

July 30, 1935.

K. L. McLELLAN

2,009,586

PROCESS OF SCREEN SHADING IN PHOTOENGRAVING

Filed June 11, 1932

FIG. 1.

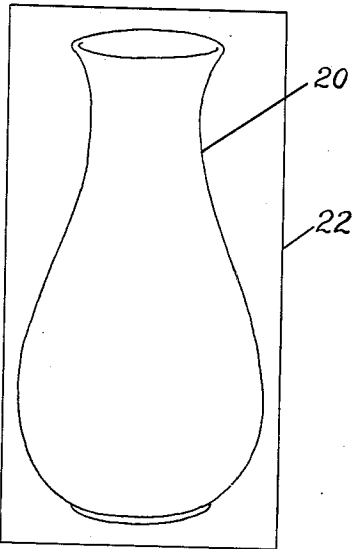


FIG. 2.

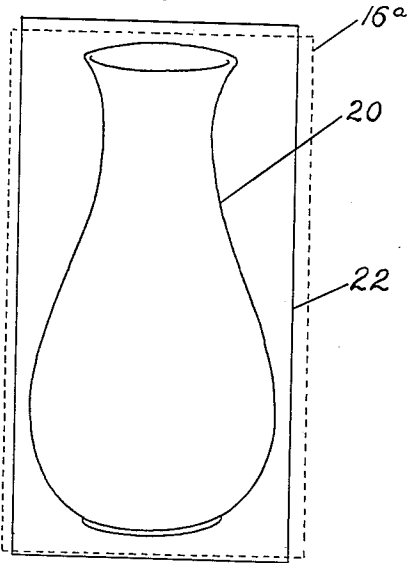


FIG. 4.

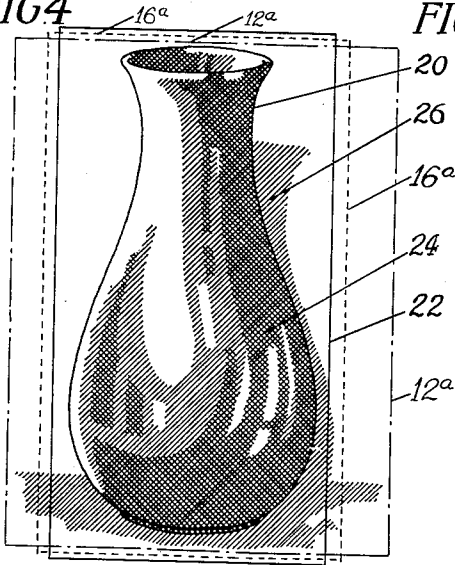


FIG. 3.

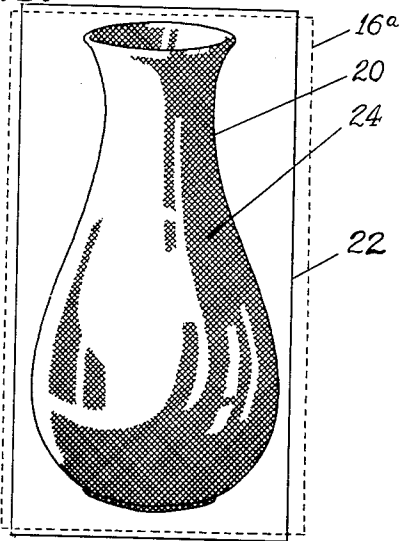


FIG. 5.

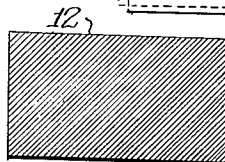
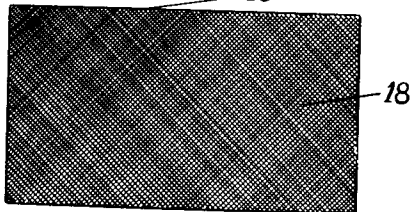


FIG. 6.

INVENTOR.
KENNETH L. McLELLAN
BY *Minier & Fike*

ATTORNEYS.

UNITED STATES PATENT OFFICE

2,009,586

PROCESS OF SCREEN SHADING IN
PHOTOENGRAVINGKenneth L. McLellan, Los Angeles, Calif., assignor
to Kenway Corporation, a corporation of California

Application June 11, 1932, Serial No. 616,755

5 Claims. (Cl. 41—41)

This invention relates to an improved process of screen shading in photo-engraving and has for one of its principal objects the provision of means for simplifying the production of a photo-engraver's plate when such plates include what is known in the art as the "Ben Day" effect.

One of the important objects of the invention is to enable the combination for photographic purposes by the photo-engraver of a line drawing and shadings therefor which includes the "Ben Day" effect and wherein the artist may eliminate considerable time and labor heretofore considered necessary.

Still another and further important object of the invention resides in the ready combination for photographic purposes of line drawing and selected shading elements, and which at the same time permits of later disassociation of the drawing and shading elements and the later re-combination thereof with other drawings and shading elements to produce other and further desired photographic effects.

A still further object of the invention resides in the selective and disassembly combination of sketch and shading elements whereby changes may be made in either without the necessity of completely remaking one or both.

Still another and further object of the invention is to provide outline drawings with desired "Ben Day" shading effects for photo-engraving purposes without applying such shading to the drawing itself, but at the same time avoiding the laborious and expensive retouching and screen shading operations at present used in the art, thus preserving the sketch or drawing in its original state so that it may be re-used for the same or different purposes.

Another and still further important object of the invention is to provide, in the process of preparing an engraver's proof, of a new method of shading the original line drawing for photo-engraving purposes which includes the preliminary coloring of certain portions of the drawing itself, so as to accomplish, in the finished engraver's proof, the intensifying of the tone of said portions without the use of special screens or films for this particular purpose.

Other and further important objects of the invention will be apparent from the disclosures in the accompanying drawing and following specification, in which the process and the various elements involved therein are fully shown and described.

In the drawing:

Figure 1 represents an artist's original line

drawing lacking the shading necessary to complete the illustration.

Figure 2 shows the same drawing covered by one of the shading elements of this invention, the shading element being indicated by the broken lines.

Figure 3 shows the same drawing with its overlying shading element after the latter has been processed in accordance with this invention.

Figure 4 shows the same drawing and overlying processed shading element illustrated in Figure 3 as covered by a second processed shading element, said latter element being indicated by the dot-and-dash lines.

Figure 5 is a plan view of one of the shading elements of the invention bearing a diagonal pattern.

Figure 6 is a similar view showing a shading element bearing a somewhat different pattern.

As shown in the drawing:

There is illustrated in Figure 5 one of the shading elements of this invention, composed of a sheet 12 of transparent material, which may be of any desired size, but which preferably would be made up in large stock sizes from which any smaller size sheet could easily be cut. Certain thin, tough sheets of cellulose now common on the market and sold under the trade name "Cellophane" namely, regenerated cellulose sheeting are admirably suited for the making thereof.

This sheet 12 is shown as bearing on the entire area of one surface thereof, a printed pattern 14 comprising what is known in the art as a "Ben Day" design of diagonal lines.

In Figure 6 is illustrated a similar sheet 16 having imprinted thereon a second "Ben Day" design or pattern 18 comprising crossed lines.

The "Ben Day" field also includes numerous patterns other than lines, and various designs not included in the "Ben Day" field may also be used in carrying out the invention, but it is believed the two foregoing will suffice for purposes of illustration.

The ink used in printing these "Ben Day" patterns upon the sheets 12 and 16 is photographically transparent and preferably water-impervious, and contains a chemical such as a silver salt which upon application of a suitable reagent such as an acid develops a photographically visible or black color.

These imprinted patterns need not necessarily be invisible to the eye, but should preferably be totally transparent photographically, although in certain types the composition of the ink may be such as to have some photographic value in its

undeveloped state for providing extremely light shading in addition to the more intense tones of the developed patterns.

In order to give a simple illustration of the process of this invention, reference is had to Figures 1 to 4, inclusive in which the reference numeral 20 indicates an illustration or outline of a vase made upon a sheet of drawing paper 22. It will be noted that the illustration 20 is entirely unshaded.

If it is desired to provide the necessary shading and background for the illustration 20 by the process of this invention the following procedure is carried out:

The drawing 20 is mounted on a suitable board or support (not shown), as by means of thumb tacks or the like (not shown).

Instead of doing the shading directly upon the drawing, the artist or operator selects one of the screen elements of this invention, as, for example, a section 16a cut from the sheet 16, the design of which he prefers to use as shading for the vase itself.

He places the sheet 16a over the drawing 20—22 and fastens same thereover by means of thumb tacks or the like (not shown), whereupon the assembly will assume the appearance shown in Figure 2, the outline of the illustration 20 showing through the transparent element 16a and the imprinted surface of the latter facing upwardly.

He then proceeds to apply the reagent to certain portions of the element 16a by means of a brush or other suitable instrument to bring into photographic visibility any areas of the pattern of the element 16a where shading is desired upon the vase 20.

The areas thus treated with the reagent immediately develop into dark, photographically visible lines, and the assembly thereupon appears as shown in Figure 3, in which the area just shaded is indicated at 24 by lines similar to those of the pattern of the shading element 16a just used.

If further shading is desired, as for background, etc., the operator selects from his stock of shading elements an appropriate design, as, for example, a section 12a cut from the sheet 12 bearing the diagonal design. This he mounts upon the board over the first screen 16a and treats with the reagent over certain areas to develop the photographically visible diagonal shade lines as shown at 26 in Figure 4.

If this completes the desired shading of the object, the entire assembly, which then is of the appearance shown in Figure 4, is left intact and photographed. After the photographing operation the various elements may be disassembled and retained for future use, or discarded.

The method and process disclosed herein result in quite an improvement over the means heretofore employed, as it is a present practice for the photo-engraver desirous of obtaining what is known as the "Ben Day" effect to first transfer a negative of the subject or line drawing to the engraver's plate and to then transfer to the plate in superimposed position over the first negative, a second, third, or more negatives of the "Ben Day" pattern and then to remove by cutting away such portions of the "Ben Day" pattern as overlay any part of the illustration not desired to be shaded thereby. This process is obviously laborious and expensive.

Another process heretofore used includes the application of the "Ben Day" patterns direct to

the drawing, thereby permitting the photo-engraver to make one entire negative of the drawing or subject and its surrounding pattern and to avoid the extra step involved in the first named old process. In this last process, however, the drawing is useless for further work and any changes which may be desired necessitate a new drawing entirely.

It will be evident that the present invention differentiates from the old method in that it provides a photographically transparent overlay containing the "Ben Day" pattern which can be developed at desired areas and which is removably applied to drawings and photographed integrally therewith.

The invention accordingly permits two or more patterns to be used by affixing a desired number of transparencies, which would previously have been almost out of the question, and it furthermore permits the making of two or more plates for color printing or the like. Additionally, the drawing being independent of the shading elements, may be easily altered and may be repeatedly used with different patterns.

I am aware that many changes may be made and numerous details of construction varied throughout a wide range without departing from the principles of the invention, and I therefore do not purpose limiting the patent granted thereon otherwise than as necessitated by the prior art.

I claim as my invention:

1. A process of screen shading in photo-engraving including the application to a drawing of transparencies having photographically invisible markings thereon, the subsequent development of a photographically opaque pattern on the transparencies and a photographing of the composite whole and the later application of said photographic negative to a plate for engraving purposes.

2. A method of producing the "Ben Day" effect in photo-engraving including the preparation of an original line drawing, the superimposing upon the drawing of a transparent element having a photographically invisible shading pattern thereon, the preparation of a photographically opaque background pattern on the transparency and the photographing for engraving purposes of the assembled drawing and transparency.

3. A process of preparing composite photographs for photo-engraving purposes including the step of preliminarily preparing a line drawing, the step of preliminarily preparing a photographically transparent pattern upon a sheet of photographically transparent material, superimposing the transparent material upon the drawing, developing the latter with a suitable reagent applied to desired portions of the transparency to render certain areas photographically opaque, and the photographing of the assembled drawing and pattern.

4. A process of preparing composite photographs for photo-engraving purposes, including the step of preliminarily preparing a line drawing, the step of preliminarily preparing photographically transparent patterns upon sheets of photographically transparent material, superimposing the transparent sheets upon the drawing and upon each other, individually developing the latter with a suitable reagent applied to desired portions of the transparencies to render certain areas photographically opaque, and the photographing of the assembled drawing and patterns.

5. A process of preparing composite photo-

graphs for photo-engraving purposes, including the step of preliminarily preparing a line drawing, the step of preliminarily preparing photographically transparent patterns of varying designs upon sheets of photographically transparent material, superimposing the transparent sheets upon the drawing and upon each other, individually developing the latter with a suitable reagent applied to desired portions of the transparency to render certain areas photographically opaque, and the photographing of the assembled drawings and patterns, and subsequent application of said photograph negative to a plate for etching. 5

KENNETH L. McLELLAN.