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[54] CARRIER ENVELOPE FOR MACHINE PROCESSING AND PROCESS FOR MAKING SAME

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[52] **U.S. Cl.** .....**235/61.12 R**, 229/75, 229/80

[51] **Int. Cl.** **G06r 19/00**, B65d 27/14

[58] **Field of Search**.....229/68, 75, 80, 79, 74, 72, 229/71; 235/61.12 R, 61.12 N, 61.12 M

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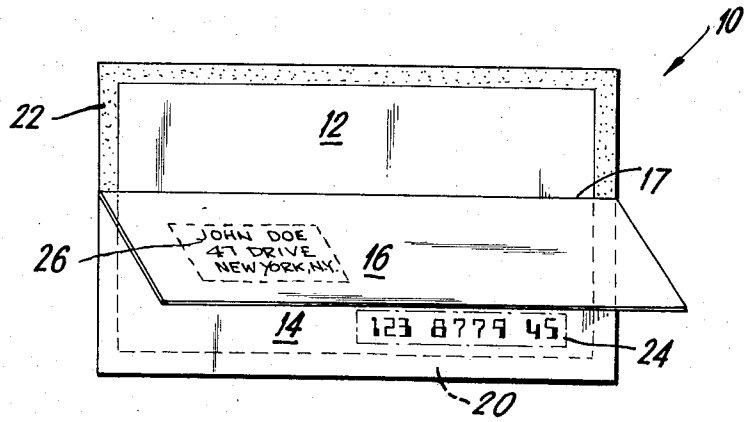
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[57] **ABSTRACT**

A carrier envelope adapted for processing by automatic data equipment employs first and second rectangular surfaces secured along each edge parallel to the direction of document translation through reading machine equipment with an elastomeric adhesive. The carrier and, for some applications, also its contents, readily conforms to the contour of a document feeding surface and feeding path in automatic reading equipment to facilitate engagement between printed fields on the envelope and machine reading head.

In accordance with other aspects of the present invention, the carrier envelope may be constructed in an improved manner without waste of paper stock; carrier envelopes are readily amenable to machine addressing and bulk handling; and a flap construction thereon facilitates enclosure insertation, and maintains user privacy.

4 Claims, 2 Drawing Figures



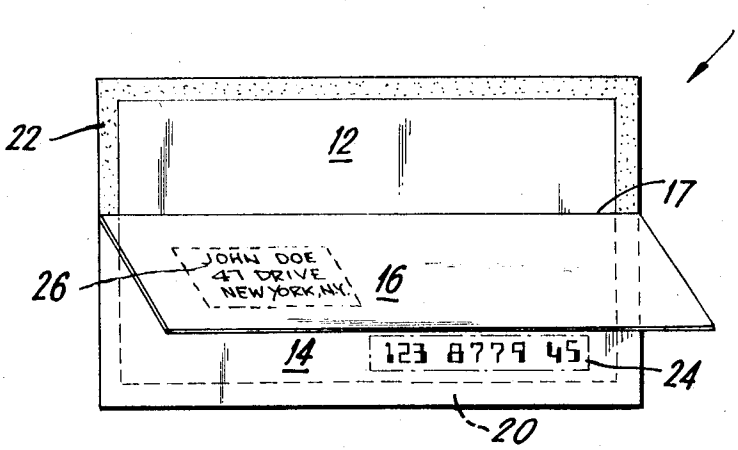


FIG. 1

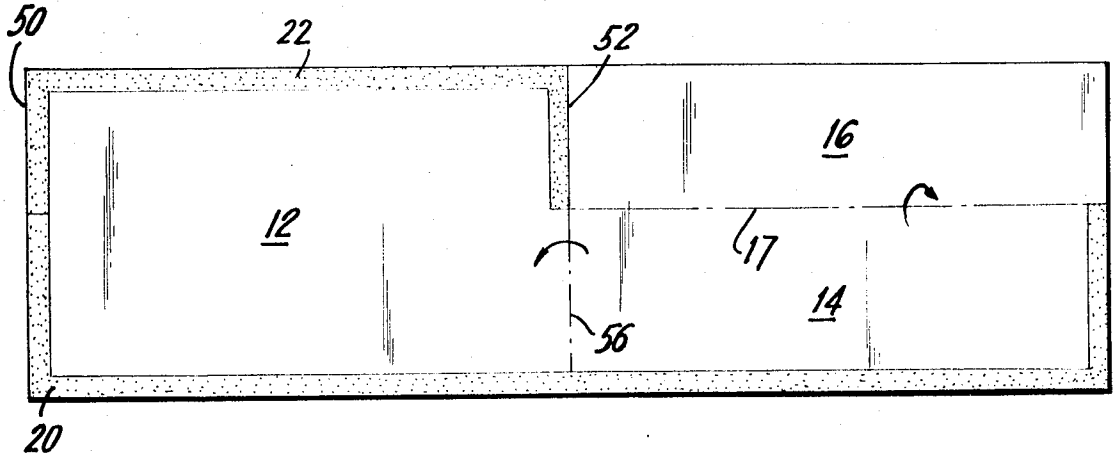


FIG. 2

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CARRIER ENVELOPE FOR MACHINE PROCESSING AND PROCESS FOR MAKING SAME

DISCLOSURE OF INVENTION

This invention relates to automatic data processing and, more specifically, to a carrier envelope which facilitates machine interrogation thereof, and to the method for fabricating such carriers.

Carrier envelopes inscribed with machine readable intelligence have heretofore been employed in conjunction with automatic data processing equipment. For example, such items have been used as substituted documents, e.g., in place of a mutilated check. For such an application, the information on the check (e.g., account number, payor bank, routing instructions and the like) is placed on the carrier—as by characters formed with a ferro magnetic ink of a prescribed font. The deformed check is then inserted into the carrier which then serves as a substitute document therefor to enter information into the data system via an MICR (magnetic ink character recognition) reader.

However, such carrier envelopes sometimes cause misreading, or entirely inhibit reading by the MICR scanning equipment. In particular, such prior art carrier envelopes have multiple paper plies by the inherent nature of envelope construction, and thus cannot adaquately conform by bends of a sufficiently small radius to the document feeding path of the reader equipment. Rather than following feed roller periphery, for example, the envelopes—having at least two fixed thicknesses along the bottom envelope edge (parallel to the direction of document travel in the reader apparatus)—bend in linear segments to essentially form tangents about the roller. The inability of these carriers to conform to a markedly curved surface stems from the inability of the multiple plies of the envelope to move relative to one another to form concentric circular segments of different arc lengths.

Accordingly, prior art carrier envelopes often move significant distances away from the data interrogating reader head by reason of their failure to closely follow the surface of the document feeding apparatus. This gives rise to reading errors, or simply rejection of the carrier as not amenable to electromechanical processing.

It is thus an object of the present invention to provide an improved carrier envelope, and a method for making such envelopes.

More specifically, an object of the present invention is the provision of a carrier envelope which will conform to the curved contour of mechanical document feeding apparatus.

Other objects of the present invention are the provision of a carrier envelope which may be efficiently fabricated without raw stock waste, which may be employed for collections, banking transactions, or the like while preserving subscriber privacy; which encourages document insertion without folding; and which facilitates machine addressing and other processing.

The above and other objects, features and advantages of the present invention are realized in a specific illustrative embodiment thereof, discussed in detail hereinbelow in conjunction with the accompanying drawing, in which:

FIG. **1** depicts a carrier envelope embodying the principles of the present invention; and

FIG. **2** illustrates a method for making the carrier envelope of FIG. **1**.

Referring now to FIG. **1**, there is shown a carrier envelope **10** comprising a flat, rear surface sheet **12**, and a like size front surface sheet **14** having an upper flap **16** folded about a fold line **17**. The bottom and lower sides of the front and rear sheets are secured by an elastomeric adhesive **20**, e.g., as available from Union Rubber & Asbestos Co. of Trenton, New Jersey. The elastomeric adhesive **20** permits the lower portion of the sheets **12** and **14** to move relative to one another, and to thus permit the envelope **10**, and in particular the lower edge portion thereof, to bend around, and conform to curves of a small radius. A moisture actuated adhesive **22** is secured on the top portion of one or both of the sheets **12** and **14**.

An alphanumeric machine code number including plural data fields, such as an account number, and beneficiary hierarchy data for charitable donation or utility accounts receivable applications is printed along the lower portion of the front carrier sheet **14**, as at **24**. This information is advantageously imprinted with magnetic ink in MICR font in a proper location relative to an envelope reference point for MICR machine reading, and may include plural information fields as required for each particular application. A second intelligence area **26** may be printed on the corresponding envelope flap **16**. This information field may be a mailing name and address for sending one or a series of envelopes to a subscriber individual via conventional window mailing envelopes.

In use, the envelope is appropriately imprinted and delivered to a subscriber, donee or the like, or simply used at a data processing center. For a billing or contribution application, for example, the subscriber places paper currency, a check or the like into the carrier envelope, the envelope by its inherent shape suggesting to the user that he ought not fold the enclosure or the carrier, thereby preserving machine readability. The subscriber then moistens the glue line **22**, and seals the envelope.

At a receiving center, the envelope may be machine processed with another document enclosed therein—e.g., for the substitute check document application. Alternatively, as for receipt of money, the envelope contents are removed, and the amount of the enclosure is typed in magnetic ink MICR characters in an amount field in the printed area **24**. The carrier **10** is then supplied to, and read by the automatic reader equipment.

The advantages obtaining for the instant carrier envelope **10** are several, and distinct in nature. First, and importantly, the mating bottom edges of the two carrier envelope sheets **12** and **14** may undergo relative translation therebetween as above discussed, thereby rendering the carrier supple and able to closely conform to a machine feeding path. Also the flap **16** is disposed in the central portion of the envelope and not on the peripheral areas thereof. Thus, the carriers **10** will stack vertically, without progressively canting in either direction as is the case for stacked envelopes with an extra ply near any envelope extremity. Further in this regard, the carriers are readily adapted for machine addressing, since the imprinted areas **24** and **26** are always of the same number of plys during each printing cycle, viz., two plies for the area **24** and three plies for the area **26**.

Referring now to FIG. **2** there is shown an illustrative method for making the envelope **10** from a rectangular paper segment **50**, e.g., severed from a continuous roll thereof. A vertical cut **52** is centrally made in the upper central part of the sheet **50**, and the flap **16** formed by a rearward fold of the flap portion **16** about the fold line **17**.

The elastomeric adhesive **20** is then disposed about the lower periphery of the sheet **50**, and the moisture activated adhesive **22** disposed about the upper left portion of the sheet (and possibly also about the edges of the flap **16** before flap folding). The right side of the sheet **50**, corresponding to the front carrier sheet **14**, is then folded over the left side (rear carrier sheet **12**) about a fold line **56**, and the carrier secured by means of the elastomeric adhesive **20**.

As an alternate method, the front surface **12**, including the flap **16** (corresponding to the right side of the sheet **50** in FIG. **2**) may be formed per se; the glue lines **20** and **22** deposited into place; and the front and rear surface simply adhered together.

The carrier envelope **10** of FIG. **1** is efficiently formed by either construction described herein, there being a one hundred percent paper usage from raw stock without paper waste otherwise attendent to the use of irregular paper shaping (as by fillet cuts or the like) during carrier envelope formation.

The above described apparatus and method are merely illustrative of the principles of the present invention. Numerous

modifications and adaptations thereof will be readily apparent to those skilled in the art without departing from the spirit and scope of the present invention.

What is claimed is:

1. In combination in a carrier envelope adapted for cooperating with automatic data processing equipment, a rectangular rear surface sheet, a like size and shape front surface sheet, an elastomeric adhesive disposed between at least the bottom and lower side edges of said front and rear sheets thereby securing said first and second sheets while permitting relative translation therebetween, a flap formed by the upper part of said front surface sheet, and alphanumeric character means of a machine readable font disposed on the lower portion of said carrier envelope.

2. A combination as in claim 1 further comprising additional imprinted means on said carrier envelope flap.

3. A method for forming a carrier envelope from a rectangular paper stock sheet comprising the steps of effecting a vertical central partial cut parallel to the short axis of said rectangular sheet at the top portion thereof, folding the upper portion on one side of said rectangular sheet contiguous with said vertical cut downward about a fold line orthogonal to said vertical cut, placing an elastomeric adhesive along at least the bottom edge of said rectangular sheet, and folding said envelope about a vertical fold line comprising a continuation of said vertical cut line.

4. A method as in claim 3 further comprising placing a moisture activated adhesive along the top edge of at least one portion of said rectangular stock sheet.

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