W. A. KRITTER.

ART OF PRINTING FROM INTAGLIO, ENGRAVED, OR UNDERSURFACE PLATES.

APPLICATION FILED NOV. 2, 1911.

1,092,269. Patented Apr. 7, 1914.

Fig. 1.

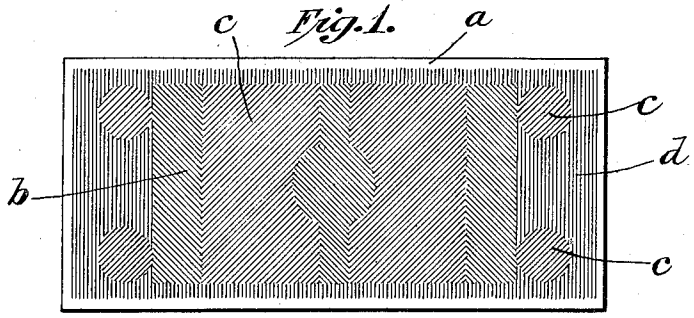


Fig. 2.

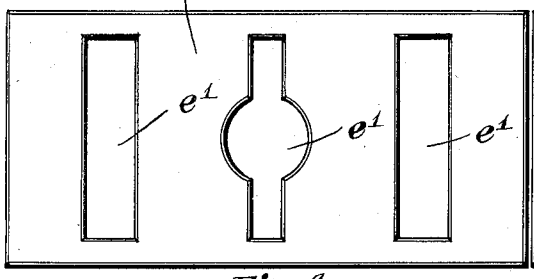


Fig. 3.

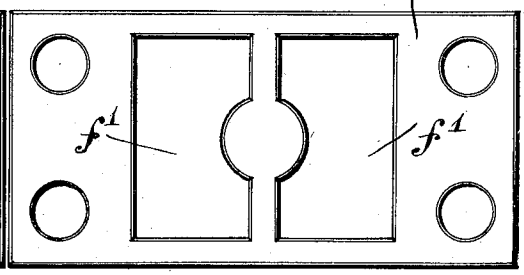


Fig. 4.

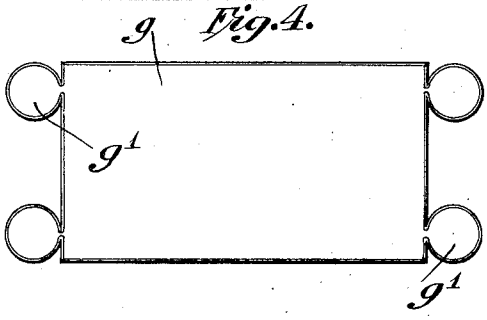


Fig. 5.

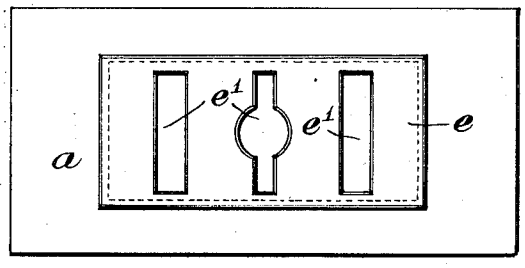
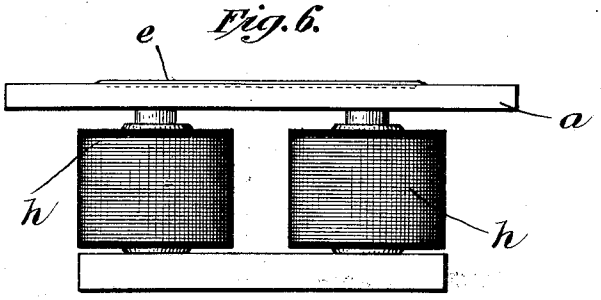


Fig. 6.



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UNITED STATES PATENT OFFICE.

WILLIAM A. KRITTER, OF AMITYVILLE, NEW YORK, ASSIGNOR TO AMERICAN BANK NOTE COMPANY, A CORPORATION OF NEW YORK.

ART OF PRINTING FROM INTAGLIO, ENGRAVED, OR UNDERSURFACE PLATES.

1,092,269. Specification of Letters Patent. Patented Apr. 7, 1914.

Application filed November 2, 1911. Serial No. 658,099.

To all whom it may concern:

Be it known that I, WILLIAM A. KRITTER, a citizen of the United States, residing at Amityville, in the county of Suffolk and State of New York, have invented certain new and useful Improvements in the Art of Printing from Intaglio, Engraved, or Undersurface Plates, of which the following is a specification, reference being had therein to the accompanying drawings, which form a part thereof.

My invention relates to the art of printing from intaglio engraved or undersurface plates, and more particularly to means for simultaneously making an imprint in a plurality of colors.

The intaglio or under surface printing plate is used for commercial purposes mainly in the higher grades of work where it is desirable to prevent copying or counterfeiting of the product. To make such counterfeiting more difficult, two or more colors are ordinarily used and with the ordinary method of printing from intaglio plates, this not only results in the necessity for making several runs of a job, but also necessitates the employment of a separate engraved plate for each run. Furthermore, the difficulties in securing a proper register are very great, and the repeated handling of the dampened sheets of paper involves great expense and substantial delay in completing a run. Furthermore, the difficulties in securing a proper register result in a character of design calculated to avoid close register work which tends to make counterfeiting of the note, bond or other commercial paper less difficult than would be the case if contrasting colors were in close register. The main difficulty in making an imprint from an intaglio, engraved, or undersurface printing plate is that not only must the ink be applied to the plate, but that after this ink has been so applied, the top surface of the plate must be wiped to pack the printing lines and remove surplus ink, and thereafter this surface must be polished to secure a clean imprint.

With the above conditions in mind, the main object of my invention is to provide an art or method of printing from intaglio engraved or undersurface plates wherein different portions of the plate may be inked with different colors and each portion wiped and polished in a manner to avoid the mixing of the successively applied inks with, or the disturbance of, the previously inked portions through the wiping and polishing of the plate.

A further object is to provide such an art or method wherein contrasting colors may be secured in exact register and by a single impression, thus securing a product which it is practically impossible to counterfeit except by means of a plate and apparatus, and the exercise of an art or method, identical with that used in making the original.

A still further object is to provide such a method or art which will result in a product having contrasting colors, the nature of which will make a photographic reproduction of an original practically impossible. And a still further object is to provide an art or method wherein the various steps and the wiping and polishing incidental thereto may be carried on without likelihood of such a displacement of the stencils used in carrying on the art or method, as would result in a loss of the clearly defined lines of demarcation between, or register of, the various contrasting colors entering into the product.

The invention consists primarily in a method or art of printing from intaglio engraved or under surface plates, consisting in successively inking in contrasting colors different portions of an intaglio engraved or under surface plate through stencils protecting the previously inked, or uninked portions thereof, and wiping the plate through the stencil after each application of ink thereto, whereby the wiping or polishing of the entire plate and the likelihood of the mixing of the colors thereof is avoided; and in such other novel steps and practices as are hereinafter set forth and described and more particularly pointed out in the claims hereto appended.

Referring to the drawings, which are merely illustrative, to enable the art or method to be better understood:—Figure 1 is a showing of an inked plate with a merely conventional design thereon; Fig. 2 is a view of one of the stencils used in carrying on the method or art; Fig. 3 is a view of another stencil; Fig. 4 is a view of still another stencil; Fig. 5 is a plan view of one stencil fixed to the plate; and Fig. 6 is a side ele-

vation showing one of the methods which I have employed for securing a fixed relation of the stencil with the plate.

Like letters refer to like parts, throughout the several views.

In the accompanying drawings, I have shown in Fig. 1 an inked plate *a* adapted to print in three colors, green, violet and red, indicated by the letters *b c* and *d* respectively. It is understood that in this plate any design whatever may be engraved; that when the plate has been properly engraved several impressions may be taken therefrom upon any desired material and stencils *e f g* shown in Figs. 2 to 4 inclusive made from this material, the cut out portions *e' f' g'* of each such stencil corresponding to that portion *b c* or *d* of the design which it is desired to print in any particular and distinctive color. I have used for the stencils various materials, such as thin cardboard, and various metals, but have found that I can secure the best results with ferrotype metal. By cutting out the sections of said stencils, a composite arrangement of which would include the entire design, I secure a condition wherein each stencil will contain cut out portions through which the plate may be inked and wiped, and polished if desired, while covering all other portions of the plate. This condition results in the exposure of only that portion of the plate which it is desired shall print in a particular color, all other portions of said plate, whether the same may have been previously inked or are as yet uninked, being covered and protected by each stencil.

In carrying out my art or method, these stencils may be used in succession and in any order whatever, it being merely necessary to hold them firmly in position upon the plate while the inking roller is being passed thereover and while the wiping cloth is being used to pack the ink in the lines of that portion of the plate exposed through a stencil. When the plate has been properly inked and wiped through one stencil, the top surface thereof is free from ink, and in printing condition, so that succeeding stencils may be placed thereon and successive inkings and wipings accomplished without disturbing the top surface of the plate in any manner, such as fouling it with ink, or developing such a condition as would necessitate a final wiping of the entire plate after all of the colors have been applied thereto. If desired, the plate may be polished after each application of ink, or after all the colors have been applied.

It is essential that the stencil used shall be of thin material and it is preferable to have the edges adjacent to the cut away portion, inclined downwardly and inwardly so as to permit the application of the inking rollers and of the wiping cloths or pressman's hand in polishing, without likelihood of disturbing the position of the stencils.

Upon the completion of the inking operation of different portions of the plate in different colors through stencils in the manner described, the plate in its entirety is in condition to have an imprint taken therefrom, and this is done in any desired manner. As I have stated above, the uncut portions of the stencils preclude any possibility of the mixing of the inks of different colors in the lines of the plate which would result were it endeavored to merely ink the plate in different portions thereof simultaneously with different colors, as the wiping process would of necessity mix these colors upon the top surface of the plate and pack the mixed colors in the lines with most unsatisfactory and imperfect results.

After the plate has been inked and wiped, it is necessary to polish the top surface thereof, and this may be done either with the polishing cloth or with the hand of the pressman. As this polishing process does not disturb the ink retained in the intaglio, engraved or undersurface lines, it may be done through the stencil after the application of each color, or after all of the colors have been applied to the plate.

In my experiments in connection with the inking of plates, I have used various devices for holding the stencils *e f* and *g* upon the engraved plate *a*, and have found that by using stencils of magnetic material, such as ferrotype metal or thin steel, a magnet or magnets *h* acting through the engraved plate has proven satisfactory for holding the stencil with the desired degree of permanency upon the plate. I have secured the best results in connection with plates which in themselves have been of non-magnetic material such as copper, as such plates have not interfered in any way with the magnetic field acting upon the stencils.

By the use of successively applied stencils, and by completing the inking and wiping of the plate through each stencil before using the next stencil, I have found that the different colors appearing upon the imprint have a clear perfect line of demarcation and are in perfect register; that a complete design in a number of contrasting colors may be taken with a single imprint; and that this imprint will possess characteristics which will practically preclude its being copied or counterfeited.

I believe it to be broadly new in the art of printing from engraved plates, to simultaneously print in a plurality of colors, and that inking and wiping the plate through stencils is broadly new and essential to successfully accomplish the desired result.

It is unnecessary to limit the portions of the design appearing in contrasting colors to any particular form, as the matter of the de-

sign of each color is arbitrarily determined by the configuration of the cut out portion of the stencil.

A bank note or other commercial paper made by the art or method herein described, possesses a degree of perfection in the register of the adjoining contrasting colors which makes it practically impossible to copy or counterfeit the product, and the use of contrasting colors of different kinetic values makes it very difficult if not impossible to secure a photographic copy of the bank note or other commercial paper, which would have any value in facilitating such copying or counterfeiting.

Having described my invention, what I claim as new and desire to have protected by Letters Patent, is:—

1. The herein described method or art of printing from intaglio, engraved, or under surface plates, consisting in successively inking in contrasting colors different portions of the intaglio, engraved, or undersurface plate through stencils protecting the previously inked or uninked portions thereof, wiping the plate through the stencil after each application of ink thereto, whereby the wiping of the entire plate and the likelihood of the mixing of the colors thereon is avoided, and taking an imprint from the completely inked plate.

2. The herein described method or art of printing from intaglio, engraved, or undersurface plates, consisting in superimposing a stencil upon the plate so as to expose only portions thereof, applying ink to the exposed portions of the plate, wiping the exposed portions of the plate through said stencil, and thereafter inking and wiping other portions of the plate in the same manner through dissimilar stencils, and taking an imprint from the completely inked plate.

3. The herein described method or art of printing from intaglio, engraved, or undersurface plates, consisting in superimposing a stencil upon the plate so as to expose only portions thereof, firmly holding the stencil upon the plate, applying ink to the exposed portions of the plate, wiping the exposed portions of the plate through said stencil, and thereafter inking and wiping other portions of the plate in the same manner through dissimilar stencils, and taking an imprint from the completely inked plate.

4. The method of inking an engraved plate in a plurality of colors which consists in providing means to cover that portion of the plate reserved for other colors while the ink of one color is being applied to the plate, placing the means for the first color upon the engraved plate, applying the ink to the exposed portion of the plate, wiping the plate while said means remains on the plate, removing said means and applying a second means to cover the portion of the plate already inked, inking the exposed portion of the plate with ink of another color and again wiping the plate before the said means is removed.

5. The method of inking an engraved plate in a plurality of colors which consists in providing a stencil for each color, placing the stencil for the first color upon the engraved plate, applying the ink to the exposed portion of the plate, wiping the plate while the stencil remains on the plate, removing the stencil, placing a second stencil upon the engraved plate, applying ink to the exposed portion of the plate and again wiping the plate before the stencil is removed.

6. The method of inking an engraved plate in a plurality of colors which consists in providing a stencil for each color, placing the stencil for the first color on the engraved plate, holding said stencil in position on said plate, applying the ink to the exposed portion of the plate, wiping the plate while the stencil remains on the plate, removing said stencil, placing a second stencil upon the engraved plate, holding said stencil in position on said plate, applying ink to the exposed portion of the plate, and again wiping the plate before the stencil is removed.

7. The method of inking an engraved plate in a plurality of colors which consists in providing means to cover that portion of the plate reserved for other colors while the ink of one color is being applied to the plate, placing the means for the first color upon the engraved plate, holding said means in position on said plate, applying the ink to the exposed portion of the plate, wiping the plate while said means remains on the plate, removing said means and applying a second means to cover the portion of the plate already inked, holding said means in position on said plate, inking the exposed portion of the plate with ink of another color and again wiping the plate before the said means is removed.

In witness whereof, I have hereunto affixed my signature, in the presence of two subscribing witnesses, this 26th day of October, 1911.

WILLIAM A. KRITTER.

Witnesses:
F. T. WENTWORTH,
OTTO MUNK.