This invention relates in general to a carton for shipping and dispensing a package strip of the type that has commodity compartments spaced longitudinally thereof and is separable between said compartments so that the compartments can be separated from the strip individually or in groups, as desired. Package strips of this type generally include two layers of flexible packaging material such as cellophane, rubber, hydrochloride, and mother along their longitudinal edges and transversely to form compartments between the layers in which the commodity such as tablets, powder, paste or the like is enclosed. Generally the strips or layers of packaging material are weakened in lines transverse of the strip, for example, by scoring, to facilitate separation of the packages.

The present invention especially contemplates a carton for dispensing a package strip of this character which is spirally rolled and enclosed in the carton for storage, shipping, and handling, so that the strip can be pulled longitudinally through an opening in the carton to permit the package in the leading end of the strip to be pulled from the carton and separated from the strip. The package strip usually is easily separable or breakable along the weakened zones, and desirably, the carton is so constructed as to cause a minimum of tendency toward tearing of the package strip within the carton and also to produce a minimum of resistance toward the pulling of the strip in the carton. It is also desirable that the strip shall be easily and quickly removable out of the package and yet be yieldingly held against accidental unwinding and movement out of the carton and automatic backward movement into the carton.

A dispensing carton of this general character is disclosed in United States Patent No. 2,771,214, dated November 20, 1956, and a primary object of the present invention is to provide in such a carton, novel and improved means whereby the package strip shall be yieldingly held against accidental movement out of the carton and shall also be held against automatic or unintended backward movement into the carton.

Another object is to provide a novel and improved construction and combination of a package strip and a carton whereby accidental falling or backward movement of the leading package on the strip into the carton shall be prevented.

A further object is to provide such a combination of a package strip and a carton wherein the strip and carton shall have cohesive or inter-engageable parts such as a projection on the carton and openings or recesses in the package strip into which said projection automatically enters upon backward movement of the package strip into the carton, thereby to prevent unintended or automatic backward movement of the package strip into the carton.

The objects, advantages and results of the invention will be brought out by the following description in conjunction with the accompanying drawings in which:

FIGURE 1 is a central longitudinal vertical sectional view through a combination of a dispensing carton and a package strip embodying the invention, the package strip being shown in edge elevation, illustrating the leading package of the package strip in normal position;

FIGURE 2 is a transverse vertical sectional view approximately on the plane of the line 2—2 of FIGURE 1;

FIGURE 3 is a horizontal sectional view approximately on the plane of the line 3—3 of FIGURE 1;

FIGURE 4 is a fragmentary sectional view similar to FIGURE 1 illustrating the manner of pulling the leading package of the package strip from the carton;

FIGURE 5 is a fragmentary horizontal sectional view approximately on the plane of the line 5—5 of FIGURE 4;

FIGURE 6 is a greatly enlarged vertical sectional view on the plane of the line 6—6 of FIGURE 3;

FIGURE 7 illustrates the upper portion of a combination of a carton and package strip embodying a modification of the invention, portions of the package being shown in central vertical horizontal section and other portions being shown in side elevation, showing the leading package of the package strip in normal position ready to be discharged from the carton;

FIGURE 8 is a transverse vertical sectional view approximately on the plane of the line 8—8 of FIGURE 7;

FIGURE 9 is a horizontal sectional view on the plane of the line 9—9 of FIGURE 7;

FIGURE 10 is a view similar to FIGURE 7 of a modification and showing the manner of pulling the leading package out of the carton;

FIGURE 11 is a similar view showing the manner of separating or detaching the leading package from the strip;

FIGURE 12 is a fragmentary horizontal sectional view approximately on the plane of the line 12—12 of FIGURE 10; and

FIGURE 13 is a fragmentary plan view of one end portion of the package strip removed from the carton showing the opening in the package strip between adjacent portions to effect with a portion of the carton.

For the purpose of illustrating the invention, the carton has been shown as rectangular and comprising a bottom wall 1, side walls 2, end walls 3 and a top wall 4. The bottom wall 1 may be of any suitable construction, preferably such that the bottom end of the carton can be opened and the top wall 4 is preferably also of such a nature as to permit opening and closing of the upper end of the carton to permit insertion and removal of the package strip.

The carton has within it a chamber that is rectangular in both longitudinal and transverse cross section and of such dimensions as to enclose within it a guide support A for holding and guiding a package strip B that is shown as comprising two layers of flexible packaging material such as cellophane or metal foil, sealed together along their longitudinal edges and transversely to form compartments 5 between the layers in which the commodity such as tablets 6 is enclosed. The compartments with their commodities form protuberances on and spaced longitudinally of the strip and preferably the strip is weakened as by scoring 7 between the compartments to facilitate severing of the individual packages from the strips. A guide support A is shown as inverted U-shaped in cross section and formed of cardboard or the like of the same shape and dimensions as the interior of the storage chamber in the carton and has a cut-away portion forming an outlet passage between one wall 8 and the top wall 4 through which the leading end B' of the package strip is pulled outwardly as best shown in FIGURES 1 and 3.

A guide extension 10 projects from and above said wall of the guide support and provides a rounded fold 11 or lip at the inner edge of the guide passage 9 over which the package strip must slide during its movement from the storage chamber through a discharge opening that is provided at the top of the carton.

As shown, the top wall 4 of the carton is hinged to one side wall as indicated at 12 and has a tuck flap 13 at its
swinging edge for insertion between the other side wall and the guide support A as shown in FIGURE 2. The top wall 4 is disposed at a right angle to one end wall 3 at right angles and an outlet or discharge opening 14 is provided between the juxtaposed ends of said walls through which the leading end of the package strip is withdrawn from the carton; and preferably, said end wall 3 has an inverted flap 15 that may overlie the free edge portion of the guide extension 10 as shown in FIGURE 1. Thus, when the guide support and the rolled edge of the package strip, are inserted into the storage chamber as shown in FIGURES 1 and 2, the leading end of the package strip passes through the guide passage 9 over the folded edge 11 and the guide extension 10 and thence over the flap 15 beneath the top wall 4, the folded edge reducing to a minimum any catching of the protectant components that might cause tearing of the strip within the carton, and the flap 15 providing a smooth unobstructed guide path for the packages between the top wall 4 and the end wall 3.

The guide extension and folded edge may be of various constructions, but preferably, the extension is cut out from the wall of the guide support to form the passage 9 and then folded outwardly as best shown at 10 and 10' in FIGURES 1 and 7 respectively; and in some cases the extension may be omitted as shown in FIGURES 10 and 11. Preferably, the top wall 4 has a hole 16 offset from the guide passage 9 and adjacent the discharge opening 14, through which a human finger or other member may be inserted into contact with the package strip for pushing the strip through the discharge opening. The material of which the package and the guide support are formed, and the dimensions of said parts are such that the lip 10 and flap 15 are normally biased toward the under side of the top wall 4 so as to apply friction to the package strip and thereby restrain accidental movement of the strip into or out of the carton. The package strip will be yieldingly gripped between the inner edge of the hole 16 and the inner free edge of the flap 15 so as to restrain unindented movement of the package strip outwardly or inwardly of the carton. The flap 15 and the top wall of the guide support will readily yield under pressure of the finger or the like on the package through the hole 16 so that the package can be readily pulled through the discharge opening; and the package may be torn along the edge of the top wall 4 as shown in FIGURE 11.

It will be observed that the thickness of the guide-support is slightly greater than the width of the strip so that lateral movement of the strip is limited, and in accordance with the invention, means are provided for preventing unintended or automatic backward movement of the package strip B or a similar folded strip from the outlet opening 14 into the carton; and the invention contemplates coactive elements on the strip and the carton that normally permit the strip to be pulled outwardly of the carton through the outlet opening but will coact to prevent backward movement of the strip into the carton. More particularly, the invention contemplates a plurality of openings equidistantly spaced longitudinally of the strip and at least one projection on the carton beneath which the strip may freely slide as it is pulled from the carton through the discharge opening but which will enter at least one of said openings upon backward movement of the strip and thereby limit such backboard movement of the strip.

As shown in FIGURES 1 to 6 inclusive of the drawings, the package strip A has a circular hole 17 between each two adjacent packages, preferably disposed in the corresponding line of scoring 7, and a dentet or stop member 18 is provided in the carton and has a tongue or pointed end 19 to enter any of the openings 17 as best shown in FIGURES 1, 3 and 6 and thereby prevent backward movement of the package strip into the carton. Conveniently, the dentet or stop member is formed integrally with a tuck flap 20 that is disposed on the end wall 3 opposite to that which the flap 15 is attached so that the flaps cooperate to hold the guide-support against the strip inwardly. It will be observed from FIGURE 1 that as the end portion of the package strip is withdrawn from the spiral coil and pulled through the outlet opening 14, an intermediate portion B' of the strip inwardly of the guide extension 10 is downwardly inclined normally beneath the stop member 18 between the end 19 of the stop member and the guide extension 10, and the end of the stop member normally yieldingly frictionally engages said portion B' of the strip as shown in FIGURE 4. The end of the stop member is normally so related to the top portion of the carton and the package strip that it will be disposed in the opening 17 of the strip that is disposed between the leading package and the next package as best shown in FIGURE 3, and any tendency of the end portion of the strip to spring or slide rearwardly into the carton is prevented by engagement of the stop member with the edges of the opening 17 as shown in FIGURES 1, 3, and 20. When the package strip is pulled forwardly to remove a package, the tongue will be lifted out of the opening and the strip will slide beneath the tongue as shown in FIGURE 4; and whenever a package is torn from a package strip as shown in FIGURE 11, the stop member will be disposed in an opening 17 to hold the strip against backward movement.

To facilitate the coaction of the stop member and the package strip, preferably the inner edge portion of the wall at the inner end of the passage 9 and a portion of the guide extension 10 are provided with aligned notches 21 and 22, respectively, beneath the pointed end 19 of the stop member, the notches permitting yielding or flexing of the package strip so that the point 19 may easily enter into the opening 17 when the opening is disposed beneath the stop member and in register with said notches. It is also desirable in some instances to provide the ability of the guide extension intermediate its length, and for this purpose, the extension may be folded along a transverse line 23 parallel with the fold that connects the extension with the wall of the guide-support. This extra flexibility and the corresponding spacing of the guide extension from the guide-support wall as indicated at 24 permits the package strip to be pushed laterally inwardly by a finger inserted through the hole 16 in the top wall so as to disengage the package strip from the stop member and permit the package strip to be pushed rearwardly into the carton without hindering the carton structure when that is desired, for example, as shown in FIGURE 4.

The combination of a dispensing carton and a package strip that is shown in FIGURES 7 to 13 inclusive is in general the same as that herebefore described, the main differences between the two combinations being that in the construction shown in FIGURES 7 to 13, an elongated slot 25 is formed between each two adjacent packages instead of the round openings 17, and the stop member 18' has a chisel-like end 19' to enter any of said slots 25 as best shown in FIGURE 9. The end of the stop member has shoulders 26 at opposite sides of the chisel-like portion 19' to about the package strip at opposite ends of the slot 25 and thereby prevent backward movement of the package strip into the carton.

The operation of both forms of the invention preferably will be understood from the drawings, it may be pointed out that the package strip first will be rolled or folded and inserted into the guide-support A as shown in FIGURES 1 and 2, whereupon the top wall 4 of the carton and the flap 15 will be opened and the guide-support with the package strip be inserted into the storage chamber of the carton. Then the leading end of the package strip will be pulled outwardly over the guide extension 10 and the flap 15 and the stop member flaps 20 and 20' will be swung inwardly over the leading end portion of the package strip, wherupon the top
wall 4 will be swung into closed position with the tuck flap 13 between the side wall of the guide-support and one side wall 2 of the carton. Initially, the leading package will be disposed beneath the hole 16 and the stop member 18, 19 will project through the opening 17 or 25 between the leading package and the next package. Thus the leading end portion of the package strip will be prevented from slipping back into an inaccessible position in the carton. To discharge the package, a finger of the lid 5 is inserted through the hole 16 and gently pressed against the package strip as shown in FIGURE 4, and at the same time, the strip is pushed by the finger through the opening 14 until a scored zone 7 is aligned with one edge of the discharge opening 14. Thereupon the protruding package B" is torn along the weakened zone as shown in FIGURE 11. When the pressure is released from the package strip, the end portion of the strip will be pressed upwardly from the position shown in FIGURE 4 to the position shown in FIGURE 1 by the extension 10 and the flap 15 to hold the strip against movement out of the outlet opening, and at the same time, pressure will be exerted between the package strip and the stop member 18 or 18' so as to cause the end of the stop member to enter one of the openings 17 or 25 as shown in FIGURES 1, 6 and 7, whereby the end portion of the package strip is positively locked against undesired or automatic movement backwardly into the carton. Should the package strip be accidentally pulled out too far, it may be pushed backwardly into the carton by simply pressing the package strip and the extension 10 inwardly or downwardly as shown in FIGURE 4 to disengage the package strip from the stop member and thus permit the strip to slide freely rearwardly along the stop member into the carton. Also, simple pressure on the strip through the top wall 4 will facilitate engagement of the stop member 18 with the opening 17 or 25, if that is desired.

While two embodiments of the invention have been shown, it should be understood that this is primarily for the purposes of illustrating the principles of the invention and that modifications and changes may be made in the structural details of the carton and of the package strip within the spirit and scope of the invention. For example, the strip could be zig-zag folded and the stop members and the corresponding openings in the package strip can be differently shaped and arranged in different locations in the carton and on the strip, respectively.

We claim:

1. A package including a thin, flexible continuous pack strip folded into a plurality of layers and including a plurality of sections spaced apart longitudinally of the strip each containing a commodity, said strip having openings between said sections, and a carton having a bottom wall, side walls, end walls and a top wall providing a chamber in which said folded package strip is enclosed, one of said end walls and said top wall being disposed at a right-angle to each other and each having an end spaced from an end of the path providing an outlet opening between said ends through which said package strip must move forwardly out of the carton, a guide support in said chamber having a wall under-lying said top wall providing an outlet passage between them leading to said outlet opening, said wall of the guide support having a guide lip in spaced relation to said outlet opening at the inner edge of the said outlet passage over which said package strip must move out of said chamber through said outlet passage, and a stop member on one of said walls overlying said package strip with the package strip between said stop member and said lip of the guide support wall, said stop member being yieldingly biased into contact with said strip and having a portion to enter one of said openings in the package strip upon movement of the strip backwardly from the outlet opening, thereby to prevent such backward movement of the strip into said chamber.

2. A package as defined in claim 1 which is made of cardboard having some inherent resiliency and wherein said stop member comprises a flap on the other end wall pressed against the package strip by the inherent resiliency of the flap, and said flap has its free end pointed to enter said openings in the package strip.

3. A package as defined in claim 1 wherein said stop member comprises a flap swingably mounted on the other end wall having a portion to enter one of said openings and said top wall is flexible and overlies said flap providing for pressing of said flap toward said lip of the guide support wall into position to engage said openings upon application of external pressure on said top wall.

4. A package as defined in claim 3 wherein the inner edge portion of said wall of the guide support and said lip are notched to permit yielding of said strip under the pressure of said flap to facilitate entry of said portion of said flap in said openings in said strip.

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