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S. R. ROSENTHAL

3,229,894

ENVELOPE

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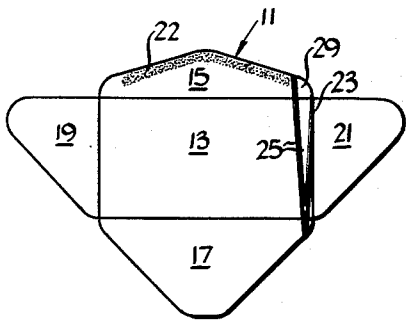


Fig 1

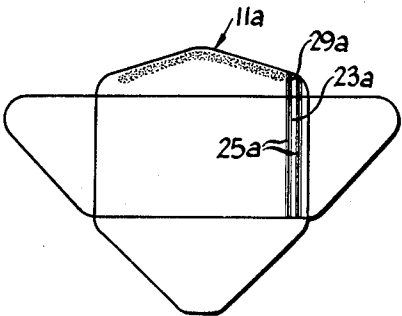


Fig 4

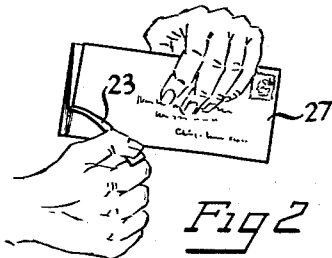


Fig 2

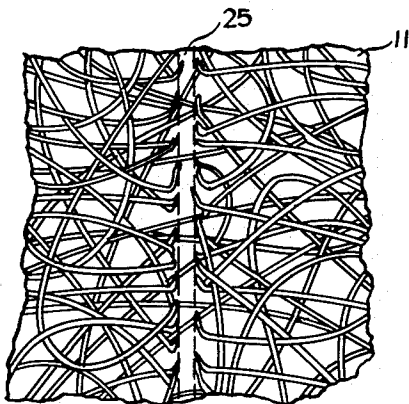


Fig 3

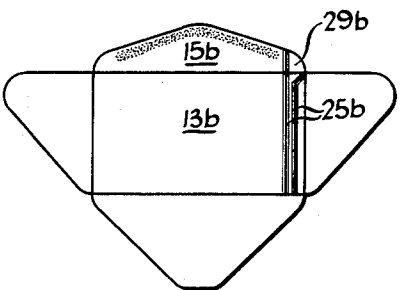


Fig 5

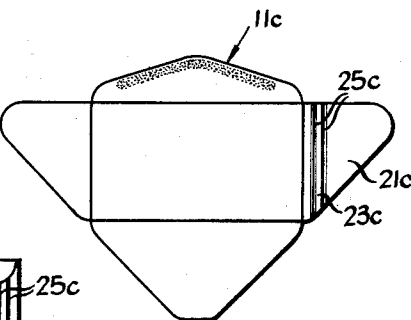


Fig 6

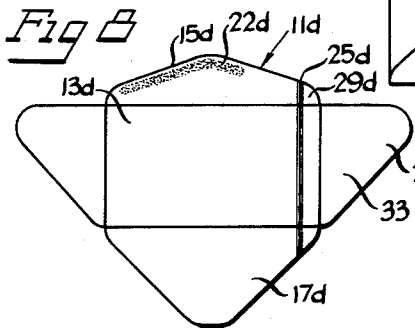


Fig 8

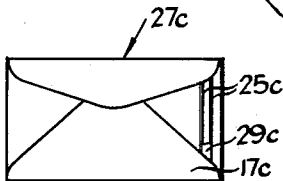


Fig 7

INVENTOR
SOL ROY ROSENTHAL

By
Anderson, Suedeka, Fitch, Even & Tabin
Attys

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ENVELOPE

Sol Roy Rosenthal, 230 E. Delaware Place,
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The present invention relates to envelopes and more particularly to envelopes which are adapted to be sealed when used.

Numerous types of mailing envelopes and other envelopes for holding materials in a sealed condition have been designed which include various means for facilitating quick opening of the envelope. Some of the means heretofore used include pull strings, reinforced strips, slits, rows of perforations or indentations, etc. However, none of these designs has proved altogether satisfactory, as evidenced by the lack of continued commercial success of any of them. The need for an envelope incorporating a quick opening device is greater today than ever because of the increase throughout the world in the amount of business carried on through the mails.

It is a principal object of the present invention to provide an improved envelope and a method of making such an envelope. It is a more particular object of the invention to provide an envelope incorporating improved means for facilitating the quick opening thereof. It is a further object of the invention to provide an envelope which can be inexpensively manufactured and which provides adequate protection to the contents therein when sealed while being capable of being quickly opened by way of opening means incorporated therein. These and other objects of the invention are more particularly set forth in the following detailed description and in the accompanying drawings of which:

FIGURE 1 is a plan view of an envelope blank embodying various of the features of the invention;

FIGURE 2 is a perspective view of an envelope made from the blank of FIGURE 1 being opened in the planned manner;

FIGURE 3 is an enlarged fragmentary view of FIGURE 1 as it would appear under magnification;

FIGURE 4 is a plan view of another embodiment of an envelope blank;

FIGURE 5 is a plan view of still another embodiment of an envelope blank;

FIGURE 6 is a plan view of a further embodiment of an envelope blank;

FIGURE 7 is a rear view of an envelope made from the blank shown in FIGURE 6; and

FIGURE 8 is a plan view of a still further embodiment of an envelope blank.

Basically, the invention provides an improved envelope comprising a front panel and a plurality of rear panels attached thereto wherein a pair of spaced-apart, continuous, scarified lines are provided in at least one of the panels to define an opening strip that can be easily torn from the panel to provide quick access to the interior of the envelope. Preferably, some tab means is provided at one end of the strip whereby a person can easily grasp the strip to facilitate tearing it from the envelope panel. This tab means should preferably be an integral part of the usual envelope blank so that the outline of the blank need not be altered.

Now referring to FIGURES 1 and 2, an envelope blank 11, having the shape of a blank for a standard mailing envelope is illustrated which includes a front panel 13 having connected thereto, by fold lines, an upper panel 15, a lower panel 17 and a pair of side panels 19 and 21.

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The upper panel 15 has a water-soluble glue line 22 disposed thereon and serves as a sealing flap.

An opening strip 23 is provided by scarifying the blank 11 to produce a pair of spaced apart lines 25 which define the strip. By scarifying, it is meant that a line of weakness is produced by weakening, displacing and/or severing the fibers in one surface of a paper product along a predetermined directional line. The effect of scarification is more particularly shown in FIGURE 3 wherein a magnified view of one of the lines 25 is shown as it appears when the front panel 13 is examined under suitable magnification.

Scarification can be carried out in any suitable manner which serves to weaken, displace and/or sever the fibers in the manner shown. Scarification may be carried out either on the envelope blanks or on the paper from which the blanks will be formed. Examples of some methods which have been successfully used to carry out scarification include passing a generally blunt instrument relative to the surface of the paper while maintaining pressure between the paper and the instrument and passing a revolving wheel of abrasive material across the paper along a predetermined line. It is also possible to scarify the paper during the papermaking operation so that an entire roll can be produced with a continuous line or lines of weakness. It is important that a line of weakness is created by displacing fibers in the plane of the paper surface. Actual experiments have proved that a method such as embossing, which creates a line by compressing the fibers along that line, does not produce satisfactory results. The continuous lines of weakness produced by scarification are uniform throughout their lengths and accordingly provide uniform tearing. They have been found to provide excellent opening strips in envelopes.

In the preferred embodiment, illustrated in FIGURE 1, the scarified lines 25 are disposed in converging relationship so as to provide a V-shaped strip 23. One line 25 begins at the extreme righthand upper edge of the front panel 13 and the other at a point intermediate the top edge of the upper panel 15. They extend downwardly through the upper panel 15 and the front panel 13 and terminate at the lower edge in the bottom panel 17. When the side panels 19, 21, have been folded inwardly on their respective fold lines and glued to the bottom panel 17 that has been folded over them, a standard-shaped envelope 27 is provided wherein the upper panel 15 serves as the sealing flap.

When the contents have been inserted into the envelope 27 and the flap 15 sealed, the longer of the two lines 25, which extends through the panel 15, defines an opening tab 29. The tab 29 is so disposed that it can be easily grasped between the thumb and forefinger of the right hand and torn upwardly from the flap 15. Because the glue line 22 does not extend to the edge of the flap 15, there is no hinderance to grasping this tab 29. With the aid of the tab 29, the strip 23 can be torn downwardly from the front panel 13, as illustrated in FIGURE 2, to quickly and easily provide access to the interior of the envelope 27.

As shown in FIGURE 1, the lines of scarification are preferably provided by scarifying the blank 11 on the side which will serve as the interior of the envelope after assembly. In this way, the finished envelope 27 has with an unbroken outer surface because the lines of weakness are disposed entirely on the inner surface of the envelope 27. Accordingly, the improved envelope 27 affords the same protection from dirt and moisture as an envelope made from the blank that has not been scarified. Also, the use of scarified lines precludes anyone's

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viewing the contents of the envelope, as is possible through some perforations.

Scarification should be carefully carried out to decrease the tear strength of the paper envelope blank only to an extent that the strip 23 can be easily torn from the envelope panels. It is important that scarification leaves the connection between the strip and the remainder of the panel in which it is disposed sufficiently strong to prevent inadvertent tearing of the strip from occurring during normal handling of the envelope in transit. In this connection, it has been found that scarification which decreases the tear strength of the paper from about 60 to about 85% is suitable for producing an acceptable opening strip 23. Preferably, the scarification is carried out so that the tear strength of the paper is decreased from about 70 to about 80%. In the case of envelopes made from very heavy grades of paper, it may be preferable to scarify both sides of the paper to produce the lines, rather than to scarify one side as deeply as it would be necessary to provide the desired decrease in tear strength.

Scarification in these amounts produces an opening strip, defined by the two continuous lines 25, uniform along its length, which can be torn evenly from the envelope. This characteristic of the opening strip is an important feature for it provides improved envelopes which can be consistently opened in a satisfactory manner. Once the opening strip 23 has been begun by the tab 29, it tears evenly from the panel 13 with minimum danger of interruption at any point because of its continuous nature. There is minimum possibility that the line of tear might deviate from one of the lines of weakness 25 and thus prematurely terminate the strip before the envelope has been completely opened.

Any of the panels of the envelope may be scarified to provide a pair of spaced apart lines that define an opening strip. For illustration purposes, the lines 25 have been positioned on the righthand side of the envelope blanks to produce an opening strip that is most convenient for righthanded persons.

The lines of scarification may take the shape of parallel lines 25a, illustrated in FIGURE 4. Parallel lines such as this produce a satisfactory opening strip 23a having a tab portion 29a extending upwardly into the upper panel 15a, from which it can be easily torn.

Preferably, however, the lines are arranged in the converging fashion illustrated in FIGURE 1 to produce a V-shaped strip 23. The shape of the preferred strip 23 provides some mechanical advantage over a parallel strip because the strip 23 is of increasingly lesser width in the direction in which it is being torn. As a result, the possibility is lessened that the tearing may deviate from the defined line 25 in a direction across the strip 23 and thus result in premature termination of the strip and incomplete opening of the front panel 13.

FIGURE 5 illustrates another embodiment of an improved envelope blank 11b. This blank utilizes a pair of lines 25b which are parallel throughout most of the height of the front panel 13b. The direction of the outermost of the lines 25b is changed near the upper end of the panel 13b so that this line terminates at the upper corner of the panel 13b. This construction provides a tab 29b in the upper panel 15b generally similar to the tab 29 of the preferred embodiment. The tab 29b has been found to be especially satisfactory for beginning the tearing of the opening strip.

The blank, illustrated in FIGURES 6 and 7, includes a pair of scarified lines 25c positioned in the side flap 21c. When forming an envelope 27c from the blank 11c, the bottom portion of the opening strip 23c defined by the lines 25c is torn for a short distance from the panel 21c and folded back upon itself to provide an opening tab 29c which resides in the position shown in FIGURE 7. The tab 29c protrudes from below the bottom flap 17c and is disposed so it can be easily grasped between thumb and forefinger. By tearing the opening strip 23c

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from the side flap 21c, access to the interior of the envelope 27c is quickly provided.

The blank 11d, illustrated in FIGURE 8, includes a single scarified line 25d which runs from the top to the bottom edge of the blank passing through the bottom panel 17d, the front panel 13d and the upper panel 15d. The blank 11d is adapted for formation into an envelope for fourth class mailing. In such an envelope, the right side panel 21d is not glued to any of the other panels but is only tucked in underneath them. Accordingly, the glue line 22d is shorter than the normal glue line so that there is no connection between the sealed flap and the right hand panel.

The line 25d defines a minor portion 33 of the envelope which is easily separable therefrom opening strips. To open a sealed envelope formed from the blank 11d, tearing is begun using the tab 29d. The entire righthand end of the envelope, which the folded minor portion 33 comprises, is torn from the remainder of the envelope, the righthand panel being pulled out from the adjacent panels under which it is tucked. Thus, this embodiment provides a fourth class envelope which can be opened very quickly, without having to extract the tucked-in flap by hooking an edge of it with one's finger.

The invention provides an improved envelope incorporating an opening strip which does not detract from the protection which a sealed envelope affords to its contents although providing a simple but extremely effective device for allowing one to quickly reach these contents. The improved envelopes can be inexpensively produced on mass production basis. One of the most significant advantages lies in the fact that envelopes made in the described manner can be consistently opened without failure, because of the continuous nature of the lines of weakness provided by scarification.

This improved opening strip has been found to be a considerable improvement over tear strips made by the use of perforations and the like. Such strips, because of the alternating connections between the strip and the panel in which the strength of the paper has not been substantially impaired, have the inherent tendency to misdirect the line of tear from the line of perforation at these points, thus resulting in incomplete removal of the tear strip and unsatisfactory overall performance.

Various of the features of the invention are set forth in the following claims:

What is claimed is:

1. An improved envelope comprising a front panel, a plurality of rear panels attached to said front panel, and a continuous mechanically scarified line disposed in at least one of said panels, which line intersects at least two edges of the envelope in folded form, said mechanical scarification decreasing the tear strength of said panel material about 70 to about 80%, whereby a minor portion of the envelope can be easily torn from the remainder of the envelope so as to provide access to the interior of the envelope.

2. An improved envelope comprising a front panel, a plurality of rear panels attached to said front panel, and a pair of spaced continuous mechanically scarified lines provided in at least one of said panels which lines define an opening strip, said lines intersecting at least two edges of the envelope in folded form, said mechanical scarification decreasing the tear strength of said panel material about 70 to about 80% so that said opening strip can be easily torn from the envelope in order to open it but will resist inadvertent tearing during normal handling.

3. An improved envelope blank comprising fold lines defining a front panel and a plurality of rear panels adapted to be folded along said fold lines into the shape of an envelope, and a continuous mechanically scarified line disposed in a least said front panel and lying adjacent one of said fold lines, said mechanical scarification decreasing the tear strength of said panel material about 70

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to about 80%, which scarified line intersects at least two edges of the blank and defines a minor portion of the blank that can be easily separated from the remainder of the blank.

4. An improved envelope blank comprising fold means 5 defining a front panel and a plurality of rear panels adapted to be folded along said fold lines into the shape of an envelope, and a pair of spaced continuous mechanically scarified lines disposed in at least one of said panels and intersecting at least two edges of the blank, 10 said mechanical scarification decreasing the tear strength of said panel material about 70 to about 80%, which scarified lines define an opening strip that can be easily torn from the blank.

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JOSEPH R. LECLAIR, *Primary Examiner*.

FRANKLIN T. GARRETT, *Examiner*.