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3,311,288
ENVELOPE ASSEMBLY
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 7 Claims. (Cl. 229-65)

This invention relates to a packaging assembly and method for producing same and is a continuation-in-part of my copending application Ser. No. 515,014 filed on June 28, 1955, now Patent No. 2,846,936 and entitled Welding Techniques.

It is a primary object of this invention to provide a new and improved package made, at least in part, of thin sheet material.

Another object is to provide an improved flexible walled package which may be easily opened.

Another object is to provide apparatus and a method for automatically producing a packaging of this invention.

Another object is to provide an improved packaging assembly including a bag for retaining a fluent product to be selectively removed therefrom with means for selectively opening and closing the bag attached to the bag in a manner permitting its rapid operation without loss.

Another object is to provide a bag for retaining a plurality of articles or solid fluent material, only part of which is generally dispensed the first time said bag is opened, and simple means for effecting a tear opening in a wall of said bag of a desired length for dispensing said material whereby the ability of said bag to retain the remainder of the material is not destroyed.

Still another object is to provide a means for substantially reducing the thickness of a line portion of a wall of a bag or envelope whereby it may be easily severed along said line when a tear member is pulled transversely thereto yet whereby the wall of said container is not substantially weakened thereby and its ability to retain material is not decreased.

With the above and such other objects in view as may hereafter more fully appear, the invention consists of the novel constructions, combinations and arrangements of parts as will be more fully described and illustrated in the accompanying drawings, but it is to be understood that changes, variations and modifications may be resorted to which fall within the scope of the invention as claimed.

FIG. 1 is a partial side view of a container assembly made in accordance with the teachings of this invention;

FIG. 2 is a partial end view in cross section of the upper portion of the container of FIG. 1;

FIG. 3 is an end view of the container of FIG. 1 having a product retained thereby;

FIG. 4 is a partial side view of a modified form of the invention.

There is shown in FIGS. 1 to 3 a structure in a packaging assembly 10 including an envelope 11 preferably made of plastic film and shown in its flat condition prior to insertion of a product therein. The envelope 11 may be made of such plastics as polyethylene, polypropylene, cellulose acetate or the like or laminates of these materials and has side walls 12 and 13 integrally joined or sealed along side borders 15 and 16 and the bottom of the envelope. The envelope 11 is open along the top border 18 thereof through which opening a product such as nuts, potato chips or most any food or other fluent material may be dispensed.

Secured to the wall 13 is a section of a strip assembly 19 comprising a flat strip 20 of plastic within which is provided a bendable wire 21 made of any suitable soft metal such as copper, aluminum or low carbon steel. The strip 19 is shown secured to wall 13 by means of a plu-

rality of line or spot heat seals W1 and W2 shown disposed along plastic strip 20 at both sides of the wire 21 near the central portion of said strip. However, the end portions 19a and 19b of the strip 19 are not sealed to wall 13 and are free to be wrapped around the neck of the bag as shown in FIG. 3 and twisted around each other to define an easily openable closure.

It is noted that bendable wire and wire in paper strip closure means have been used to retain the necks of bags closed by being twisted therearound but suffer a number of shortcomings which the attached closure means of FIGS. 1 to 3 overcomes. Firstly, by using the attached closure means described, the attached bendable strip is provided prepositioned on the bag and may be easily used to effect closure. Secondly, in use, the possibility of losing or misplacing the closure when the bag is opened for dispensing part of the contents, is eliminated. Thirdly, sealed containers may be provided in which the closure is not applied until the seal is broken after which the user may easily apply the closure to reseal or reclose the bag without difficulty since the closure means is prepositioned.

A number of variations in the packaging assembly of FIGS. 1 to 3 are noted. The strip 19 is shown centrally disposed along wall 13 and has a length shorter than said wall. While for most applications such a dimensional structure will suffice, the length of the strip 19 will depend on the manner in which it is desired to close the bag which is a function of convenience to the user and the width of the neck of the bag. For narrow necked bags, it may be desirable to have the strip 20 extend beyond the side borders of the bag.

The strip 20 may be produced by extrusion in which wire 21 is encapsulated or extruded in said strip or may be formed by laminating and heat sealing two thermoplastic strips against a bendable wire fed therewith.

Strip 20 may also comprise other materials such as paper, aluminum foil, etc. or laminates of these with plastic. If paper, it may be a folded or stitched strip containing the wire and fastened to a short section of wall 13 as shown by any suitable means. If aluminum foil, said strip 19 may be used per se or contain bendable wire and may be welded to an aluminum foil or laminate thereof as shown. Laminates of foil and plastic may be heat sealed to the wall of the bag 11.

Strip 19 may be replaced by a length of bendable wire which is bonded, or welded to the wall 13 or partly encapsulated therein to retain it in assembly therewith.

The strip 19 may also be shaped or have an article such as a ring connected thereto for hanging the bag on a hook.

Shown in FIG. 4 is a packaging assembly 10' including a bag 11 for containing a fluent material or articles to be selectively dispensed therefrom. The bag 11 is entirely sealed to retain a product enclosed. A tie-strip 19 of the type described is secured as described against one wall of the bag and preferably, line heat sealed or spot welded or otherwise retained near the ends of the strip against the wall of the bag so as to retain the strip in position prior to opening the bag and winding said strip around the neck of the bag as in FIG. 3 to reclose the open end of the bag. Notations W3 and W4 refer to spot welds or bonds between the ends of the tear strip 19 and the wall 13 of the bag which welds are of such a nature that the ends of said strip may be easily removed by a simple pulling action to rupture or tear the welds so as to permit the wrapping of said strip around the neck of the bag and twisting around itself as illustrated in FIG. 3 after the bag has been opened. The strip may be so separated from the wall at its ends by pulling the portions thereof between the welds W3, W2 and W4, W2 or by pulling the ends of said strip beyond the welds W3 and W4.

Notation 22 refers to a score line or tear strip means

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as will be described hereafter for providing a tear opening across either or both walls of the bag above the tie-strip 19. Welds W1 and W2 are preferably of such a characteristic that they will not easily be torn or the strip 19 separated from the wall of the bag therealong when the strip is pulled to sever the spot bonds or welds W3 and W4.

Although the material comprising the walls 12 and 13 of the bag has been defined as polymeric plastic film, it may also comprise aluminum foil or laminates of foil and plastic or paper. If the bag walls and tie strip are both aluminum foil, they may be spot and line welded together along the areas described by pressure, ultrasonic or resistance welding means with spot welds W3 and W4 being easily rupturable or severable for the purposes described.

I claim:

1. A packaging assembly comprising a bag made of thin sheet material and having flexible side walls, said bag adapted to be opened at the top for dispensing of material therefrom, closure means for said bag comprising a thin elongated flexible member defining a tie-strip said strip being bonded to a wall of said bag near the upper end thereof so as to removably retain the end portions of said strip against the wall of said bag, said bonding being easily rupturable by lifting said end portions of said strip off the wall of said bag whereby both ends of said strip are free to wrap around the neck of said bag and attach to each other to effect closure of said bag by tying the walls of the bag together.

2. A packaging assembly in accordance with claim 1, said tie strip being made at least in part of flexible thermoplastic material and being heat sealed near its middle to a wall of said bag to preposition and retain it thereagainst.

3. A packaging assembly comprising in combination with a bag for containing a product and having thin sheet walls made of thermoplastic polymeric material, the upper end of said bag adapted to be opened for dispensing at least a portion of the product retained thereby and closure means for compressively engaging and closing the upper end of said bag comprising a thin elongated strip of polymeric plastic material having a thin bendable wire centrally secured thereto and extending along substantially the length of said strip, said strip being heat sealed along middle portions of its thermoplastic material to a portion of one wall of said bag retaining said strip in assembly thereagainst.

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4. A packaging assembly in accordance with claim 3 including means for removably retaining the end portions of said strip against the wall of said bag in a manner whereby said end portions may be pulled away from said wall and wrapped around the neck of said bag and each other to define a reusable closure therefor.

5. A packaging assembly in accordance with claim 3, said thin bendable wire being encapsulated in the central portion of said thin strip of polymeric plastic with a portion of said strip adjacent said wire being heat sealed to a wall of said bag.

6. A packaging assembly in accordance with claim 4, said means for retaining the end portions of said strip against said wall of said bag comprising spot welds between the thermoplastic portion of said strip and the wall of said bag, said welds being easily rupturable by lifting said end portions off the wall of said bag.

7. A packaging assembly comprising in combination with a multi-walled bag container for a product, the walls of said bag being circumscrimingly joined together around the border portions of said bag to seal the enclosed volume defined by the walls of said bag, a closure for closing said bag once it is opened, said closure comprising an elongated flat strip assembly including a bendable metal wire secured to said assembly and extending along substantially the entire length of the strip, the central portion of said strip being bonded to a wall of said bag near an end thereof, the end portions of said strip being respectively bonded to said wall to normally retain said strip thereagainst, the bonding of the end portions of said strip being such that said end portions may be removed from the wall thereof by pulling away from said wall to permit said strip to be wrapped around said bag for closing same after the bag has been opened.

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