

Sept. 17, 1963

R. J. LEMIESZ

3,104,048

MASS ENVELOPE OPENING SYSTEM

Filed Dec. 1, 1961

2 Sheets-Sheet 1

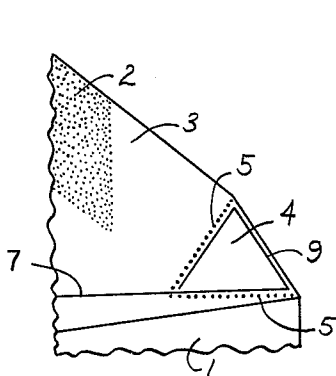


Fig-5.

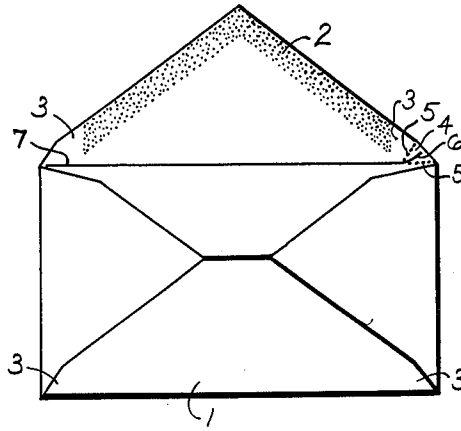


Fig-1.

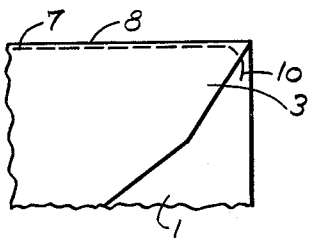


Fig-6.

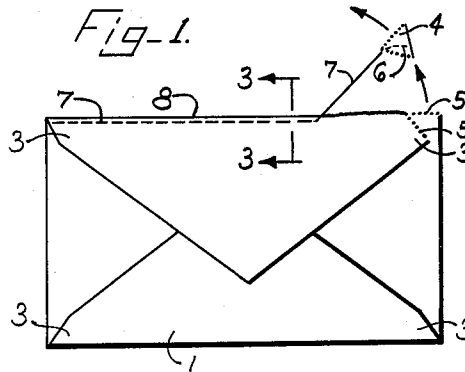


Fig-2.

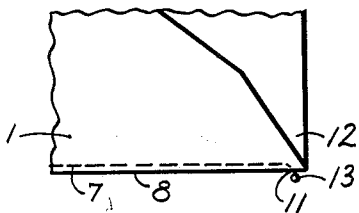


Fig-7.



Fig-3.

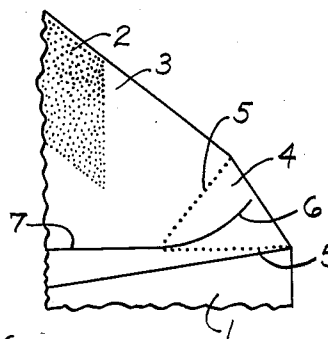


Fig-4.

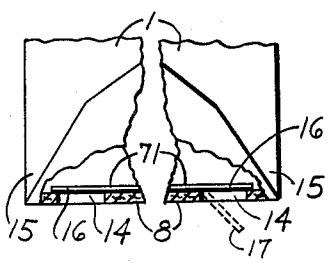


Fig-8.

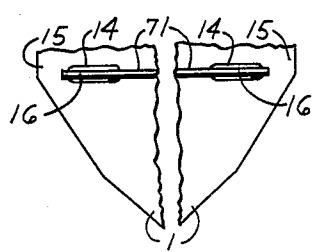


Fig-9.

Inventor:
Richard John Lemiesz

Sept. 17, 1963

R. J. LEMIESZ

3,104,048

MASS ENVELOPE OPENING SYSTEM

Filed Dec. 1, 1961

2 Sheets-Sheet 2

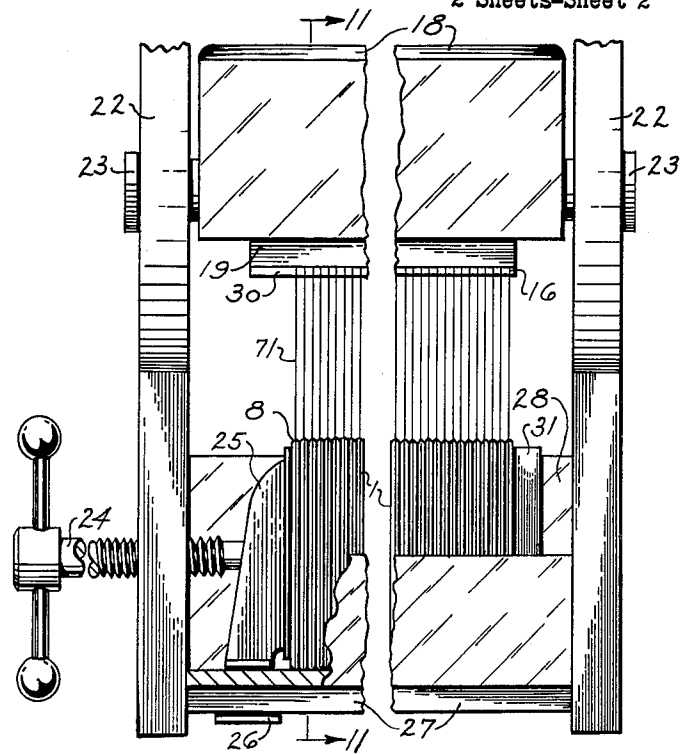


Fig-10.

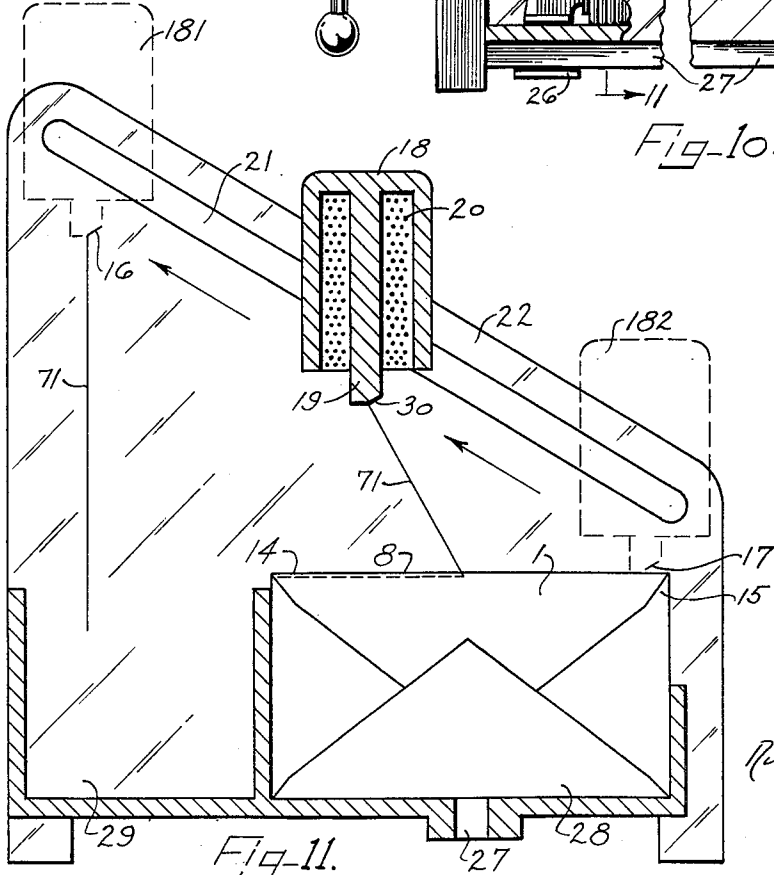


Fig-11.

Inventor
Richard J. Lemiesz

1

3,104,048

MASS ENVELOPE OPENING SYSTEM

Richard John Lemiesz, 6408 Grandmont, Detroit, Mich.
 Filed Dec. 1, 1961, Ser. No. 156,456
 3 Claims. (Cl. 229—86)

This invention is directed to new and useful improvements in envelopes. The primary object is to provide means whereby sealed envelopes can be quickly and safely opened. Present envelopes are opened by methods wherein the risk of damage to the enclosed contents is great. This invention allows the opening operation to be controlled along a predetermined path from within the envelope, and thus completely eliminates the possibility of damage to the contents. Since the opening is performed along a definite path, the time required by current haphazard methods will be reduced and the ease of performance will be increased.

Another object of the invention is to furnish an inexpensive and lightweight envelope opening means. This is accomplished by the provision of an opening system which is an integral part of the envelope, and which permits use of lightweight and inexpensive materials. The actual weight of the system disclosed is negligible in regard to postal transit.

Another object is to provide an internal opening system which is readily accessible from outside the envelope, but which is protected from accidental opening. This object is realized by restricting the external portions of the system to a minimum, and by eliminating any appreciable projections beyond the external surface of the envelope. Furthermore, the danger of creating obstacles to normal envelope handling is also eliminated.

Still another object is to provide an opening system which is furnished in its entirety with the envelope, and requires no additional parts or devices to execute a neat opening manually.

In addition, another object is to provide means which will enable the system to be used by mechanical opening methods. Specific provisions have been disclosed in this regard, and a full explanation of their characteristics is stated elsewhere in this specification.

These and other objects will be more fully hereinafter disclosed, and I intend that all matter contained in the following description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

In the drawings:

FIG. 1 is an elevational view showing the invention applied to an envelope having its top flap unfolded.

FIG. 2 is an elevational view showing the envelope of FIG. 1 having its top flap folded and sealed.

FIG. 3 is an enlarged fragmentary sectional view taken on line 3—3 of FIG. 2.

FIG. 4 is an enlarged fragmentary elevational view showing one corner of the envelope illustrated in FIG. 1.

FIGS. 5, 6 and 7 are enlarged fragmentary elevational views showing three modified forms of the invention.

FIGS. 8 and 9 are enlarged fragmentary elevational views showing a fourth modified form of the invention. A portion of FIG. 8 has been shown in section.

FIG. 10 is a front elevational view of a machine containing a series of envelopes of the type shown in FIGS. 8 and 9.

FIG. 11 is a sectional view taken on line 11—11 of FIG. 10.

Referring now more particularly to said drawings:

Reference numeral 1 indicates an ordinary envelope embodying the invention. The size and shape of envelope 1 has been chosen for illustrative purposes only, since many other types of envelopes are applicable.

2

Reference numeral 2 indicates the gummed sealing portion of the envelope, and reference numeral 3 the nonsealing or ungummed corners of the top and bottom flaps. Upon corner 3 is formed a tab 4. While only one tab 4 on one corner is sufficient, for operating the system, any or all of the remaining corners can be so provided if desired. Tab 4 is produced by perforating corner 3. The lines of perforation are indicated by numeral 5.

Upon tab 4 an end 6 of a thread 7 is fastened. This arrangement is shown on FIG. 4. Thread 7 is of a lightweight and inexpensive fibrous or metallic material, and of a small diametric cross-section. Thread 7 is attached to the internal fold 8 of the envelope. The attachment is made by gluing intermittently or continuously along the thread's entire length. By intermittent or continuous fastening a loose thread, apt to interfere with the enclosed contents, is avoided. FIG. 1 shows the location of the thread before the envelope's flap is folded, and FIG. 3 shows the thread's position in fold 8.

FIGS. 1 and 2 indicate an opening system at the top edge only. However, it is obvious that the system can be applied to any or all of the remaining bottom and side edges of the envelope. In any case, the following explanation will apply:

Thread 7 is fastened, at the time of manufacture, upon the inside of fold 8. End 6 of the thread is secured in position on tab 4; which has been adequately perforated to insure an easy detachment from the ungummed corner 3 of envelope 1.

To open a sealed envelope, of the like herein disclosed, tab 4 and end 6 are simply detached from corner 3, and thread 7 is pulled along fold 8. In so doing, the edge of the envelope is neatly cut open from inside the fold. Thus, means are hereby furnished which will provide an efficient and strong opening system.

It should be noted that the strength of this opening system relies upon the use of a thread, which can be of ample tenacity to complete the operation without breaking. Also, the strength of tab 4 can be increased by allowing the end loop 9 of thread 7 to act as a reinforcement along the edges of the tab. This modified arrangement of end loop 9 is shown on FIG. 5.

Another modified end 10 of thread 7 is shown on FIG. 6. End 10 is merely extended out beyond corner 3, and provides a gripping means for actuating the remainder of the thread.

FIG. 7 shows the invention with a further modification to provide the means for opening the envelope either manually or mechanically. Thread 7 is fastened to the inside of fold 8 in the manner as described heretofore. One end of thread 7 is extended through a hole 11. Hole 11 is provided in fold 8, and is located slightly offset from corner 12 of envelope 1. The end of thread 7 passes through hole 11 to the outside of fold 8, and is terminated with a small metallic bead 13. Bead 13 is made from a magnetic substance which is resistant to, or is adequately protected from, corrosion and rust.

While the modification shown on FIG. 7 can be applied to the top fold of the envelope, an application at a side or the bottom fold is preferred. Preference is given to these folds since they are formed at the time of manufacture, and thus the proper position of bead 13 can be assured.

As illustrated in FIG. 7 bead 13 protrudes slightly from the edge of envelope 1, and provides a gripping means for actuating thread 7. Bead 13 is grasped by the thumb and finger when the envelope is opened manually. When the opening is mechanically executed, an electro-magnet can be employed to clutch the bead 13.

It can be readily appreciated that when large volumes

of envelopes are to be opened, use of an electro-magnet in conjunction with the thread and metallic bead 13 will prove of value. The envelopes are simply arranged so their metallic beads and the edges to be opened are exposed to an electro-magnet. The envelopes are then secured in position by a suitable clamping device. The electro-magnet is energized and attracts each bead. With the beads firmly grasped by magnetism the magnet, beads, and threads are pulled longitudinally along the edges of the envelopes. Thus, the edges of all the envelopes are quickly and simultaneously opened.

A fourth modified form of the invention is shown on FIGS. 8 and 9. In this arrangement, thread 71 is a thin wire made from a magnetic substance. In all previous forms of the invention, the thread used can be of either a fibrous or a metallic material. Thread 71 is attached to the inside of fold 8 in the manner described heretofore. Fold 8 is provided with two elongated holes 14. Holes 14 are located on the bottom fold, and slightly offset from the two corners 15 of envelope 1. A similar application to the top and/or side folds can be utilized if desired.

By use of an electro-magnet and a suitable clamping device, bulk envelope opening can be performed in general accordance with the following description dealing with the machine illustrated in FIGS. 10 and 11. A number of envelopes 1 of the type shown on FIGS. 8 and 9 are placed in an envelope compartment 28. The envelopes are then compressed into a solid grouping by use of the clamp shown on FIG. 10. Hand screw 24 actuates jaw 25 which is guided and steadied by guide block 26 riding within a track 27. Numeral 31 indicates a jaw plate.

After having applied sufficient pressure for retaining the envelopes, a mobile electro-magnet 18 is brought down from its position of 181 to the position 182, these positions being indicated by dashed lines on FIG. 11. The movement of magnet 18 is controlled by the magnet support and guide blocks 23 riding within tracks 21. Tracks 21 are formed upon frame plates 22 and are inclined with respect to folds 8 of envelopes 1.

The upward run of magnet 18 starts at position 182, in which position, core 19 of the magnet is in contact with the folds 8 at corners 15. Core 19 is provided with a beveled contact surface 30 which extends longitudinally across and perpendicular to folds 8. Numeral 20 indicates a coil of the magnet.

When electro-magnet 18 is energized, all flexible ends 16 of threads 71 are drawn out of holes 14 to position 17 indicated by dashed lines on FIGS. 8 and 11. In position 17 ends 16, clutched by magnetism upon contact surface 30, and threads 71 are drawn across folds 8. Magnet 18, at the mid-point of its travel, is shown clutching the threads on FIGS. 10 and 11. Once the magnet reaches position 181, the energizing current is broken and threads 71 are released to drop into a thread collection compartment 29. Thus, a series of envelopes can be so opened simultaneously.

On FIG. 9, thread 71 and holes 14 are shown in their relative positions on envelope 1 before the bottom flap is folded. Thread 71 is attached to fold 8 between holes 14. Across holes 14 thread 71 is extended, without attachment, and is terminated a short distance beyond. On FIGS. 8 and 9, the scale of thread 71 and holes 14 have been exaggerated for the sake of clarity.

As many modifications of the invention will readily suggest themselves to others skilled in the art without departing from the spirit and scope of my invention, I do not limit or confine my invention to the specific details of structure and arrangement of parts and features herein shown and described.

I claim:

1. In combination, an envelope and an envelope opening machine, said machine provided with a clamping

means to exert a retaining force upon a group of said envelope, said group being retained within an envelope compartment, said compartment providing a partial enclosure with at least one side of said group being uncovered and accessible, said side composed of folds formed by individual envelope edges, the juxtaposition of elongated holes provided upon said folds, the deposition of magnetic substance across said holes, said magnetic substance constituting the ends of threads internally attached upon said folds, an electro-magnet posited in close proximity to said holes and magnetic substance; upon energizing said magnet, the protracted ends of said threads magnetically drawn out through said holes to the exterior of said folds, the means for gripping and releasing said ends, and the means for pulling said threads for the purpose specified.

2. In combination, an envelope and an envelope opening machine, said machine provided with a clamping means to exert a retaining force upon a group of said envelope, said group being retained within an envelope compartment, said compartment providing a partial enclosure with at least one side of said group being uncovered and accessible, said side composed of folds formed by individual envelope edges, the juxtaposition of elongated holes provided upon said folds, the deposition of magnetic substance across said holes, said magnetic substance constituting the ends and intermediate length of threads internally attached upon said folds, an electro-magnet posited in close proximity to said holes and magnetic substance; upon energizing said magnet, the protracted ends of said threads magnetically drawn out through said holes to the exterior of said folds, the means for gripping and releasing said ends, and the means for pulling said threads for the purpose specified.

3. In combination, an envelope and an envelope opening machine, said machine provided with a clamping means to exert a retaining force upon a group of said envelope, said group being retained within an envelope compartment, said compartment providing a partial enclosure with at least one side of said group being uncovered and accessible, said side composed of folds formed by individual envelope edges, the juxtaposition of elongated holes provided upon said folds, the deposition of magnetic substance across said holes, said magnetic substance constituting the ends and intermediate length of threads internally attached upon said folds, a mobile electro-magnet provided with a beveled contact surface extending longitudinally across and perpendicular to said folds, said magnet posited in close proximity to said holes and magnetic substance; upon energizing said magnet, the protracted ends of said threads magnetically drawn out through said holes to the exterior of said folds, the magnetic grip and release of said ends by said contact surface through the establishment and disruption of current to said magnet respectively, and an inclined carriage for transporting said magnet and threads for the purpose specified.

References Cited in the file of this patent

UNITED STATES PATENTS

| | | |
|-----------|-----------------------|---------------|
| 20,087 | Phelps ----- | Apr. 27, 1858 |
| 180,773 | Magruder et al. ----- | Aug. 8, 1876 |
| 859,416 | Tyson ----- | July 9, 1907 |
| 912,140 | Levy ----- | Feb. 9, 1909 |
| 1,035,109 | Wasmus ----- | Aug. 6, 1912 |
| 1,328,028 | Ahana ----- | Jan. 13, 1920 |
| 1,871,509 | Gargano ----- | Aug. 16, 1932 |
| 1,957,684 | Will ----- | May 8, 1934 |
| 2,797,370 | Bennett ----- | June 25, 1957 |

FOREIGN PATENTS

| | | |
|---------|-----------------|----------------|
| 3,884 | Australia ----- | Sept. 17, 1926 |
| of 1926 | | |
| 804,998 | Germany ----- | May 4, 1951 |