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FILM REMOVAL TAB

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FIG. 1

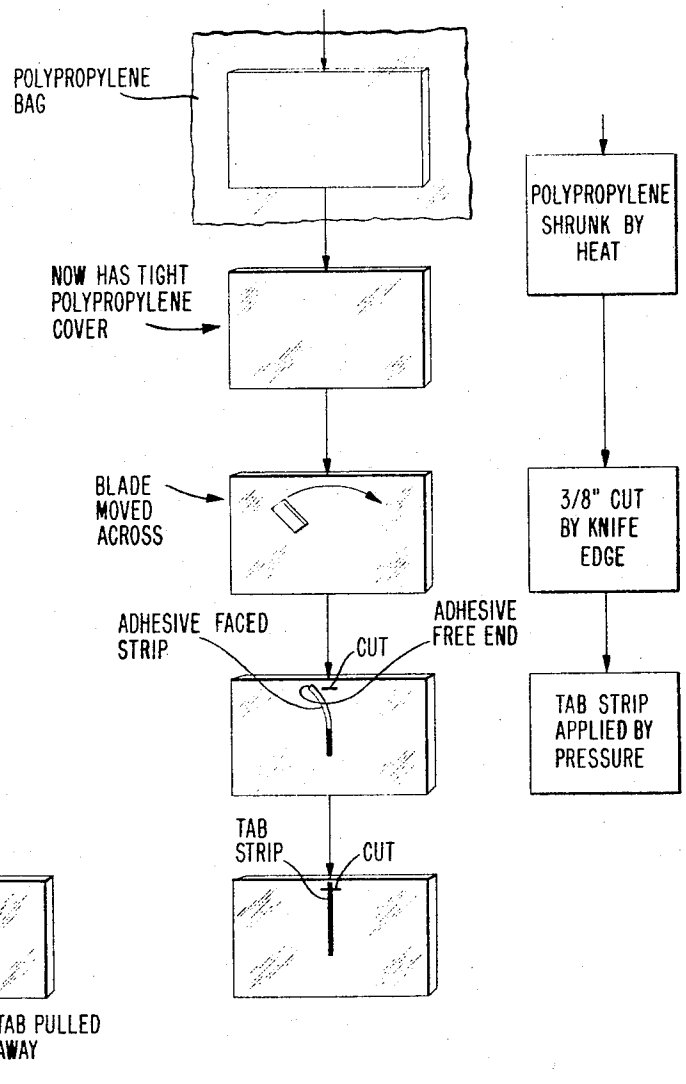
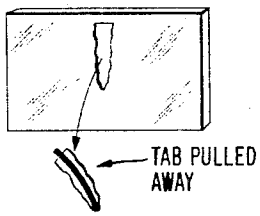


FIG. 2



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FILM REMOVAL TAB

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This invention relates to a tab which can be pulled to remove a protective plastic film from around an object.

Hand gripped tabs to remove a plastic covering from an object covered are known in certain environments in the prior art. The tear strip around the usual cigarette and some candy packages is a common example of the prior art film removal tab. In these prior art assemblies, an extended part of the tab is located between the film covering and the article covered. The end of the tab projects out from the position at which the original edges of the film were joined and bound together. The end projecting out projects far enough to be gripped by the user. Such tear tabs are satisfactory in use. They may be gripped by the user and enough force applied to sever the plastic film covering so that it can be pulled away from the object covered.

However, one technique recently becoming common in commerce is to shrink a plastic film around the object being covered. At least one shrinkable film in use today is a biaxially oriented polypropylene. It will shrink 50% under heat. The shrink film covering provides a tight, smooth, attractive protective film around the object. Shrinking the film around the object is advantageous in that complicated fabricating and manipulating equipment is eliminated. The film is placed around the object in the form of a loose bag and the film is then shrunk to thereby simply and economically cause the film to tightly conform to the object to be protected.

The prior art tear tab mentioned above is completely unsatisfactory for use with the shrink film technique. The tear tab of the prior art must, of course, have an extension between the film and the object to be protected and must project out between the joined edges of the film so that it can be gripped by a user. It is manifest that a tear tab of this type must be inserted before the shrinking step when a shrink film covering is to be used. Insertion before the shrinking step, however, results in the portion of the tear tab extending between the film and the article being deformed and displaced during shrinking. Therefore, the extended inner portion may take a final conformation which does not extend in one direction far enough to provide a long, useful tear. Indeed, the inner portion may bunch in a ball as the film is shrunk around the object. A bunched tab may be completely useless and certainly is unsightly. It is important, of course, that the package for most commercial products give an appearance suggesting efficiency and good design.

In attempting to provide tab means for use with a shrinkable film, I consulted with those familiar with the shrink film art. The problem apparently never has been solved previously. It was suggested to use a long tab faced with adhesive and to place this tab on the outside of the shrunken plastic. The theory apparently was that the adhesive would cling to the shrunken film and that by pulling one end of the tab the film would be torn away so that it could be removed from around the article. Repeated experiment, however, with stronger and stronger adhesives on the tab strip showed that the suggested technique was completely unsatisfactory. In each case the tab simply pulled away from the shrunken film without severing the film. This was true even though adhesives of quite high strength were used.

It is an object of this invention to provide means to remove a plastic covering from around an article.

It is an object of this invention to provide a tab which can be grasped by a user and easily pulled to sever plastic film so that the film can be removed from around a article.

It is another, further object of this invention to provide a manual tear strip to sever plastic films which have been shrunk around an article.

In accordance with the invention a film removal tab is provided in a simple, two-step process. In the preferred application, a plastic film is initially shrunk around the article to be protected before the two-step process is conducted. Preferably, in the first step, the shrunken film is cut a small distance at any convenient point. It will be noted, however, that it would be possible to practice the invention if the plastic were cut at a preselected point before being shrunk. This would in general be quite undesirable because the location of the final cut would be somewhat in doubt due to the some what unpredictable movement of the film when it is shrunk. It should also be noted that the process is useful with film coverings which are positioned around an object by some method other than shrinking. The second step of the process consists of applying a tab strip faced with adhesive of some substantial length on the outside of the film at a point intersecting or near the cut.

The article produced is one which has both novel and beneficial features. The end of the strip can be easily grasped and pulled. The tab strip will leave the film until the pulling force is applied at the cut. The cut initiates or concentrates force in some way to thereby initiate further severence of the plastic film. Continued pulling of the tab results in the plastic film severing along points near the further attached portions of the tab. The film is thus ruptured and is then easily removable from the article. Since the initiated tear pulls away in a manner very similar to the tear caused by the inside tear strip of the prior art, it is manifest that this invention will function with virtually every film material now used in conjunction with the prior art tear strips.

FIG. 1 shows and describes the steps in the process which forms a part of my invention and the final illustration of the process shows the article invented.

FIG. 2 illustrates how the pulled tab severs the film.

Referring to FIG. 1 and to the preferred embodiment of this invention, a box is to be covered with polypropylene as a dust jacket and also is to be provided with a film removal tab for easy and convenient removal of the dust jacket. As mentioned above, the shrinking of a biaxially oriented polymer around such an object has recently become quite common. Such a biaxially oriented polypropylene of 50 gauge is used in the preferred embodiment. The polypropylene is placed around the box in the form of a loose bag. The box with its loose plastic cover is then passed through heating means. The plastic shrinks tightly around the box in a manner well known.

In accordance with the invention the covered box is then subjected to a cutting step. Preferably the box is moved down a conveyor line to a cutting blade. As shown in the illustration, the cutting means is a knife which moves straight across the shrunken polypropylene in a single stroke to sever it along a small, straight distance. In this preferred embodiment the cut is ⅜ inch long. Tolerances generally are not critical in this step. If the cutting edge happens to penetrate the box somewhat, this is not a serious deficiency. The cut need not be long since in accordance with this invention a very small cut can initiate effective tearing by the tab. Certain relationships, discussed below, between the tab strip and the length of cut must be observed. Furthermore, in practice it is certainly desirable that the cut not be so long as to leave long

edges subject to accidental engagement with some environmental object and consequent accidental rupture of the film.

The next step is the application of the tab strip. Preferably the covered box is moved along a conveyor to an application station. At the application station a long, narrow, reasonably strong strip of adhesive tape-like material is placed on the outside of the polypropylene film.

Preferably, the end of the strip is pressed near the middle of the box, and the strip is laid down progressively as the box is moved. The cut in the film is near the side of the box and the strip overlaps the cut near the middle at a right angle, leaving exposed sides of the cut on each side of the strip. The strip used is a thin, adhesive faced strip of polyethylene terephthalate, ⅛ inch wide and 4 inches long. The adhesive is killed ⅜ inch back from the pull end, as is discussed below.

The dimensional relationship of the cut and the strip have been considered by me. I have determined that a single straight cut is entirely functional. The economics of a straight cut are manifest since only a single slicing means is required. Cut patterns with a cut perpendicular to the strip and additional cuts in the direction of the future tear were considered. They were found to be unnecessary.

The end of the adhesive tab preferably should not carry adhesive. This is so a small portion will be free and easily grasped by the user of the tab. One known technique to obtain this and the one preferred here is to unwind the adhesive faced tab from a spool and to drop a portion of the tab onto a sponge carrying chemicals which neutralize the adhesive. It is merely necessary to direct attention to the dimensions desired to thereby design a mechanism which will drop the adhesive faced strip onto the sponge at the proper position so that when the strip is next applied and severed at a predetermined location the point at the end of the strip applied will not have adhesive.

The tab strip, when pulled, must pull on a single cut at some angle displaced relative to the direction of a single cut. A pull directly in the direction of a single cut does not cause the cut to be opened further. Structurally, this means that the tab strip should overlie the cut at an angle.

The tab strip need only be attached near enough to the cut to transmit substantial opening forces to the cut. The tab can cover one end of the cut. Only one substantial further limitation is known. That is that the tab strip can not substantially overlap and cover a small cut so that the tab strip effectively reinforces the cut and prevents it from being opened further.

From the above description the article created should be completely clear. It is also illustrated in the drawings as the product of the last step in the process. The article is a box with polypropylene shrunk around it. There is a short, straight cut near one edge of the box and a thin strip faced with adhesive is affixed from the middle of the box to the cut and slightly past it. Although an adhesive tape-like strip is used in the process and thereby clearly imparts efficiencies to the process, it should be understood that the product obtained is not dependent upon the adhesive nature of the strip before it is applied. It is only necessary that a firm connection be made with the strip or tab adhering by some mechanism to the plastic covering. The tab overlaps the cut, and meets the cut approximately at right angles. The end of the cut extends on each side of the tab. The end of the strip near the cut has a small portion with no adhesive. This portion can be easily grasped and pulled to sever the polypropylene in the direction of the pull from a point starting at the cut.

FIG. 2 is helpful in understanding the invention. FIG. 2 shows exactly how the polypropylene severs when the tab of the invention is pulled completely away from the box. It will be noted that the severed portions follow the direction of pull just as they do in prior art tear strips.

While the invention has been particularly shown and described with reference to preferred embodiments thereof, it will be understood by those skilled in the art that the foregoing and other changes in form and details may be made therein without departing from the spirit and scope of the invention.

I claim:

1. An article of manufacture comprising:
an object covered with a rupturable plastic film, said plastic film having a severed portion, and
an adhesive faced strip joined by said adhesive to the outside of said article, and partially overlapping said severed portion to leave at least one edge of said severed portion uncovered by said strip, the area surrounding said severed portion and adjacent said strip consisting of unsupported film,
said strip extending at least a distance from said severed portion sufficient to support said film substantially beyond the positions defined by said severed portion,
said object, said severed portion, said film, and said strip being positioned, composed, and adapted so that when said strip is pulled, said severed portion will initiate rupture of said film and the rupture initiated will continue along points near the attached portions of said strip as distinguished from said rupture continuing along points essentially controlled by the characteristics of said film,

2. An article of manufacture comprising:
an object covered with a rupturable plastic film, said plastic film having a straight severed portion, and
an adhesive faced strip joined by said adhesive to the outside of said article and partially overlapping said straight severed portion at an angle to leave at least one edge of said severed portion uncovered by said strip, the severed portion overlapped by said adhesive faced strip being entirely straight,
said adhesive faced strip extending at least a distance from the severed portions of said film sufficient to support said film substantially beyond the severed portions of said film.

3. The article as in claim 2 wherein said strip is smaller than said severed portion and overlaps said severed portion in the center.

4. The article as in claim 3 wherein said strip overlaps said severed portion at about a right angle.

5. The article as in claim 4 wherein said strip has an end portion which does not adhere to said plastic film.

6. The article as in claim 5 wherein said plastic film is a shrunken plastic.

7. An article of manufacture comprising:
an object covered with a rupturable, shrunken polypropylene film, said film having a straight severed portion,
an adhesive faced strip narrower than said severed portion joined by said adhesive to the outside of said article and overlapping said severed portion in the center of said severed portion and at about a right angle, said adhesive faced strip extending a substantial distance in one direction and having a nonadhesive end on the other side of said one direction.

8. An article of manufacture comprising:
an object covered with a rupturable plastic film, said film having a discontinuous portion less than one inch wide and greater than one-eighth inch wide, and
an adhesive faced strip narrower than the width of said discontinuous portion joined by said adhesive to the outside of said article and overlapping the internal area of said discontinuous portion, said adhesive faced strip being at least one inch long and extending away from the boundary of said discontinuous portion on one side a distance of at least three-fourths inch, the area surrounding said discontinuous portion and adjacent said strip consisting of unsupported film.

9. An article of manufacture comprising:
an object covered with a rupturable plastic film, said film having a discontinuous portion, and
an adhesive faced strip joined by said adhesive to the outside of said article, and partially overlapping said discontinuous portion to leave at least one edge of said discontinuous portion uncovered by said strip, said adhesive faced strip extending at least a distance from said discontinuous portion sufficient to support said film substantially beyond the positions defined by said discontinuous portion.

10. An article of manufacture comprising:
an object covered with a rupturable plastic film, said film having a discontinuous portion, and
an adhesive faced strip joined by said adhesive to the outside of said article, and overlapping the center portion of said discontinuous portion leaving the edges of said discontinuous portion uncovered by said strip, said adhesive faced strip extending at least a distance from said discontinuous portion sufficient to support said film substantially beyond the positions defined by said discontinuous portion.

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