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METHOD OF PREPARING HALFTONE NEGATIVES WITH VARIABLE-DENSITY SCREENS

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2 Claims. (Cl. 95—5)

This invention relates to new and useful improvements in employing half-tone screens of the variable-density type for making half-tone negatives.

As is well known, the ordinary photo-engraving screen consists of cross-ruled lines. They have black lines and transparent spaces usually of equal width. In the variable-density screen, on the other hand, while the transparent spaces may be more or less veiled over, the opaque elements have a low density at the edges of each element and a progressive increase in density in moving across the diameter toward the center of such element. This invention is concerned only with this variable-density type of screen.

As is well known the preparation of a half-tone negative with the normal photo-engraving screen involves considerable skill in camera manipulation. The screen separation must be carefully calculated and various exposures with different stops are necessary to give the required dot formation. With the variable-density screen produced by my method, the screen is preferably used as contact screen. The use of this screen will produce correct formation of dots from high-light to shadow without the camera manipulation of screen distance and partial exposures through a series of stops. Further, by controlling the density gradient in the individual elements of the screen, the invention is able to produce screens to take care of copy of different contrasts.

According to my invention I propose a method for making half-tone negatives with improved quality of gradation with use of a variable-density screen. I have found that a uniform translucent layer interposed between the screen and the light-sensitive layer promotes a wider range of dots in passing from high-light to shadow. The use of such light-diffusing layer is of no advantage with use of the normal photo-engraving screen. With the variable-density screen, however, I have found the quality of the half-tone negative to be considerably enhanced.

Such light-diffusing layer may be of any suitable material. It may be introduced as a translucent support or as a separate layer coated on transparent support. It may be an integral part of the variable-density screen; it may be introduced as a separate element; or preferably it may be introduced as a backing on the negative material to be exposed. A layer of barium sulphate or starch grains in gelatin will make a suitable light-diffusing medium. A coating of dye or manganese dioxide in gelatin such as used for a nonhalation backing on film is also suitable. In producing a laterally reversed half-tone negative by exposing through a variable-density screen and through the nonhalation backing of a commercial offset film, I have found such exposure to yield a much better dot gradation than will be yielded by unbacked film under the same conditions of exposure.

It will thus be seen that I have described processes with all necessary details embodying the principles and attaining the objects and advantages of the invention. Since many matters of treatment, manipulation, selection of materials, succession of steps, and other details may be variously modified without departing from the principles involved, I do not intend any limitation to such details excepting so far as set forth in the appended claims.

What is claimed is:

1. In the art of photo-mechanical printing, the method of producing a half-tone negative including the steps of passing a light image from a positive through a half-tone screen having uniform elements of variable density, passing the half-tone image thus formed through a uniform translucent layer which per se has light-diffusing properties, and impressing the resultant light image upon a suitably supported light-sensitive layer said screen, translucent layer, and suitably supported light-sensitive layer being in contact during the impression of the image on the latter.

2. In the art of photo-mechanical printing, the method of producing a half-tone negative including the steps of passing a light image from a positive through a half-tone screen having uniform photographic elements of variable density, passing the half-tone image thus formed through a uniform translucent layer which per se has light-diffusing properties, impressing the resultant light image upon a suitably supported silver halide emulsion layer said screen, translucent layer, and suitably supported light-sensitive layer being in contact during the impression of the image on the latter, and developing the emulsion layer.

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