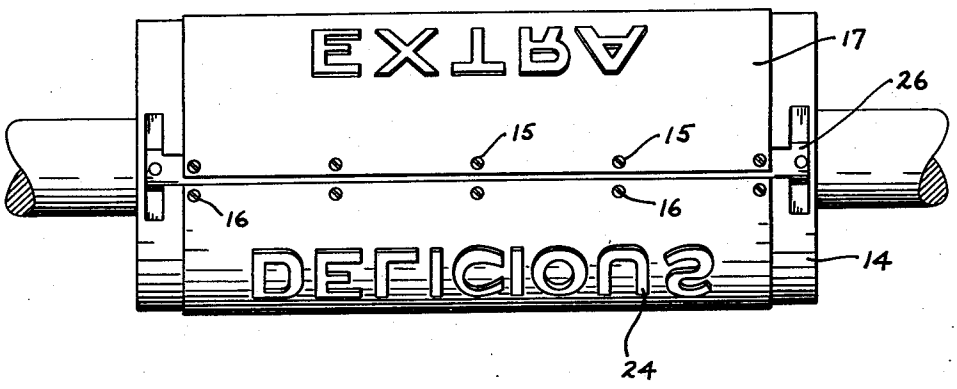
Oct. 21, 1952 G. C. MURPHY 2,614,491

PROCESS FOR REGISTERING COLOR PLATES

Filed Nov. 27, 1948 2 SHEETS—SHEET 1

FIG. 1.



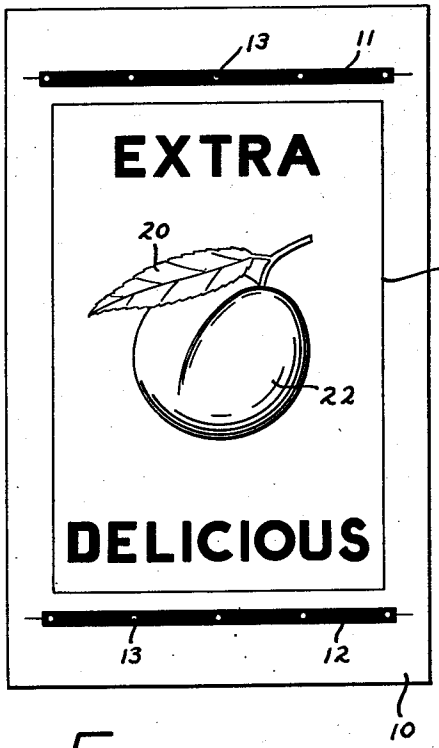


FIG. 2.

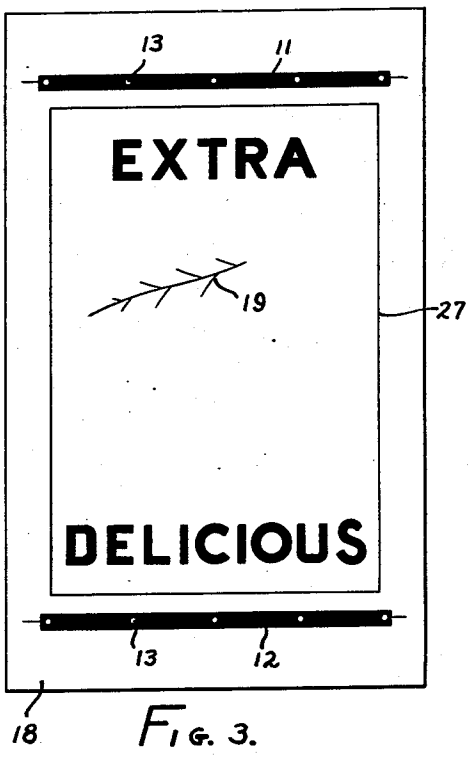


FIG. 3.

INVENTOR,
GILBERT C. MURPHY,
BY Herbert A. Mintura,
ATTORNEY.

Oct. 21, 1952 G. C. MURPHY 2,614,491

PROCESS FOR REGISTERING COLOR PLATES

Filed Nov. 27, 1948 2 SHEETS—SHEET 2

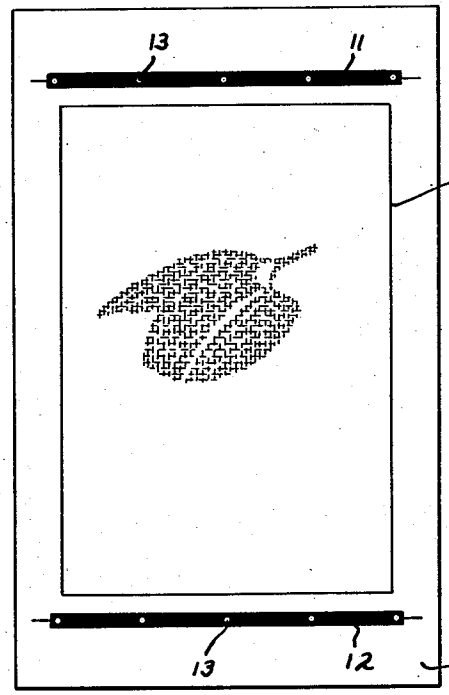


FIG. 4.

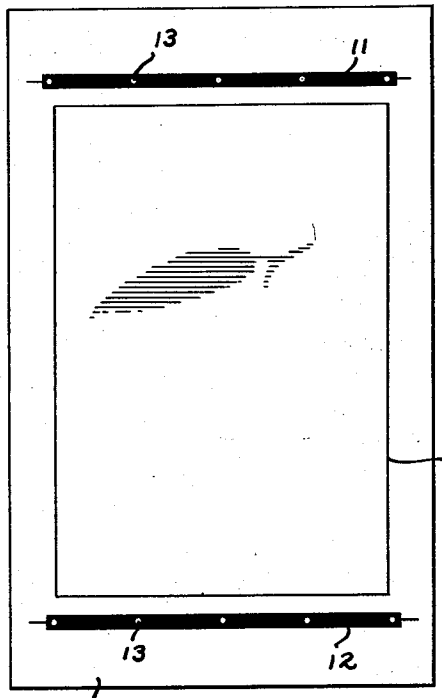


FIG. 5.

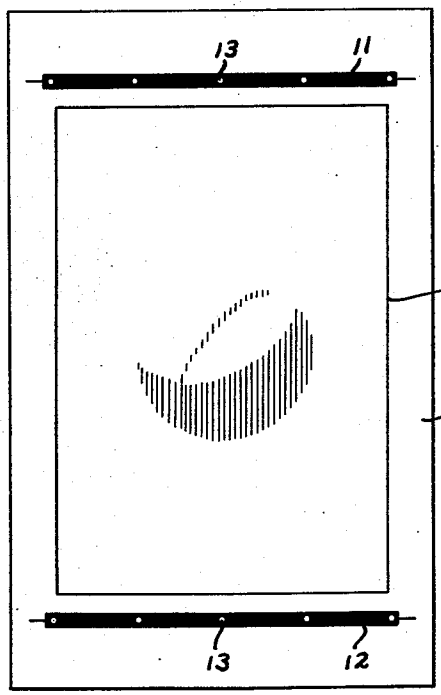


FIG. 6.

INVENTOR,
GILBERT C. MURPHY
BY Herbert A. Mintura,
ATTORNEY.

Patented Oct. 21, 1952 2,614,491

UNITED STATES PATENT OFFICE

2,614,491

PROCESS FOR REGISTERING COLOR PLATES

Gilbert C. Murphy, Indianapolis, Ind.

Application November 27, 1948, Serial No. 62,296

2 Claims. (Cl. 101—211)

1

This invention relates to a process for reproducing in colors a predetermined copy whereby all of the colors will be perfectly registered. A primary purpose of the invention is to provide a process which will insure the perfect registration of multi-color printing plates, particularly where those plates have rubber printing surfaces. Other objects and advantages of the invention will become apparent to those versed in the art in the following description of one particular form of the invention as illustrated in the accompanying drawings, in which:

Fig. 1 is a view in side elevation of a cylinder to which one of the plates of the various colors have been applied;

Fig. 2, a top plan view of copy which is to be reproduced in the printing process;

Fig. 3, a view of a sheet from which the black plate is to be made;

Fig. 4, a top plan view of a sheet from which the yellow plate is to be made;

Fig. 5, a top plan view of a sheet from which the blue plate is to be made; and

Fig. 6, a top plan view of a sheet from which the red plate is to be made.

The various colors mentioned in referred to the views in the drawings, have been selected as an example only, since other colors may equally well be employed, depending upon the final result to be secured in the printing operation.

Referring to Fig. 2, therein is shown a sheet 10 on which is layed out copy by the artist, this copy originally being drawn up in black ink. This copy shows the two words respectively at the top and bottom, "Extra" and "Delicious," with the representation of a peach and a leaf in between those two words. Now at the top and bottom of the sheet there is placed in a very definite location respectively top and bottom strips 11 and 12, each of these strips having a series of regularly spaced apart holes 13 therethrough. The purpose of the holes 13 is to provide a contrasting color in respect to the tape 11 and the sheet 10. Where the tape 11 or 12 as the case may be is made in black, then the white color of the sheet 10 will show through the holes 13. If the strip 11 or the strip 12 is to be made out of white material for example, then instead of the holes 13, black dots at those same locations may be employed.

Now the vertical spacing apart of these two strips 11 and 12 is made to be the exact length of a circumferential line around the cylinder 14, Fig. 1, between the transverse lines centered on the attaching screws 15 and 16 at the two ends of a plate 17. The strips 11 and 12 are laid out on the sheet 10 to be exactly parallel and spaced exactly that distance apart as indicated. Furthermore the transverse spacing apart of the holes or indications 13 is made to equal exactly

2

the spacing from center to center of adjacent screws 15 or 16 as the case may be.

Now to prepare the different color plates, the artist will prepare the separate plates or sheets for the color selected as above indicated. As indicated in Fig. 3, for the black color plate, there will be placed on a sheet or plate 18, the portions of the copy which are to be in black in the final printing operation. In the present instance, the black portions will consist of the word "Extra," the word "Delicious" and the veins 19 which will be reproduced on the leaf 20 in the original copy on the sheet 10. Most importantly, the two strips 11 and 12 will be reproduced on this sheet 18 in exactly the same spacing apart as indicated in respect to the sheet 10.

In Fig. 4, only that portion of the copy is reproduced on a sheet 21 which will appear as the yellow portion in the finished printing. In this regard, the sheet 21 not only provides for the yellow coloring on the upper portion of the peach 22 on the original copy 10, but also provides one of the two colors (yellow plus blue) to make the green leaf and stem. Again on sheet 21, the strips 11 and 12 appear to have the exact spacings as above indicated.

Fig. 5 illustrates a sheet 22 for the blue color plate, the blue being employed in this instance to cover over the yellow to form the green finished color in the printing operation, in this instance the blue plate being applied to the leaf and stem portion only of the copy on the sheet 10. Again the strips 11 and 12 appear on the sheet 22 to be in the same spacing as above indicated.

Referring to Fig. 6, this sheet 23 is the sheet for the red color copy, and it has the portion of the peach 22 thereon which will be printed red. Then the strips 11 and 12 will appear on the sheet 23 in exactly the same spacing as above indicated.

Now from the sheets 18, 21, 22, and 23, the various rubber printing plates are reproduced so that all of these individual plates made from such copy will carry the reproductions of the strips or tapes 11 and 12 in exactly the same spacing apart relation as above described. In this regard, while it was indicated above that the sheets made from the original sheet 10 will have the tapes 11 and 12 spaced in exactly that distance apart which equals to the circumferential line between the centers of the screws 15 and 16, Fig. 1, and also that the spacing laterally apart of the holes 13, will equal the spacing apart of the screws 15, it is obviously true that this spacing may not be exactly those dimensions, but they will be made in exactly those relations whereby upon reproducing the various sheets, onto the rubber plates, those elements, particularly the holes 13, will come to that exact

spacing as is required to fit the plate on the cylinder 14.

The copy carried on the various sheets 18, 21, 22, and 23, having been reproduced upon the plates will then have those holes 13 located to register exactly one with the other, and to register with the holes for the screws 15 and 16 on the printing cylinder 14. In this regard, as is well known to those versed in the art, the printing plate 17 will be made out of metal or other suitable media, such as an impregnated cloth of a non-stretchable nature, whereas the printing surfaces such as the letters in Fig. 1 indicated by the numeral 24, will be made out of rubber, this rubber having been previously vulcanized to or caused to adhere to the backing plate 17. Thus the plate 17 may be secured to the cylinder 14 by the screws 15 and 16, one set of which, screws 15 in the present showing, may be attached to a part of the cylinder 26 which is movable in order to stretch the plate 17 tightly and snugly around the cylinder 14 in any one of the usual and well known maners. The plate 17 illustrated in Fig. 1, is the black color plate. The other plates made from the sheets 21, 22, 23, may be applied to the cylinder 14 in the proper sequence to obtain the desired printing in the different operations of the cylinder 14.

One of the advantages of the invention lies in the fact that in making up the various sheets or plates 18, 21, 22, and 23, only one negative need be made of the original copy 10, and then this same negative is used to reproduce the copy on each of the separate plates, all as set out on pages 231–233 in the book, Commercial Engraving and Printing, by Hackleman, 1921, published by Commercial Engraving Publishing Company, Indianapolis, Indiana. This process insures that no error can be made or introduced as between the reproductions on the separate plates, because only the one negative is employed, and this negative carries the punch centering circles which define the final etched holes into which the drill or punch is accurately centered for the plate alignment on the cylinder of the press. That is, the tape is reproduced on each of the plates 18, 21, 22, and 23 with the locating circles, and these circles show up after etching as depressions and not as raised, type high marks, but as countersinks 13. These countersinks serve to locate the punches which cut through the final rubber type plates to form the holes which accurately locate the individual plates on the press cylinder with no "bumping" or other make ready being required for color registry.

By employing the process indicated in the foregoing description, it is to be seen that the holes 13 on the various color sheets and consequently on the various color plates will be located in the exact registry and therefore no "make ready" is required in placing the plates upon the printing cylinder. Incidentally, the locations of the spots or holes 13 on the plates will indicate the locations of holes to be bored or punched through the finished plate so that the screws 15 and 16 may be passed therethrough. Normally after the copy from the various sheets 18, 21, 22, and 23 has been reproduced on the plates photographically, then the border lines 27 will be omitted unless they are to be carried in black, in which case the border 27 on sheet 18 will be left while the other portions will be removed.

Therefore it is to be seen that I have provided an exceedingly simple, yet foolproof process for

predetermining registry of a number of plates required to be registered in a printing process to print a completed color job wherein multicolors are to be used. While the process has been described in the one particular manner, it is obvious that certain details thereof may be varied such as in the sequence of arranging the various copy sheets, and of course in the color selected, all without departing from the spirit of the invention, and I therefore do not desire to be limited to that precise form beyond the limitations which may be required by the following claims.

I claim:

1. In a method for automatically registering a plurality of printing plates in sequence on a printing press cylinder which carries members for passing through ends of the plates to secure the plates on the cylinder, those steps of marking a tape with punch spots spaced apart in accordance with the spacing of the said carrying members across the cylinder; placing a length of the tape across and securing it to an end portion of the copy layout sheet; placing a second length of the tape across the opposite end portion of the sheet; the spacing apart of the two tape lengths being such that the spots thereon are spaced from tape to tape exactly the distance circumferentially of the cylinder between said cylinder plate carrying members; photographically making a negative of the copy including said tapes; photographically reproducing the negative on as many plates as there are color plates required; and etching the plates to cause the tape spots to appear as countersinks.

2. A method for securing accuracy of registration of a plurality of plates on a press cylinder which carries a plurality of plate engaging pins at fixed points thereacross, which method comprises those steps of preparing a master layout copy; affixing a tape across said layout to one side thereof on the face of the copy; affixing a second tape across the face of the copy layout at its opposite side; said tapes each having punch marks spaced therealong to match the spacing of said pins; and said tapes being spaced apart across the layout face to have said marks also spaced in accordance with the circumferential distance between said pins around said cylinder; said marks being of that contrast with the face of said layout so as to etch out as countersinks on the plates.

GILBERT C. MURPHY.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
855,705	Hatt	June 4, 1907
896,733	Knapp	Aug. 25, 1908
1,896,739	Brislaver	Feb. 7, 1933
1,975,181	Springstead	Oct. 2, 1934
2,111,914	Kohlberger	Mar. 22, 1938
2,192,924	Maher et al.	Mar. 12, 1940
2,294,456	Hawley	Sept. 1, 1942
2,349,900	Bourges	May 30, 1944

OTHER REFERENCES

Commercial Engraving and Printing by Hackleman, 1921; published by Commercial Engraving Publishing Company, Indianapolis, Ind.; page 291.