Dec. 31, 1940. W. D. WIEGAND 2,226,987

METHOD OF REPRODUCING IMPRESSIONS IN A DEFINITE RELATION TO ONE ANOTHER

Filed Oct. 7, 1937

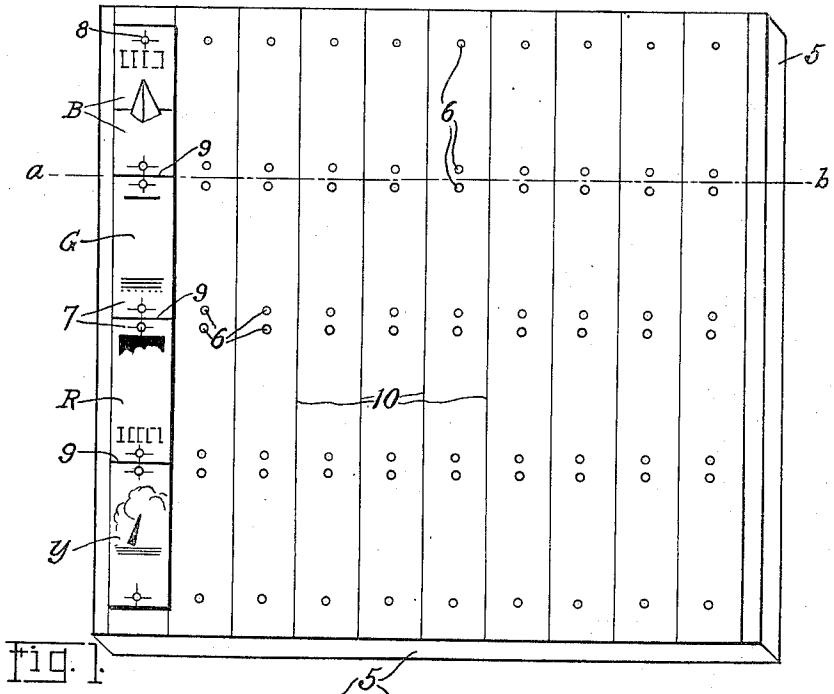

Fig. 1.

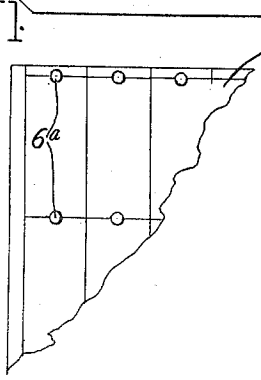

Fig. 2.

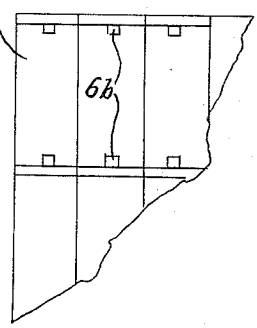

Fig. 3.

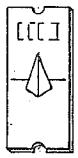

Fig. 4.

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Patented Dec. 31, 1940 2,226,987

UNITED STATES PATENT OFFICE

2,226,987

METHOD OF REPRODUCING IMPRESSIONS IN A DEFINITE RELATION TO ONE ANOTHER

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Application October 7, 1937, Serial No. 167,743

4 Claims. (Cl. 101—33)

This invention relates to a method of reproducing impressions in a definite relation to one another.

In the language of a craftsman in the art of photo-engraving—"This is a method for making a copy to be reproduced and duplicated cheaply; to take the place (in some cases) of a step and repeat photo lith, printing frames and cameras. The object is to make one set of plates, in black or any number of colors, have them etched about two bites, punctured in predetermined points of register and placed on a slab containing projection or indentations or any other method of holding the plate or copy in the exact position. I prefer raised projections three-sixteenths of an inch in diameter and raised one-sixteenth of an inch above the surface. The slab is placed on a flat bed press, preferably the kind used by photo-engravers as a proving press. A sheet of heavy proving paper is locked in place on the cylinder of the press. The four corners may be held in place by some adhesive. The prover can pull his first impression in line of the various colors on the paper on the cylinder. He then lifts his plate or plates to No. 2 position and repeats the operation so as to duplicate as many times as is necessary. When this is completed you have a copy containing multiple duplicates of the original which when reproduced will register accurately. The same device when used on a copy-board of a camera will employ the exact method previously described, except in place of printing plates a set of proofs or drawings will be used and changed from one position to another by the photographer."

In order that laymen may also understand the invention, the following description and explanation may be advantageous:

One object of the invention is to provide an exceedingly simple, comparatively inexpensive and thoroughly practical method and means for producing duplicates or facsimiles of an impression, drawing, or other visible object and disposing said duplicates or facsimiles in a straight row and in contiguity or actual contact with one another upon a single sheet or plate, so that any given point on any one of the impressions is very accurately spaced with relation to similar points on the other impressions, and so the spacing between any two of said points of adjacent impressions is equal to the spacing between any other two of said points of adjacent impressions.

A further object is to provide, as an extension of the method referred to in the foregoing, an effective arrangement and procedure for producing at each step a plurality of complemental impressions such as those from which plates are produced for multicolor printing.

It is known to the inventor that complex and very expensive machines have been in use for simultaneously printing a row of duplicate or facsimile impressions on a sheet in accurate and equally spaced relation with respect to similar points thereon, and that after such printing is accomplished, the sheet is cut into pieces each having one of said impressions thereon; but instead of the present invention making the impressions for final printing on articles of commerce or advertising, its purpose is to quickly and economically prepare the set-up from which multi-printing plates are produced to be used on such printing machines.

To facilitate a clearer explanation of the method and to disclose practical and economical means for effecting the method, reference is made to the accompanying drawing in which—

Fig. 1 is a perspective view showing one embodiment of the mechanical means that assist the method.

Fig. 2 is a fragmental detail view showing a modification of the plate or slab, as to the shape of the localizing elements.

Fig. 3 is a second modification.

Fig. 4 shows a modified form of image-plate.

Referring to this drawing specifically, the base **5** is a slab or plate of metal or other appropriate material which will not shrink or otherwise change its shape or dimensions beyond ordinary expansion and contraction and which is plane on its upper surface with the exception of raised elements **6** which are united therewith and constitute localizing elements. They are arranged in straight rows in precise equidistant relation to one another, one of such rows appearing at the top of Fig. 1, and a second one appearing just above the broken line *a—b*. The part of the base **5** above the line *a—b* may be considered separately as a simple form of the invention, its two rows of localizing elements **6** being complemental to one another in connection with the upper section B of the image-plate **7**.

Now consider the section B as if it were detached from sections G, R and Y, and note that it has apertures or recesses which are dimensioned and spaced for exactly fitting over any pair of complemental localizing studs or elements in the upper set (or in any other set illustrated); but it is also necessary to consider this section

B as showing a complete image such as is to be reproduced for the final printed products; next, assume that the base 5 is locked or localized on the bed of a printing press, and that a print-receiving sheet is also localized on the platen or cylinder of the printing press; then assume that the printing press is operated through one cycle or revolution of the cylinder, and it will be seen that the section B will have made an impression or printed counterpart of the image (on the section B) upon the localized print-receiving sheet, thus having completed the first step of the method. The second step of the method begins with the removal of the section B from the position shown, and placing it in engagement with the next adjacent pair of localizing elements 6, then causing the printing machine to operate through a second cycle so as to cause the section B to print a counterpart thereof upon the print-receiving sheet in edge-to-edge contact with the first counterpart, but not overlapping or interlapping with the previously printed impression. For the third and subsequent steps of the method, the procedure is repeated as described for the second step, the plate or section B being moved to the next adjacent pair of complemental localizing studs or elements 6 after each counterpart impression has been made on the print-receiving sheet. The number of impressions may be varied according to the size of the respective images to be duplicated, and according to the capacity of the printing press used for preparing such set-up, or according to the wishes and purposes of the person performing the method.

The method thus far described is applicable to photography as well as to printing; for the principle is the same, viz., taking a series of impressions step by step from a single negative or image which has its position changed with respect to the receiving sheet or film after each cycle.

Now, considering the whole of base 5 as one unit, and the whole of the image-plate 7 as a second unit, it will be seen that all the localizing units may be employed, or all of them may be eliminated except the upper and lower rows or any two rows that are sufficiently spaced apart as are the two upper rows; but for thus considering the device, it is essential that the sections B, G, R and Y be joined in a second unit of the device. The letter "B" stands for black; "G," for green; "R," for red; and "Y," for yellow; these colors being arbitrary, since any combination of colors may be used, or any number of different colors or shades; but it should also be understood that such different colors do not actually appear upon these sections of the image plate 7 which is a preliminary or preparatory setup of the complemental features to be reproduced and duplicated on the impression-receiving sheet, which latter will constitute the "copy" from which the plates will be made for the final reproduction of the complete image or picture by use of different colored inks on the complemental plates as in the usual procedure of multi-color printing. Therefore, the division-lines 9 have no significance other than to indicate where the final counterparts of these sections are to be cut apart so each section can be used in its turn upon the final printings. Neither have the vertical lines 10 any significance except to show that the images reproduced from the image-plate 7 are adjoining one another or directly against one another so that when the final reproduction from the whole set-up is made, the sheet that contains such final reproduction will be moved step by step through a cutting machine which is adjusted for cutting the sheet along invisible lines that correspond to these lines 10 as to their spacing from one another.

Any pair of complemental localizers 6 may be considered as a localizing device, and may be claimed accordingly.

In Figs. 2 and 3, the localizing elements are shown at 6*a* and 6*b*, respectively; and in Fig. 4 is shown a perspective view of a section B1 such as would fit the localizing elements of Fig. 2.

From the foregoing, it is evident that the invention is not limited to the exact details of construction and procedure as has been shown and described, for the same is subject to various modifications within the inventive ideas as implied and claimed.

I claim as my invention:

1. The method of making a set-up of facsimile printed images in mutual un-interlapped edge-to-edge contact on a printing press, consisting in seating an image-plate and an impression-receiving element in their correlated positions on the printing press for producing a printed image on said impression-receiving element, causing the printing press to produce an image of said image-plate on said impression-receiving element, moving said image-plate to such position on the printing press that an edge of the image-plate is in unlapped edge-to-edge contact with the seat from which the image-plate was moved, and causing the printing press to produce a second impression or printed image of the image-plate on the impression-receiving element in unlapped edge-to-edge contact with the printed image first produced, substantially as described.

2. The method defined by claim 1, and the further steps of repeating the third and fourth steps of claim 1 as often as desirable to produce the desired number of printed images within the limits of the impression-receiving element in its original seat on the printing press.

3. In a device for use in effecting a set-up of a row of facsimile printed images in mutual edge-to-edge contact, the combination of an image-plate of predetermined width, and a base comprising a number of image-plate-seats and having thereon a row of localizing elements in the respective image-plate-seats, said localizing elements having their centers equidistantly spaced from one another, the spacing thereof being equal to said predetermined width of said image-plate, said image-plate being provided with means for permitting interchangeable interengagement with said localizing elements in such relation that when the image-plate is moved from its interengagement with a localizing element of one image-plate-seat into interengagement with a localizing element of the next adjacent image-plate-seat, then one edge of the image-plate will be in unlapped edge-to-edge contact with the image-plate-seat from which the image plate was moved.

4. The device defined in claim 3, the said image-plate comprising sections which are in unlapped edge-to-edge contact with one another and separated only by visible lines at their adjoining edges, each of said sections being complemental to each other of said sections in the respect that they can be used in producing printing plates for use successively in producing a multi-color print.

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