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(54) Unit for use in the production of a multilayer flexible data carrier card, and a method of producing such card.

(57) A unit for use in the production of a multilayer flexible data carrier card consists of a carrier sheet - (11) on which a transparent self-adhesive label (12) of plastics film material is detachably fastened. The label (12) is symmetrical to a fold line (13). The portion (18) of the carrier sheet (11) which is situated within the peripheral edge (16) of one of the two halves of the label (12) is provided with a wall weakening (17) lying at distance from the peripheral edge (16). A multilayer flexible data carrier card is produced by applying the necessary data on the portion (18) of the carrier sheet (11), removing the label (12) from the carrier sheet (11) the portion (18) remaining on the label, amd folding the label (12) around the fold line (13) with the adhesive sides of the two halves of the label one aginst the other, enclosing the portion (18) of the carrier sheet (11).

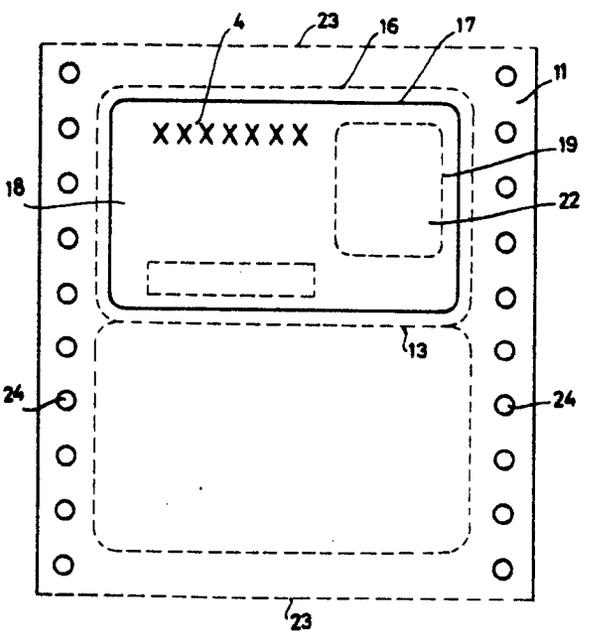

Fig: 4.

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Unit for use in the production of a multilayer flexible data carrier card, and a method of producing such card.

The invention relates to a unit for use in the production of a multilayer flexible data carrier card, comprising a first and a second outer layer of transparent plastics film material, and an intermediate layer which is disposed between these two layers and is provided with data and whose peripheral edge lies at a distance from and within the peripheral edge of the two layers, the two outer layers being provided, on the intermediate layer side, with an adhesive coating and at least the peripheral edge parts of the outer layers, which project beyond the peripheral edge of the intermediate layer, are firmly bonded together by means of the adhesive coating. A multilayer flexible data carrier card of the above type is known per se. De known card is produced starting from a lamination unit comprising a pair of transparent sheets on either side of a release sheet with the transparent sheets having adhesively coated faces in opposed engagement with the release sheet. First, one of the transparent sheets is separated from the release sheet and a card-like article is adhered to one transparent sheet. Next, the release sheet is separated from the other transparent sheet and the other transparent sheet is adhered to the card-like article and any areas of the one transparent sheet beyond the card-like article.

The known lamination unit has a number of disadvantages.

For the orignal formation if the unit it is necessary to inert a release sheet between two adhesively coated sheets, which makes the lamination unit relatively expensive. Moreover, making a multiplayer data carrier card starting fom the known lamination unit is rather complicated and time consuming. Several sheets have to be separated and the separate card-like article must be positioned accurately with respect to the transparent sheets. It is therefore the object of the invention to provide a unit for use in the production of a multilayer flexible data carrier card which does not present the above disadvantages.

This object is achieved according to the invention by a unit of the above type which is characterized in that it consists of a carrier sheet on which at least one transparent self-adhesive label of plastics film material is detachably fastened, this label being of a shape which is substantially symmetrical to at least one line of symmetry and, on one of the lines of symmetry, is provided with a weakening of its wall which extends right across it and forms a fold line, and which divides the label into two substantially equal halves, and that that portion of the carrier sheet which is situated within the peripheral edge of one of the two halves of the label is provided with a first wall weakening lying at a distance from the peripheral edge.

The unit according to the invention is a very simple two-layer product which can be produced in great series at relatively low costs. Furthermore, with a unit of this type a multilayer flexible data carrier card can be produced in a very simple manner, while data can be applied to the card by the supplier or else by the user himself. After production of the card these data are fully protected by layers of plastics film against external influences.

Data are expediently applied, or can be applied, on that portion of the carrier sheet which is situated inside the first wall weakening, on the side not in contact with the label. This portion of the carrier sheet will be used as the data carrier intermediate layer of the card, and the side referred to is particularly suitable for marking data by printing or writing.

In one embodiment that portion of the carrier sheet which is situated inside the first wall weakening can be provided with at least one second wall weakening. That portion of the carrier which is situated inside a wall weakening of this kind is intended to be removed and to be replaced by another data carrier, for example a photograph.

On the side which is not in contact with the carrier sheet the label can be marked with data, for example data which are the same for all the cards and which require no special protection.

The carrier sheet advantageously consists of paper, which on the label side is provided with an anti-adhesive coating, so that on the one hand the label can easily be removed from the carrier sheet and on the other hand data can easily be marked on the carrier sheet by printing or writing, and the label consists of vinyl material.

The invention also relates to a chain of units according to the invention comprising a carrier web on which a plurality of labels are attached and which can be provided between the labels with a wall weakening for the purpose of folding the carrier web and/or tearing off a portion of the carrier web.

Finally, the invention relates to a method of producing a multilayer flexible data carrier card according to the invention, which method is characterized in that, starting with a sheet according to the invention, the necessary data are applied on that portion of the carrier sheet which lies inside the first wall weakening, the label is removed from

the carrier sheet, the aforesaid portion of the carrier sheet remaining on the label, the label is folded around the fold line and the two halves of the label are placed with their adhesive sides one against the other, enclosing the portion of the carrier sheet which has remained on the label.

The invention will now be explained with reference to one example of embodiment and with the aid of the drawings, in which:

Figure 1 shows a particular embodiment of a card according to the invention;

Figure 2 is a section on the line II-II through the card shown in Figure 1, the thickness of the card being represented on a larger scale;

Figure 3 shows a view of the label side of a sheet to be used for producing the card shown in Figure 1; and

Figure 4 shows the other side of the sheet shown in Figure 3.

The multilayer data carrier card shown in Figures 1 and 2 consists of a first outer layer 1 and a second outer layer 2 of transparent plastics film material, and of an intermediate layer 3 disposed between these two layers. Certain data 4, 5, 6, which can be seen through the transparent layer 1, are marked on the intermediate layer 3.

The peripheral edge 7 of the intermediate layer lies at a distance from the peripheral edge 8 of the two outer layers 1, 2. These outer layers 1 are provided with an adhesive coating on the side in contact with the intermediate layer 3. These adhesive coatings ensure that at least those edge portions 9 of the outer layers 1, 2 which project beyond the peripheral edge 7 of the intermediate layer 3 are firmly bonded to one another.

The intermediate layer 3 is thus completely enclosed by the two layers 1, 2, so that the data 4, 5, 6 on the intermediate layer are protected against damage by external influences, for example mechanical influences.

The intermediate layer 3 may be made of various materials, but preferably consists of paper. The outer layers 1, 2 preferably consist of vinyl material.

The thickness of the different layers is adapted to the desired stiffness of the card.

As can be seen in figures 1 and 2, a certain portion of the data carrier intermediate layer can be replaced by another data carrier 10, for example a photograph.

Figures 3 and 3 shows a sheet which can be used for producing the above-described multilayer card. This sheet consists of a carrier sheet 11, on which at least one transparent self-adhesive label 12 of plastics film material, for example vinyl material, is attached. The label 12 is detachably secured to the carrier sheet 11 in a manner known for self-adhesive labels.

In the embodiment shown in Figure 3 the label 12 has a substantially rectangular shape. In the middle of the label a wall weakening 13 is provided which forms a fold line and divides the label into two equal halves 14 and 15. The dimensions of the label are such that the dimensions of the two halves 14, 15 correspond to the dimensions of the card which is to be formed.

That portion of the carrier sheet which is situated inside the peripheral edges 16, 14 of the half 14 of the label 12 is provided with a first wall weakening 17. This will usually be in the form of a cut right through the carrier sheet 11.

On that portion of the carrier sheet 11 which is situated inside the wall weakening 17 certain data are marked on the side shown in Figure 4. In addition, there is room for applying further data 5, 6.

In figure 4 the portion 18 of the carrier sheet 11 is provided with a second wall weakening 19, which is likewise usually in the form of a cut right through the carrier sheet.

The material of the carrier sheet 11 is preferably paper, which on the side in contact with the label 12 is provided with a known anti-adhesive coating, so that the self-adhesive label 12 can be detached from the carrier sheet, while on the other side the carrier sheet can be marked with data in a simple manner by printing or writing.

On the side not in contact with the carrier sheet, certain data 20 and 21 can in addition be marked on the label. These data will subsequently be on the outside of the card and will therefore not be protected.

Starting with the above-described sheet, the production of the data carrier card proceeds as follows.

The necessary data 4, 5, 6 are first applied on that portion 18 of the carrier sheet which lies inside the first wall weakening 17. The label 12 is then removed from the carrier sheet, the portion 18 of the carrier sheet remaining on the label 12. The label is then folded along the fold line 13, and the two halves 14, 15 of the label are finally laid with their adhesive sides one against the other, enclosing the portion 18 of the carrier sheet which remained on the label 12. A two-sided laminated card is thus obtained, the data marked on it being completely covered over. After about 1 hour from the time when the label is folded, the card will already be bonded together so firmly that it can no longer be pulled apart without being damaged. This prevents forgeries.

If necessary, before the two halves 14 and 15 of the label are brought together, that portion 22 of the carrier sheet which lies inside a second wall weakening 19 is removed from the label 12 and replaced by another data carrier 10, for example a photograph.

Figures 3 and 3 show a carrier sheet having only one label 12. It is also possible that a plurality of are interconnected to form a carrier web on which a plurality of labels 12 are attached. In this case a wall weakening, such as perforations 23, may be provided between the labels for the purpose of folding the carrier web and/or for tearing off a portion of the carrier web.

An embodiment of this kind will in particular be selected when the data have to be applied on the carrier web by means of a typewriter or computer printer. In the latter case the carrier web will be provided with positioning holes 24.

The above-described multilayer card has many possible applications. The card according to the invention will as a rule be used where a cheap flexible data carrier card is needed.

In particular, the card according to the invention can be used as a membership card, an admission card, a subscriber's card for libraries, videotheques, (sports) meetings, clubs, chain stores, hospitals, public transport, and various institutions. Since the sheets from which the cards are produced can also be processed on typewriters, the cards can also be utilized by small users.

Claims

1. Unit for use in the production of a multilayer flexible data carrier card comprising a first and a second outer layer (1, 2 respectively) of transport plastics film material, and an intermediate layer (3) which is disposed between these two layers and is provided with data (4, 5, 6) and whose peripheral edge (7) lies at a distance from and within the peripheral edge (8) of the two outer layers (1, 2), the two outer layers (1, 2) being provided, on the intermediate layer (3) side, with an adhesive coating and at least the peripheral edge parts (9) of the outer layers (1, 2) which project beyond the peripheral edge (7) of the intermediate layer (3) are firmly bonded together by means of the adhesive coating, characterized in that the unit consists of a carrier sheet (11) on which at least one transparent seld-adhesive label (12) of plastics film material is detachably fastened, this label (12) being of a shape which is sunstantially symmetrical to at least one line of symmetry and, on one of the lines of symmetry, is provided with a weakening (13) of its wall which extends right across it and forms a fold line, and which divides the label (12) into two substantially equal halves (14, 15), and that that portion (18) of the carrier sheet (11) which is situated within the peripheral edge (16) of one (14) of the two halves of the label (12) is provided with a first wall weakening (17) lying at a distance from the peripheral edge (16).

2. Unit according to Claim 1 characterized in that that portion (18) of the carrier sheet which is situated inside the first wall weakening (17) is provided with data (4), and/or may be provided with data (5, 6), on the side which is not in contact with the label (12).

3. Unit according to Claim 1 or 2, characterized in that that portion (18) of the carrier sheet which is situated inside the first wall weakening (17) is provided with at least one second wall weakening (19).

4. Unit according to one of Claims 1 to 3, characterized in that the label (12) is provided with data (20, 21) on the side which is not in contact with the carrier sheet (11).

5. Unit according to one of Claims 1 to 4, characterized in that the carrier sheet (11) consists of paper which is provided with an anti-adhesive coating on the side in contact with the label (12).

6. Unit according to one of Claims 1 to 5, characterized in that the label (12) consists of vinyl material.

7. Chain of units according to one of Claims 1 to 6, comprising a carrier web on which a plurality of labels (12) are attached.

8. Chain according to Claim 7, characterized in that between the labels the carrier web is provided with a wall weakening (23) for folding the carrier web and/or tearing off a portion of the carrier web.

9. Method of producing a multilayer flexible data carrier card comprising a first and a second outer layer (1, 2 repectively) of transparent plastics film material, and an intermediate layer (3) which is disposed between these two layers and is provided with data (4, 5, 6) and whose peripheral edge (7) lies at a distance from and within the peripheral edge (8) of the two being layers (1,2), the two outer layers (1, 2) being provided, on the intermediate layer (3) side, with an adhesive coating and at least the peripheral edge parts (9) of the outer layers (1, 2) which project beyond the peripheral edge (7) of the intermediate layer (3) are firmly bonded together by means of the adhesive coating, characterized in that, starting with a unit according to one of Claims 1 to 6, the necessary data (4, 5, 6) are applied on that portion (18) of the carrier sheet (11) which is siyuated inside the first wall weakening (17), the label (12) is removed from the carrier sheet (11), the aforesaid portion (18) of the carrier sheet remaining on the label (12), the label is folded around the fold line (13), and the two halves

(14, 15) of the label are placed the portion (18) of the carrier sheet which has remained on the label (12).

10. Method according to Claim 9, characterized in that before the two halves (14, 15) of the label are placed one against the other that portion (22) of the carrier sheet which is situated inside a second wall weakening (19) is removed from the label (12) and is replaced by another data carrier (10), for example a photograph.

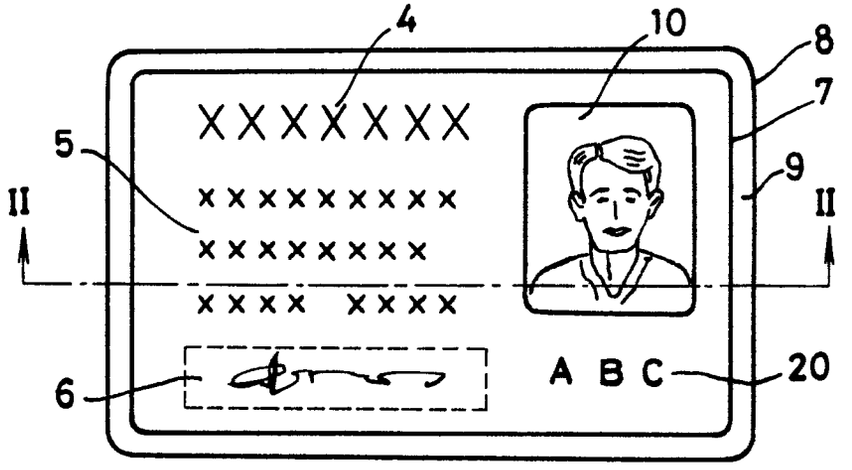

Fig: 1.

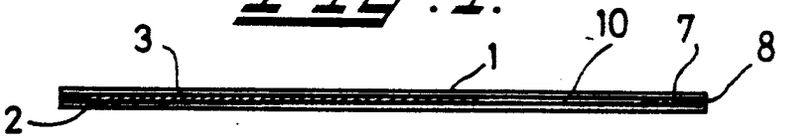

Fig: 2.

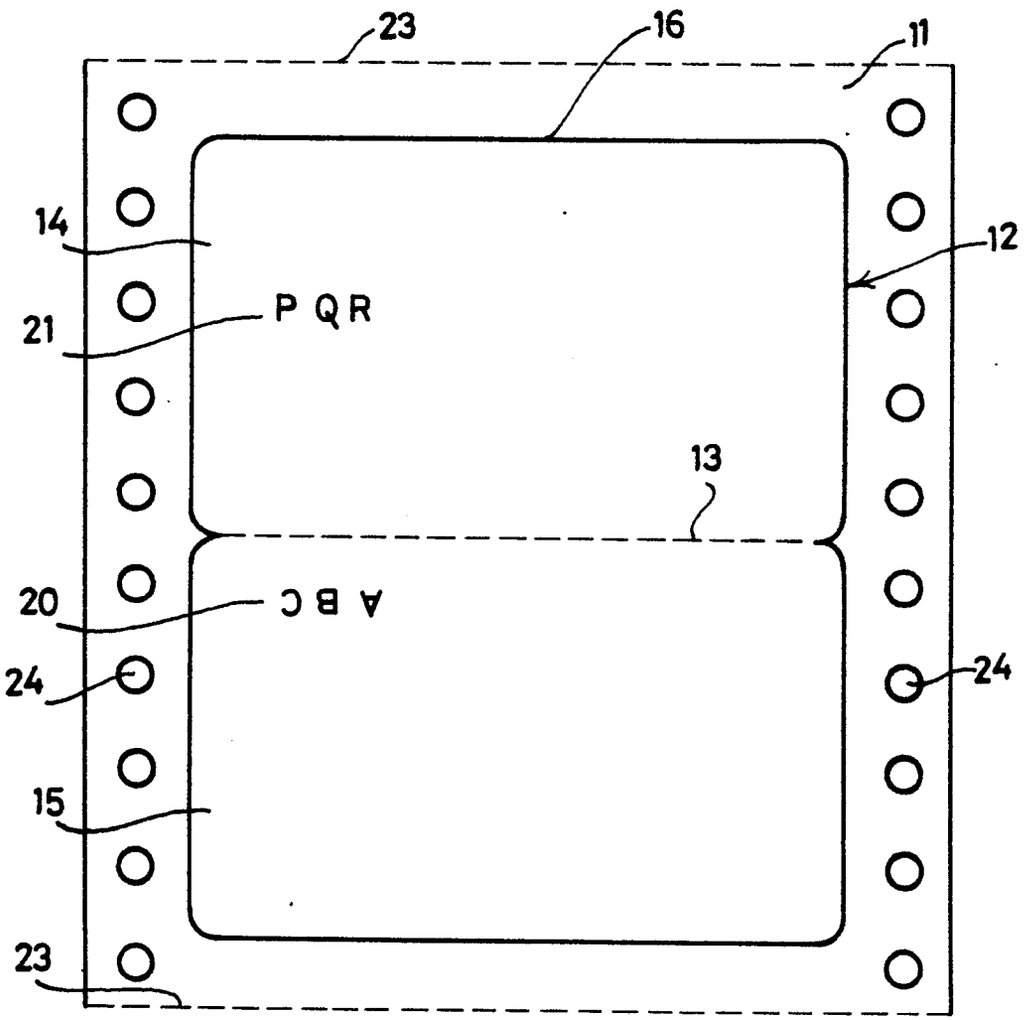

Fig: 3.

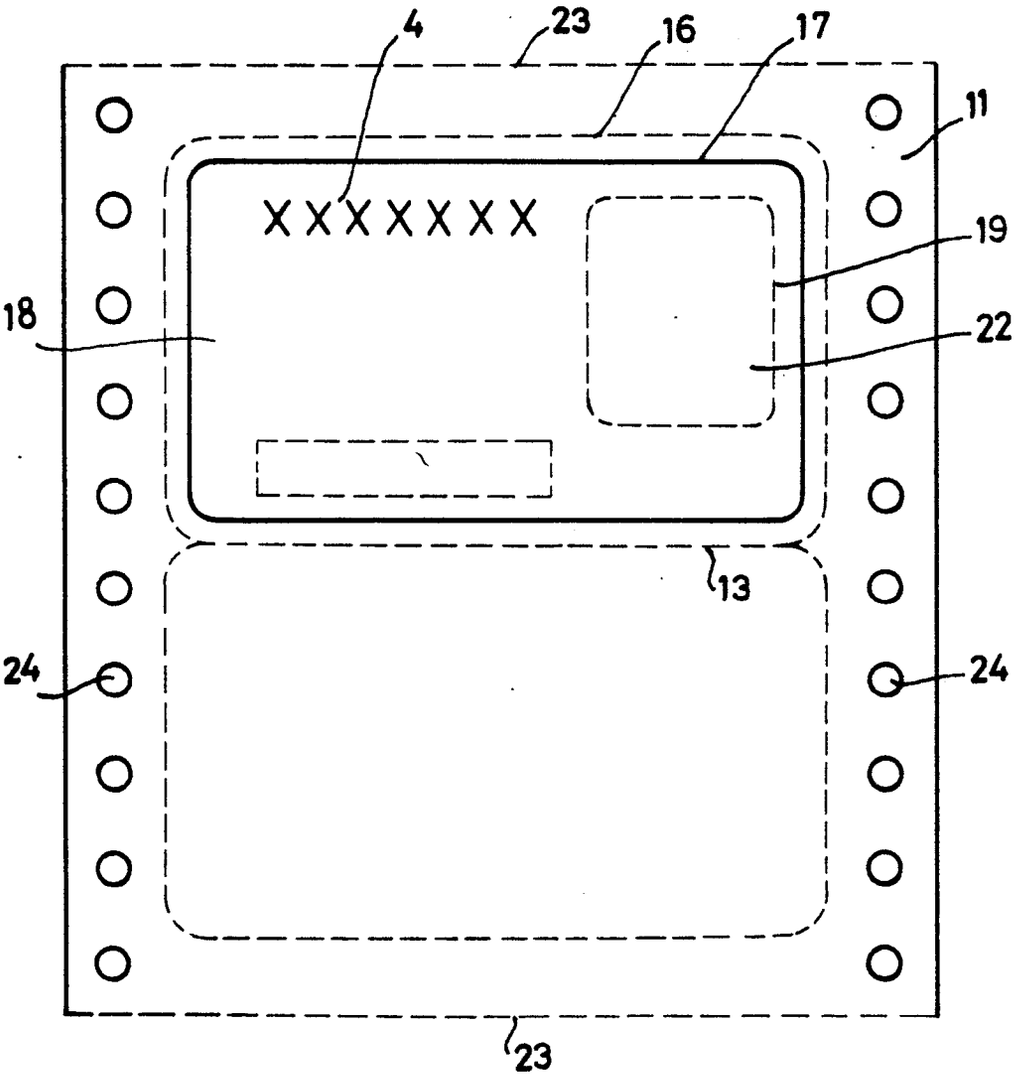

Fig: 4.

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EUROPEAN SEARCH REPORT

Application number

EP 86 20 1707

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.4)
Y	US-A-3 505 140 (L.D. DUNN) * Column 2, lines 7-63; figures 5,6 *	1,2,5, 7	B 42 D 15/02 G 09 F 3/02
A		6,9	

Y	GB-A-2 103 473 (SEALTRAN CORP.) * Page 1, line 122 - page 2, line 18; figure 1 *	1,2,5, 7	
A		6,9	

Y	DE-A-2 843 619 (HEINRICH HERMANN GmbH) * Figure 1; claims 1,3; page 18, lines 18-23 *	1,2,5, 7	
A		9	

Y	EP-A-0 044 889 (LABEL-FORM LTD) * Page 6, line 19 - page 7, line 11; figure 1 *	1,2,5, 7	
A		9	
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TECHNICAL FIELDS SEARCHED (Int. Cl.4)

B 42 D
G 09 F

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	12-01-1987	WEBER P.L.P.

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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EUROPEAN SEARCH REPORT

Application number

EP 86 20 1707

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.4)
A	US-A-4 446 183 (M.D. SAVAGIAN) * Figures 1,2,6-12; column 1, line 64 - column 2, line 20 *	1,2,5, 7,9	
A	GB-A-2 143 204 (BOYDEN DATA PAPERS LTD) * Figures 1,3; page 2, lines 6-27 *	1,9	
A	US-A-3 914 483 (C.J. STIPEK) * Figure 1; claim 1 *	1	
A	US-A-4 060 168 (R.A. ROMAGNOLI) * Figures 3-5; column 3, lines 6-10 *	1	
A	WO-A-8 404 493 (BERND REXROTH GmbH) * Figure 1; page 3, lines 24-29 *	3,10	TECHNICAL FIELDS SEARCHED (Int. Cl.4)
A	FR-A-2 463 960 (J.J. BLUM & D.J. THRALLS) * Figures 1,5; page 2, lines 24-30 *	7,8	
A	DE-A-2 306 882 (MEDICAL IDENTIFICATION SYSTEMS)	1	
A	US-A-2 671 678 (R.A. WALSH)	1	

The present search report has been drawn up for all claims

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