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(54)

PRINTABLE STENCIL SHEET

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A printable stencil sheet is provided. The printable stencil sheet comprises a backing layer, a perforated layer comprising a first surface and a second surface opposite the first surface, wherein the first surface is configured to allow a first amount of ink or toner to adhere to the first surface of the perforated layer, wherein the
- second surface is adhesive, wherein the perforated layer is configured to be disposed on the backing layer such that the second surface of the perforated layer faces the backing layer, wherein the perforated layer is configured to be removed from the backing layer and to be attached to a target surface.

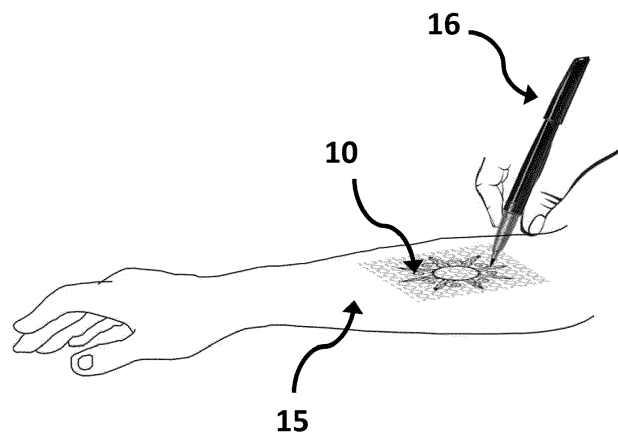


Fig. 2

Description

TECHNICAL FIELD

[0001] The embodiments described herein relate to a printable stencil sheet, an associated computer-implemented method for processing an image to be printed on a printable stencil sheet, and a method for using the same.

BACKGROUND

[0002] Stenciling produces an image or pattern by applying pigment to a surface under an intermediate object with designed gaps in it which create the pattern or image by only allowing the pigment to reach some parts of the surface.

[0003] Usually, a stencil is understood to mean a thin sheet of material, such as paper, plastic, wood or metal with letters or a design cut from it. Stencils are used to produce the said letters or designs on an underlying surface by applying pigment through the cut-out holes in the material. Stencils are usually reusable and can therefore be used to quickly apply the same letters or designs to other surfaces. Stencils generally provide confidence to the user for precise replication of a particular graphical artwork to the desired target surface, either being a type of paper surface or even the human skin surface when the goal is to create a temporary tattoo.

[0004] Stencils of any kind are especially popular among children. Thereby benefits result from working with stencils. For example, stencils help children to develop fine motor skills, boost eye-hand coordination or increase self-esteem.

[0005] On the other hand, templates must be purchased, and they limit the user's options or his/her own creativity. Therefore, the user has to compromise to existing and commercially available stencils, wherein finding, ordering, and receiving the desired stencil is very time demanding. A further disadvantage may be seen in that conventional stencils do not represent the color scheme of the original image and thus do not provide guidance on which colors to use in the appropriate areas on the stencil. Further, although any open design can easily be cut in a stencil, a design enclosing another is impracticable because the middle design drops out.

[0006] The preceding findings lead to the situation that users need a quick, agile and creatively immersive way to replicate their own or other creators' artwork. A replication procedure that enables their creative skills with necessary guidance and help for successful results would be welcome to the users.

SUMMARY

[0007] According to a first aspect, a printable stencil sheet is provided. The printable stencil sheet comprises a backing layer, a perforated layer comprising a first sur-

face and a second surface opposite the first surface, wherein the first surface is configured to allow a first amount of ink or toner to adhere to the first surface of the perforated layer, wherein the second surface is adhesive, wherein the perforated layer is configured to be disposed on the backing layer such that the second surface of the perforated layer faces the backing layer, wherein the perforated layer is configured to be removed from the backing layer and to be attached to a target surface.

[0008] According to a second aspect, a computer-implemented method is provided for processing an image to be printed on a printable stencil sheet. The computer-implemented method comprises receiving an image from a camera or scanner, an image from a database selected by the user via a user interface, or an image digitally drawn by the user via the user interface, adjusting the image to be suitable for being printed and being traced when the printable stencil sheet is attached to a target surface, storing the processed image in the database, and providing a signal for printing the image on the perforated layer of the printable stencil sheet.

[0009] According to a third aspect, a method is provided for using a printable stencil sheet and corresponding computer-implemented method for processing an image on the printable stencil sheet. The method for using comprises importing an image into a software application configured to perform the computer-implemented method, wherein the image is selected from a database via a user interface, digitally drawn on the user interface, or drawn on a physical writing surface and digitalized by scanning or photographing, receiving the printed stencil sheet, removing the perforated layer from the backing layer, and either attaching the perforated layer on the target surface, applying ink on the perforated layer by tracing the printed portion representing the image through a writing instrument, or attaching the backing layer comprising unabsorbed ink or toner on the target surface, and removing the backing layer from the target surface.

[0010] According to a fourth aspect, a kit is provided comprising a printable stencil sheet and a writing instrument comprising an amount of ink.

[0011] An effect of the technique of the present specification is to provide a printable stencil sheet, that may allow the user to apply a temporary tattoo to a target surface, such as human skin. Thereby, the present disclosure enables the user to create the motif for the stencil himself or to select it from a collection, or to adapt the selected one to his own wishes. That may enhance the creativity of the user and may allow personalization of the image printed on the stencil. Also, it may be possible to exchange the user's own motifs with other users via the database.

[0012] Further, the adhesive surface may prevent the stencil from slipping on the target surface, thus enabling more precise work while the ink is being applied to the stencil. Another advantage of the present disclosure may be that the ink printed on the stencil sheet may be colored and represent the original colors of the image. Therefore,

when the stencil sheet is attached to the target surface, the user may be guided in applying ink on the perforated layer with the color corresponding to the original image.

BRIEF DESCRIPTION OF THE DRAWINGS

[0013]

Figure 1 schematically illustrates an example of a cross section of the printable stencil sheet.

Figure 2 schematically illustrates an example of a possible use of the printable stencil sheet.

Figure 3 schematically illustrates an exemplary arrangement of the plurality of apertures of the perforated layer.

Figure 4 schematically illustrates an example of a computer-implemented method for processing an image to be printed on a printable stencil sheet.

Figure 5 schematically illustrates an example of a method for using a printable stencil sheet and corresponding computer-implemented method for processing an image on the printable stencil sheet.

DETAILED DESCRIPTION

[0014] Fig. 1 schematically illustrates an example of a cross section of the printable stencil sheet 10.

[0015] According to the first aspect, the printable stencil sheet 10 comprises a backing layer 11, a perforated layer 12 comprising a first surface 12a and a second surface 12b opposite the first surface 12a, wherein the first surface 12a is configured to allow a first amount of ink or toner to adhere to the first surface 12a of the perforated layer 12, wherein the second surface 12b is adhesive, wherein the perforated layer 12 is configured to be disposed on the backing layer 11 such that the second surface 12b of the perforated layer 12 faces the backing layer 11, wherein the perforated layer 12 is configured to be removed from the backing layer 11 and to be attached to a target surface 15. The backing layer 11 may comprise two surfaces, wherein a first surface faces the second surface 12b of the perforated layer 12 and a second surface is opposite the first surface of the backing layer 11. In an example, a width and a length of the printable stencil sheet 10 may be according to one of DIN formats A1 to A10 or C1 to C10. In an example, a width and a length of the printable stencil sheet 10 may be according to any one of all DIN formats. In an example, a width and a length of the printable stencil sheet 10 may be according to any one of all US paper formats, such as Letter, Legal, Legal 13", Extra, Tabloid. In an example, a width of the printable stencil sheet 10 may be 210 mm

and/or a length may be 297 mm or a width of the printable stencil sheet 10 may be 229 mm and/or a length may be 324 mm.

[0016] In an embodiment, the second surface 12b of the perforated layer 12 may comprise an adhesive film 13. The adhesive film 13 makes the second surface 12b of the perforated layer 12 adhesive. The adhesive film 13 may be an additional film between the second surface 12b and the first surface of the backing layer 11 facing the second surface 12b of the perforated layer 12. The adhesive film 13 may connect the perforated layer 12 and the backing layer 11 into one body. In an example, the target surface 15 may be human skin. In the case the target surface 15 is human skin, the adhesive film 13 may comprise adhesive material being non-toxic and skin-friendly. In an example, the adhesive layer 13 may be made of material comprising rubber, skin-friendly adhesives such as TECHNOMELT® PS hot melt adhesives for medical applications, acrylic adhesives, emulsion-acrylic pressure sensitive adhesives such as Henkel AQUENCE® PS, and/or silicon. Rubbers may be adhesives which may be based on natural or synthetic rubbers and may be formulated with tackifying resins, oils and antioxidants. Rubber may be a pressure sensitive adhesive (PSA) and may offer quick stick capability. Quick stick capability may mean that the sticking process takes place within a very short period of time, or that no period of at least minutes is required until the sticking property is established. Skin-friendly may mean that the adhesive film may be removed from the skin again and no sticky residue remains on the skin. In addition, skin-friendly adhesives should not cause allergies or other diseases. Acrylic adhesives may be formulated with acrylics and may develop a stronger bond than the aforementioned rubber adhesive and may take higher temperatures. Emulsion-acrylic pressure sensitive adhesives may be skin-friendly and water-based and may be commonly used for applications where skin contact is essential. Silicon may be formulated with silicon polymers and may bond stronger with silicon substrate than other aforementioned adhesives. Silicon may withstand higher temperatures than both rubber and acrylic adhesives. In an example, the adhesive film 13 may be configured to provide temporary adhesion to the backing layer 11 and the target surface 15.

[0017] In an embodiment, the perforated layer 12 may be made of a material comprising paper, polymer, or any other, flexible material configured to allow the first amount of ink or toner to adhere to. The first surface 12a of the perforated layer 12 may be the printable area. In an example, a flexible material may mean that the perforated layer 12 may be designed to conform to a shape of the target surface 15 without requiring force from a user that exceeds a force exerted by a human or without any tool in normal everyday situations, for example, when applying an adhesive strip to a wall. In an example, a thickness of the perforated layer 12 may be in the range of 20 to 90 μm , 90 to 125 μm , 125 to 150 μm , 150 to 190

μm , 190 to 250 μm , 250 to 310 μm , 310 to 400 μm , or 400 to 500 μm . In an example, the perforated layer 12 may be coated on the first surface 12a by varnish, such as gloss, satin and/or dull finish configured to be tinted in certain colors, UV (ultraviolet) coating, and/or aqueous coating. In an example, UV coating may offer a much higher level of protection to printed sheets and may enhance printed colors more than such perforated layers 12 without UV coating. In an example, aqueous coating may protect the perforated layer 12 from fingerprints and other markings or damages. Aqueous coating may be more environmentally friendly than other aforementioned coatings. In an example, the perforated layer 12 may be opaque, transparent, or semi-transparent.

[0018] In an embodiment, the first amount of ink or toner is applied on at least a portion of the first surface 12a of the perforated layer 12 by means of a printer. In an example, the printer may be any type of printer, such as Inkjet, Laser etc. that is suitable for printing on the printable stencil sheet. In an example, the first amount of ink or toner is applied on the first surface 12a of the perforated layer 12 by a first writing instrument. In an example, a first writing instrument may comprise a ballpoint pen, a rollerball pen, felt-tip pen, a gel pen, a marker, pens/markers with erasable ink, such as pilot frixion pens or thermoresistive inks, or a pencil. The ink may be black or of any other color.

[0019] In an embodiment, the first amount of ink or toner may form an image selected by a user via a user interface. The user interface may be a (personal) computer, a smartphone, a tablet, a notebook, or any suitable electronic device configured to communicate with the printer. Via the user interface, a user may be allowed to select an image from a database which consists of many artworks from various other users and artists that may be downloaded for further use. In an example, the user may draw an image on a surface such as paper, polymer, textile, or a common notebook and may digitalize the drawn image by means of a conventional digital camera or scanner. The image may be stored in the database or may be used directly without storing for printing on the stencil sheet 10. In an example, the user may draw directly on a tablet device by means of a digital pen to create an image for further use.

[0020] Fig. 2 schematically illustrates an example of a possible use of the printable stencil sheet.

[0021] In an embodiment, the perforated layer 12 may comprise a plurality of apertures 14 arranged in a pattern and configured to allow a second amount of ink to be transferred to the target surface 15. In an example, the target surface 15 may be any of the conventional writing surfaces such as surfaces comprising paper, carton, canvas, textile, polymer, metal, or ceramic. The target surface 15 may be a flat surface or a curved surface. In an example, the target surface 15 may be human skin (e.g. of a hand or an arm or a leg). Fig. 2 exemplarily illustrates the use of the printable stencil sheet 10 on a skin area of an arm of a human body.

[0022] In an embodiment, the second amount of ink is applied by the user with a writing instrument 16 to the portion of the perforated layer 12 to which the first amount of ink adheres when using the printable stencil sheet 10. In an example, the writing instrument 16 may be ballpoint pen, a rollerball pen, a felt-tip pen, a gel pen, a marker, a marker for skin which is suitable for temporary tattoos, such as BIC BodyMark, Freehand Tattoo Marker, or a pencil. In an example, the second amount of ink may be based on genipin. In an example, the user traces the portion of the perforated layer to which the first amount of ink adheres with the writing instrument 16, when the printable sheet 10 is attached to the target surface 15, for example human skin as shown in Fig. 2.

[0023] Fig 3 schematically illustrates an exemplary arrangement of the plurality of apertures of the perforated layer.

[0024] In an embodiment, the at least one aperture of the plurality of apertures 14 may be a round aperture, a square aperture, a square end slot aperture, a round end slot aperture, and/or hexagonal hole aperture. In an example, the pattern may be a staggered pattern or a straight pattern. In an example, the size of an aperture of the plurality of apertures 14 may be defined by a first dimension 17 being the smaller dimension of a plurality of dimensions of an aperture. In an example, the first dimension 17 may be a diameter in case the aperture is a round aperture, a side dimension in case the aperture is a square aperture, the distance between two opposite sides in case the aperture is a hexagonal aperture, or the length of the small size in case the aperture is a square end slot aperture or a round end slot aperture. In an example, the first dimension may be at least equal to the thickness of the printable stencil sheet 10 and may have at least a maximum value of 1 mm, 2 mm, 5 mm, 10 mm, or 50 mm. In an example, the first dimension 17 may be greater than the diameter of the tip of the writing instrument 16 which is used to apply the second amount of ink. For example, the first dimension 17 may be 0.1 mm, 0.3 mm, 0.35 mm, 0.4 mm, or 0.5 mm. In an example, the first dimension 17 may be in the range of 0.1 to 50 mm, of 0.01 to 25 mm, 0.1 to 10 mm, of 0.1 to 5 mm, of 0.2 to 1 mm, of 0.2 to 0.7 mm, of 0.2 to 0.05 mm, or of 1 to 2.5 mm.

[0025] In an embodiment, the apertures 14 may be spaced from one another such that at each aperture 14, there is a non-open space between the aperture and each neighboring aperture. In an example, in the case the plurality of apertures 14 are round apertures, square apertures, and/or hexagonal apertures, the centroids of the plurality of apertures may be spaced from another in a first direction by a first distance 18, wherein the first distance 18 may be greater than the first dimension 17 of the aperture. In an example, the first direction may be parallel to an outer edge of the printable stencil sheet. In an example, the apertures 14 may be spaced from one another in a second direction by a second distance 19, wherein the second direction may form an angle of 30,

45, 60, or 90 degrees with the first direction and the second distance 19 may be greater than a first dimension 17 of the aperture. A distance between the edges of two neighboring apertures 20 of the plurality of apertures 14 may be in the range from 0.1 mm to 50 mm, from 0.1 mm to 25 mm, from 0.1 to 10 mm, from 0.1 mm to 5 mm, from 0.2 to 1 mm, from 0.2 mm to 0.7 mm, from 0.2 to 0.05 mm, from 1 mm to 2.5 mm.

[0026] In an embodiment, the backing layer 11 may be made of a material comprising paper or polymer. In an example, the material may comprise machine finished Kraft paper, which may be paper coming from a standard paper machine and may be used for sheeted A4 label stickers.

[0027] In an embodiment, the backing layer 11 may be coated with silicon on a first surface facing the second surface 12a of the perforated layer 12 to allow the perforated layer 12 to be removed from the backing layer 11. In an example, the backing layer 11 may be coated with a material configured to may allow the perforated layer 12 to be removed from the backing layer 11 and to may allow ink to stay unabsorbed on the backing layer 11 to may be transferred to the target surface 15 when the backing layer 11 may be applied on the target surface 15. Alternatively, to attach the perforated layer 12 on the target surface 15, the user may attach the backing layer 11 to the target surface 15 after applying a first amount of ink to the perforated layer 12. The plurality of apertures 14 may allow the first amount of ink to be transferred to the backing layer 11 where the first amount of ink may stay unabsorbed on the backing layer 11 until the first amount of ink may be transferred to the target surface 15.

[0028] Fig. 4 schematically illustrates an example of a computer-implemented method 100 for processing an image to be printed on a printable stencil sheet 10.

[0029] According to the second aspect, there is provided a computer-implemented method 100 for processing an image to be printed on a printable stencil sheet 10. The method 100 comprises receiving 110 an image from a camera or scanner, an image from a database selected by the user via a user interface, or an image digitally drawn by the user via the user interface, adjusting 130 the image to be suitable for being printed and being traced when the printable stencil sheet is attached to a target surface, storing 140 the processed image in the database, and providing 150 a signal for printing the image on the perforated layer 12 of the printable stencil sheet 10. In an example, the method 100 may further comprise removing the background of the image, at least before storing 140 the processed image in the database. In an example, the method may comprise applying 120 image enhancement and/or filtering techniques. In an example, the method 100 may further comprise before applying 120 image enhancement and/or filtering techniques, receiving 160 user input via the user interface, wherein applying 120 image enhancement and/or filtering techniques may be at least partially based on the user input. In an example, image enhancement and filtering

techniques may comprise at least one of noise filtering, sharpness enhancement, contrast enhancement, and/or color saturation increase. In an example, adjusting 130 may comprise at least one of changing the color scheme, such as to enhance areas of the image, transforming solid lines of the image to intermittent lines, and/or converting solid color areas to color dots areas. In an example, the database may be connected to a cloud-storage based database storing a plurality of images from various users. In an example, an image received 110 from a camera or a scanner may be drawn by the user on a physical writing surface before scanning or digitally capturing the image. In an example, the image may be stored in the database, categorized and/or tagged, and/or retrieved through a search tool, through browsing categories, or by putting search filters. In an example, the camera may be part of the user interface, such as a smartphone camera or a webcam of a notebook. In an example, the method 100 may further comprise after receiving 110 an image, modifying 170 the image by the user via the interface. In an example, the computer-implemented method 100 for processing an image to be printed on a printable stencil sheet 10 may be performed on a (personal) computer, a smartphone (as an application), a tablet computer, a notebook or any other kind of electronic device suitable for performing the computer-implemented method 100. The electronic device may be the same device which serves as the user interface. In an example, the computer-implemented method 100 may be performed on a remote server while communicating with the user interface operating as a client.

[0030] Fig. 5 schematically illustrates an example of a method 200 for using a printable stencil sheet 10 and corresponding computer-implemented method 100 for processing an image to be printed on the printable stencil sheet 10.

[0031] According to the third aspect, there is provided a method 200 for using a printable stencil sheet 10 and corresponding computer-implemented method 100 for processing an image to be printed on the printable stencil sheet 10. The method 200 comprises importing 210 an image into a software application configured to perform the computer-implemented method 100, wherein the image is selected from a database via a user interface, digitally drawn on the user interface, or drawn on a physical writing surface and digitalized by scanning or photographing, receiving 220 the printed stencil sheet 10, removing 230 the perforated layer from the backing layer, and either attaching 240 the perforated layer on the target surface 15, applying 250 ink on the perforated layer by tracing the printed portion representing the image through a writing instrument 16, or attaching 260 the backing layer 11 comprising unabsorbed ink or toner on the target surface 15, and removing 270 the backing layer 11 from the target surface 15. The purpose of tracing the printed portion may be to allow ink to reach the target surface 15 through the plurality of apertures 14. Tracing the printed portion may comprise inserting the tip of the

writing instrument 16 into the plurality of apertures 14 inside the printed portion to allow ink to reach the target surface 15. In an example, the method 200 may further comprise before receiving 220 the printed stencil sheet 10, selecting 280 image enhancement and/or filtering techniques. In an example, the method 200 may comprise after receiving 220 the printed stencil sheet 10, cutting out 290 an area containing the printed portion of the printable stencil sheet 10. In an example, the method 200 may further comprise re-applying 300 ink to areas on the target surface 15 being inside the portion transferred to the target surface 15. In an example, the ink may be applied on the perforated layer 12 by means of a pen or a marker.

[0032] In an embodiment, there may be provided a method for using a printable stencil sheet 10 and corresponding computer-implemented method 100 for processing an image to be printed on the printable stencil sheet 10. The method may comprise importing an image into a software application configured to perform the computer-implemented method 100, wherein the image is selected from a database via a user interface, digitally drawn on the user interface, or drawn on a physical writing surface and digitalized by scanning or photographing. The physical writing surface may be a notebook, or of a material such as paper, polymer, metal, or textile to enable writing or drawing with a corresponding writing instrument. The corresponding writing instrument may comprise a ballpoint pen, a rollerball pen, felt-tip pen, a gel pen, a marker, pens/markers with erasable ink, such as pilot frixion pens or thermoresistive inks, or a pencil. The ink of the writing instrument may be black or of any other color. The method may further comprise receiving the printed stencil sheet 10, removing the perforated layer 12 from the backing layer 11, attaching the backing layer 11 comprising unabsorbed ink or toner on the target surface 15, and removing the backing layer 11 from the target surface 15. The method may further comprise, before removing the perforated layer 12 from the backing layer 11, cutting out an area containing the printed portion representing the image of the printable stencil sheet 10.

[0033] In an embodiment, there may be provided a method for using a printable stencil sheet 10 and corresponding computer-implemented method 100 for processing an image to be printed on the printable stencil sheet 10. The method may further comprise drawing an image on the perforated layer 12 using a first writing instrument, removing the perforated layer 12 from the backing layer 11, attaching the perforated layer 12 on the target surface 15, applying ink on the perforated layer 12 by tracing the printed portion through the (second) writing instrument 16, and removing the perforated layer 12 from the target surface 15. The method may further comprise, before removing the perforated layer 12 from the backing layer 11, cutting out an area containing the printed portion representing the image of the printable stencil sheet 10.

[0034] In an embodiment, there may be provided a

method for manufacturing a printable stencil sheet 10. The method may comprise providing a backing layer 11, providing a layer 12 configured to allow a first amount of ink or toner to adhere to on a first surface 12a, applying an adhesive layer 13 on a second surface 12b of the layer 12, perforating the layer 12 and the adhesive layer 13, and applying the perforated layer 12 on a surface of the backing layer 11 such that the perforated adhesive layer 13 is in between the backing layer 11 and the perforated layer 12.

[0035] According to the fourth aspect, there is provided a kit comprising the printable stencil sheet 10 and writing instrument 16 comprising an amount of ink. In an example, the writing instrument 16 may be used to apply the second amount of ink to the portion of the perforated layer 12 to which the first amount of ink adheres when using the printable stencil sheet 10. In an example, the writing instrument 16 may in addition or alternatively be used to apply the first amount of ink on the first surface 12a of the perforated layer 12.

[0036] In an embodiment, there may be provided a kit comprising a printer, the printable stencil sheet 10, the writing instrument 16, and a device. In an example, the device may be a (personal) computer, a smartphone, a tablet computer, or a notebook or any kind of electronic device suitable to perform the computer-implemented method 100 for processing the image to be printed on a printable stencil sheet 10 and configured to be connected to the printer.

Embodiments:

[0037]

1. A printable stencil sheet 10, comprising

a backing layer 11;
a perforated layer 12 comprising a first surface 12a and a second surface 12b opposite the first surface 12a,
wherein the first surface 12a is configured to allow a first amount of ink or toner to adhere to the first surface 12a of the perforated layer 12, wherein the second surface 12b is adhesive, wherein the perforated layer 12 is configured to be disposed on the backing layer 11 such that the second surface 12b of the perforated layer 12 faces the backing layer 11, wherein the perforated layer 12 is configured to be removed from the backing layer 11 and to be attached to a target surface 15.

2. The printable stencil sheet 10 according to embodiment 1, wherein a width and a length of the printable stencil sheet 10 are according to one of DIN formats A1 to A10 or C1 to C10.

3. The printable stencil sheet 10 according to em-

bodiment 1, wherein a width of the printable stencil sheet 10 is 150-250 mm, for example 210 mm and/or a length is 200-350mm, for example 297 mm or a width of the printable stencil sheet 10 is 229 mm and/or a length is 324 mm.

4. The printable stencil sheet 10 according to any one of the preceding embodiments, wherein the second surface 12a comprises an adhesive film 13.

5. The printable stencil sheet 10 according to embodiment 4, wherein in case the target surface 15 is human skin, the adhesive film 13 comprises adhesive material being non-toxic and skin-friendly.

6. The printable stencil sheet 10 according to embodiment 4 or 5, wherein the adhesive layer 13 is made of a material comprising rubber, skin-friendly adhesives such as TECHNOMELT® PS hot melt adhesives for medical applications, acrylic adhesives, emulsion-acrylic pressure sensitive adhesives such as Henkel AQUENCE® PS, and/or silicon.

7. The printable stencil sheet 10 according to any one of the preceding embodiments, wherein the perforated layer 12 is made of a material comprising paper, polymer, or any other, flexible material configured to allow the first amount of ink or toner to adhere to.

8. The printable stencil sheet 10 according to any one of the preceding embodiments, wherein a thickness of the perforated layer 10 is in the range of 20 to 90 μm , 90 to 125 μm , 125 to 150 μm , 150 to 190 μm , 190 to 250 μm , 250 to 310 μm , 310 to 400 μm , 400 to 500 μm .

9. The printable stencil sheet 10 according to any one of the preceding embodiments, wherein the perforated layer 12 is coated on the first surface 12a by varnish, such as gloss, satin and/or dull finish configured to be tinted in certain colors, UV coating, and/or aqueous coating.

10. The printable stencil sheet 10 according to any one of the preceding embodiments, wherein the perforated layer 12 is opaque, transparent, or semi-transparent.

11. The printable stencil sheet 10 according to any one of the preceding embodiments, wherein the first amount of ink or toner is applied on at least a portion of the first surface 12a of the perforated layer 12 by means of a printer.

12. The printable stencil sheet 10 according to any one of embodiments 1 to 10, wherein the first amount of ink or toner is applied on the first surface 12a of

the perforated layer 12 by a writing instrument.

13. The printable stencil sheet 10 according to any one of the preceding embodiments, wherein the first amount of ink or toner forms an image selected by a user via a user interface.

14. The printable stencil sheet 10 according to any one of the preceding embodiments, wherein the perforated layer 12 comprises a plurality of apertures 14 arranged in a pattern and configured to allow a second amount of ink to be transferred to the target surface 15.

15. The printable stencil sheet 10 according to embodiment 14, wherein the second amount of ink is applied by the user with a writing instrument 16 to the portion of the perforated layer 12 to which the first amount of ink adheres when using the printable stencil sheet 10.

16. The printable stencil sheet 10 according to embodiment 14 or 15, wherein at least one aperture of the plurality of apertures 14 is a round aperture, a square aperture, a square end slot aperture, a round end slot aperture, and/or a hexagonal hole aperture.

17. The printable stencil sheet 10 according to any one of embodiments 14 to 16, wherein the pattern is a staggered pattern or a straight pattern.

18. The printable stencil sheet 10 according to any one of embodiments 14 to 17, wherein the size of an aperture of the plurality of apertures 14 is defined by a first dimension 17 being the smaller dimension of a plurality of dimensions of an aperture 14.

19. The printable stencil sheet 10 according to embodiment 18, wherein the first dimension 17 is a diameter in case the aperture 14 is a round aperture, a side dimension in case the aperture is a square aperture, the distance between two opposite sides in case the aperture is a hexagonal aperture, or the length of the small side in case the aperture is a square end slot aperture or a round end slot aperture.

20. The printable stencil sheet 10 according to embodiment 18 or 19, wherein the first dimension 17 is at least equal to the thickness of the printable stencil sheet 10 and has a maximum value of 1, 2, 5, or 10 mm.

21. The printable stencil sheet 10 according to any one of embodiments 14 to 20, wherein the apertures 14 are spaced from one another such that at each aperture, there is a non-open space between the aperture and each neighboring aperture.

22. The printable stencil sheet 10 according to any one of embodiments 18 to 21, wherein in the case the plurality of apertures 10 are round apertures, square apertures, and/or hexagonal apertures, the centroids of the plurality of apertures are spaced from one another in a first direction by a first distance 18, wherein the first distance 18 is greater than the first dimension 17 of the aperture. 5

23. The printable stencil sheet 10 according to embodiment 22, wherein the first direction is parallel to an outer edge of the printable stencil sheet 10. 10

24. The printable stencil sheet 10 according to embodiment 22 or 23, wherein the apertures 14 are spaced from one another in a second direction by a second distance 19, wherein the second direction forms an angle of 30, 45, 60, or 90 degrees with the first direction and the second distance 19 is greater than a first dimension 17 of the aperture. 15 20

25. The printable stencil sheet 10 according to any one of the preceding embodiments, wherein the backing layer 11 is made of a material comprising paper or polymer. 25

26. The printable stencil sheet 10 according to any one of preceding embodiments, wherein the backing layer 11 is coated with silicon on a first surface facing the second surface of the perforated layer 12a to allow the perforated layer 12 to be removed from the backing layer 11. 30

27. The printable stencil sheet 10 according to any one of the preceding embodiments, wherein the backing layer 11 is coated with a material configured to allow the perforated layer 12 to be removed from the backing layer 11 and to allow ink to stay unabsorbed on the backing layer 11 to be transferred to the target surface 15 when the backing layer 11 is applied to the target surface 15. 35 40

28. A computer-implemented method 100 for processing an image to be printed on a printable stencil sheet 10, comprising 45

receiving 110 an image from a camera or scanner, an image from a database selected by the user via a user interface, or an image digitally drawn by the user via the user interface; 50

adjusting 130 the image to be suitable for being printed and being traced when the printable stencil sheet 10 is attached to a target surface 15; 55

storing 140 the processed image in the database; and

providing 150 a signal for printing the image on the perforated layer 12 of the printable stencil

sheet 10.

29. The computer implemented method 100 according to embodiment 28, further comprising, before storing the processed image in the database, removing the background of the image.

30. The computer-implemented method 100 according to embodiment 28 or 29, further comprising

before applying 120 image enhancement and/or filtering techniques, receiving 160 user input via the user interface, wherein applying 120 image enhancement and/or filtering techniques is at least partially based on the user input.

31. The computer-implemented method 100 according to any one of embodiments 28 to 30, wherein image enhancement and filtering techniques comprise at least one of noise filtering, sharpness enhancement, contrast enhancement, and/or color saturation increase.

32. The computer-implemented method 100 according to any one of embodiments 28 to 31, wherein adjusting 130 comprises at least one of changing the color scheme, such as to enhance areas of the image, transforming solid lines of the image to intermittent lines, and/or converting solid color areas to color dots areas.

33. The computer-implemented method 100 according to any one of embodiments 28 to 32, wherein the database is connected to a cloud-storage based database storing a plurality of images from various users.

34. The computer-implemented method 100 according to any one of embodiments 28 to 33, further comprising after receiving 110 an image, modifying 170 the image by the user via the interface.

35. A method 200 for using a printable stencil sheet 10 and corresponding computer-implemented method 100 for processing an image to be printed on the printable stencil sheet 10, comprising

importing 210 an image into a software application configured to perform the computer-implemented method 100, wherein the image is selected from a database via a user interface, digitally drawn on the user interface, or drawn on a physical writing surface and digitalized by scanning or photographing; receiving 220 the printed stencil sheet 10; removing 230 the perforated layer 12 from the backing layer 11; and either attaching 240 the

perforated layer 12 on the target surface 15, applying 250 ink on the perforated layer 12 by tracing the printed portion representing the image through a writing instrument 16, or attaching 260 the backing layer 11 comprising unabsorbed ink or toner on the target surface 15; and removing 270 the backing layer from the target surface 15.

36. The method for using 200 according to embodiment 35, further comprising before receiving 220 the printed stencil sheet 10, selecting 280 image enhancement and/or filtering techniques.

37. The method for using 200 according to embodiment 35 or 36, after receiving 220 the printed stencil sheet 10 further comprising cutting out 290 an area containing the printed portion of the printable stencil sheet 10.

38. The method for using 200 according to any one of embodiments 35 to 37, further comprising re-applying 300 ink to areas on the target surface 15 being inside the portion transferred to the target surface 15.

39. The method for using 200, wherein the ink is applied on the perforated layer 12 by means of a writing instrument such as a pen (e.g. a felt pen) or a marker.

40. A method for using a printable stencil sheet 10 and corresponding computer-implemented method 100 for processing an image to be printed on the printable stencil sheet 10, comprising

importing an image into a software application configured to perform the computer-implemented method 100, wherein the image is selected from a database via a user interface, digitally drawn on the user interface, or drawn on a physical writing surface and digitalized by scanning or photographing; receiving the printed stencil sheet 10; removing the perforated layer 12 from the backing layer 11; attaching the backing layer 11 comprising unabsorbed ink or toner on the target surface 15; removing the backing layer 11 from the target surface 15.

41. The method according to embodiment 40 further comprising, before removing the perforated layer 12 from the backing layer 11, cutting out an area containing the printed portion representing the image of the printable stencil sheet 10.

42. A method for using a printable stencil sheet 10 and corresponding computer-implemented method 100 for processing an image to be printed on the printable stencil sheet 10, comprising

drawing an image on the perforated layer 12 using a first writing instrument; removing the perforated layer 12 from the backing layer 11; attaching the perforated layer 12 on the target surface 15; applying ink on the perforated layer 12 by tracing the printed portion through second a writing instrument 16; and removing the perforated layer 12 from the target surface 15;

43. The method according to embodiment 42 further comprising, before removing the perforated layer 12 from the backing layer 11, cutting out an area containing the printed portion of the printable stencil sheet 10.

44. A method for manufacturing a printable stencil sheet, comprising providing a backing layer 11;

providing a layer 12 configured to allow a first amount of ink or toner to adhere to on a first surface 12a; applying an adhesive layer 13 on a second surface 12a of the layer 12; perforating the layer 12 and the adhesive layer 13; and applying the perforated layer 12 on a surface of the backing layer 11 such that the perforated adhesive layer 13 is in between the backing layer 11 and the perforated layer 12.

45. A kit, comprising

a printable stencil sheet 10 according to any of the preceding embodiments, and a writing instrument 16 comprising an amount of ink.

46. The kit according to embodiment 45, further comprising

a printer; a device configured to perform the computer-implemented method 100 for processing the image to be printed on a printable stencil sheet 10.

Claims

1. A printable stencil sheet (10), comprising

a backing layer (11);
a perforated layer (12) comprising a first surface

- (12a) and a second surface (12b) opposite the first surface (12a),
 wherein the first surface (12a) is configured to allow a first amount of ink or toner to adhere to the first surface (12a) of the perforated layer (12),
 wherein the second surface (12b) is adhesive, wherein the perforated layer (12) is configured to be disposed on the backing layer (11) such that the second surface (12b) of the perforated layer (12) faces the backing layer (11),
 wherein the perforated layer (12) is configured to be removed from the backing layer (11) and to be attached to a target surface (15).
2. The printable stencil sheet (10) according to claim 1, wherein the second surface (12b) comprises an adhesive film (13).
 3. The printable stencil sheet (10) according to claims 1 or 2, wherein the perforated layer (12) is made of a material comprising paper, polymer, or any other, flexible material configured to allow the first amount of ink or toner to adhere to.
 4. The printable stencil sheet (10) according to claims 1, 2 or 3, wherein the first amount of ink or toner is applied on at least a portion of the first surface (12a) of the perforated layer (12) by means of a printer.
 5. The printable stencil sheet (10) according to any one of the preceding claims, wherein the first amount of ink or toner forms an image selected by a user via a user interface.
 6. The printable stencil sheet (10) according to any one of the preceding claims, wherein the perforated layer (12) comprises a plurality of apertures (14) arranged in a pattern and configured to allow a second amount of ink to be transferred to the target surface (15).
 7. The printable stencil sheet (10) according to claim 6, wherein the second amount of ink is applied by the user with a writing instrument (16) to the portion of the perforated layer (12) to which the first amount of ink adheres when using the printable stencil sheet (10).
 8. The printable stencil sheet (10) according to claims 6 or 7, wherein at least one aperture of the plurality of apertures (14) is a round aperture, a square aperture, a square end slot aperture, a round end slot aperture, and/or a hexagonal hole aperture.
 9. The printable stencil sheet (10) according to claims 6, 7, or 8, wherein the apertures (14) are spaced from one another such that at each aperture, there is a non-open space between the aperture and each neighboring aperture.
 10. The printable stencil sheet (10) according to any one of the preceding claims, wherein the backing layer (11) is made of a material comprising paper or polymer.
 11. The printable stencil sheet (10) according to any one of the preceding claims, wherein the backing layer (11) is coated with silicon on a first surface facing the second surface (12b) of the perforated layer (12) to allow the perforated layer (12) to be removed from the backing layer (11).
 12. A computer-implemented method (100) for processing an image to be printed on a printable stencil sheet (10), comprising
 - receiving (110) an image from a camera or scanner, an image from a database selected by the user via a user interface, or an image digitally drawn by the user via the user interface;
 - adjusting (130) the image to be suitable for being printed and being traced when the printable stencil sheet (10) is attached to a target surface (15);
 - storing (140) the processed image in the database; and
 - providing (150) a signal for printing the image on the perforated layer (12) of the printable stencil sheet (10).
 13. The computer-implemented method (100) according to claim 12, further comprising receiving (160) user input via the user interface, applying (120) image enhancement and/or filtering techniques, wherein applying (120) image enhancement and/or filtering techniques is at least partially based on the user input.
 14. A method (200) for using a printable stencil sheet (10) and corresponding computer-implemented method (100) for processing an image to be printed on the printable stencil sheet (10), comprising
 - importing (210) an image into a software application configured to perform the computer-implemented method (100), wherein the image is selected from a database via a user interface, digitally drawn on the user interface, or drawn on a physical writing surface and digitalized by scanning or photographing;
 - receiving (220) the printed stencil sheet (10);
 - removing (230) the perforated layer from the backing layer (11);
 - attaching (240) the perforated layer (12) on the target surface (15);
 - applying (250) ink on the perforated layer (12)

by tracing the printed portion representing the image through a writing instrument (16), removing (270) the perforated layer (12) from the target surface (15).

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15. A kit, comprising

a printable stencil sheet (10) according to any of the preceding claims, and
a writing instrument (16) comprising an amount of ink.

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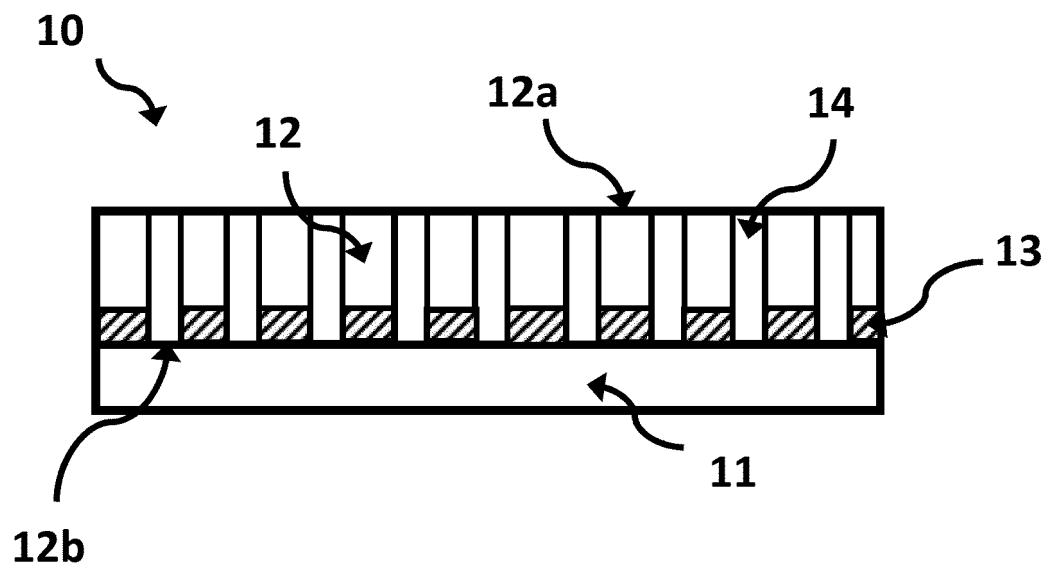


Fig. 1

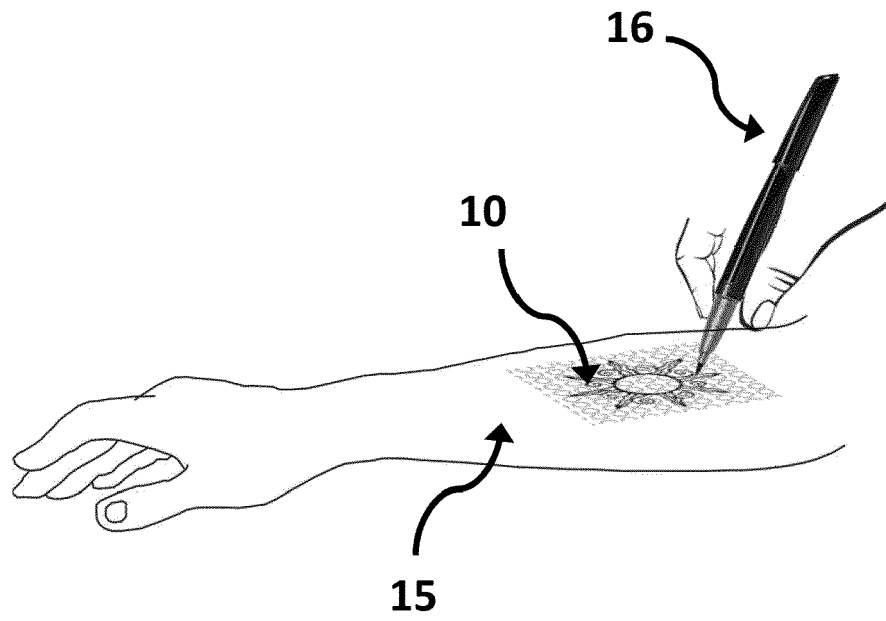


Fig. 2

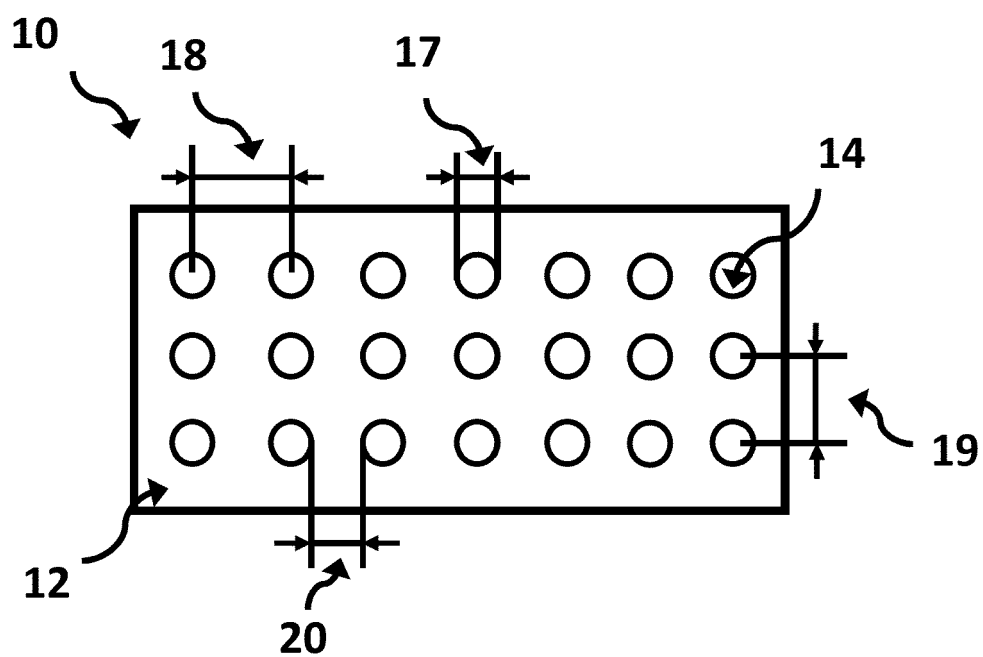


Fig. 3

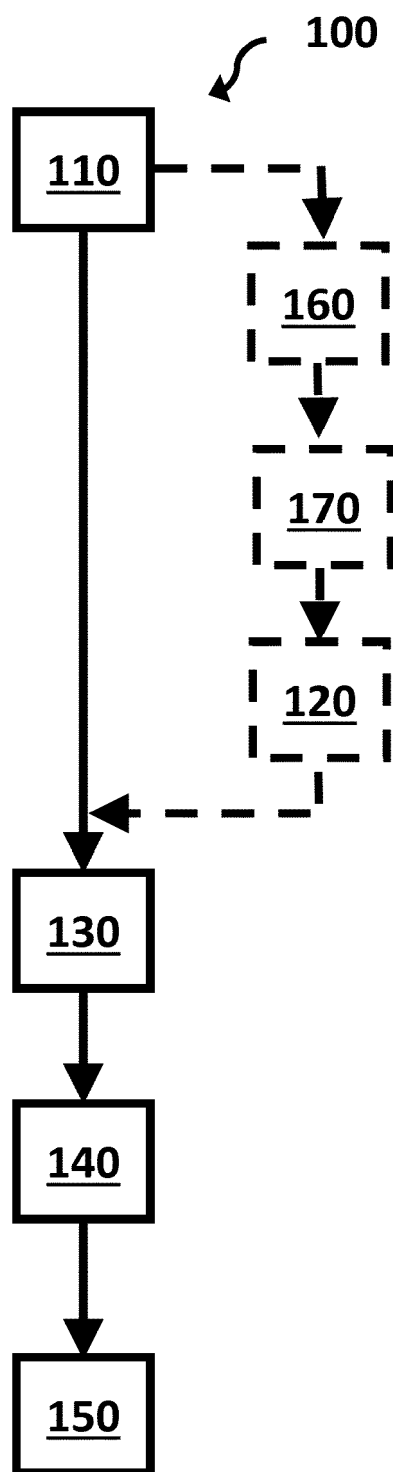


Fig. 4

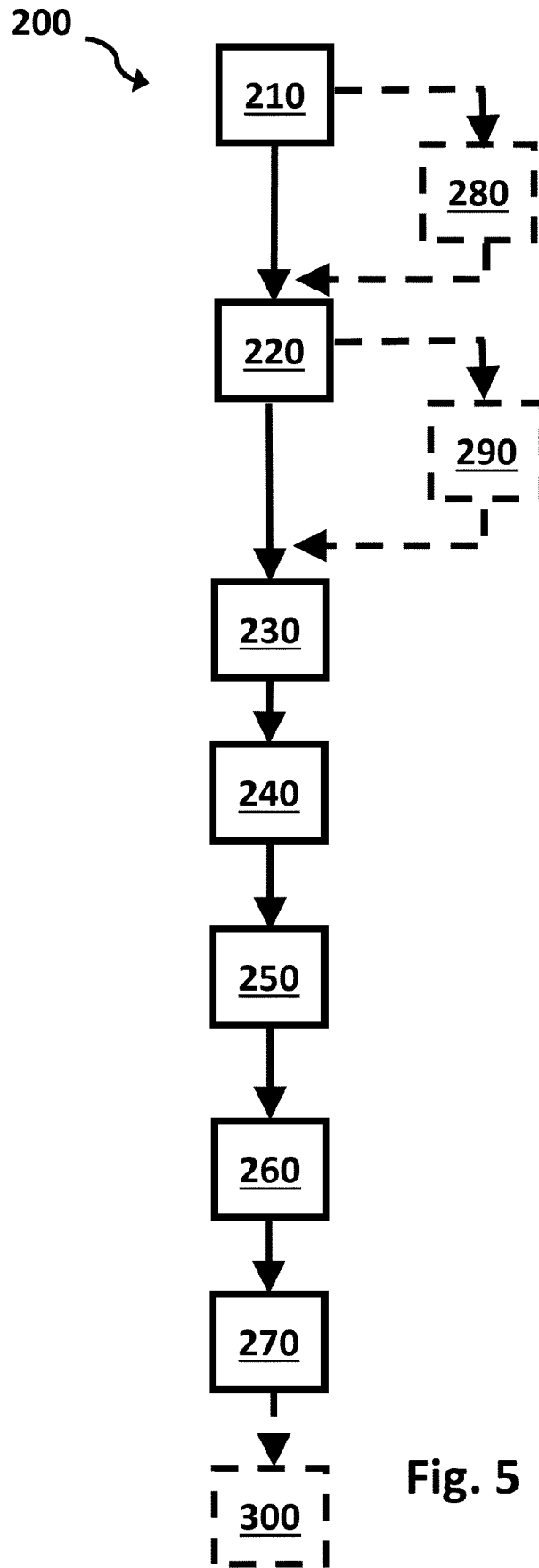


Fig. 5



EUROPEAN SEARCH REPORT

Application Number

EP 22 18 2194

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EPO FORM 1503 03.82 (P04C01)

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	EP 3 479 728 A1 (SOFTAP INC [US]) 8 May 2019 (2019-05-08) * paragraph [0005] - paragraph [0128]; figures 1-83 *	1-15	INV. B43L13/20 B44D2/00
X	Anonymous: "Assembly instruction: Perforated foil with digital print ; myfolie.com", / 1 January 2011 (2011-01-01), pages 1-11, XP093009167, Retrieved from the Internet: URL:https://www.myfolie.com/en/faq/montage- lochfolie/ [retrieved on 2022-12-18] * page 1 - page 11 *	1-6, 8, 10, 11	
X	Beyondxselfish: "Inkjet Stencil, proudly made in the USA", / 16 April 2018 (2018-04-16), XP093009168, Retrieved from the Internet: URL:https://www.youtube.com/watch?v=VFukgfhwcEk [retrieved on 2022-12-18] * see especially time stamps: 2:10-2:40, 3:18, 4:10-6:10 *	12, 13, 15	TECHNICAL FIELDS SEARCHED (IPC) B43L B43K B44F B44D A45D A61Q
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 19 December 2022	Examiner Patosuo, Susanna
CATEGORY OF CITED DOCUMENTS 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		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	

19-12-2022

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EP 3479728 A1	08-05-2019	EP 3479728 A1	08-05-2019
		WO 2019094493 A1	16-05-2019

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