

Aug. 23, 1960

G. R. MOTT

2,949,848

STENCIL MAKING

Filed July 27, 1955



Fig. 1

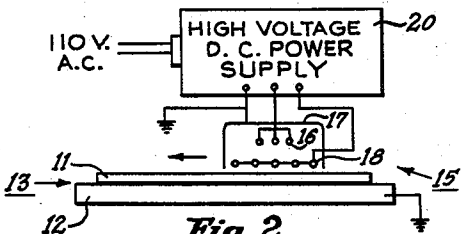


Fig. 2

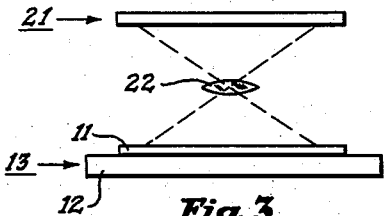


Fig. 3

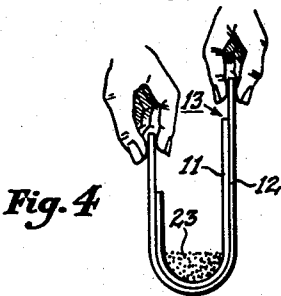


Fig. 4



Fig. 5

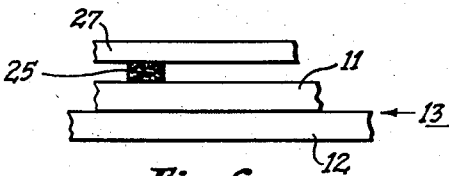


Fig. 6

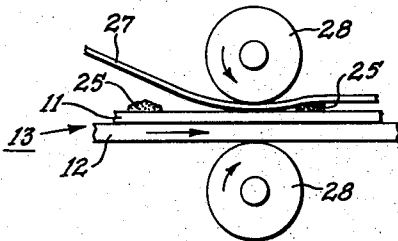


Fig. 7

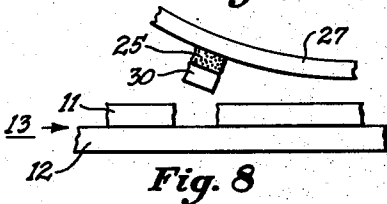


Fig. 8

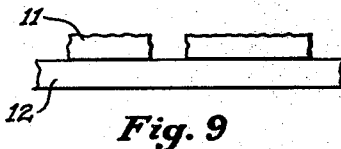


Fig. 9

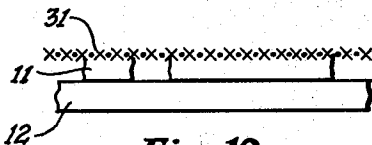


Fig. 10

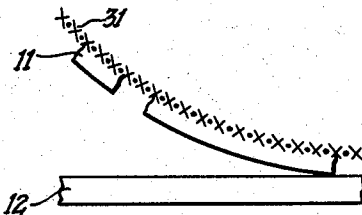


Fig. 11

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2,949,848

STENCIL MAKING

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7 Claims. (Cl. 101—128.3)

This invention relates in general to master making for duplicating processes.

The present method for producing stencils for stencil duplicating processes involves the cutting of a wax impregnated porous tissue paper. The cut stencil permits passage of an aqueous ink directly from a reservoir of ink to the final copy through the openings. Analogous processes have been evolved for the graphic arts wherein a silk screen is blocked by a manually applied binder or by photographically controlled gelatin layers. The screen is then used to control the flow of ink or paint from an applicator to the paper or other final support.

This invention presents a method whereby duplicating stencils may be prepared xerographically. In particular, a special binder photoconductive plate is used to produce a stencil by serving both as the image forming and stencil forming medium. This provides for the use of existing documents as original copy and thereby eliminates the disadvantages of manual preparation as, for example, typing, drawing or the like of stencils. Although photochemical stencils exist, they generally must be prepared using a high contrast photographic positive to which the stencil is exposed while clamped in close contact. This invention also overcomes the problem of contact exposure, as well as the need for high contrast photographic positives.

It is an object of this invention to devise new means and methods of forming a master.

It is a further object of this invention to devise new means and methods of forming stencils, silk screen masters or the like through the use of xerography.

It is a still further object of this invention to devise new means and methods of forming stencils, silk screen masters or the like while using a special binder photoconductive plate.

Additional objects of the invention will in part be obvious and will in part become apparent from the following specification and drawings, in which:

Fig. 1 is a fragmentary cross-sectional view of a binder photoconductor plate intended to be used in this invention.

Fig. 2 illustrates the step of sensitizing a plate.

Fig. 3 illustrates exposure of a sensitive plate.

Fig. 4 illustrates development of a plate carrying a charge pattern to be developed.

Fig. 5 illustrates tackification of the developed image.

Fig. 6 illustrates positioning a cover sheet over the tacky image.

Fig. 7 illustrates pressing of the assembly created in Fig. 6.

Fig. 8 illustrates stripping of the cover sheet and removing the image and portions of the binder photoconductor from the plate.

Fig. 9 illustrates softening of the remaining binder material.

Fig. 10 shows attaching of a transfer sheet to the softened binder material.

Fig. 11 shows removal of the transfer sheet and re-

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maining binder material, resulting in a master for subsequent use.

Referring now to the drawings, in Fig. 1 is shown a cutaway cross-section view of a special plate to be used in forming masters according to this invention. The plate, generally designated 13, is composed of a photoconductive insulating material 11 overlying a base or support layer 12. Various photoconductive insulating materials may be used. One, which is fully described in the Middleton and Reynolds abandoned co-pending application Serial No. 311,546, filed September 25, 1959, and which comprises zinc oxide in a resin insulating binder, is presently preferred. Suitable resin binders include silicone resins such as DC-996 (Dow Corning) and SR-82 (General Electric). Various other photoconductive insulating layers comprising photoconductive materials in insulating binders which may be used as the photoconductive insulating layer of the plate used in this invention are also disclosed in that co-pending application. Such other materials include, but are in no way limited to, zinc-magnesium oxide, zinc sulfide, zinc cadmium sulfide, cadmium sulfide, cadmium strontium sulfide, zinc silicate, calcium tungstate, selenides and mixed selenides of cadmium and zinc, anthracene, titanium dioxide, and the like. Desirably, these materials are activated with small amounts, that is 0.01% to 0.001%, of metallic impurities, as is well-known to those skilled in the art.

The base material 12 is preferably a conductive material such as the various conductive metals, conductive glass, conductive flexible materials such as conductive foils, flexible materials spattered with conductive metals, or the like. Two materials which have been found particularly valuable as the base layer 12 are conductive foil and paper which is impregnated with a conductive material or which, when used, is made conductive by moistening with water or the like.

Reference is now had to Fig. 2 wherein the charging or sensitizing step is illustrated. As shown in this figure, an ion source comprising a corona discharge device generally designated 15 is passed over the surface of plate 13 comprising photoconductive insulating binder layer 11 on grounded support base 12. The corona discharge device may be of the type described in Lewis E. Walkup application Serial No. 154,295, filed April 6, 1950 for Charging Device, now U.S. Patent No. 2,777,957. This comprises a grid of fine wires 16 held at several thousand volts potential with respect to a grounded metal chamber 17 which provides a housing around the top and sides of the grid 16 whereby a corona discharge is produced around the wires. A control grid 18 of coarser wires is located between corona grid 16 and layer 11 on support plate 12, the second grid 18 being held at an intermediate potential of several hundred volts above ground potential. Grid 18 serves to control or limit the potential placed upon layer 11 and prevents overcharging. The potentials are supplied by a high voltage power supply circuit 20, such as a transformer rectifier circuit and a voltage dividing resistance for supplying the required potentials to grids 18 and 16. Since charging makes the plate 13 sensitive to light, charging is carried out in darkness. Desirably also, the support base 12 which is conductive during charging is grounded. After charging, photoconductive insulating binder layer 11 is sensitive to light or other activating radiation and is exposed, as for example as is illustrated in Fig. 3.

In Fig. 3 there is shown copy to be reproduced generally designated 21, a lens designated 22, and a plate 13 in position for exposure. Material to be copied from copy 21 may be illuminated and is focused by lens 22 onto the surface of layer 11, the photoconductive insulating binder layer which overlies backing support 12 of plate 13. During exposure, the electrostatic charge which

has been applied to the surface of layer 11 is dissipated in the areas which are struck by light to leave a charge pattern remaining where light did not strike the surface of plate 13, as in black lines and letters of the image. The electrostatic charge pattern formed on layer 11 is the image which will subsequently be developed by bringing finely divided material such as fine powders into contact with the surface of layer 11. Although projection of an optical image is illustrated in this figure, it is to be realized that other techniques of image formation known to the art are intended to be included herein. For example, the charge pattern on the surface of layer 11 may be formed by exposing a charged plate to an X-ray pattern or other radiation patterns or by depositing charges on an uncharged plate in the form of a pattern or image, or the like. Such images produced by any of these various methods may be continuous tone patterns in which the charge varies gradually in density from point to point, or may be images with large black, gray and white areas as well as images of lines and characters.

In Fig. 4 there is illustrated one technique of development of the electrostatic charge pattern. The technique of development illustrated in this figure has become known as loop development in that the plate is formed into a loop and the loop carries the developer powder, which is cascaded across the surface of the photoconductive insulating binder layer 11 of plate 13 as the loop is varied. Loop development may be carried out when using a flexible plate, in that the weight of the developer material 23 is utilized to cause the loop to change its position as the hands are moved upward and downward. In this figure there is illustrated the fingers of two hands gripping the edges of the plate 13 and preferably gripping only extended portions of the base material 12 to thereby avoid distorting the charge pattern formed on the surface of the photoconductive insulating binder material.

It is to be realized, of course, that the technique illustrated may be adapted to mechanical operation and that although loop development is illustrated in this figure, there is no intention to exclude other techniques of development known to the art. The intention is instead, to include all known techniques of development. Such other techniques include, but are in no way limited to, cascade development described in Walkup 2,618,551 and powder cloud development, which is development by bringing a cloud of powder particles in gas to the surface carrying the electrostatic charge pattern for deposition of particles in areas of charge. One technique of development which has been found valuable for development of images formed on a plate in which the binder layer is a layer of zinc oxide in an insulating resin binder is what is generally known in the art as magnetic development. In magnetic development a magnet is used to attract and hold particles which are electrostatically attracted to the charge pattern on the charge pattern bearing surface. These particles form, in effect, a brush on the magnet and are brushed across the surface carrying the charge pattern and deposit in image configuration. Magnetic development, cascade development, and powder cloud development may be used for rigid as well as flexible plates. Other techniques of development generally known to those in the art are also intended to be included herein.

In Fig. 5 is illustrated tackification of a toner image. The plate 13 comprising support layer 12 and insulating binder layer 11 supports toner image 25 on the surface of insulating binder layer 11. The plate 13 is placed in an area filled with vapors which act as a solvent for the toner material. In this figure, the vapors 26 are shown surrounding and encompassing toner image 25.

Tackification of the toner image is accomplished when the powder image becomes a more liquefied adhesive unit. Although it is not desired to limit this invention to a particular mode of operation, it is now thought that tackification takes place due to the effect of vapors on the viscosities and surface tensions of the materials making up the image. It is believed that exposing the image to

proper vapors causes the surface tensions of the materials to decrease, thereby making particles more adhesive. This will cause the particles to stick to one another and at the same time cause the image itself to become adhesive.

It is thought in general that solvents for image materials or, more particularly, vapors soluble in the image materials cause a lowering of surface tensions. Exposure to vapors also causes the viscosity of the materials making up the image to fall, thereby allowing the particles to flow more readily. Exposure to vapors causes the image to reach this tacky state by decreasing the viscosities and surface tensions of the materials comprising the image, thereby producing a more liquefied adhesive single image body. The image should be composed of materials which can be reacted on as indicated by proper vapors.

Although tackification has been described in terms of vapor tackification, it is also to be realized that heat tackification and the like are intended to be included herein. For example, applying heat to the toner image will also react on the viscosities and surface tensions of the materials making up the image. Thus, applying the proper amount of heat will cause tackification of the image when the image materials are such that they will be reacted on by heat. Heat tackification by radiation and conduction are intended to be included herein.

Reference is now had to Fig. 6 wherein is shown the placing of a sheet against the tacky image. The tacky image 25 formed in Fig. 5 on layer 11 backed by support 12 of plate 13 is covered in this figure with the cover or transfer sheet 27. This sheet may be paper, plastic, or other material to which the tacky toner image will adhere. If the transfer sheet 27 is porous to the vapors used to tackify the image, which is likely the case, the sheet 27 may be placed in contact with the developed image before and during the tackification step and the sandwich comprising the plate, the developed image and the cover sheet may be fed directly from tackification to the pressing step illustrated in Fig. 7. When using heat for tackification as described in connection with Fig. 5, the assembled layers or sandwich may also be subjected to heat with the cover sheet in place.

In Fig. 7 is shown pressing of the cover sheet against the surface carrying the tacky image. In this figure pressure is applied by moving the sandwich made up of plate 13, toner image 25, and cover sheet 27, between rollers 28. As indicated, the toner image resides on insulating layer 11 backed by support layer 12. Although pressure is applied in this figure using rollers, it is to be realized that other pressure applying techniques generally known to those in the art are intended to be included herein. For example, pressure may be applied by positioning the sandwich between two flat surfaces and pressing the surfaces together, or pressure may be applied by placing the sandwich on a solid base and rolling a roller across the surface, or the like.

In the instance when heat is applied to tackify the image, it has been found that the steps described in connection with Figs. 5 and 6 may be combined with the pressure step of Fig. 7. Thus, it is possible to use two heated platens which may be pressed together. In such an instance the sandwich is placed on one platen and the other platen is placed above the sandwich and pressure is applied and the combination heat and pressure step will prepare the toner image and binder layer for the next step in this process.

Preferably, after the cover sheet 27 is pressed against the tacky image 25, the image is allowed to dry or cool to allow the image to fuse against the surfaces it is in contact with and the cover sheet is then stripped away from plate 13.

Fig. 8 shows the stripping step. In this figure, the cover sheet 27 is being separated from plate 13 composed of insulating binder layer 11 on support base 12. As shown in this figure, the toner image 25 adheres to cover sheet 27 and carries with it a coating of binder

material 30. The binder material covers all areas of the toner image and thus creates a plate 13 void of binder material in image areas. The remaining binder layer on plate 13, after the stripping operation, is to serve as the blocking agent for the porous support of the end product of this invention, a cut master for duplicating processes.

In Fig. 9 is shown the next step of the master making process of this invention. In this figure support layer 12 carries on its surface the binder layer lacking areas transferred to the tacky image described in connection with Fig. 8. This binder layer is now softened or made tacky by exposing it to vapors which are soluble in the binder material or by the application of heat or the like. This tackification step is carried out as was tackification of the developed image, the time of exposure to heat or vapors depending on the time needed to soften the binder material.

While the binder layer is in the softened or tacky state, a sheet of porous material is placed in contact with the upper surface of binder layer 11. This step is illustrated in Fig. 10 wherein a sheet of porous material 31 is placed in contact with layer 11 which is supported by support base 12. This sheet is to act as the base or support sheet of the master. Thus, when the master is to be used for stencil duplicating, sufficiently strong tissue paper or the like may be used. When the master is to be used for silk screen printing, a proper silk screen base is used. The sheet 31 is attached to layer 11 through the use of pressure as described above in connection with Fig. 7. That is, the sandwich may be moved between rollers, may be pressed between surfaces, may be placed on a support surface and pressure applied using a roller or the like, or the surfaces may be pressed together through the use of electrostatic tacking by spraying corona discharge to sheet 31 while base 12 is grounded or is in position on a grounded conductor. Other techniques of applying pressure to attach the support sheet 31 to layer 11 will occur to those skilled in the art and are intended to be included herein.

Fig. 11 shows the removal of layer 11 from support base 12 to sheet 31. The pressing of sheet 31 against layer 11, as described in connection with Fig. 10, results in intimate contact between the softened binder surface and the binder sheet. As the binder layer 11 hardens, fibers from sheet 31 become imbedded in the binder layer and a permanent bond between the two is formed. Sheet 31 should also be chosen because of basic characteristics in the sheet material which create greater adhesion between the binder layer 11 and the surface of sheet 31 as compared to the adhesion between binder layer 11 and the surface of support base 12. Most tissue papers have this bonding or adhesive characteristic which is desired and also have the porosity and strength required for a stencil base sheet to be used on stencil duplicating machines.

The stripping step may also be accomplished by softening only selectively the top and bottom of the binder layer 11 without greatly affecting the central area. This may be accomplished by exposing the binder material to vapors while wetting base material 12 with a liquid solvent for the binder material.

It is also possible to construct the binder plate with three layers rather than two as previously discussed. The additional layer may be an intermediate between the binder layer and the support base. Such a layer may be used to facilitate the complete release of the binder layer from the paper base during the step described in connection with Fig. 11. For example, such an intermediate layer may be composed of a water soluble material. The exposure of the binder material to heat or vapors soluble in the binder material will soften the top surface to such an extent to allow a bonding between the upper surface and the new base sheet. Wetting the support base of the plate at the same time or a subsequent

time will release the binder material to the new base, thereby creating a cut master to be used for duplicating processes.

The master formed according to the techniques of this invention may then be attached to a stencil machine for a normal stencil run. The ink in such an instance is fed through the stencil pad and then through the porous areas of the tissue. The areas to which the binder material was transferred will block passage of ink and thus there will be printed on the copy sheet pressed against the master an inked image corresponding to the original. In the instance when the master is used for silk screen processes, ink is applied through the porous areas allowing application to the copy sheet and thus reproduction of the image cut in the master.

Various xerographic developer materials have been found to work well in this invention. Such materials are available under the trade mark "Xerox" and are sold as "Developer" or "Toner" by The Haloid Company of Rochester, New York. Also, the compositions of proper developer materials are described in Walkup U.S. Patent 2,618,551 and Walkup and Wise U.S. Patent 2,638,416. As shown in the Walkup patent, a suitable developer comprises a 20 to 1 mixture of Amberol F-71 phenol-formaldehyde resin (Rohm & Haas Company, Philadelphia) and carbon black. The mixture is ball milled, melted together, cooled, and ground into fine particles. Other developers and toners generally known to the art have also been found to work well with this invention.

When vapor tackification is being used, the particular tackifying vapor will depend on the nature of the particular image material or powder and the particular binder layer of the xerographic plate. It is desirable that the vapors used to tackify the image do not impair the binder material. However, there is no objection to using vapors which will tackify the image and soften the binder if proper timing is used so that the image will become properly tackified whereas the binder layer itself is not completely tackified but is only softened slightly. After the image and areas of the binder beneath the image are removed to the cover sheet, the same solvent vapors may be applied to the binder material for a longer period for a more thorough softening so the binder material itself may be transferred. Similarly, when heat is being used, proper timing in the first instance to tackify completely image areas and to affect only slightly the binder material itself should be used, causing selective transfer of image areas of the binder with transfer of the developed image. When heat is applied to transfer the binder layer after transfer of the binder material beneath image areas, longer exposure to heat or higher temperatures are desirable to bring about complete tackification. However, it is desirable to bring about complete tackification without a flowing of the binder material into areas of binder removed from the developed image to thereby reproduce clean copy when the master is used for its intended purposes. Various solvent vapors may be used, as for example, trichloroethylene, chloroform, carbon tetrachloride, various chloromatic solvents, various Freons (believed to be fluorinated chloroalkanes), aromatic and aliphatic hydrocarbons such as benzene, toluene, gasoline and gasoline fractions, oxygenated solvents such as ethanol, acetone, ethylacetate and other alcohols, ketones, esters, and the like. In all cases, the particular solvent and solvent vapors should be appropriately selected to operate empirically with the particular combinations of materials and compositions employed. Trichloroethylene vapors have been found particularly useful for use with photoconductive insulating compositions of the type described. The developers are tackified almost instantly, whereas the silicone resin of the photoconductive insulating composition requires about a minute to soften.

The time necessary to make the powder image tacky or the binder layer tacky is dependent on a number of

factors such as, for example, the powder material, the binder layer, whether heat or vapor is being used, the particular vapor if vapor is being used, temperature applied, whether the vapor contacts the image either directly or through a porous sheet, humidity and other atmospheric conditions, and the like.

The amount of pressure necessary to accomplish transfer, whether it be of the toner image carrying a layer of binder material or whether it be of the remaining binder material, will vary, depending on many factors such as the particular binder material, the condition of the tackified image or binder layer, the particular toner material employed, the delay before placing the base carrying the softened toner image or softened binder layer into a pressure unit, the humidity and temperature of the area in which the transfer is being carried out, and the like. Generally, it may be stated that pressures in the order of two to thirty pounds per linear inch may be applied.

While this invention has been described in terms of manually performed steps, and in terms of certain embodiments which have been shown and described, it is to be understood that automatic and semiautomatic devices as well as other modifications, which will be easily recognized by those skilled in the art, are intended to be encompassed without departing from the spirit and scope of the invention as defined in the appended claims.

What is claimed is:

1. The method of forming a stencil for duplicating processes comprising placing an electrostatic charge pattern on the photoconductive surface of a plate comprising a tackifiable photoconductively pigmented insulating binder layer overlying and releasably attached to a support base, developing the charge pattern by contacting it with finely divided electrostatically charged tackifiable particles, tackifying and pressing the developed image between a cover sheet and said plate, separating the cover sheet from the plate after the image has fused thereby removing to the cover sheet the fused image carrying therewith a coating of the binder insulating layer, tackifying and pressing the remaining binder material between a porous transfer base and the support base of the plate, and stripping the transfer base after the binder material has fused thereby removing with the transfer base and adhering thereto the remaining binder material.

2. The method of forming a stencil for duplicating processes comprising sensitizing a xerographic plate comprising a tackifiable photoconductively pigmented insulating binder layer overlying and releasably attached to a support base by placing a uniform electrostatic charge on the photoconductive insulating binder layer, exposing the sensitive xerographic plate to a pattern of activating radiation to thereby form an electrostatic charge pattern, developing the electrostatic charge pattern by contacting the surface carrying the charge pattern with finely divided tackifiable particles which are electrostatically attracted by the electrostatic charges of the charged pattern, tackifying substantially only the developed image, pressing a cover sheet against the tackified developed image, allowing the tackified image to fuse between the binder layer and the cover sheet, separating the cover sheet from the xerographic plate thereby removing to the cover sheet the fused image carrying a coating of the binder insulating layer of the xerographic plate, softening the remaining binder layer, pressing a porous transfer base against the remaining binder layer, allowing the binder layer to harden while the transfer sheet remains in contact therewith, and stripping the transfer base thereby removing thereon the remaining binder layer.

3. The method of forming a stencil master for the stencil duplicating process comprising forming an electrostatic charge pattern on the tackifiable photoconductively pigmented surface of a xerographic plate comprising a photoconductive insulating binder layer overlying and releasably attached to a support base, developing the

charge pattern by contacting it with finely divided tackifiable electrostatically charged particles, tackifying the developed image substantially only and pressing the developed image between a cover sheet and the xerographic plate, separating the cover sheet from the plate after the image has fused thereby removing to the cover sheet the fused image carrying a coating of the insulating binder layer, tackifying and pressing the remaining binder material between a sheet of porous tissue paper and the support base of the xerographic plate, and stripping the tissue paper after the binder material has fused thereby removing with the tissue paper and adhering thereto the remaining binder material.

4. The method of forming a stencil master for the stencil duplicating process comprising sensitizing a xerographic plate comprising a photoconductive insulating layer of zinc oxide in a tackifiable insulating resin binder overlying and releasably attached to a paper support base by placing a uniform electrostatic charge on the photoconductive insulating binder layer, exposing the sensitive xerographic plate to a pattern of activating radiation to thereby form an electrostatic charge pattern thereon, developing the electrostatic charge pattern by contacting the surface of the photoconductive insulating layer with finely divided tackifiable electrostatically charged particles which deposit due to the electrostatic attraction between the charges on the surface of the photoconductive insulating binder layer and the charges on the particles, tackifying substantially only the developed image, pressing a cover sheet against the tackified developed image, allowing the tackified image to fuse while sandwiched between the binder layer and the cover sheet, separating the cover sheet from the xerographic plate thereby removing to the cover sheet the fused image carrying thereon a coating of the binder layer, tackifying the remaining binder material of the plate and pressing a transfer sheet of tissue paper into contact with the remaining binder layer, allowing the binder layer to harden while the tissue paper remains in contact therewith, and stripping the tissue sheet from the xerographic plate to remove thereon the remaining binder layer and to thereby form a cut stencil for the stencil duplicating process.

5. The method of forming a silk screen master comprising sensitizing a plate comprising a tackifiable zinc oxide resin binder layer overlying and releasably attached to a paper support base by placing a uniform electrostatic charge on the zinc oxide resin binder layer, exposing the sensitive plate to a pattern of light and shadow to be reproduced to thereby form an electrostatic charge pattern thereon, developing the electrostatic charge pattern by contacting the surface carrying the charge pattern with finely divided electrostatically charged tackifiable particles which deposit an image configuration due to the electrostatic attraction between the electrostatic charges on the surface of the plate and the electrostatic charges on the particles, tackifying substantially only the developed image, pressing a cover sheet against the tackified developed image, allowing the tackified image to fuse between the plate and the cover sheet, separating the cover sheet from the plate to thereby remove to the cover sheet the fused image carrying thereon a coating of the zinc oxide resin binder layer, tackifying the remaining zinc oxide resin binder layer, pressing a silk screen against the remaining zinc oxide resin binder layer, allowing the layer to fuse while sandwiched between the silk screen and the paper support base of the plate, and separating the silk screen to remove thereon the zinc oxide resin binder layer to thereby form a silk screen to be used in the silk screen duplicating process.

6. The method of forming a stencil master for the stencil duplicating process comprising placing an electrostatic charge pattern on the photoconductive surface of a xerographic plate comprising a tackifiable releasable photoconductively pigmented insulating binder layer overlying a support base, developing the charge pattern by

contacting it with finely divided electrostatically charged tackifiable particles, tackifying substantially only the developed image and pressing the developed image between the plate and a cover sheet having adhesive bonding characteristics toward the tacky image, separating the cover sheet from the plate after the image has fused thereby removing to the cover sheet the fused image carrying a coating of the binder insulating layer, tackifying and pressing the remaining releasable binder material between the support base of the plate and a sheet of porous tissue paper having adhesive bonding characteristics toward the remaining binder material, and stripping the tissue paper after the binder material has fused thereby removing with the tissue paper and adhering thereto the remaining binder material.

7. The method of forming a stencil for duplicating processes comprising placing an electrostatic charge pattern on a xerographic plate, said plate comprising a photoconductive insulating layer on a support base wherein the photoconductive insulating layer includes a fusible

releasable film forming binder, developing the charge pattern by contacting it with finely divided electrostatically charged tackifiable particles, tackifying substantially only the developed image and pressing the developed image between a cover sheet to which the tacky image is attracted and the plate, separating the cover sheet from the plate after the image has fused thereby removing to the cover sheet the fused image carrying a coating of the binder insulating layer, tackifying and pressing the remaining binder layer between a porous transfer base to which the releasable remaining binder material is attracted and the support base of the plate, and stripping the transfer base after the binder material has fused thereby removing with the transfer base and adhering thereto the remaining binder material.

References Cited in the file of this patent

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2,297,691	Carlson	Oct. 6, 1942

UNITED STATES PATENT OFFICE
CERTIFICATION OF CORRECTION

Patent No. 2,949,848

August 23, 1960

George R. Mott

It is hereby certified that error appears in the above numbered patent requiring correction and that the said Letters Patent should read as corrected below.

Column 8, line 53, for "an" read -- in --; line 56, for "tacifying" read -- tackifying --; line 58, for "tacified" read -- tackified --; column 9, line 2, for "tacifiable" read -- tackifiable --.

Signed and sealed this 27th day of June 1961.

(SEAL)

Attest:

ERNEST W. SWIDER

Attesting Officer

DAVID L. LADD

Commissioner of Patents