July 10, 1951 A. H. GAEBEL 2,559,915

HALF-TONE SCREEN DETERMINER

Filed Dec. 28, 1949

Fig. 1.

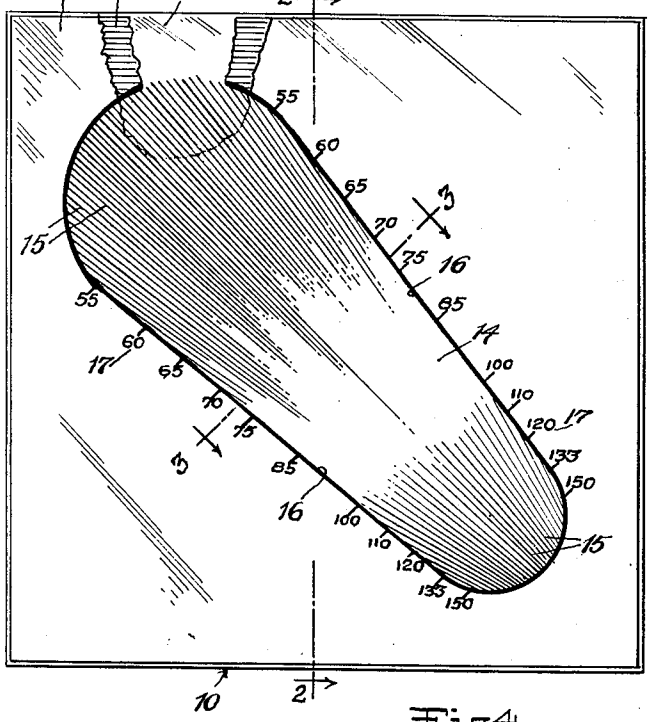


Fig. 2.

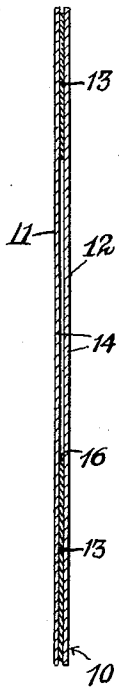


Fig. 3.

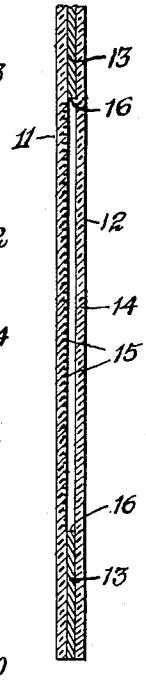


Fig. 4.

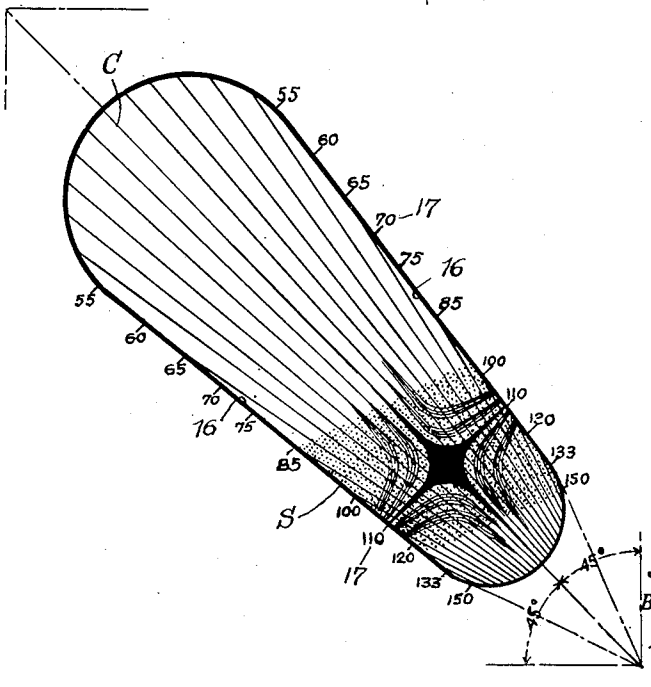
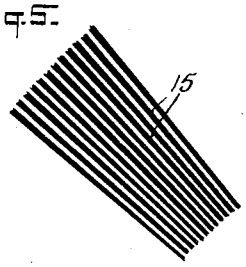


Fig. 5.



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HALF-TONE SCREEN DETERMINER

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3 Claims. (Cl. 88—14)

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This invention relates to a device for counting the number of lines per linear inch of half tone screens used in the printing art.

The principal object of the present invention is the provision of a device of the indicated character having a comparatively greater counting range than analogous devices hitherto available.

A further object of the invention is the provision of a device of the indicated character which is accurate, and visually indicates in a clear manner the exact count of the lines or rulings of half-tone screens.

The present invention also resides in the convenience and the economy derived therefrom.

The nature of the invention and its distinguishing features and advantages will appear when the following specification is read in conjunction with the accompanying drawing, in which:

Fig. 1 is a top plan view of a device constructed in accordance with the present invention, portions thereof being broken away to show certain features.

Fig. 2 is a sectional view taken on the line 2—2 of Fig. 1;

Fig. 3 is a fragmentary enlarged sectional view taken on the line 3—3 of Fig. 1;

Fig. 4 is a plan view illustrating the manner in which a half-tone screen or a half-tone print affects the present device when laid thereon for the purpose of counting the lines or rulings per linear inch.

Fig. 5 shows portions of some of the radial interference lines and the relation of the lines greatly magnified.

Referring now more particularly to the several views of the drawing, it will be apparent that the device consists of a flat rectangular plate 10, the plate being substantially square in the present instance, although the plate may be any other suitable shape.

The plate 10 comprises two transparent laminations 11 and 12. The laminations in the present instances are made of Vinylite, but may be made of any other suitable material. The lamination 11 has applied thereto a layer of opaque substance 13, surrounding a portion which remains clear or transparent thereby providing a window 14. The lamination 11 also has printed thereon in the clear portion 14 a group of opaque radial lines 15 having a common point of radiation. The lines 15 are spaced equidistantly. The center line C of the group is disposed at an angle of forty-five degrees with

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respect to any one of the straight edges of the plate 10. There are about one hundred lines 15 in the present instance. In Fig. 4 some of the lines 15 are omitted for the sake of convenience.

Each line 15 is tapered. It tapers toward the common point of radiation. The clear spaces between the lines 15 are equal in shape and length to the lines 15, or in other words, the spaces taper similarly to the tapering of the lines 15, as shown in Fig. 5.

The opaque layer 13 on the lamination 11 has imprinted thereon a numerical scale 16 bordering the window 14 at each side thereof. Each scale 16 is subdivided according to the number of lines or rulings of a half-tone screen per linear inch, which lines are designated by the scale numerals 17 ranging from 55 to 150.

Half-tone screens through which almost all magazine and newspaper illustrations are produced are engraved in standard number of lines per linear inch in both directions at ninety degree angles. Such screens are made of sheet glass having thereon opaque lines, and the lines are equal in width to the transparent spaces between them. The lines or rulings of the screens used are 50, 60, 65, 70, 75, 80, 85, 100, 110, 120, 133, 150 etc. per linear inch.

In the present device according to the mentioned screens, the grid or group of lines 15 may be 50 or less to 150 or more per linear inch. At 50 lines and transparent spaces, the width of each line is $\frac{1}{100}$ of an inch as is the clear space between two lines. At 150 lines, the width of each line as well as the clear intervening space is $\frac{1}{300}$ of an inch.

The present device having the features hereinabove described when laid flatwise on a screen or half-tone print with the center line C at 45 degrees will produce a definite pattern or moire in the form of a four pointed star S, by reason of the interference of the lines 15 and the lines of a screen or dots of a half-tone, as the case may be. As shown in Fig. 4 two points diametrically opposite each other of the star point to the indices 110 of the scales 16, thereby visually indicating that the screen has 110 lines per linear inch, or in the case of a half-tone print the same count would be indicated.

By making the lines 15 and the intervening spaces tapered, it is possible to obtain a more pronounced and definitive star pattern correctly determining the number of rows of dots per linear inch in half-tone screens.

It is to be understood that the invention is not

restricted to the embodiment illustrated and described, but includes all changes and modifications coming within the scope of the appended claims.

I claim:

1. A half-tone screen determiner consisting of a flat plate having a stright edge, said plate having a transparent portion, and an opaque portion surrounding said transparent portion, and there being located on said plate in said transparent portion a group of tapered radial opaque lines tapering toward a common point of radiation and spaced equi-distantly, the center line of said group being disposed at an angle of forty-five degrees with respect to said straight edge; and said plate having a numerical scale thereon bordering said transparent portion, cooperating with said lines when the plate is laid flatwise on a half-tone and said scale then indicating the number of lines per linear inch of the screen.

2. A half-tone screen determiner as set forth in claim 1, wherein the spaces between the lines are tapered similarly to the tapering of the lines.

3. A half-tone screen determiner consisting of a flat plate composed of laminations bonded together flatwise, there being two transparent laminations, one of said laminations having a layer of opaque substance thereon providing the plate with a clear portion, one of said laminations having located thereon at said clear portion a group of tapered radial opaque lines tapering toward a common point of radiation and spaced equi-distantly, the center line of said group being disposed at an angle of forty five degrees with respect to at least one edge of the plate, and said opaque layer having a numerical scale thereon bordering said clear portion cooperating with said lines when the plate is laid flatwise on a half-tone screen, and said scale then indicating the number of lines per linear inch of the screen.

ARTHUR HENRY GAEBEL.

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