



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

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| <b>(21) International Application Number:</b> PCT/IT97/00090<br><b>(22) International Filing Date:</b> 21 April 1997 (21.04.97)<br><br><b>(30) Priority Data:</b><br>BS96A000033      24 April 1996 (24.04.96)      IT<br><br><b>(71)(72) Applicant and Inventor:</b> BILLONI, Giuseppe [IT/IT]; Via Rismondo, 27, Castelletto Borgo, I-46100 Mantova (IT).<br><br><b>(74) Agent:</b> DALLAGLIO, Fabrizio; Bugnion S.p.A., Via Garibaldi, 22, I-43100 Parma (IT).                                                                                                                                                                                                                                                                                                                                                                                                            |           | <b>(81) Designated States:</b> AU, CA, US, European patent (AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE).<br><br><b>Published</b><br><i>With international search report.<br/>         Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i> |
| <b>(54) Title:</b> TRANSFER AND METHOD FOR ITS PREPARATION AND USE<br><br><div> </div><br><b>(57) Abstract</b><br><p>The invention falls within the sector of techniques for transferring onto a wall or other support medium ornamental, decorative or advertising motifs. According to the invention, a coating consisting of a solution of a thermoplastic resin (12) is spread on one side of a base film (11) made of plastic material and decorative ornamental subjects (14) are printed in thermoplastic resin coating (12) and a protective covering (15) is applied onto the printed part. If required, a layer of acrylic or vinyl colour (13) may be spread on the thermoplastic resin coating (12). The article comprises all the elements described and combined as described in the preparation method.</p> |           |                                                                                                                                                                                                                                                                                                                                                    |

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## TRANSFER AND METHOD FOR ITS PREPARATION AND USE

## DESCRIPTION

The present invention relates to the sector of transferable articles, i.e. to the technique of transferring onto a wall or other support medium ornamental, decorative, advertising and other such subjects or motifs.

More particularly, the invention relates to a method for preparing and arranging in position, by means of transfer, such transferable articles.

It is already known of transferable articles and techniques for effecting transfer onto a wall or other surface, which, however, use paper or plastic sheets as a support medium for decorative, advertising and other such subjects.

The object of the present invention, however, is to propose a new method for preparing transferable articles and transferring them onto any surface which may be used on an industrial level, using materials which can be easily found and are relatively low-cost, with a high

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degree of reliability in terms of results and with an above-average performance.

Such an object is achieved in accordance with the invention by a method for preparing and arranging in position transferable articles in accordance with claim 5 1. Said object, however, will be described more fully in the continuation of the description provided with reference to the accompanying drawing in which the sole figure shows a portion of an article with separable parts 10 which are partially detached.

With the method proposed herein, using certain raw materials and by means of an industrial manufacturing process, it is possible to obtain decorative, advertising and other such articles 10 which are made transferable owing to a specific combination of components on a base and support film 11.

These components comprise, starting from said base film 11 - see also the drawing - a coating of thermoplastic resin solution 12, if necessary, a layer of acrylic or vinyl colour 13, a printed motif 14 with typographical colours, and a superficial protective covering 15.

More precisely, the base film 11 may be a thin continuous sheet, ribbon or veil of plastic material such as polyethylene, polyvinyl chloride (PVC), polyvinyl acetate or the like, suitable for being positioned and used in 25

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machines of the conventional type such as those for printing wall paper or the like.

The resin solution 12 is applied using industrial systems. It is prepared, for example, by dissolving the  
5 resin in denatured ethyl alcohol in a proportion of 1:3. Among others, P.V.A. (polyvinyl acetate) resin, for example the product marketed by the Waker Chemie Division under the name "VINNAPAS B60", is preferable as the thermoplastic resin. The alcohol in the solution has the  
10 properties of preventing the water-repellent action of the resin, making it suitable for subsequently receiving the acrylic or vinyl colour 13.

The layer of colour 13 may also be not required and in any case may form part of the ensuing printing process.  
15 This acrylic or vinyl colour, when used, is spread over the resin coating 12 after the latter has dried on the base film 11. The acrylic or vinyl colour, for this application, may be water-emulsified in a proportion of about 50% and is used as a base and background for  
20 subsequent printing thereon of the desired motifs or subjects 14. It is preferably white, unless a coloured background is already required at this stage, i.e. prior to printing. For the same purpose, moreover, an acrylic or vinyl resin alone may also be used, i.e. without  
25 pigment and exclusively as a binder.

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It should be noted that the combination of the acrylic or vinyl colour with the thermoplastic resin, in particular P.V.A. resin, dissolved in ethyl alcohol, in addition to a "screening" action, reinforcing the whole assembly, ensures that the latter is able to withstand the rapid and demanding drying cycles (above 60°C) required for the subsequent process of printing decorative, advertising or similar subjects or images 14.

Printing is performed continuously, with typographical colours, also in quadrichromatic print, using flexographic or other printing machines or else by means of the silk-screen process. The material thus printed is wound up on a bobbin and the latter is then transferred to a machine which performs bonding of the protective covering 15 on the printed surface. Such a covering 15 may consist of a very thin veil of non-woven fabric and bonding thereof onto the printed surface may be performed using a reversible bonding agent based on methyl cellulose (such as, for example, normal Metylan or special Metalyn produced by Henkel), if necessary in an aqueous solution in a ratio of 3:1, or else using another type of bonding agent.

This very thin covering 15 of non-woven fabric, applied onto the printed surface using a water-reversible bonding agent, in addition to providing a protective screening,

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makes it possible to "emprison", as it were, the decorative layer consisting of the combination of the underlying resin coating 12, the background layer of vinyl or acrylic colour 13 and the print 14 performed thereon, separating it from the base film 11 for when the material prepared using the method described is to applied onto any surface or support medium to be decorated.

The article may be marketed both with the base film still attached thereto, in which case this film will be removed by the person performing the laying operation, and without the base film, in which case the printed part remains attached to the covering.

The application of the decorative material once freed from the base film is performed by means of bonding onto the wall, wood or other support medium. For bonding it is possible to use suitable glues of any type, such as "ovalit" (trademark) and "Metylan special" in water in a proportion of 3:1, spread on the uncovered side of the material, i.e. on the side from which the base film has been removed. The application of the material onto the support medium concerned is performed as for wall paper onto walls, wood, etc.

Finally, once drying has occurred (after at least 6-7 hours) the covering of non-woven fabric 15 is moistened

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until it may be detached, leaving free the decorative subject or motif thus transferred onto the support medium.

5 The nature and proportions of the products mentioned above are only indicative and may be varied in accordance with requirements without thereby departing from the scope of the invention.

10 It should be noted, moreover, that, without departing from the invention, the article may be marketed also without the covering and that the printing of the colours 14 onto the resin coating 12 spread on the base film 11 may be performed using a reverse procedure, as will also be reversed the direction of application onto the final support medium.

15 The base film 11 thus protects not the rear but the front of the article and will be removed only after the bonding agent for application to the final support medium has dried, thus freeing the resin coating 12 and showing the decoration 14 in the correct direction.

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## CLAIMS

1. Method for preparing and applying, by means of transfer, onto any support medium an article with ornamental, decorative, advertising and similar subjects, characterized in that:
  - a) the preparation of said articles is performed, starting from a base film (11) made of plastic material, by:
    - spreading a coating consisting of a solution of thermoplastic resin (12) onto one side of said base film, allowing it to dry there;
    - applying, if necessary, a background layer of acrylic or vinyl colour (13) onto said coating of thermoplastic resin once dried;
    - carrying out the printing of the desired ornamental, decorative or advertising subjects (14) on a background layer, where present, and in any case on the thermoplastic resin coating;
    - applying with a bonding agent a protective covering (15) on the printed part;
  - b) arranging in position, by means of transfer, is performed by:
    - removing the base film;
    - applying a bonding agent onto the surface of the

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article left free by removal of the base film or on the support medium to which the article is to be applied and after leaving to dry and spreading the article on the desired support medium;

- moistening and removing the protective covering.

2. Method according to Claim 1, characterized in that:

- the base film is a continuous sheet, strip or veil of polyethylene, polyvinyl chloride (PVC) or polyvinyl acetate;

- the solution of thermoplastic resin is a polyvinyl resin dissolved in denatured ethyl alcohol in a suitable proportion;

- the acrylic or vinyl background colour is preferably white and emulsified in water; and

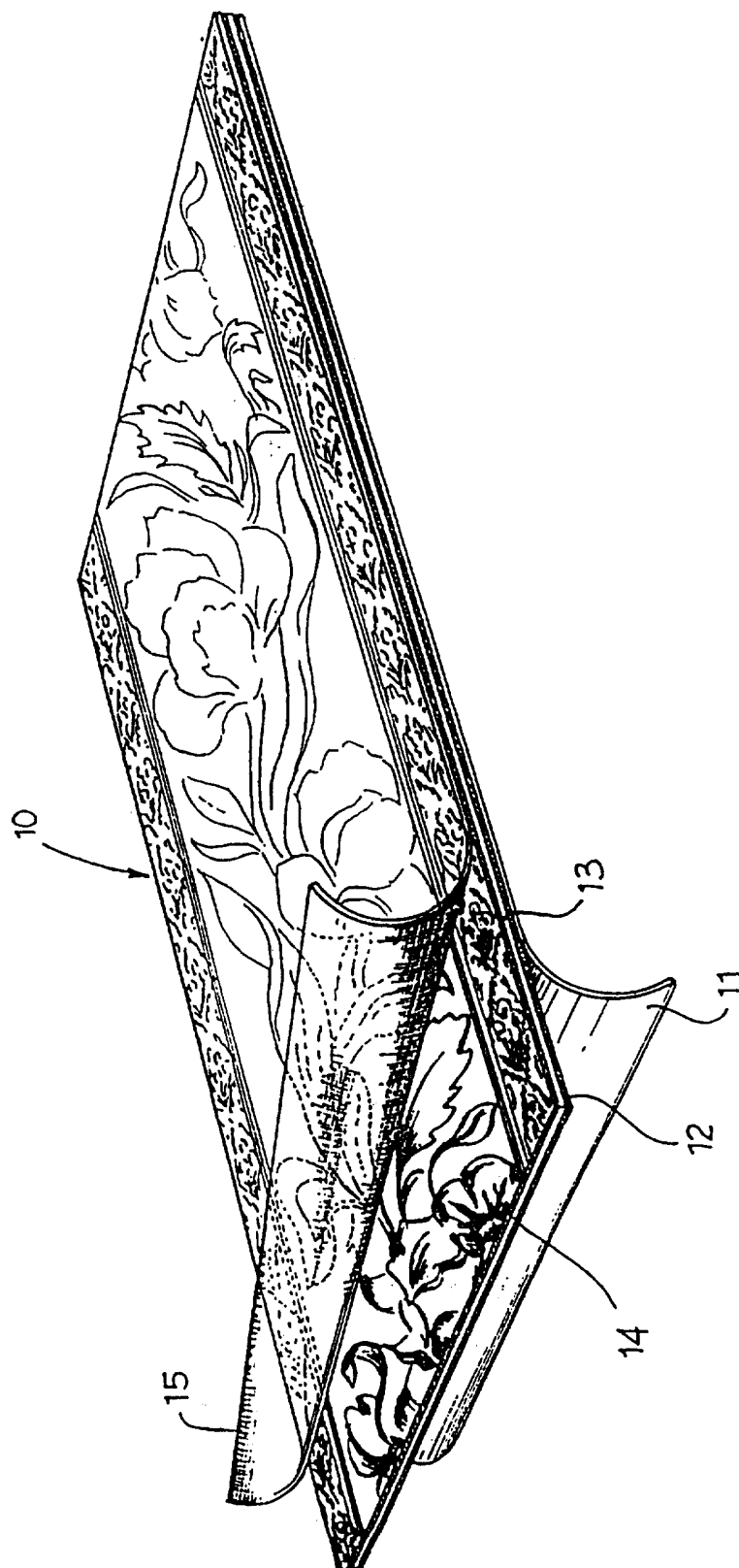
- the protective covering is made of a non-woven fabric bonded with a glue reversible in aqueous solution.

3. Method according to Claim 2, characterized in that the thermoplastic resin is preferably polyvinyl acetate (P.V.A.) in alcohol solution in a proportion 1:3.

4. Article for transferring onto any support medium decorative subjects which can be obtained using industrial processes, characterized in that it comprises: a continuous plastic base film (11), a coating of thermoplastic resin (12) for supporting the colour applied and dried on one side of said film; if necessary,

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a background layer of acrylic or vinyl colour (13) applied onto said resin coating; a printed motif (14) on said layer of acrylic or vinyl colour and a protective covering (15) applied onto the printed part, the base film being separated prior to arrangement of the article on a support medium, the covering being separated, prior to moistening, before laying the article in position.



# INTERNATIONAL SEARCH REPORT

International Application No  
PCT/IT 97/00090

A. CLASSIFICATION OF SUBJECT MATTER  
IPC 6 B44C1/10 B44C1/16

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)  
IPC 6 B44C

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category * | Citation of document, with indication, where appropriate, of the relevant passages                                      | Relevant to claim No. |
|------------|-------------------------------------------------------------------------------------------------------------------------|-----------------------|
| X          | WO 94 09983 A (AVERY DENNISON CORPORATION)<br>11 May 1994<br>see page 6, line 9 - page 16, line 14;<br>example 1<br>--- | 1-4                   |
| X          | EP 0 569 921 A (DECORA INCORPORATED) 18<br>November 1993<br>see page 5, line 10 - page 7, line 40<br>---                | 1-4                   |
| A          | US 5 104 719 A (M. E. KAMEN ET AL) 14<br>April 1992<br>see column 2, line 30 - column 6, line 68<br>---<br>-/--         | 1-4                   |

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

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Date of the actual completion of the international search

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# INTERNATIONAL SEARCH REPORT

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| C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT |                                                                                                                                                                                                                                                                                                                                                          |                       |
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| Category *                                           | Citation of document, with indication, where appropriate, of the relevant passages                                                                                                                                                                                                                                                                       | Relevant to claim No. |
| A                                                    | <p>           DATABASE WPI<br/>           Section Ch, Week 9213<br/>           Derwent Publications Ltd., London, GB;<br/>           Class A18, AN 92-102420<br/>           XP002038490<br/>           &amp; JP 04 047 064 A (DAINIPPON PRINTING CO<br/>           LTD) , 17 February 1992<br/>           see abstract<br/>           -----         </p> | 1                     |

# INTERNATIONAL SEARCH REPORT

...formation on patent family members

International Application No

PCT/IT 97/00090

| Patent document<br>cited in search report | Publication<br>date | Patent family<br>member(s)                                   | Publication<br>date                          |
|-------------------------------------------|---------------------|--------------------------------------------------------------|----------------------------------------------|
| WO 9409983 A                              | 11-05-94            | CA 2084716 A<br>EP 0667815 A<br>JP 8505575 T<br>US 5518786 A | 06-05-94<br>23-08-95<br>18-06-96<br>21-05-96 |
| EP 569921 A                               | 18-11-93            | CA 2096173 A<br>JP 6279737 A                                 | 15-11-93<br>04-10-94                         |
| US 5104719 A                              | 14-04-92            | NONE                                                         |                                              |