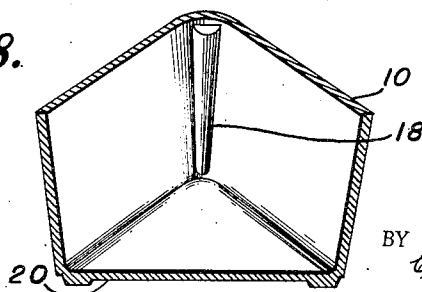


FIG. 8.



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Application August 6, 1953, Serial No. 372,686

2 Claims. (Cl. 150—5)

This invention relates to a generally box-like container having a body and closure of flexible plastic. The body is characterized in that it has walls outwardly offset at the top edges and otherwise externally smooth. Further, the body has corner posts at its lower inside corner surface adapted to strengthen the container structure and impart nesting characteristics thereto. The closure has peripheral sealing grooves, the sides of which snugly and adhesively receive the offset top edges of the body to form a tight seal.

The container of the present invention is useful for foods, medicines, chemicals and the like. It is particularly useful when these materials are stored in refrigerators or frozen food lockers.

Containers of this general class which have been utilized heretofore have been found faulty in that they lack sufficient flexibility and strength to withstand stresses imparted by pressure changes and other elements not directly related to the container itself. In addition, they lacked means for preventing the escape and diffusion of gases and vapors from the container.

Further, the containers of this general class previously utilized lack characteristics imparting nesting facilities to aid in packing them for shipment.

The primary object of this invention is to provide a container which will have strength sufficient to resist distortion by pressure changes due to condensation of gases within the container or by reason of the weight and character of the contents, yet be sufficiently flexible to withstand stresses and strains without shattering.

A further object of this invention is to provide a container of sufficient strength to withstand destructive forces imparted by other bodies coming in contact with its outside surface.

Another and more specific object of this invention is to provide a container so constructed that the lower inside corner surfaces thereof are provided with corner posts so as to strengthen the structure and impart nesting characteristics thereto.

An additional object of this invention is to provide a receptacle which may be tightly sealed at all times so as to preserve the contents of the same as well as to prevent the escape and diffusion of gases and vapors from the contents into the atmosphere.

A further object of this invention is to provide a container which will maintain a tight seal at all times regardless of temperature conditions such as may contribute to differences in expansion and contraction of the materials of which the container and its closure are made.

Still further objects and the entire scope of applicability of the present invention will become apparent from the detailed disclosure given hereinafter. It should be understood, however, that the detailed description and specific illustration, while indicating preferred embodiments of the invention, are given only by way of illustration, since various changes and modifications within the spirit and scope of the invention will become apparent to those skilled in the art from this detailed description.

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The body of this container is preferably made of a flexible and translucent material such as polyethylene. The closure of the container is made of like material. In this connection, it should be appreciated that the body and closure of the container are of such character that a vacuum seal may be obtained as, for example, when products which initially give off a vapor are enclosed and the vapor is subsequently condensed under low pressure.

Specifically, the airtight seal is realized by constructing both the closure and container of polyethylene or material possessing like characteristics whereby at no time is the sealing relationship between the body and the closure broken.

The fact that polyethylene is utilized for both the body and the closure is significant in view of the fact that identical coefficients of expansion and contraction are involved. This co-relationship in coefficients is utilized in the sealing operation of the container since the interplay of forces that are a direct result of these coefficients of expansion and contraction tend to further effectuate the seal that is initially established by the cooperation of the body with the closure. Further, the tight, snug seal provided between the body and closure is considerably enhanced by the cohesive affinity of the respective polyethylene structures.

Specifically, the container body of the present invention is adapted to cooperate with a closure structure of the general type described in considerable detail in the patent to Hill, No. 2,606,586, issued August 12, 1952, and comprising the cover 12. The features of the closure structure disclosed therein are embodied in the present invention for substantially the same functions.

It should be noted that both the closure and the body are molded of plastic in the conventional manner. The polyethylene, which is preferably utilized, is a well known commercial plastic and preferably is of the type which contains at least 1000 CH₂ groups or more to the molecule.

The side walls of the receptacle are of such a construction as to provide corner posts at its lower inside corner surfaces. This novel corner structure imparts sufficient strength to the said receptacle to enable it to resist distortion due to pressure differences created within the container as by condensation of vapors and gases therein as well as by reason of the weight and character of the contents and of outside forces coming in contact with the container. It can be appreciated that the structure is specifically designed to impart the greatest strengthening characteristics in the lower portion of the receptacle where the maximum strain is most likely to occur.

This novel side wall structure, in addition to imparting the above advantages, has further beneficial characteristics in that the corner posts aid in the stacking of the container bodies so that they may be nested in a manner which will allow them to be economically shipped and stored for use.

The containers may be of any desirable shape but preferably are rectangular, as illustrated, thus providing for maximum utilization of space when a multitude of them are placed in the food locker. In addition, it should be noted that the top edges of the body are outwardly offset thus imparting a maximum sealing effect when these edges are received by the peripheral sealing groove embodied in the closure.

Accompanying this specification are drawings illustrating the invention wherein:

Figure 1 is a top plan view of the container with cover in place;

Figure 2 is a side elevational view of the container with cover in place;

Figure 3 is a bottom plan view of the container body;

Figure 4 is a top plan view of the container body with cover removed;

Figure 5 is a sectional view taken on the line 5—5 of Figure 2;

Figure 6 is a sectional view illustrating nesting of the container;

Figure 7 is a sectional view taken on the line 7—7 of Figure 1;

Figure 8 is a fragmentary perspective view illustrating the novel corner post structure; and

Figure 9 is a sectional view taken on the line 9—9 of Figure 6, and also showing in dot and dash lines a second nested container.

Referring to Figure 2, the container is provided with a body, indicated in its entirety as 10. The body is preferably formed of polyethylene which is translucent and readily distortable. The walls of the receptacle 10 possess sufficient strength to resist distortion due to pressure differences created within the container as by condensation of vapors and gases therein, as well as by reason of other destructive forces coming in contact with the same. The primary source for this greatly enhanced strength is the corner post structure 18 which can be utilized on one or more of the lower inside corner surfaces of the container body. The preferred structure is illustrated in the drawings and constitutes the utilization of a corner post in each corner of the container body. A careful examination of the figures will indicate that the corner post is particularly thick in the upper portions thereof to thereby give even greater strength and eliminate breakage or cracks that may occur at the junction of the side walls of the container body.

The container 10 is closed by a cover 12, also made of polyethylene, as illustrated in Figures 2 and 7, and disclosed in the aforementioned Patent No. 2,606,586. This material is flexible, rubbery, and opaque and, when used with the polyethylene container body, imparts cohesive forces that tend to enhance the seal originally produced.

Referring to Figures 2 and 7, I find that the walls of the container are preferably offset as shown at 14 and the offset marginal portion 16 at the top of the container forms the sealing edge for engagement with the closure 12. At their lower ends, the side walls are provided with the corner post structures 18 which are illustrated generally in Figures 7 and 9 and illustrated in detail in the fragmentary view designated Figure 8. The corner posts 18 extend to the bottom 20 of the container body.

The closure 12 is well illustrated in Figure 7. Therein is disclosed circumferential sealing groove 22 which receives the upper edge 14 of the container. The sealing groove is a peripheral flange of U-shaped section having the inner and outer continuous walls 24 and 26, and a central dished portion 28. It can be appreciated that this structure enables compensation for stresses and strains without endangering the seal. Practical tests have proved that by utilizing my novel cooperation between container body and closure, a vacuum may be retained under actual conditions for a period of more than 8 months.

As previously noted, the corner post structures 18 serve a dual purpose in that they provide both strengthening and nesting characteristics. Figures 6 and 9 illustrate one of the advantages noted heretofore, to wit, the economy in shipping and stock storing achieved by nesting.

As has been previously observed, the body 10 represents an improvement over the prior art in that it is now possible to utilize a readily distortable plastic such as polyethylene without causing undue changes in the structure and accompanying loss of vacuum seal. This has been achieved by the utilization of the novel corner post structures which have been described in detail heretofore. It has always been desired to achieve such a structure since a far better sealing relationship is produced when both the closure and container body are of polyethylene. By making the cover of distortable material, it may advantageously be used to take care of stresses and strains that arise and, further, by making the body of like material, a similar advantage is obtained as well as the fact that cohesive forces in the material enhance the sealing relationship.

The plastic material utilized, to wit, polyethylene, or like material, is odorless, tasteless, moisture-resistant and inert with respect to most foods, medicines and chemicals. Accordingly, it is ideally suited for utilization in the construction of the container and closure comprising this invention.

The novel principles of this invention are broader than the specific embodiments recited above and rather than unduly extend this disclosure by attempting to list all the numerous modifications which have been conceived and reduced to practice during the course of this development, these novel features are defined in the following claims.

I claim:

1. A generally box-like container comprising a body, said body having angularly related walls forming corners therebetween and presenting an externally smooth surface in their lower end, said body at its lower end having integral corner posts, said posts extending into the interior of the container a substantial distance to form abutments to support a similar container body nestable therein, said corner posts forming upstanding strength members for said container, said container being adapted to nest within a similar container, the portions of the walls arranged to nest within the other container being externally smooth.

2. A generally rectangular box-like container body of polyethylene having walls outwardly off-set at the top edges thereof and otherwise externally smooth, said body having integral corner posts at the lower end of the walls, said corner posts extending into the interior of the container a substantial distance to form abutments to support a similar container body nested therein, said corner posts forming upstanding strength members for said containers.

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