No. 725,252. PATENTED APR. 14, 1903.

J. JACOBSON.

HALF-TONE SCREEN.

APPLICATION FILED MAR. 5, 1902.

NO MODEL.

Fig. 1.

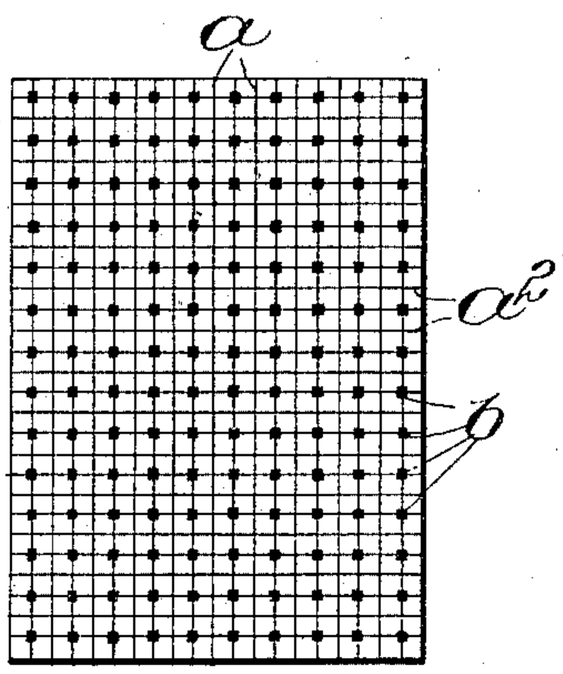
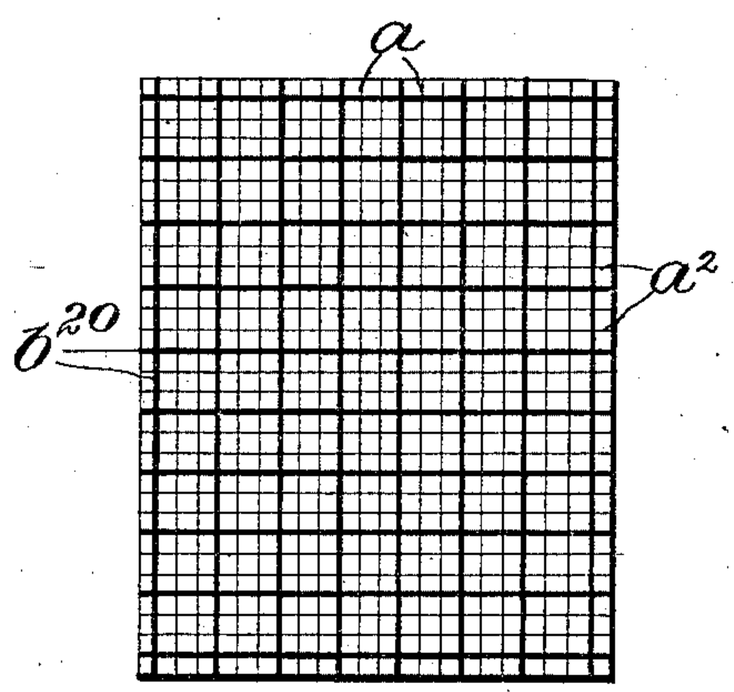


Fig. 2.



Witnesses:
Jas. J. Maloney.
Nancy P. Ford.

Inventor,
Jonr Jacobson,
by J. L. Parks & J. Livermore,
Attys.

UNITED STATES PATENT OFFICE.

JOHN JACOBSON, OF NEW YORK, N. Y., ASSIGNOR TO IDA M. CRAWFORD, OF NEW YORK, N. Y.

HALF-TONE SCREEN.

SPECIFICATION forming part of Letters Patent No. 725,252, dated April 14, 1903.

Application filed March 5, 1902. Serial No. 96,752. (No model.)

To all whom it may concern:

Be it known that I, JOHN JACOBSON, of New York, county of New York, and State of New York, have invented an Improvement in Half-Tone Screens, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

The present invention relates to a half-tone screen for use in making half-tone negatives, the object of the invention being to obtain a screen of such character that by consecutive exposures, qualified by variations in the diaphragm, a greater contrast can be obtained in the printing-plate finally obtained from the half-tone negative.

The screen embodying the invention is provided with the usual regularly-spaced lines, with the addition, however, of symmetrically-arranged parts having a greater area of opacity than that of the majority of the lines, these parts of greater area of opacity preferably, though not essentially, consisting of dots symmetrically arranged at the intersections of the lines, the purpose being to preserve certain portions of the printing-surface in the high lights, these portions, however, being lesser in number than the portions preserved by the intersections of the lines of an ordinary line-screen in producing the half-tone plate. Taking, for example, an ordinary half-tone plate, it is of course possible to intensify to some extent the high lights by a second or prolonged exposure; but the resistance offered by the thin lines and their intersecting points would in this instance be substantially overcome, so that when a plate made from the negative were etched that portion of the surface corresponding to the high lights would be entirely dissolved away and a half-tone plate in which the high-light portions were entirely deprived of printing-surfaces would be objectionable, for the reason that there would be no support for the material upon which the ink would be transferred in printing, so that the lines of demarcation between the shaded portions and the lighted portions would be sharp and smudgy. It is desirable, therefore, in intensifying the high lights to still preserve certain printing portions of the plate for the purpose of supporting the material printed upon uniformly over the entire surface of the plate. This is accomplished in accordance with the present invention, in which those printing portions of the plate which correspond to those parts of the picture where there is practically no shade are modified by lessening the number of printing-surfaces, which in the print are represented by dots, rather than by eliminating the said surfaces altogether. To these ends the screen embodying the invention is provided with the usual number of regularly-spaced opaque lines, to which are added a lesser number of portions of greater area of opacity symmetrically spaced and symmetrically arranged with relation to the lines, so that the nagative can be overexposed to a considerable extent, without, however, being chemically changed throughout the entire surface corresponding to the high lights. In other words, the negative can be exposed long enough to overcome the resistance of the thinner lines, while the parts protected by the greater areas of opacity are not subjected to the chemical change.

Figure 1 is a representation of a line-screen embodying the invention in the preferred form, and Fig. 2 is a similar view showing a modification.

The screen shown in Fig. 1 is provided with lines a and a^2, preferably arranged, as shown, at right angles to each other, and the said screen is provided at certain intersections of the lines with enlarged opaque portions b, which may be conveniently referred to as "dots," with the understanding, of course, that it is immaterial what shape these opaque portions are formed in, a rectangular shape, however, being preferable. These dots are symmetrically arranged, being herein shown as covering four out of every nine intersections of the lines, it being obvious, however, that the arrangement may be varied provided that the arrangement is symmetrical. In preparing a plate in conjunction with a screen of this kind it will be seen that if the exposure is first made with a comparatively small diaphragm the more shaded portions of the plate will be acted upon to the usual extent, and the plate can then be subjected to a further exposure with a larger diaphragm,

the result being that the light will act with full effect upon all portions of the plate exposed to the higher lights except those protected by the enlarged opaque portions or dots *b*, while this further exposure will not materially affect the more shaded portions, but will act to affect the negative, so as to practically eliminate all the printing-surfaces of the finished half-tone plate in the high lights except those which correspond with the dots *b*.

In the modification shown in Fig. 2 the screen is shown as provided with symmetrically-arranged lines b^{20}, which are wider or have a greater area of opacity than the other lines, so that certain portions of the plate regularly and symmetrically arranged have a greater area of opacity than the main portions of the plate. While the screen made in this way may not be so effectual as a screen made with the lines and dots, as shown in Fig. 1, it is obvious that upon exposure substantially the same effect will be produced, and it is not, therefore, intended to limit the invention to any specific design so far as relates to the opaque portions of the screen, since the design may obviously be modified without affecting the result and without departing from the invention.

I claim—

1. A half-tone screen having regularly-spaced opaque lines; combined with a lesser number of portions of greater area of opacity also equally spaced and coincident with the lines of lesser area of opacity.

2. A half-tone screen having regularly-spaced opaque lines, combined with dots symmetrically arranged at the intersections of some of the lines, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOHN JACOBSON.

Witnesses:

JOHN H. WYBURN,

HELEN HEROLD.