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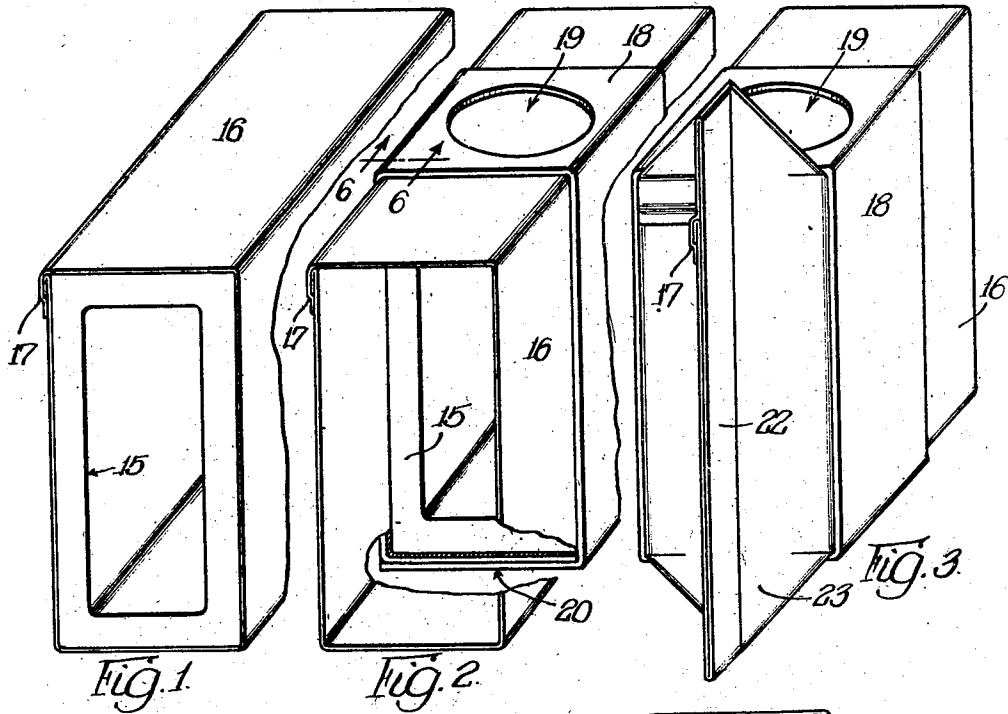
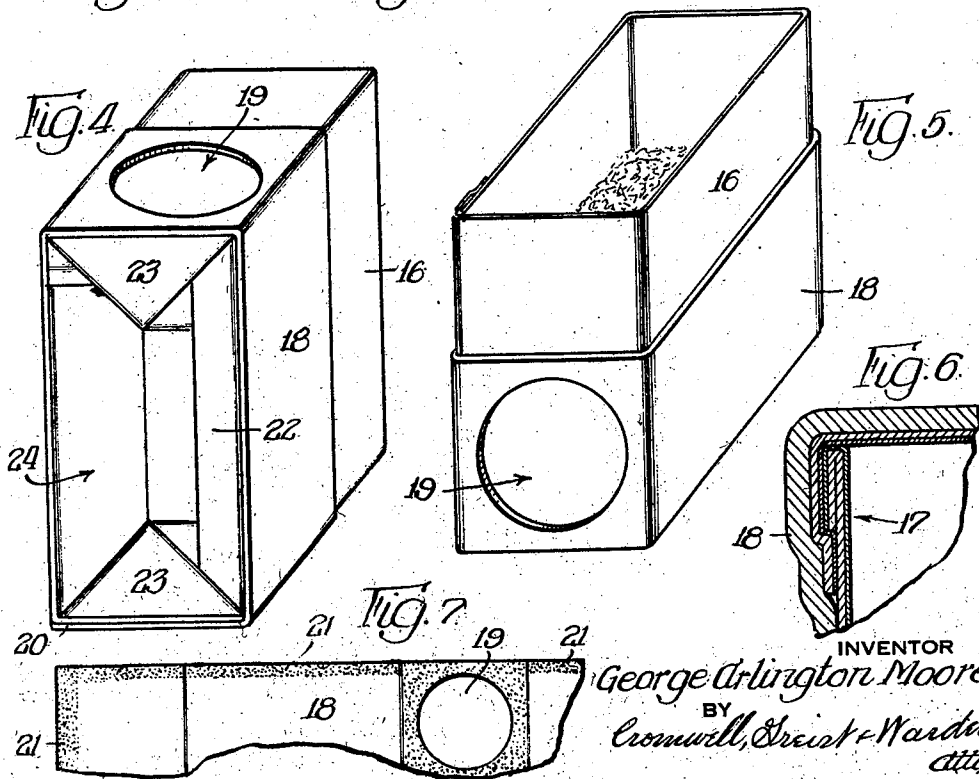
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2,361,408

CONTAINER AND METHOD OF MANUFACTURE

Filed March 3, 1943

2 Sheets-Sheet 1



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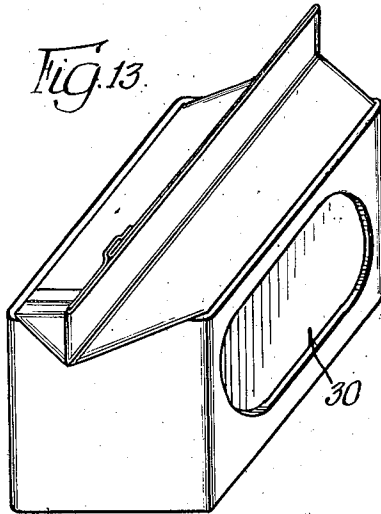
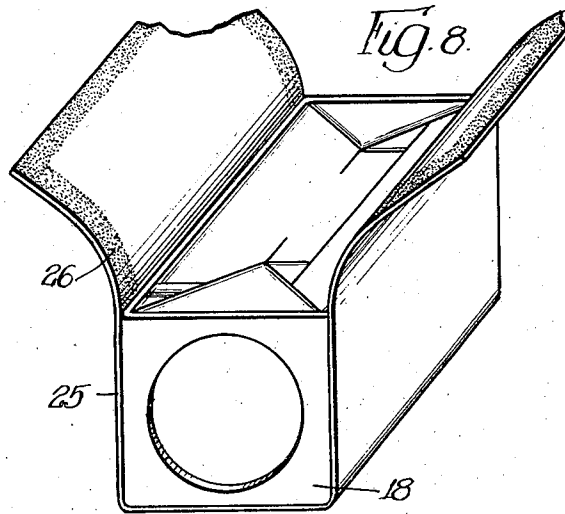
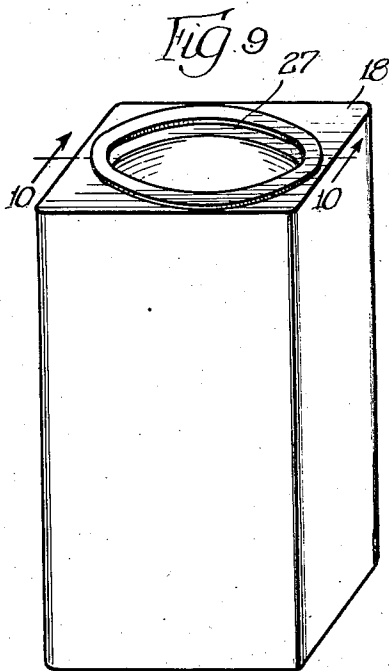
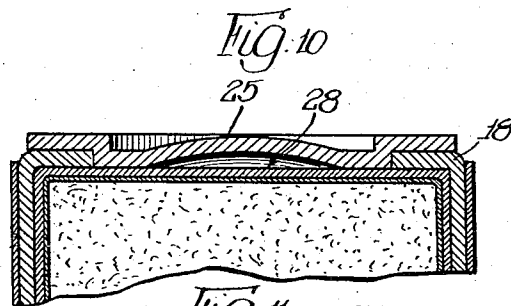
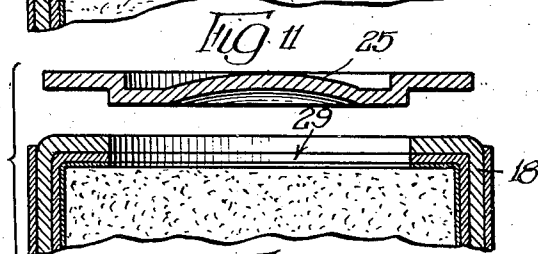
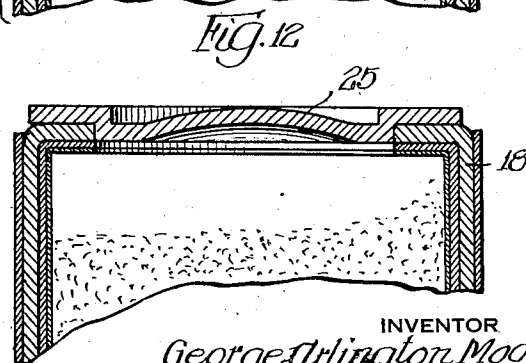
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2,361,408

CONTAINER AND METHOD OF MANUFACTURE

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2 Sheets-Sheet 2



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CONTAINER AND METHOD OF
MANUFACTURE

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15 Claims. (Cl. 229—3.5)

The present invention relates to an improved type of hermetically sealed container for packaging food products and the like and to the method of forming the container and loading products therein, the container being equipped with a snugly fitting removable and readily replaceable cover.

It has been customary to use metal containers for the packaging of liquid commodities, some of which were hot packed, others of which remained in the fluid state, some in a semi-solid state and still others of which were permitted to solidify. Other commodities, such as granular materials, including coffee, for example, have been favored by the use of metal containers because of the ideal hermetic sealing characteristics which could be obtained. Metals, of course, are expensive and at times not always readily available and while numerous types of paper containers have been suggested, many difficulties have developed respecting their use due to the fact that to obtain a practical hermetic seal for many commodities a difficult problem is presented. Suggested types of containers would not be sufficiently reinforced at their seams to withstand the reception of hot materials, such as cooking oils, fats, greases, juices and the like. No suitable paper container has as yet appeared on the market which is adapted to stand for long periods of time on the household shelf, particularly one equipped with a removable and replaceable cover snugly and tightly fitting a dispensing opening in such a container.

Many of the foregoing and other difficulties and disadvantages have been overcome by means of the present invention wherein a general object is the provision of an hermetically sealed paper board container which is economic of manufacture, sturdy, yet simple and durable of construction, and which is well suited to the purposes for which it is intended.

A particular object of the present invention is the provision of an hermetically sealed paper board package for food or the like which will supplant metallic containers and which is provided with reclosing cover means whereby food-stuffs and other commodities can be kept for long periods of time without danger of sacrificing keeping qualities.

More specifically it is an object of the invention to provide such an hermetically sealed container in which a blank of thermoplastic material, or a thermoplastic web preferably reinforced with some suitable paper material, is

formed into a container and hermetically sealed with a food commodity therein and reinforced by a plurality of layers of material, one of which is equipped with dispensing means, including a snugly fitting cover, and which readily will permit of puncturing of an underlying layer of the thermoplastic material to expose the contents so that after the removal of a suitable quantity of the commodity the container can again be closed to the atmosphere by the replacement of the cover.

Other objects of the invention will in part be obvious and will in part appear hereinafter.

The invention accordingly comprises the several steps and the relation of one or more of such steps with respect to each of the others, and the article possessing the features, properties and the relation of elements, which are exemplified in the following disclosure and the scope of the application of which will be indicated in the claims.

For a fuller understanding of the nature and objects of the invention reference should be had to the following detailed description taken in connection with the accompanying drawings, in which:

Fig. 1 is an isometric view illustrating the development of a thermoplastic blank of material into tubular formation;

Fig. 2 is a similar view illustrating a further step in the process wherein a blank of reinforcing material, having a dispensing opening, is adhesively secured to an intermediate portion of said tubular formation;

Fig. 3 is a similar view illustrating a still further step in the formation of a container wherein a vertical side wall seam is formed;

Fig. 4 is a similar view illustrating the step of completing a side wall;

Fig. 5 is an isometric view of the container of Fig. 4 resting upon the first folded side wall and presenting the remaining opening for filling purposes;

Fig. 6 is a fragmentary sectional view taken along the line 6—6 of Fig. 2 illustrating a preferred type of longitudinal seam;

Fig. 7 is a plan view of a fragment of a reinforcing blank;

Fig. 8 is another isometric view showing the application of an outer protective layer being applied transversely of the first reinforcing blank;

Fig. 9 is an isometric view illustrating a preferred form of a completed container;

Fig. 10 is a fragmentary sectional view taken along line 10—10 of Fig. 9 and looking in the

direction of the arrows, illustrating the cover arrangement;

Fig. 11 is a view similar to Fig. 10, showing the cover removed and the inside layer of gas-impervious material cut away to obtain communication with the contents for dispensing purposes;

Fig. 12 is another view similar to Fig. 10 showing the cover pressed back in tightly closed position after a portion of the contents has been dispensed; and

Fig. 13 is a modified form of container with a side panel or wall having an enlarged dispensing opening therein.

Referring more particularly to Fig. 1 of the drawings, there is indicated generally at 15 a hollow mandrel or arbor around which is folded in tubular formation a thermoplastic blank of material 16. Preferably this blank consists of a layer of some suitable thermoplastic material such as rubber hydrochloride laminated to a sheet of fibrous material, such as paper, in a manner to provide a gas-impervious web. After the web has been folded into tubular formation, inner marginal portions thereof are brought together in a face-to-face relationship, preferably with one of the marginal portions extending somewhat beyond the other and, by the application of heat, are formed into a longitudinal seam 17. The marginal extension portion is simultaneously sealed to the side wall of the tubular formation (see Fig. 6).

With formation of the longitudinal seam 17 the arbor 15 is withdrawn a certain distance, as indicated in Fig. 2, and thereafter a reinforcing blank of material 18, having an opening 19 therein, is wrapped around an intermediate portion of the tubular formation, one edge of which coincides approximately with the withdrawn or lower edge of the arbor 15. It will be observed that the reinforcing blank has the cut-out portion positioned at the top of the tubular formation and that it extends down along the sides thereof and around the bottom where it is overlapped and sealed to itself, as indicated generally at 20. Such reinforcing blank is also preferably adhesively affixed to the body of the tubular formation.

In Fig. 7 there is illustrated a portion of such blank which has been affixed to the tubular body formation and consists preferably of fibre board or dense sheet material, having had the opening 19 previously cut therein as it is fed into register with the tubular body formation. This heavy blank reinforcing material preferably has a pattern of hot melt adhesive 21 marginally applied to the blank and inwardly of said opening 19. After the blank has been formed around the tubular formation, as illustrated in Fig. 2, the adhesive is activated thermally and with pressure, thus securing it to the previously formed tubular body. The blank is pre-heated as it is fed to position to melt the adhesive which hardens to secure the two members which extend down and around the bottom in the overlap, as shown. Thus, the reinforcing blank is marginally secured to the tubular formation as well as to itself at the bottom thereof providing, at the same time, a plural-ply heavy reinforced body, which is of particular advantage in connection with this type of container.

The next step is to bring one end of the extending portion of the tubular formation together in face-to-face relationship beyond the portion or edge of the reinforcing blank (Fig. 3).

After the opposed faces have been brought together in this manner, they are then preferably heat and pressure sealed by conventional heat-sealing irons in order to bring about the formation of a vertical seam 22. This vertical seam is the second hermetic seam and is transverse to the longitudinal seam 17. From the formation of this seam it will be seen that there result transverse extensions 23, 23 and these, together with the vertical seam 22, are downwardly and then inwardly folded toward each other to provide one of the inner side walls of the ultimate container, as more fully shown in Fig. 4, the side wall being indicated generally at 24.

After the container has thus far been formed, it is turned over on the side wall 24 and it is to be noted that the other open end of the tubular formation presents an exceptionally large opening for filling purposes whereby such a container can readily, efficiently and rapidly be filled. The container is then filled at the side walls forming the mouth opening and these walls are similarly brought together, as in the preceding side wall closing operation, and similarly heat-sealed to provide another vertical seam with transverse extensions extending therebeyond. Again, the vertical seams on the transverse extension are inwardly and downwardly folded with respect to each other to provide an opposite inner side wall identical with side wall 24.

After the container has been filled through its side opening and the second side wall seam is completed, the container then may be reinforced by a further strip of material 25 similar to the reinforcing blank 18. As indicated in Fig. 8, this outer protective layer is applied at right angles to the reinforcing sleeve 18. It can be of the same or other type of material as that of the original reinforcing sleeve and be equipped with a thermoplastic adhesive in pattern form, marginally applied, as indicated at 26. Preferably this outer protective covering is also made to be overlapped so that one of the side walls is supplied with an overlap similar to the bottom overlap, although this is a matter of choice. It will, of course, be appreciated that if a panel strip similar to the strip 18 is used, a considerable reinforcement is effected. The panels of each strip should be applied at right angles to each other to form two plys on at least three side walls as well as at the bottom of the container.

It will be understood that after this second reinforcing sleeve of material has been applied to the container in this manner, it can readily be equipped with a suitable kind of label, having adequate display and other advertising indicia. In fact, the outer reinforcing sleeve can itself be printed in such a manner. However, it will be understood that a second outer reinforcing strip of the same weight need not be applied in all cases. In those instances where added reinforcing strength is not required, the container thus formed with the original reinforcing strip, and the already reinforced end walls with several layers where the vertical seam has been formed, provides adequate strength characteristics. Such a container can be provided with any suitable type of printed label which often will serve as an excellent outer protective covering.

A finished container is illustrated in Fig. 9. Such a container, when ready for use, need only have its cover 27 removed therefrom. Such a cover or stopper, or other suitable form of cap, can be made in any suitable shape by proper types of dies which will draw and emboss them

into the shape shown. The material of which such a cover or plug is made can be any well known suitable plyboard or fiber board qualified for such use. For example, such materials as jute, manilla, spruce, straw, or any other suitable mechanical combinations of fibre. Such caps are formed with precision accuracy and will engage the opening 19 in the reinforcing strip 18 snugly and firmly enough to be held in place and protect the container contents efficiently. The cover formation can more readily be seen in Figs. 9 to 11, inclusive. It will be observed that a frictional engagement for such a tightly fitting cover can readily be obtained by the form of cover there shown. After the cover originally is removed, the laminated paper and rubber hydrochloride material, as indicated generally at 28, can be punctured or otherwise suitably cut out from the area defined by the opening as generally indicated at 29. After a desired amount of the contents has been removed, the cover can be replaced to assume the snug and tight fit which it originally had before the hermetic seal was broken.

In some instances it is desirable to have a container with a large and differently sized openings and, as indicated in Fig. 13, such an opening 28 can readily be provided. If necessary, it can be located in the side of the container and a cover of suitable and similar configuration can readily be made therefor.

It will be seen from the foregoing and the disclosures in the drawings that a container made in accordance with the principles of the present invention results in a structure that has been made from economical materials, which is sturdy in its construction, and wherein all sides are reinforced and covered with board material in addition to the doubly reinforced bottom, which is desirable in any type of container.

There is also the advantage that the four sides are provided with smooth and free panels for decorative and display purposes and the container is so constructed as to withstand severe handling and abuse without damage to its contents. The package is as hermetically sealed as are conventional containers and will remain so until opened for use. Nor is the danger of contamination any greater even after portions of the commodity have been removed because of the tightly fitting cover.

It will thus be seen that the objects hereinbefore set forth may be readily and efficiently attained and, since certain changes in carrying out the above method and certain modifications in the article which embody the invention may be made without departing from its scope, it is intended that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

It is also to be understood that the following claims are intended to cover all of the generic and specific features of the invention herein described, and all statements of the scope of the invention which, as a matter of language, might be said to fall therebetween.

Having described my invention, what I claim as new and desire to secure by Letters Patent, is:

1. A container for food products or the like of the class described, comprising a blank of thermoplastic material folded into tubular body formation having marginal portions forming a thermally sealed longitudinal seam and providing openings for filling a commodity through the sides of said body formation, thermally sealed vertical

body closure seams at the ends of said tube to confine a commodity placed within said body formation through said openings, said vertical seams being folded to form side walls, a reinforcing blank overlying the top, remaining side walls and bottom of said tubular body formation and being sealed in said position in container formation, and a second protective blank transversely disposed to said reinforcing blank and surrounding the side walls of said container formation around said vertical side wall seams and being secured in that position, one of said reinforcing blanks having a commodity dispensing opening carrying a snugly fitting replaceable cover.

2. An hermetically sealed container for food products, comprising a blank consisting of a layer of rubber hydrochloride laminated to another layer of non-fibrous protective material and being folded into tubular body formation with the rubber hydrochloride layer on the inside and having marginal portions forming a thermally sealed longitudinal seam, said tubular formation providing openings for filling a commodity through the sides of said body formation, thermally sealed vertical seams at the ends of said tube to form side walls for said container to confine a commodity placed within said body formation through said openings, a reinforcing blank overlying the top, remaining side walls and bottom of said tubular body portion and being secured thereto, said reinforcing blank having a commodity dispensing opening at the top of said tubular body formation and carrying a snugly fitting removable and replaceable cover, and an outer protective blank disposed at right angles to said reinforcing blank and surrounding the vertical side wall seams of said container formation and being adhesively affixed thereto.

3. An hermetically sealed container for food products or the like, comprising a blank consisting of a layer of heat sealable material laminated to another layer of non-fibrous protective material and being folded into tubular body formation with the heat sealable layer on the inside and having marginal portions forming a thermally sealed longitudinal seam, said marginal portions being in heat sealable face-to-face relationship and lying against the side of said tube, one of said marginal portions having a marginal extension which extends beyond the other marginal extension with the heat sealable face thereof being sealed against the body of said tube, said tubular formation providing openings for filling a commodity through the sides of said body formation, thermally sealed vertical body closure seams at the ends of said tube to form side walls to confine a commodity placed within said body formation through said openings, a reinforcing blank overlying the top, remaining side walls and bottom of said tubular body formation and being secured thereto, said reinforcing blank having a commodity dispensing opening at the top of said tube and carrying a snugly fitting cover, and an outer protective blank disposed at right angles to said reinforcing blank surrounding the side walls of said container formation and being adhesively affixed thereto.

4. An hermetically sealed container, comprising a gas-impervious blank consisting of a layer of rubber hydrochloride laminated to a layer of dissimilar protective material and being folded into tubular body formation with the rubber hydrochloride layer on the inside and having marginal portions forming a thermally sealed lon-

gitudinal seam, and thermally sealed vertical seams at the ends of said tube confining a commodity therein, said ends having extensions transverse to said longitudinal seam and being inwardly folded toward each other with said vertical seam forming side walls for said container, a reinforcing blank overlying the top, remaining side walls and bottom of said tubular body portion and being secured thereto, said reinforcing blank having a dispensing opening at the top of the tube and carrying a snugly fitting removable and replaceable cover, and an outer protective blank disposed at right angles to said reinforcing blank and surrounding the side walls of said container formation and being adhesively affixed thereto.

5. An hermetically sealed container, comprising a blank consisting of a layer of thermoplastic material laminated to another layer of non-fibrous protective material and being folded into tubular body formation with the thermoplastic layer on the inside and having marginal portions forming a thermally sealed longitudinal seam, and thermally sealed vertical seams at the ends of said tube forming side walls for said container, a reinforcing blank overlying and surrounding the intermediate portions of said tubular formation between the thermally sealed vertical seams forming the side walls, a reinforcing blank being thermally sealed to said tube and having a bottom overlap sealed to itself, said reinforcing blank having a dispensing opening carrying a snugly fitting cover, and an outer protective blank disposed transversely of said reinforcing blank and surrounding the side walls of said container formation and being adhesively affixed thereto.

6. An hermetically sealed container, comprising a blank consisting of a layer of rubber hydrochloride laminated to an upper layer of paper and being folded into tubular body formation with the rubber hydrochloride on the inside and having marginal portions forming a thermally sealed longitudinal seam, and thermally sealed vertical seams at the ends of said tube forming side walls of said container, a reinforcing blank overlying the top, remaining side walls and bottom of said tubular body portion, said reinforcing blank having marginal strips of thermoplastic adhesive thereon and being sealed to said tube and having a bottom overlap sealed to itself to provide a plural-ply bottom, said reinforcing blank having a commodity dispensing opening, and an outer protective blank disposed at right angles to said reinforcing blank and surrounding the side walls of said container formation and being secured thereto.

7. A dispensing container, comprising a blank consisting of a layer of rubber hydrochloride laminated to a layer of non-fibrous protective material and being folded into tubular body formation with the rubber hydrochloride layer on the inside and having a marginal portion forming a thermally sealed longitudinal seam, and thermally sealed vertical seams at the ends of said tube forming side walls of said container, a reinforcing blank overlying the top, remaining side walls and bottom of said tubular body formation and being secured thereto, said reinforcing blank having a commodity dispensing opening at the top of said tube and carrying a snugly fitting removable and replaceable cover, and an outer protective blank disposed transversely of said reinforcing blank and surrounding the side walls of said container formation and being affixed thereto, said outer protective blank over-

lying and concealing the vertical seams and remaining portions of said side walls of the container formation and being affixed thereto marginally of the top and bottom and overlappingly along one side thereof.

8. The method of forming a container for food products and the like, which comprises providing a blank of thermoplastic material and folding the same into tubular body formation, bringing marginal portions thereof into longitudinal relationship and thermally sealing the same to provide a longitudinal seam, pinching together one of the ends of said tubular formation in face-to-face relationship and thermally sealing the same to provide a vertical side wall seam, folding said seam inwardly to form a container side wall, filling a commodity through the remaining open side wall end of the tubular formation and similarly sealing in face-to-face relationship the opposed ends of said tube to provide a vertical seam and folding the seam inwardly to provide an opposite side wall, applying to the top, remaining side walls and bottom of said tubular body formation a reinforcing blank having a commodity dispensing means therein, and sealing said blank in said position, applying a second protective blank transversely to said container formation to surround the side walls thereof and securing the same in said position.

9. A method of forming an hermetically sealed container for food products, which comprises providing a blank consisting of a layer of rubber hydrochloride laminated to a layer of non-fibrous protective material and folding the same into tubular formation with the rubber hydrochloride layer on the inside, bringing marginal portions thereof into longitudinal seam formation and thermally sealing said marginal portions to provide a longitudinal seam, applying a reinforcing blank carrying a commodity dispensing means therein to the intermediate portion of said tube overlying the top, sides and bottom of said tubular body formation and securing the same thereto, bringing together the ends of the tubular formation on one side of the reinforcing blank and heat-sealing the same to provide a vertical seam with transverse extensions, inwardly folding said seam and extensions to form a side wall for said container, filling a commodity through the remaining open side end wall of the tubular formation and similarly sealing in face-to-face relationship the opposed ends of said tube to provide a vertical seam and folding the seam inwardly to provide an opposite side wall, and applying an outer protective blank at right angles to said reinforcing blank to surround the side walls of said container formation and adhesively affixing said outer protective blank thereto.

10. A method of forming an hermetically sealed container, which comprises providing a blank consisting of a layer of rubber hydrochloride laminated to a layer of non-fibrous protective material and folding the same into tubular body formation with the rubber hydrochloride layer forming the inner surface, bringing marginal portions of said blank into rubber hydrochloride face-to-face relationship and heat-sealing the same to provide a longitudinal seam with one of said marginal portions extending marginally beyond the other, folding said seam downwardly against the sides of said container so that the exposed rubber hydrochloride surface of the extending marginal portion contacts the side of the tubular formation and heat-sealing

the same thereto, applying a reinforcing blank to the top, side walls and bottom of said tubular body formation and securing the same thereto, said reinforcing blank having a commodity dispensing opening carrying a snugly fitting removable and replaceable cover, bringing together in face-to-face relationship one end of the tube protruding beyond the reinforcing strip and heat-sealing the same to form a vertical seam with transverse extensions, folding said seam and said extensions inwardly of each other to provide a container having an open side wall, filling said container with a commodity through said open side wall and then sealing said opening to provide a side wall similarly to its opposite side wall, and applying an outer protective blank at right angles to said reinforcing blank to surround all of the walls of said container formation and affixing said outer blank thereto.

11. A method of providing an hermetically sealed container, which comprises providing a blank consisting of a layer of thermoplastic material laminated to a layer of paper and folding the same into tubular body formation with the thermoplastic material on the inside, bringing marginal portions thereof into seam formation and heat-sealing the same to provide a longitudinal seam, applying a reinforcing strip having a commodity dispensing means around an intermediate portion of said tubular formation overlying the top, the sides and the bottom and securing the same to said tube, bringing together the ends of said tube extending beyond the edges of said reinforcing blank after placing a commodity within the body portion of said tubular formation and heat-sealing the same to provide opposite vertical seams having extensions transverse to said longitudinal seam, inwardly folding said extensions together with said vertical seam toward each other to form side walls, and adhesively affixing to all of said side walls and at right angles to said reinforcing blank an outer protective layer of suitable material.

12. A method of providing an hermetically sealed container, which comprises laminating a web of rubber hydrochloride material to a layer of paper to provide a blank, folding said blank into tubular body formation with the rubber hydrochloride on the inside, forming marginal portions of said blank into a longitudinal seam formation and heat-sealing the same to provide a longitudinal seam, applying a reinforcing sleeve to an intermediate portion of the tubular formation overlying the top, sides and bottom of said tube and adhesively affixing the same to the body of said tube and overlappingly at the bottom and sealing the same to itself, heat-sealing together side wall extending portions of said tubular formation beyond said reinforcing sleeve after filling with a commodity and folding the same inwardly to form side walls, applying an outer protective layer at right angles to said reinforcing sleeve and surrounding the same together with said side walls and adhesively affixing the same thereto.

13. A method of producing an hermetically sealed container, which comprises providing a blank consisting of a layer of rubber hydrochloride laminated to another layer of non-fibrous protective material and folding the same into tubular formation with the rubber hydrochloride

layer on the inside, forming a longitudinal seam for said tube, applying a reinforcing blank having a commodity dispensing means to an intermediate portion of said tube overlying the top, side walls and bottom of said tubular formation and securing the same thereto, sealing together opposed faces of the extension of the tubular formation on either side of said reinforcing blank and inwardly folding the same to provide inner side walls, providing an outer protective blank with marginal strips of adhesive and applying said blank at right angles to said reinforcing blank and surrounding all of the side walls of said container.

14. The method of forming an hermetically sealed container, which comprises providing a blank consisting of a layer of rubber hydrochloride laminated to another layer of non-fibrous protective material and folding the same into tubular body formation with the rubber hydrochloride layer on the inside, bringing together marginal portions of said blank and forming the same into a longitudinal hermetic seal, providing a reinforcing blank with an adhesive and a dispensing means, applying said blank to the top, sides and bottom of said tubular formation so that the bottom portions of said blank overlap each other to form a plural-ply bottom with said dispensing means at the top of said tubular formation, heat-sealing together opposed faces of the extensions of the tubular formation where they extend beyond the reinforcing blank on either side thereof, folding said extensions inwardly to provide inner side walls for said container formation, and applying an outer protective blank to said container formation at right angles thereto so that it overlies and conceals the vertical seams and remaining portions of said side walls of said container formation, and adhesively affixing said outer protective blank to said container formation at the marginal portions of the top and bottom thereof and overlappingly along one side of one wall.

15. A method of making a package containing a dispensable commodity hermetically sealed therein, which comprises folding a blank of thermoplastic material into tubular formation and providing the same with a longitudinal seam, enveloping a central portion of said tubular formation with a reinforcing blank, bringing together the opposed faces of one end of said tubular extension where it extends beyond one edge of said reinforcing blank and heat-sealing the same to form a vertical seam, folding said sealed portions inwardly toward each other and turning the resulting container formation downwardly upon the infolded portion, filling said container formation through the remaining side opening of said tubular formation, bringing together the opposed faces of said remaining extending tubular formation after the same has been filled with a commodity, heat-sealing the same to provide a seam similar to the seam on the other side of said reinforcing blank, infolding the same similarly, and providing an outer protective covering transversely to said first named reinforcing blank so as to surround the same together with said infolded side walls and adhesively affixing the same in said position.

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