April 23, 1968 N. J. PILGER 3,379,364

PACKAGE MEANS

Filed July 7, 1966 2 Sheets-Sheet 1

FIG-1

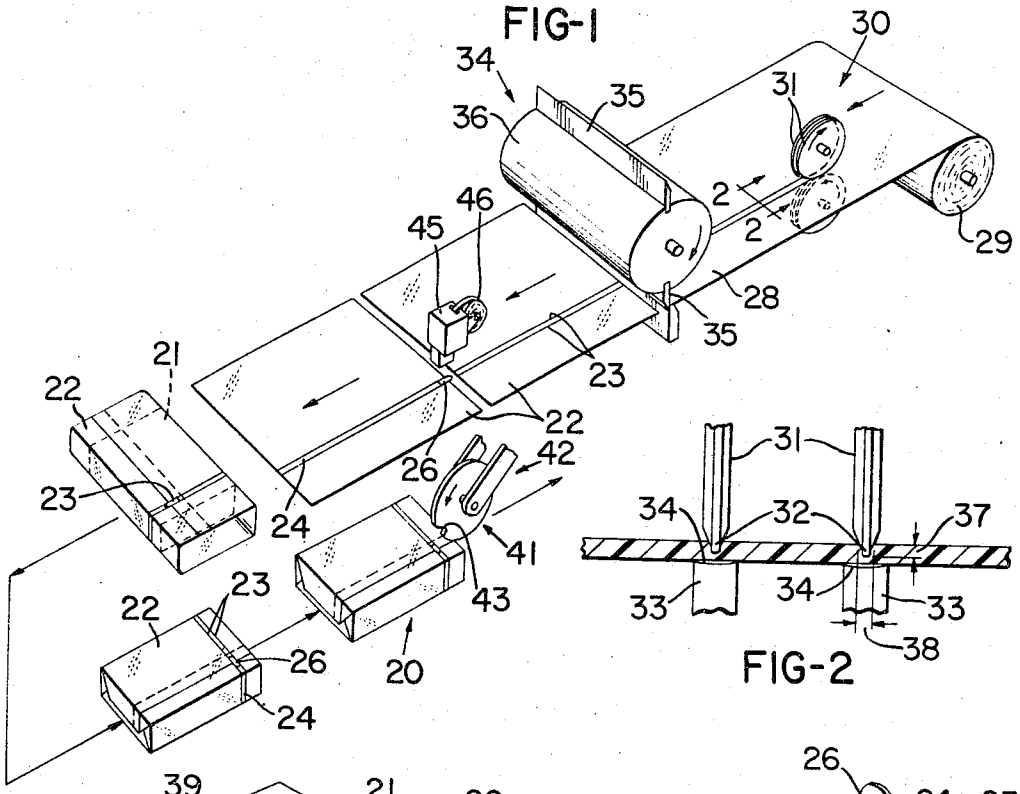


FIG-2

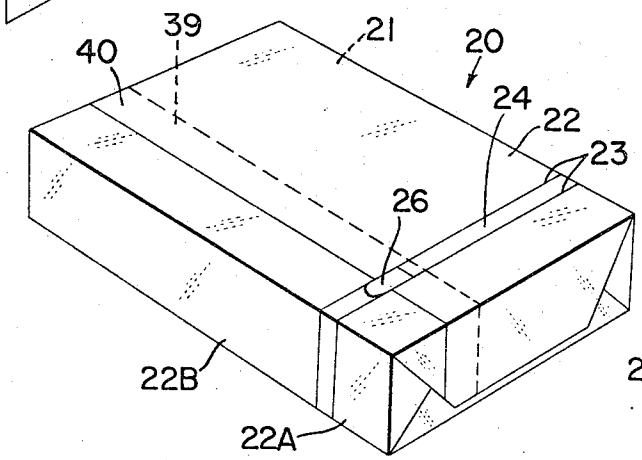


FIG-3

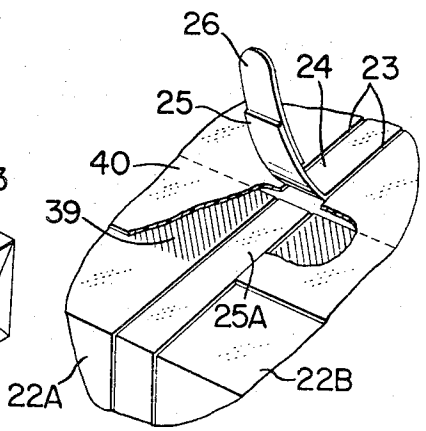


FIG-4

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PACKAGE MEANS

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FIG-5

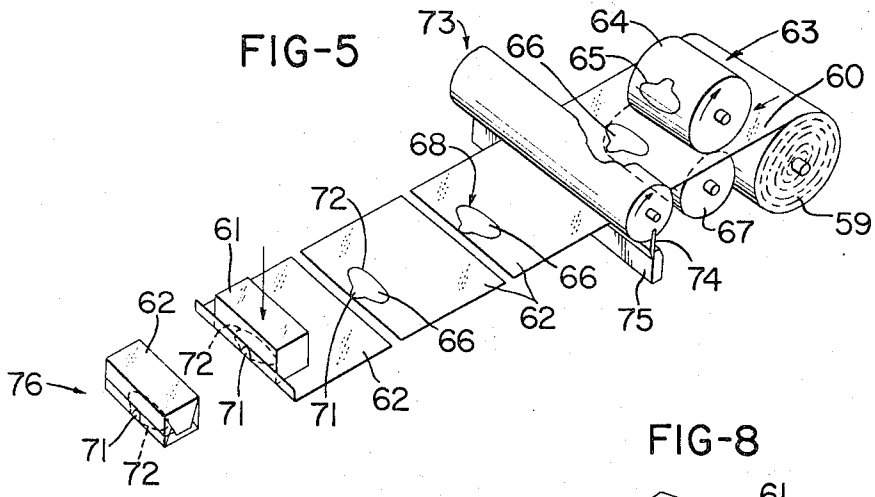


FIG-8

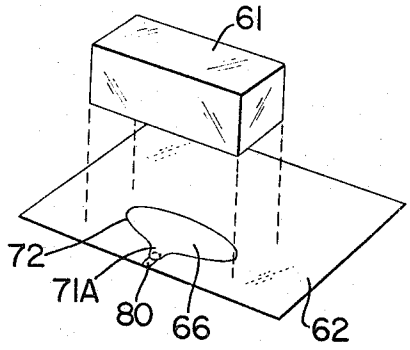


FIG-6

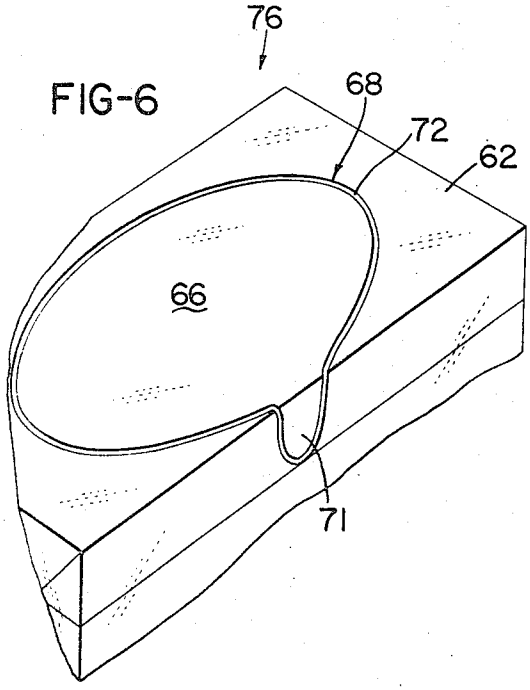


FIG-9

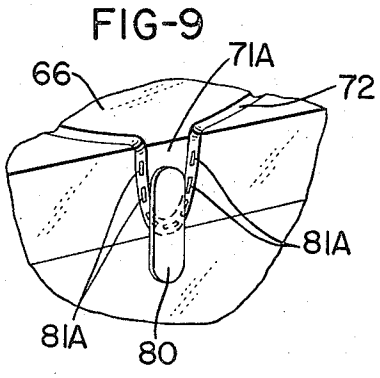


FIG-7

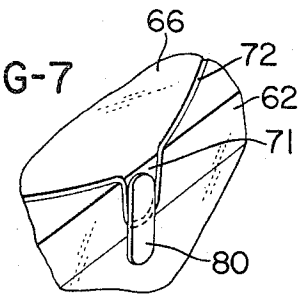
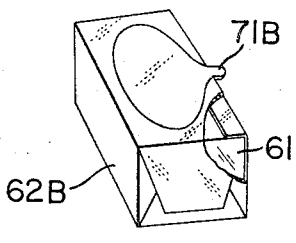


FIG-10



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United States Patent Office 3,379,364
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3,379,364

PACKAGE MEANS

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Filed July 7, 1966, Ser. No. 563,420
3 Claims. (Cl. 229—87)

ABSTRACT OF THE DISCLOSURE

This disclosure relates to a package construction comprising a plastic overwrap material used to define exterior surface means and having score means in such plastic overwrap material to define an integral controlled configuration tear-out strip therein which is readily torn out to open the package construction.

This invention pertains to packaging means and more particularly to improved packaging means having easy-open overwrap means and to an improved method of making such improved packaging means.

Many packages in current use employ an overwrap made of plastic. Such overwrapped packages generally have increased durability and thus provide better protection for the contents of such packages; however, such plastic overwraps are generally very difficult to open. This difficulty is brought about because it is not a simple matter to grasp and/or effectively tear a portion of such plastic overwrap which will permit it to be easily removed. Many packages on the market employ a separate individual strip of material which is arranged under the plastic overwrap and has an end portion extending therefrom to enable the plastic overwrap to be torn. Other packages are of the type which depend upon considerable deformation of the package in order to snap open such package along perforations or the like provided therein. The former of these techniques is of course expensive and requires additional equipment to achieve a relatively simple objective. The second of these is not adaptable or capable of being used on comparatively rigid container means of the type, for example, that would contain products which cannot be mashed, bent, or otherwise deformed. It has also been proposed to tear open plastic overwraps in current packages relying on the structure of the plastic overwrap to assure that the tear is provided as desired. This latter proposed technique results in uncontrolled tearing and often results in merely a small fragment being torn out of a plastic overwrap requiring that the user of the package resort to other means to tear away the overwrap to enable the package involved to be opened.

Accordingly, it is a feature of this invention to provide an improved plastic overwrap for container means which is economical and easy to use.

Another feature of this invention is to provide an improved plastic overwrap for container means which does not require separate materials to achieve easy tearing thereof.

Another feature of this invention is to provide an improved overwrap of the character mentioned having means as an integral part thereof enabling easy grasping and controlled separation or tearing of such overwrap.

Another feature of this invention is to provide controlled depth score means in a thin web of plastic material adapted to be used as an overwrap, in which said score means defines a tear-out strip which is easily grasped using grasping means in an end portion thereof and pulled to provide controlled separation of such plastic material.

Another feature of this invention is to provide controlled score means in a plastic material adapted to be

used as an overwrap for rigid container means in which such score means can be formed and arranged in any desired manner and to define any desired configuration to define a tear-out strip, whereby upon grasping a portion of such tear-out strip and pulling an opening is provided in the plastic material which is controlled as defined by such score means.

Another feature of this invention is to provide a plastic material having score means therein arranged to define a tear-out strip having a tab portion as an integral portion thereof which is easily grasped to provide easy controlled tearing of such tear-out strip.

Another feature of this invention is to provide an improved method of economically providing a tear-out strip as an integral part of a thin plastic material adapted to be used to overwrap substantially rigid container means.

Another feature of this invention is to provide an improved method of economically providing such a tear-out strip having pull tab means as an integral part of such tear-out strip to enable easy grasping and pulling.

Another feature of this invention is to provide an improved method of providing a tear-out strip in a plastic sheet having any desired configuration therein by employing a heated score-forming device to provide score means in such sheet and thus enable controlled tearing of a section as determined by such score means.

Another feature of this invention is to provide an improved easy-open package utilizing a thin plastic material having the improved features described above for overwrapping substantially rigid container means.

Another feature of this invention is to provide a unique method of forming an overwrapped package which is easily opened.

Another feature of this invention is to provide an improved method of making such an improved package in which the score means provided in such plastic material used as an overwrap is uniquely arranged to provide a tear-out strip which is easily grasped and torn.

Therefore, it is an object of this invention to provide an improved easy-open plastic overwrap material adapted to be used wtih substantially rigid container means and a method of making such improved easy-open plastic overwrap material having one or more of the novel features of this invention as set forth above or hereinafter shown or described.

Another object of this invention is to provide an improved package and an improved method of making such package using such improved easy-open plastic overwrap material.

Other objects, uses, and advantages of this invention are apparent from a reading of this description which proceeds with reference to the accompanying drawings forming a part thereof and wherein:

FIGURE 1 is a composite perspective view with parts shown schematically and in elevation illustrating a web of plastic material being suitably scored and cut to define sheet means having an integral tear-out strip and showing such sheet means being overwrapped and heat sealed about rigid container means to define an improved package having easy-open outer surface means.

FIGURE 2 is an enlarged sectional view on the line 2—2 of FIGURE 1 particularly showing the action of heated score-forming roll means used to define a tear-out strip in the plastic material.

FIGURE 3 is an enlarged perspective view of the improved package of FIGURE 1.

FIGURE 4 is an enlarged perspective view of a fragmentary portion of the package of FIGURE 3 illustrating the arrangement of the tear-out strip and pull tab means fixed to a terminal end portion of such tear-out strip.

FIGURE 5 is a composite perspective view similar to

FIGURE 1 showing a web of plastic material being suitably scored and cut to define sheet means having score means within the central portion of such sheet means defining a tear-out strip of roughly pear-shaped configuration having an integral U-shaped grasping portion which is cut through about the periphery thereof and showing a rigid container being overwrapped so that the major portion of the score means lies in one side wall and the U-shaped grasping portion lies in an adjoining side wall.

FIGURE 6 is an enlarged fragmentary perspective view of the completed package of FIGURE 5 particularly showing the arrangement of the score means and U-shaped portion.

FIGURE 7 is an enlarged fragmentary view similar to FIGURE 6 showing separate tab means fastened to the U-shaped portion.

FIGURE 8 is a perspective view illustrating a rigid container being placed on sheet means similar to the sheet means of FIGURE 5 in which the U-shaped portion has spaced apart cuts coinciding with the outline thereof and separate tab means fastened to such U-shaped portion for easy grasping and pulling of the associated pear-shaped tear-out strip.

FIGURE 9 is an enlarged fragmentary perspective view similar to FIGURE 7 showing the arrangement of the separate tab means of FIGURE 8.

FIGURE 10 is a fragmentary perspective view illustrating another embodiment of a package construction using sheet means defining the outside layer thereof having a projecting U-shaped grasping portion associated with tear-out strip means in such sheet means.

While the various features of this invention are hereinafter illustrated and described as being particularly adaptable for providing improved package means and methods of making such improved package means for products which are normally carried in comparatively rigid container means, for example, food products, facial tissues, cigarettes, or the like, it is to be understood that the various features of this invention can be utilized singly or in any combination thereof to provide improved package means for other uses as desired.

Therefore, this invention is not to be limited to only the embodiments illustrated in the drawings because the drawings are merely utilized to illustrate one of the wide variety of uses of this invention.

In the exemplary embodiment of this invention illustrated in FIGURES 1–4 an apparatus for and method of providing integral score means in a thin plastic overwrap material defining tear-out strip means is shown. Improved package means or package **20** and the improved method of forming package **20** having such plastic overwrap material forming the outside surface thereof are also illustrated. The tear-out strip means defined by such score means is easily grasped and pulled to provide controlled separation of the plastic overwrap material thus making it easier to open package **20**.

Package **20** comprises rigid container means or a rigid carton **21** which is overwrapped by a plastic material cut to form generally rectangular sheet means **22** and such plastic sheet means forms the outside surface means, also designated by the numeral **22**, of package **20** in its overwrapped condition.

Score means is formed in each plastic sheet **22**. In this embodiment of the invention a pair of score means or lines each designated by the numeral **23** is provided. Score lines **23** are formed along sheet **22** in spaced apart parallel relation and define a tear-out strip **24** of uniform width between score lines **23**.

Grasping means is provided for grasping a terminal end portion of tear-out strip **24** and in the illustration of FIGURE 3 such grasping means comprises a terminal end portion **25** of strip **24** having pull tab means shown as a paper pull tab **26** fixed thereto. It will be apparent that one end portion of tear-out strip **24** is easily grasped to enable controlled separation of the plastic sheet **22** which is the outside or outer surface of package **20**.

The plastic material used to form sheet **22** has score means formed therein in a simple and economical manner as shown in FIGURE 1 of the drawings. Such plastic material is preferably a heat-sealable plastic material and is indicated by the numeral **28** prior to cutting thereof to form sheets **22**. A web of such plastic material **28** is provided in roll form as shown at **29** and unrolled from such roll and driven through the scoring means using suitable drive means.

The scoring means in this embodiment of the invention comprises heated score-forming roll means or a set of rolls designated generally by the numeral **30**. Set **30** comprises a pair of heated rolls each designated by the numeral **31** and each having a heated knife-like edge **32** providing the scoring action. The knife-like edges are kept at a controlled temperature by suitable heating of rolls **31** as by electrical heating elements (not shown) or the like. A pair of back-up rolls each designated by the numeral **33** is provided and arranged opposite a cooperating roll **32**. Each roll **33** in this embodiment has a concave peripheral portion **34**; however, in some applications such peripheral portion is kept flat.

The set of scoring rolls **30** provide the previously mentioned spaced apart parallel score lines **23** defining tear-out strip **24**. Score lines **23** are preferably provided along the full length of plastic material **28** as it passes between score-forming roll means **30**.

Means is provided for cutting the scored elongated web of plastic material **28** into sheet means **22** of generally rectangular outline. The cutting means comprises knife means illustrated as a rotary knife **34**. Knife **34** has a pair of blades **35** which in this example are spaced apart 180 degrees on a rotary cylinder **36**. Cylinder **36** is suitably rotated so as to bring blades **35** into cutting engagement with plastic web **28** as such web is moved under knife **34**, to provide heat-sealable plastic sheets **22** having the desired length.

The width of plastic web **28** and the length of each scored sheet **22** cut from web **28** is of course closely controlled and determined by the size of each carton **21** which is to be overwrapped by a plastic sheet **22**.

The scoring means **30** provides parallel score lines **23** each having a controlled depth, see FIGURE 2. This controlled depth is accomplished by controlling the spacing between cooperating rolls **31** and **33** and hence the pressure exerted by such rolls on web **28** passing therebetween. The type of heat-sealable plastic material normally used to wrap a carton **21** is generally quite thin, it will be readily appreciated from FIGURE 2 that the technique disclosed enables the forming of score lines to a precisely controlled depth as illustrated at **37** and a width shown at **38** defined by the transverse dimension of each edge **32**.

While in this example of the invention a pair of spaced apart rolls **31** have been illustrated which enable the formation of a pair of score lines **23**, it will be appreciated that other scoring arrangements may be used to provide a controlled score pattern defining a tear-out strip in plastic web **28**. For example, a single heated roller covering an area equivalent to the area between score lines **23** of this illustration may be used to, in effect, reduce the thickness of plastic material engaged by its surface and thus define another form of tear-out strip.

As shown in FIGURES 1 and 4 of the drawings, sheet **22** is wrapped around carton **21** so that opposite end portions designated by the numerals **39** and **40** of sheet **22** are placed in overlapping relation. Such overlapping of end portions **39** and **40** also places the terminal end portions of tear-out strip **24** in overlapping and aligned relation. With the sheet **22** thus wrapped the overlapping end portions **39** and **40** are subjected to a heat environment as by engaging a heated roll **41** thereagainst. The overlapping portions are thus sealed together on opposite sides

of strip 24 as will be presently described. The ends of sheet 22 are also suitably sealed in overwrapping relation around corresponding ends of carton 21 in any desired manner.

Roll 41 is suitably supported for rotation on support means such as a bracket assembly 42 adapted to move roll 41 toward and away from package 40. Roll 41 has notch means 43 cut out therein so that as it rolls over package 20 it does not come in contact with strip 24. This action assures that the opposite end portions, designated as portions 25 and 25A, of strip 24 are not fastened together over their overlapping aligned portions. Thus, the overlapped terminal end portion 25 comprising the previously mentioned grasping means is easily grasped and pulled to thereby tear out strip 24 arranged around the entire periphery of package 20. This severing action divides the outer layer 22 into two sections 22A and 22B and upon pulling at least one of such sections away from package 20 it may be easily opened.

In this example of the invention the grasping means comprises end portion 25 of tear-out strip 24 with tab 26 adhesively fixed thereto. Pull tab 26 has adhesive means on one surface thereof which adhere to an adjoining surface upon exerting pressure thereagainst. As seen in FIGURE 1, a tab dispenser 45 is provided and such tab dispenser includes a roll of pressure sensitive tape 46 which is cut to length and urged against end portion 25 of strip 24 as sheet 22 moves thereunder. Tab dispenser 45 is actuated in cooperation with the movement of sheet 22.

While apparatus has been shown and described for sealing sheet 22 in position without sealing the overlapped end portions 25 and 25A of strip 24, it will be appreciated that means may be provided associating with such end portions to hold them apart during the sealing action of a heating roll similar to roll 41 or a heater bar which engages the entire overlapped portions 39 and 40 across the full length of package 20. Such means could be in a form of a pull tab means similar to tab 26 made of paper or the like which when inserted between the overlapped aligned end portions would prevent such end portions from being sealed together. Such similar tab would have adhesive means applied only over that portion thereof adjoining the inside surface of portion 25 which of course would provide sufficient fastening action to enable tearing out of the associated tear-out strip.

While FIGURES 3 and 4 of the drawings illustrate the use of pull tab 26, it will be appreciated, as stated earlier, that it is not absolutely necessary that a separate pull tab means be provided. The grasping means provided by the terminal unsealed end 25 of strip 24 is adequate to enable easy grasping. Thus it is only necessary to insert an object such as a fingernail under free terminal portion 25 and tear out strip 24 as effectively as with the use of pull tab 26. Of course it is preferable to provide pull tab 26 for easier grasping and tearing out of strip 24. The tearing action along sheet 22 in every instance is controlled as to force and direction as defined by the detailed arrangement of strip 24 around carton 21.

It will be noted that in this embodiment of the invention a narrow ribbon-like tear-out strip 24 is defined as an integral part of sheet 22. Strip 24 extends completely across one dimension of sheet 22 and such sheet is wrapped around a package so that the end portion 25 is easily accessible. It will be appreciated that strip 24 may be of any configuration and need not necessarily begin at the edge of a sheet. This fact will be more readily appreciated in connection with another embodiment of the invention which follows.

The embodiment of this invention illustrated in FIGURES 5–9 shows integral tear-out strip means provided in a web of plastic material 60. Such plastic material is cut to define generally rectangular sheet means 62 and each is overwrapped around an associated container means shown as a carton 61. The improved method of forming such integral tear-out strip means as well as the improved package construction and method of making such improved package construction are also presented. The tear-out strip means of this embodiment of the invention is of a roughly pear-shaped configuration.

As shown in FIGURE 5 a web of transparent heat-sealable plastic material 60 is provided in roll form as illustrated at 59. Plastic web 60 is moved under heated score-forming roll means illustrated as a scoring apparatus 63.

Scoring apparatus 63 comprises an elongated cylindrical roll 64 suitably supported for rotation and having pattern means shown as a roughly pear-shaped scoring member 65 provided about its outer circumference. Scoring member 65 projects outwardly from such circumference sufficiently to precisely define a tear-out strip 66 within such pattern as it engages web 60. Apparatus 63 is placed immediately above web 60 in this example so that its scoring member 65 only engages web 60 upon rotating roll 64 into scoring position.

The web of plastic material 60 is moved at a predetermined speed under roll 64 and such roll is rotated as determined by such speed and the desired spacing of each tear-out strip 66 along web 60. Web 60 is then cut into rectangular sheets each having its tear-out strip.

Apparatus 63 includes a back-up roll 67 which is arranged opposite roll 64 with web 60 therebetween. The spacing of rolls 64 and 67 is controlled as determined by the thickness of web 60 to provide controlled pressure contact of heated roll 64 with its heated scoring member 65 against web 60.

The scoring means formed by cylindrical roll 64 and its scoring member 65 is arranged in a closed-loop path shown at 68 in FIGURE 5. Score means 68, of course, corresponds exactly to member 65 and thus is also pear-shaped.

Score means 68 has a small roughly U-shaped tab portion 71 defining grasping means and a major portion designated by the numeral 72. It will be seen that the U-shaped tab portion is formed as an integral part of the plastic material.

Means is provided for cutting the elongated web 60 to form the generally rectangular sheet means or generally rectangular sheets 62 each having the roughly pear-shaped closed-loop score pattern 68 therewithin. The cutting means comprises rotary cutting knife means or rotary knife 73 having a cutting blade 74 which comes into cutting engagement as knife 73 is rotated in cooperation with the movement of web 60 thereunder. Knife 73 cooperates with a back-up block 75 arranged immediately thereunder so that web 60 can travel between knife 73 and block 75 except when blade 74 is rotated into cutting position.

As will be apparent from FIGURE 5 of the drawings a rigid container means such as rigid carton 61, previously mentioned, is placed on an associated sheet 62 with sheet 62 suitably supported on conveyor means and such sheet is wrapped therearound to define the outside surface, also designated by the numeral 62, of the improved package 76 thus formed. Package 76 is easily opened by tearing out strip 66 to remove outside protective surface 62 and thus provide easy access to carton 61. The manner of overwrapping carton 61 using sheet 62 so that tear-out strip is easily torn away will now be described.

In the example of this invention illustrated in FIGURES 5 and 6 carton 61 is arranged on sheet 62 so that the major portion 72 of the arcuate closed-loop score means 68 lies completely within the outline of one side wall of carton 61. Such one wall is illustrated as the top wall in FIGURE 6 and the generally U-shaped tab portion 71 is arranged in the adjoining front wall upon wrapping sheet 62 around its associated carton.

The roughly U-shaped portion 71 of score means 68 illustrated in FIGURE 5 of the drawing is preferably cut through so that it hangs free. The cutting action is provided by the corresponding portion of scoring member

65 projecting outwardly a greater distance beyond the remainder of such scoring member and having a sharp edge to thus cut through web 60. Thus it is seen that upon folding sheet 62 about carton 61 the tab portion 71 being essentially free projects outwardly beyond its adjoining front wall thus making it easy to grasp. Upon grasping the grasping means provided by the U-shaped tab portion 71, a controlled opening is provided in the outside surface means 62 of package 76 as defined by tearing out tear-out strip 66.

FIGURE 7 of the drawings is a modification showing a pull tab 80 adhesively fastened to U-shaped portion 71 making it easier to grasp and pull pear-shaped tear-out strip 66.

Another embodiment of the improved package construction is illustrated in FIGURE 8. In this embodiment the construction is identical to the construction of FIGURES 5–7 with the exception that the U-shaped score means defining a tab portion is not cut through about its entire periphery and is designated by the numeral 71A. All other parts have been designated by the same numeral as before. U-shaped portion has spaced apart cuts designated by the numeral 81A coinciding with the U-shaped outline thereof. Cuts 81A may be provided in any suitable manner but are preferably provided by suitable means such as notches or the like in the knife-like edge of the corresponding U-shaped portion of member 65. This embodiment of the invention assures that the U-shaped portion is held against its adjoining wall for better sealing action.

As seen in FIGURES 8 and 9 a pull tab 80 is also adhesively fastened to U-shaped portion 71A. Tab 80 is easily grasped and pulled to tear out the associated tear-out strip 66 as previously described.

While U-shaped portion 71 is arranged with its base along a corner of package 76 in the illustrated embodiments of this invention, it will be appreciated that such U-shaped portion could lie entirely within the outlines of a side wall of such package. Even with such U-shaped portion in the same plane as the remainder of the score means defining tear-out strip 66 it is a simple manner to grasp such U-shaped portion and pull to provide a controlled tear or opening in outer wall 62. Obviously by using a pull tab 80 in this latter described arrangement the grasping and pulling is much easier.

It may also be desirable in some applications to cut sheet means similar to sheet 62 and designated 62B so that its U-shaped portion 71B extends beyond the generally rectangular peripheral edge of such sheet as contrasted to being within such edge as previously shown. With this arrangement carton 61 may be wrapped by sheet 62B so its tab remains essentially free and projecting beyond an adjoining corner as shown in FIGURE 10. The base portion of projecting U-shaped portion is arranged with its base coinciding with the corner of the carton 61. Such projecting portion 71B is easy to grasp and provide a controlled opening in the sheet 62B defining the outside layer of its associated package.

In all embodiments of this invention it will be seen that unique scoring means have been provided defining tear-out strips having either an elongated and narrow or a rounded configuration, and means have been provided for grasping a terminal end portion of such tear-out strip so as to provide controlled separation in the plastic material as defined by such score means. This tearing of an opening in a heat-sealable plastic material in a controlled manner is easily and simply achieved while also being certain such opening may be accurately provided in any desired configuration to suit the particular application. This is true whether opening an overwrapped cigarette package or providing a pear-shaped opening in a decorated box of facial tissues for easy insertion of one's hand therethrough.

Terms such as "bottom," "top," "side wall," "front," and the like have been used in this disclosure for ease of description and to describe the various examples of this invention as presented in the drawings and such terms are not to be considered as limiting the scope of this invention in any way.

Thus it is seen that this invention provides a simple, inexpensive, and easily opened plastic overwrapping for substantially rigid container means in which an integral tear-out strip having a controlled configuration is defined in such plastic overwrapping, such tear-out strip also having integral grasping means for easy grasping and tearing thereof.

Further, this invention provides improved package means using such plastic overwrapping and an improved method of making such improved package means.

While the form of the invention now preferred has been disclosed as required by statute, other forms may be used, all coming within the scope of the claimed subject matter which follows.

What is claimed is:

1. A package having easy-open outside surface means overwrapping substantially nondistortable container means comprising, a plastic material overwrapping said container means and defining said outside surface means, score means in said plastic material defining an integral tear-out strip, said score means comprising a single score line arranged in a closed-loop path, and separate pull tab means fastened to one end portion of said tear-out strip, said pull tab means being easily grasped and pulled to initiate and complete the severing of said tear-out strip in a controlled manner and along said score line to thereby open said outside surface means while keeping the shape of said container means intact.

2. A package as set forth in claim 1 in which said plastic material is cut to define a substantially rectangular sheet means, said score means is substantially pear-shaped with a markedly tapering configuration defining a substantially U-shaped portion provided adjacent one end portion of said rectangular sheet means, said pull tab means is fastened to said U-shaped portion, and said sheet means is wrapped around said container means so that said U-shaped portion and pull tab means are arranged adjoining a corner of said container means and kept from adhering to adjacent surface means upon sealing said one end portion against an associated opposite end portion of said rectangular sheet means to enable easy grasping of said tab means and severing of said tear-out strip.

3. A package as set forth in claim 2 in which said rectangular sheet means is wrapped and sealed in position about said container means with the base of said U-shaped portion aligned along a corner of said container means and said U-shaped portion and attached pull tab extending freely along one exterior wall and the remainder of said integral tear-out strip extending over other exterior wall means of said container means to assure easier grasping and severing of said integral tear-out strip.

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