(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) Publication number: **0 225 135**
A2

(12) EUROPEAN PATENT APPLICATION

(21) Application number: **86309101.3**

(22) Date of filing: **20.11.86**

(51) Int. Cl.4: **B 42 D 15/08**

(30) Priority: **23.11.85 GB 8528924**

(43) Date of publication of application:
10.06.87 Bulletin 87/24

(84) Designated Contracting States:
BE CH DE FR GB IT LI NL SE

(71) Applicant: **Documail Limited**
Unit 002 16 Brune Street
London E1 7NJ (GB)

(72) Inventor: **Drillick, Jacob McPhillips**
Flat 46, Chiltern Court 188 Baker Street
London, NW1 5SP (GB)

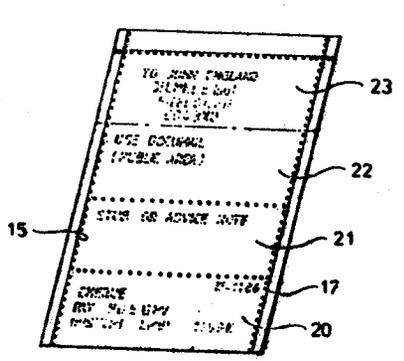
Myers, Alan Frederick
9 Campefield Road
Hornsey London, N8 7AL (GB)

(74) Representative: **Gillam, Francis Cyril et al**
Sanderson & Co. 97 High Street
Colchester Essex C01 1TH (GB)

(54) Mailable documents.

(57) A method of producing a mailable document without using an envelope, in which method a piece of paper is fed to a computer-controlled printer, which prints variable information including a name-and-address field (23) thereon. The paper is then folded about four parallel lines which divide the paper into four areas (20, 21, 22 and 23) and a flap in such a way that printing on two areas (20 and 21) are concealed within the completed mailable document, and the name and address are exposed. At least some portions of the overlying marginal regions are then adhered together to seal the document. Perforations may be provided along the marginal regions to assist opening of the document, and along the fold lines to assist separation of the document into separate pieces by a recipient.

Fig 1



EP 0 225 135 A2

Description

MAILABLE DOCUMENTS

This invention relates to a method of producing a mailable document, which method especially lends itself to the use of automated machinery.

Many companies frequently require to send documents to a large number of recipients, each document being individual to the recipient. For example, in the case of a company paying dividends to share-holders, a cheque is forwarded to each share-holder along with an appropriate statement, the amount payable being dependent upon the share holding of the recipient. In order to mail such documents, the statements and cheques are printed using appropriate equipment and then must be inserted in envelopes which either have previously been addressed, or which have a window permitting the recipient's name and address to be read from the statement, provided the statement has been inserted into the envelope with this correct orientation.

With the use of ever more sophisticated printing apparatus for the production of individualised documents, the production of documents carrying variable data has become much simpler than used to be the case. By employing suitable data processing facilities, a very large number of such documents can be produced in a relatively short space of time. However, the amount of handling of those documents in order to insert them into envelopes so as to enable them to be forwarded to the recipient is most considerable, and so is a slow, time-consuming process which adds considerably to the cost of a mailing operation. Often, the documents are folded and inserted into envelopes by hand, though recently mechanised equipment for this process has been developed - but even so, such equipment is costly, prone to less than 100% reliability, and is relatively slow in its operation as compared to the printing of the documents. Moreover, the cost of the envelopes must be added to the overall cost of the mailing operation.

It is consequently a princ ipal aim of this invention to provide a method of producing a mailable document which largely overcomes the disadvantages of the traditional methods of producing mailable documents employing envelopes, as outlined above.

Accordingly, this invention provides a method of producing a mailable document, in which method a piece of paper is fed to a computer-controlled printing device, variable indicia are printed on one side of the fed piece of paper, such printing being under the control of a computer and including a name and address in a first area and confidential information in another area, and the printed piece of paper is then fed to a folding machine where the paper is folded, which method is characterised in that the paper is given four folds in the folding step, each fold being substantially parallel to the others and to an edge of the paper, the first fold being spaced from said edge of the paper and defining an area on which confidential information may be printed, the second fold being in a sense which leaves exposed printing on the area to the side of the second fold remote from the first fold with the distance between the first and second folds being not less than that between the first fold and said edge, the third fold being in the same sense as the second fold and being spaced from the second fold by a distance not less than the distance between the first and second folds, and the fourth fold being in the same sense as the third fold and being spaced from the third fold by a distance not less than that between the second and third folds, the fourth fold defining a relatively narrow flap to overlie that portion of the document adjacent the second fold between that second fold and the third fold whereby printed matter on the area between the third and fourth folds as well as printed matter on the area between the third fold and the edge of the flap may be read, and the mailable document being completed by adhering at least portions of some of the marginal regions of the paper to those parts of the paper which those marginal regions overlie.

It will be appreciated that in the method of this invention, the step of placing a document carrying variable printed indicia into an envelope is completely eliminated, for no envelope is used. Instead, the printed piece of paper is folded in such a way that that piece of paper by itself forms the mailable document. Folding is performed in such a manner that even though the piece of paper has been printed only on one side with all of the variable information (including the recipient's name and address) which must be passed on to the recipient, the name and address area is wholly visible when the mailable document has been completed by folding and adhering as specified above, and yet other information carried between said edge of the paper and the second fold cannot be read until the mailable document has been opened. Thus confidential information carried between said edge and the second fold conveniently may be in two parts, one part being between the first and second folds and the other between said edge and the first fold. For example, between the first and second folds may be printed a statement, advice note, cheque stub or the like, and a cheque proper or payment slip may be printed between the first fold and said edge, these two items being separated by the first fold itself. The area between the second and third folds, insofar as it does not lie underneath the flap defined by the fourth fold, may be read externally of the completed mailable document and so may be used for any non-confidential information, such as advertising or the like. The name and address could appear on this area, if preferred, instead of on that area lying between the third and fourth folds.

Completion of the mailable document of this invention, by adhering at least some of the marginal portions of the piece of paper to other parts of the paper which those marginal portions overlie may be performed in a variety of ways. For example, the flap

defined by the fourth fold may be adhered to that area of the folded paper which the flap overlies. In addition to, or for some circumstances instead of, the flap being adhered to the underlying paper, the side edges of the paper may be adhered one to another. Whichever portions are adhered one to another, it is preferred for such adhering to be so done that the mailable document can easily be opened by the intended recipient, without tearing those areas of the paper carrying printed matter. For example, contact adhesives may be employed which allow the joined parts easily to be separated upon the application of a force in the appropriate direction thereto. Another possibility is to provide a plurality of separate spaced spots of adhesive, whereby separation may easily be performed. For example, along the flap only three spots of adhesive may be employed, one centrally and one at each end of the flap, respectively. Yet another possibility is to provide perforations separating the adhered marginal portions from the main areas of the document, such that the document may be opened by tearing off the marginal regions along the perforations.

The adhesive may be applied prior to the printing step, in which case the adhering step may be completed by suitably activating the adhesive, or the adhesive may be applied during or after the folding step, as appropriate.Similarly,if perforations are employed, the paper may be perforated prior to the printing step, immediately thereafter or even during the folding step.

The paper subjected to the folding step to produce the mailable document must be in the form of a cut sheet of the required size. The paper fed to the printing device may be in the form of individual cut sheets of the required size, or may be in the form of a continuous web, which is cut into separate sheets following the printing step, by a suitable cutting device, the cut sheets then being fed to the folding machine.

As mentioned above, the first fold may be made in either sense - that is to say, the first fold may be performed so that when effected, the printed matter to each side of that fold lies facing each other (and so cannot thereafter be read until unfolded) or lies facing outwardly so that either area of printed matter can be read. Thereafter, the second and subsequent folds must be made in the sense which has the printed matter facing outwardly.

In performing the method of this invention, the printing on one side of the paper under computer control may be performed in any suitable manner. For example, such printing could be performed by conventional daisy wheel or similar printer, by a line printer or, where both quality and speed of output is most important, by a laser printer. The latter has the advantages that different type faces, sizes of print and so on all may be incorporated on the same printed face of the paper fed to the printer. Of course, the paper fed to the printer may itself be pre-printed with non-variable information, either on the same face as will be printed when performing the method of this invention, or on the reverse face, or even on both faces.

It will also be appreciated that though the printing, folding and adhering steps may be performed by physically separate machines,advantageously all those steps are performed within one integrated machine incorporating the necessary equipment to perform all the required functions.

Depending upon the intended use of the printed document, it may be advantageous to provide perforations to separate certain of the areas of the document, in which case it is convenient for the lines of perforation to coincide with the fold lines. For example, in the case of forwarding a cheque, the area between the first fold and the adjacent parallel free edge of the sheet may be used for the cheque, with perforations provided along the line of the first fold. For such a case, it may be convenient also to provide a cheque stub, remittance advice or the like on the area between the first and second folds, in which case the second fold also may be defined by a line of perforations.

This invention extends to a mailable document whenever produced by a method of this invention as described above.

By way of example only, two specific methods of this invention will now be described in greater detail, reference being made to the accomapanying drawings, in which:-

Figure I is a rear view of a document ready for printing with variable information on one side thereof;

Figure 2 is a front view of the document of Figure I, but when printing has been completed;

Figures 3 to 7 show various steps in the folding of the printed document of Figure 2;

Figure 8 is a section through the completed mailable document shown in Figure 7; and

Figures 9 to I4 correspond respectively to Figures 3 to 8, but showing a second folding sequence.

Referring initially to Figure I, there is shown a piece of paper I0 ready for feeding to a computer-controlled printer, in order to have certain variable information printed thereon. Figure I shows the rear of the paper I0, with adhesive coatings (for example of heat or pressure sensitive adhesive) along the marginal regions of edges II, I2 and I3, but not along edge I4. Perforations I5, I6 and I7 separate those marginal regions from the main area of the paper, and there are provided two further rows of perforations I8 and I9 parallel to perforations I6.

Pre-prepared papers as described above are fed one at a time to a computer-controlled printer, in order to have variable information printed on the face not carrying the adhesive. As shown in Figure 2, such variable information may include a cheque on a first area 20, a cheque stub or advice note on a second area 2I, advertising matter on a third area 22, and a name and address in a fourth area 23. At the same time and provided a user has an official permit, a mailing frank may also be printed in the fourth area. It will be appreciated that the information printed on the first, second and fourth areas will vary from one piece of paper to the next, but methods of performing such variable printing form no part of this invention and will not be described in greater detail here. Suffice it to say that computer-controlled

techniques for the extraction of data from data banks in order to generate such printed documents are well known and understood in the art.

Figures 3 to 7 show a folding sequence for the printed document shown in Figure 2. The cheque on first area 20 is folded about the line of perforations I8 such that the non-printed sides of the areas 20 and 2I lie facing each other (Figure 4) and then the areas 20 and 2I are together folded in the same sense about the line of perforations I9 such that the printed cheque on area 20 is directed to the reverse side of area 22 (Figure 5).Those already folded areas are then folded round once more in the same sense. such that printed area 2I lying between the two lines of perforations I8 and I9 lies facing the reverse side of the name and address area 23. Finally, the adhesive-coated marginal region I2 is folded round about perforations I6 to form a flap which overlies part of the area 22, adjacent the perforations I9 (Figure 7). To complete the document the adhesive coatings on the marginal regions II, I2 and I3 are suitably activated, for example by the application of heat or by pressing, depending upon the nature of the adhesive.

Figure 8 shows a section through the folded document illustrated in Figure 7, and from this it can be seen that when the document has been completed, only areas 22 and 23 may be read, all printed matter on areas and 2I remaining confidential until the document is opened. This is easily achieved by tearing along the perforations I5, I6 and I7: the side edge marginal portions II and I3 should first be removed, whereafter the document may easily be torn along the line of perforations I6, to allow the document to be unfolded. Then, both the cheque and the cheque stub or advice note may be separated from the remainder of the document and from each other, by tearing along perforations I8 and I9.

Figures 9 to I4 show another sequence of folding a document corresponding to that shown in Figures I and 2, the sequence differing from that shown in Figures 3 to 7 in that the first fold is performed about the line of perforations I8 in the opposite sense as compared to the first-described example. Thus, as can been seen from Figures I0 and II, the printed matter on areas 20 and 2I lies face-to-face. Thereafter, subsequent folds proceed in the manner shown in Figures II to I3, which is essentially the same as shown in Figures 5 to 7. Figure I4 shows a section through the completed document, emphasising the difference with respect to the first-described method, shown in Figure 8. In all other respects, the production of a mailable document by this second folding method corresponds to that of the first-described method, referring to Figures I - 8 inclusive.

The second method has the advantage that it is possible to form the second fold first, and then the first and third folds can simultaneously be formed. This folding process may therefore particularly lend itself to certain types of automatic paper-folding machinery.

By way of further illustrations, when a dividend payment is being made by the method of this invention, A4 size paper may be employed, with the various dimensions being as follows:

Original A4 paper size: 2I0 × 297 mm
Width of marginal regions II, I2 and I3: 5 mm
Effective sizes of areas 20, 2I, 22 and 23: 73 × 200 mm
Size of flap: 5 × 2I0 mm
Final size of completed mailable document: 73 × 2I0 mm

In order to yield a larger completed mailable document, for example of a size approximately equal to a piece of A4-sized paper divided into thirds by two folds, a correspondingly larger original paper size may be employed - in this example, approximately 2I0 mm × 4I0 mm. Another possibility is for a web of continuous paper to be employed, the apparatus used to perform the method of this invention including a cutting device to separate the web into cut sheets either before or after the printing step.

Claims

I. A method of producing a mailable document in which method a piece of paper is fed to a computer-controlled printing device, variable indicia are printed on one side of the fed piece of paper, such printing being under the control of a computer and including a name and address in a first area and confidential information in another area, and the printed piece of paper is then fed to a folding machine where the paper is folded, characterised in that the paper (I0) is given four folds in the folding step, each fold being substantially parallel to the others and to an edge (I4) of the paper, the first fold being spaced from said edge (I4) of the paper and defining an area (20) on which confidential information may be printed, the second fold being in a sense which leaves exposed printing on the area (2I) the side of the second fold remote from the first fold with the distance between the first and second folds being not less than that between the first fold and said edge, the third fold being in the same sense as the second fold and being spaced from the second fold by a distance not less than the distance between the first and second folds, and the fourth fold being in the same sense as the third fold and being spaced from the third fold by a distance not less than that between the second and third folds, the fourth fold defining a relatively narrow flap to overlie that portion of the document adjacent the second fold between that second fold and the third fold whereby printed matter on the area (22) between the third and fourth folds as well as printed matter on the area (23) between the third fold and the edge of the flap may be read, and the mailable document being completed by adhering at least portions of some of the marginal regions of the paper (I0) to those parts of the paper which those marginal regions

overlie.

2. A method according to claim 1, characterised in that the flap defined by the fourth fold is adhered to that area (22) of the folded paper which the flap overlies.

3. A method according to claim 1 or claim 2, in which the side edges (11,13) of the paper (10) are adhered one to another.

4. A method according to claim 2 or claim 3, further characterised in that a plurality of discrete spots of adhesive are employed along the length of regions being adhered one to another.

5. A method according to any of the preceding claims, characterised in that the adhering is performed using a pressure-sensitive or a heat sensitive adhesive.

6. A method according to any of the preceding claims, further characterised in that lines of perforations (15,16,17) are provided to separate the adhered marginal portions from the main areas (20,21,22,23) of the document, such that the document may be opened by tearing off the marginal regions along said perforations.

7. A method according to any of the preceding claims, characterised in that the adhesive is applied to the paper during or after the folding of the paper (10).

8. A method according to any of the preceding claims, characterised in that the paper fed to the printer is pre-printed with non-variable information, on either or both faces of the paper.

9. A method according to any of the preceding claims, further characterised in that the paper (10) is provided with at least one line of perforations (18,19) extending thereacross, which line of perforations coincides with a fold line.

10. A mailable document whenever produced by a method according to any of the preceding claims.

Fig 1

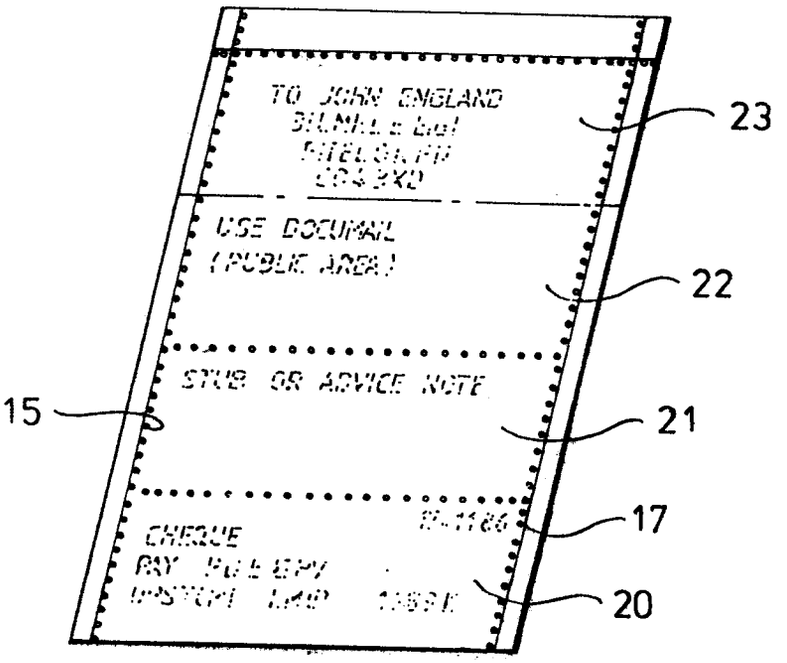

TO JOHN ENGLAND
USE DOCUMAIL
(PUBLIC AREA)
STUB OR ADVICE NOTE
CHEQUE
23
22
15
21
17
20

Fig 2

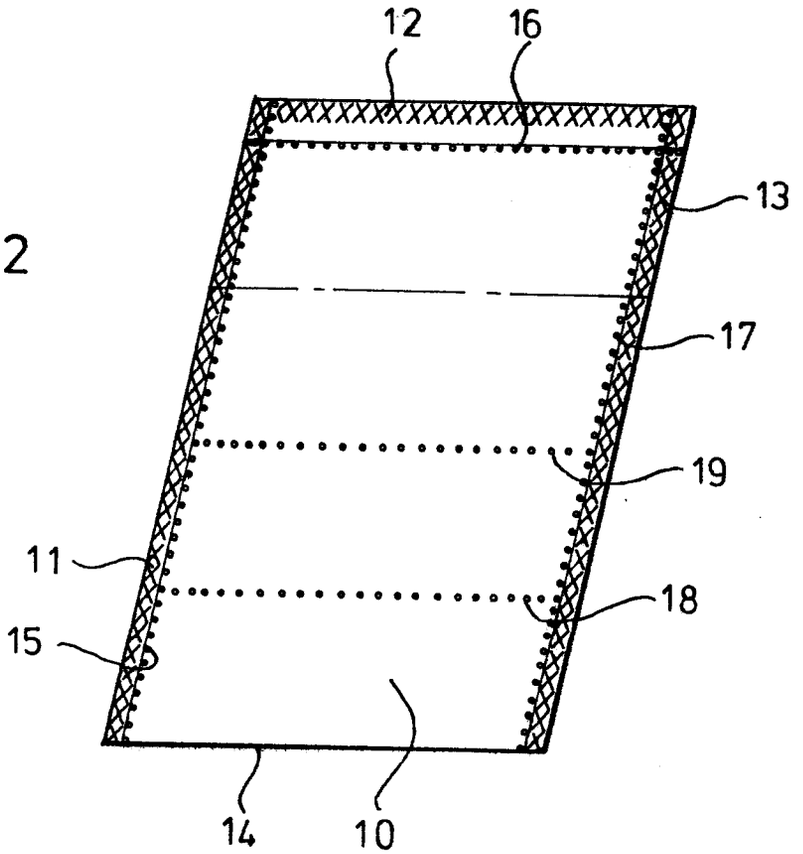
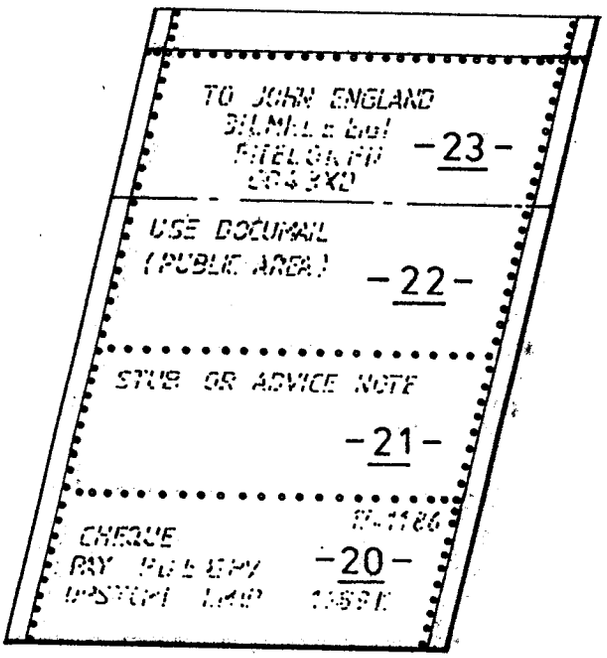

12
16
13
17
19
11
18
15
14
10

Fig 3



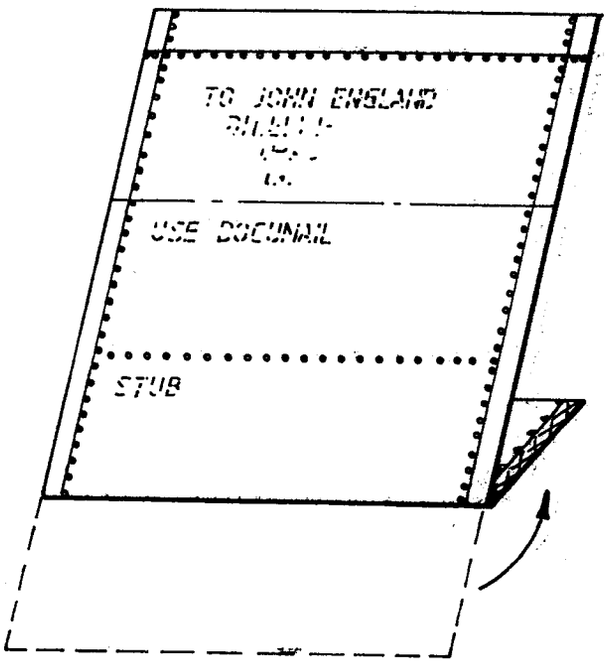


Fig 4

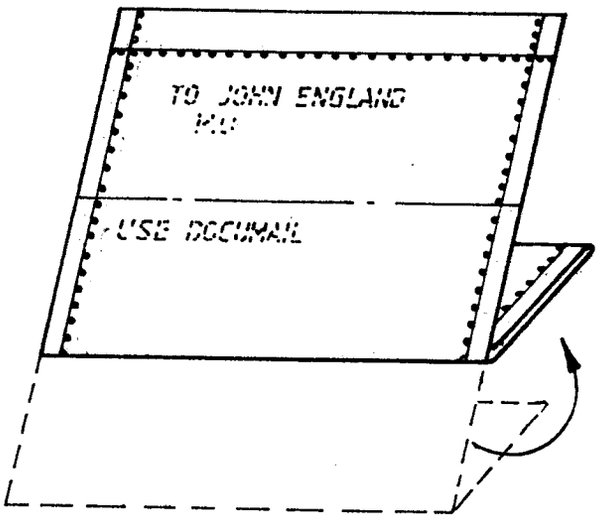


Fig 5

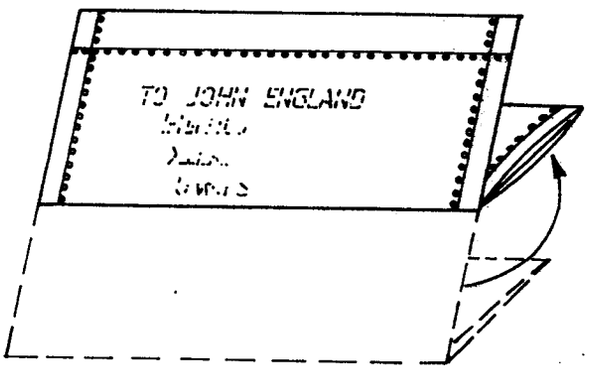


Fig 6

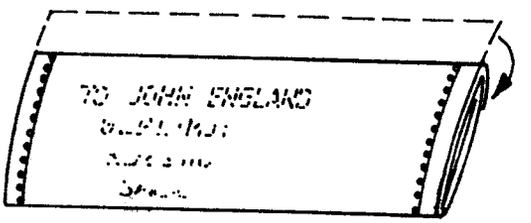


Fig 7

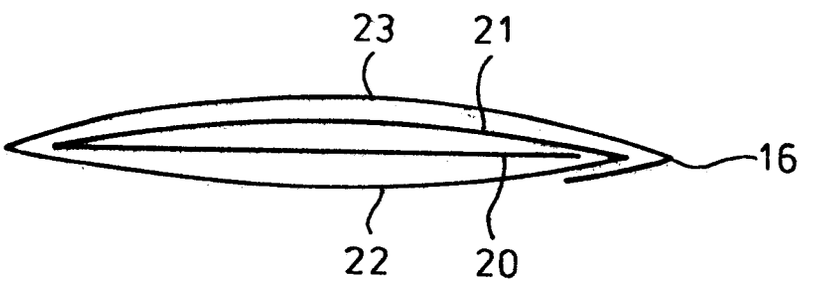
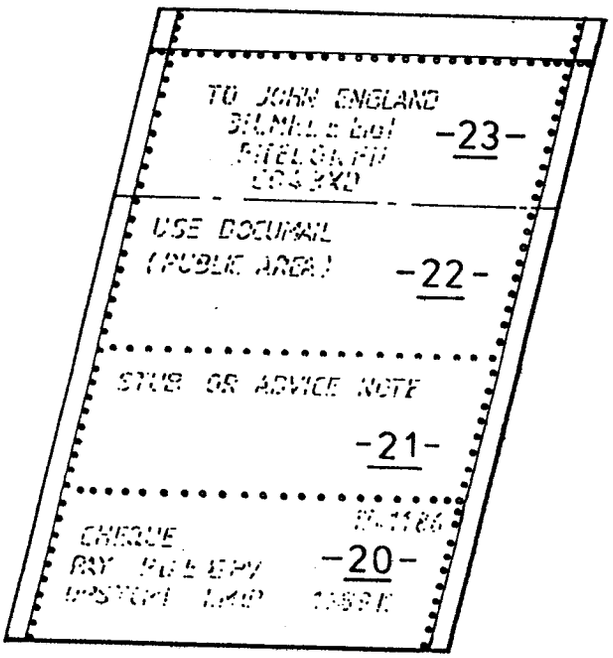


Fig 8

Fig 9



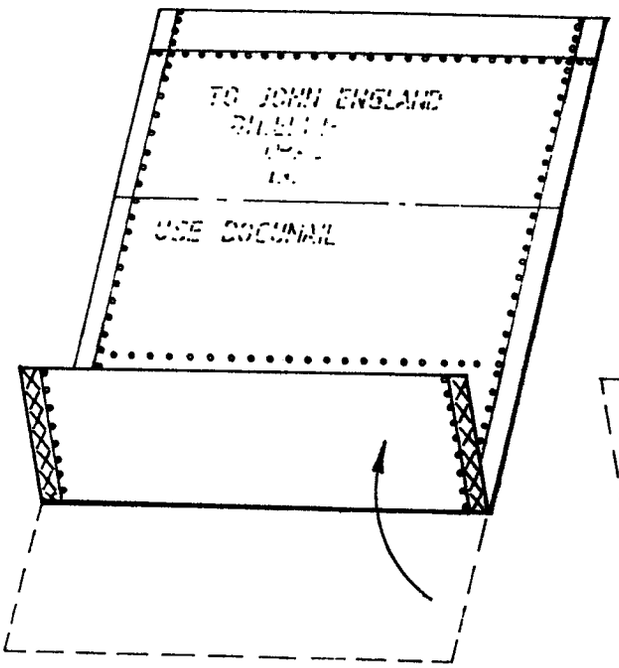


Fig 10

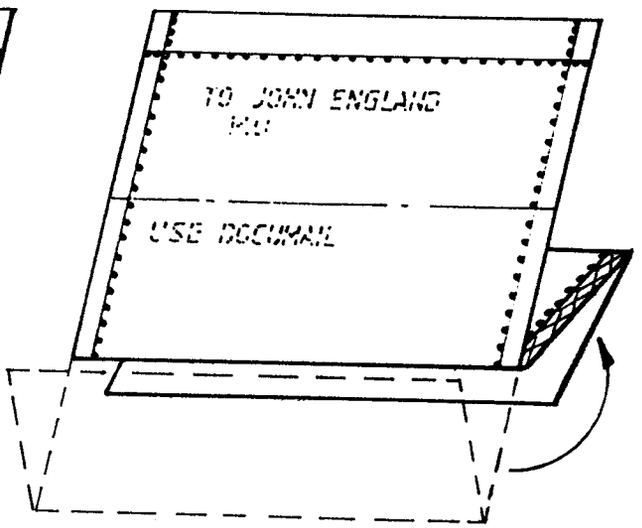


Fig 11

Neu eingereicht / Newly filed
Nouvellement déposé

0225135

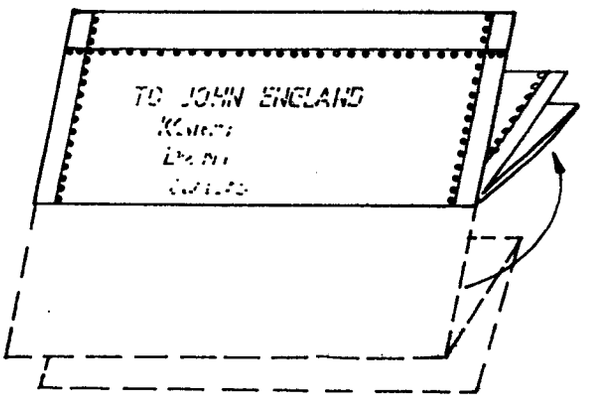


Fig 12

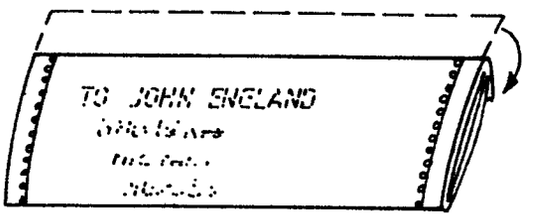


Fig 13

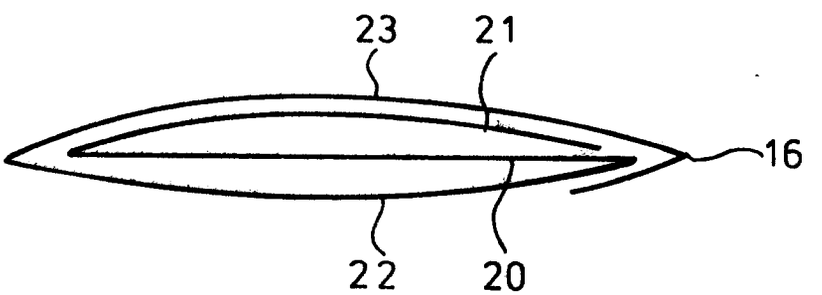


Fig 14