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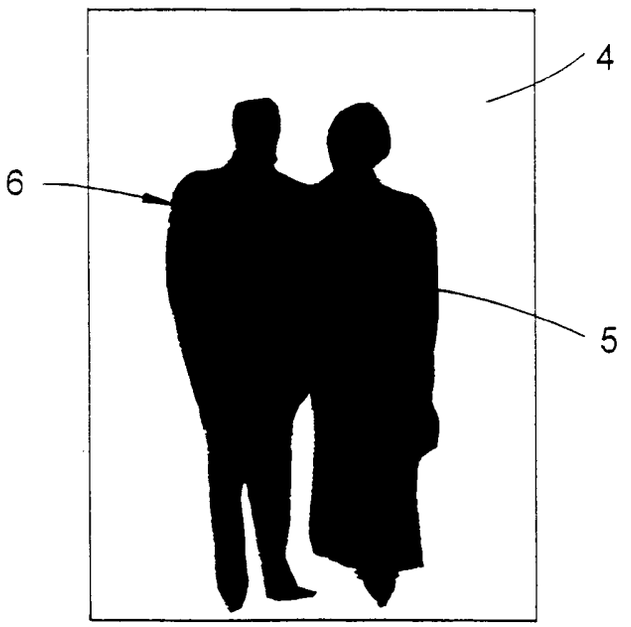
(54) Method for manufacturing a mirror with a decoration and/or image

(57) A method for manufacturing a mirror (9) with a decoration and/or an image (2) in the plane of the mirror, wherein a cover material (5) with a predetermined contour (6) is applied onto a plate (4) of the mirror; a layer of reflective material (8) is applied onto the said plate (4), outside the area of the cover material (5); the cover material (5) is then removed from the said plate (4); and the decoration and/or the image (3) is applied onto the said plate (4), in the area of the removed cover material (5).

Fig. 4



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Description

[0001] The invention relates to a mirror and a method for manufacturing a mirror with a decoration and/or an image in the plane of the mirror.

[0002] In a known method for manufacturing mirrors, a picture including a decoration and/or an image, is printed onto a plate-glass surface by means of screen printing, such that a fine silk screen is affixed onto the plate-glass surface. Subsequently, a layer of reflective substance is applied over said silk screen, in order to obtain a mirror. This method is only practicable if one type of mirror with a same picture can be mass produced, because the method for affixing the picture onto the glass plate is, due to the necessary preparations, time-consuming and unsuitable for low volumes.

[0003] The aim of this invention is to perfect a mirror and a method for manufacturing such a mirror, in order to produce mirrors with individual decorations and/or images, in a simple and cost-effective manner.

[0004] To this end, the method according to the invention comprises : applying a cover material, with a predetermined contour of the decoration and/or the image, onto a plate of a mirror; applying a layer of reflective material onto the said plate, outside the area of the cover material; removing the cover material from the said plate; and then applying the decoration and/or the image onto the said plate, in the area of the removed cover material.

[0005] The method according to the invention is advantageous in that each individual mirror can be manufactured with an individual decoration and/or image. Furthermore, this method permits production of high-quality mirrors in a simple and cost-effective manner, and means that the original picture or the decoration and/or the image can be used in the mirror. In this method, the original picture will not be damaged during application of the layer of reflective material onto the plate of the mirror. This will not happen because the picture need not be present in the normally basic bath, in which the layer of reflective material is applied onto the mirror plate.

[0006] Preferably, a self-adhesive and/or plastic film is applied onto the plate of the mirror. This self-adhesive film can be attached to, and removed from, this plate in a simple and easy manner. A plastic film withstands the said normally basic bath.

[0007] In a first embodiment, application of the cover material onto the plate of the mirror comprises : separating from a sheet of preferably self-adhesive and/or plastic film a part having the predetermined contour, and applying said separated part onto the said plate. This method makes for easy separation of the last-mentioned part.

[0008] In a second embodiment, application of the cover material onto the plate of the mirror comprises : applying a sheet of preferably self-adhesive and/or plastic film onto the said plate, separating from the sheet of film a part having the predetermined contour, and removing the other part of the sheet of film from the said plate. This method enables a decoration and/or an image to be positioned precisely with respect to the plate of the mirror, such that the decoration and/or the image can be applied easily in a correct position with respect to this plate.

[0009] Preferably, the contour is first plotted printed or printed in reverse and cut on a sheet of film for instance by means of a NC-plotter (Numeric-Control plotter), before the latter is applied onto the plate of the mirror. In an embodiment, the contour is plotted in reverse onto a side of the sheet of film, opposite the self-adhesive side of this sheet that is to be applied onto the said plate. In this way, the contour can be applied easily and accurately onto the sheet of film, especially when using a self-adhesive sheet.

[0010] The invention further concerns a mirror, comprising a plate of a mirror, a layer of reflective material outside the area of the removed cover material, and a decoration and/or an image in the area of the removed cover material. Preferably, the plate of the mirror consists of a glass plate, and/or the layer of reflective material consists of a metallic coating, such as a silver coating.

[0011] The above and other objects, features, and advantages of the invention will become more readily apparent from the following description, where reference may be made to the enclosed drawings in which :

Fig. 1 is a view of a picture with an image, that has to be applied in the plane of the mirror;
Fig. 2 is a vectored contour of the image of the picture of Fig. 1;
Fig. 3 is a sheet of film attached onto the back of a plate of a mirror;
Fig. 4 is a part of the sheet of Fig. 3, after the other part of the sheet outside the contour of Fig. 2 in reverse, has been removed;
Fig. 5 is the plate of Fig. 4, after a layer of reflective material has been applied to the back of this plate, outside the area of the attached sheet part;
Fig. 6 is a front view of the mirror of Fig. 5, after the sheet part of Fig. 4 has been removed from the back of the said plate;
Fig. 7 is a front view of the mirror of Fig. 6, after the picture has been applied onto the back of the said plate.

[0012] Picture 1 of Fig. 1 comprises an image 2, which depicts a couple. A contour 3 of the image 2 can be defined as the outline of the couple. This contour 3 can be obtained by scanning the picture 1, and treating the scanned picture 1 in a known way by means of software such that, for example, a contour 3 including the outline of the couple can be vectored, as shown in Fig. 2.

[0013] A method according to the invention for manufacturing a mirror with an image 2 in the plane of the

mirror is further explained in Fig. 3 to Fig. 7. The mirror comprises a transparent plate 4, such as a glass plate. In a first step, a cover material 5 with a predetermined contour 6, that is identical to the vectored contour 3 of the image 2 of Fig. 2, is applied onto the plate 4. To this end, a sheet 7 of self-adhesive plastic film can be used. The use of a sheet 7 of self-adhesive plastic film means that the sheet 7 can be applied easily and quickly onto the plate 4 of the mirror.

In a first embodiment, the vectored contour 3 is plotted (for instance by means of a NC-plotter) in reverse onto the side of the sheet 7, opposite the self-adhesive side of the sheet 7, in a known manner. Then, the self-adhesive side of the sheet 7 is applied onto the plate 4, as shown in Fig. 3. In order to print this contour 3 easily, this contour 3 is plotted onto the sheet 7, before or after the sheet 7 is applied onto the plate 4. Next, two parts of the sheet 7 are mutually separated along this printed contour 3. After this separation, one of the parts thus obtained is removed from the plate 4 and the remaining part forms the cover material 5 with a contour 6, as shown in Fig. 4. In this way, the contour 6 of the remaining part is the mirror image of the vectored contour 3. The plotting (for instance by means of a NC-plotter) of this contour 3 in reverse permits use of a non-transparent sheet 7 that can be applied onto the plate 4, before both parts of the sheet 7 are mutually separated.

[0014] According to another embodiment, the part of the sheet 7, that shall form the cover material 5 with a predetermined contour 6, is separated from the sheet 7 along the vectored contour 3 plotted (for instance by means of a NV-plotter) on the sheet 7, before or after this part is applied onto the plate 4 of the mirror. This separation can be obtained by cutting the sheet 7 along the printed contour 3 by means of a NC-plotter. Furthermore, only one separated part is applied onto the plate 4 of the mirror in order to obtain the cover material 5, as shown in Fig. 4.

[0015] According to yet another technique, the vectored contour 3 is printed on the side of the sheet to be applied onto the plate of the mirror. This printing process can be used if no self-adhesive sheet is used. In this case, if no transparent sheet is used, the two parts of the sheet have to be separated before one of the separated parts is applied onto the plate of the mirror.

[0016] Next, a layer of reflective material 8 is applied onto the plate 4 of the mirror outside the area of the cover material 5. As reflective material, use is made of a metallic coating, such as a silver coating. In order to apply said coating, the plate 4 with the cover material 5 is immersed in a basic bath containing said coating chemicals. A layer of said metallic coating can be applied onto the plate 4 in a known way. Due to the presence of the cover material 5, the metallic coating is applied onto the plate 4 of the mirror outside the area of the cover material 5 and on the cover material. A plate 4 with a cover material 5, and a layer of reflective material 8 is shown in Fig. 5. It is preferable that the cover material 5 is a sheet of plastic film, since plastic can withstand a basic bath with coating material. It is also possible to use other cover materials, providing they can withstand a basic bath for applying a reflective material onto a mirror plate.

[0017] Next, the cover material 5 is removed from the plate 4 of the mirror, such that a mirror 9 of Fig. 6 is obtained. Subsequently, the image 2 is applied in the area of the removed cover material 5, or the area previously occupied by the cover material 5, onto the plate 4 of the mirror, such that a mirror 9 with an image 2 in the plane of the mirror 9, as shown in Fig. 7, is obtained. The plane of the mirror 9 is defined as the plane between the plate 4 and the layer of reflective material 8 which is affixed onto the said plate 4. The image 2 can be applied onto this plate 4 using a glue, another fixing material and/or a locating device.

[0018] Instead of an image 2, the picture 1 can have a decoration that includes, for example, a flower or any other motif. This decoration can be applied in the plane of the mirror onto the plate of the mirror, according to a method similar to the one described for applying the image 2 in the plane of a mirror 9 of Fig. 3 to Fig. 7.

[0019] The contour of the decoration and/or the image 2, is not restricted to the outline of the decoration and/or the image 2. It is also possible to specify another contour, such as a contour at a set distance from the outline of the decoration and/or the image 2 of the picture 1.

[0020] In the example of Fig. 1 to Fig. 7, the part of the sheet 7 inside the predetermined contour 6 was applied onto the plate 4 as the cover material 5, such that the image 2 has to be applied inside the contour 6 of the removed cover material 5, while the layer of reflective material 8 will have to be applied outside this contour 6. According to a variant, it is possible to apply the part of the sheet 7 outside the predetermined contour as the cover material, such that the decoration and/or the image will have to be applied outside this contour in the area of the removed cover material, while the layer of reflective material will have to be applied inside this contour and outside the area of the cover material.

[0021] The purpose of the methods according to the invention as described above for manufacturing a mirror is to obtain mirrors with a decoration and/or an image in the plane of the mirror, thereby enabling each mirror to be made with an individual decoration and/or image in the plane of the mirror, at a low price. It is, of course, understood that any modification, alteration and adaptation as may readily occur to those skilled in the art to which the invention pertains, is intended within the spirit of the present invention, which is limited only by the scope of the claims appended hereto.

Claims

1. Method for manufacturing a mirror (9) with a decoration and/or an image (2) in the plane of the mirror, characterised in that the method comprises : apply-

ing a cover material (5), with a predetermined contour (6) of the decoration and/or the image (2), onto a plate (4) of a mirror; applying a layer of reflective material (8) onto the said plate (4), outside the area of the cover material (5); removing the cover material (5) from the said plate (4); and then applying the decoration and/or the image (2) onto the said plate (4), in the area of the removed cover material (5).

2. Method according to claim 1, characterised in that the applying of a cover material (5) comprises the applying of a self-adhesive film onto the plate (4) of the mirror.

3. Method according to claim 1 or 2, characterised in that the applying of a cover material (5) comprises the applying of a plastic film onto the plate (4) of the mirror.

4. Method according to any of the claims 1 to 3, characterised in that the applying of a cover material (5) onto the plate (4) of the mirror comprises : separating from a sheet (7) of film a part having the predetermined contour (6), and applying said separated part onto the said plate (4).

5. Method according to any of the claims 1 to 3, characterised in that the applying of a cover material (5) onto the plate (4) of the mirror comprises : applying a sheet (7) of film onto the said plate (4), separating from this sheet (7) of film a part having the predetermined contour (6), and removing the other part of the sheet (7) of film from the said plate (4).

6. Method according to claim 4 or 5, characterised in that a contour (3,6) is plotted or plotted in reverse onto a sheet (7) of film, before or after this sheet (7) is applied onto the plate (4) of the mirror.

7. Method according to any of the claims 4 to 6, characterised in that a contour (3,6) is printed in reverse onto a side of a sheet (7) of film, opposite the self-adhesive side of this sheet (7), that is to be applied onto the plate (4) of the mirror.

8. Method according to anymore of claims 6 and 7, characterised in that the contour (3,6) is plotted using a numeric control plotter.

9. A mirror manufactured according to any of the claims 1 to 8, characterised in that the mirror (9) comprises a plate (4), a layer of reflective material (8) outside the area of the removed cover material, and a decoration and/or an image (2) in the area of the removed cover material.

10. A mirror according to claim 9, characterised in that the plate (4) consists of a glass plate.

11. A mirror according to claim 9 or 10, characterised in that the layer of reflective material (8) consists of a metallic coating, such as a silver coating.

Fig. 1

Fig. 2

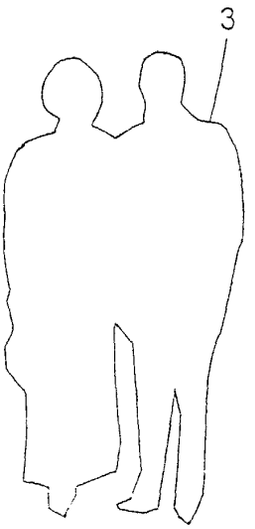


Fig. 3

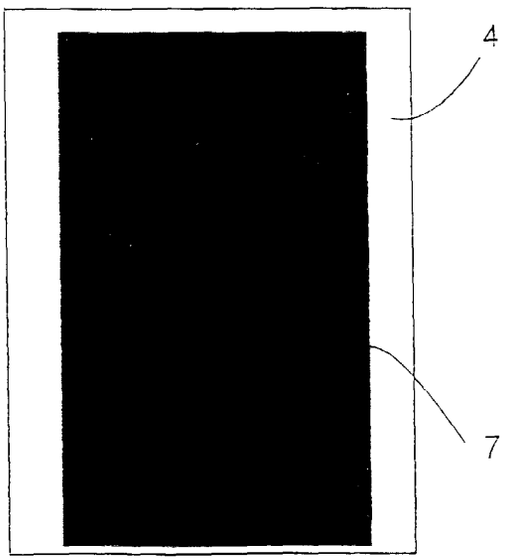


Fig. 4

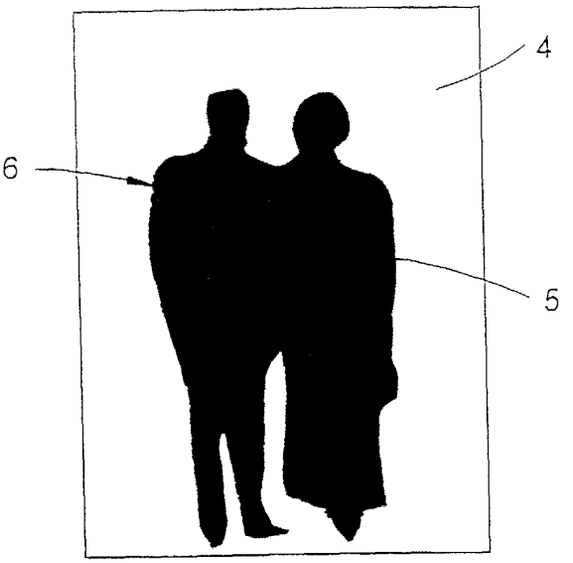


Fig. 5

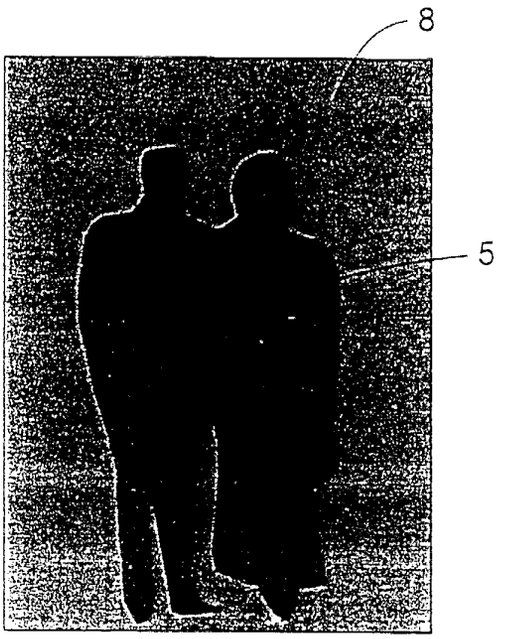


Fig. 6

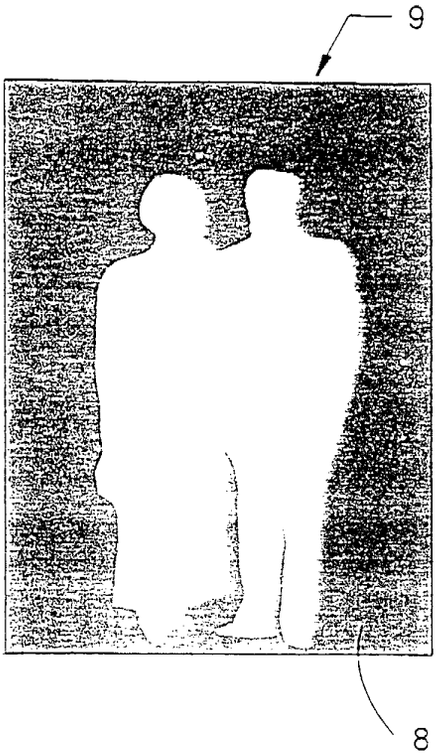
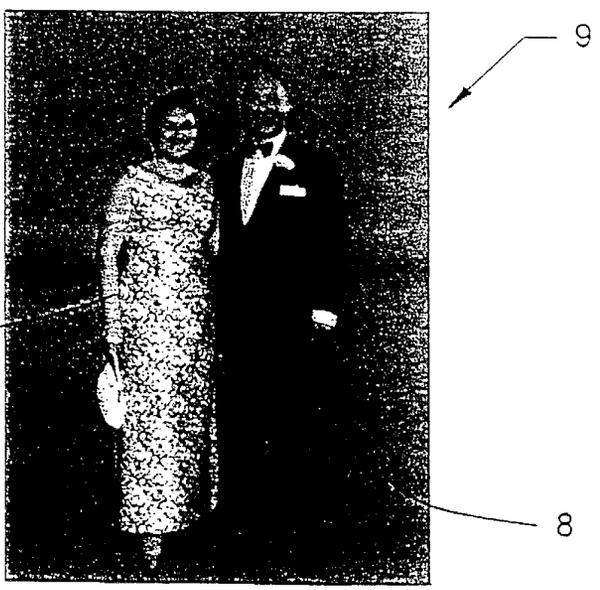


Fig.7



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EUROPEAN SEARCH REPORT

Application Number
EP 99 20 0374

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TECHNICAL FIELDS SEARCHED

B44F
A47G

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	8 July 1999	Herrmann, J

CATEGORY OF CITED DOCUMENTS

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