

July 1, 1969

J. P. REPKO

3,453,661

PACKAGE

Filed Nov. 14, 1966

Sheet 1 of 5

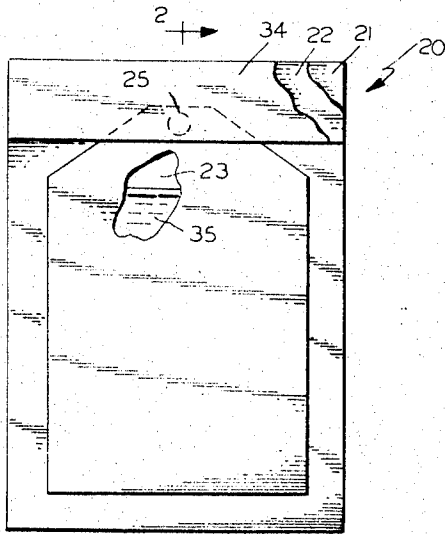


FIG. 1

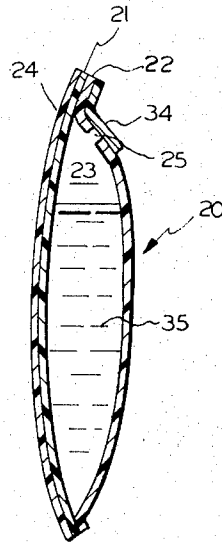


FIG. 2

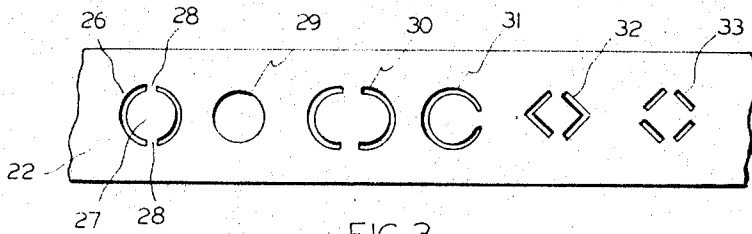


FIG. 3

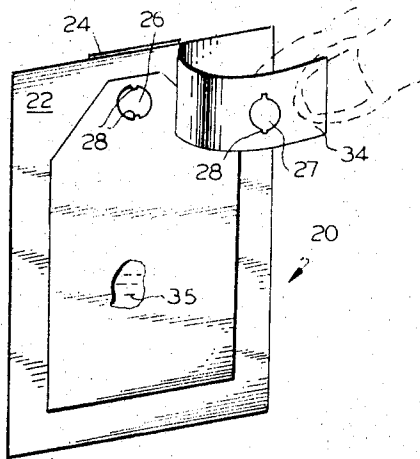


FIG. 4

INVENTOR
JOHN P. REPKO

BY *F. Humley, Fryner & Sandt*

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J. P. REPKO

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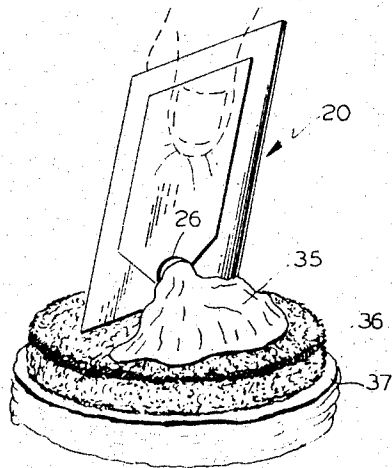


FIG. 5

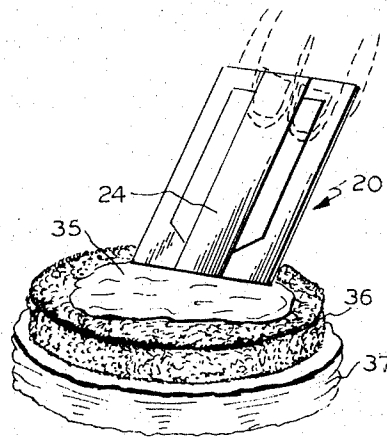


FIG. 6

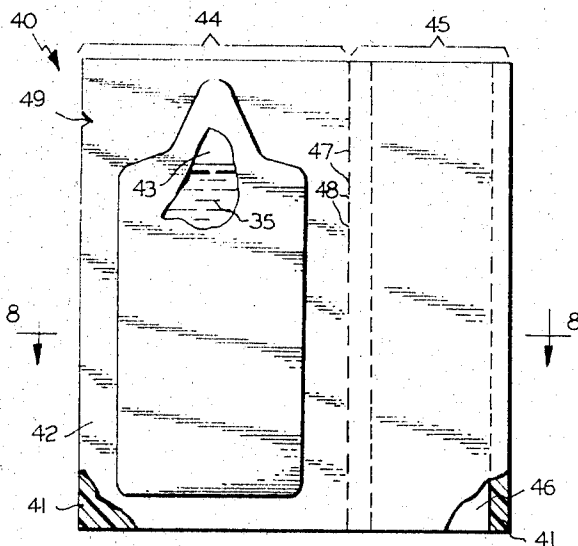


FIG. 7

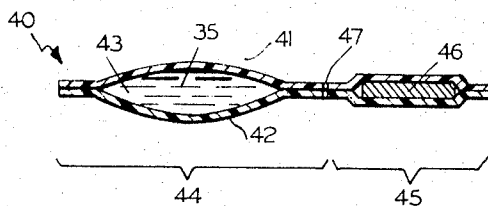


FIG. 8

INVENTOR
JOHN P. REPKO

BY *Plumley, Tynan & Sanat*

ATTORNEYS

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J. P. REPKO

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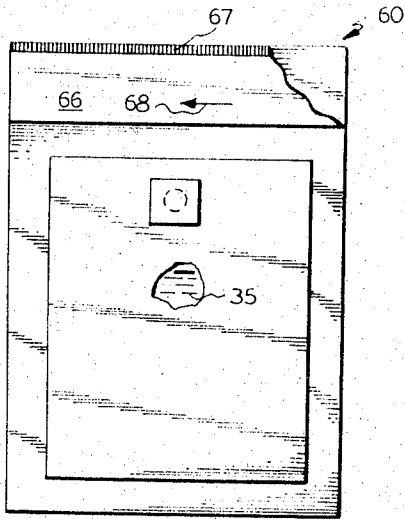


FIG. 9

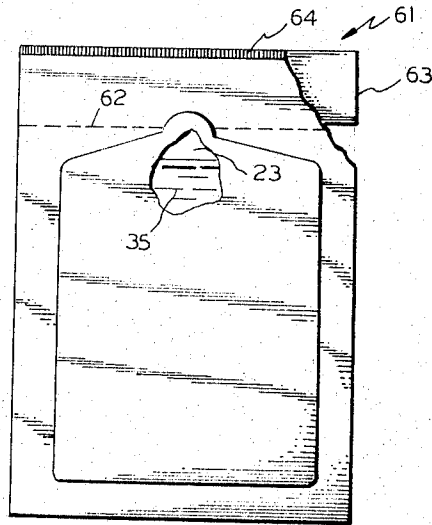


FIG. 9A

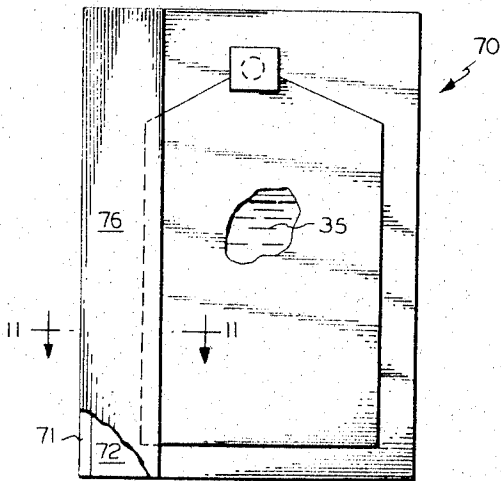


FIG. 10

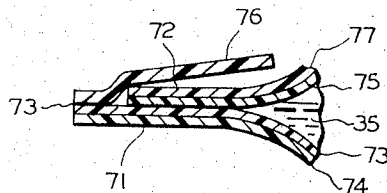


FIG. 11

INVENTOR
JOHN P. REPKO

BY *Plumley, Tyler & Saut*

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J. P. REPKO

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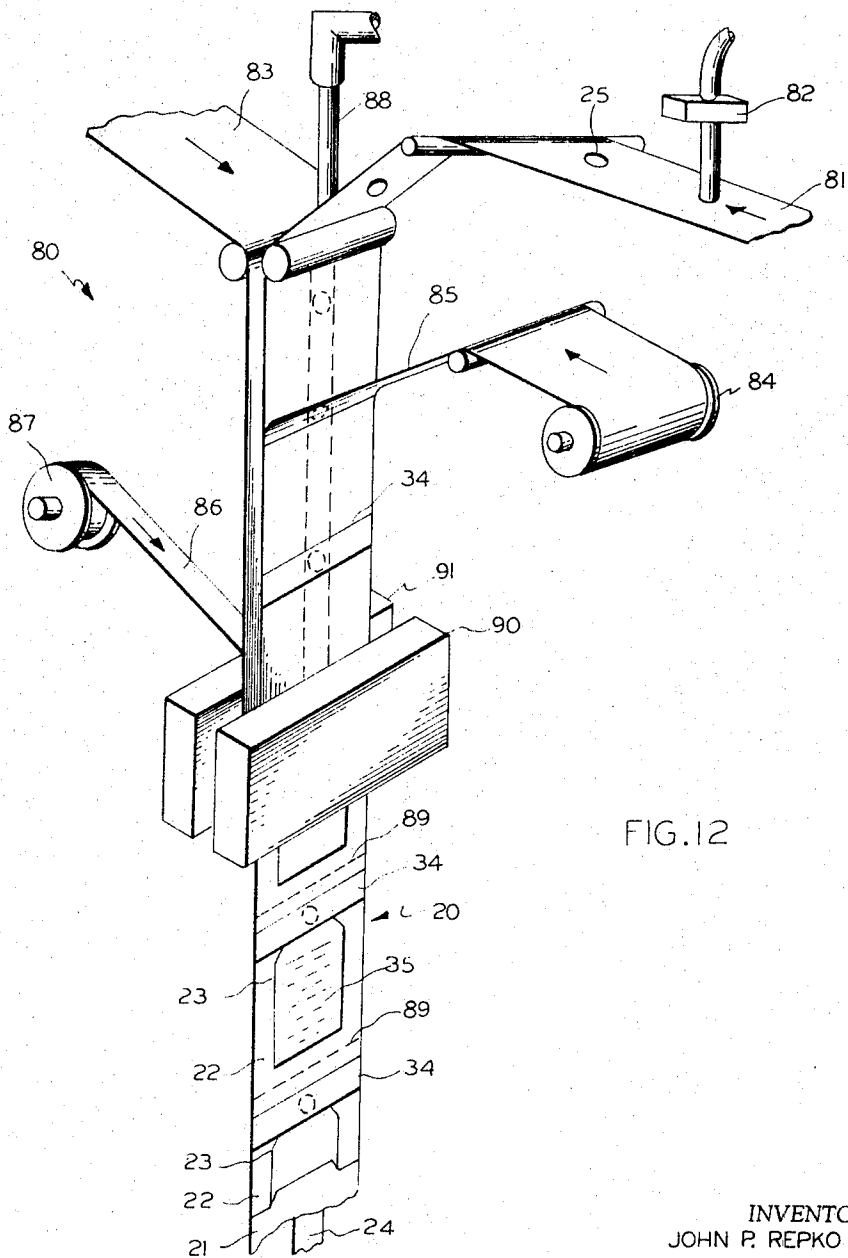


FIG. 12

INVENTOR
JOHN P. REPKO

BY *Plumley, Myers & Sonnet*

ATTORNEYS

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J. P. REPKO
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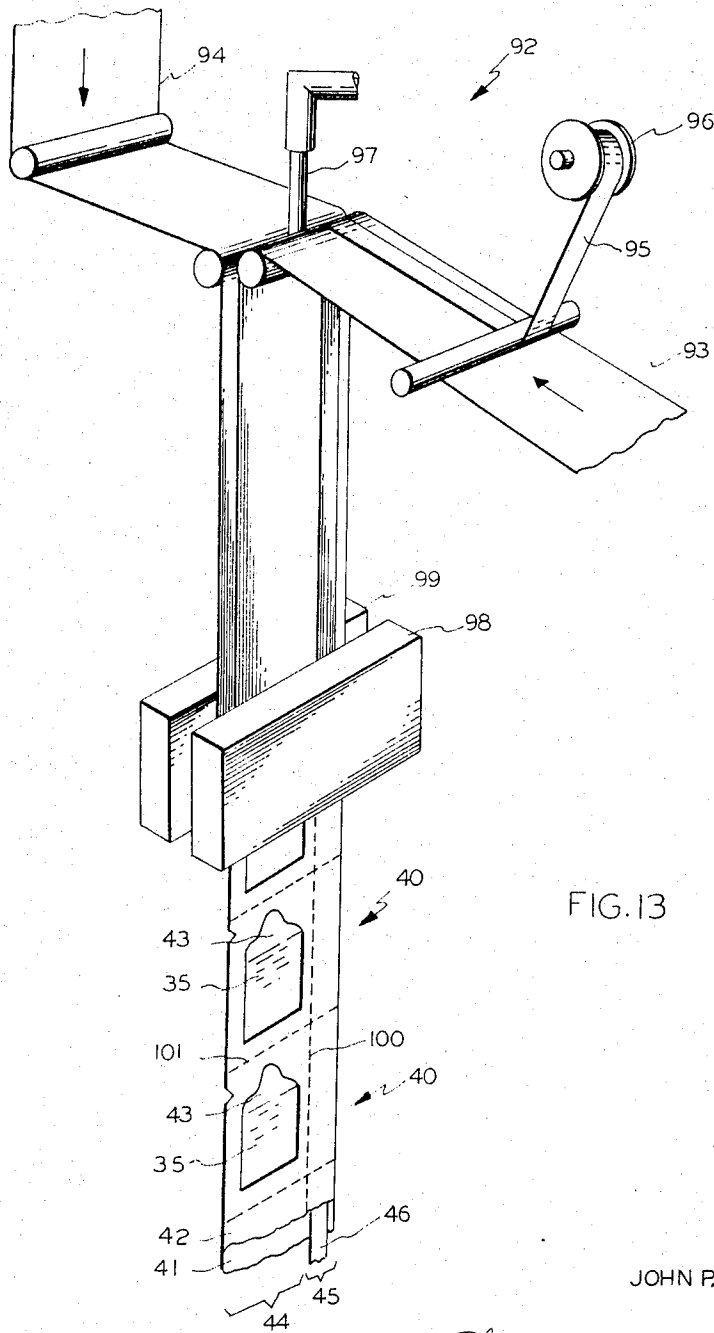


FIG. 13

INVENTOR
JOHN P. REPKO

BY *Plumley, Tyner & Sandt*

ATTORNEYS

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PACKAGE

John P. Repko, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich., a corporation of Delaware

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U.S. Cl. 401—132

10 Claims

ABSTRACT OF THE DISCLOSURE

A package comprising a hermetically sealed compartment having compartment walls of heat sealable, flexible material, the compartment being adapted to contain a spreadable material. A stiffener attached to at least one wall of the compartment.

This invention relates to novel packages and methods of their manufacture. More particularly, this invention relates to novel packages fabricated from heat-sealable material and adapted to contain a spreadable material. The packages of the present invention are especially useful as disposable, single-portion, single-application, consumer packages.

In the past few years, single-portion packages have found wide consumer acceptance because of their convenience in storage and use, and their disposable nature. However, problems of providing a convenient means of opening these packages and of spreading their contents has retarded wider use. For example, in packages containing comestibles such as mustard or catsup, the consumer opens the package and squeezes the contents out of the package and onto an edible substrate such as cold meat, bread or a hamburger. The problem then remains of spreading the material, for if the sandwich is constructed without first spreading the material certain portions of the sandwich will be over-spiced, while others will be completely devoid of flavoring. Separate spreaders such as knives of wood or plastic, or other material, can be used. However, these spreaders are not always at hand and, if disposable, are expensive. Furthermore, these packages are not easily opened. The common opening means is a notch and/or partial perforations across one end of the package. This is to enable the consumer to grip the body portion of the package in one hand while tearing from the notch or along the perforations with the other hand. This means of opening the package has not proved altogether satisfactory, because the force necessary to open the package frequently results in an uneven tear which does not, in fact, open the package or results in excessive pressure which causes the contents to extrude out the opening and onto the hand of the consumer. There has, therefore, been a heretofore unfulfilled demand for single-portion packages which are easily opened and which are provided with means for spreading their contents.

It is an object of the present invention to overcome the disadvantages of the prior art and to provide a novel package which may be easily opened.

Another object of the present invention is to provide a novel package which is provided with a means for spreading its contents.

Still another object of the present invention is to provide a novel package which may be easily manufactured without extensive modification of existing package making machinery.

These and other objects of the present invention will become apparent by reference to the following description and drawings, wherein:

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FIGURE 1 is an elevation view of a package representing one embodiment of the present invention;

FIGURE 2 is a sectional view of the package of FIGURE 1 taken along line 2—2 of FIGURE 1;

FIGURE 3 shows various outlets which can be used with the package of the present invention;

FIGURE 4 shows the step of opening the package of the present invention;

FIGURE 5 shows the step of applying the contents of the package to a substrate;

FIGURE 6 shows the step of spreading the material on the substrate employing the package of the present invention;

FIGURE 7 shows another embodiment of the package of the present invention;

FIGURE 8 is a sectional view taken along line 8—8 of FIGURE 7;

FIGURE 9 discloses still another embodiment of the present invention;

FIGURE 9A discloses yet another embodiment of the present invention;

FIGURE 10 discloses a further embodiment of the present invention;

FIGURE 11 is an expanded partial cross-section taken along line 11—11 of FIGURE 10;

FIGURE 12 shows a preferred method of making certain packages of the present invention; and

FIGURE 13 shows a preferred method of making certain other packages of the present invention.

Referring now to the drawings and more particularly to FIGURES 1 and 2, there is shown a package 20 comprising a first sheet 21 of substantially planar, heat-sealable material, and a second sheet 22 which is a substantially planar sheet of the same or a different heat-sealable material as the first sheet 21. The first sheet 21 and the second sheet 22 together define an integral, hermetically sealed compartment 23. The compartment 23 is conveniently defined by selective heat-sealed areas, shown in FIGURE 1 by the cross-hatched areas, around the periphery of the compartment 23. Attached to either the first sheet 21 or the second sheet 22, but preferably to the first sheet 21, is a flexible stiffener 24, the purpose and function of which will be more completely described below. In a preferred embodiment of the present invention the stiffener 24 is narrower than the sheets 21, 22 and is attached to these sheets in such a manner that the centerline of the stiffener and the centerline of the sheets are substantially coincidental. In this manner, the sheets 21, 22 extend equidistantly beyond the stiffener 24.

The package 20 is provided with an outlet 25 which provides a means for removing the spreadable material 35 from the compartment 23. As shown in FIGURE 3, the outlet 25 may be in many different forms such as substantially circular, as represented by outlets 26, 29, 30, 31, or non-curvilinear, as represented by outlets 32, 33. The circular outlet 26 comprises a separate and discrete portion 27 of the sheet 22. The discrete portion 27 is attached to the sheet 22 by two relatively small bridging attachments 28 which are at the top and bottom of the outlet 26. Other forms of substantially circular outlets 25 are the circular hole 29, the elliptical or oval outlet 30, and the semi-circular outlet 31. Examples of non-curvilinear outlets 25 are represented by a diamond-shaped outlet 32 having two bridging attachments and a second diamond-shaped outlet 33 having four bridging attachments. The substantially circular outlets 26, 29, 30, 31 are the preferred forms of outlets because of the ease of manufacturing and maintaining the machinery adapted to fabricate the packages of the present invention. The substantially circular outlet 26 is the most preferred outlet.

The outlet 25 is provided with a cover 34 which, preferably, extends laterally across the entire package from edge to edge and extends vertically from a point below the outlet 25 to the uppermost edge of the package 20. The cover 34 is coated with a pressure-sensitive adhesive and closes the outlet 25.

In FIGURE 2 a spreadable material 35 is shown in the compartment 23. Examples of spreadable material 35 which can be placed in the packages of the present invention include comestibles such as mustard, catsup, sauces of all varieties, jellies, jams, and honey; medicines such as sunburn ointments, petroleum jellies, burn ointments, salves, and the like; cosmetics such as shampoos, face creams, body creams, and the like; as well as other spreadable or semi-fluid or pasty materials such as adhesives, glues, and the like.

Referring now to FIGURES 4, 5, and 6, there is shown a method for utilizing the novel package of the present invention, illustrating a number of the advantages thereof. In FIGURE 4 there is shown a package 20 having the preferred form of outlet 26 in which the discrete portion 27 is attached to the sheet 22 by reason of the bridging attachments 28 (see FIGURE 3). To open the outlet 26, the consumer holds the package 20 upright and grasps the cover 34, exerting a force on it to cause the cover 34 to separate from the sheet 22, which it does readily. However, by reason of the cuts, the discrete portion 27 does not separate from the cover 34, but rather remains attached to it by reason of the pressure-sensitive adhesive coating on the cover 34. As force is continually applied, the bridging attachments 28 rupture and the discrete portion 27 is removed from the package 20 with the cover 34. As shown in FIGURE 5, the consumer then inverts the package 20 and by application of gentle finger pressure extrudes the material 35 from the compartment 23 through the outlet 26. During this extrusion operation, the stiffener 24 aids in holding the package 20 straight, provides a firm foundation for the application of the above-described finger pressure, ensures even extrusion of the material 35, and prevents bending of the package 20 which otherwise might permit the consumer's fingers to contact the material 35. As shown in FIGURE 5 the material 35 is extruded onto a hamburger patty 36 supported on a hamburger roll 37.

As shown in FIGURE 6, the material 35 is then spread evenly on the surface of the hamburger 36. During this operation the stiffener 24 adds the desired support to the package 20, thus precluding the collapse of the package 20 and ensuring even, effortless spreading of the material 35 to form a uniform coating. As previously described, the cover 34 preferably extends across the entire package. By reason of this arrangement the portion of the package 20 underlying the cover 34 is kept free of contaminants during storage and handling. This arrangement is especially important when the spreadable material 35 is an edible or medicinal material.

Referring now to FIGURES 7 and 8 there is shown an embodiment of the present invention represented by a package 40. The package 40 comprises a first sheet 41 of a substantially planar, heat-sealable material and a second sheet 42 of the same or a different, substantially planar, heat-sealable material. The sheets 41, 42 define a hermetically sealed compartment 43 which is adapted to contain the aforementioned material 35. The package 40 comprises a compartment portion 44 and a spreader portion 45. In the compartment portion 44, the first sheet 41 is heat-sealed to the second sheet 42 in selective areas as shown by the cross-hatched area in FIGURE 7. The selective areas of heat sealing define a compartment 43. In the spreader portion 45, the first sheet 41 is heat-sealed to a stiffener 46 and the stiffener 46 is heat-sealed to the second sheet 42. The spreader portion 45 is detachably attached to the compartment portion 44 by reason of a line of weakness. The preferred form of this line of weakness comprises a series of perforations 47 defining

a series of relatively short bridging attachments 48 (FIGURE 8). Other forms of lines of weakness such as punctures, partial cuts or heat-weakened areas which readily permit the separation of the compartment portion 44 from the spreader portion 45 can be used. After the spreader portion 45 is detached from the compartment portion 44, and after the package has been opened and the spreadable material 35 has been placed on the substrate, the spreader portion 45 is used to spread the material 35 on the substrate, in the same manner as previously described with reference to FIGURES 4, 5, and 6. The package 40 can be provided with a notch 49 to facilitate opening of the compartment 43.

Referring now to FIGURE 9 there is shown a package 60 similar in most respects to the package 40 but having a stiffener 66 detachably attached across the top of the package 60 by a relatively small, heat-sealed area 67 shown by the cross-hitching. The stiffener 66 is removed from the package 60 by applying a force sufficient to rupture the heat-sealed area 67. The stiffener 66 is then used as a spreader, as described above. The embodiment of the present invention represented by the package 60 can advantageously be manufactured by a machine which manufactures packages by applying the stiffener 66 from a roll of material which is fed in the direction shown by the arrow 68.

Referring now to FIGURE 9A there is shown a package 61 similar in most respects to the package 60 but provided with a different opening means. The opening means of the package 61 consists of a line of weakness 62 in the compartment walls which extends from one edge of the package 61 to the other edge of the package 61. The heat-sealable areas which define the compartment 23 are such that a portion of the compartment 23 intersects the line of weakness 62. By tearing the package 61 along the line of weakness 62 the compartment 23 is opened. The package 61 is provided with a stiffener 63 which is attached to the package 61 by heat-sealed areas 64 which can be co-extensive with the area of contact between the stiffener 63 and the package 20.

Referring now to FIGURE 10 there is shown an embodiment of the present invention represented by the package 70 which, in most respects, is like those previously described, except that one sheet, for example the first sheet 71, extends a short distance beyond the other sheet, for example the second sheet 72. A stiffener 76 is attached to the portion of the first sheet which extends beyond the second sheet 72. The embodiment of the present invention represented by the package 70 can be used when the sheets 71, 72 have a laminated structure in which an inner lamina is heat-sealable and the outer lamina is not heat-sealable. An example of such sheets is one manufactured of cellophane bonded to polyethylene.

In FIGURE 11, an expanded, partial cross-section across line 11—11 of FIGURE 10, there is shown the first sheet 71 constructed of a heat-sealable lamina 73 and a non-heat-sealable lamina 74. In FIGURE 11 there is also shown the second sheet 72 constructed of a heat-sealable lamina 75 and a non-heat-sealable lamina 77. As shown in FIGURES 10 and 11 the package is constructed with the heat-sealable lamina 73 of the first sheet 71 in contact with and selectively heat-sealed to the heat-sealable lamina 75 of the second sheet 72. By reason of this construction and by reason of the extension of the first sheet 71 beyond the edge of the second sheet 72, there is exposed a portion of the heat-sealable lamina 73 of the first sheet 71. This portion is heat-sealed to the stiffener 76. In manufacture, the entire stiffener 76 can be pressed against the above-described structure, during the heat-sealing operation, however, the stiffener 76 will only heat-seal where it contacts the heat-sealable lamina 73 of the first sheet 71 and not where it contacts the non-heat-sealable lamina 77 of the second sheet 72. The stiffener 76 is easily separated from the package 70 by sufficient pressure to either rupture the heat-sealed bond between

the stiffener 76 and the sheet 71 or separate the heat-sealed area of the sheet 71 from the remainder of the same sheet 71. The stiffener 76 is then used as described above.

The method of use of the packages 40, 60, 70 is substantially as described above for the package 20, except that the stiffeners 46, 66, 76 are detached from the rest of the package prior to spreading the material 35 on the substrate to be coated, and preferably, but not necessarily, prior to opening the package. Thus, the method of use comprises detaching the spreader, a stiffener 46, 66 or 76, from the package, opening the package, emptying the material 35 onto the substrate to be coated, and finally spreading the material 35 on the substrate by use of the spreader.

Referring now to FIGURE 12 there is shown an apparatus 80 adapted to produce a package in which a first and a second sheet of a heat-sealable material define an integral compartment, such as the embodiment of the present invention as represented by the package 20.

A first web 81 of substantially planar, heat-sealable material is advanced at any convenient rate of speed from a source such as a roll (not shown). The first web 81 is advanced in the direction of the arrow thereon past a cutter 82 which is adapted to cut the first web 81 to form an outlet 25 such as those described above or as shown in FIGURE 3. When the outlet 25 formed by the cutter 82 constitutes the preferred outlet 26 shown in FIGURE 3, the bridging attachments 28 shown in FIGURE 3 are formed in juxtaposed relationship to one another along the running length of the first web 81. While the first web 81 is cut in the manner described by the cutter 82, it is to be understood that the cutting of the first web 81 may also be accomplished by hand.

As shown in FIGURE 12 a second web 83 of the same or a different, substantially planar, heat-sealable material is advanced at a linear rate of speed equal to the linear rate of advance of the first web 81. The width of the first web 81 is substantially equal to the width of the second web 83. As the first web 81 advances in the machine direction as shown by the arrow, the outlet 25 is covered with a cover 34 having a coating of pressure-sensitive adhesive. The cover 34 can conveniently be supplied in the form of a roll 84 of cover material 85. Cutting means (not shown) can be provided to cut the cover material 85 coming from the roll 84, thus forming a cover 34 of any desired length.

The prior art filling and heat-sealing apparatus, which can be modified to practice the method of the present invention, is provided with heat-sealing means, shown schematically here as blocks 90 and 91. Any convenient heat-sealing means such as contra-rotating rolls which will produce the packages of the present invention and/or practice the method of the present invention can be used.

As can be seen by reference to the paths followed by the first and second webs 81, 83, the second web 83 forms the first sheet 21 of the package 20 and the first web 81 forms the second sheet 22 of the package 20.

A third web 86 of heat-sealable stiffener material, which is narrower than the first and second webs 81, 83, is advanced from a source such as the roll 87 at a linear rate of speed equal to the linear rate of speed of the first web 81 and the second web 83.

The first web 81, the second web 83, and the third web 86 are brought into substantially parallel, juxtaposed alignment, such that the first and second webs 81, 83 extend equidistantly beyond the third web 86, or stated differently, the centerline of the third web 86 is substantially coincidental with the centerlines of the first and second webs 81, 83. At this point several operations are carried out concurrently. The first web 81 is heat-sealed to the second web 83 in selective areas around the outlet 25, thus forming a compartment 23; the compartment 23 is filled with a spreadable material 35 via the conduit 88; the third web 86 of heat-sealable stiffening material is heat-sealed to at least a small portion of the second web

83. In the above-described manner, packages such as the package 20 having a stiffener 24 and containing a spreadable material 35 are formed. The packages 20 thus produced in a continuous strip may be severed from one another by any suitable cutter means (not shown) or may be left in roll form, separated from one another by a line of weakness such as a row of perforations 89 to permit easy separation at some later time, as for example just prior to use by the consumer. While the invention has been described by reference to a single station apparatus 80, multiple station apparatus are also contemplated within the scope of the present invention. The method shown may be practiced in a multiple station apparatus by simply extending the sheet 21, 22 in the transverse direction and providing a plurality of cutters 82, rolls 84, 87, and conduits 88, etc.

The steps of the above-described method of the present invention illustrated in FIGURE 12 can be practiced in any order which will produce the desired results. It is only critical that the outlet 25 be formed in the first web 81 before the cover 34 is attached and that both these operations be performed before the package 20 is filled. The stiffener 24 may be attached to the package 20 after formation of the compartment 23 but is preferably concurrently attached to eliminate the need for a second heat-sealing step.

Referring now to FIGURE 13 there is shown an apparatus 92 suitable for practicing the method of the present invention and especially suitable for producing the embodiments of the present invention represented by the packages 40, 60, 70. The method will be described with reference to production of the package 40.

A first web 93 of substantially planar, heat-sealable material is advanced in the direction of the arrow thereon at any convenient rate of speed from a source such as a roll (not shown). A second web 94 of the same or different, substantially planar, heat-sealable material is advanced at a linear rate of speed equal to the linear rate of advance of the first web 93. The width of the first web 93 is substantially equal to the width of the second web 94.

A third web 95 of heat-sealable stiffener material which is narrower than the first and second webs 93, 94 is advanced from a source such as the roll 96 at a linear rate of speed equal to the linear rate of speed of the first web 93 and the second web 94. While the third web 95 may be on the outside of either the first web 93 or the second web 94, it is preferably between the first web 93 and the second web 94 as shown in FIGURE 13. As can be seen by reference to the paths followed by the first web 93, the second web 94, and the third web 95, these three webs when formed into the package 40 become respectively the second sheet 42, the first sheet 41, and the stiffener 46.

The first web 93, the second web 94, and the third web 95 are brought into substantially parallel, juxtaposed alignment, such that the edge of the third web 95 is near to but does not extend beyond the edges of the first web 93 and the second web 94. At this point several operations are carried out concurrently. The first web 93 is heat-sealed to the second web 94 in selective areas to form the compartment 43. This can be accomplished by heat-sealing means shown schematically as blocks 98, 99. The third web 95 is heat-sealed to the first web 93 and the second web 94. The compartment 43 is filled with a spreadable material 35 via conduit 97 from a source not shown. In this manner the package 40 is provided with a compartment portion 44 and a spreader portion 45. To facilitate subsequent separation of the spreader portion 45 from the compartment portion 44, a line of weakness 100 is formed between the two portions 44, 45 of the package 40. The packages 40 thus produced in a continuous strip can be severed from one another by any suitable cutter means (not shown) or may be left in

roll form, separated from one another by a line of weakness 101.

The steps of the above-described method of the present invention illustrated in FIGURE 13 can be practiced in any order which will produce the desired results. Thus, the lines of weakness 100, 101 may be formed concurrently with or subsequent to the last sealing step.

Examples of heat-sealable materials contemplated for use in the present invention include cellophane, cellulose acetate, nylon, pliofilm, polyesters, polyethylene in a variety of densities, polypropylene, polystyrene, polyvinyl chloride, homopolymers and copolymers of all varieties, for example, the copolymer of vinyl chloride and vinylidene chloride (Saran). The primary requirements for selecting a suitable material are: (1) that it is heat-sealable at temperatures conveniently maintained in the apparatus, (2) that it does not chemically react in an undesirable manner with the material 35 to be placed in the packages 20, 40, 60, 70, and (3) that it has sufficient strength in the thicknesses in which it is economically employed.

The sheets 21, 22, 41, 42, 71, 72 and consequently the webs 81, 83, 93, 94 can be formed of any of the above-mentioned heat-sealable materials, mixtures of compatible materials or copolymers of appropriate monomers. The above-described sheets and webs can be homogeneous substrates or laminates of two or more laminae. In the construction of laminates any of the above-described heat-sealable materials can be combined with non-heat-sealable materials, as for example metals such as aluminum or tin or non-metals such as paper of all types.

The stiffeners 24, 46, 66, 76 and consequently the webs 86 and 95 of stiffener material can be formed of any of the above-described combinations of materials. A particularly suitable material for use as the above-described stiffener is paper having a thickness of from about 5 to about 20 mils, but thinner or thicker paper may be used if it possesses the desired flexibility and rigidity. The paper can be coated on one or both sides with any of the previously described heat-sealable materials, or heat-sealable fibers may be used in its manufacture to render the resultant product heat-sealable. In any event, any means by which the stiffener is rendered heat-sealable will suffice. In embodiments of the present invention represented by the packages 20, 60, and 70, in which only one side of the stiffener 24, 66, or 76 is attached to the package, it is sufficient if only one side of the stiffener is rendered heat-sealable as by a coating of heat-sealable material. While such a material is sufficient for use in embodiments of the present invention represented by the package 40, it is greatly preferred to use a stiffener material which is heat-sealable on both sides in order that the stiffener 46 will be heat-sealed to both the first sheet 41 and the second sheet 42.

From the foregoing it is seen that packages and methods of the present invention represent an important advance in the art and that many modifications of this invention can be made without departing from the spirit and scope thereof.

What is claimed is:

1. A package comprising:

(a) a hermetically sealed compartment having compartment walls of heat-sealable, flexible material, said compartment adapted to contain a spreadable material; and

(b) a stiffener attached to at least one wall of said compartment, said stiffener constituting means for inhibiting bending of the package to a degree whereby an end of the package can be pressed against a substrate to evenly spread the spreadable material thereon and wherein said stiffener extends from one edge of the package to the opposite edge and is positioned so that the center line of the stiffener is substantially coincident with the center line of the package.

2. The package of claim 1 wherein the walls of said compartment comprise a first sheet of substantially planar, heat-sealable material and a second sheet of the same or different, substantially planar, heat-sealable material.

3. The package of claim 2 wherein the compartment is defined by selective heat-sealed areas between said first and second sheets.

4. The package of claim 1 further comprising:

(a) an outlet in at least one of said compartment walls; and

(b) a cover having a coating of pressure-sensitive adhesive covering said outlet.

5. The package of claim 4 in which the outlet comprises a separate and discrete portion of the sheet, attached to the sheet by at least one relatively small bridging attachment.

6. The package of claim 5 in which the separate and discrete portion is substantially circular and is attached to the sheet by two relatively small bridging attachments at the top and the bottom of the outlet.

7. The package of claim 1 wherein said stiffener is attached to one of said compartment walls, and wherein said compartment walls extend equidistantly beyond said stiffener.

8. The package of claim 4 wherein said cover extends across the entire package.

9. A rectangular package of claim 1 comprising:

(a) a hermetically sealed compartment having compartment walls of heat-sealable, flexible material, said compartment adapted to contain a spreadable material; and

(b) a relatively narrow stiffener in that the width of the stiffener is less than that of the package attached to at least one wall of said compartment and having its longer dimension parallel to the longer dimension of the rectangular package, wherein said compartment walls extend equidistantly beyond said stiffener.

10. The package of claim 1 wherein the stiffener is paper having a thickness of about 5 to about 20 mils.

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LAWRENCE CHARLES, *Primary Examiner.*

U.S. Cl. X.R.

206—56; 222—107; 229—66