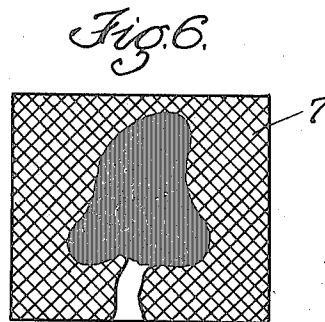
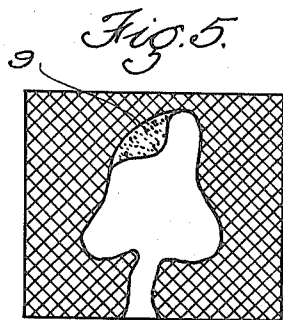
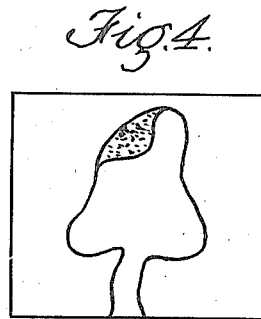
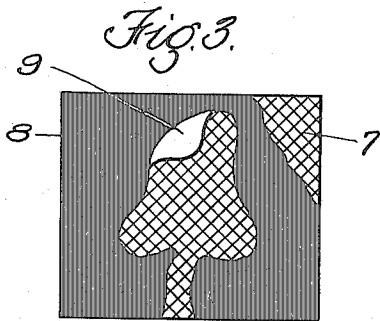
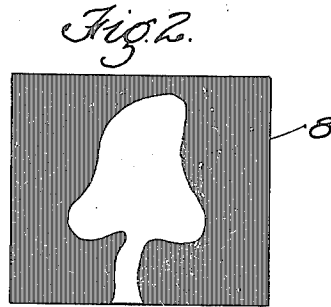
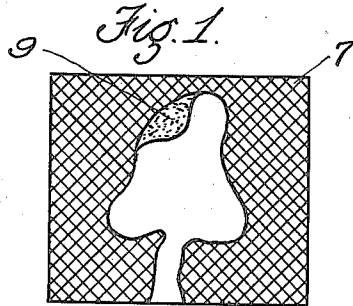


H. T. BROWN,
 PROCESS FOR MAKING COLOR HALF TONES.
 APPLICATION FILED JULY 18, 1916.

1,264,004.

Patented Apr. 23, 1918.



Inventor
 Howard T. Brown
 by *Edward A. Thayer* Atty.

UNITED STATES PATENT OFFICE.

HOWARD THOMAS BROWN, OF LOS ANGELES, CALIFORNIA, ASSIGNOR TO EDWIN T. EARL, OF LOS ANGELES, CALIFORNIA.

PROCESS FOR MAKING COLOR HALF-TONES.

1,264,004.

Specification of Letters Patent.

Patented Apr. 23, 1918.

Application filed July 18, 1916. Serial No. 109,948.

To all whom it may concern:

Be it known that I, HOWARD THOMAS BROWN, a citizen of the United States, residing at Los Angeles, in the county of Los Angeles and State of California, have invented new and useful Improvements in Processes for Making Color Half-Tones, of which the following is a specification.

This invention relates to a process for making color half tones, and pertains especially to a process suitable for use in printing colored pictures for newspapers, whereby photographs, oil paintings, wash drawings and the like may be reproduced in natural color effects.

It is an object of this invention to provide a process for producing engravers' plates for printing pictures in colors, and the primary feature of this invention consists in the process whereby a half tone negative is prepared and portions thereof stopped out for printing therefrom an engraver's plate for each of the colors used in printing.

In addition to the primary features of this invention there are certain specific steps in the process by which ease of manipulation and effectiveness in the completed picture is secured.

The embodiment of my invention as described herein comprises reproducing a picture by means of the three basic colors, blue, red and yellow, but the invention is not limited to these colors, as others may be used.

Figure 1 is a view of a half tone negative. 9 shows the strip for reducing the tone values.

Fig. 2 is the black and white negative.

Fig. 3 is the key negative which is produced by placing the black and white negative over the half tone negative.

Fig. 4 is the key plate produced from the key negative.

Fig. 5 is a tracing negative produced by placing a transparent film over the key negative, thereby providing a surface upon which pigment may be applied to block out the various portions of the picture.

Fig. 6 is the tracing negative with the foliage of the trees blocked out to produce a red color negative.

In the carrying out of this process the operator or artist must understand the composition of colors. With the basic colors, blue, red and yellow, objects to be represented in

green may be composed of blue and yellow; objects to be shown in purple may be composed of red and blue; brown may be composed of blue, red and yellow, and other secondary colors would be composed of combinations of two or more of the basic colors. For example, with the color compositions just described, when it is desired to print objects which are green, such as grass, provision must be made on the blue plate for printing blue for the grass, and provision must be made on the yellow plate for printing yellow for the grass, one color being printed over the other.

The specific steps in the embodiment of the process described herein consists in first making a half tone negative 7 of the copy preferably in the usual manner, that is, by placing a screen in front of the plate when the latter is exposed. In my process I prefer using wet plates made by the collodion process. The plates are made by flowing negative glass with collodion and sensitizing the collodion by dipping into a silver bath, then exposing the plates. A contrasty black and white negative 8 is also made by making an exposure of the same copy with the half tone screen removed. The half tone and the black and white negatives are coated with rubber and collodion, thereby providing a film which may be stripped from the plate. The half tone negative is then stripped from the plate and is placed in the desired position upon a glass lay out plate. The whole plate is then coated with collodion in order to protect the lay-out from damage by water or other injury which may occur during the carrying out of the process. This half tone portion of the lay-out is now coated with a special transparent cement. This special cement is composed of equal parts of benzol and ether, and a small quantity of paraffin to form a saturated solution; the exact proportions being determined by practice as I have found that benzol differs greatly in quality.

The black and white negative is then superimposed upon the half tone negative in perfect registry therewith so as to eliminate high lights from the half tone negative. The cement above referred to holds the black and white negative strip over the half tone negative and maintains it there in registry while a transfer is made to the metal engraver's plate, but permits easy removal

of the same. The negative produced by superimposing the black and white negative over the half tone negative is hereinafter called a key negative, and the engraver's plate produced therefrom is hereinafter called a key plate. This key plate is used to reproduce the black and deeper tones in the printed picture, light tones being eliminated therefrom.

After the key plate has been printed from the key negative the black and white negative is stripped off the half tone negative. This is easily effected by reason of the character of the cement. A transparent film is now made by flowing a negative glass with a vehicle, preferably sensitive collodion, then dipping in a silver bath. After the emulsion so formed is well sensitized, it is removed and washed with water without exposure to the light. After thoroughly washing, it is cleaned off with a fixing agent, preferably a strong solution of potassium cyanid and again washed. The film is now dried and coated with rubber and collodion to produce a flexible working film. This working film is used as a tracing film. The film is then stripped from the glass and superimposed upon the half tone negative with the side which was next to the negative glass turned outwardly, thus exposing the film side for working upon. This provides a working surface (the side which was next to the negative glass) which is slightly roughened and possibly contains a slight deposit of silver iodid. Such surface will take the pigment which is afterward applied and does not require a thick coating of the same. The negative so produced is hereinafter called a tracing negative, and is used for making each of the color negatives from which are printed the engravers' plates.

A blue color negative is made by stopping out the portions of the tracing negative which do not have blue as an element of the color composition. This is preferably done in the following manner: A soluble gum is made with red or yellow pigment, and with a brush this is applied to the portions of the plate which are to be eliminated. In making the blue color negative the parts which are to be straight blue such as the water and sky, parts which are to be green, such as grass and foliage of trees, and other parts having blue as an element would not be stopped out. Thus, the purple colored distant mountains and shadows of rocks would have blue as an element, and also the brown parts, such as tree trunks, dirt, hillsides, etc. After making the transfer to the engraver's plate the pigment is washed from the tracing negative and the latter is ready for treatment to produce a red plate.

The portions of the plate which do not contain red as an element are stopped out by blocking out with the pigment solution

as in the blue plate. In addition to the straight red tones the portions such as distant mountains and shadows of rocks, the brown portions such as tree trunks, dirt and hillsides, would not be stopped out. The resulting color negative is used for producing the red plate. A transfer is made to engraver's metal, producing an engraver's red plate.

The next plate to be made is a yellow plate. The same process is followed as in the blue and red plates. The tracing negative is washed to remove the pigment and the portions of the negative which do not contain yellow as an element are stopped out. The portions which contain yellow besides the straight yellow may be green, such as the grass and foliage of trees, and brown such as tree trunks, dirt and hillsides. A transfer is made from this plate to engraver's metal, thereby producing a yellow printing plate.

The strength of the different tone values in the different color plates may be reduced in the following manner: A system of parallel lines is ruled on white paper. A reduction is then made so that the parallel lines will correspond with the half tone used. For illustration, if a sixty-five line screen is used for making the half tone, the lines should be reduced so that there are sixty-five to the inch. A positive is now made of the same, showing white lines and a black back-ground. This positive is placed over the portion of the half tone to be reduced, it being placed with the lines at right angles to the line of the screen of the half tone negative. The surplus not desired may be removed from the negative by cutting with a sharp knife thereby leaving upon the negative a portion which exactly conforms in shape to the area to be reduced in tone. Thus if it is desired to reduce the tone at the top of the tree a positive strip is placed thereon, as shown in Fig. 1.

Engravers' plates, namely, the key plate, blue plate, red plate and yellow plate, are now finished in the usual manner with engravers' plates used in half tone processes. A picture is reproduced by printing the colors over one another. The final reproduction resulting from printing the colors over one another shows the reproduced picture in all the natural color effects. This process also gives the natural light and shade effects without the use of any shading screen process. As one negative is used throughout the entire process all the plates will register perfectly.

In processes wherein pigment has been directly applied to the surface of the half tone negative, the following occurs: Pigment must be applied thereto in relatively thick layers to properly stop out portions of the negative. The result is that when the

transfer is made to the engraver's plate, wherein the film is placed in close contact with the plate, parts of the film not covered with pigment are spaced such a distance from the plate as to cause diffusion of light and blurring.

What I claim is:

1. The process of making engravers' plates, which comprises producing a half tone negative; producing a transparent film by placing a sensitized vehicle upon a plate, treating the unexposed plate so formed with a fixing agent, treating said plate with a composition to produce a flexible film, stripping the film from said plate, superimposing said film upon said half tone negative with the side which was next to the plate outward to produce a tracing negative; stopping out thereon with removable pigments portions other than selected colors to produce a color negative; and printing therefrom on an engraver's plate.

2. The process of making engravers' plates, which comprises producing a half tone negative; producing a transparent film by placing a sensitized vehicle upon a plate, treating the unexposed plate so formed with a fixing agent, treating said plate with a composition to produce a flexible film, stripping the film from said plate; superimposing said film upon said half tone negative with the side which was next to the plate outward to produce a tracing negative; stopping out thereon with removable pigments portions other than selected colors to produce a color negative; printing therefrom on an engraver's plate; and restoring said tracing negative by removing said pigment.

3. The process of making engravers' plates for photoengraving, comprising producing a half tone negative; producing a black and white negative with light tones of the picture eliminated therefrom; superimposing said black and white negative and said half tone negative, thereby providing a key negative; printing from said key nega-

tive on an engraver's plate for producing a key plate, stripping said black and white negative from said half tone negative; producing a transparent film by pressing a sensitized vehicle upon a plate, treating the unexposed plate so formed with a fixing agent, treating the plate with a composition to produce a flexible film, stripping the film from said plate; superimposing said film upon said half tone negative with the side which was next to the plate outward to produce a tracing negative; stopping out thereon with removable pigment portions other than selected colors to produce a color negative; and printing therefrom on an engraver's plate to produce a color plate.

4. The process of making engravers' plates for photoengraving, comprising producing a half tone negative; producing a black and white negative with light tones of the picture eliminated therefrom; superimposing said black and white negative and said half tone negative, thereby providing a key negative; printing from said key negative on an engraver's plate for producing a key plate, stripping said black and white negative from said half tone negative; producing a transparent film by pressing a sensitized vehicle upon a plate, treating the unexposed plate so formed with a fixing agent, treating the plate with a composition to produce a flexible film, stripping the film from said plate; superimposing said film upon said half tone negative with the side which was next to the plate outward to produce a tracing negative; stopping out thereon with removable pigment portions other than selected colors to produce a color negative; printing therefrom on an engraver's plate to produce a color plate; and restoring said tracing negative by removing said pigment.

In witness that I claim the foregoing I have hereunto subscribed my name this 11th day of July, 1916.

HOWARD THOMAS BROWN.