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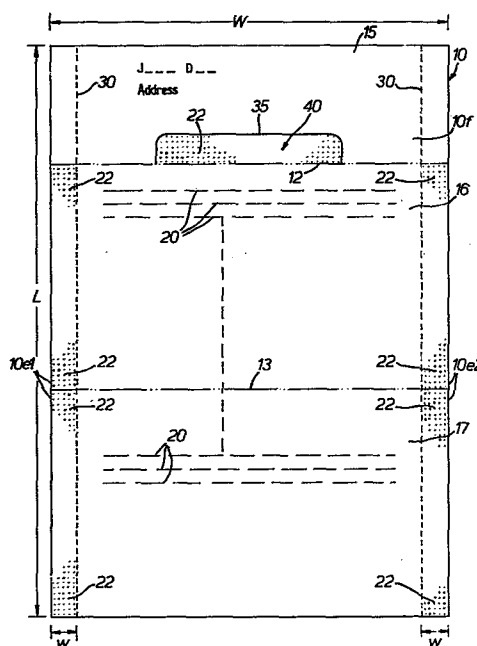
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Bulletin 84/51(72) Inventor: **Oz, Giora**, Kibbutz Beerl, D.N. Negev 85135 (IL)(84) Designated Contracting States: **BE CH DE FR GB IT LI**(74) Representative: **Barrett, James William et al, A.A. THORNTON & CO.** Northumberland House 303-306 High Holborn, London WC1V 7LE (GB)(54) **An integral data containing sheet and envelope.**

(57) Date to be sent to a person together with the person's name and address are printed in the same side of a sheet of paper (10). The paper is foldable into the shape of an envelope with the person's name and address on the envelope front and all date on the unexposed surfaces of the envelope. The portions (15, 16, 17) of the sheet of paper (10) which form the envelope are secured together by tear-away edges (22) and by a flap (40). The sheet may also include a tear-off remittance card (45) at the bottom end thereof which is foldable into the envelope for shipment to a person.



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AN INTEGRAL DATA CONTAINING SHEET AND ENVELOPE

5 The present invention generally relates to foldable paper and, more particularly, to printed matter, uniquely foldable to form an envelope for mailing purposes.

10 With the advent of computer print-outs, statements to customers are automatically printed out by the computer's printer for mailing to customers. These statements, in addition to the customer's name and address, contain pertinent information, which, typically, customers wish to have maintained in confidence. In cases where a remittance has to be sent back by the customer a separate card or stub is printed out, which contains machine-readable data and which the customer is asked to
15 send back with his (or her) remittance.

20 To simplify the printing operation it is desirable to perform all the printing on one side of the sheet of paper. Furthermore, the operation could be enhanced if both the statement and the remittance card were printed on the same side of a single sheet. The task of mailing would be enhanced greatly if after all the required information is printed, the sheet could serve as a secure envelope, thus dispensing with the need for sepa-

rate envelopes, which have to be stuffed and addressed.

None of the arrangements, used to date, provide all of these advantages, namely a single sheet of paper on which a statement is printed, sometimes together with
5 a remittance card or stub on only one side of the paper, and which can be used to form a secure envelope for direct mailing to a customer. As used herein a secure envelope intends to refer to an envelope, sealed in a way that the contents thereof is not readily available,
10 except by opening the sealed envelope.

Briefly, the present invention comprises:

a single sheet of paper on which the name and address of the customer as well as all data or information to be sent to him are adapted to be printed on one
15 side of said sheet, with the customer's name and address on a top portion of said sheet, further including first through n successive sheet portions of substantially equal dimensions extending from said top portion, n being an integer not less than 2, said n portions being
20 separated by folds so as to be foldable over one another with opposite edges on the front side of said first and one of the other portions being securable to one another, to form an envelope-like unit, substantially equal in size to said first portion, said top portion
25 which is adapted to contain the customer's address being foldable onto the back side of said first portion to form at least a portion of the front side of said envelope with the back side of said second portion forming

the envelope back side; and

means along at least the edges on the front side
of said first portion for securing the other portions
thereto to form a sealed envelope.

The novel features of the invention are set forth
with particularity in the appended claims. The invention
will best be understood from the following description
when read in conjunction with the accompanying drawings.

Figure 1 is a top view of a sheet of paper useful
in explaining several basic embodiments of the
invention;

Figures 2A and 2B are diagrams showing the sheet
of paper in different folding states;

Figure 3 is a front view of the folded sheet as an
envelope;

Figure 4 is a cross-sectional view along lines 4-4
in Figure 5;

Figure 5 is a front view of the folded sheet as an
improved envelope;

Figure 6 is another folded view of the sheet with
more than two basic portions; and

Figure 7 is a top view of the sheet useful in
explaining another embodiment of the invention.

Attention is first directed to Figures 1, 2A, 2B
and 3 in connection with which a basic embodiment of the
invention will first be described. Briefly, the inven-
tion comprises a single sheet of paper 10 on which all

information is printed on its front side or face, generally designated by 10f, while its back side or face will be referred to as 10b. The width of the sheet is designated by W, while its length is designated by L. In the particular embodiment the sheet 10 is folded along its width by a plurality of folds, such as those designated by dashed lines 12 and 13, thus effectively dividing the sheet into three sections or portions. They include a top portion 15, a first portion 16 which extends downwardly from portion 15 and a second portion 17 which extends from portion 16. As will become apparent from the following description, top portion 15 serves at least as part of the front face of the envelope to be formed while portions 16 and 17 serve as the envelope sides or walls.

During printing, only unclassified or information which is not to be kept secret is printed on the top portion 15. Such information may consist of the customer's name, e.g. John Doe, and his address. However as to portions 16 and 17, thereon and only on their front faces 10f pertinent classified information, such as a bank statement or the like, is printed. Such printed information is designated by dashed lines 20. Preferably, for purposes to be explained the printing is not performed over the entire width W of the sheet. Rather margins of widths w are provided from edges 10e1 and 10e2 of each of portions 16 and 17.

After all the information is printed on the front

face of sheet 10, its folding and other steps to convert it to an envelope are performed. A particular sequence of steps will be described, although as will become apparent the sequence may be changed without departing from the true spirit of the invention. Briefly, adhesive matter 22 is applied to the margin areas w along the two opposite edges 10e1 and 10e2 of one or both of the sheet portions 16 and 17. Then portions 16 and 17 are folded onto one another, as shown in Figs. 2A and 2B. Thus any printed information is enclosed between the two sheet portions. The adhesive matter 22, e.g. a thin layer of quick drying glue may be used to glue the two portions to one another.

As to the top portion 15 adhesive matter 22 is applied either to its back face and/or to the top of the back face of portion 16, so that as the latter mentioned portions are folded onto one another, as shown in Figs. 2A and 2B, the top portion 15 becomes glued onto the back face of portion 16.

After being folded and the various portions glued to one another the sheet 10 effectively becomes an envelope 25, as shown in Fig. 3. Its length is equal to the paper width W and its height H equals the height of portion 16 which is generally equal but not less than the height of portion 17. As to top portion 15 it forms at least part of the front face of the envelope and contains the addressee's name, e.g. John Doe and/or the

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address, both of which have been printed out automatically by a computer printer on the front face 10f of sheet 10, on which all other information was printed.

5 As shown in Fig. 3 the top portion 15 forms only part of the envelope front face. This is done to save paper, by using part of the back face of portion 16 as the rest of the envelope front face. In such an embodiment a stamp 26, which is generally of the machine printable type, is applied to the back face of portion 10 16 of the paper 10 either before the printing, folding and glueing operation or thereafter. However, if desired, top portion 15 may be long or high enough to form the entire envelope front face. In such a case the step 26 could be applied automatically at an appropriate corner on the front face 10f of top portion 15. 15

From the foregoing, it should thus be apparent that the single sheet of paper 10, once information 20 is printed thereon on the front face thereof, e.g. 10f, it is foldable and together with adhesive matter 22 is converted into envelope 25 (Fig. 3). The envelope need not be addressed since the addressee and/or his address were already automatically printed on the paper top portion 15 which becomes at least part of the envelope front face. 20

25 The fold 13 between the first portion 16 which is below the top portion 15 and the following portion 17, forms a sealed top of the envelope. As to the envelope bottom end, as described so far, it is open. However,

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the edges of the envelope 25 are sealed by the glue 22 which secures portions 16 and 17 to one another. Thus, the information 20 is relatively secured. The envelope
5 can be opened by prying the edges of portions 16 and 17 apart. To facilitate such opening, at some point in the operation, preferably after the envelope 25 is formed, rows of perforations 30 are formed near the opposite edges of the envelope spaced distances w therefrom.
10 Thus, by tearing off the envelope edges along the perforations the glued areas of portions 16 and 17 are removed. As a result, the addressee can unfold the two portions 16 and 17 and read the classified information contained therein.

15 To fully secure the envelope it may be desirable to seal the bottom end of the envelope. This can be achieved by applying a thin layer of glue along the bottom edge of paper portion 17 and/or along the top end of portion 16, below fold 12, so that when these edges
20 are pressed against one another they adhere to one another.

In another embodiment, at some point during operation, preferably after all printing has taken place, but before the top portion 15 is folded and glued to the
25 back of paper portion 16, an elongated U-shaped slot 35 is punched near the bottom of the top portion 15, as shown in Fig. 1, so that the fold 12 represents the open end of the slot, thus forming a flap 40. Adhesive matter

such as a layer of glue 22 is applied to the flap. After the folding operation is completed, the flap 40 is folded in a direction opposite to that of the folding of the rest of the top portion 15. It is pressed against the back of paper portion 17 near its outer edge as shown in Fig. 4, wherein the thicknesses of the various paper portions have been exaggerated for explanatory purposes. Thus, by sealing the flap 40 against portion 17 the bottom end is practically sealed. This prevents anyone from having access to the envelope content, without cutting off the flap 40 and tearing the envelope edges along the perforations 30. The envelope with such a flap is shown in front view in Fig. 5. Actually Fig. 4 is a cross-sectional view of the envelope of Fig. 5 along lines 4-4.

Herebefore the invention has been described in connection with a sheet 10, foldable into a secure envelope, which, in addition to the top portion 15, includes only two additional portions 16 and 17 on which information 20 is printed to be mailed to a customer. Clearly, if desired or necessary, due to the length of the statement the sheet, except for top section 15, may consist and be folded into more than two portions, generally referred to as n , where n is an integer. Herebefore n was equal to 2. The n sheet portions are folded so that when n is greater than 2, e.g. 3, all the sheets, except for the first and second, counting down from the top portion 15, are folded between the first

and second portions 16 and 17 to be sealed therebetween. Fig. 6 is a simple example in which the sheet is folded to include, in addition to the top portion 15 and portions 16 and 17, a third portion 18 which extends from portion 17. When folded, it is located between portions 16 and 17, as shown.

As previously pointed out, quite often when a statement is sent to a customer from an entity, e.g. a bank or credit institution, a stub or card are enclosed, indicating any remittance which may be due. Typically, the customer is asked to return the amount due together with the card. The card typically includes machine-readable data and other information, e.g. customer account for machine processing the remitted sum when returned with the card. To facilitate the processing of such cards by a machine the cards are designed with one or more sharp edges so that the cards can be properly stacked and fed automatically through a card reader or the like.

In accordance with the present invention the need for such a separate card is totally eliminated, thus further pointing out the significant advantages provided by the invention. This aspect may best be explained in connection with Fig. 7 in which elements like those previously described are designated by like numerals. Basically Fig. 7 is similar to Fig. 1, except that a card-like portion 45, hereafter referred to as the card

45 extends from the last portion, e.g. portion 17. Initially it is an integral part of sheet 10. All the information, typically printed on a conventional card is also printed on card 45. In Fig. 7 numeral 47 designates
5 dashed lines which represent such information, which is often machine-readable. All such printing can be and, in accordance with the present invention, is done at the same time the statement information, represented by numeral 20 is done. Before the sheet is to be folded a
10 row of perforations, represented by numeral 48 is formed along the top of card 45 and the bottom end of portion 17. Then a fold is formed therealong. Prior to forming perforations 48 or thereafter, the card is cut so that its length designated X is preferably slightly less
15 than the distance between perforations 30. That is $(W-2w) > X$. The card is also cut to have one and preferably two sharp edges such as 51 and 52 forming an angle α , typically of 90°. These sharp edges are often required to facilitate the processing of the card 45 by a
20 machine, when returned to the addressor.

Thereafter the card is folded between portions 16 and 17 and the rest of the sheet is folded and sealed to form the secured envelope, as herebefore described. When the envelope is received and opened by tearing off its
25 edges along perforations 30 and flap 40 the sheet is unfolded, thus revealing the statement information on portions 16 and 17 as well as the card. It should be stressed that since the glue 22 is beyond perforations

30 the card's edges are never marred by glue, nor are they affected by tearing off the envelope's edges since $X < (W - 2w)$. The card 45 is easily detachable from the rest of the sheet, which the customer keeps, by detaching it along perforations 48. As long as edges 51 and/or 52 are unmarred the card can be machine processed when returned to the addressor. It should thus be apparent that in accordance with the present invention the single sheet 10 on which all matter is printable on one side is foldable and securable to form, not only a secure envelope, but also include a returnable card as an integral part thereof.

Although particular embodiments of the invention have been described and illustrated herein, it is recognized that modifications and variations may readily occur to those skilled in the art and consequently, it is intended that the claims be interpreted to cover such modifications and equivalents.

CLAIMS:

1. A mailable unit comprising:

a sheet of foldable paper, adapted to contain data thereon, said sheet being of preselected width definable as W and preselected length definable as L, with all the data being contained one side thereof, defining the sheet's front face, the sheet being folded along its width to form a top portion and at least first and second portions extending from the sheet's top end toward its bottom end, said sheet being foldable whereby the front faces of said first and second portions are foldable toward one another and the back of said top portion is foldable onto and securable to at least the top part of the back of said first portion, so that a part of the back of said first portion not secured to the top portion and the front of the top portion, represent the front face of an envelope, with a length equal to the width W of said sheet and a height substantially equal to the height of each of said first and second portions along the sheet's length, the first and second portions being attachable to one another along their edges, when folded on top of one another; and

detachment facilitating means defining border lines between the attached edges of said portions and the unattached portions thereof for facilitating the removal of said attached edges and thereby enable the unfolding of at least said first and second portions

from one another.

2. A unit as recited in Claim 1, wherein said sheet further includes n additional portions extending successively from said second portion, and being foldable on top of one another, so that when said first, second and n portions are folded onto one another said n additional portions are folded between said first and second portions, n being an integer not less than 1.

3. A unit as recited in Claim 2 wherein one of said n additional portions which is most remote from said second portion has a length dimension definable as X along the sheet's width, X being not greater than $W-2w$, where w defines the widths of the edges of at least said first and second portions which are attached to one another, whereby when the edges are removed and said sheet's portions, except the top portion, are unfolded, the edges of said one additional portion remains unaffected.

4. A unit as recited in Claim 3 wherein said one additional portion contains machine readable data and has at least two adjacent edges thereof which define a predetermined angle therebetween.

5. A unit as defined in Claim 4 wherein the angle is on the order of 90° .

6. A unit as recited in Claim 3 wherein said one additional portion is detachable from a preceding portion by a plurality of perforations along the fold therebetween.

7. A unit as recited in Claim 1 wherein said detachment facilitating means comprises a plurality of perforations adjacent the edges of said first and second portions.

5 8. A unit as recited in Claim 1 wherein said first and second portions are secured to one another by adhesive matter along their edges.

9. A unit as recited in Claim 8 wherein said detachment facilitating means comprises a plurality of perforations adjacent the edges of said first and second portions.

10 10. A unit as recited in Claim 1 wherein said portions other than said top portion are attachable to one another along their edges to form an elongated pocket with a top opening defined by the top and bottom ends of said first and second portions respectively and said unit includes sealing means for sealing at least part of said pocket opening.

11. A unit as recited in Claim 1 wherein said top portion has a cut of a preselected shape therein, so as to form a flap, extending from the fold between said top and first portion, the front of said flap having adhesive matter thereon and being foldable in a direction opposite to the fold direction of said top portion, to be adhesively attached to the back of said second portion near the bottom end thereof so as to attach the top and bottom ends of said first and second portions of said sheet when said latter mentioned portions are attached

to one another.

12. A unit as recited in Claim 11 wherein said sheet further includes n additional portions extending successively from said second portion, and being foldable on top of one another, so that when said first, second and n portions are folded onto one another said n additional portions are folded between said first and second portions, n being an integer not less than 1.

13. A unit as recited in Claim 12 wherein one of said n additional portions which is most remote from said second portion has a length dimension definable as X along the sheet's width, X being not greater than $W-2w$, where w defines the widths of the edges of at least said first and second portions which are attached to one another, whereby when the edges are removed and said sheet's portions, except the top portion, are unfolded, the edges of said one additional portion remain unaffected.

14. A unit as recited in Claim 13 wherein said one additional portion contains machine-readable data and has at least two adjacent edges thereof which define a predetermined angle therebetween.

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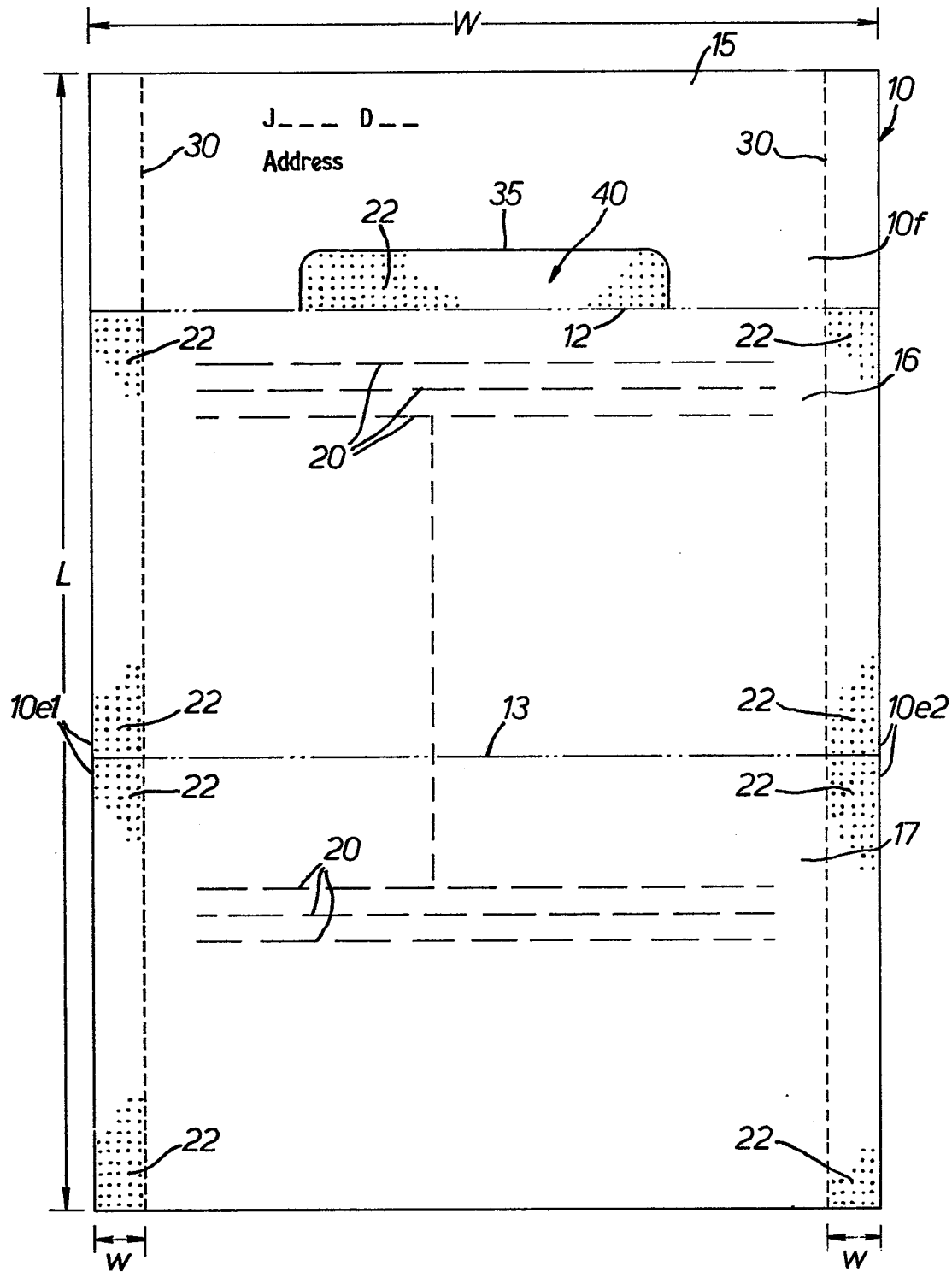


Fig. 1.

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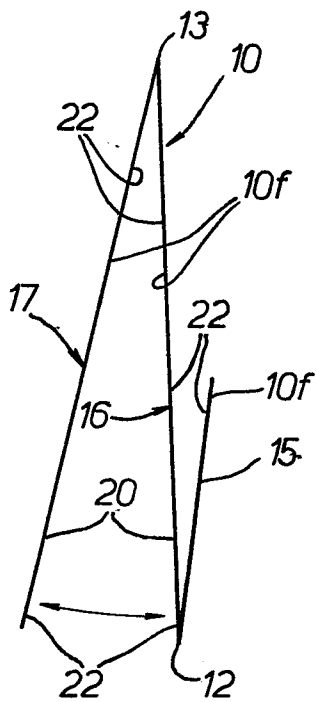


FIG. 2A.

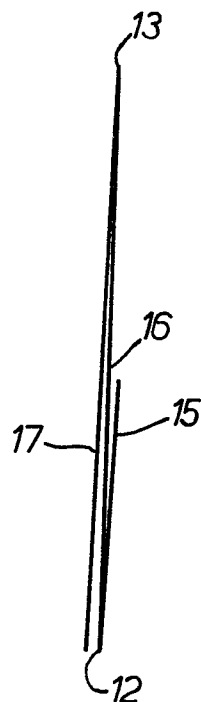


FIG. 2B.

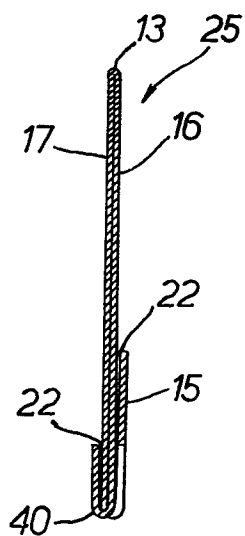


FIG. 4.

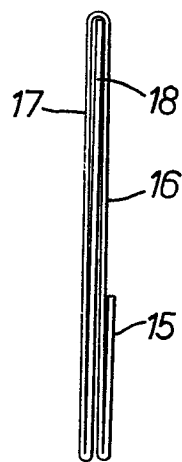


FIG. 6.

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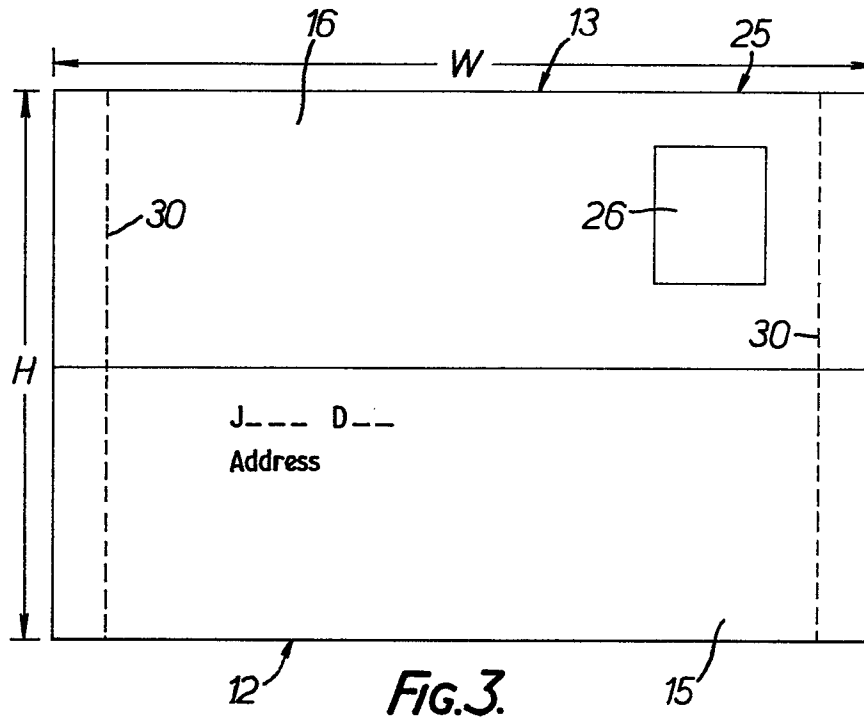


FIG. 3.

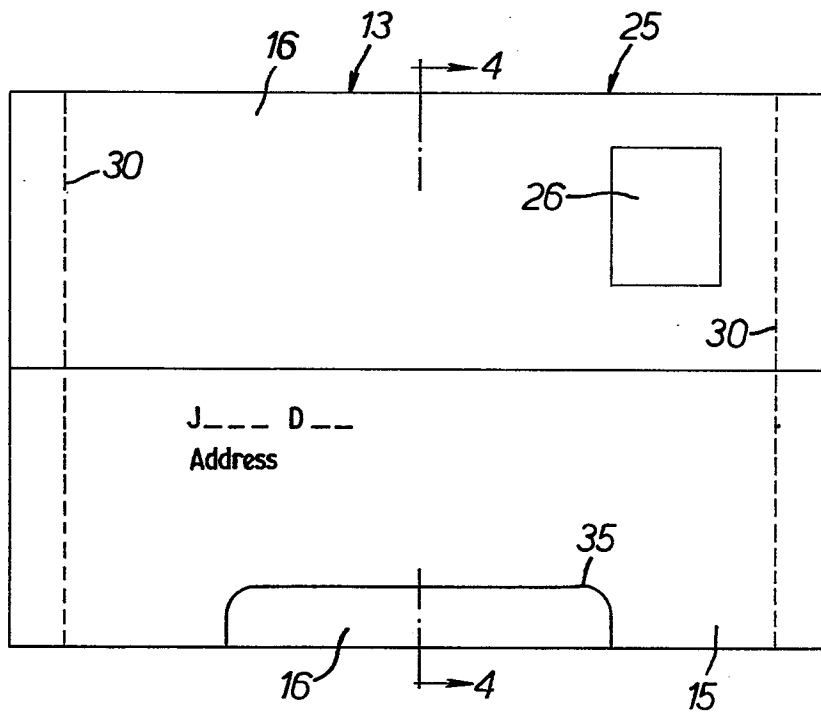


FIG. 5.

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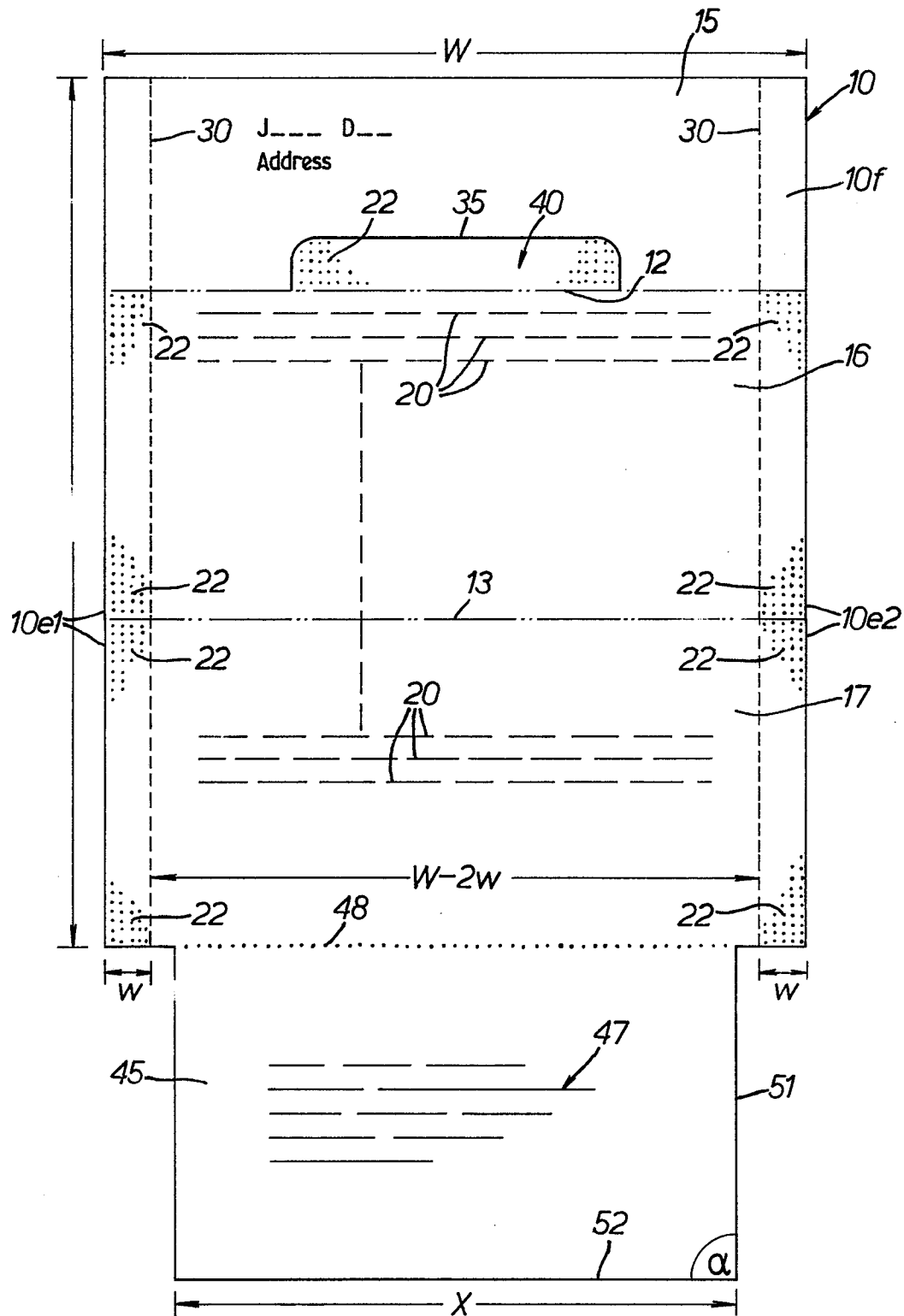


FIG. 4.



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EUROPEAN SEARCH REPORT

Application number

EP 84 30 2464

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl. 3)
X	CH-A- 223 314 (REINLI) * Whole document *	1,7-9, 10	B 65 D 27/00
Y	---	2,3,6, 11	
Y	CH-A- 238 155 (EICHMÜLLER) * Whole document *	2,3	
A	---	4,5,12 -14	
Y	CH-A- 551 290 (BORER) * Figure 2 *	11	
Y	GB-A- 164 150 (EMBLETON) * Whole document *	11	
X	FR-A- 893 657 (DANEL) * Figure 1 *	1,7-10	TECHNICAL FIELDS SEARCHED (Int. Cl. 3)
X	FR-A- 922 257 (LEGRAS) * Whole document *	1,7-10	B 65 D B 42 D
X	FR-A- 955 114 (ROLLET) * Whole document *	1,2,7- 9,12	
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The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 31-07-1984	Examiner MÜENKEL H.E.A.
CATEGORY OF CITED DOCUMENTS		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	
X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document			

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DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl. 3)
A	---	4, 5, 14	
X	GB-A- 6 078 (THE LAMSON PARAGON) (A.D.1911) * Whole document *	1, 2, 7-9	
A	---	4, 5, 12-14	
Y	DE-A-3 038 687 (PFAU GmbH) * Page 6, lines 22-25; figures * -----	6	
The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (Int. Cl. 3)
Place of search THE HAGUE		Date of completion of the search 31-07-1984	Examiner MUENKEL H.E.A.
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			