

Oct. 31, 1944.

J. P. R. SCHELL

2,361,876

PACKAGE AND METHOD OF FORMING SAME

Filed Feb. 26, 1941

3 Sheets-Sheet 1

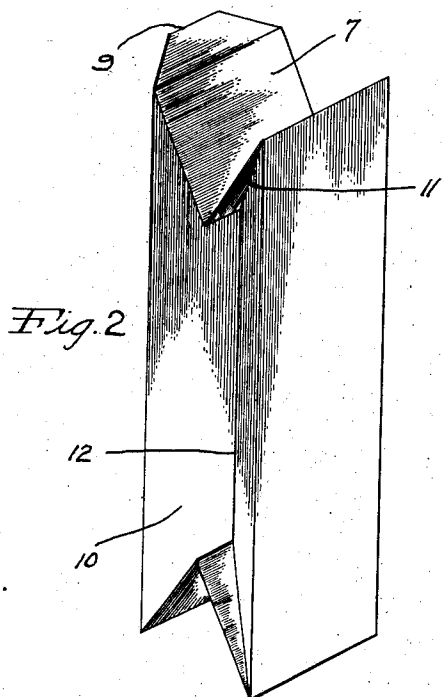


Fig. 2

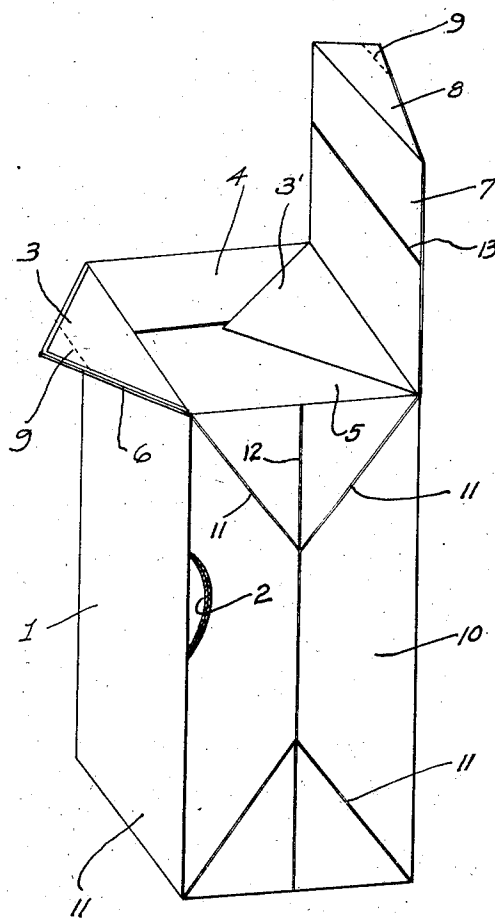


Fig. 1

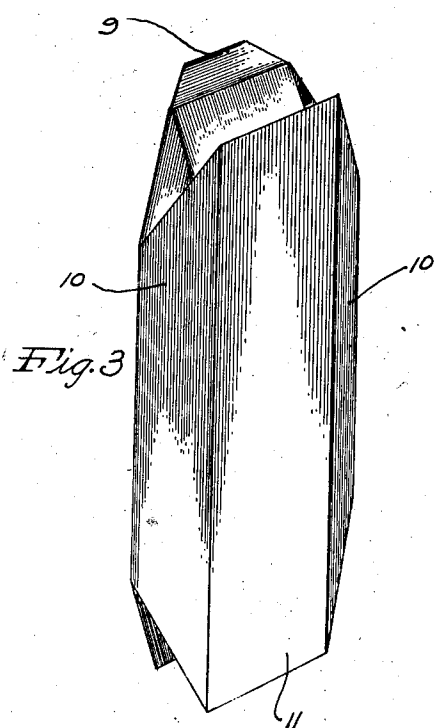


Fig. 3

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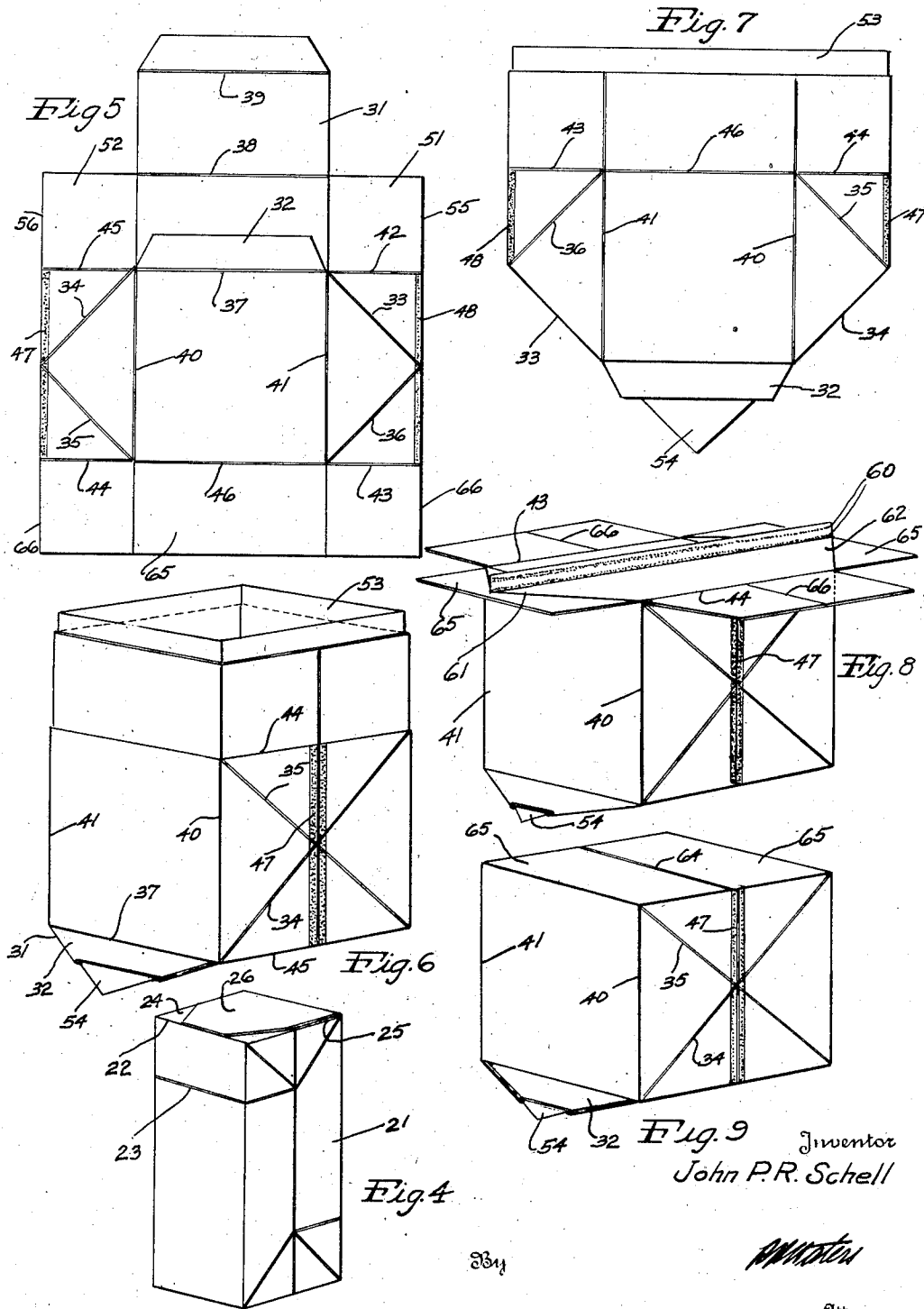
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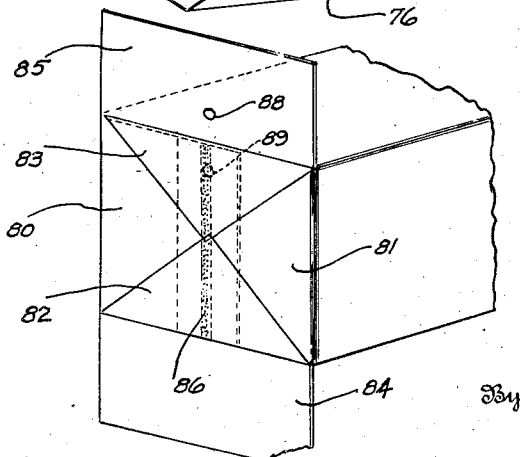
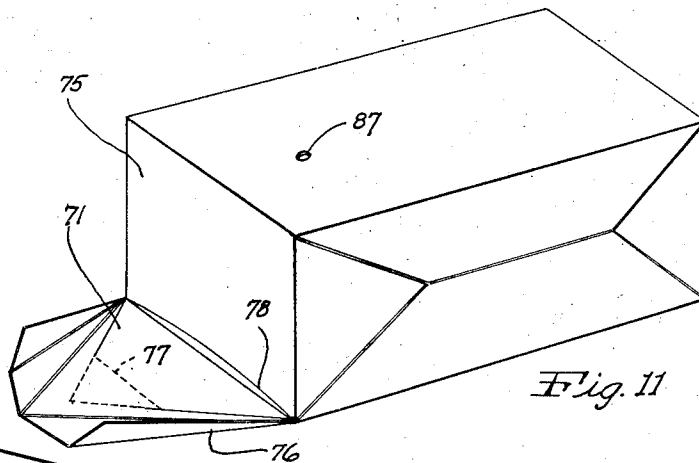
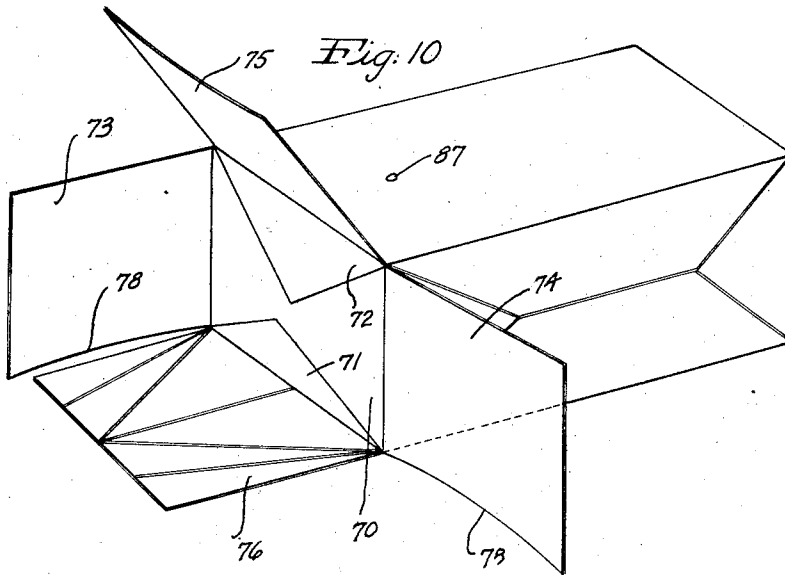
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3 Sheets-Sheet 3



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UNITED STATES PATENT OFFICE

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PACKAGE AND METHOD OF FORMING
SAME

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Application February 26, 1941, Serial No. 380,571

17 Claims. (Cl. 229-14)

This invention relates to a novel package and includes the method of forming the package. The package comprises an outer carton which is preferably collapsible and an inner protecting enclosure made of film or film-like material. The film may be rubber hydrochloride film, or it may be made of a cellulosic material, such as regenerated cellulose or a cellulose ether or ester, or it may be made of a synthetic product, such as a vinyl derivative, etc. The material which I prefer to employ is a rubber hydrochloride film which is marketed under the name "Pliofilm." An unplasticized film may be used, or a plasticized material may be employed if it does not contaminate the contents of the package.

The package of this invention comprises various novel features. For example, according to a preferred form of the invention, the outer carton comprises two flaps which are turned away from the carton and which are united at their edges and hold a portion of the inner enclosure. By cutting off a portion of the flaps, a portion of the enclosure is simultaneously removed, and the contents of the package may then be discharged through the opening in the enclosure which is located between the two short flaps. The two flaps need not be united, but the contents may be discharged over a single flap which may be shaped as a spout. The package is advantageously scored to facilitate folding of the package to insure removal of all of its contents. The package is more easily folded and collapsed if the carton is made in two parts which are united by a flexible material along lines where the carton is to be folded. If the package is to be used for liquid it may be marked for easy perforation to aid in removing the liquid therefrom. The package is designed more particularly for the packaging of materials which are to be removed from the package in small amounts at different times. The invention includes other features, such as the bisecting of the carton flaps and the folding of the ears formed at one end of the inner container over two of the flaps of the carton after they have been closed down and then folding the other two flaps over the ears of the inner container so that the inner container is held within the flaps at one or both ends of the carton, and collapse of the inner container is thus prevented.

The invention includes a preferred method of operation in which the inner enclosure is assembled within the outer carton, with a portion of the enclosure held between two outwardly bent flaps at one end of the carton, and with the en-

closure and carton open at the other end, the carton and enclosure being then collapsed for shipment to the user. When the collapsed carton arrives at the point where it is to be used it is easily erected by gently squeezing the two sides.

The outer container may be made of stiff paper or chipboard or the like. It may be scored in any desired way. Preferably it is made in two sections as disclosed herein. Other novel features of the invention will be disclosed in connection with the following description.

Fig. 1 of the drawings shows in perspective a package before completion, with a part broken away. Fig. 2 shows one form of the package after completion, and Fig. 3, another form. Fig. 4 shows a package with different scoring. Figs. 5 to 9 show a different package at different stages of completion; Fig. 5 showing the material from which the outer carton is made; Fig. 6, the outer carton with an open bag inserted; Fig. 7, the same but collapsed for shipping and Fig. 8, the carton with the bag sealed therein before closing the flaps of the carton. Fig. 9 shows the finished carton. Fig. 10 shows a package designed particularly for lubricating oil or other liquid, in a partially completed state. Fig. 11 shows the same package opened and ready for use. Fig. 12 shows the bottom end of the same package before completion.

Fig. 1 shows a partially completed package, and Figs. 2 and 3 show separate ways of collapsing the package for discharge of the material therefrom. The package comprises an outer container 1 and a bag 2 of film material within it. The bag may be of any design but is preferably made from a bag of the envelop type. When the envelop is blocked up in the usual way the walls are separated, and the plan view of the bottom of the bag is boat-shaped with parallel sides at the middle which come to a point at each end. These triangular sections at the ends are referred to herein as ears. Fig. 1 shows the package with the end containing the bottom of the bag, uppermost. The ears at the bottom of the bag are indicated by the reference numerals 3 and 3'. It will be noted that the two opposite flaps 4 and 5 of the carton have been closed down before folding over the ears 3, 3'. The flap 6 of the carton is triangular in shape. The opposite flap 7 comprises an area sufficient to cover the top of the carton, and in addition a triangular area 8 equal to the area of the triangle 6. When the flap 7 is closed down, the ear 3' of the inner container is held between the flaps 4, 5 and 7 and

the other ear 3 is held between the triangular flap 6 and the triangular portion 8 of the flap 7. The flap 7 will be held to the flaps 4 and 5 by adhesive in the usual way. The triangular flaps 6 and 8 will be held together by adhesive at their edges, and the ear 3 may also be adhered to the flaps, although this is not necessary.

The end of the package shown uppermost in Fig. 1 will generally be completely assembled, as described, before the other end of the package has been completed, and the contents ordinarily will be introduced into the package through the end opposite that which has been described in detail. The bag may be closed in any desired manner after it has been filled, and the flaps may be folded down in any usual way. The ears of the bag may be folded down between the two sets of flaps just as the ear 3' in Fig. 1 is folded between the flaps 4, 5 and the flap 7. By thus folding the ears between the flaps the bag is prevented from collapsing within the carton.

The package may be filled with milk, vinegar, honey, mayonnaise or marshmallow whip, putty, peanut butter, jam, sandwich spread, mustard or any liquid, paste or pap which can be extruded through an opening by pressure on the contents of the package. The nature of the bag material employed will be dependent upon the contents of the package. For most purposes rubber hydrochloride film will be most suitable. This film may be held to the carton by adhesive, if desired, although this is not necessary.

When the package arrives at the place of use, the points of the flaps 6 and 8 are cut off approximately on the dotted line 9, as indicated in Figs. 2 and 3. This cuts off the point of the ear 3. If the package contains foodstuff, mustard, for example, the package is thus opened by the housewife or restaurant keeper. Then by applying pressure to the walls of the package, the desired amount of mustard or other contents is extruded through the opening at 9 formed by cutting the flaps 6 and 8 and the ear 3 on the dotted line 9. If the side wall 10 and the opposite side wall are pushed in, the package will collapse, as shown in Fig. 2. If the alternate walls are pushed in, the wall 10 and opposite wall may bulge out as shown in Fig. 3. Pressure on the top and bottom of the carton facilitate the collapse of the package. The package is collapsed only to the extent required to discharge the amount of the contents presently needed. Then by pressing the two flaps 6 and 8 together, the opening at the mouth 9 is closed, and the small amount of the contents of the inner container, which remains at the opening, will probably help to seal the opening, although this will depend upon the nature of the contents. If the opening is sealed the entrance of air into the package is prevented. A package of this type may be used again and again by the housewife and may be stored in the pantry or refrigerator when not in use.

To facilitate the collapse of the package, the carton is preferably scored along the diagonal lines 11 and the vertical middle lines 12 and along identical lines on the side of the package opposite to that shown. The top is scored along the line 13 and the bottom is similarly scored. The flaps 4 and 5 may likewise be scored at the middle along lines vertical to their hinges. If preferred, the flaps 4 and 5 may be cut down the middle.

In a preferred form of the invention, the two halves of the carton are made separately and are united along the mid-point of the sides, as for

example, along the line 12, by uniting the two halves of the carton on the interior by suitable adhesive tape. When the carton is made in this way, it is most easily collapsed when pressure is applied to extrude its contents.

Fig. 4 shows a package similarly constructed but with different scoring. The scoring is such that as pressure is applied to push the side walls 21 together, the edge 22 of the top of the package is depressed as the package caves in along the scored line 23 and similarly the opposite bottom edge of the package tends to come up, and as the package is emptied the top is flattened against the front wall, which is scored by the line 23, and the bottom is flattened against the back wall.

The flap of the package shown in Fig. 4 is somewhat different from that shown in the first three figures. The package is closed by folding over a rather long flap 24 which is hinged to the front wall of the carton. It is long enough to cover the top of the carton and in addition includes the extension 25. This extension 25 of the flap 24 is bent back onto the flap 24. The outer flap 26 is an extension of the back wall of the carton. The sides of the short flap 25 are glued or otherwise fastened to the sides of the long flap 26. When the package is to be opened the flaps 25 and 26 are lifted from the flap 24. An ear or other portion of the film enclosure within the carton extends between the flaps 25 and 26. The flaps 25 and 26 and the ear are then severed, and the package is ready for use.

It will readily be seen that instead of folding the flaps down onto the top of the carton, they may be folded against the back of the carton. In this case the flap 26 will usually be made much shorter and the flap 24 will be made long enough to cover over the end of the flap 26. The flaps, of course, may be of any desired length and may be folded as desired.

The folding of the carton is facilitated, if instead of being made from a single sheet of material, the two halves are made separately and then joined along the lines where the carton is to be folded as it is collapsed. Figs. 5 to 9 show a carton of somewhat different design made in this way. The two halves of the carton are shown in Fig. 5 with the smaller half superimposed upon the larger half. The two halves are identical in outline, except that the flap 31 of the back half of the carton blank is longer than the flap 32 of the front half. The package is scored along the diagonal lines 33, 34, 35 and 36 and along corresponding lines on the larger blank which is in back of the smaller blank shown in Fig. 5. These diagonal lines are at an angle of about 45° to the sides of the carton. The blanks are, of course, scored along the line 37, and a corresponding line of the other blank, because the flaps 31 and 32 are hinged at these lines. The long flap is also scored at 38 and 39. The front and back flaps are, of course, scored along the lines 40 and 41 which separate the front and back of the carton from the side walls. The top and bottom of each half of the side wall is scored along the lines 42, 43, 44, 45 and the front and back along the line 46 to separate the walls from the flaps of the carton. The two halves are united with adhesive tape, shown by the dotted lines 47 and 48. The carton made in this way, after assembling, can easily be flattened out along the lines united by the adhesive tape.

Fig. 6 shows the carton with the two flaps 31 and 32 turned away from the carton. They are united along their edges by adhesive. The flaps

51 and 52 of Fig. 5 have been folded under and the bottom flap 31 covers them. The bag of rubber hydrochloride film 53 has been inserted in the carton, and the ear of the bag 54 extends out through the opening formed between the flaps 31 and 32.

After the bag is assembled within the carton, as shown in Fig. 6, the carton is advantageously collapsed for shipment to the point where it is to be filled. Although it is not shown in Fig. 6, it is readily appreciated from consideration of Fig. 5 that the two front flaps 51 and 52, at the bottom of the carton are separated from the corresponding two back flaps along the lines 55 and 56. The scored line 33 of the large flap 31 fits over these lines 55 and 56. It is, therefore, relatively easy to cave the bottom of the carton in by pushing on the line 33. This forces the side walls out as the bottom is forced in, and the carton is flattened out, as shown in Fig. 7.

When the package arrives at the point at which it is to be filled, it is straightened up merely by squeezing the edges bound by the tapes 47 and 48. Pressure at these edges causes the package to square up with a snap and it again assumes the position shown in Fig. 6. The ear 54 of the bag, of course, keeps one edge of the bottom of the bag in place, and if the opposite ear is folded between the inner flaps and the outer flaps of the carton at the bottom (as illustrated in Fig. 1 in connection with the package there shown), this will hold the other side of the bottom of the bag in place. Of course, the bag may be united to the carton by adhesive if this is considered desirable. In fact, the film enclosure may first be adhered to the carton blank as a flat piece of film and may be formed into a bag thereafter.

After filling, the bag is sealed. Adhesive may be used, but with a material such as rubber hydrochloride film which can be heat-sealed, it will be preferable to close the bag merely by the application of heat and pressure. The closure is preferably made by sealing along a straight line with both edges of the bag brought together without any re-entrant folds. Such a closure is illustrated in Fig. 8. To form the closure, fingers are inserted at opposite sides of the bag, and as the fingers are spread, they draw the two walls of the bag together in a straight line, as shown in Fig. 8. (If preferred, the fingers may be arranged so that they bring the two edges of the bag together in a straight line at right angles to that shown in Fig. 8.) The two dotted lines 60 of Fig. 8 indicate two areas of the film which have been heat-sealed together. As the fingers spread the opening and bring the two edges of the bag together without re-entrant folds, ears 61 and 62 are formed at opposite ends of the bag. These are similar to the ears 3, 3' shown in Fig. 1 and also similar to the ear 54 which extends through the flaps of the carton, as shown in Figs. 6-9.

After the bag has been sealed, the flaps of the carton are folded together. The divided flaps at the sides of the carton are first folded in, and the ears of the bag may then be folded down and then the end flaps 65 of the carton. If preferred, the ears of the bag may first be folded down before any of the flaps are folded together. After closing, the flaps are sealed together, and the package appears as shown in Fig. 9.

The ear 54 of the inner bag is shown extending beyond the flaps 31 and 32 to indicate the

structure of the package. In actual practice it is probable that the flaps 31 and 32 will extend somewhat further out to protect the ear 54, and when the package is to be used the flaps and ear will be trimmed off simultaneously. Fig. 9 shows the package in an upside-down condition. When it is desired to use it the ear 54 will be opened, and pressure will be applied at the middle of the top and bottom of the package, along the line 64 and the line 33 (Fig. 5) which will then be across the middle of the top of the package. The line 64 indicates the union between the flaps 65. The flaps underneath these outer flaps 65 are cut along the lines 66, as indicated in Figs. 5 and 8, and at the top of the package the side flaps are cut along the lines 55 and 56 (Fig. 5) which are located directly under the scoring 33. Therefore, the carton is easily collapsed along the middle of its top and bottom. As the package collapses along these lines, the ends, of course, bulge out and fold along the diagonal scorings. As the contents are forced out of the package the package collapses until finally it is flattened out. It will then, in part, again appear as in Fig. 7, but the parts shown at the top of Fig. 7 will, of course, have been folded over as the package is closed, and these parts will fold in along the lines 35, 36 and 46.

Figs. 10 to 12 illustrate a modified form of the invention designed particularly for use as an oil container. The container comprises an outer carton and an inner bag of oil-proof film, such as rubber hydrochloride film. The bag 70 is of the envelop type. In being blocked up the bottom shown in Fig. 10 forms the ears 71 and 72. The flaps of the carton 73 and 74 are each the width of the carton so that in being folded down they extend from one side of the carton to the other. In closing the carton, the flaps 73 and 74 are preferably first closed down and then the ear 72 is folded over these. The flap 75 is then closed. Then the ear 71 is folded over. It will be noted that the flap 75 is scored so that on creasing it forms a trough or spout, as shown in Fig. 11. This flap is the last to be folded over in forming the carton. It is glued or otherwise adhered to the outside of the flap 75.

When the package is to be put into use the flap 76 is separated from the flap 75, as shown in Fig. 11. This makes the ear 71 accessible. The flap is folded along the scored lines so as to form the spout, and then the ear 71 is cut on the dotted line 77. The oil is then delivered from the bag through the opening formed at the line 77, and the spout 76 serves to guide the oil into the vessel into which it is to be delivered. It will be noted that the lower edge of the flaps 73 and 74 are curved slightly so that there is a narrow opening between the hinge of the flap 76 and the edge 78 formed by the flaps 73 and 74.

The structure of the bottom end of the carton is indicated in Fig. 12. The side flaps 80 and 81 are folded down before the ears 82 and 83 of the bag are folded over. The outside flaps 84 and 85 are then closed down. By folding the ears 82 and 83 between the flaps in this manner the bag is held in place within the carton, and the walls of the bag are prevented from slumping together. The ears 82 and 83 are the ears formed at the end at which the bag is sealed. This accounts for the flange 86.

The side of the carton may be provided with a small opening 87 or preferably the side of the car-

ton is marked by such a small opening being partially cut into the carton, and the opening may be completed, when desired, to facilitate the flow of oil from the carton. Some sharp instrument may be used to punch through the opening 87 and through the bag within it. In a similar way a small opening 88 may be provided in the flap 85 and an opening 89 through the flaps 81 and 82. If preferred, instead of providing openings, these flaps may be only partially cut through. Then by insertion of a sharp instrument the opening into the bottom of the carton may easily be made. This opening is likewise to be used to facilitate the discharge of oil. The opening is small so that it may be closed by the finger of the operator to slow down the intake of air, and thus the flow of oil when this is considered desirable.

From the illustrations it may be seen that various modifications of the structure are possible. For example, although an envelop type of bag has been used in illustrating the invention in the drawings, any other type of bag may be employed. For example, the bag may be a square-bottomed, plicated type. Regardless of the type of bag employed, it is preferable to make ears on the bag in closing the bag, as shown in Fig. 8 and described in connection therewith. An envelop type of bag is preferred, because then the bottom of the bag forms ears when it is blocked up and these ears are free from any seam. Such an ear is preferred for insertion between the flaps of the carton, and the package thus made is more presentable than when there is a seam across the ear provided at the opening. Furthermore, if a square-bottomed bag is employed, the package cannot be assembled as indicated in Figs. 6 to 8, because there are no ears at the bottom of the bag to protrude between the flaps 31 and 32, and the ear, for insertion between the flaps, will only be formed at the top of the bag after it is closed, and there will be no ear at the bottom of the bag as shown in Figs. 6, 7 and 8.

The invention is not limited to the embodiments specifically disclosed. Variations in the structure and materials used is possible, within the scope of the claims. For example, a window carton may be used.

What I claim is:

1. A package which comprises a carton with the flap hinged to one wall thereof turned outward and united at its side edges to a flap hinged to the opposite wall of the carton, and in the carton a film enclosure, with a portion of the film enclosure held between said flaps, whereby on opening the portion of the enclosure held between the flaps the contents of the package can be discharged between the flaps.

2. A package which comprises a carton with the flap hinged to one wall thereof turned outward and united at its side edges to a flap hinged to the opposite wall of the carton, and in the carton a film enclosure, with a portion of the film enclosure held between said flaps so that on cutting off the outer ends of the flaps the enclosure is opened and the contents of the package can be discharged through the opening thus formed.

3. A package which comprises a carton, a liner therefor capable of extension as a film above the wall of one end of the carton prior to completion of the package, the perimeter of the film extension being approximately the same as that of the carton, opposite walls of the extension being united in flat contact to form a seal across the

whole width of the film extension without re-entrant folds and to form triangular ears of the film capable of simultaneously protruding over the top edge of opposite sides of the carton when open, one of said ears being held between flaps of the carton hinged to opposite sides of the carton and when the carton is closed being folded over the said edge of the side of the carton adjacent to the base of the ear.

4. A package which comprises a carton, a bag within the carton, the upper portion thereof being capable of extension above the walls of the carton prior to being sealed, the perimeter of the bag being approximately the same as that of the carton, opposite walls of the top of the bag being united in flat contact without a re-entrant fold to form a seal across the whole width of the bag and to form at the ends of the seal triangular ears capable of simultaneously protruding over the top edge of opposite sides of the carton when open, one of said ears being held between flaps folded in from said opposite sides of the carton and when the carton is closed being folded over said top edge of the side of the carton adjacent to the base of the ear.

5. In a package, a carton closed with flaps at one end, the flaps being hinged to the edge of the carton walls, in the carton a bag of film material, the perimeter of the bag being substantially the same as that of the carton, and the bag at said end of the carton being closed with triangular ears adapted to be extended beyond two opposite walls of the carton, said flaps on the other two walls being folded over to close the end of the carton, and one of said ears extending between said folded flaps and a wall of the carton, and being folded over the top of the carton wall adjacent to the base of the ear when the carton is closed.

6. The package of claim 1 with the carton scored to make it more readily collapsible.

7. The package of claim 1 with the carton scored and opposite flaps of the carton divided along a middle line perpendicular to the hinge of each to make the carton more readily collapsible.

8. The package of claim 1 with the carton composed of two sheets of material united along the middle of two opposite sides of the carton by a flexible material to make the carton more readily collapsible by being easily folded at said unions.

9. The package of claim 4 with the carton composed of two sheets of material scored to make the carton more easily collapsible, said two sheets being united along the middle of two opposite sides of the carton by a flexible material to make the carton more readily collapsible.

10. A package which comprises a carton and a film enclosure in the carton, the carton being scored across the middle of four adjoining faces, said scoring all lying in the same plane, each of two of said faces on opposite sides of the carton being scored from each of the four corners of the face to said plane, said last-mentioned scorings being at an angle of about 45° to said plane, a flap on an unscored face of the carton being turned outward and united at its sides to the flap on the opposite face of the carton, a portion of the bag being held between said flaps.

11. A carton scored to make it easily collapsible, the scoring comprising a line across the middle of four adjoining faces of the carton, said four lines lying in the same plane; and in each of two of said faces on opposite sides of the car-

ton lines from each of the four corners of the face to said plane, said lines being at an angle of about 45° to said plane.

12. In combination a carton and within the carton a film enclosure, the carton being scored to make it easily collapsible, the scoring comprising a line across the middle of four adjoining faces of the carton, said four lines lying in the same plane; and in each of two of said faces on opposite sides of the carton lines from each of the four corners of the face to said plane, said lines being at an angle of about 45° to said plane.

13. A package which comprises a carton, a liner therefor capable of extension as a film above the wall of one end of the carton prior to completion of the package, the perimeter of the film extension being approximately the same as that of the interior of the carton, said film which is capable of forming an extension prior to the completion of the package being closed to form an enclosure with triangular ears adapted to be simultaneously extended beyond opposite walls of the carton, flaps on the other two walls of the carton being folded over to close the end of the carton, one of said ears extending between said folded flaps and a wall of the carton and being folded over the top of the wall adjacent to the base of the ear when the carton is closed.

14. A package which comprises a carton with flaps attached to the upper end of the front and back walls thereof, the flap on the back wall being longer than is necessary to cover the upper end of the carton, thereby providing an extension, and a bag within the carton, one portion of which extends through the opening formed between the upper end of the front wall of the carton and the extension on the back wall and which is held between said extension and the flap on the front wall.

15. A package which comprises a carton with flaps attached to the upper end of the front, back, and side walls thereof, the flaps on the side walls

and on the back wall being folded over to close the upper end of the carton, the flap on the back wall being longer than is necessary to cover the upper end of the carton, thereby providing an extension, and a bag within the carton, one portion of which bag extends through the opening formed between (1) the upper end of the front wall of the carton and (2) the extension on the back wall and the flaps on the side walls, and which portion of the bag is held between the extension on the back wall and the flap on the front wall.

16. A package which comprises a carton which is scored so that it is collapsible in such a way as to permit its front and back walls to approach one another, there being flaps attached to the upper end of the front and back walls thereof, the flap on the back wall being longer than is necessary to cover the upper end of the carton, thereby providing an extension, and a bag within the carton, one portion of which bag extends through the opening formed between the upper end of the front wall and the extension on the back wall, and which portion of the bag is held between said extension and the flap on the front wall.

17. A package which comprises a carton which is scored to make it collapsible so that its front and back walls may approach one another, there being flaps attached to the upper end of the front, back, and side walls thereof, the flaps on the side walls and on the back wall being folded over to close the upper end of the carton, the flap on the back wall being longer than is necessary to cover the upper end of the carton, thereby providing an extension, and a bag within the carton folded with triangular ears on opposite sides of the upper end thereof, one of said ears extending through the opening formed between (1) the upper end of the front wall of the carton and (2) the extension on the back wall and the flaps on the side walls, said ear being held between said extension and the flap on the front wall.

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