



Europäisches Patentamt
European Patent Office
Office européen des brevets



(11) **EP 1 262 937 A1**

(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
04.12.2002 Bulletin 2002/49

(51) Int Cl.7: **G09F 3/02**

(21) Application number: **01113120.8**

(22) Date of filing: **29.05.2001**

(84) Designated Contracting States:
**AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU
MC NL PT SE TR**
Designated Extension States:
AL LT LV MK RO SI

(71) Applicants:
• **Frantschach Inncoat GmbH**
83064 Raubling (DE)
• **RITRAMA SPA**
20052 Monza (Milano) (IT)

(72) Inventors:
• **Dr. Ferraris, Giuseppe**
15033 Casale Monferrato-AI (IT)
• **Ludwig, Peter**
83115 Raubling (DE)
• **Dr. Munniger, Wilhelm**
83064 Neubeuern (DE)
• **Rink, Tomas Frederico**
20043 Arcore-MI (IT)

(74) Representative: **Meyer-Roedern, Giso, Dr.**
Bergheimer Strasse 10-12
69115 Heidelberg (DE)

(54) **Release liner, information carrier and process for its manufacture**

(57) A release liner (10) comprises a substrate (12) and a coating (14) on the substrate (12) that provides release properties against a pressure sensitive adhe-

sive. The substrate (12) is sensitive to irradiation, under which it can change its local optical properties, thus being provided with a visible information which cannot be erased or altered without destroying the substrate (12).

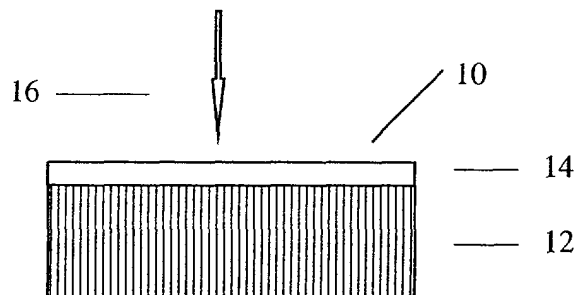


Fig. 1

EP 1 262 937 A1

Description

[0001] The invention relates to a release liner comprising a substrate and a coating on the substrate that provides release properties against a pressure sensitive adhesive.

Explanation of terms

[0002] Self-adhesive constructions for labels are well-known in the art. They have at least three distinguishable layers, from top to bottom: a face material, a pressure sensitive adhesive and a carrier material here called release liner. The face material with the adhesive is called label. The label can be taken off the release liner and be applied onto another surface. Such constructions are well known and often called Duplex (see Fig. 4).

[0003] Another kind of label construction is well known as Triplex or Piggy-back: a Duplex construction with a second adhesive layer under the release liner - now intermediate release liner - sits on a second, lower release liner (see Fig. 5). The utilisation is a two step process, corresponding to the two adhesive layers: first the lower release liner is removed and the stack of the top layers all together are applied onto another surface; second from this stack the adhesive covered face material can be taken off and brought to another place, leaving the intermediate release liner at the first surface.

[0004] The face material of standard label constructions carries information. The information is printed onto the face by means of any printing method.

[0005] The release liner consists of a substrate like paper, coated paper or film, with a coating on the substrate that provides release properties against pressure sensitive adhesives. The coating often comprises silicone, i. e. dimethylsiloxane, and blends thereof. It is therefore hereinafter called "silicone coating".

Problem to be solved by the invention

[0006] It is often necessary that information present on the face material has to be repeated on the release liner(s). Sometimes it is wanted that one or both of the included release liners carries information different from the face material.

[0007] One of the inherent properties of a release liner is that it easily releases adhesives or anything else that might stick on it, in particular due to the silicone. It is therefore very difficult to fix information on it. Printing on siliconized surfaces can be wiped away or can smear.

[0008] Until now, the requirement of affixing information on a release liner has been satisfied by using one made of self-copying or carbonless copy paper, which repeats what is printed on the face material only by impact printing. Furthermore, the carbonless copy papers used nowadays

- are very vulnerable to accidental pressure,
- may become unreadable, as the printing may fade over time, and
- they are often sensitive to some components of adhesives. For example, the tackifier resins present in some adhesives can darken the carbonless copy paper, making it unreadable.

[0009] It is the object of the invention to provide a release liner of the above-mentioned kind which can be marked independently from the information on the face material in a fashion that cannot be erased or altered.

Solution

[0010] This object is solved by a release liner having a substrate which is sensitive to irradiation, under which it can change its local optical properties, thus being provided with a visible information which cannot be erased or altered without destroying the substrate.

[0011] In a preferred embodiment, the substrate is sensitive to optical, ultraviolet or infrared radiation, in particular laser radiation.

[0012] The present concept is based on the fact that metallic, ceramic and also some plastic manufactured articles are, due to their chemical composition, sensitive to laser rays, thus making it possible to "etch" it and /or to produce a colour variation. Other totally insensitive plastics need a modification in their formulation by introducing specific additives, as for example described in the DE 196 29 675 A1, or DE 197 26 136 A1.

[0013] These additives under the laser rays generate a colour variation, i. e. a visible contrast, allowing the products to be marked without any fading effect of the marking over time. These markings cannot be removed unrecognised by chemical or mechanical means.

[0014] The laser systems used for the marking technology are:

- Nd:YAG laser and sealed-off CO₂-laser / for laser stroke markers
- TEA-CO₂-laser / for laser mask markers.

[0015] Laser systems, in comparison with the conventional printing systems, allow:

- to get very clear information prints like graphics, logos, texts, numberings or bar codes with high resolution,
- to work at high speeds,
- to obtain markings which are resistant to any solvent and / or detergent washing, as well as to mechanical abrasion,
- to mark without getting the manufactured article in contact with printing rolls, inks etc. and,
- to work without using ovens for drying solvents or cross-linking inks, thus making it possible to mark temperature-sensitive products, which would be dif-

ficult to mark with normal printing technologies.

[0016] The radiation-sensitive substrate of the release liner according to the invention may be a one-layer structure.

[0017] In a preferred embodiment, however, the substrate is a two or more layer structure, at least one of the layers - hereinafter called "laser markable polymer layer" - being sensitive to the radiation.

[0018] In a preferred embodiment, the substrate comprises a core layer which is coated on one side with the laser markable polymer layer carrying the silicone coating and which may optionally be coated on the other side with another polymer layer.

[0019] In a preferred embodiment, the laser markable polymer layer is a film laminated to the core layer.

[0020] In another preferred embodiment, the laser markable polymer layer is extrusion coated onto the core layer.

[0021] In a preferred embodiment, the laser markable polymer layer is coextrusion coated onto the core layer.

[0022] Another subject of the invention is an information carrier with a face material being affixed by pressure sensitive adhesive to a release liner of the above-mentioned kind, hereinafter called "laser markable release liner". The information carrier may be of the above-mentioned Duplex type.

[0023] The information carrier may also be of the above-mentioned Triplex type. In this case, the face material is affixed by pressure sensitive adhesive to an intermediate release liner. The intermediate release liner is affixed by pressure sensitive adhesive to a lower release liner. Either the intermediate release liner, or the lower release liner, or both release liners are laser markable release liners of the above-mentioned kind.

[0024] A process for the manufacture of an information carrier according to the invention includes the step of irradiating the substrate of a laser markable release liner to provide it with visible information.

[0025] The substrate may be irradiated through one or more transparent or translucent covering layers.

[0026] It is also possible to delaminate the information carrier to expose the substrate of the laser markable release liner for irradiation.

[0027] In a preferred embodiment, however, the information carrier is die-cut to a part of its depth and weeded at its edge to expose the substrate for irradiation.

[0028] The invention will now be described in more detail with reference to the drawings.

Fig. 1 is a side elevation of a release liner with a single-layer laser markable substrate;

Fig. 2 is a side elevation of a release liner with a multi-layer laser markable substrate manufactured in a lamination or extrusion process;

Fig. 3 is a side elevation of a release liner with a multi-layer laser markable substrate manufactured in a coextrusion process;

Fig. 4 is a side elevation of a Duplex information carrier with a laser markable release liner;

Fig. 5 is a side elevation of a Triplex information carrier comprising one or two laser markable release liner(s);

Fig. 6 is a side elevation illustrating the laser irradiation of a delaminated Duplex information carrier;

Fig. 7 is a side elevation illustrating (a) the die-cutting, and (b) the weeding and laser irradiating of a Duplex information carrier;

Fig. 8 is a side elevation illustrating (a) the die-cutting, and (b) the weeding and laser irradiating of a Triplex information carrier with a lower laser markable release liner; and

Fig. 9 is a side elevation illustrating (a) the staggered die-cutting, and (b) the weeding and laser irradiating of a Triplex information carrier with an intermediate and lower laser markable release liner.

[0029] The laser markable release liner 10 according to Fig. 1 has a single-layer substrate 12 provided with a silicone coating 14. The substrate 12 is laser markable. As indicated by the arrow 16, the substrate 12 may be irradiated by laser radiation through the silicone coating 14, thus changing the optical properties of the substrate 12 to provide it with a visible information which cannot be erased or altered without destroying the substrate 12.

[0030] The laser markable release liner 20 according to Fig. 2 has a multi-layer substrate comprising a core layer 22 provided with a laser markable polymer layer 24 on its upper surface. The laser markable polymer layer 24 carries the silicone coating 14. The lower surface of the core layer 22 may be provided with another polymer layer 26.

[0031] The laser markable polymer layer 24 may be manufactured as a film which is laminated to the core layer 22. In another embodiment, the core layer 22 is extrusion coated with the laser markable polymer layer 24.

[0032] The laser markable polymer layer 24 may be irradiated through the silicone coating 14 as above.

[0033] The laser markable release liner 30 according to Fig. 3 has a multi-layer substrate comprising a core layer 22 which is coextrusion coated with a laser markable polymer layer 32. In a preferred embodiment, the upper component 34 of the coextruded material is not laser markable while the lower component 36 is laser markable. The laser markable component 36 may be irradiated through the silicone coating 14 as above, and through the upper component 34 of the coextruded layer.

[0034] In another embodiment, the upper component 34 of the coextruded material is laser markable while the lower component 36 is not laser markable. The laser markable component 34 may be irradiated through the silicone coating 14.

[0035] The information carrier 40 according to Fig. 4 is of the Duplex type. It comprises a face material 42 with a print 44 on the upper side. The lower side of the face material 42 is provided with a layer of pressure sensitive adhesive 46 covered by a release liner 48. The release liner 48 is a laser markable release liner of type 10 according to Fig. 1, type 20 according to Fig. 2 or type 30 according to Fig. 3.

[0036] The information carrier 50 according to Fig. 5 is of the Triplex type. The layer of pressure sensitive adhesive 46 on the face material 42 is covered by an intermediate release liner 52 adhering with a layer of pressure sensitive adhesive 54 on a lower release liner 56. The intermediate release liner 52, or the lower release liner 56, or both release liners 52, 56 is / are (a) laser markable release liner(s) of the type 10 according to Fig. 1, type 20 according to Fig. 2 or type 30 according to Fig. 3. To be more specific: it is possible to combine a laser markable intermediate release liner 52 with a normal lower release liner 56, to combine a normal intermediate release liner 52 with a laser markable lower release liner 56 and to combine a laser markable intermediate release liner 52 with a laser markable lower release liner 56, both of the same type 10, 20, 30 or a different type 10, 20, 30. The laser marking of the Triplex construction may be executed on both or only one of two release liners 52, 56.

[0037] Fig. 6 illustrates the laser irradiation of a Duplex information carrier 40 comprising an opaque release liner 48 covered by an opaque face material 42 so that irradiating through is not possible. The information carrier 40 is delaminated to remove the face material 42 with the pressure sensitive adhesive 46 from the release liner 48 so that the latter becomes exposed for irradiation through the silicone coating 14. After irradiation, the face material 42 and the release liner 48 are recombined.

[0038] Fig. 7 illustrates the die-cutting, weeding and irradiating of a Duplex type information carrier 40. The information carrier 40 is die cut from above to a part of its depth, namely through the face material 42 and into the pressure sensitive adhesive 46, leaving the release liner 48 uncut. Die-cutting is performed around a central core so that a surrounding border around the core may be removed - i.e. weeded - to expose the border 70 of the release liner 48 for irradiation.

[0039] Fig. 8 illustrates the die-cutting, weeding and irradiating of a Triplex type information carrier 50 having a lower release liner 56 which is laser markable. The die-cutting is performed above the lower release liner 56.

[0040] Fig. 9 illustrates the die-cutting, weeding and irradiating of a Triplex type information carrier 50 having an intermediate release liner 52 and a lower release liner 56 which are both laser markable. The die-cutting is performed in a staggered manner. A narrow outer border rim is cut away above the lower release liner 56, and a broad inner border rim is cut away above the interme-

mediate release liner 52.

[0041] After die-cutting, the Triplex type information carrier 50 according to Fig. 8 and Fig. 9 is weeded and irradiated as described above.

[0042] The present invention provides a multilayer construction which enables one to produce label constructions with a silicone containing release liner surface which can be marked in a fashion that cannot be erased or altered.

[0043] Such a multilayer construction is markable on the release liner 10, 20, 30 without having the disadvantages of carbonless copy paper. It comprises a release liner 10, 20, 30 that has a silicone containing surface and that has at least one polymeric layer. The polymeric layer may contain one or more specific additives, as mentioned above, making it laser-markable with different intensities. This release liner 10, 20, 30 may be a siliconized polymer film or a multi-layered construction. A multi-layered construction comprises a core layer 22, e. g. of paper or a film or a non-woven, coated on one side with a laser markable polymer coating 24, being siliconized on the same side; it may also have a polymer coating 26 on the backside. The laser-markable polymer layer 24 is now accessible for laser irradiation through the transparency of the adjacent layers, at least from the silicone side. When using a siliconized, transparent polymer film, the laser marking can also be done from the reverse side.

[0044] The polymer coatings mentioned above may be obtained by extrusion-coating or by lamination of films.

[0045] This new release liner 10, 20, 30, markable with laser technology, allows the construction of new Duplex and Triplex labels 40, 50. The face material 42 thereof comprises

- a) either paper or board, with weight typical for label use,
- b) a plastic film made of PE, PP, PET, PVC (clear or opaque), with thickness typical for label use, and information print 44.

The adhesive layer 46, 54 is a pressure sensitive adhesive (PSA), which can be based on acrylic polymers, natural and/or synthetic rubber, with or without the presence of natural and/or synthetic tackifier resins, as well as organic and/or mineral plasticizers. Such an adhesive can be dissolved in solvents, emulsified in water or a combination thereof, or be a hot-melt adhesive. It can be UV and/or EB crosslinkable or thermally crosslinkable. The adhesives can have permanent, semi-permanent (repositionable), or removable properties.

[0046] The release liner 10, 20, 30 has a coating 14, containing silicone, i. e. dimethylsiloxane and blends thereof. This silicone coating 14 allows the peeling off of an adhesive 46, 54. It can be solvent or solventless silicone, thermally or radiation-cured silicone. Under the

silicone is a polymeric layer 24 which may have additives present, making it sensitive to laser radiation. This polymeric layer can be a combination of several extruded or laminated polymeric layers, of which one or several of them carry the laser-sensitive additives. A polyolefin is the preferable choice of polymers; and polyethylene (PE) is the preferred polyolefin.

[0047] In another form this polymeric layer or combination of layers may be a coating on a substrate 22 or a lamination of the polymeric layer with substrate 22. The substrate 22 can be a Kraft paper from 30 to 200 g/m² (preferably between 40 and 120 g/m²), as well as a calendered paper (glassine and / or densified kraft), with a weight between 40 and 120 g/m² (preferably between 50 and 80 g/m²) or a transparent or opaque PE, PP or PET film with a thickness between 10 and 150 μ , preferably between 23 and 80 μ .

[0048] In the Triplex form of the invention is a second adhesive layer 54, whose nature is of the same as the first adhesive 46. The second release liner 56 may have the same nature as the first 52 or it may be a standard release liner not being laser markable made of paper or plastic film, well known to persons skilled in this art, and which has a silicone coating 14, which allows the peeling off of an adhesive 54.

[0049] A self-adhesive laminate can be printed with any technique well-known to people skilled in the art. The laser marking generates information like a logo, bar code, text, progressive numbering, or whatever is requested for personalising each label. It can be done before or after the die-cutting of labels, in-line or off-line of the printing process, in-line or off-line of the die-cutting operation, in-line or off-line of the label's application or dispensing.

[0050] To carry out the marking operation, the laminate may be used with one of the following options:

1. If the layers on top of the laser markable polymeric layer 24 are optically transparent, or translucent, the marking operation can be carried out on any point of the laminate through the top layers, also simultaneously, if present, in both markable layers of a Triplex 50.

2. If the layers on top of the laser markable polymeric layer 24 are not transparent because they are opaque or pigmented, the marking process can be done by a delamination process separating the release liner 48 from the adhesive 46 in line with the printing process; then a laser can be used to mark the accessible surface of the release liner 48. Afterwards the laminate is closed, by covering the release liner 48 again with the adhesive 46. Thereafter the die-cutting operation may be done. Thus the laser marking under the label is absolutely not visible, unless one separates the label and peels off the label. It is therefore possible to obtain a security label to protect products from tampering or fraud, or

to obtain a premium label for lottery, a promotional win, etc.

3. If the layers on top of the laser markable polymeric layer 24 are not transparent because they are opaque or pigmented, the marking process can be done after partial removal of the covering layers at the protruding area of the release liner 48. Partial removal can be achieved by die-cutting of a label, and weeding of the waste between the labels. In the case of a Triplex or Piggy-back laminate, a twofold die-cutting and weeding process using two die-cutting tools, may be carried out. A first cut slits the laminate to the first release liner, and the second cut to the second release liner, such that the second cut encompasses the first one. After weeding, both release liners are exposed, and, if present, both markable layers may become laser marked. When working in such sequence, a stack of labels is obtained.

4. If the layers underneath of the markable layers are transparent, the marking may also be done from the reverse side.

List of reference numerals

[0051]

10	laser markable release liner
12	substrate
14	silicone coating
16	arrow indicating irradiation
20	laser markable release liner
22	core layer
24	laser markable polymer layer
26	polymer layer
30	laser markable release liner
32	coextruded laser markable polymer layer
34	upper component
36	lower component
40	information carrier
42	face material
44	print
46	pressure sensitive adhesive
48	release liner
50	information carrier
52	intermediate release liner
54	pressure sensitive adhesive
56	lower release liner
70	surrounding border

Claims

1. Release liner (10, 20, 30) comprising a substrate (12) and a coating - hereinafter called "silicone coating (14)" - on the substrate (12) that provides re-

lease properties against a pressure sensitive adhesive (46, 54), **characterized in that** the substrate (12) is sensitive to irradiation, under which it can change its local optical properties, thus being provided with a visible information which cannot be erased or altered without destroying the substrate (12).

2. Release liner (10, 20, 30) according to claim 1, **characterized in that** the substrate (12) is sensitive to optical, ultraviolet or infrared radiation, in particular laser radiation. 10
3. Release liner (10) according to claim 1 or 2, **characterized in that** the substrate (12) is a one-layer structure. 15
4. Release liner (20, 30) according to claim 1 or 2, **characterized in that** the substrate is a two or more layer structure, at least one of the layers - hereinafter called "laser markable polymer layer (24)" - being sensitive to the radiation. 20
5. Release liner (20, 30) according to claim 4, **characterized in that** the substrate comprises a core layer (22) which is coated on one side with the laser markable polymer layer (24, 32) carrying the silicone coating (14) and which may optionally be coated on the other side with another polymer layer (26). 25
30
6. Release liner (20, 30) according to claim 5, **characterized in that** the laser markable polymer layer (24) is a film laminated to the core layer (22).
7. Release liner (20, 30) according to claim 5, **characterized in that** the laser markable polymer layer (24, 32) is extrusion coated onto the core layer (22). 35
8. Release liner (30) according to claim 7, **characterized in that** the laser markable polymer layer (32) is coextrusion coated onto the core layer (22). 40
9. Information carrier (40) with a face material (42) being affixed by pressure sensitive adhesive (46) to a release liner (48) which is a release liner (10, 20, 30) according to one of claims 1 to 8. 45
10. Information carrier (50) with a face material (42) being affixed by pressure sensitive adhesive (46) to an intermediate release liner (52), said intermediate release liner (52) being affixed by pressure sensitive adhesive (54) to a lower release liner (56), said intermediate release liner (52) and / or said lower release liner (56) being a release liner (10, 20, 30) according to one of claims 1 to 8. 50
55
11. Process for the manufacture of an information carrier (40, 50) according to claim 9 or 10, including the

step of irradiating the substrate (12) of a release liner (10, 20, 30) to provide it with visible information.

12. Process according to claim 11, **characterized in that** the substrate (12) is irradiated through one or more transparent or translucent covering layers.
13. Process according to claim 11 or 12, **characterized in that** the information carrier (40, 50) is delaminated to expose the substrate (12) for irradiation.
14. Process according to one of claims 11 to 13, **characterized in that** the information carrier (40, 50) is die-cut to a part of its depth and weeded at its edge to expose the substrate (12) for irradiation.

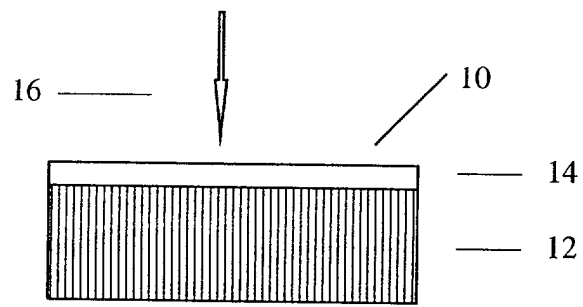


Fig. 1

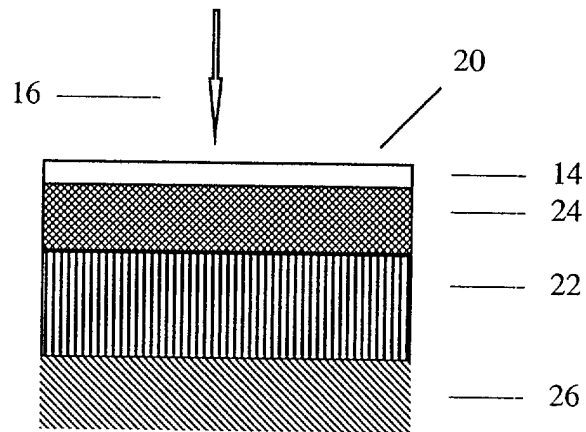


Fig. 2

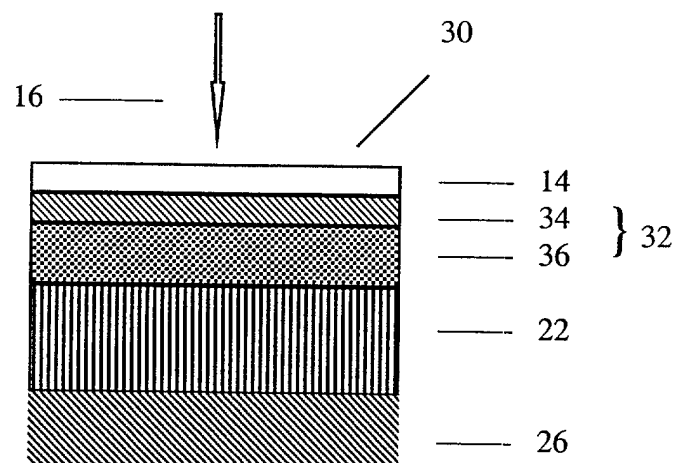


Fig. 3

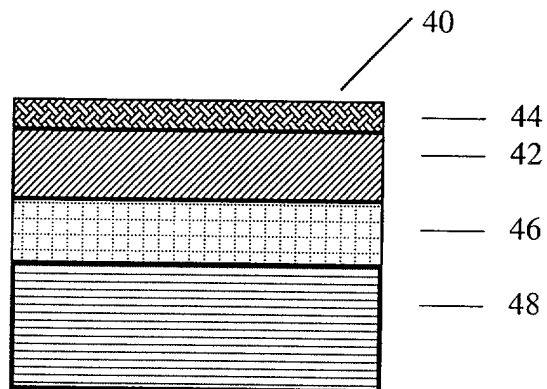


Fig. 4

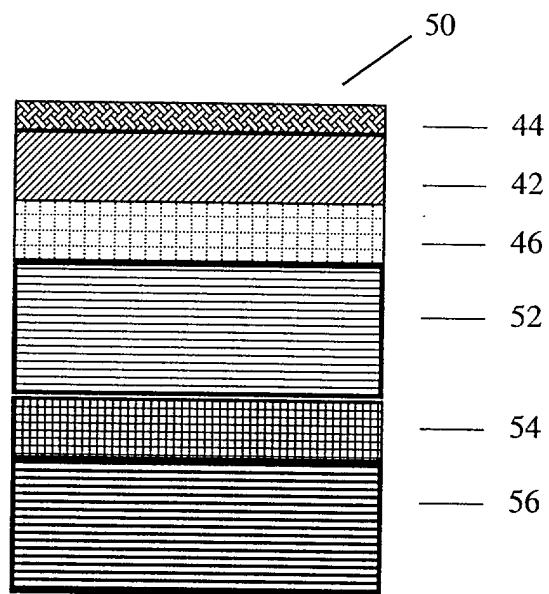


Fig. 5

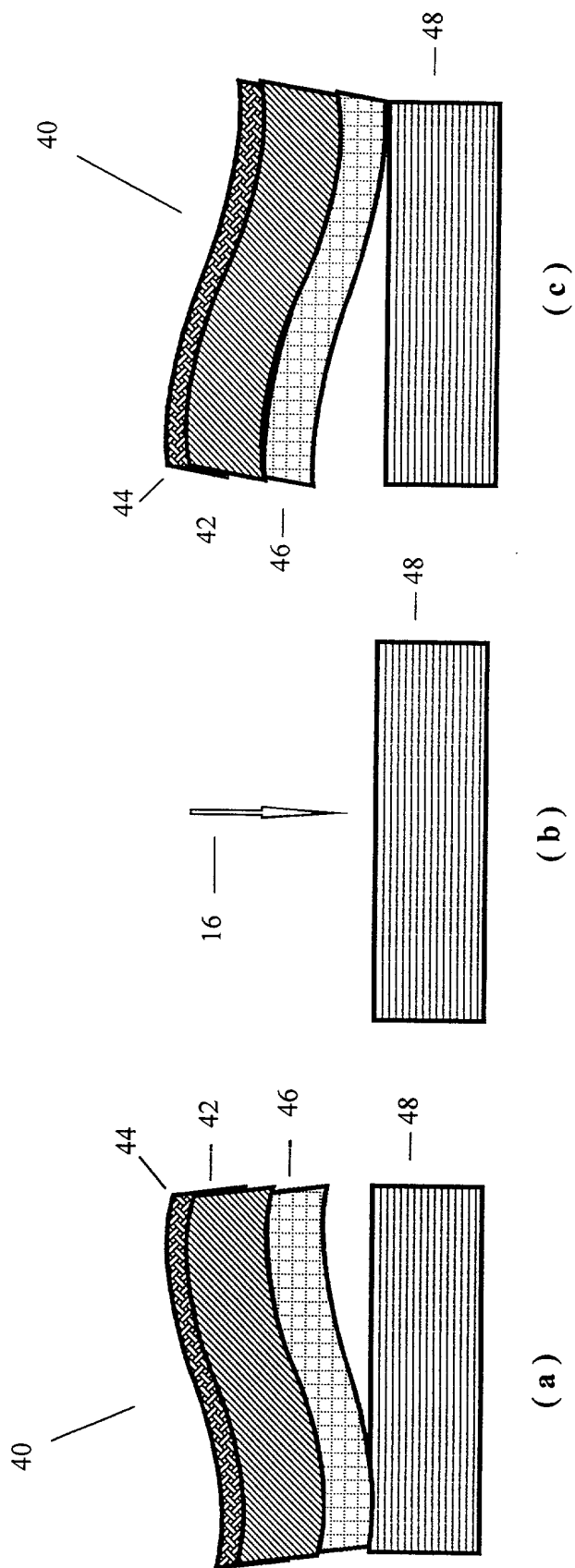


Fig. 6

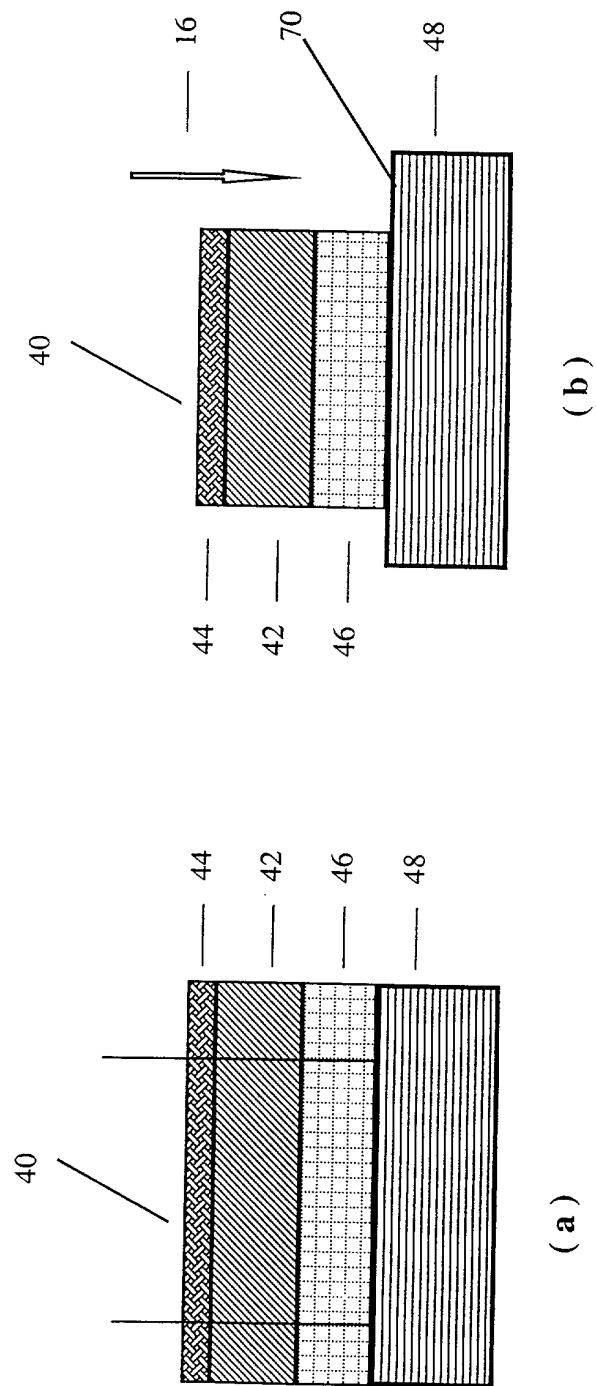


Fig. 7

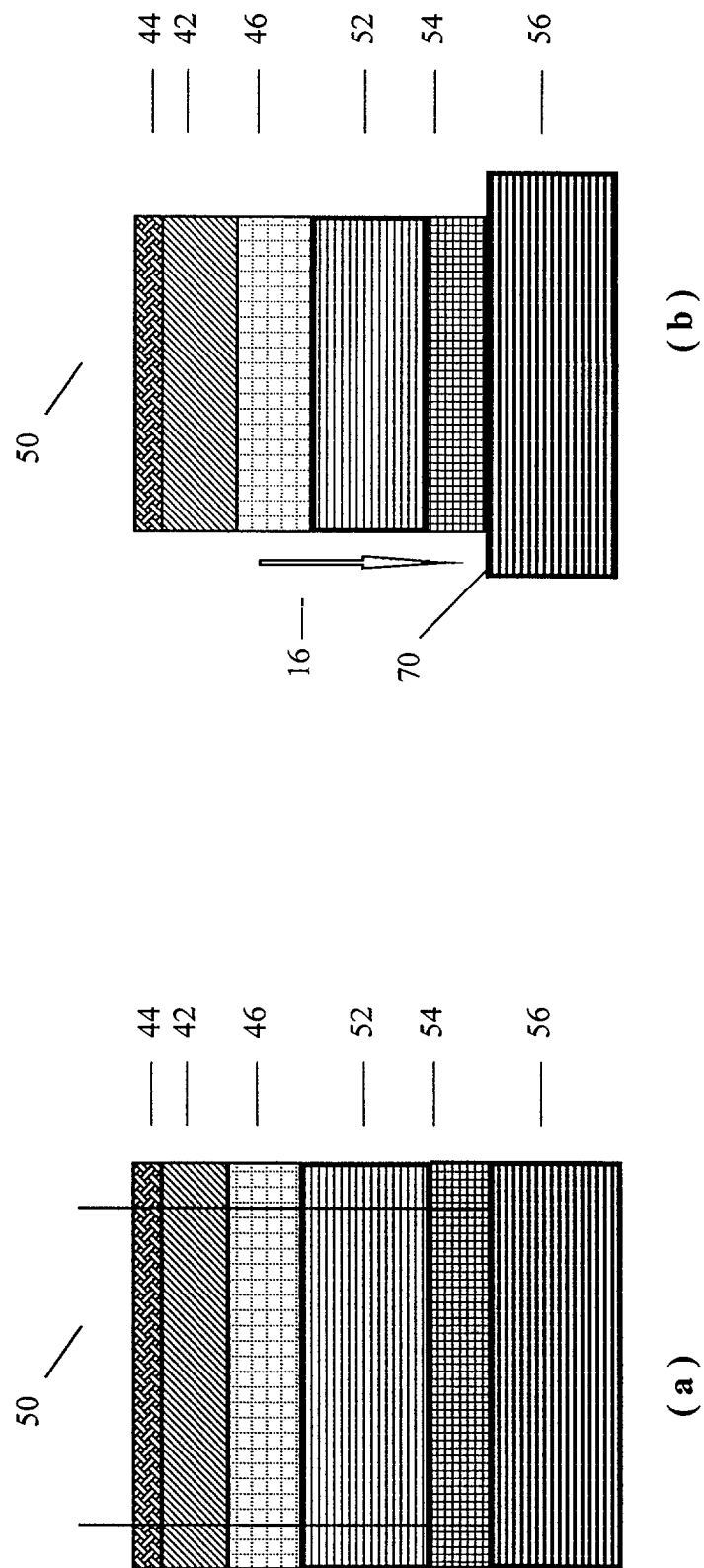


Fig. 8

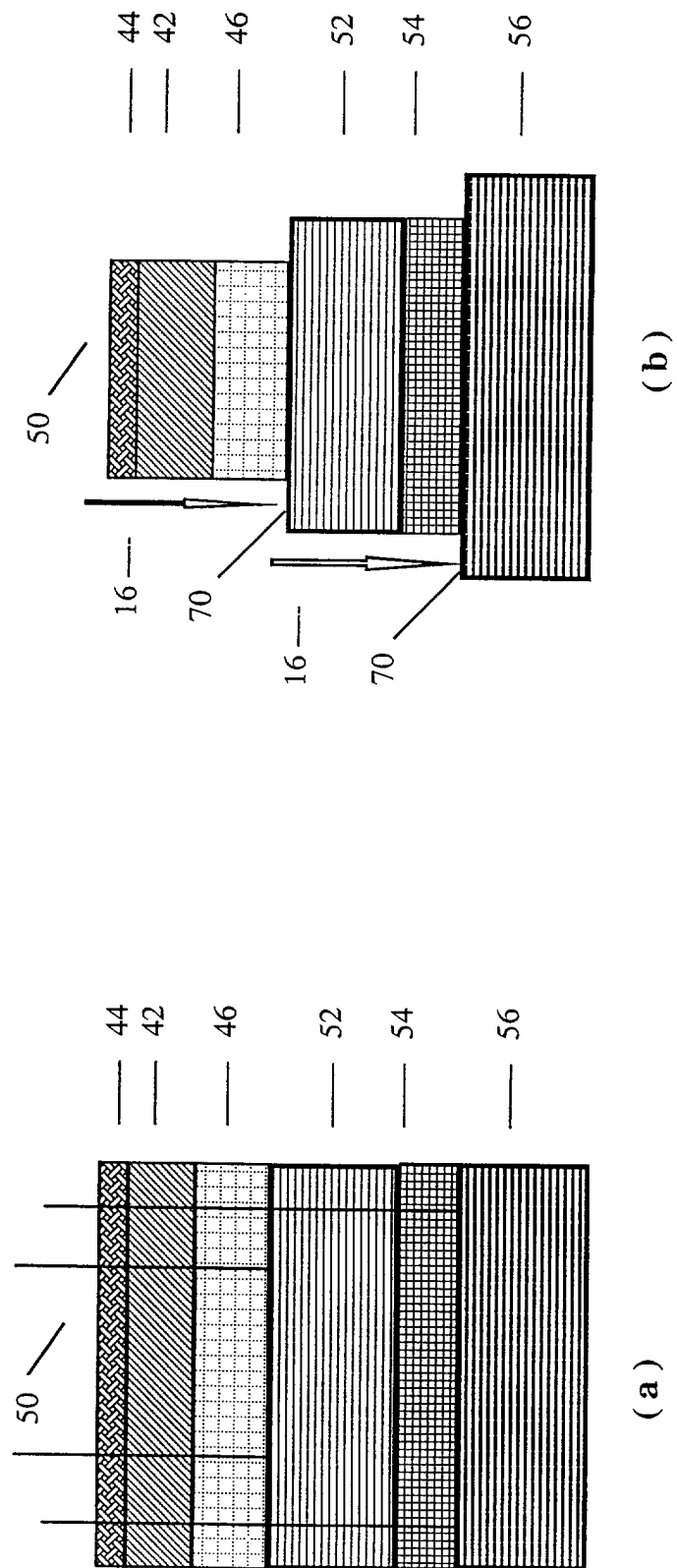


Fig. 9



European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 01 11 3120

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.7)
A	US 6 066 437 A (KOESSLINGER ROBERT) 23 May 2000 (2000-05-23) * column 1, line 53 - line 56 * * column 5, line 18 - line 24 * * column 4, line 2 - column 5, line 17 * * figure 3 *	1,2,4,5, 9,11,12	G09F3/02
A	US 5 626 966 A (HIRSCH RALF ET AL) 6 May 1997 (1997-05-06) * the whole document *	1-3,7,8	
A	EP 0 911 787 A (BEIERSDORF AG) 28 April 1999 (1999-04-28) * column 4, line 41 - line 54 *	1,4-6, 11,14	
A	US 4 253 899 A (SASAKI YUKIHIKO ET AL) 3 March 1981 (1981-03-03) * the whole document *	9,10	
A	US 5 832 827 A (CHEN XIN ET AL) 10 November 1998 (1998-11-10) * the whole document *	1-14	
			TECHNICAL FIELDS SEARCHED (Int.Cl.7)
			G09F B41M B32B B41J
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 5 November 2001	Examiner Pantoja Conde, 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			

EP Form 1503/03-82 (P04021)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 01 11 3120

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

05-11-2001

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 6066437 A	23-05-2000	DE 19642040 C1	15-01-1998
		AT 200650 T	15-05-2001
		AU 4616997 A	11-05-1998
		DE 59703393 D1	23-05-2001
		DK 866750 T3	13-08-2001
		WO 9816397 A1	23-04-1998
		EP 0866750 A1	30-09-1998
		ES 2159151 T3	16-09-2001
		NO 982560 A	04-06-1998
US 5626966 A	06-05-1997	DE 4421865 A1	04-01-1996
		DE 9421868 U1	13-02-1997
		DE 59500098 D1	06-03-1997
		EP 0688678 A1	27-12-1995
		JP 8054823 A	27-02-1996
EP 0911787 A	28-04-1999	DE 19747000 C1	24-12-1998
		EP 0911787 A2	28-04-1999
		US 6241289 B1	05-06-2001
US 4253899 A	03-03-1981	NONE	
US 5832827 A	10-11-1998	AT 200254 T	15-04-2001
		AU 714889 B2	13-01-2000
		AU 6332096 A	30-12-1996
		BR 9609401 A	15-06-1999
		CA 2219534 A1	19-12-1996
		CN 1187159 A ,B	08-07-1998
		DE 69612378 D1	10-05-2001
		EP 0831999 A1	01-04-1998
		JP 11509143 T	17-08-1999
		KR 243931 B1	01-02-2000
		NZ 311911 A	30-08-1999
		WO 9640526 A1	19-12-1996

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82