F. KROKERT.

PRINTING PROCESS.

APPLICATION FILED DEC. 14, 1908.

958,879. Patented May 24, 1910.

Fig. 1.

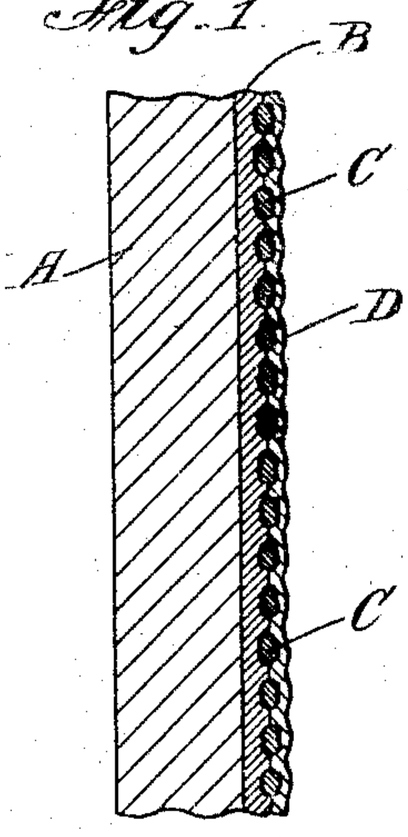


Fig. 2.

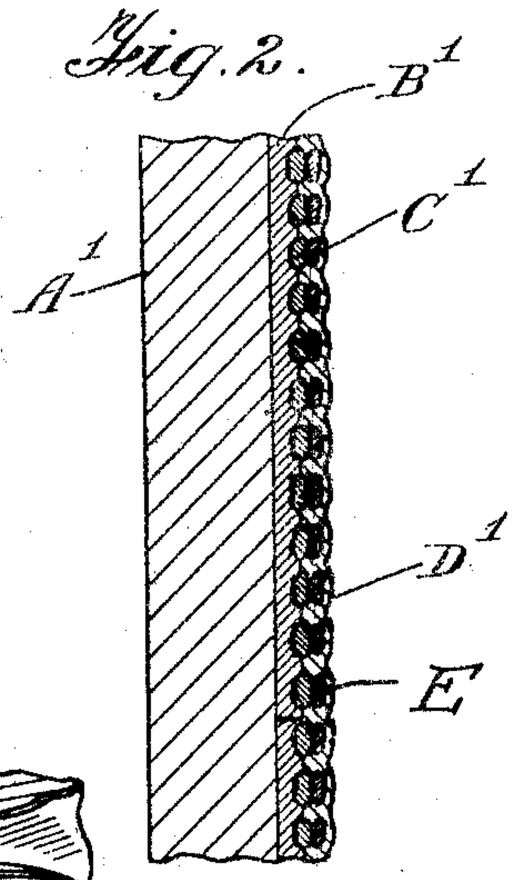


Fig. 3.

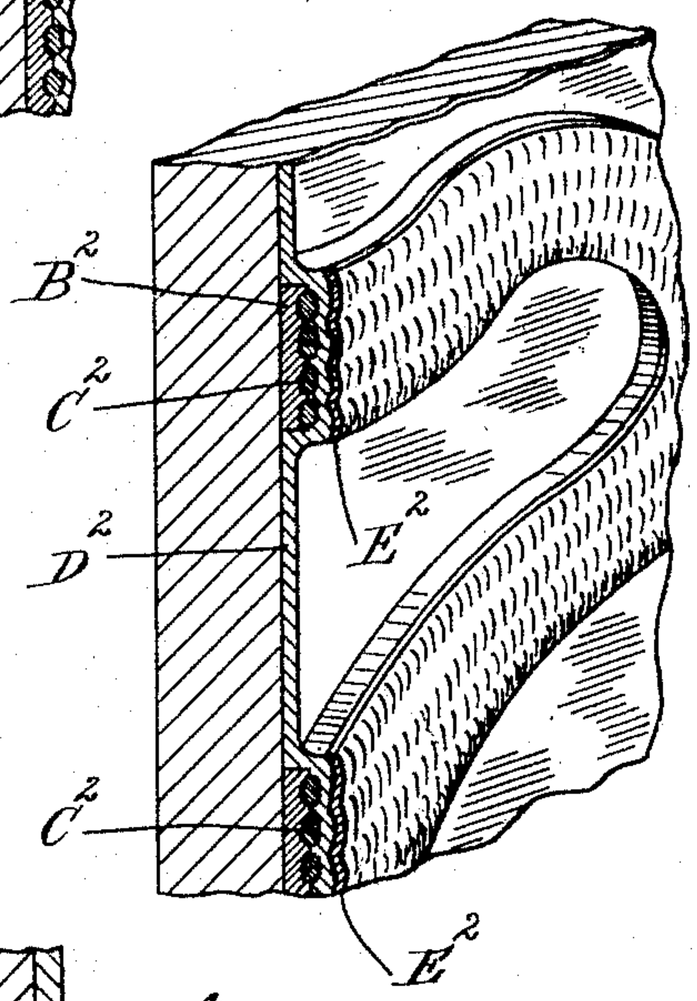


Fig. 4.

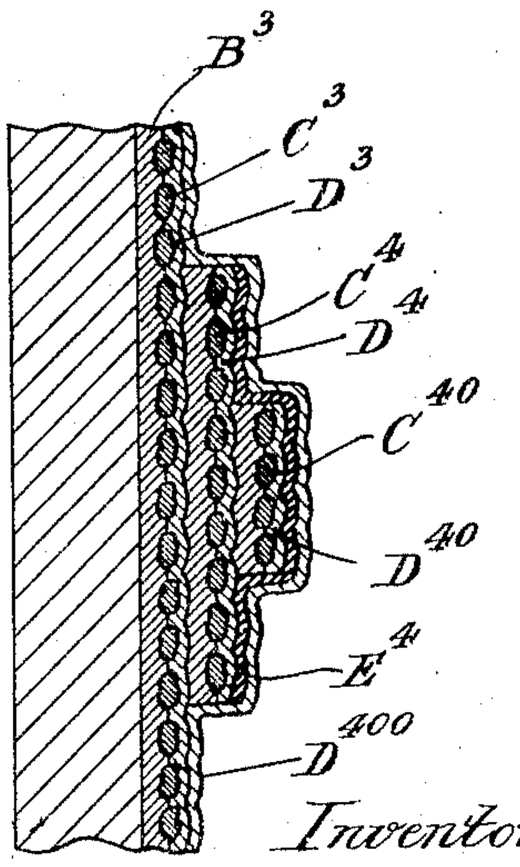
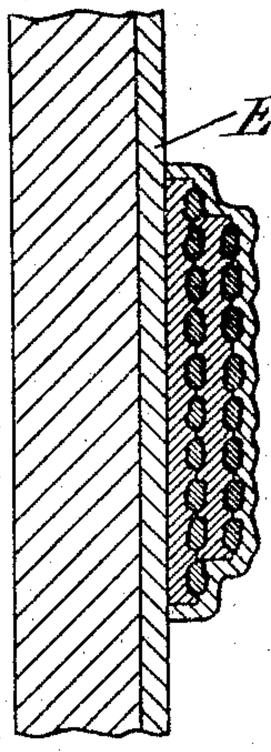


Fig. 5.



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FELIX KROKERT, OF HALLE-ON-THE-SAALE, GERMANY.

PRINTING PROCESS.

958,879. Specification of Letters Patent. Patented May 24, 1910.

Application filed December 14, 1908. Serial No. 467,355.

To all whom it may concern:

Be it known that I, FELIX KROKERT, a subject of the German Emperor, residing at Halle-on-the-Saale, in Germany, have invented certain new and useful Improvements in Printing Processes, of which the following is a specification.

This invention relates to new printing processes which allow, for example, of producing granulated prints on a smooth shining background, or shining prints on a dull or granulated background. In addition, pastel painting can be effectively imitated by means of this process, and also woven fabric, embroidery, lace, network, knitting, gobelins and the like. Prints made on metal plates by this process are particularly suitable for advertisements.

The annexed drawing illustrates several methods of carrying this invention into effect, it being understood that the illustrations represent greatly magnified sections (but not to scale) in order that the nature of the structure may be more easily explained.

Figure 1 illustrates a plate treated with a whole surface coating of granular material. Fig. 2 illustrates the same colored as in pastel painting. Fig. 3 illustrates a design in granular material on a plain background. Fig. 4 illustrates a raised granular design on a granular background. Fig. 5 illustrates a raised design on a plain colored background.

According to this invention the surface A on which the print is to be made, that is, the surface which is to carry the picture, text or design, is covered in whole or in part with an adhesive B on which is thrown a granular substance, for example, wool-dust, wood dust or the like represented by C, so that it is attached to the surface by the adhesive B as in Fig. 1. To give this rough coating a better permanency and to allow of printing upon it, it is coated with varnish or lacquer D when dry. If the granular substance is to form a design, the adhesive is applied as at B^2, Fig. 3, by means of a plate or cylinder, on which the type or design is arranged, and the granular material C^2 is sprinkled over the surface while the latter is still moist. If only the background is to be rough, while the text or design is smooth, the printing is performed with a plate bearing only the background, and the dust is then sprinkled on as described. When the surface has become dry the excess of powder is swept or brushed off or removed by tapping or the like, and the whole can be varnished as at D^2.

For imitating or reproducing pastel painting the entire surface A^1 (Fig. 2) of the work is coated with adhesive B^1 and granular material C^1 thrown thereon. When dry the surplus granular material is removed. Various colors are then printed in the usual order of succession as in multicolor printing. Owing to the roughening of the surface by the granular powder no continuous surface is offered to the particles of color, so that the color only appears in the form of small points E close together, and thus imparts an appearance similar to that of a pastel. D^1 represents a surface coating of varnish over all.

In imitating textile material, the irregularities or roughness peculiar to the original can be accurately reproduced. For this purpose the adhesive is applied as at B^2 (Fig. 3) by means of a stone, plate or cylinder on which the pattern has been produced in the usual manner. A colored or colorless adhesive substance, for example varnish may be used. Such pattern, executed in colored or non-colored adhesive substance, may be laid on conveniently in practice by means of impression in a double cylinder power press, or in the case of sheet metal printing with a rubber cylinder, or it may be applied as in the case of transfer pictures. The powder C^2 is then applied, the superfluous powder being removed when the surface is dry.

The layer of powder is coated when dry with varnish or lacquer D^2 and so prepared for another application of color E^2. The unevennesses due to the granular material exactly correspond with the unevennesses of the pattern, which therefore agrees with the original not only in color but also with regard to its raised and recessed parts. To increase the resemblance the operations of printing in adhesive powdering and varnishing or lacquering may be repeated several times as represented in Figs. 4 or 5 before the printing with color. This may be necessary if the original has large unevennesses. Such successive printings, powderings and varnishings are represented by C^4, D^4, C^{40}, D^{40}, Fig. 4, and a final coloring by E^4 and coat of varnish over all by D^{400}. If the unevennesses are irregular, there being, for example, larger protuberances at certain

parts of the surface, a special printing plate may be used to separately apply the colored or colorless adhesive to these parts, after the general surface of the design as a whole has already been treated, this being, if necessary repeated, with the application of adhesive and powder, until the said parts are sufficiently raised. C^{40} in Fig. 4 illustrates how the application of a further granular layer may be confined to a portion only of the general area of the pattern designated by the layer C^4. It is preferable to print with color before the larger protuberances are formed, the latter being either separately printed or colored by applying colored powder. In order that the background is not visible between the raised parts, or at least does not shine through, the entire surface may, before the first printing, be uniformly coated with adhesive as at B^3, powdered as C^3, and varnished as D^3, the pattern being then printed on the varnished surface as above mentioned and illustrated in Fig. 4. Instead of a powdered background, a colored covering layer may of course be used as E^4, Fig. 5. The color-printing on the uneven surface may be performed with a plate on which the picture is continuous, or to increase the effect the picture may be previously divided to agree with the unevennesses.

The process of "separately color-printing the relief portions, of different heights, of the uneven design" may either be effected by color-printing the ground (as in Fig. 5), then applying the powder, and then printing on the powder, or the varnish layer D^3 is color-printed before the powder layer C^4 is applied. In the latter case the printing of the varnish layer may only be partial, *i. e.*, the color being only applied to those parts to which no powder is to be applied, the printing being effected, for example, by the method commonly adopted in multicolor printing. The color pattern may also be produced by applying colored fiber-powder. A multitude of effects can be produced by use of this granular powdered substance in the production of placards and posters. This is more particularly the case with sheet metal placards. The advertisements either in writing or pictorial, may be matte on a glazed or polished background, or glazed on a matte background, and particular parts thereof may be brought into special prominence. This is of special value for the easy reading of the advertisement. Owing to the subsequent coating of the surface with varnish the metal may be bent, stamped, embossed or otherwise treated without injuring the layer of powder.

What I claim as my invention and desire to secure by Letters Patent of the United States is:—

A printing process for producing raised granulated color prints, consisting in applying to a surface an adhesive substance, dusting the same with a pulverulent, granular material, applying additional layers of adhesive to certain parts to produce an uneven design, dusting said additional layers with the pulverulent, granular material, varnishing the whole, and separately color printing the relief portions of different heights, of the uneven design.

In witness whereof I have signed this specification in the presence of two witnesses.

FELIX KROKERT.

Witnesses:
HERM. SACK,
RUDOLPH FRICKE.