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(54) Security label

(57) A security label (10) comprises a film layer (12) and a printable layer (14) on the film layer to allow printing to be applied thereto. A first ink layer (16) is applied to a portion of the printable layer. A second ink layer (18)j is applied to the film layer (12). The first ink layer (16) comprises a fluid sensitive ink.

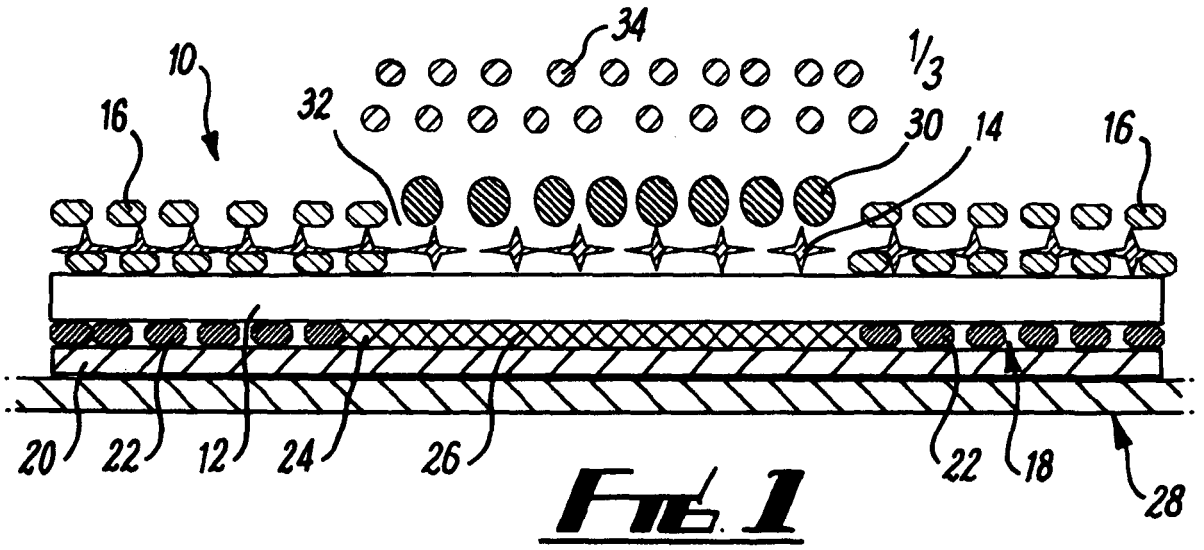

FIG. 1

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Description

[0001] This invention relates to security labels.

[0002] It is known to laser print confidential data such as PIN numbers for credit cards on to one side of a clear polyester film, which has an obscurity pattern printed on the opposite side to confuse the confidential data. Unfortunately, fraudulent activity, such as applying solvent to the polyester film can reveal the PIN number listed thereon.

[0003] According to one aspect of this invention, there is provided a security label comprising: a film layer; a printable layer to allow printing to be applied thereto; a first ink layer applied to a portion of the printable layer; a second ink layer applied to the film layer, wherein the first ink layer comprises a liquid sensitive ink.

[0004] The printable layer may be applied to a first side of the film layer. The second ink layer may be applied to a second side of the film layer.

[0005] Preferably, the first ink layer is adapted to change when a fluid is applied thereto. The first ink layer is preferably a liquid sensitive ink. The first ink layer may be adapted to change when a liquid is applied thereto. The first ink layer may comprise an ink that is sensitive to organic solvents, and may be adapted to migrate or bleach an organic solvent if applied thereto.

[0006] Alternatively, or in addition, the liquid sensitive ink may be a water sensitive ink. The water sensitive ink may be formulated to provide dispersal or migration of the pigment when water is applied thereto. Preferably, the water sensitive ink is formulated to provide reticulation and dispersal or migration of the pigment when water is applied thereto. Preferably, the pigment disperses or migrates to the edges of the contact point of the water.

[0007] The water sensitive ink may be a water fugitive ink. The water sensitive ink may comprise at least one water fugitive dye. The water sensitive ink may further comprise inorganic and/or organic pigments, which may be in a varnish. The varnish may comprise a solution of starch in glycerine, preferably a solution of hydrolised starch in glycerine.

[0008] The portion of the printable layer to which the first ink layer is applied may be an edge portion of the printable layer.

[0009] The second ink layer may comprise an obscurity region. Preferably, the obscurity region is provided centrally of the ink layer. The second ink layer may also comprise a colour ink. The second ink layer may comprise at least one filmic pre-polymer ink.

[0010] The colour ink may comprise a filmic pre-polymer ink. The obscurity region may comprise a filmic pre-polymer ink.

[0011] An adhesive may be applied to the second ink layer to allow the label to be adhered to a substrate, such as a sheet of paper.

[0012] Preferably, the solvent sensitive ink is adapted to change colour or become clear when the solvent is applied thereto.

[0013] The solvent sensitive ink may be a translucent ink.

[0014] An embodiment of the invention will now be described by way of example only, with reference to the accompanying drawing in which:

Fig 1 is a schematic diagrammatic view of a security label;

Fig 2 is a view similar to Fig 1 showing security label to which a solvent is applied;

Fig 3 is a view similar to Figs 1 and 2 in which the solvent has migrated towards the edges of the label;

Fig 4 is a top view of the security label shown in Fig 1;

Fig 5 is a top view of the security label shown in Fig 2;

Fig 6 is a top view of the security label shown in Fig 3; and

Fig 7 is a view of the security label on a carrier.

[0015] Referring to the drawings, there is shown a security label 10 comprising a film layer 12 in the form of a polyester film. A printable layer 14 is coated onto one side of the film layer 12 and a first ink layer 16 is printed onto the printable layer 14. A second ink layer 18 is provided onto the opposite side of the film layer 12, and an adhesive layer 20 is provided on the second printed layer 18.

[0016] In one embodiment, the first ink layer 16 is an organic solvent sensitive ink, which may be a u.v. curable solvent active ink such as manufactured by the company Luminescence Limited. Alternatively, the first ink layer is a water sensitive ink, which may be a water fugitive ink formed of at least one water fugitive dye and inorganic/organic pigments in a varnish comprising a solution of hydrolised starch in glycerine.

[0017] The printable layer 14 comprises a 6gsm heat cured translucent polymeric crystalline lattice structure, which provides an overall matt effect and sufficient surface tension to allow laser toner to adhere thereto.

[0018] The first ink layer 16 is provided only around a portion of the printable layer 14, this portion being preferably in a rectangular configuration around an edge region of the label 10, as shown in Figs 4 to 6. It will be appreciated that the first ink layer 16 could be applied to any desired region of the printable layer 14. Where the first ink layer 16 is a water sensitive ink it may be printed onto the printable layer 14 by lithographic, letterpress or flexographic printing and warm air cured.

[0019] The second ink layer 18 comprises a first region of a coloured filmic ink 22, namely a filmic pre-polymer ink which extends in a rectangular configuration around the edge region of the label 10 and corresponds in shape and size to the first ink layer 16. Thus the first ink layer

16 extends over the coloured filmic ink layer 22 thereby creating a colour which is a combination of the colour of the first ink layer 16 and the filmic ink 22.

[0020] The second ink layer 18 may be formed of a u.v. cured ink such as manufactured by the company Luminescence Limited.

[0021] The second ink layer 18 also defines a central region 24 comprising a printed filmic pre-polymer ink in the form of an obscurity pattern 26. The label 10 is applied to a substrate, for example a sheet of paper 28 and is adhered thereto by the adhesive layer 20.

[0022] In use, the adhesive layer 20 adheres the second layer ink 18 to the paper, and allows the polyester film 12 to be removed therefrom by peeling it away, as would be appreciated by the persons skilled in the art. The purpose of peeling away the polyester film layer 12 from the second ink layer 18 is to allow printed matter 30 which is printed in a central region 32 of the first ink layer 60 to be read. The central region 32 corresponds in shape and size to the obscurity pattern 26 of the second ink layer 18. Thus, the printed matter in the region 32 is obscured by the obscurity pattern 26, and cannot be read. The printed matter 30 can only be read if the polyester film layer 12 is removed from the second ink layer 18, which is easily done by peeling the polyester film layer 12 from the second ink layer 18 when the label has been adhered to the paper 28.

[0023] It can be possible for fraudulent users to find out the information printed as the printed matter 30 without removing the polyester film layer 12 from the second ink layer 18. This can be done by applying liquid 34 to the central region 32. However, such fraudulent use can be detected by the use of the embodiments of this invention because of the tendency of the liquid 34 to migrate outwardly, as shown in Figs 2 and 3. The outward migration of the liquid 34 causes it to contact the first ink layer 16. In the embodiment where the first ink layer 16 comprises an organic solvent sensitive ink, the first ink layer 16 reacts to liquids 34 comprising organic solvents. The contact of the organic solvent with the first ink layer 16 causes the colour of the first ink layer 16 to bleach and become transparent, as shown by the regions designated 16A in Figs 2 and 3. As can be seen, the bleached region 16A spreads outwardly in the first ink layer 16 as the solvent 34 migrates.

[0024] It will be appreciated that as the solvent 34 migrates outwardly and the first ink layer 16 is bleached to provide the bleached region 16A, it is immediately apparent to a person receiving the information that an attempt has been made to tamper with it. This will alert the person to contact the sender to issue a further PIN number.

[0025] In the embodiment where the first ink layer 16 comprises a water fugitive ink, the first ink layer 16 reacts to liquids 34 comprising water. The contact of water with the first ink layer 16 causes reticulation and pigment dispersal or migration to the edges of the moisture contact region. This renders the central area of the contact region devoid of pigment or "clear". This allows the second ink layer 18 below to be visible in the bleached regions 16A, thus alerting the user to the fact that tampering has occurred.

[0026] Referring to Figs 4 to 5, there is shown a top view of the label 10 shown in Figs 1 to 3. In the embodiment described, the colour of the first ink layer 16 can be, for example, blue, and the colour of the outer coloured filmic ink 22 could be, for example, red. With this combination of inks, the colour which is seen by the user is a purple. As the liquid 34 migrates outwardly across the region 32, the bleach region 16A become larger and more obviously visible. Since the bleached region 16A are regions in which the ink of the first ink layer 60 has been removed, the colour that is seen by the user is the colour of the colour filmic ink 22, i.e. in the present case red.

[0027] It will be appreciated that other colour combinations could be used, for example blue and yellow to create a green colour in combination.

[0028] Referring to Fig 7, there is shown the label 10 applied to a carrier in the form of a sheet of release paper 38, which carries a plurality of the labels 10 comprising of them being applied to a sheet of paper 28.

[0029] There is thus described a security label 10 which has the advantage of providing a tamper evident label to detect attempted fraudulent activities in attempting to find out the information on printed matter 30 printed on the region 32 of the label 10.

[0030] Various modifications can be made without departing from the scope of the invention. For example, the shape and size of the outer regions carrying the first ink layer 16 and the filmic colour ink layer 22 could be of any design, shape and size.

[0031] Whilst endeavouring in the foregoing specification to draw attention to those features of the invention believed to be of particular importance it should be understood that the Applicant claims protection in respect of any patentable feature or combination of features hereinbefore referred to and/or shown in the drawings whether or not particular emphasis has been placed thereon.

Claims

1. A security label comprising: a film layer; a printable layer on the film layer to allow printing to be applied thereto; **characterised by** a first ink layer applied to a portion of the printable layer; and a second ink layer applied to the film layer, wherein the first ink layer comprises a fluid sensitive ink.

2. A security label according to claim 1 wherein the printable layer is applied to a first side of the film layer, and the second ink layer is applied to a second side of the film layer.

3. A security label according to claim 1 or 2 wherein the first ink layer is a liquid sensitive ink adapted to

change colour or become clear when a liquid is applied thereto.

4. A security label according to claim 1, 2 or 3 wherein the first ink layer comprises an ink that is sensitive to organic solvents.

5. A security label according to claim 4 wherein the organic solvent sensitive ink comprises an ultra violet curable organic solvent active ink.

6. A security label according to any preceding claim wherein the first ink layer comprises an ink that is sensitive to water.

7. A security label according to claim 6 wherein the water sensitive ink comprises a water fugitive ink comprising at least one water fugitive dye.

8. A security label according to claim 7 wherein the water sensitive ink comprises inorganic and/or organic pigments in a varnish.

9. A security label according to claim 8 wherein the varnish comprises a solution of starch in glycerine.

10. A security label according to claim 9 wherein the starch comprises hydrolised starch.

11. A security label according to any preceding claim wherein the portion of the printable layer to which the first ink layer is applied comprises an edge portion of the printable layer.

12. A security label according to any preceding claim wherein the second ink layer comprises an obscurity region, provided centrally of the ink layer.

13. A security label according to any preceding claim wherein the second ink layer comprises a coloured ink.

14. A security label according to any preceding claim wherein the second ink layer comprises at least one filmic pre-polymer ink.

15. A security label according to any preceding claim wherein the second ink layer comprises an obscurity region bounded by a filmic pre-polymer ink.

16. A security label according to any preceding claim wherein an adhesive is applied to the second ink layer to allow the label to be adhered to a substrate.

17. A security label according to any preceding claim wherein the first ink layer is adapted to change colour or become clear or migrate when the liquid is applied thereto.

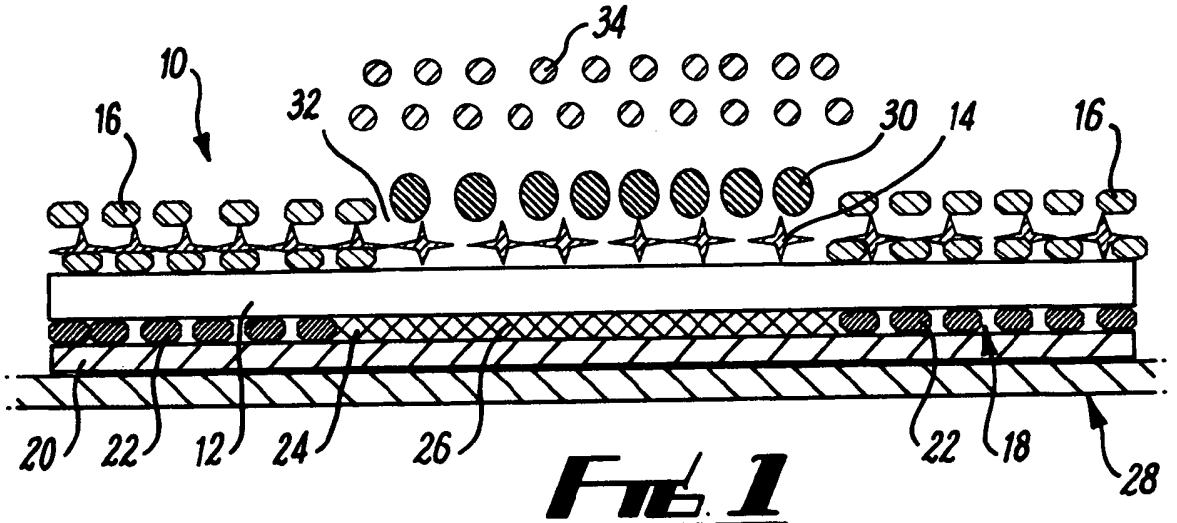

FIG. 1

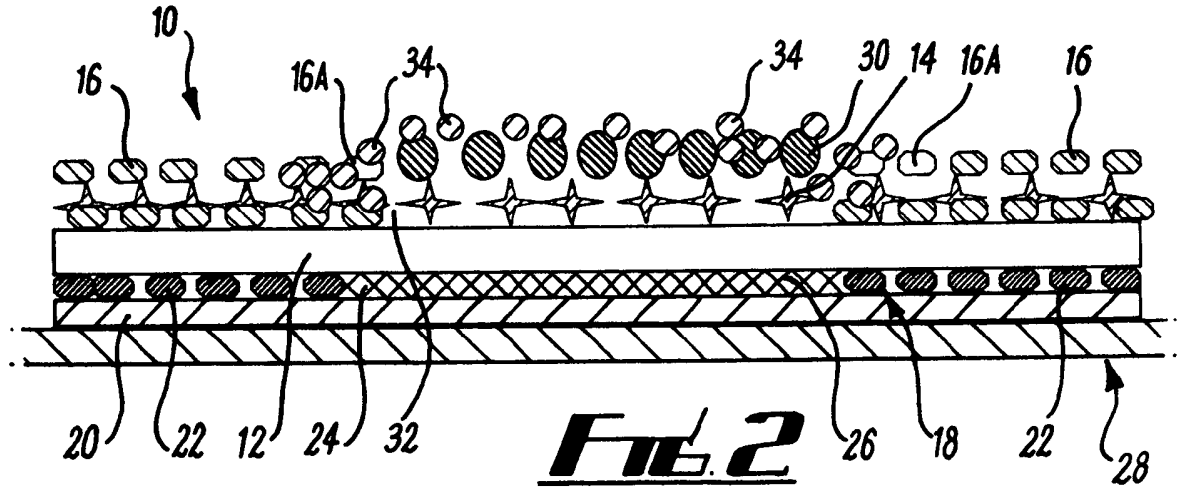

FIG. 2

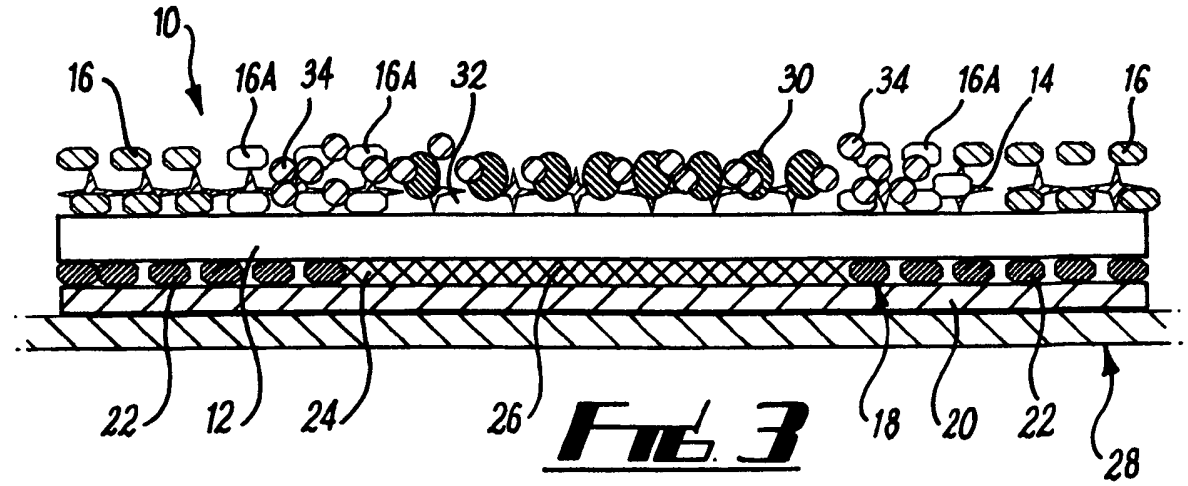

FIG. 3

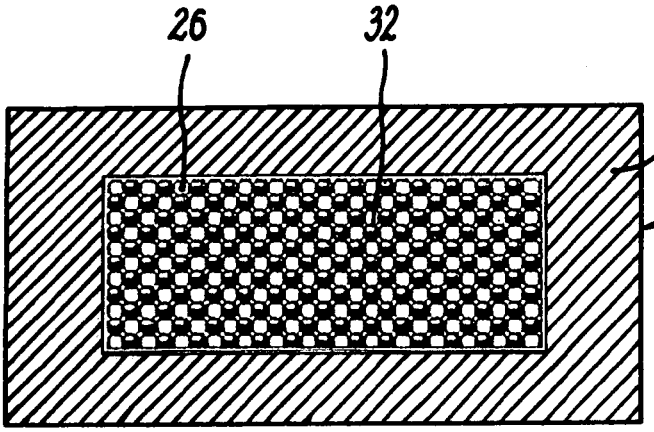

FIG. 4

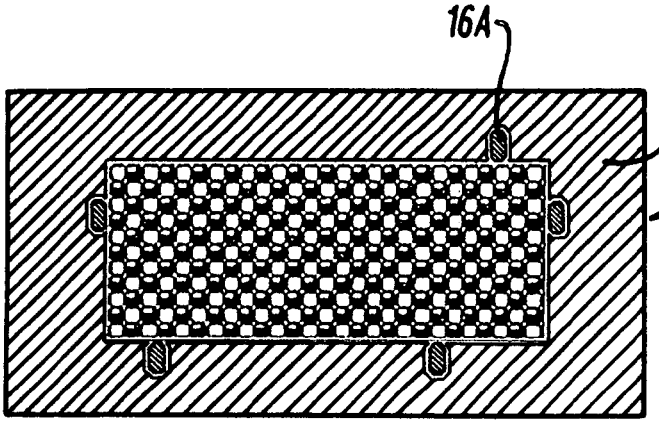

FIG. 5

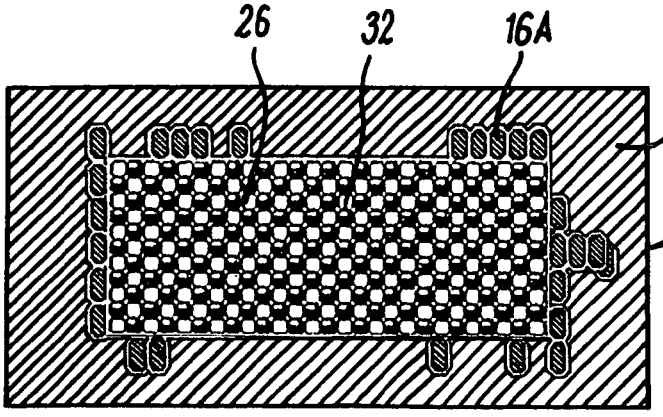

FIG. 6

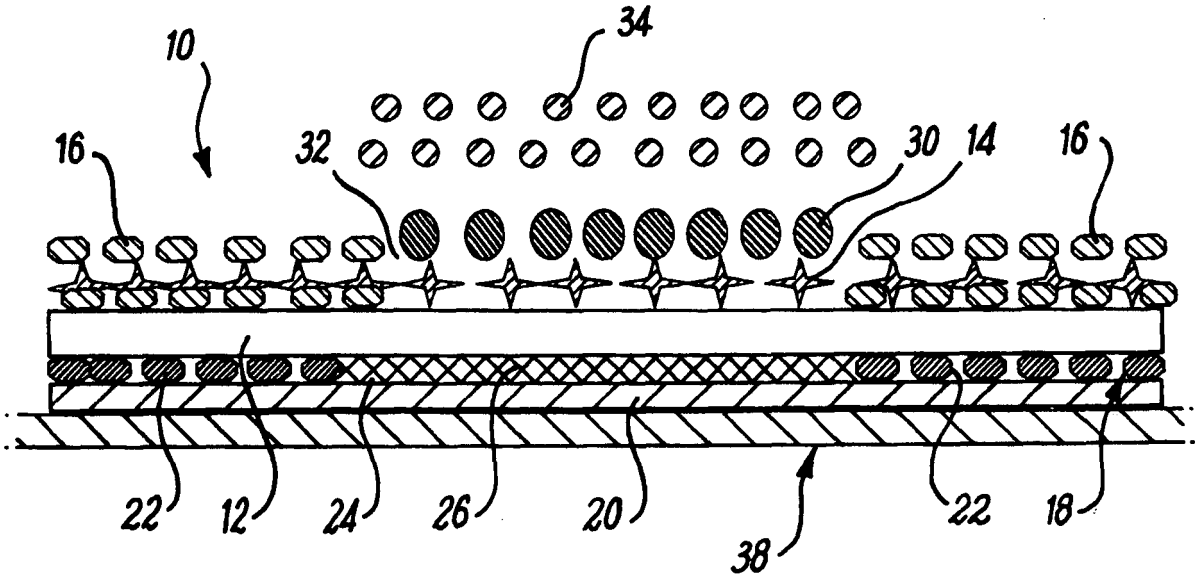

FIG. 1

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EUROPEAN SEARCH REPORT

Application Number
EP 06 25 1487

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	US 5 411 295 A (BATES ET AL) 2 May 1995 (1995-05-02) * figures 1-6 * * column 1, line 51 - column 2, line 53 * * column 3, line 4 - column 3, line 62 * * claim 1 *	1-17	INV. B32B27/36 G09F3/10
X	DE 33 17 133 A1 (SCHAEFER-ETIKETTEN GMBH & CO; SCHAEFER-ETIKETTEN GMBH & CO, 7441 WOLFS) 15 November 1984 (1984-11-15) * page 3, paragraph 1 - page 7, paragraph 1 *	1-17	
X	US 3 680 236 A (SAMUEL BROUGHTON DEAL ET AL) 1 August 1972 (1972-08-01) * column 1, lines 15-24 * * column 1, lines 25-46 *	1	
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The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	25 July 2006	Schweissguth, M

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