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MULTICOLORED PRINTING.

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To all whom it may concern:

Be it known that I, ROBERT B. BARTON, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Multicolored Printing, of which the following is a specification.

My invention relates to color printing and particularly to the production of pictures composed of different color masses, such, for instance, as illustrations of groups of persons in vari-colored costumes for employment in garment catalogs and the like.

It has been the practice in this art to build up the desired color by superposing the constituent primary colors through successive printing operations. In so doing it has been necessary first to prepare a drawing in colors of the subject to be reproduced and then to prepare plates, one for each primary color, by photographing the colored drawing through appropriate filters; from these negatives to produce positives and, in turn, to print therefrom on copper to produce an electrotype printing plate for each of the primary colors and another for black. Each of these plates must be independently etched according to the judgment of the workman to secure the proper color value to combine, when printed, with the color value of its companion plates in producing the desired composite color and tones.

This multiplicity of steps by which the workman must proceed and the fact that each is an important contributing factor in the production of the ultimate print, precludes a definite forecast of the result as measured by its accuracy of tone reproduction, and leads to a large percentage of loss in discarded plates and abortive labor.

By my invention many of the steps heretofore required have been dispensed with; other steps are simplified; the dependence of the result upon the personal equation and technical skill of the workman is minimized; plates are produced which may be used for printing not only groups made up of certain color units but groups of different color units; and, moreover, the ultimate prints are much superior in faithfulness of color tone production.

For purposes of exemplification of the invention, let us assume a color print is desired for a clothing catalog representing a group of ladies in various poses exhibiting suits, coats, etc. of divers colors as worn by the several persons.

A simple black and white drawing or group photograph is first prepared instead of a drawing in multi-color as has been required previously. Of this uncolored drawing as a subject a glass negative is photographically made through a screen and also a negative of the screen itself. A positive print is then made from the subject negative on copper and similarly a positive on copper is made from the screen negative.

The positive of the subject is then hand etched and both the subject and screen copper plates are treated in the chemical etching bath.

An ink imprint of the etched subject plate is next transferred to the etched screen plate. The resultant copper plate is then additionally hand etched by retouching with a suitable resist and subjected to the chemical etching bath to produce the desired high lights.

From this plate four identical electroplates are made for a three-color subject, or a correspondingly increased number of plates where there are a larger number of colors represented in the subject. If there be three colors represented in the subject the workman by the use of suitable tools routs from electro No. 1 all except those portions desired to print in a single color, e. g. red; and similarly operates on electros No. 2 and No. 3 to eliminate all portions except those intended to print in certain colors, e. g. blue on No. 2 and green on No. 3. Electro No. 4 is left intact for shade printing in black.

These four electros constitute the final means for producing the color group, each printing an individual color, preferably without any of the parts overlapping in the print.

To produce the finished picture, a sheet of paper is run through a press fitted with electro No. 1 printing its isolated portions of the whole in any one color, red, for example, dependent upon the color of the ink supplied to the ink fountain; then through a press fitted with electro No. 2 and carrying ink of another color by which is printed in proper register position its picture portion in the desired color, for instance, blue; then through a press fitted with electro No. 3 and carrying ink of the distinctive color for its picture portion, such as green. There-

after, the sheet bearing the complete picture, made up of separately printed unitary color portions arranged in proper relative position, is given a fourth impression from electro No. 4 using a black ink whereby the properly proportioned and distributed lights and shadows are imparted to the picture to give it life and depth of tone.

The illustration above given is predicated upon the production of a picture comprising figures clothed in certain colors, e. g. red, blue and green. The identical set of electros, without change, can be used to reproduce the same grouping of figures clothed in any other colors or with the same colors interchanged, all that is necessary being a change of the ink in the press fountains.

The particular shade of any of the colors may likewise be changed in any degree desired merely by selecting appropriate ink.

This, it will be appreciated, constitutes another important feature of this invention over prior processes wherein if the colors of the various garments are desired to be modified or interchanged for another illustration it would be necessary to prepare another original drawing in the changed colors and an entire new set of plates therefrom, each of which plates is a constituent factor of the whole and is dependent upon the others in the building up of the composite colors of the picture.

Furthermore, as previously indicated, when certain sample garments or fabrics are submitted by the manufacturer to be embodied in a color picture for catalog or like use, it is only possible by the old building up processes to secure an approximation of color reproduction; whereas by the new process, with the several electros making up the group in hand, the printer need only select an ink for each which matches the color of the cloth sample to secure an absolutely faithful and unvarying pictured reproduction.

It will thus be seen that by my invention are secured a great saving of time, labor and material in the preparation of the printing plates; flexibility of treatment to produce the particular results sought; increased range of usefulness for the one set of electro-plates; elimination of waste of materials and labor; and most important of all absolute certainty and faithfulness of color reproduction.

I claim:

1. The improved method of multi-color printing which consists in photographically producing a glass negative of the subject through a screen and also of the screen, making a positive print of the subject negative on copper and also of the screen negative, etching the two positive plates, transferring an ink imprint of the etched subject plate to the etched screen plate, producing therefrom electroplates corresponding in number to the color units present in the subject, eliminating from each of said plates those portions of the subject having other than the single color selected for printing by that plate, then printing from the plates in succession and in appropriate register relation by inks corresponding in color to that of the subject-fraction represented in the particular plate.

2. The improved method of multi-color printing which consists in photographically producing a glass negative of the subject through a screen and also of the screen, making a positive print of the subject negative on copper and also of the screen negative, etching the two positive plates, transferring an ink imprint of the etched subject plate to the etched screen plate, hand etching the resultant plate by retouching with a suitable resist to produce desired high lights, producing therefrom electroplates corresponding in number to the color units present in the subject, together with an additional plate, eliminating from each of said plates save one those portions of the subject having other than the single color selected for printing by that plate, then printing from the plates in succession and in appropriate register relation by inks corresponding in color to that of the subject-fraction represented in the particular plate, and finally printing in black from the additional complete plate over the color print.

In testimony whereof I have hereunto signed my name.

ROBERT B. BARTON.