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J. A. H. HATT

APPARATUS FOR MAKING HALFTONE NEGATIVES

Filed Feb. 11, 1922

Fig. 1.

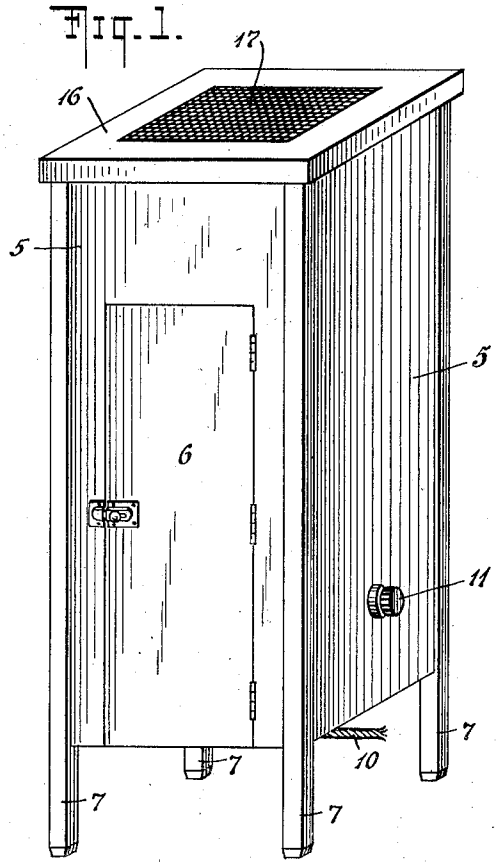


Fig. 2.

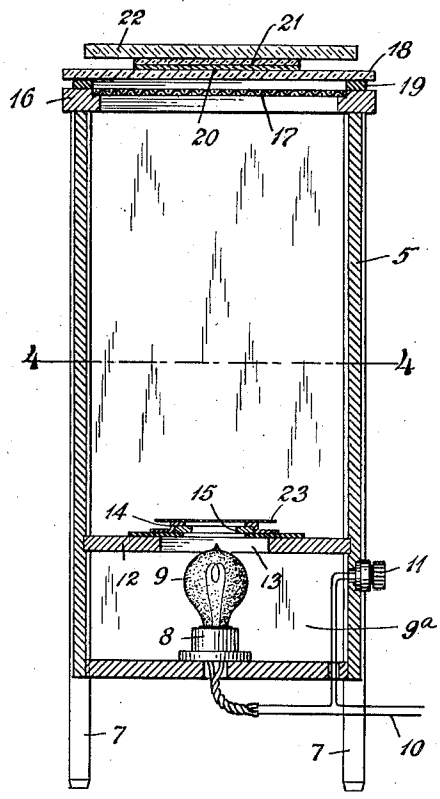


Fig. 3.

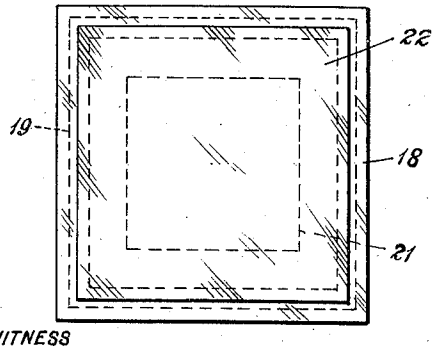
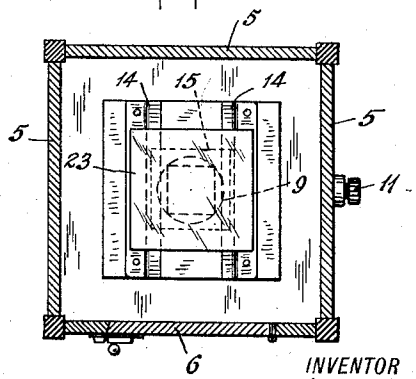


Fig. 4.



WITNESS

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UNITED STATES PATENT OFFICE.

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APPARATUS FOR MAKING HALFTONE NEGATIVES.

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My invention relates to the art of making half-tone negatives and has for its object to provide an apparatus of novel construction whereby the production of half-tone negatives is reduced to the simplest form, and whereby the distinctness and sharpness of the negatives is increased to a maximum extent. A further object of the invention is to provide an apparatus in which adjustments for focus and screen distance are avoided and in which complicated mechanism heretofore considered necessary is done away with. Other more specific objects of my invention will appear from the description hereinafter and the features of novelty will be pointed out in the appended claims.

In the accompanying drawings, which illustrate an example of the invention without defining its limits, Figure 1 is a perspective view; Fig. 2 is a vertical section; Fig. 3 is a plan view, and Fig. 4 is a horizontal section on the line 4—4 of Fig. 2.

As shown in the drawings, the apparatus comprises a cabinet 5 of suitable dimensions and material and provided with a door 6 through which access to the interior of said cabinet may be had; if the apparatus is to be used in an upright position, the cabinet 5 may be mounted upon supporting legs 7, as shown in Figs. 1 and 2. It will be understood that the position of the cabinet in actual practice is not limited to that illustrated; instead of being upright, the cabinet may be horizontal, inclined, or occupy any other position most suitable to the conditions and circumstances surrounding its use.

At its one end, that is, the lower one in the illustrated example, the cabinet is provided with a socket 8 for the accommodation of an incandescent lamp 9 and connected by means of wires 10 with a source of electrical energy; for convenience of operation, a switch 11 may be included in the electric circuit and preferably mounted upon the cabinet 5, so as to be readily accessible. The lamp 9 is preferably provided with an opal globe sometimes known in the trade as a milk-white bulb, or otherwise arranged to reduce the intensity of the light. A partition 12 is provided within the cabinet 5 in proximity to the lamp 9 and is constructed with an opening 13 in registry with said lamp suitable means 14 are provided on said partition 12 for receiving and holding diaphragms 15 of different dimensions and predetermined type. It will be understood that with the construction shown, the lamp 9 is located in a light-proof compartment 9^a, from which the light rays may pass only through the diaphragm 15.

At is other end, that is, the upper one in the illustrated example, the cabinet 5 is provided with a frame 16 recessed at its inner periphery or otherwise constructed to receive a screen 17 of any suitable type for making half-tone negatives. A glass support 18 is supported above and in registry with the screen 17 and is spaced therefrom by means of screen-distance gauge pieces 19 which are of predetermined dimensions to give the proper screen distance between the screen 17 and support 18 suitable for making negatives. Upon this glass support 18 a positive 20 and a sensitized plate 21 are placed, with the positive 20 between the support 18 and the plate 21; the positive 20, which constitutes an element carrying the matter to be reproduced, may be a picture specially prepared for the purpose or it may be any positive photograph, cut or the like. In order to maintain the positive 20 and plate 21 in close and uniform surface contact with each other and with the glass support 18, a weight 22 may be placed upon the plate 21; in the preferred form, this weight 22 consists of a glass plate of the required dimensions and weight. In practice, and for the purpose of providing against an excess of halation, it is preferred to modify the intensity of the light by placing over the diaphragm 15 a sheet 23 of any suitable material whereby the intensity of the light is reduced, such sheet comprising, for instance, a piece of ground glass or a piece of tissue paper, or both, or either may be stained with a non-active color such as pale yellow, green or red, or such color may be added to the ground glass by combining with it a suitably colored material, such as tissue paper or glass.

The apparatus is utilized in a dark room or in a room illuminated by means of a red light or its equivalent, it being understood that the proper diaphragm 15 necessary for the work in hand is placed in position in the means 14 and covered with a light-modifying screen 23 of a character according also with the result desired. After the positive 20, plate 21 and weight 22 have been placed upon the support 18, which has previously been properly spaced from the screen 17 to secure the desired screen dis-

tance, the light 9 may be switched on, for instance, by operating the easily accessible switch 11. The light rays now pass through the diaphragm 15 and the sheet 23 and are modified in intensity thereby and in the modified condition pass successively through the screen 17, support 18 and positive 20 and finally reach the sensitized plate 21.

The lamp 9 and diaphragms 15 take the place of the lens ordinarily used in cameras, but their function is confined to simply projecting the light rays through the screen and on to the sensitized plate.

The principal advantage of the apparatus described over the cameras commonly used for making half-tone negatives is that, with the present apparatus, the negative is much sharper than heretofore. This is due to the fact that the image is not projected through the screen, as is the case with ordinary cameras, but the screen is projected through the image, or in other words, through the positive 20. The image or positive 20, being in surface contact with the sensitized plate 21, must necessarily give a sharper result than when it is projected through the screen; this advantageous difference is particularly noticeable in coarse screen work.

The apparatus is furthermore always "in focus", and is always ready to receive the positive and to produce a negative without any preliminary adjustments being required. In addition to this, the apparatus also has a fixed screen distance, which means that the user of the apparatus does not need to be a skilled half-tone operator in order to produce an efficient and satisfactory product; in fact, the apparatus is quite as simple to operate as the ordinary fixed focus camera used by amateur photographers.

The apparatus is extremely simple in construction and takes the place of a great deal of complicated and expensive apparatus heretofore found necessary. The simplicity in construction and operation of the present apparatus makes it possible for an unskilled operator to make half-tones of a superior quality and high grade.

Various modifications in the specific form shown and described may be made within the scope of the claims without departing from the spirit of my invention.

I claim:

1. An apparatus for making half tone negatives comprising a cabinet having an apertured transversely extending partition therein to divide said cabinet into a pair of chambers, a light mounted within one of said chambers in registry with the aperture of said partition, a screen secured in one end of said cabinet, opposite to and in alignment with said light and aperture, a light pervious supporting element exteriorly of said screen and means to support said element at a fixed screen distance from said screen.

2. An apparatus for making half tone negatives comprising a cabinet provided between its ends with an apertured partition, a light pervious plate mounted upon the upper end of said cabinet for supporting an element carrying the matter to be reproduced and a sensitized plate to be printed in surface contact with said element, a light mounted within said cabinet below said apertured partition, a screen mounted at the upper end of said cabinet between said light and element and at a fixed screen distance from said element, and a diaphragm removably supported on said partition between said light and screen.

3. An apparatus for making half-tone negatives comprising a cabinet having an apertured chamber at one end, a light in said chamber, means for removably supporting a diaphragm in registry with the aperture of said chamber, means mounted on said cabinet at a distance from said chamber, and including a screen, an element carrying the matter to be reproduced supported adjacent to said screen and a sensitized element, in the path of the light rays, and removable means located adjacent to said diaphragm supporting means for selectively modifying the light rays emanating from said light.

4. An apparatus for making half-tone negatives comprising a cabinet having an apertured chamber at one end, a light in said chamber, means for removably supporting a diaphragm within the cabinet in registry with the aperture of said chamber, a screen located at the other end of said chamber, a light pervious support located exteriorly of said cabinet in registry with said screen and adapted to support a positive and a sensitized element; means for spacing said support from said screen in predetermined accordance with the screen distance required, and removable means adjacent to said diaphragm-supporting means for selectively modifying the light rays emanating from said light.

5. An apparatus for making half-tone negatives comprising an upright cabinet having an apertured chamber at its lower end, a door whereby access to the interior of the cabinet is had, a light in said chamber, means within said cabinet for supporting a diaphragm in registry with the aperture of said chamber, a screen extending across the cabinet at its upper end and closing the same, a light pervious supporting plate located exteriorly of said cabinet in registry with said screen, and means supported exteriorly upon said cabinet for spacing said supporting plate at a predetermined distance from said screen in accordance with the screen distance required.

In testimony whereof I have hereunto set my hand.

JOSEPH ARTHUR HENRY HATT.