# W. Croome.
## Color Printing.

No. 17319. Patented May 19. 1857.

Fig. 1.

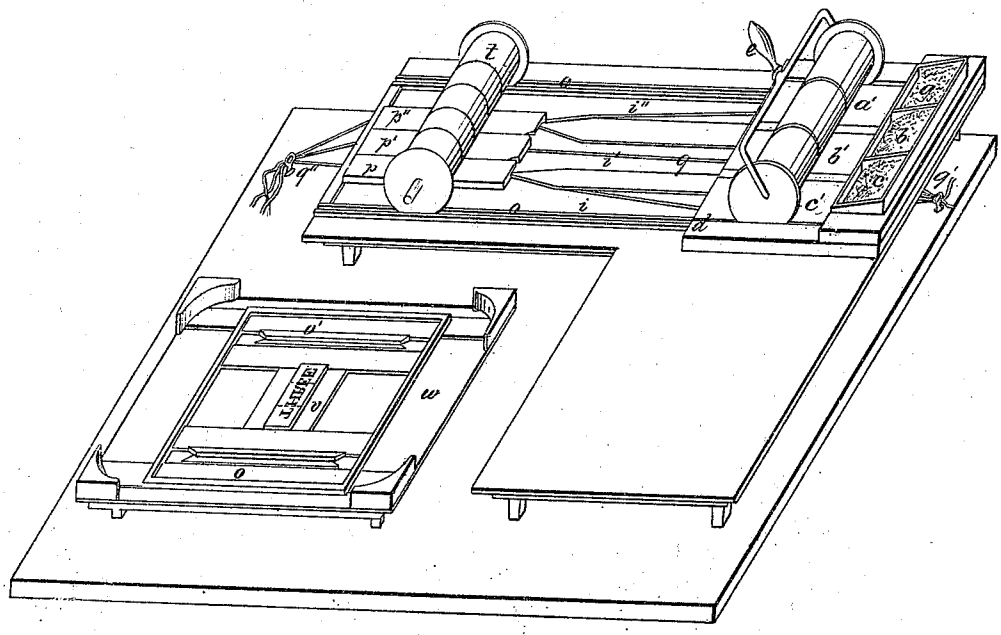
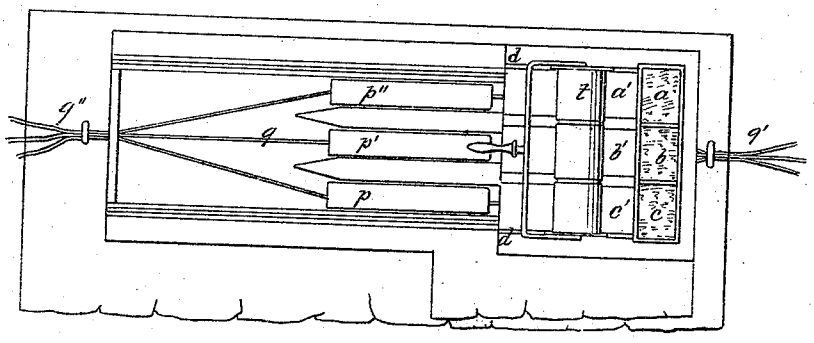



Fig. 2.



# UNITED STATES PATENT OFFICE.

WILLIAM CROOME, OF BROOKLYN, NEW YORK.

## PRINTING IN COLORS.

Specification of Letters Patent No. 17,319, dated May 19, 1857.

*To all whom it may concern:*

Be it known that I, WILLIAM CROOME, of Brooklyn, county of Kings, and State of New York, have invented certain new and useful Improvements in Printing in Colors; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being made to the annexed drawing, making a part of this specification, in which—

Figure I is a perspective view of my invention as applied in one method. Fig. II is a top view or plan.

Similar letters indicate similar parts throughout.

My improvements are particularly applicable to printing in several colors at the same time, and it consists in a method of so applying the colors to the printing surface that the line of joining shall, while being accurately defined, be free from admixture or overlapping of one color upon the next. For the execution of elegant work this is a matter of the greatest consequence, and in all printing wherein several colors are employed the difficulty of accomplishing this is very great, whether the colors are applied in succession or simultaneously. When applied in succession, the register must be accurate to the minutest degree, but to do so with several colors at one printing has hitherto been found impossible. I apply my colors all at the same time and execute work of a degree of fineness not attained by the old modes, especially when it is attempted to print more than one color at a time, for where one color overlaps the other a change takes place.

The chief peculiarity of my invention lies in the mode employed for transferring the different colored inks from the ink vats to the printing plate, whereby the lines of division formed by two adjoining colors are so accurately marked that no overlapping occurs, and this constitutes one element of genuineness for recognizing my style of color printing. Hence it is applicable to the printing of checks, drafts, and like evidences of value, as a protection against counterfeiting.

The process is as follows; in the first instance the several colors are spread over tablets, separated by a space. This spreading is accomplished by means of a roller running in guides, the roller at the same time taking up the inks. The colors are then transferred from this roller to other but movable tablets, kept apart so that the color extends over the whole surface of each and out to the extreme corners. These movable tablets are then removed and placed side by side. A second roller running in guides is now passed over and takes off the inks, which are thus transferred so as to join each other in the lines of division with the utmost accuracy and without in the least commingling. With that roller consequently the type, engraved plate, or whatever is to be printed from, is inked. The impression will now show those colors with the most accurate definition at the lines of division, and this accuracy may be continued for any number of impressions. The inking table and press should for convenience stand near to each other.

At ($a$, $b$, $c$) are seen three color boxes, placed on the table at the head of three stationary tablets ($a'$ $b'$ $c'$). These are plates of metal, or flat stones, or other proper materials, placed side by side, but so as to leave a space between, as shown. Each tablet leads off from its proper color box as ($a'$) from ($a$) &c. At the sides of the two outer tablets there is a grooved guide way ($d$) intended to receive a flange attached to the color roller.

The distributing roller is seen at ($e$) with its flanges in the guide grooves and is otherwise in position over the tablets. At the end of these tablets, the table for a certain distance is divided into three compartments ($i$, $i'$, $i''$) by means of two pointed division stripes as shown, and by a guide groove ($o$) on each side.

Upon the table are three traveling or movable color tablets, seen at ($p$, $p'$, $p''$) in Fig. I, side by side at the farther end of said table, and at that position they have received their color, which is about to be taken off by the type roller, shown above them. They are moved to and from the first ink tablets by draw-strings ($q$) or any other convenient contrivance which shall obviate the necessity of handling them. By drawing at the end ($q'$) these tablets will all be transferred to the inking tablets, as in Fig. II. Here, by passing the distributing roller ($e$) over them, they receive the inks of different colors. Then by pulling ($q''$) they are transferred to the position first described in Fig. I. The inks are taken off when in this last named position by an inking roller

($t$) the ends of which have flanged circular plates fitted to run in the guide grooves ($o$).

The bed of a press with the "form" upon it is shown at ($w$) in a convenient position. This form ($v$) has locked into it two guide-grooves ($o'$ $o'$), the distance apart corresponding with those at ($o$) on the inking bed. The stationary ink tablets ($a'$ $b'$ $c'$) are wider than the movable ones ($p$, $p'$, $p''$) and the space between them is depressed, serving the purpose of preventing the colors upon one from being transferred to or becoming mixed with those adjoining. So, also, the distributing roller ($e$) has the boundaries of each color clearly marked, by depressions on its surface, as shown in Fig. II. The operator first takes out with his spatula from the boxes the proper amount of color to be spread upon the tablets, then working the roller back and forth, guided by the grooves, it is evenly spread and taken up. The guide grooves are necessary to keep the roller always in the same path as otherwise the edge of one section of the roller would be apt to get on to the next tablet. Next draw up the movable tablets ($p$) by the string (if that is the device employed for the purpose) until the ends abut against the stationary tablets. The roller ($e$) is now passed over them and as each of the several bands of different colored inks is wider than said tables ($p$) they are evenly and clearly spread to their very edges. Now draw ($q''$) and transfer the tablets to the position shown in Fig. I. Take the roller ($t$) by its two extended handles at the end and place its flanges in the guide grooves ($o$) roll it back and forth until the ink is taken up. The ink will come off with the edges dividing one color from the next finely joined together, as shown; carry the roller and place it in the guide grooves ($o'$) over the plate and thus ink the same and take off the impression in the usual way. As the guides keep the rollers always in the same position as respects the tablets and transfer or reink the type also exactly in the same place, the register, and the lines of division are kept so perfect that no intermixture of one color with another takes place in any part of the operation.

I have described the operation as effecting the printing of three different colors; but it is evident that the number of colors may be increased to any reasonable extent even to the printing of fine lines, or a combination of both wide and narrow stripes in various ways, so as to produce beautiful effects, as well as such as are difficult of imitation. In addition also to the printing of colors in straight or parallel lines, ovals, circles, and also wavy irregular figures may be done, the independent tablets being so formed to match together, that on being separated for the purpose of receiving the different colors they may be recomposed in one uniform plate from which the ink is then to be taken. In this latter plan the roller besides being guided laterally must also start exactly at the same place, and which is readily effected by a starting pin on the flange and a corresponding hole in the guide.

I claim—

1. The movable tablets for the separate colors in combination with the guided roller or equivalent surface for taking up the inks, operating substantially as described.

2. I also claim in combination with the printing surface and with the inking surface the corresponding guides for insuring the uniform action of the inking surface upon the printing surface, as set forth.

WILLIAM CROOME.

Witnesses:

J. P. PERSSON,

S. H. MAYNARD.