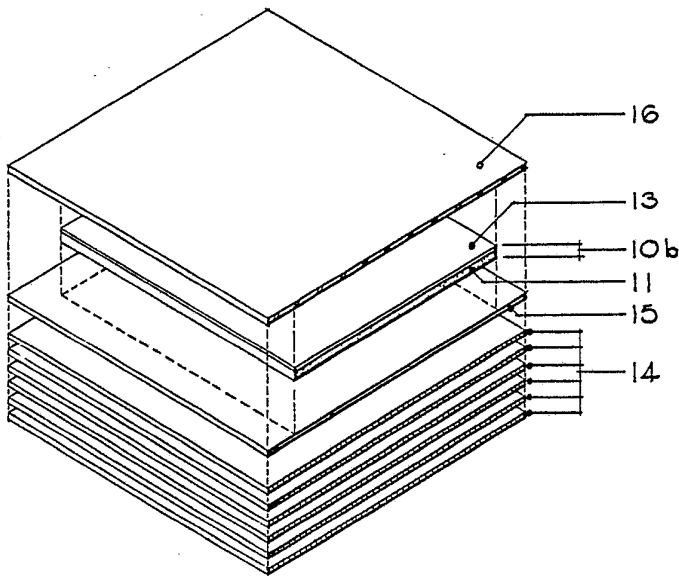


## INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

<b>(51) International Patent Classification<sup>3</sup> :</b> <b>B44C 5/02, 1/16; B32B 31/12</b> <b>B32B 31/04, 33/00</b>	<b>A1</b>	<b>(11) International Publication Number:</b> <b>WO 83/ 02256</b> <b>(43) International Publication Date:</b> 7 July 1983 (07.07.83)
<b>(21) International Application Number:</b> PCT/AU82/00211 <b>(22) International Filing Date:</b> 17 December 1982 (17.12.82)  <b>(31) Priority Application Number:</b> PF 2079 <b>(32) Priority Date:</b> 24 December 1981 (24.12.81) <b>(33) Priority Country:</b> AU  <b>(71)(72) Applicant and Inventor:</b> BAGGETT, William, Duncan [AU/AU]; 15 The Ridgeway, Queanbeyan, NSW 2620 (AU).  <b>(74) Agents:</b> DUNCAN, Alan, David et al.; Davies and Collison, AMP Building, Hobart Place, Canberra City, ACT 2601 (AU).  <b>(81) Designated States:</b> AU, DE, GB, JP, US.		<b>Published</b> <i>With international search report.</i>
<b>(54) Title:</b> METHOD OF MOUNTING PHOTOGRAPHIC PRINTS  <div style="text-align: center;">  </div> <b>(57) Abstract</b> <p>A photographic print (10a) can be mounted within a laminated plastic material of the type marketed under the brand name 'FORMICA' or 'LAMINEX' if the waterproof backing sheet (12) of the photographic print (10a) is removed and the stripped print (10b) is then positioned between an assembly of resin-impregnated opaque sheets (14) and a resin-impregnated topping sheet (16), and the resin-impregnated sheets are then treated conventionally to form the laminated material. The inclusion of a layer (30) of a protective material helps to prevent deterioration of a coloured photographic print that has been mounted in the laminated material.</p>		

***FOR THE PURPOSES OF INFORMATION ONLY***

Codes used to identify States party to the PCT on the front pages of pamphlets publishing international applications under the PCT.

AT	Austria	LI	Liechtenstein
AU	Australia	LK	Sri Lanka
BE	Belgium	LU	Luxembourg
BR	Brazil	MC	Monaco
CF	Central African Republic	MG	Madagascar
CG	Congo	MR	Mauritania
CH	Switzerland	MW	Malawi
CM	Cameroon	NL	Netherlands
DE	Germany, Federal Republic of	NO	Norway
DK	Denmark	RO	Romania
FI	Finland	SE	Sweden
FR	France	SN	Senegal
GA	Gabon	SU	Soviet Union
GB	United Kingdom	TD	Chad
HU	Hungary	TG	Togo
JP	Japan	US	United States of America
KP	Democratic People's Republic of Korea		

TITLE: "METHOD OF MOUNTING PHOTOGRAPHIC PRINTS"

TECHNICAL FIELD

This invention concerns the mounting of photographs. More particularly, it concerns the mounting of photographic prints within laminated material (for example, a material of the type marketed under the trade names "LAMINEX" and "FORMICA").

BACKGROUND ART

The normal and well known method of producing laminated plastic materials is to assemble

- a) a number of sheets of brown paper, impregnated with melamine or a similar resinous material;
- b) a coloured or printed sheet of paper, also impregnated with melamine or a similar resinous material; and
- c) a topping sheet of paper, also impregnated with melamine or a similar resinous material;

and then to bond the assembled sheets together, using (typically) the application of both heat and pressure.

With this technique, any required design or pattern can be produced in the laminated product. The required design or pattern is printed on to the sheet that is positioned between the backing sheets of impregnated brown paper and the impregnated topping sheet.

Attempts have been made to insert an untreated photographic print into laminated material, but without success. It was not possible to produce an effective bond between the impregnated sheets and the photograph, and the different parts of the laminations separated. Thus the only effective prior art technique for mounting a photographic image within a laminate material of this type has involved making a non-

- 2 -

photographic print of the image on paper, then impregnating that printed paper sheet and including it in the standard laminating process.

#### DISCLOSURE OF THE PRESENT INVENTION

- 5           The main objective of the present invention is the provision of an effective, and relatively economical, technique for mounting a photographic print within a laminated product of the type referred to above.
- 10           This objective is achieved by a treating the photographic print to be mounted, then inserting the treated photographic print into the assembly of sheets referred to above for the formation of a laminated product. For a normal appearance of the mounted
- 15 photographic print, a white or light coloured impregnated backing sheet should be placed behind the photographic print. For special effects, however, a strongly coloured backing sheet or no backing sheet may be used.
- 20           The necessary treatment of the photograph is the removal of its waterproof backing sheet, to leave only the photographic emulsion and its paper support. This treatment has been found to enable the photographic print to be included in the lamination process and be
- 25 bonded successfully to the impregnated backing sheets and the impregnated topping sheet.

Thus, according to the present invention, a method of mounting a photographic print in a laminated material comprises the sequential steps of

- 30           a) removing the waterproof backing sheet from the photographic print;
- b) including the photographic print with the backing sheet removed in an assembly of resin-impregnated papers or the like; and

c) treating the assembly conventionally to produce the laminated product.

If the photographic print is in colour, it has been found that, in some instances, the laminating process causes a colour change in the fugitive dyes used to form the colour print. It has also been found that colours can change over a period of time if the photograph which has been mounted within the laminate material is exposed to sunlight or to light from 10 fluorescent lamps. To avoid the first possible defect (or to produce a required special effect), the photographic print should be produced by a technique which provides a compensating or required colour balance. The second possible problem (deterioration of 15 colour with time) can be reduced by including a protective layer between the photographic print and the resin-impregnated topping sheet in the laminating assembly.

Embodiments of the present invention will now be 20 described, with reference to the accompanying drawings.

#### BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1 is a schematic sectional view of a photograph.

Figure 2 is a schematic representation of an 25 assembly for producing a laminated product.

Figure 3 is a schematic representation of a second assembly for producing a laminated product.

#### DETAILED DESCRIPTION OF ILLUSTRATED EMBODIMENTS

Figure 1 illustrates, in a simplified form, a 30 section through a typical photographic print 10a, consisting of an emulsion 13, a paper backing or support sheet 11, and a waterproof plastic backing sheet 12.

A more detailed representation of a typical colour photographic print will be found on page 11 of the booklet entitled "Printing Color Negatives", which is published by Eastman Kodak Company (the page 5 reference is to the Fifth Edition of the booklet, first 1975 printing).

The first step in the present invention is the removal of the backing sheet 12. The removal of this sheet may be conveniently effected by a mechanical 10 rolling process, although any technique for removal of the backing sheet 12 may be used, provided it does not disturb or destroy the emulsion 13.

When the backing sheet 12 has been removed, the stripped photographic print 10b is positioned in an 15 assembly (see Figure 2) consisting of

- a) a plurality (usually around ten) of brown paper sheets 14 impregnated with a resin (melamine is generally used for the impregnation); and
- 20 b) a topping sheet of paper 16, impregnated with resin.

The photographic print is normally positioned immediately under the topping sheet, and with a light coloured (or white) backing sheet 15 behind it. For 25 special effects, as mentioned above, a strongly coloured sheet 15 may be included between the sheets of brown paper 14 and the photographic print. The sheet 15, which is also impregnated with resin, may be used to form a border for the mounted photographic print.

30 The assembly of sheets is then treated in the conventional manner to form a laminated product, such as a material of the type marketed in Australia under the trade mark "LAMINEX" or "FORMICA".

When this technique is used, it has been found that the photographic print is effectively bonded within the laminated product.

With some colour photographic prints, as indicated above, it was found that the colour balance in the mounted photograph was incorrect, being lacking in cyan (enhanced in the red region). This phenomenon (which is thought to be the result of a change in the structure of the fugitive dyes due to the application of heat and pressure in the laminating process) can be used to good effect in some instances - for example, to add warmth to an otherwise cold photograph. However, where the appropriate colour balance is required in the mounted photographic print, the print may be produced with a known bias in the cyan colour layer which will shift to neutral during the laminating process.

A similar special exposure approach may be used to achieve a desired effect with a photographic print. Other effects can be achieving using a strongly coloured sheet 15, which for normal colour prints will be a white or lightly-coloured sheet.

The embodiment illustrated in Figure 3 is similar to the embodiment of Figure 2, but a protective layer 30 is positioned between the treated photographic print 10b and the resin-impregnated topping sheet of paper 16. The layer 30 can be a sheet of a clear plastics material, but it may also be a layer which is added on to the top of the treated photographic print 10b. The protective layer 30 helps to prevent deterioration of the colour of the mounted photograph.

The assembly shown in Figure 3 is treated, of course, in the usual manner to form the bonded laminated product.

INDUSTRIAL APPLICATION

Users of laminated materials of the "LAMINEX" and "FORMICA" type will appreciate the benefits of mounting photographic prints in this manner, and the extent of the commercial application of the present invention. Photographic prints mounted in this way are particularly useful for displays at exhibitions, where their light weight, combined with the rigidity and strength of the product, and the fact that the surfaces of laminated materials of this type are less likely to be damaged by acts of vandalism, give them substantial advantages over posters and photographs mounted on cardboard backing sheets, which are normally used for such displays.

15        Among the many other uses for the product of the present invention are low-cost, easy care pictures for offices and the like, and family photographs which can be sent through the post without risk of damage.

CLAIMS

1. A method of mounting a photographic print (10a) in a laminated material characterised by the sequential steps of
  - a) removing the waterproof backing sheet (12) from the photographic print (10a) to produce a stripped photographic print (10b);
  - b) including the stripped photographic print (10b) between an assembly of resin-impregnated opaque papers (14) and a topping sheet (16) of resin-impregnated paper to form a combined assembly of sheets; and
  - c) treating the combined assembly of sheets conventionally to produce the laminated product.
2. A method as defined in claim 1, further characterised in that the photographic print (10a) is a coloured print that has been produced to enhance the cyan colour in the print.
3. A method as defined in claim 1 or claim 2, further characterised by the inclusion in said combined assembly of a resin-impregnated backing sheet (15), said resin-impregnated backing sheet (15) being positioned between the stripped photographic print (10b) and the assembly of opaque papers (14).
4. A method as defined in claim 3, in which said backing sheet (15) is white or light coloured.
5. A method as defined in claim 3, in which said backing sheet (15) is strongly coloured.

6. A method as defined in any preceding claim, further characterised by including a protective layer (30) between the stripped photographic print (10b) and the resin-impregnated transparent topping sheet (16).
7. A mounted photographic print produced by the method of any one of claims 1 to 6.

1/2

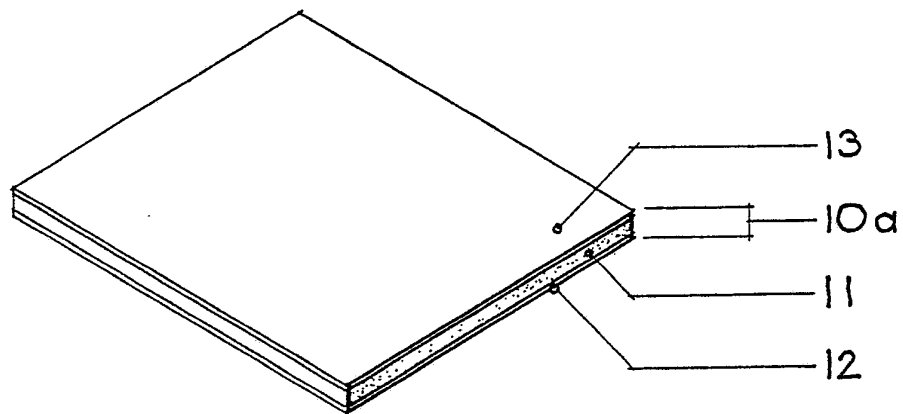


FIGURE 1.

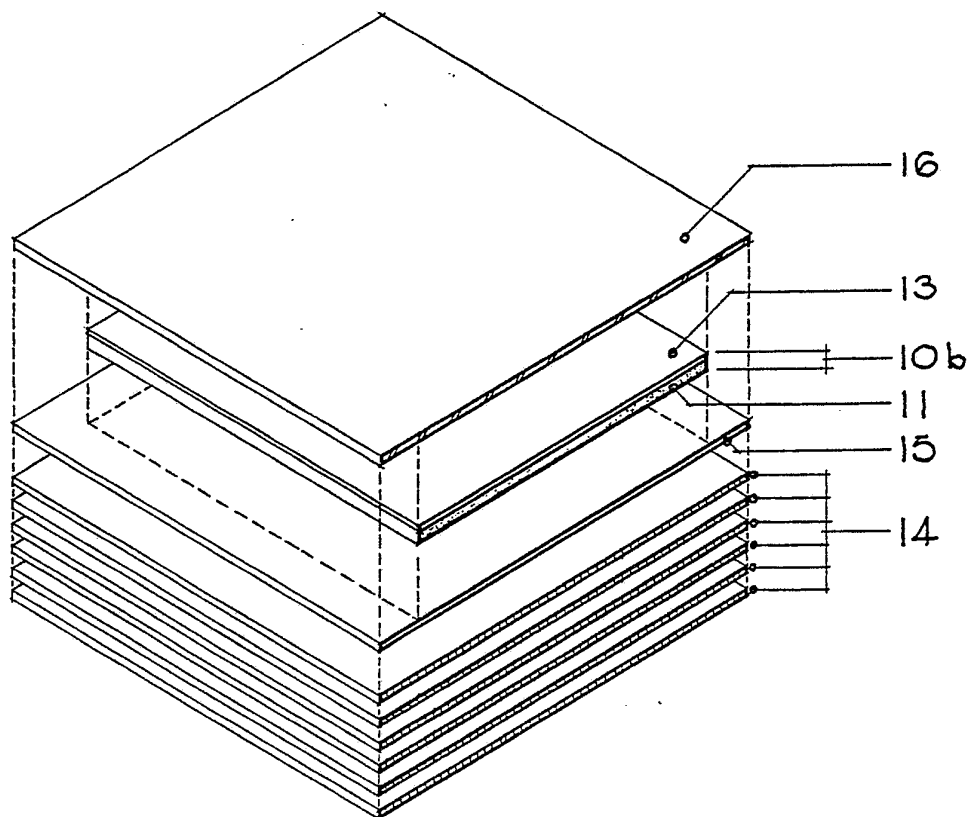


FIGURE 2.

2/2

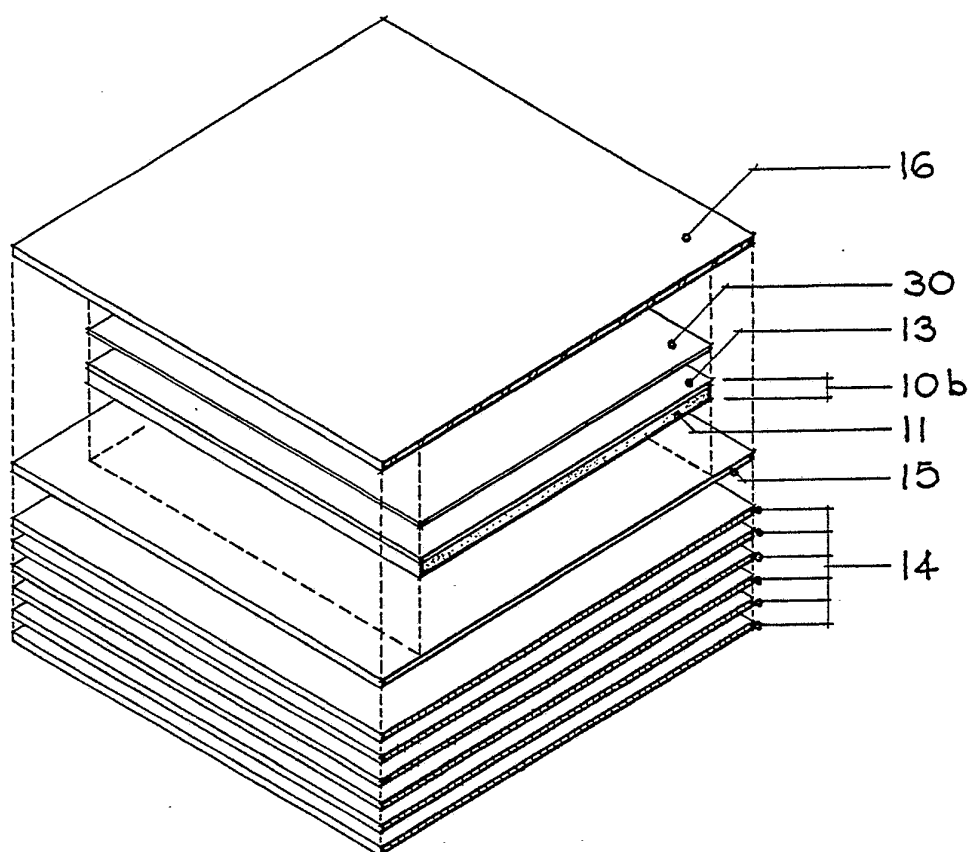


FIGURE 3.

# INTERNATIONAL SEARCH REPORT

International Application No PCT/AU 82/00211

<b>I. CLASSIFICATION OF SUBJECT MATTER</b> (If several classification symbols apply, indicate all) <sup>3</sup>		
According to International Patent Classification (IPC) or to both National Classification and IPC		
Int. C1 <sup>3</sup> B44C 5/02, 1/16, B32B 31/12, 31/04, 33/00		
<b>II. FIELDS SEARCHED</b>		
Minimum Documentation Searched <sup>4</sup>		
Classification System	Classification Symbols	
I P C	B44C 5/02, 1/16, B32B 33/00	
Documentation Searched other than Minimum Documentation to the Extent that such Documents are Included in the Fields Searched <sup>5</sup>		
AU : IPC as above, Australian classification 52.6		
<b>III. DOCUMENTS CONSIDERED TO BE RELEVANT</b> <sup>14</sup>		
Category *	Citation of Document, <sup>16</sup> with indication, where appropriate, of the relevant passages <sup>17</sup>	Relevant to Claim No. <sup>18</sup>
A	US,A, 4293360 (LOFT et al) 6 October 1981 (06.10.81) (& EP, A, 11-966)	
A	US,A, 4092199 (UNGAR et al) 30 May 1978 (30.05.78)	
A	US,A, 4092198 (SHER et al) 30 May 1978 (30.05.78)	
A	US,A, 4006048 (CANNADY et al) 1 February 1977 (01.02.77)	
A	US,A, 3476828 (REBAUDO) 4 November 1969 (04.11.69)	
A	US,A, 2180002 (FORD) 14 November 1939 (14.11.39)	
A	JP,A, 56-60218 (MATSUSHITA DENKO K.K.) 25 May 1981 (25.05.81) (JAPATIC English Language Abstract)	
A	JP,A, 52-98788 (MATSUSHITA DENKO K.K.) 18 August 1977 (18.08.77) (JAPATIC English Language Abstract)	
A	EP,A, 35-133 (FORMICA CORPORATION) 9 September 1981 (09.09.81) (& GB,A, 2070515)	
A	AU,B, 57299/65 (425400) (THE NATIONAL CASE REGISTER COMPANY) 6 October 1966 (06.10.66)	
<p>* Special categories of cited documents: <sup>15</sup></p> <p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"E" earlier document but published on or after the international filing date</p> <p>"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)</p> <p>"O" document referring to an oral disclosure, use, exhibition or other means</p> <p>"P" document published prior to the international filing date but later than the priority date claimed</p> <p>"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention</p> <p>"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step</p> <p>"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.</p> <p>"Z" document member of the same patent family</p>		
<b>IV. CERTIFICATION</b>		
Date of the Actual Completion of the International Search <sup>2</sup>	Date of Mailing of this International Search Report <sup>3</sup>	
1 March 1983 (01.03.83)	11 March 1983 (11.03.83)	
International Searching Authority <sup>1</sup>	Signature of Authorized Officer <sup>10</sup>	
AUSTRALIAN PATENT OFFICE	A.S. MOORE. <i>A.A. Moore</i>	

III. DOCUMENTS CONSIDERED TO BE RELEVANT (CONTINUED FROM THE SECOND SHEET)		
Category *	Citation of Document, <sup>16</sup> with indication, where appropriate, of the relevant passages <sup>17</sup>	Relevant to Claim No <sup>18</sup>
A	AU,A, 39930/68 (AICA KOGYO COMPANY LIMITED) 8 January 1970 (08.01.70)	
A	AU,B, 34853/50 (147714)(L. DACCO) 10 August 1950 (10.08.50)	
A	GB,A, 1407052 (DYNAMIT NOBEL A.G.) 24 September 1975 (24.09.75)	