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(54) Method for making metallized and metallized-pigmented transfer printings and the transfer printing obtainable thereby

(57) A method for making metalized and metalized-pigmented transfer printings comprises the steps of:

(a) forming a metalized base or metalized-pigmented base printable film;
(b) screen printing, on the film, an image by using a protective resin coating the surface of the printable film according to the pattern or shape of the image to be reproduced;
(c) delaminating, by a basic mixture, the portion of the film which is not coated by the protective resin;
(d) removing, by washing, the film elaminated portion;
(e) drying the transfer printing made in the preceding step.

With respect to prior methods, the inventive methods has the advantage that it can from transfer printings in a much more quick and simple manner, thereby obtaining high quality high definition images, very improved with respect to those provided by prior transfer printings.

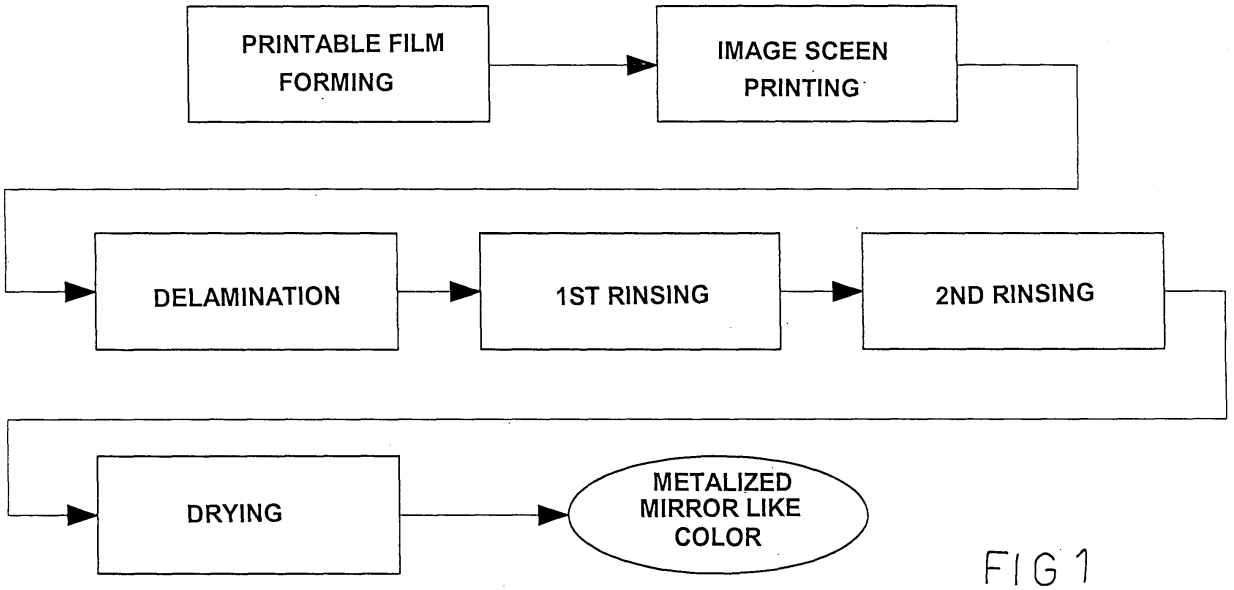


FIG 1

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Description

BACKGROUND OF THE INVENTION

[0001] The present invention relates to a method for making metalized and metalized-pigmented transfer printings.

[0002] The invention also relates to the transfer printing made by the above method.

[0003] The field of the invention is that of the methods for making metalized transfer printings, i.e. support elements (usually made of a sheet clear plastics material) supporting wordings, patterns, figures or the like thereon, made by starting from a metal film, in particular an aluminium film, and which can be transferred, by pressure and heating, on a surface to be patterned.

[0004] Prior transfer printings have been made by removing, by acid solutions, the metal material, to form the target or desired pattern.

[0005] However, the use of acid solutions is affected by great drawbacks, related to the liquid phase of the reactive material (which can be hardly controlled in the desired processing operations), and the acid nature of the medium, requiring difficult and complex operations in the printing process, which greatly increase the total processing time.

[0006] Moreover, the above mentioned prior transfer printings do not provide a quality and resolution image.

SUMMARY OF THE INVENTION

[0007] Accordingly, the main object of the present invention is to provide a novel method for making metal transfer printings which, with respect to the above mentioned prior methods, which is much more simple, quick and, moreover provides high quality and resolution images.

[0008] A further object of the present invention is to provide such a method which also allows to make metalized-pigmented transfer printings, i.e. transfer printings the images or patterns of which are made by a pigmented composition on a metal material.

[0009] According to one aspect of the present invention, the above mentioned aim and objects, as well as yet other objects, which will become more apparent hereinafter, are achieved by a method and transfer printings as claimed respectively in claims 1 and 5.

[0010] Further preferred embodiments of the invention are pointed out in the other claims.

[0011] With respect to prior screen printing method, the inventive method provides the advantage that it allows to make transfer printings in a much more simple and quick manner, thereby allowing to obtain high quality and resolution image, having a image definition or resolution greatly improved with respect to the image which can be obtained by prior transfer printings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0012] Further characteristics and advantages of the invention will become more apparent hereinafter from the following detailed disclosure of a preferred embodiment of the invention which is illustrated, by way of an indicative, but not limitative, example in the figures of the accompanying drawings.

[0013] In the drawings:

Figure 1 shows a block diagram of the method according to the present invention; and

Figures 2 and 5 show the operating steps of the method shown in figure 1.

DESCRIPTION OF THE PREFERRED EMBODIMENT

[0014] With reference to the above mentioned figures, the method according to the present invention comprises a starting coupling operating step, in which, by using a glue layer 3, a metal material film 1, either colored or not, is coupled or applied on a supporting sheet element 2, made of a plastics material, either clear or neutral, preferably a polyester resin.

[0015] Then by a screen printing operation, a plastic resin is printed on the film 1, thereby coating the area 4 of the image of pattern to be reproduced on the transfer printing element.

[0016] To remove from the film 1 the uncovered metal surface, i.e. the surface on the outside of the image pattern 4, said film is processed in a delaminating step, which is carried out by spreading on the overall surface of the film a basic mixture or paste, thereby providing a layer 5 adhering to and covering both the image or pattern 4 and the remaining surface of the film 1.

[0017] Preferably, the mixture or paste forming said layer 5 is based on sodium hydroxide, as added with an inert filler.

[0018] Then, by suitable washing or sensing steps, from the supporting sheet element 2 is removed the film portio1 1 left uncovered by the screen printing resin, while holding unaltered the protected part or surface of the film 4 corresponding to the transfer image or pattern.

[0019] After a following drying step, a transfer printing is obtained which can be subjected to any desired screen printing operations, to provide the image or pattern with the desired colors.

[0020] Advantageously, the used film 1 can be of any desired metal types, in particular, aluminium or pigmented aluminium.

[0021] In the latter case, the delaminating step is carried out by adding to the basic mixture or paste, for forming the above mentioned layer 5, with suitable organic solvents, adapted to remove the pigmentation on the unprotected areas or regions of the film 1.

Claims

1. A method for making metalized and metalized-pigmented transfer printings, **characterized in that** said method comprises the steps of:

   (a) forming a metalized base or metalized-pigmented base printable film;
   (b) screen printing, on said film, an image or pattern by using a protective resin coating the surface of said printable film according to an image or pattern to be reproduced;
   (c) delaminating, by a basic mixture, the portion of the film which is not coated by said protective resin;
   (d) removing, by washing, said film delaminated portion; and
   (e) drying the thus obtained transfer printing.

2. A method according to claim 1, **characterized in that** said basic mixture also comprises inert filler materials.

3. A method according to claim 1 or 2, **characterized in that** said method further comprises additional screen printing steps for coloring the printed image or pattern.

4. A method according to claim 3, **characterized in that** said basic mixture comprises organic solvents for the pigments.

5. A method according to claim 4, **characterized in that** said method further comprises the step of carrying out additional washings of the unprotected areas, by using organic solvents adapted to remove said pigments.

6. A metalized or metalized-pigmented transfer printing, **characterized in that** it is made by a method according to one or more of the preceding claims.

7. An use of a sodium hydroxide and inert filler material mixture or paste for delaminating a printed film of a metalized or metalized-pigmented base in processes for making transfer printings.

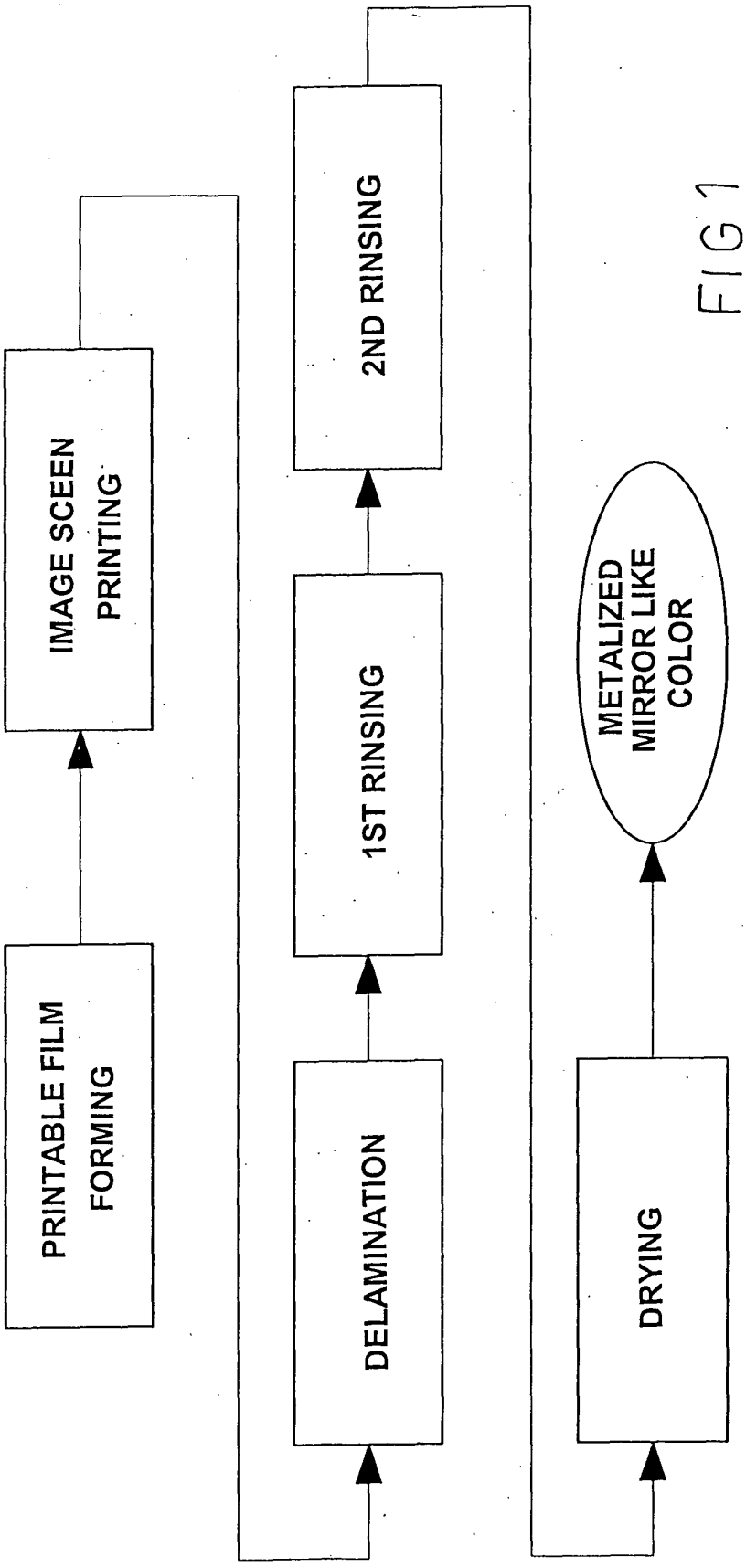

PRINTABLE FILM FORMING
IMAGE SCEEN PRINTING
DELAMINATION
1ST RINSING
2ND RINSING
DRYING
METALIZED MIRROR LIKE COLOR

FIG 1

FIG 2

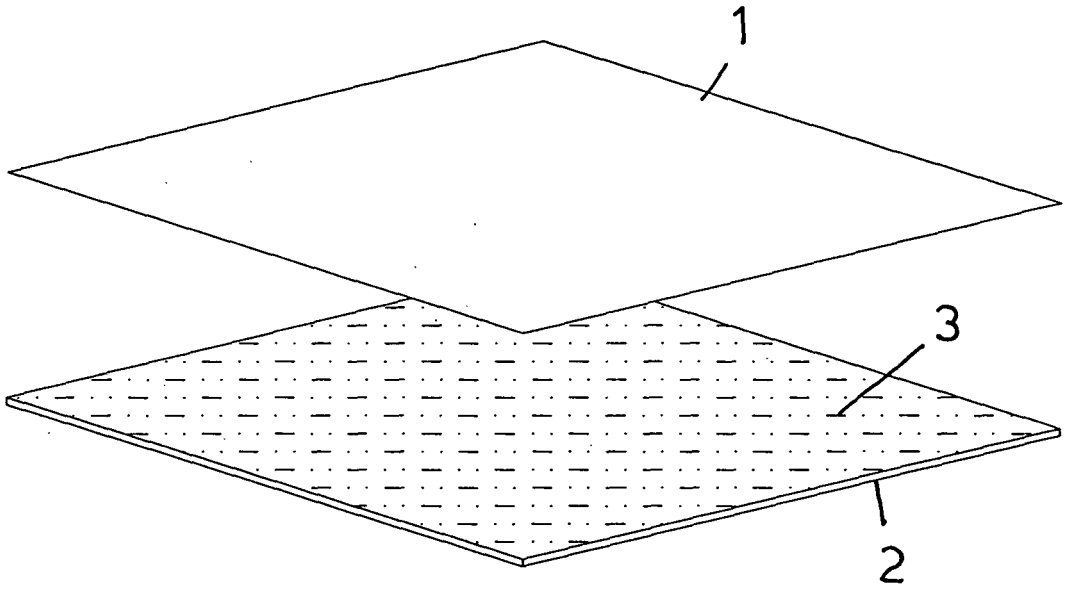


FIG 3

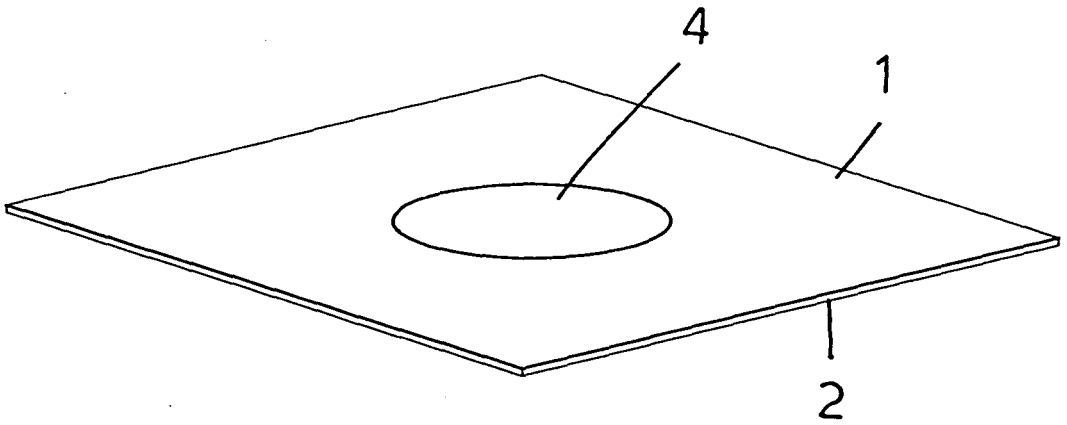


FIG 4

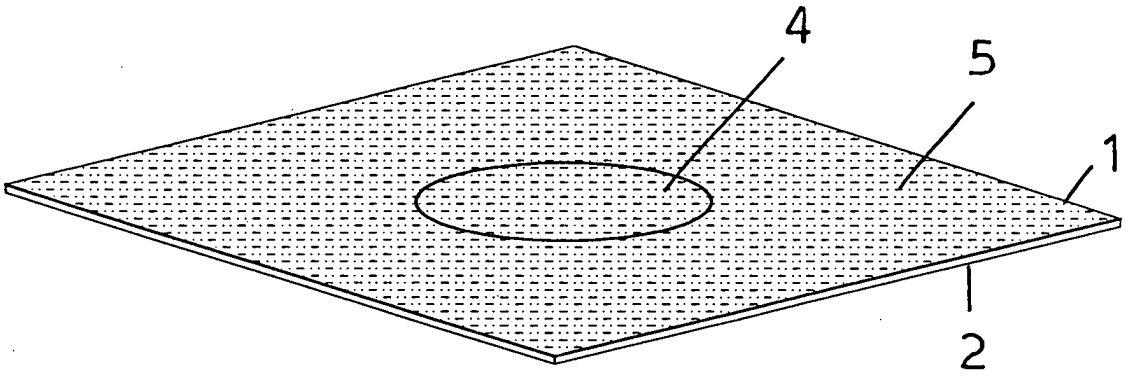
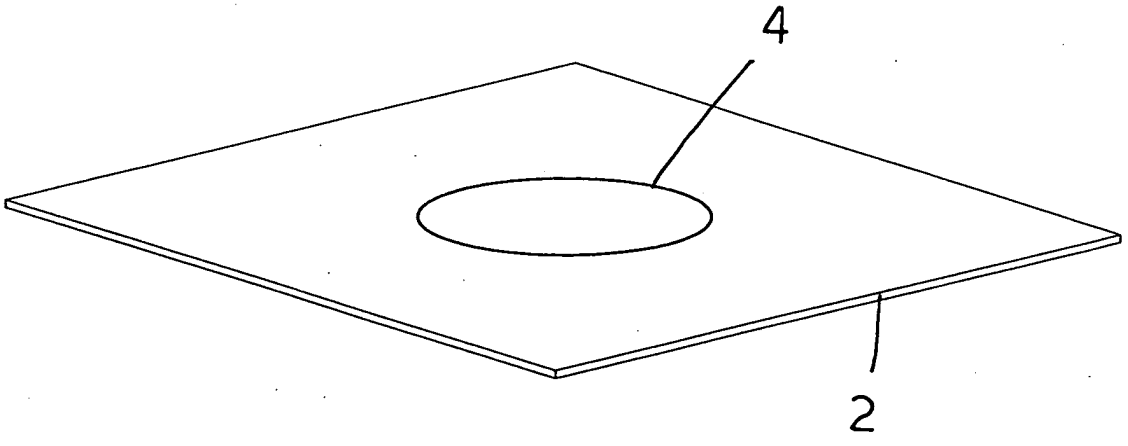


FIG 5



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EUROPEAN SEARCH REPORT

Application Number
EP 05 01 6941

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 Y	US 4 915 780 A (BECKETT ET AL) 10 April 1990 (1990-04-10) * the whole document * -----	1-7 2,4,5	B41M1/28 B44C3/00
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Y	US 4 781 792 A (HOGAN ET AL) 1 November 1988 (1988-11-01) * column 7, line 47 - line 67 * -----	2,4,5	

TECHNICAL FIELDS SEARCHED (IPC)

B41M
B44C

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	15 November 2005	Whelan, N

CATEGORY OF CITED DOCUMENTS

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15-11-2005

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