METHOD AND APPARATUS FOR PACKAGING ENVELOPES

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FIG. 1

FIG. 2

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METHOD AND APPARATUS FOR PACKAGING ENVELOPES

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1. This invention relates to a method and apparatus for packaging envelopes in groups.

In prior practice it was usual to take groups of envelopes and place an encircling paper band around the envelopes in order to package them for handling or for sale.

The principal object of the instant invention is to provide a method and means for packaging envelopes without requiring a separate encircling paper band.

A further object is to provide a device for applying a strip of flexible adhesive along an edge of a group of envelopes thereby binding them together.

Various other objects of the present invention will be apparent from the following description taken in connection with the accompanying drawing, wherein:

Fig. 1 is a side elevation of a device embodying the principles of my invention and showing the manner in which the device operates.

Fig. 2 is a sectional view taken on line 2—2 of Fig. 1.

In the drawings, 10 represents the delivery chute of an envelope making machine. The envelopes 12 issuing from said machine in the area generally indicated at 13 are quite loosely stacked with relation to one another. Creaser conveyor belts 15, supported by means (not shown), engage the top, bottom and side edges of the envelopes and convey the envelopes progressively from the left to the right of the machine as viewed in Fig. 1. The belts travel at a speed greater than the forward movement of the envelopes. Hence, they tend to compact the envelopes against a header (not shown) into close lying relationship in the manner shown generally at 14.

While the envelopes are being moved along by belts 15, they pass through a gumming station shown generally in the location of the section line 2—2 of Fig. 1. As can best be seen in Fig. 2, the envelopes 12 progress through the gumming station while standing on their bottom edge. The side edges of the envelopes are in frictional engagement with the surface of two adhesive applying rollers 16 and 18. The rollers 16 and 18 have a beveled face for engagement with the envelopes, said bevel being at an angle of 45° to the axis of rotation of the rollers. Two shafts 19 and 20, having their axes at 45° to the side surface of the envelopes, are mounted in a suitable framework (not shown but indicated by the boxes 21 and 22 respectively). The shafts 19 and 20 support the adhesive applying rollers 16 and 18 respectively.

Two adhesive supply tanks 23 and 24 are supported by means of a frame (not shown) and contain therewithin supplies 25 and 26 respectively, of a flexible adhesive. As can be seen in Fig. 2, the lower portion of the roller 16 is immersed in the adhesive supply 26 and similarly the lower portion of the roller 18 is immersed in the adhesive supply 28. As the envelopes pass through the adhesive applying station, the side edges of the envelopes bearing against the adhesive applying rollers 16 and 18 cause the same to rotate and transfer adhesive from the supply sources 25 and 26 and apply it in a narrow band along each side of the envelopes in the manner indicated at 27.

The envelopes with the strip of adhesive along their side edges are then passed through a drying station having two driers (only one being shown at 28, there being a similar drier on the opposite side of the device). After passing through the drying station, the envelopes come in contact with a counter or calipering device which measures a given distance representing a certain number of envelopes. After a sufficient number of envelopes have passed a certain point and move the caliper a sufficient distance equal to the width of said selected number of envelopes, a slitter member 29 mounted above the envelopes (by means not shown) is actuated by the caliper.

When so actuated, the slitter member 29 is lowered by means (not shown) so the slitting blades enter between two envelopes. The blades are then opened up, in the manner shown in the dotted lines in Fig. 2 whereby the slitter sever the adhesive strips extending along the sides of the envelopes and separates the envelopes into groups, each containing the proper number. The envelope packages thus segregated by means of the slitter drop off the end of the device onto a conveyor belt.

From the foregoing description, it may be seen that I have provided a novel method and means of banding envelopes into individual packages of groups wherein the use of an encircling band of paper is eliminated, the envelopes being held together by means of a flexible adhesive applied in strips along the sides thereof. When it is desired to separate the envelopes for use, it is merely necessary to tear one envelope away from the rest in the same manner in which a sheet of paper is torn from a pad. The small amount of adhesive which might cling to any individual envelope would not be objectionable.

While I have shown and described one preferred form of my invention, it is to be understood that various changes may be made in this construction by those skilled in the art without departing from the spirit of the invention as defined in the appended claims.

Having thus described my invention, what I claim and desire to secure by Letters Patent is:

1. A method of packaging envelopes comprising moving the envelopes to be packaged along a predetermined path while resting on their bottom edges in close lying front to back relation, connecting the envelopes together by applying a thin strip of flexible adhesive to the side edges of said envelopes as they move past a given point, and separating said envelopes thus connected.
into groups by slitting the adhesive strips between two adjacent envelopes at selected points.

2. A method of packaging envelopes comprising moving the envelopes to be packaged along a predetermined path while resting on their bottom edges in close lying front to back relation, connecting the envelopes together by applying a thin strip of flexible adhesive to the side edges of said envelopes as they move past a given point, drying said adhesive strips, and separating said envelopes thus connected into groups by slitting the adhesive strips between two adjacent envelopes at selected points.

3. A method of packaging envelopes comprising receiving the envelopes as they issue from an envelope making machine, arranging the envelopes in a column resting on their bottom edges in front to back relation, compressing the column of envelopes into close lying relation, applying thin strips of a flexible adhesive to the side edges of said compressed column of envelopes, and slitting said strips of adhesive between two adjacent envelopes at selected points along said column to separate said envelopes into groups each containing a predetermined number of envelopes.

4. A method of packaging envelopes comprising receiving the envelopes as they issue from an envelope making machine, arranging the envelopes in a column resting on their bottom edges in front to back relation, compressing the column of envelopes into close lying relation, applying thin strips of a flexible adhesive to the side edges of said compressed column of envelopes, drying said adhesive strips, and slitting said strips of adhesive between two adjacent envelopes at selected points along said column to separate said envelopes into groups each containing a predetermined number of envelopes.

5. An envelope packaging device comprising means for receiving loose envelopes and conveying them past an adhesive applying station in upright close lying front to back relation, means for applying a narrow strip of flexible adhesive along the side edges of said envelopes transversely thereto as said envelopes pass through said adhesive applying station, said adhesive binding said envelopes into a continuous column, and means for severing said adhesive strip between two adjacent envelopes at selected points along said column, whereby said envelopes are separated into groups each containing a predetermined number of envelopes.

6. An envelope packaging device comprising means for receiving loose envelopes and conveying them past an adhesive applying station in upright close lying front to back relation, means for applying a narrow strip of flexible adhesive along the side edges of said envelopes transversely thereto as said envelopes pass through said adhesive applying station, said adhesive binding said envelopes into a continuous column, means for drying said adhesive strips, and means for severing said adhesive strip between two adjacent envelopes at selected points along said column, whereby said envelopes are separated into groups each containing a predetermined number of envelopes.

7. An envelope packaging device comprising a flat tray on which the loose envelopes are received standing upright on their bottom edges, a plurality of conveyor belts adapted to contact the bottom, top, and side edges respectively of said envelopes as they move off said tray, means to retard the advance of said envelopes relative to the travel of said belts whereby the envelopes are compacted to close lying front to back relation, means for applying a narrow strip of adhesive along the side edges of said envelopes as they move off said tray, means to retard the advance of said envelopes relative to the travel of said belts whereby the envelopes are compacted to close lying front to back relation, means for applying a narrow strip of adhesive along the side edges of said envelopes as they are moved by said conveyor belts past said adhesive applying means while in said close lying front to back relation, said adhesive binding said envelopes into a continuous column, means for drying said adhesive strip, and means for severing said adhesive strip between two adjacent envelopes at selected points along said column, whereby said envelopes are separated into groups each containing a predetermined number of envelopes.

8. An envelope packaging device comprising a flat tray on which the loose envelopes are received standing upright on their bottom edges, a plurality of conveyor belts adapted to contact the bottom, top, and side edges respectively of said envelopes as they move off said tray, means to retard the advance of said envelopes relative to the travel of said belts whereby the envelopes are compacted to close lying front to back relation, means for applying a narrow strip of adhesive along the side edges of said envelopes as they move off said tray, means to retard the advance of said envelopes relative to the travel of said belts whereby the envelopes are compacted to close lying front to back relation, said adhesive binding said envelopes into a continuous column, means for drying said adhesive strip, and means for severing said adhesive strip between two adjacent envelopes at selected points along said column, whereby said envelopes are separated into groups each containing a predetermined number of envelopes.

9. An envelope packaging device comprising a flat tray on which the loose envelopes are received standing upright on their bottom edges, a plurality of conveyor belts adapted to contact the bottom, top, and side edges respectively of said envelopes as they move off said tray, means to retard the advance of said envelopes relative to the travel of said belts whereby the envelopes are compacted to close lying front to back relation, means for applying a narrow strip of adhesive along the side edges of said envelopes as they are moved by said conveyor belts past said adhesive applying means while in said close lying front to back relation, said adhesive binding said envelopes into a continuous column, means for drying said adhesive strip, and means for severing said adhesive strip between two adjacent envelopes at selected points along said column, whereby said envelopes are separated into groups each containing a predetermined number of envelopes.

10. An envelope packaging device comprising a flat tray on which the loose envelopes are received standing upright on their bottom edges, a plurality of conveyor belts adapted to contact the bottom, top, and side edges respectively of said envelopes as they move off said tray, means to retard the advance of said envelopes relative to the travel of said belts whereby the envelopes are compacted to close lying front to back relation, said adhesive binding said envelopes into a continuous column, means for drying said adhesive strip, and means for severing said adhesive strip between two adjacent envelopes at selected points along said column, whereby said envelopes are separated into groups each containing a predetermined number of envelopes.

No references cited.