Jan. 5, 1965 D. A. SANNI 3,164,695

DISPOSABLE PACKAGES

Filed Oct. 9, 1961 2 Sheets-Sheet 1

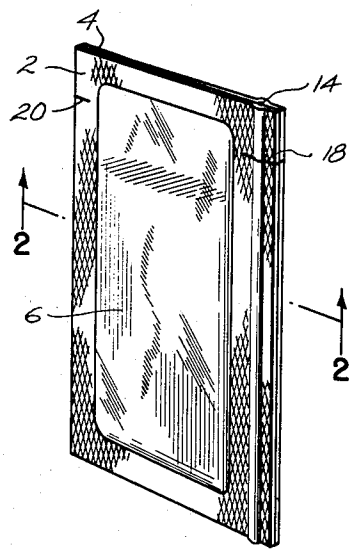


FIG. 1

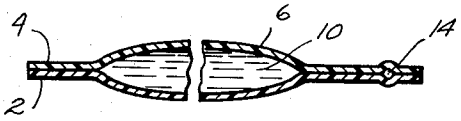


FIG. 2

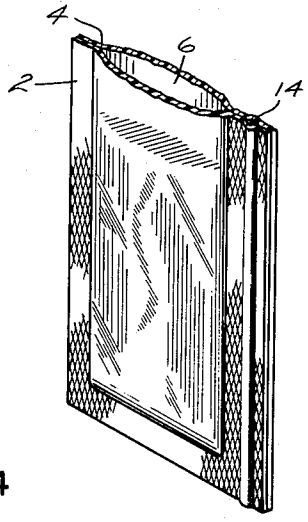


FIG. 3

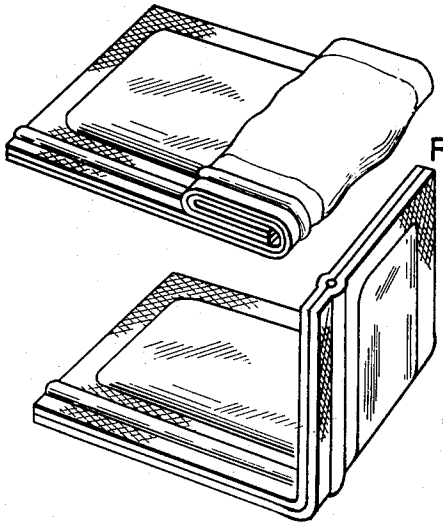


FIG. 4

FIG. 4a

INVENTOR.
DOMINIC A. SANNI
BY
Mangan, Arnbuch & Pandisco
ATTORNEYS

Jan. 5, 1965 D. A. SANNI 3,164,695

DISPOSABLE PACKAGES

Filed Oct. 9, 1961 2 Sheets-Sheet 2

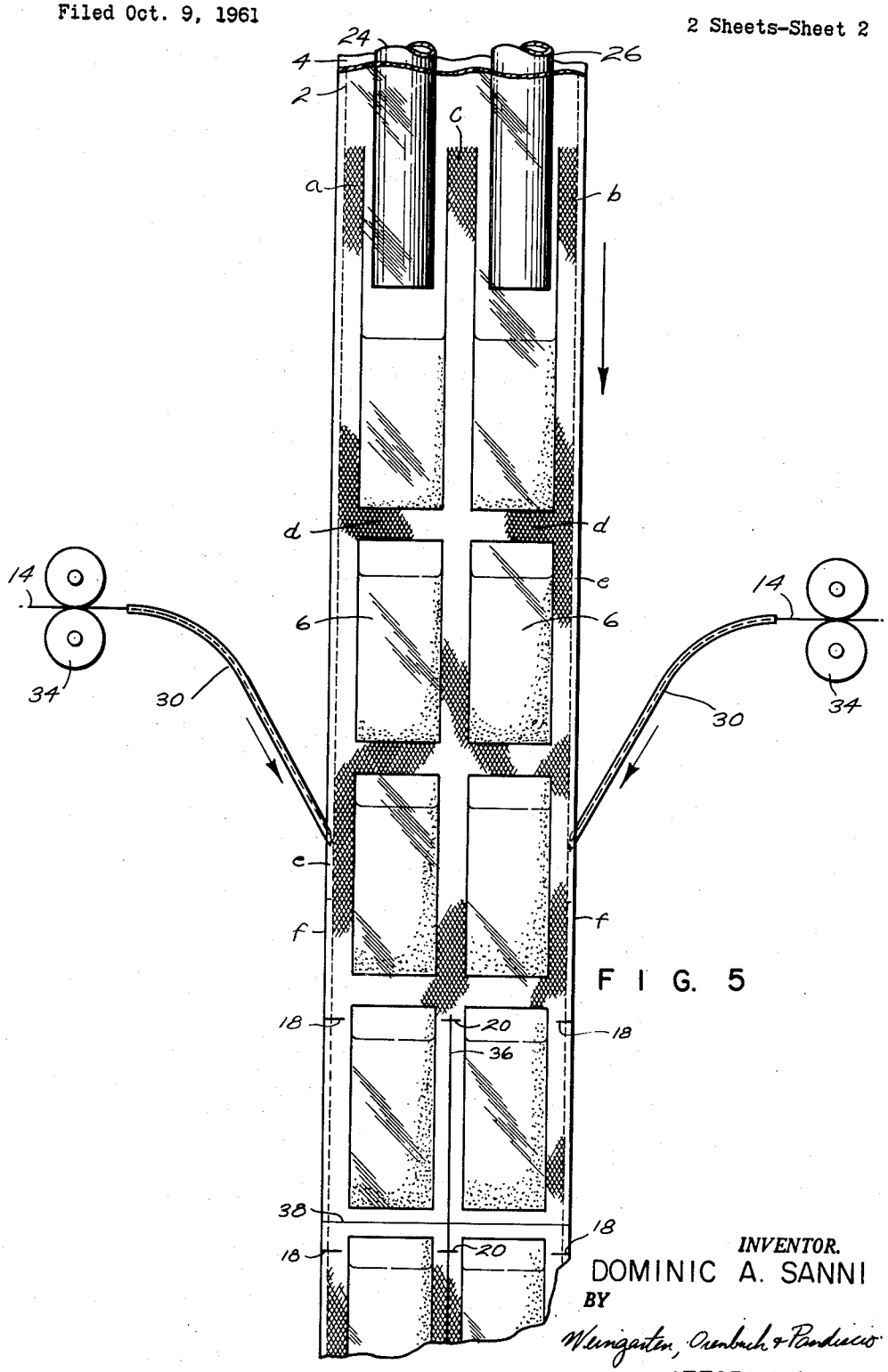


FIG. 5

INVENTOR.
DOMINIC A. SANNI
BY
Weingarten, Oxenbach & Pandiscio
ATTORNEYS

United States Patent Office

3,164,695

Patented Jan. 5, 1965

3,164,695

DISPOSABLE PACKAGES

Dominic A. Sanni, 31 Ledgetree Road, Medfield, Mass.

Filed Oct. 9, 1961, Ser. No. 143,753
2 Claims. (Cl. 206—56)

This invention relates to the art of high-speed packaging and more particularly to disposable, flexible packages containing fluid commodities such as ketchup, mustard, and the like.

In recent years, there has been introduced an assortment of small disposable single-service foodstuff packages which are formed from webs of paper, cellophane or plastic, and which contain diverse products such as sugar, salt, pepper, mustard, and ketchup. While the packages which have contained solid or granular commodities have gained wide acceptance, the packages which contain liquid commodities such as ketchup and mustard have not been as widely accepted because they are messy to use. These packages generally are rectangular in shape and consist of two layers of packaging material which are secured together at their edges so as to form a pouch therebetween in which the liquid commodity is contained. Generally, the pouch is opened by tearing it at a corner or across the top. Although mustard and ketchup are viscous, the have a great tendency to leak out of the opened package when it is laid to rest on a dish or other surface. Needless to say, this is quite messy and unsightly.

The object of the present invention is to provide a new and improved package for liquid commodities having means for sealing off the package after its contents have been partially consumed, whereby to avoid leakage.

A more specific object of the present invention is to provide a package for fluid commodities formed of a resilient non-porous material which can be torn open for use and can thereafter be resealed so as to avoid leakage of unused contents.

A further specific object of the present invention is to provide a novel method of manufacturing a sealed, fluid-containing package having means for reclosing the package after it has been partially used.

Other objects and many of the attendant advantages of the present invention will become more readily apparent as reference is had to the following detailed specification when considered together with the accompanying drawings wherein:

FIG. 1 is a perspective view of a fluid-containing package embodying the present invention;

FIG. 2 is a fragmentary sectional view taken along line 2—2 of FIG. 1;

FIG. 3 is a perspective view similar to FIG. 1 showing the package after it has been opened;

FIG. 4 illustrates one way that the opened package of FIG. 3 may be reclosed so as to prevent leakage of its contents;

FIG. 4A illustrates another way of reclosing the package so as to prevent leakage; and

FIG. 5 illustrates how the package of FIG. 1 is manufactured.

It is to be understood that the packages which embody the present invention may be made of various commercially available materials. These materials may be transparent, translucent or opaque. Among the materials which are suitable for use in fabricating the package are polyethylene film, cellophane provided with a protective coating such as polyethylene and other plastic materials which are impervious to fluids and which are not easily ruptured. In the practice of this invention, it is preferred to use either polyethylene sheeting or cellophane having a polyethylene coating thereon.

Referring now to FIG. 1, a package embodying the

present invention will generally have a rectangular shape and will be formed of two layers, **2** and **4**, of flexible, non-porous, relatively high strength material. Preferably, this material comprises an inner layer of polyethlyene and an outer layer of cellophane, the two layers forming a transparent or translucent laminate. The two sheets **2** and **4** are secured together at their four margins, thereby forming a pouch identified generally at **6** in which a commodity **10** such as ketchup or mustard may be contained. To the extent already described, the package of FIG. 1 is old.

The present invention consists of providing wire **14** along one side margin of the package. The wire **14** is captivated between the two sheets **2** and **4** in such a manner that it will not come loose. The wire **14** may be made of a suitable material which can be bent and which will retain its bend until forced to a new configuration. The wire will extend for the length of the package. Preferably, but not necessarily, the wire is cut in two by a slit **18** in the sealed side margin. Preferably also, a second slit **20** is provided in the opposite side margin. The two slits are located close to one end of the package (hereinafter identified as the "top end") and terminate short of the pouch **6**. These slits facilitate use of the package.

When the package is to be used, its top end is torn off along the slits **18** and **20**, leaving the package in the condition illustrated in FIG. 3 with the pouch **6** open for dispensing of the commodity **10** contained therein. After the package has been used, it is reclosed so that any unused commodity **10** will not leak out. This is done simply by rolling up the open end of the package, as illustrated in FIG. 4, or by simply bending the open end over at a sharp angle to the rest of the package, as shown in FIG. 4A. The wire **14** will bend quite easily. However, once the wire is bent, it will tend to remain in its bent position. As a consequence, the wire will prevent the package from unrolling or unbending back to the open condition illustrated in FIG. 3, thereby preventing the contents from escaping.

Of course, the package need not have two slits **18** and **20**. One slit will suffice. Either slit may be retained, in which case the top end of the package probably will not be torn off completely but only to the opposite side margin. In other words, the top end will remain attached to the bag at one side margin.

FIG. 5 illustrates how the package of FIG. 1 may be manufactured two at a time.

In manufacturing the package, two continuously movings webs **2** and **4** of flexible laminar material of the type described previously in connection with FIG. 1 are caused to travel downward around a pair of filling tubes **24** and **26**. As the two webs pass the filling tubes **24** and **26**, they are acted on by a pair of opposed longitudinal heated sealing rolls (not shown) which seal the two webs adjacent their edges and also along their center lines so as to form two tubular sections into which liquid commodity can be discharged by the filling tubes. The two longitudinal edge seals are shown at *a* and *b* and the center line seal is shown at *c*. After the webs pass below the two filling tubes, they travel between a pair of opposed heated transverse sealing rolls (not shown) which are located below the filling tubes and which form a series of evenly spaced transverse seals *d*. As each transverse seal *d* is formed, measured charges of commodity **10** are discharged into the two tubular sections through the two filling tubes **24** and **26**. Successive transverse seals transform the two tubular sections into two series of discrete pouches **6** in which the discharged commodity is captivated.

At this point it is to be observed that the longitudinal seals *a* and *b* and the transverse seals do not extend out to the edges of the two webs. As a consequence the webs

are left with a discrete, unsealed, longitudinally extending area *e* along each edge. Disposed between the edges of the two webs at each area *e* are identical curved hollow guide tubes **30**. Each hollow tube acts to guide an endless strand of wire **14** which is fed by a pair of drive rolls **34** at the same surface speed as the webs. The guide tubes **30** guide the wires **14** in between the two webs at the unsealed areas *e*. It is to be noted that only the discharge ends of the two guide tubes **30** extend into the areas *e* so as not to impede movement of the two webs. At a point just below where wire **14** is inserted, the two webs pass between additional heat longitudinal sealing rolls (not shown) which seal together their adjacent edges as indicated at *f*. Seals *f* lock the wires **14** in place between the two webs.

Thereafter the series of pouches passes through a first knife section (not shown) which makes the slits **18** and **20**, then through a second knife section which slits the center seal along its center line as shown at **36**, and thereafter through a third knife section which covers the webs along the center lines of the transverse seals *d* as shown at **38**, each transverse cut forming a pair of identical packages having the construction shown in FIG. 2. The knife section which forms slits **18** must act with sufficient force to sever the wire **14**.

It is to be noted that the guide tubes **30** do not extend parallel to the edges of the webs; instead they come in at an angle, preferably in the range of 30°, which will tend to force wires **14** up against the seals *a* and *b*. This is necessary in order not to hamper production of seals *f*. Otherwise, the wires will not feed in properly and will not be captivated properly. By controlling infeeding of wires **14** and by properly dimensioning the widths of seals *a*, *b* and *f*, the wires captivated in each package will be held tight and will not tend to shift longitudinally.

It is to be observed that it is not necessary to make the transverse seals *d* before inserting the wires **14** between the edges of the webs. Instead, it is possible to insert the wires beforehand, just after making the longitudinal seals *a* and *b* or contemporaneously therewith. In the latter case the wires would not be fed in via guides **30** but would be introduced by means of other guides arranged above the sealing rolls which make seals *a* and *b* and also the rolls which make transverse seals *d*. However, in order to prevent the wires from wandering, the secondary longitudinal seals *f* are made contemporaneous with seals *a* and *b*. In this way, seals *f* are formed as close as possible to the point of entry of the wires. Otherwise, the wires will not be held snugly and their cut-off sections will tend to slip axially in the packages. This is not only untidy in appearance, but it also is dangerous since a person handling the packages may be injured by the projecting end of a wire.

Of course, it is not necessary for the packages to be made two at a time as just described. Instead, they may be made one by one. However, since costs are directly affected by the rate of production, it is preferred to make the packages two at a time. It is to be observed that if the packages are made one by one, they need not be made from two separate webs but can be made from a single web folded longitudinally. The wire **14** would be captivated along the single longitudinal seal that is formed.

While wire **14** may be made of a variety of materials, it is preferred that it be made of a non-corrosive material such as dead soft aluminum.

One of the outstanding advantages of the foregoing method is that it does not require construction of a machine which is entirely new. Instead, it is possible to modify a conventional liquid bagging machine. The modifications required to be made to a conventional bagging machine are relatively small, for the most part consisting of the means for feeding wires **14** at the same linear speed as the packaging material, sealing rolls adapted to make seals *a*, *b* and *f*, and a heavy duty knife capable of severing wire **14**.

Although the primary object of the invention is to eliminate a leakage problem attendant to packages containing liquid food commodities such as ketchup, mustard and the like, it may be used in connection with packages for other liquid such as lubricating oils, chemicals, drugs, cosmetics, etc. Moreover it may also be embodied in packages containing free-flowing granular or powdery commodities such as powdered foods, medicines and cosmetics. Accordingly, as used herein, the term "fluid" shall be understood to include not only liquids and viscous masses but also free-flowing powders and granular materials.

Obviously, many modifications and variations of the present invention are possible in the light of the above teachings. It is to be understood, therefore, that the invention is not limited in its application to the details of construction and arrangement of parts specifically described or illustrated, and that within the scope of the appended claims it may be practiced otherwise than as specifically described or illustrated.

What is claimed is:

1. A sealed commodity package comprising rectangular front and rear walls sealed together along their edges to form a sealed pouch, said package containing a fluid commodity within said pouch and a single bendable bend-retaining wire, said wire captivated between said walls in the seal along one edge thereof, said wire extending for the full length of said one edge, and an edge slit extending across said seal and dividing said wire into two discrete pieces, whereby to facilitate tearing open one end of said package to permit dispensing of said fluid commodity.

2. A sealed commodity package comprising rectangular front and rear walls of heat-sealable fluid-impervious material secured together by top and bottom edge seals and opposite side edge seals so as to form a pouch, a fluid commodity within said pouch, said package containing a single bendable bend-retaining wire, said wire extending along and captivated in one of said side edge seals, said one side edge seal being partly slit at a predetermined location, said slit dividing said wire into one relatively long piece and one relatively short piece, whereby (1) to facilitate opening said package by tearing off one end along a line starting with said slit and (2) to permit the opened package to be reclosed by bending back said walls and said relatively long piece of wire.

References Cited in the file of this patent

UNITED STATES PATENTS

1,960,232	Corbe	May 29, 1934
2,329,360	Salfisberg	Sept. 14, 1943
2,347,509	Salfisberg	Apr. 25, 1944
2,490,057	Irmscher	Dec. 6, 1949
2,760,629	Thagard	Aug. 28, 1956
2,923,404	Adell	Feb. 2, 1960
2,946,434	Brina	July 26, 1960

FOREIGN PATENTS

1,221,819	France	Jan. 18, 1960