July 6, 1943. R. GUYER 2,323,467

METHOD OF PACKING CONTAINERS

Filed June 4, 1941 3 Sheets-Sheet 1

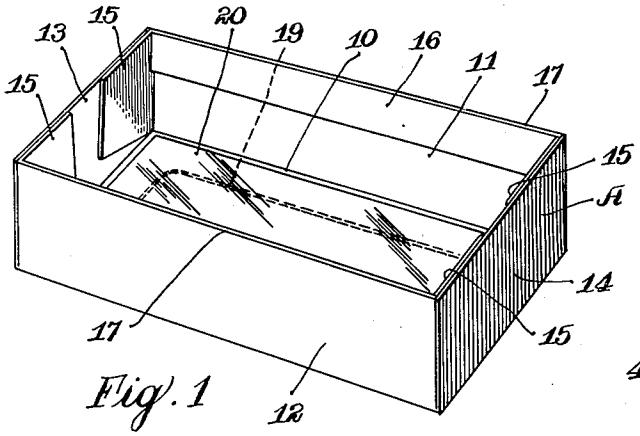


Fig. 1

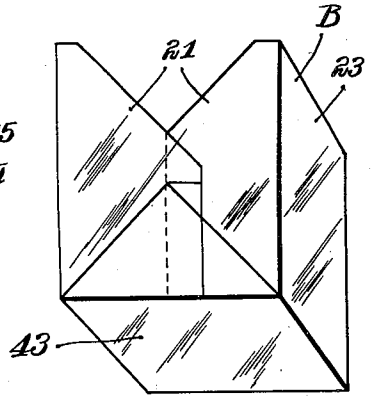


Fig. 11

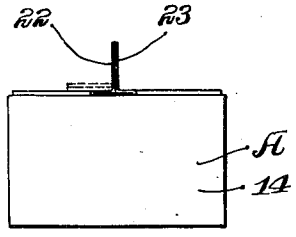


Fig. 4

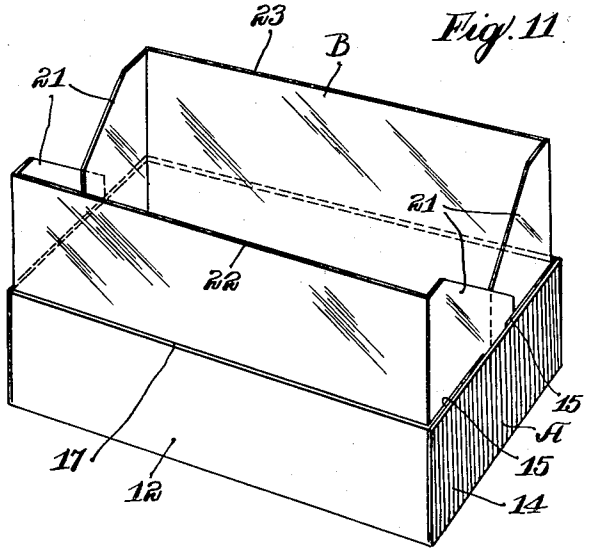


Fig. 2

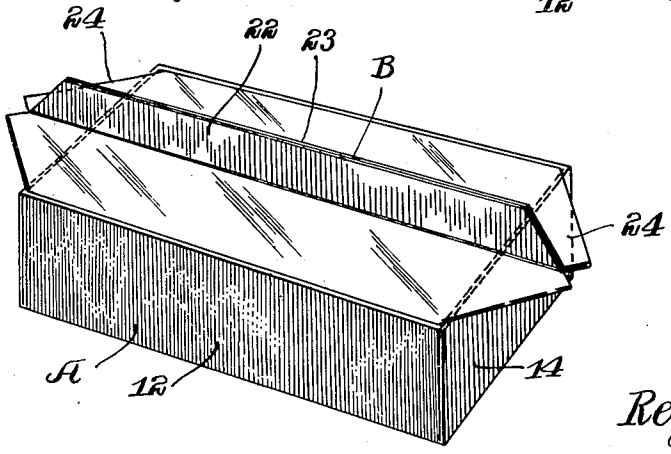


Fig. 3

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METHOD OF PACKING CONTAINERS

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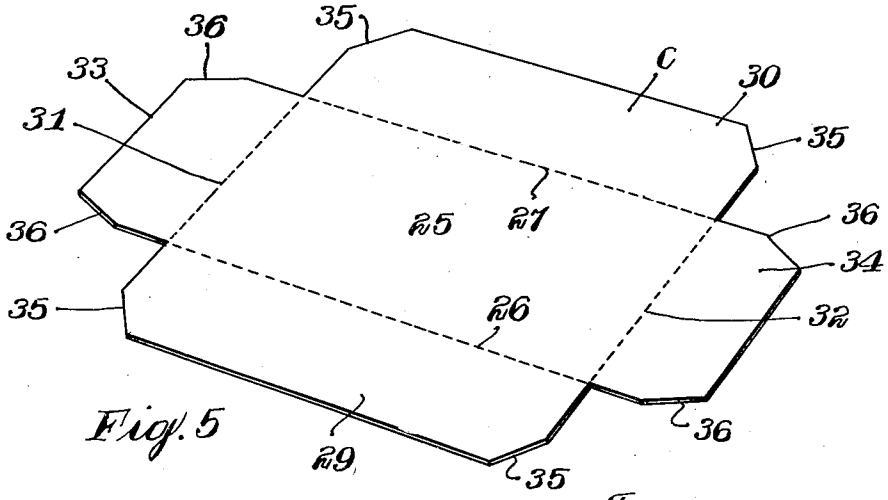


Fig. 5

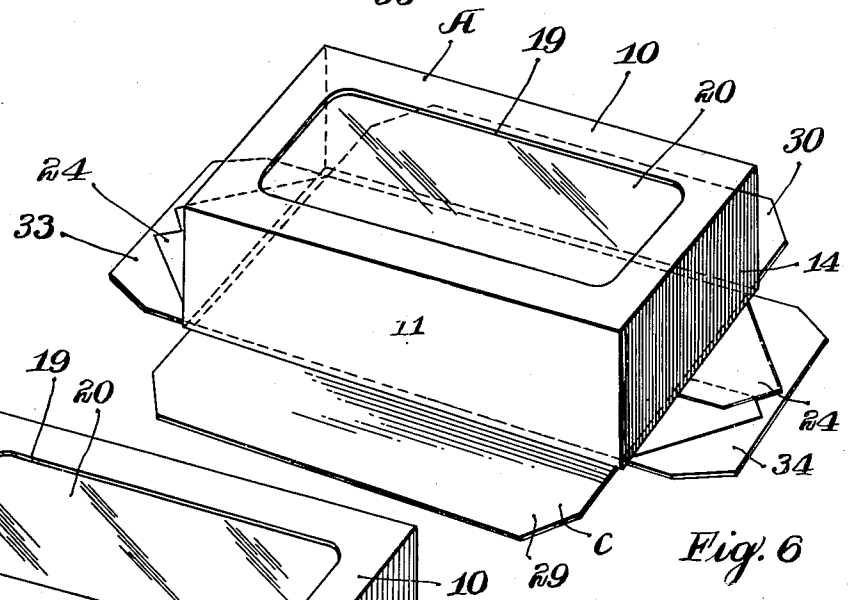


Fig. 6

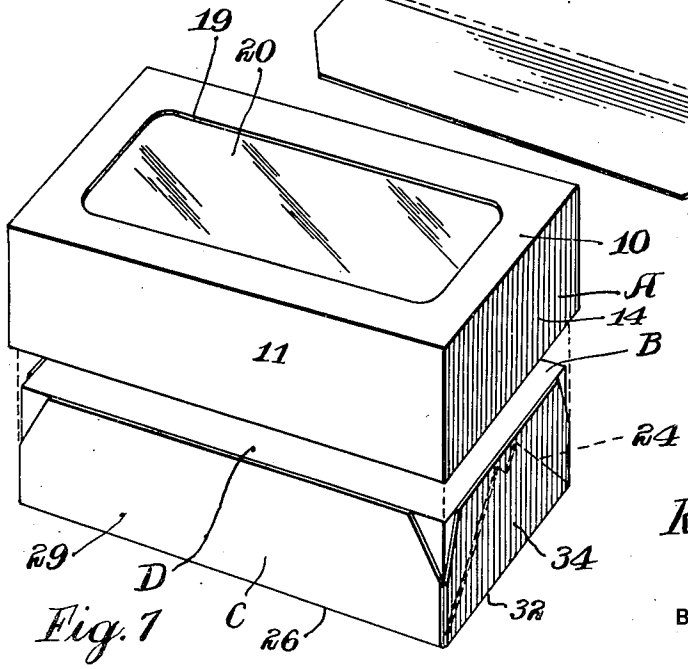


Fig. 7

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METHOD OF PACKING CONTAINERS

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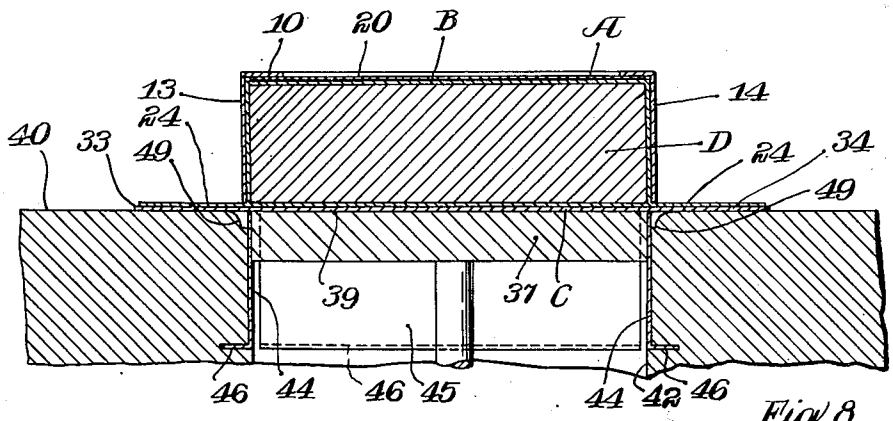


Fig. 8

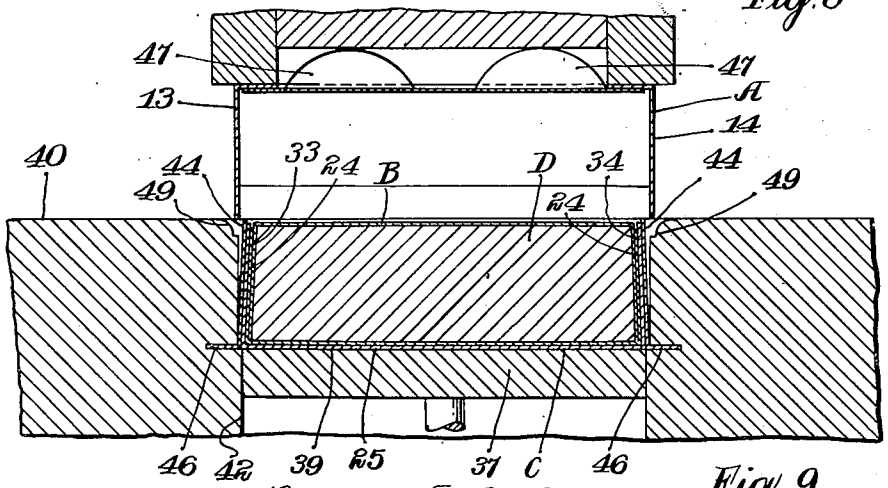


Fig. 9

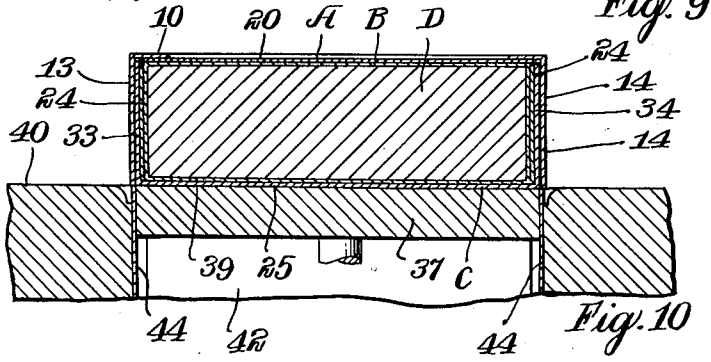


Fig. 10

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Patented July 6, 1943 2,323,467

UNITED STATES PATENT OFFICE

2,323,467

METHOD OF PACKING CONTAINERS

Reynolds Guyer, St. Paul, Minn., assignor to Waldorf Paper Products Company, St. Paul, Minn., a corporation of Minnesota

Application June 4, 1941, Serial No. 396,595

18 Claims. (Cl. 93—3)

My invention relates to a method of packaging materials, and deals particularly with a manner of enclosing a product in an outer container.

In the packaging of many products, it is desirable to wrap the product within a flexible inner wrapper, and to enclose the wrapped product within a relatively rigid outer container. As it would be impractical to describe such a method in conjunction with every product, the method will be described in respect to the packaging of cheese. It will be understood that various products could be similarly packaged.

Many cheese products are in a plastic or molten state at the start of the packaging operation. In order to save several steps in the packaging operation, and to avoid the necessity of wrapping the soft product, it is desirable to form the inner wrapper into an open topped bag or sack, and to pour the cheese directly into the wrapper. It is then only necessary to seal the open top to complete the inner wrapping. As the inner wrapper must be held in some sort of a reinforcing mold, it has been proposed to place the inner wrapper directly in the bottom section of a two part outer container during the molding or casting of the soft cheese.

This procedure has certain disadvantages. The outer containers are usually simple rectangularly shaped boxes, the bottom box section having a base and connected side walls and the top box section comprising a top and depending connected side walls designed to frictionally engage in telescoping relation with the side walls of the bottom section. After the cheese has been poured into the inner wrapper and allowed to harden somewhat, the open top of the sack-like wrapper must be sealed. The line of seal must extend across the exposed top surface of the inner wrapper. Accordingly when the outer container is opened, the appearance of the product is marred by the line of seal, while the bottom surface of the inner wrapper is unmarred by such a line of seal. This exposed line of seal is particularly objectionable when the outer container is provided with an inspection window in the top surface thereof.

A further difficulty experienced with the previously used procedure lies in the fact that in providing a tight seal for the inner wrapper, substantially triangular end flaps occur in the folding which must either be folded over the exposed surface of the product, or else tucked into the lower section of the outer container between the wrapped product and the end walls of the lower box section. To enhance the appearance of the finished package, the wrapped product has in some instances been removed from the lower box section after sealing, inverted, and returned into the lower box section in this inverted position. Due to the soft nature of the product, the handling of this wrapped product when removed from the outer reinforcing container has proven to be somewhat of a problem, and has increased the cost of the packaging operation.

The object of the present invention is to provide a method of packaging materials which will avoid these previously encountered difficulties. In order to accomplish this result, I provide a two part outer container, the upper portion of which is generally of box shape embodying a top which may contain an inspection window, and depending connected side walls, and the lower portion of which comprises a base and a series of foldable flaps marginally secured thereto. The inner wrapping is then folded and sealed to form an open topped bag or sack, and is placed in the top section of the outer container. The product is inserted into this sack; and after a suitable interval for hardening, the open end of the sack is sealed. The product, while contained in this reinforcing top container section, is inverted upon the flat bottom section. Through the use of a suitable apparatus, the bottom box section and the wrapped product are lowered with respect to the upper section, and the foldable flaps of the lower section are folded against the sides and ends of the finished product. The folded lower section and the wrapped product are then raised, the product and the flaps of the lower section entering within the upper box section.

It is an object of the present invention to provide a two part outer container for enclosing a product; the upper section of which comprises a top and depending side walls which are connected to form an open bottomed box, and the lower section of which comprises a box bottom having side and end wall flaps foldably connected thereto. When the two sections of the container are in enclosing position, these side and end wall flaps extend at substantially right angles to the box bottom, and lend rigidity and stiffness to the box bottom. In open position, the product rests upon the box bottom, and the side and end flaps may be folded down onto the plane of the box bottom, providing a flat cutting board upon which the product may be sliced without difficulty.

It is a feature of my packaging method that the wrapping sack is filled while reinforced by the upper section of the outer container, so that the line of seal of the sack extends along the

bottom of the wrapped product. This arrangement obviates the necessity of inverting the wrapped product while it is removed from the outer container. When the wrapper is made of transparent material, my method also presents a better appearance when the package is opened, as the lower surface of the product is more likely to be devoid of air bubbles and irregularities, and as this lower cast surface becomes the top surface of the product when the upper container section is inverted.

A further feature of my invention lies in the fact that the wrapped product is always supported by one of the more rigid sections of the outer container. The product is inverted while contained in the top container section; and the product rests upon the lower container section during the time it is removed from the top section. The rather delicate operation of handling the relatively soft product is thus avoided.

A further feature of my invention lies in the fact that the end flaps of the inner wrapper, formed by the folding and sealing of the inner wrapper, may be folded against the ends of the product together with the end flaps of the outer container. These end flaps extend from the ends of the package when the upper container section is inverted, and overlie the flat end flaps of the lower container section. As these end flaps of the outer container are folded against the ends of the product, the wrapper end flaps are folded within them. A separate folding operation for these wrapper end flaps is thus rendered unnecessary.

These and other objects and novel features of my invention will be more clearly and fully set forth in the following specification and claims.

In the drawings forming a part of my specification:

Figure 1 is a perspective view of the upper section of a container in inverted position.

Figure 2 is a perspective view of the container top section illustrated in Figure 1, having an inner wrapper positioned therein.

Figure 3 is a perspective view of the container top section and inner wrapper after the wrapper has been sealed to enclose the product.

Figure 4 is an end view of the package illustrated in Figure 3, showing the position of the sealed edges of the inner wrapper after the sealing operation and showing in dotted outline the position of these sealed edges after they have been folded down against the molded product.

Figure 5 is a perspective view of the lower section of the container in unfolded or flat condition.

Figure 6 illustrates the upper section of the container after it has been inverted upon the cutting board forming the lower section of the container.

Figure 7 illustrates the lower section of the container dropped beneath the upper section and the side and end flaps thereof folded up along the sides and ends of the molded product before telescoping the two sections of the container.

Figure 8 illustrates diagrammatically the upper container section resting upon the lower container section before this lower section has been folded and shows a receptible plunger supporting the lower section and the molded product.

Figure 9 illustrates the lower section and molded product lowered away from the upper container section and shows the manner in which the end flaps of the lower section are folded against the ends of the molded product.

Figure 10 illustrates diagrammatically the two sections of the container telescoped with the molded product contained therein.

Figure 11 is a perspective view of the inner wrapper before the same is sealed.

In Figure 1 of the drawings I disclose the upper section A of a container. This upper section A includes a relatively flat top 10 which is connected by fold lines to the side walls 11 and 12, and end walls 13 and 14. Flaps 15 are secured along fold lines to the side walls 11 and 12 to overlap the end walls 13 and 14 and are glued or otherwise secured thereto. The attachment between the end flaps 15 and the end walls 13 and 14 holds the side and end walls in definite fixed relation and holds all of these walls at substantially right angles to the top 10. If it is desired the walls 11, 12, 13, and 14 may taper or flare outwardly to a slight extent toward the open bottom opposite the top 10. Reinforcing strips 16 may, if desired, be connected along fold lines 17 to the side walls 11 and 12 to provide a folded lower edge for the side walls 11 and 12.

The top 10, in the form illustrated, is provided with a central aperture 19 which is closed by a transparent sheet 20. The sheet 20 is marginally adhered to the top 10.

Within the upper section A of the container I provide a wrapper B. The wrapper B is preferably formed of a single sheet of transparent material and in the form shown, the lower surface of the wrapper B is unbroken and continuous throughout its entire area. The side edges 21 of the wrapper B are adhered together to provide a substantially rectangular wrapper which is best illustrated in Figure 11 of the drawings. When inserted into the upper section A of the container, the upper end of the wrapper B is open, as illustrated in Figure 2, to permit the contents of the package to be inserted into the same.

The upper container section A, with its wrapper B, are then filled in any suitable way with the molten or plastic material. This material fills the liner B substantially to the level of the side and end walls of the upper section A. This material is allowed to set or harden to some extent and the edges 22 and 23 of the wrapper are brought together and heat sealed or sealed in any suitable manner. Usually after the sealing operation the edges 22 and 23 extend upwardly from the package, as illustrated in Figure 3 and Figure 4, and these edges are then folded down in the manner illustrated in dotted outline in Figure 4 of the drawings.

In the folding of the inner wrapper B and in the sealing of the same, as illustrated in Figure 3 of the drawings, substantially triangular end flaps 24 are produced which project beyond the ends 13 and 14 of the upper section of the container. These end flaps 24 must either be folded over the exposed surface of the inner wrapper or must be tucked down between the molded product and the end walls 13 and 14. Because of the manner in which the product is treated through the remaining portion of the process, it is usually preferable to fold these end flaps 24 against the end walls of the inner package and the manner of accomplishing this result will be later described.

In Figure 5 of the drawings I disclose the lower section C of the container. This lower section C comprises a bottom wall 25, to which is connected along fold lines 26 and 27, a pair of side flaps 29 and 30. Also connected to the

bottom wall 25 along fold lines 31 and 32 are a pair of end flaps 33 and 34. The side flaps 29 and 30 are preferably provided with cut-off corner portions 35 for ease in inserting the lower container section C in telescopic relation with the top section A thereof, and cut-off corner portions 36 are also provided on the end flaps 33 and 34 for the same purpose.

After the inner wrapper has been sealed to enclose the product, the upper container section A, with the inner wrapper B and the product contained therein, is inverted upon the lower container section C while this lower container section is in flat unfolded condition. In Figure 6 of the drawings the upper container section A is shown resting upon the lower container section C. This operation may be easily accomplished, as during the inverting process, the relatively soft product is held within the upper section A and is reinforced thereby. The outer container section C, with the upper container section A resting thereupon, is placed over a vertically receptible plunger, such as that diagrammatically illustrated in Figure 8 of the drawings, and indicated by the numeral 37. The plunger 37 is of substantially the same upper area and shape as the bottom surface 25 of the lower container section C. When the container is placed upon the plunger 37 the upper surface 39 of the plunger is flush with the surrounding surface 40 of the plunger containing table. Thus the package is supported in the same manner as though the plunger 37 were an integral part of the table. When the plunger is lowered, however, the lower section C of the container drops with the plunger, and the cylinder walls 42, within which the plunger 37 operates act to fold the side flaps 29 and 30 and the end flaps 33 and 34 upwardly along the side and end walls of the wrapped product illustrated in general by the letter D.

The wrapped product D, within the wrapper B, drops out of the upper section A of the container and remains resting upon the lower section C thereof. Thus as the side walls 29 and 30 and the end walls 33 and 34 fold along their respective fold lines 26, 27, 31, and 32, these side and end walls are folded directly against the molded product D within its wrapper B. The condition of the various walls of the inner and outer containers is best illustrated in Figure 7 of the drawings, the wrapped product and the lower section of the container being positioned directly below the upper container section A.

With the parts in the relative position illustrated in Figure 7, the plunger 37 is again raised, forcing the molded product D back into the upper section of the container A. The end flaps 33 and 34 of the lower container section C extend upwardly within the end walls 13 and 14 of the upper section A. The upper section A and the lower section C are then in telescopic relation and the molded product D is contained within the same. It is in this condition that the product is sold and transported. It should be noted that the end flaps 24 of the inner wrapper B may, if desired, be folded against the end walls of the package by the folding of the end flaps 33 and 34 of the lower container section C.

It should be emphasized that during the packing of the relatively soft material, this material is at all times reinforced by its engagement with one or the other of the sections of the container. The material is cast while the wrapper is located within the upper section of the container, thereby permitting the unbroken lower surface 43 of the wrapper B to be uppermost in the finished package. As the side and end wall flaps of the lower container section are folded against the walls of the wrapped product D, this product is resting upon the lower container section C. Thus the wrapped product in its wrapper B need never be handled separately while not in contact with one or the other of the container sections.

In the foregoing process a certain apparatus has been described for accomplishing the desired result. In actual practice the lower section C of the container may drop with the plunger 37, either by gravity or by any suitable means. The molded product D, as well as the lower section of the container C, may be automatically forced to follow the plunger C as it drops.

In order to insure the insertion of the lower package section into or within the upper package section I may provide end spring leaves 44 and side spring leaves 45, which are engaged into, or otherwise attached to the cylinder 42 at a point spaced from their upper ends. In the form illustrated, the bent ends 46 of the springs 44 and 45 engage into grooves cut in the wall or cylinder. These spring leaves 44 and 45 tend to spring inwardly at their upper extremity, but are prevented from doing so by the plunger or piston 37. As long as the plunger or piston 37 remains in engagement with the springs 44 and 45 these springs are held flat against the cylinder walls. However, when the plunger 37 lowers to the position indicated in Figure 9 of the drawings, these springs 44 and 45 press inwardly against the upper portion of the lower container, forcing the end flaps 33 and 34, and the side flaps 29 and 30 inwardly. The soft packaged product ordinarily is pressed inwardly by the springs 44 and 45 so as to insure the fact that as this lower section C and the packaged product D are elevated by the plunger 37 it will enter within the side and end walls of the upper container section A.

During the lowering of the packaged product D and the lower container section C, the upper container section A may be supported by any suitable means, such as the suction cups 47, which are diagrammatically illustrated in Figure 9 of the drawings. Should it be desired that the upper container section A drop partially into the cylinder 42, shoulders 49 are provided to engage the lower extremity to hold the upper section A from dropping to a greater than desired distance. This upper section A is raised by the lower section C and the packaged material D, as the plunger 37 is raised.

In accordance with the patent statutes, I have described the principles of construction and operation of my method, and while I have endeavored to set forth the best embodiments thereof, I desire to have it known that there are only illustrative of a means of carrying out my invention and that obvious changes may be made within the scope of the following claims without departing from the spirit of my invention.

I claim:

1. The method of packing a two part container having telescopically arranged upper and lower sections, the method consisting of placing a plastic mass of material to be packaged within the upper section of the container, inverting the upper section with the material contained there-

in above the lower section of the container, dropping and compressing the packaged material into the lower section of the container, and telescoping the two container sections.

2. The method of packing a container having an upper section and a lower section designed to engage in telescoping relation, the method consisting of placing a plastic mass of material within the upper section of the container, inverting the upper section with the material contained therein, dropping and compressing the material into the lower section of the container, and telescoping the two container sections.

3. The method of packing a container having an upper section, and a lower section designed to engage in telescopic relation with said upper section, the method consisting of inverting the upper section, placing a compressible block of material within this upper section, inverting the upper section with the material contained therein, transferring the material into the lower section, compressing the material sufficiently to fit therein and telescoping the two sections of the container.

4. The method of packing a container having a box-like upper section, and a lower section having foldable side and end walls designed to extend within, and in telescopic relation to the upper section; the method consisting of placing the material in the upper container section, transferring the material onto the lower section, folding the side and end wall thereof to encompass the material, and telescoping the two container sections.

5. The method of nacking a telescoping container including an upper section having a top and depending connected side walls thereupon, and a lower section having a base and side walls foldably connected thereto; the method consisting of placing material upon the lower section, folding the side walls of the lower section about the material, and telescoping the two container sections.

6. The method of packing a telescopic container including an upper section having a top and depending connected side walls thereupon, and a lower section including a base and side walls foldably connected thereto; the method consisting of placing material within the upper section, transferring the material onto the lower section, folding the side walls of the lower section about the materials, and telescoping the two sections.

7. The method of packing a container including an upper section having a top and depending connected side walls thereupon, and a lower section having a base and side walls foldably connected thereto; the method consisting of placing material within the upper section, inverting the upper section and the material, transferring the material onto the lower section, folding the side walls of the lower section about the material, and telescoping the two sections.

8. The method of packing wrapped materials into a telescopic container including an upper section having a top and depending connected side walls thereupon, and a lower section having a base and side walls foldably connected thereto; the method consisting of placing a wrapper within the upper section of the container, filling the wrapper to the desired level with the material to be packaged, transferring the packaged material to the lower container section, folding the side walls of the lower container section about the material, and telescoping the two container sections.

9. The method of packing a telescopic container including one section having a base and adjoining connected side walls, and a second section having a base and side walls foldably connected thereto; the method consisting of placing the materials within said one section, transferring the materials onto said other section, folding the side walls of said other section about said materials, and telescoping the two sections.

10. The method of packing a telescopic container having one section including a base and connected side walls secured thereto, and a second section including a base and side walls foldably connected thereto; the method consisting of molding the material to be packaged within said one section, transferring the molded material onto said second section, folding the side walls of the second section about the material, and telescoping the two sections.

11. The method of packing a wrapped material into a container having one section including a base and connected side walls secured thereto, and a second section including a base and side walls foldably connected thereto; the method consisting of inserting a wrapper into said one section, filling said wrapper to the desired level with the material to be packaged, placing the wrapped material upon said other section, folding the side walls of said other section against said wrapped material and telescoping the two sections.

12. The method of packing wrapped materials into a container having one section comprising a base and connected side walls secured thereto, and a second section having a base and side walls foldably connected thereto; the method consisting of placing a wrapper within said one section, filling the wrapper to a desired level with the material to be packaged, sealing the wrapper, placing the wrapped material upon said other section, folding the side walls of said other section against said packaged material, and telescoping the two container sections.

13. The method of packing wrapped material into a container having one section including a base, connecting side walls secured to said base, and an open side defined by said side walls opposite said base, and having a second section comprising a base and side walls foldably connected thereto; the method consisting of placing a wrapper within said one container section, filling said wrapper to the desired level, folding the wrapper to close the same, closing the open side of said one section of said container with said second section of said container while said second section of said container is in a substantially flat condition, removing said wrapped material from said one section of said container and folding the side walls of said second section of said container about the same, and telescoping the two container sections.

14. The method of packing wrapped materials into a container having an upper section including a top and depending connected side walls thereupon, and having a lower section including a base and side walls foldably connected thereto; the method consisting of placing the wrapper within said upper section of the container, pouring the material to be packaged into said wrapper and allowing said material to harden, sealing the wrapper about the hardened material, inverting the upper section upon the

lower section of the container while the lower section is in a substantially flat condition, dropping the lower container section with the wrapped material resting thereupon away from said upper container section, folding the side walls of said lower container section about said wrapped material, and raising said lower section and wrapped material into telescoping relation with the upper section of said container.

15. The method of packing a container having two box-like sections designed to engage in telescoping relation with the side walls of one section enclosing the side walls of the other section, the method consisting of placing in the larger section a plastic mass of a size to substantially fill the larger section, removing the plastic mass from the larger section, compressing the mass and inserting the same within the smaller of the sections, and telescoping the sections.

16. The method of packing a container having one section including a base and connected side walls secured thereto, and a second section including a base and side walls foldably connected thereto; the method consisting of inserting a wrapper into said one section, filling the wrapper to the desired level with the material to be packaged, folding the wrapper to seal the material within the wrapper, leaving end flaps of the wrapper projecting beyond the ends of said one section, placing the wrapped material upon said other section, folding the side walls of said other section against said wrapped material, and telescoping the two sections.

17. The method of packing a container having one section including a base and connected side walls secured thereto, and a second section including a base and side walls foldably connected thereto; the method consisting of placing a plastic mass of material within said one section, placing said one section containing said plastic mass upon the said second section while said second section is substantially flat, dropping the plastic mass and said second section away from said one section, folding the side walls of said second section about said plastic mass, compressing the plastic mass, and elevating said plastic mass and second section into telescoping relation with said one section.

18. The method of packing a container having one section including a base and connected side walls secured thereto, and a second section including a base and side walls foldably connected thereto; the method consisting of placing the material to be packaged in said one section, placing said one section upon said second section while said second section is substantially flat, dropping said second section and the material to be packaged away from said one section, folding the side walls of said second section about the material, and elevating the said second section and the material to be packaged into telescoping relation with said one section.

REYNOLDS GUYER.