J. M. CROWE.

METHOD OF PREPARING A ROTARY GRAVURE TONE AND LINE POSITIVE.

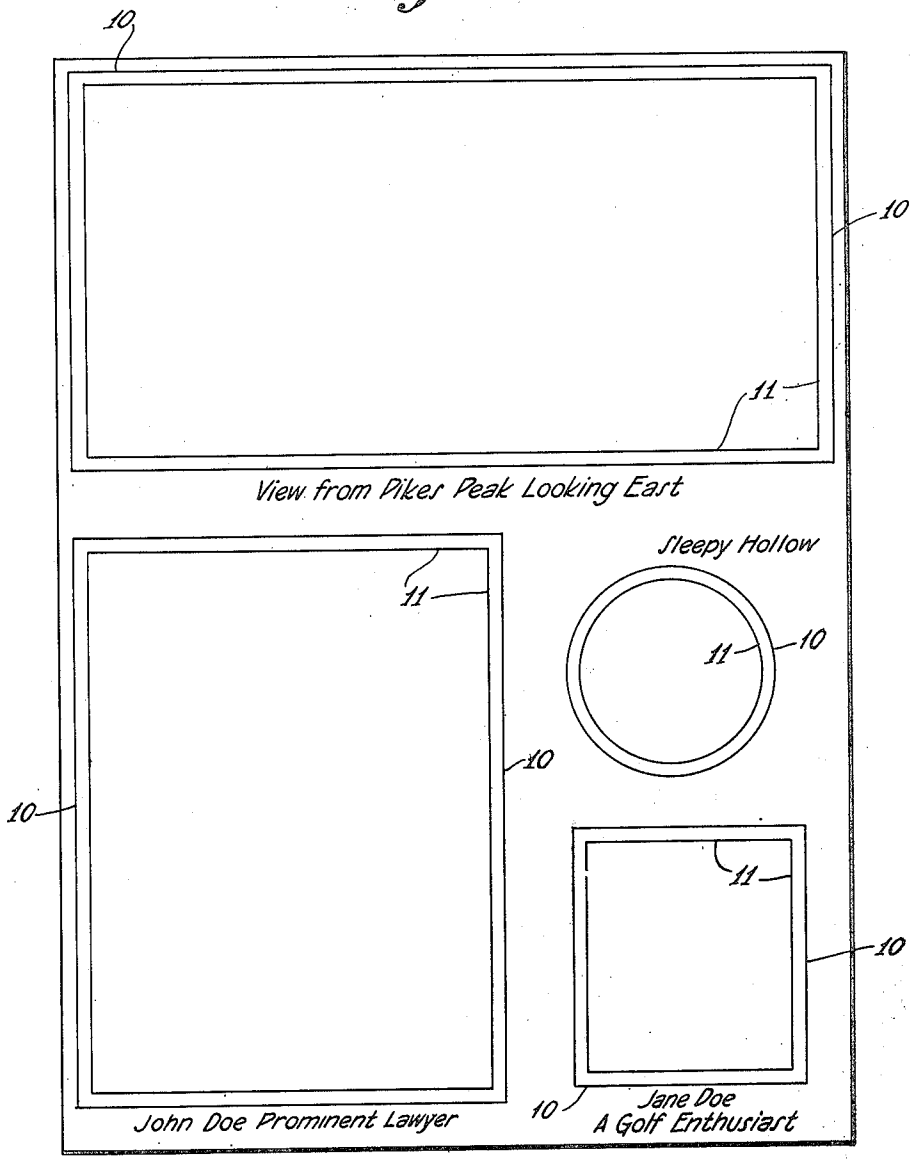
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1,428,009.

Patented Sept. 5, 1922.

3 SHEETS—SHEET 1.

Fig. 1



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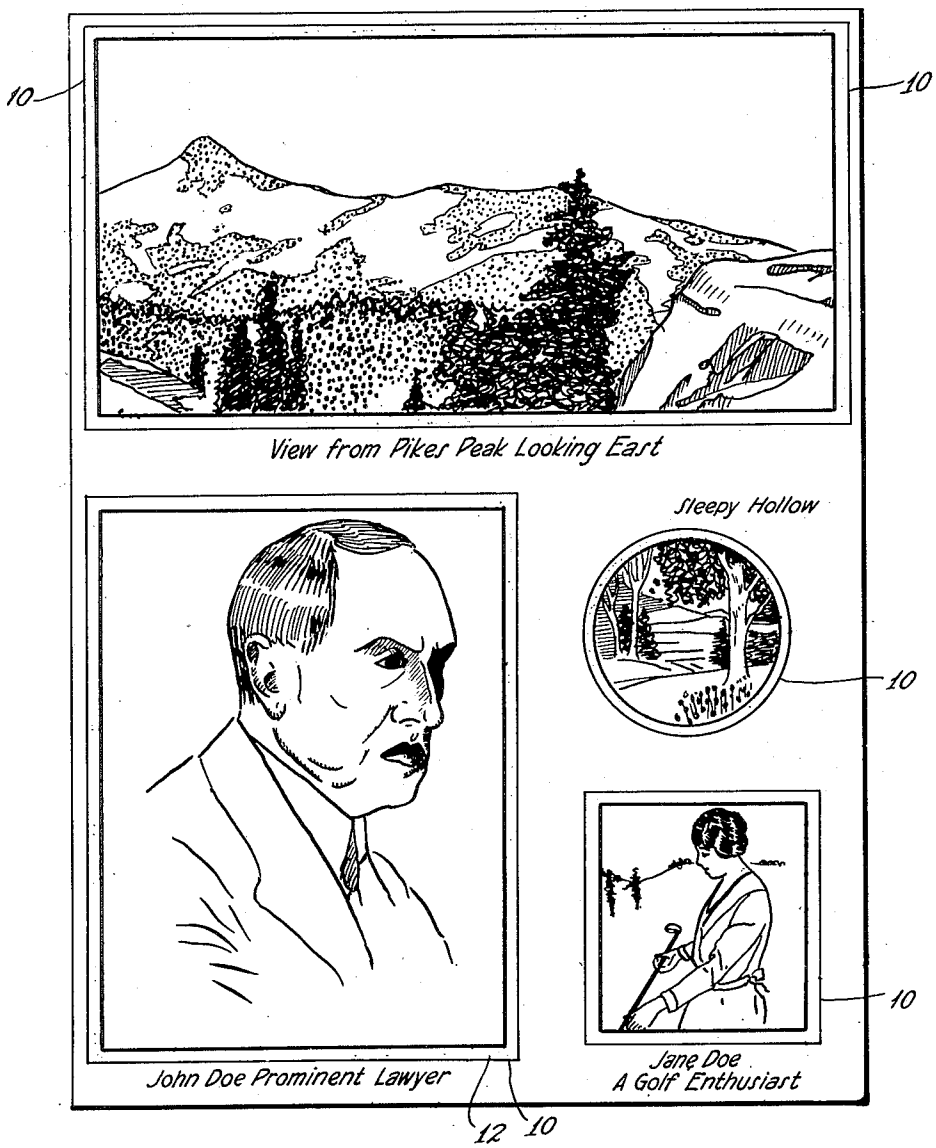
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3 SHEETS—SHEET 2.

Fig. 3.



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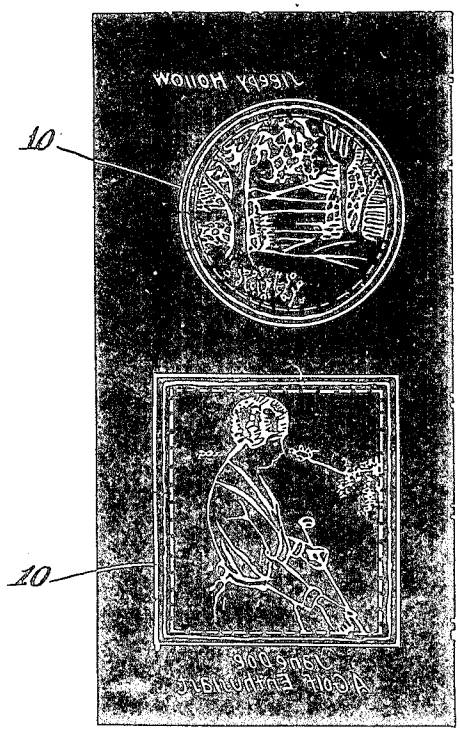
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3 SHEETS—SHEET 3.

Fig. 2.



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UNITED STATES PATENT OFFICE.

JOSEPH M. CROWE, OF BROOKLYN, NEW YORK.

METHOD OF PREPARING A ROTARY GRAVURE TONE AND LINE POSITIVE.

Application filed April 20, 1921. Serial No. 462,906.

To all whom it may concern:

Be it known that I, JOSEPH M. CROWE, a citizen of the United States, residing at New York city, borough of Brooklyn, in the county of Kings and State of New York, have invented a certain new and useful Method of Preparing a Rotary Gravure Tone and Line Positive, of which the following is a specification.

This invention is a method of making positives for use in rotary gravure and machine gravure printing, and while adapted for general application, will be described, for the purpose of illustration in connection with the preparation of a tone and line positive to be used in connection with the printing of a page of a newspaper gravure section.

In the process now in general use, the first step is for an artist to draw a design of the page in pen and ink lines or stipple and this design is known as the artist's layout. It usually embodies a suitable line border and at suitable spacing interiorly of the border, spaces are indicated by outlines, wherein the artist intends the respective tone pictures to be positioned. These spaces may be of different size and shape according to the artist's idea of what will best show the tone pictures to advantage. Adjacent each space thus delineated are captions and descriptive type matter.

This artist's layout of the page is first given to a photographer who makes a wet plate negative and from this negative produces a wet plate positive. The wet plate positive is then coated with a rubber solution which is allowed to dry and is thereafter further coated with a collodion solution.

In the meantime, the artist's layout has been turned over to a draftsman, who makes a tracing of the outlines of the spaces in which the tone pictures are to be inserted. Thereafter a sheet of glass of substantially the same size as the page to be printed is laid over the tracing and all parts of the glass except the spaces left for the tone pictures are opaqued out by coating the glass with a suitable opaque substance.

At the same time as this operation is progressing, the photographer makes photographic tone negatives of the pictures to be inserted in the blank spaces as called for by the layout. These tone negatives are made on a photographic film by the dry process and are sent to the layout man who by this time has completed the opaquing operation on the glass. The layout man takes the film tone negatives and very carefully trims them to the same size and shape as the respective blank spaces into which they are adapted to be positioned and thereafter inserts such film negatives into such spaces and secures them in position by means of glue and adhesive tape.

The glass plate with the film negatives secured thereto is now returned to the photographer, who copies the same either by contact in a vacuum frame or by transmitted light in a camera, the result being a film positive of the tone parts of the page, with all the rest of the page except the tone parts thereof blank.

The back of the tone positive thus formed is now scraped of its coat of gelatine to permit the wet plate positive of the layout, made in the manner hereinbefore described, to be stripped thereon. The wet plate positive of the layout is then placed in a bath of acetic acid which renders it possible to remove the same from the glass support and strip it on to the back of the tone positive. This results in the making of a tone positive which may be transferred to the cylinder for printing by the well known carbon printing process.

The foregoing process of preparing tone line positives is the one universally employed at the present time and it is well known by those skilled in the art that the process is expensive, lengthy and practically every step thereof must be accomplished by men of unusual skill.

The object of the present invention is to greatly simplify the process of making tone and line positives for the purpose specified, greatly minimize the amount of work and time expended and also to considerably decrease the cost of such positives.

This increase in efficiency and marked reduction in cost are obtained by the process hereinafter fully and comprehensively set forth.

Features of the invention, other than those specified, will be apparent from the hereinafter detailed description and claims, when read in conjunction with the accompanying drawings.

The accompanying drawings illustrate one practical embodiment of the invention,

but the construction therein shown is to be understood as illustrative, only, and not as defining the limits of the invention.

Figure 1 illustrates the artist's layout.

Figure 2 shows a fragmental part of a layout negative with tone picture negatives associated therewith as employed in carrying out the present invention; and,

Figure 3 shows the finished picture produced by the method of this invention.

In practising the method of this invention, I start with the artist's layout which is shown in Figure 1 of the drawings. This layout may have a border extending entirely around it, but in the drawings, this border is omitted. The layout includes a number of indicated spaces enclosed in pen and ink lines 10 and adjacent each space thus delineated are suitable descriptive matter and captions so as to identify the respective pictures adapted in the finished page to occupy such spaces. As a first step of the process, an inner border 11 is drawn within each space 10, and, in practice, this may be drawn with pen and ink for any convenient distance from the outlines of the space, such for example as $\frac{1}{8}$ of an inch. The purpose of this inner border formed by the lines 11 is to permit a one-eighth inch wide margin between the line border 10 and the tone insert. It also permits of more latitude in the subsequent fitting of the tone inserts into the layout.

The artist's layout of the page as shown in Fig. 1, is now photographed by the wet plate process to an exact size of the finished page to provide a wet plate negative. This wet plate negative is employed as a true layout and therein consists the first marked improvement in the process of this invention since the making of a tracing and the forming of the opaque glass is thereby entirely dispensed with.

This wet plate negative is now coated with any suitable stripping solution, such for, example, as by coating it with rubber and when dry applying a second coating of collodion solution which may be applied broadcast over the negative.

This having been accomplished, a sharp knife is caused to cut along the lines 11 forming the inner border of each space 10 and thereafter the layout negative is placed in an acetic acid bath which permits of the removal of the opaque film contained within the inner border 11 of each space 10. This procedure obviates the necessity of making a layout by hand, as the negative of the layout is sufficiently dense to prevent light from passing through the same except through the transparent lines corresponding to the artist's layout of the page.

After washing and drying, this negative layout with the transparent spaces as described, is sent to the layout man. In the meantime, the negatives of the tone inserts are made on a photographic film and sent to the layout man, who inserts these tone negatives into the proper spaces on the layout negative, fastens them in place by glue or otherwise or holding them in position by a cover glass laid over the layout negative and fastened thereto by gum tape or in any other suitable manner.

A fragmentary part of the negative layout with the inserted tone films is shown in Figure 2, wherein the films bear the reference character 12. It will be noted from this view that in inserting the negatives 12 within the inner transparent space of the tone negative that the layout man need not exercise the greatest care in the cutting and fitting of the film since the opaque space between the outer and inner borders 10 and 11 permits of slight latitude in the cutting operation. This is clearly shown in Figure 2.

The negative layout with inserted tone negatives as shown in Figure 2 is now photographed either by contact printing in a vacuum frame or by transmitted light in a camera to produce a positive, in which is photographically combined the lines of the artist's design, the printed captions, and the tone pictures. This combination tone and line positive is now ready to be transferred to the printing cylinder by any well known method such as by carbon printing.

The picture which is finally printed by the printing cylinder is shown in Figure 3 of the drawings and from this showing it will be apparent that through the method of this invention the tone pictures and the lines of the letters of the artist's layout have been combined into a finished picture.

It will be apparent from the foregoing detailed description of the process of this invention that by carrying out the operations described, many steps of the prior and universally employed process are dispensed with. That is to say, the making of a tracing and layout on glass is unnecessary, nor is the making of a wet plate positive of the artist's layout required. By eliminating this wet plate positive of the artist's layout, the time consuming steps of coating the same with rubber and collodion solutions and the preparing of the glass for a wet plate photograph are rendered unnecessary. Furthermore, the operation of scraping the gelatine from the back of the tone positive and the subsequent delicate stripping of the wet plate positive on to the back of the tone positive are avoided. Aside from these considerations, the cost of preparing the finished article is materially reduced, due to elimination of the cost and of chemicals in preparing the wet plate positive. The cost of glass of which there is considerable breakage, the cost of preparing the plates for stripping and the cost of rubber and collodion for carrying out these several opera-

tions which under the present invention are rendered unnecessary. Moreover, the time element is materially reduced and the page may be conditioned to go to press much more expeditiously than heretofore.

A very important feature of this invention resides in the absolute accuracy of register which may be obtained by using a negative of the layout as an actual layout, since the human element of accumulated error is not involved.

The invention has been particularly described in connection with preparing a combined tone and line positive for a newspaper page, which is usually printed on a rotary cylinder. It will be understood, however, that this method is equally applicable to all work in rotary and machine gravure printing where line and tone pictures are used together.

Having thus fully described the invention, what I claim as new and desire to secure by Letters Patent is:

1. The herein described method of making combined line and tone positives which consists in making a suitable layout, photographically producing a negative from such layout, then removing part of the emulsion of the negative to render a part of such negative transparent, then bringing another negative into registration with the transparent portion thus formed, and thereafter employing the composite negative thus made to produce a positive.

2. The herein described method of making combined line and tone positives which consists in making a suitable layout in black and white and having one or more spaces designated thereon for a picture and descriptive matter relative to such picture or pictures, directly photographing the layout to produce a line negative, thereafter stripping the indicated spaces of the negative, then bringing a second negative into registration with each transparent space and employing this composite negative to produce a combined line and tone positive.

3. The herein described method of making combined line and tone positives which consists in photographing a black and white line drawing to produce a line negative, then stripping a portion of such negative to render the stripped portion transparent, then bringing a tone negative into registration with the transparent portion of the line negative, and employing the composite line and tone negative thus made to produce a composite line and tone positive.

4. The herein described method of making combined line and tone positives which consists in photographing a black and white line layout to produce a line negative by the wet plate process, then applying a coating of a stripping solution to such negative, then outlining a portion of the surface of such negative, then placing the negative in an acid bath to permit of the stripping of the portion of the negative thus outlined, stripping this portion of the negative to render such part of the negative transparent, making photographic film negative of a tone picture, then cutting the film negative to substantially the size and shape of the transparent portion of the wet plate negative, then bringing the film negative into registration with such transparent portion, and employing the composite negative thus formed to make a combined line and tone positive.

5. The herein described method of making combined line and tone positives which consists in making a suitable layout with a space for a tone insert bordered by two spaced lines, photographing this layout to produce a line negative, then stripping a portion of the line negative to render the space bordered by the inside lines transparent, then bringing the tone negative into registration with the transparent portion of the line negative with the edges of the tone negative positioned between the portions of the line negative corresponding to said inner and outer border lines, and then employing the composite tone and line negative thus produced to make a composite tone and line positive.

6. The herein described method of making combined line and tone positives which consists in employing a negative as a true layout for use in producing a composite line and tone positive.

7. The herein described method of making combined tone and line positives which consists in combining a line negative and tone negative, and employing such combined negative for the production of a combined line and tone positive.

In testimony whereof, I have signed the foregoing specification.

JOSEPH M. CROWE.