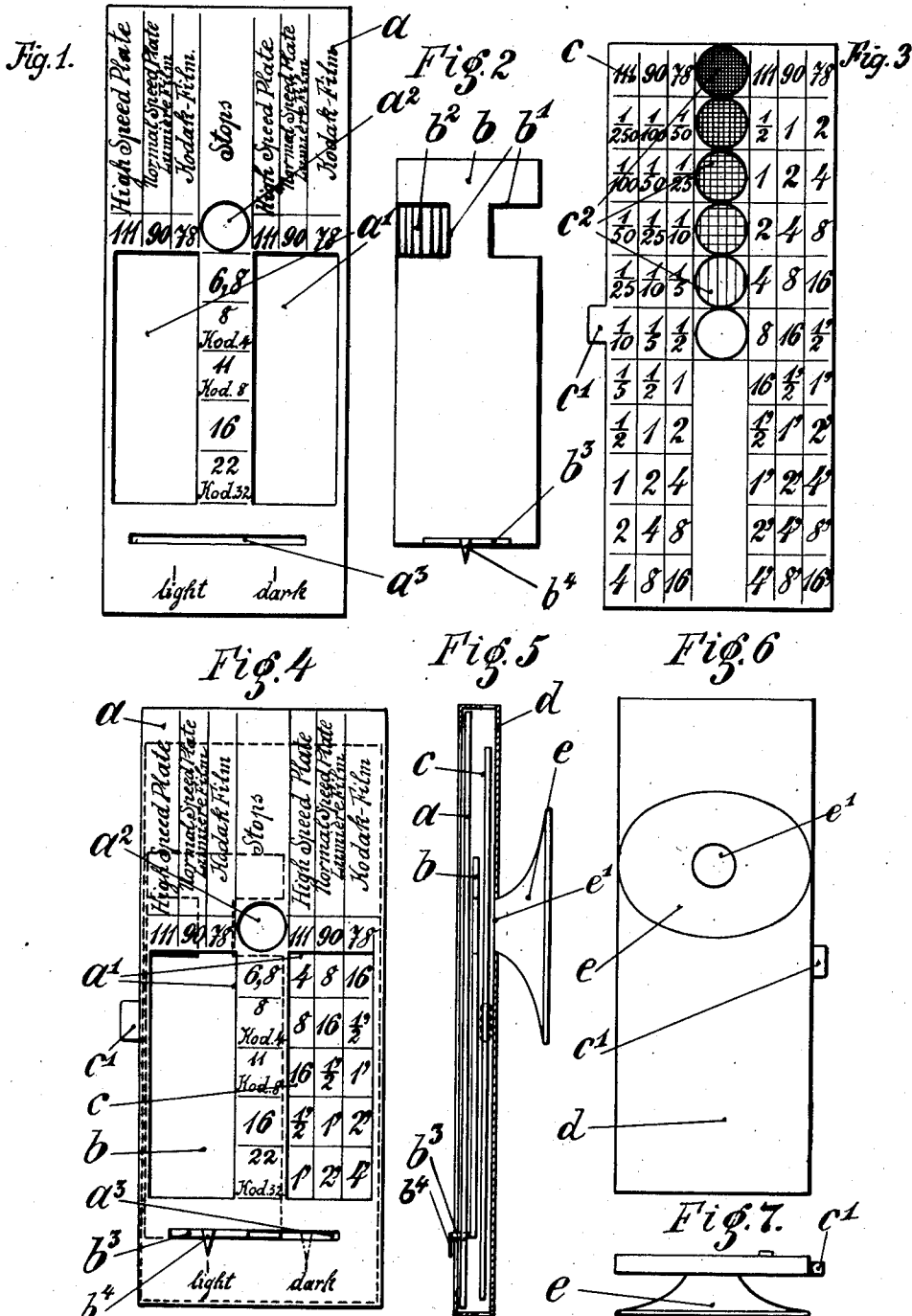


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PHOTOMETER.

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1,027,328.

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Witnesses:-
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UNITED STATES PATENT OFFICE.

ALBRECHT ERHARDT, OF MUNICH, GERMANY.

PHOTOMETER.

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To all whom it may concern:

Be it known that I, ALBRECHT ERHARDT, a subject of the German Emperor, and residing at Munich, Germany, have invented certain new and useful Improvements in Photometers, of which the following is a specification.

The present invention has reference to improvements in devices for determining the proper exposure in photography, and it relates more particularly to a simple and reliable construction of exposure meter or photometer, by means of which the proper time for exposing the negative may directly be read off, without having to refer to special tables and to make more or less troublesome computations as must now be done with most of the exposure meters known, such as for instance Wynne's Infallible or Heyde's actino-photometer.

In order to make the invention more readily understood, I will now describe it with reference to the accompanying sheet of drawings, in which—

Figure 1 shows a front view of the stationary front plate; Fig. 2 shows a small, laterally reciprocated slide; Fig. 3 shows the large, vertically displaceable slide; Fig. 4 shows a front elevation of the stationary plate with the two slides in position relative thereto; Fig. 5 shows a side view of the device with the casing in section; Fig. 6 represents a rear view, and Fig. 7 a top view of the device in natural size.

The stationary plate a is provided with two cut-outs a^1 and the window a^2 , and contains above column-inscriptions referring to the character or brand of the plate or film negative used, and in the center column inscriptions referring to the diaphragm or stop openings. In the lower part is provided a slot a^3 and below it two marks and the indications "Light" and "Dark," for purposes to be hereinafter described.

The slide c , by means of the handle c^1 , can be vertically reciprocated back of the plate a and is provided with a series of disks c^2 of varying translucence, of graded colored glass or other suitable material. As shown, six such color disks are used, but their number, obviously, may vary from this. By shifting the slide, any one of these color disks may be made to register with the

window a^2 in the front plate a . At either side of the color disk column are tables denoting the various exposure periods in seconds and minutes and fractions thereof, which figures have been obtained by previous experiments.

Between the plate a and the slide c is interposed the laterally displaceable slide b , shown in Fig. 2, with two cut-outs b^1 , into one of which is fitted a plate b^2 of a colored, translucent medium, preferably red glass, and these cut-outs are so disposed that in either end position of the slide b the window a^2 is either unobstructed or in register with the colored plate b^2 . The slide b is provided below with a ledge b^3 adapted to engage, and slide in, the slot a^3 in the front plate a , and a pointer b^4 on this ledge points respectively to one of the marks "Light" and "Dark."

The described parts are preferably secured in a casing d , as shown in Fig. 5, provided rearwardly with an aperture e^1 registering with the window a^2 , and with a viewing funnel or eye-piece e . Obviously the plate a may also be so formed as to serve itself as casing.

The operation is the following:—The object to be photographed is to be viewed through the eye-piece e , with the two slides b and c in such position that the view through the window a^2 is unobstructed, and the pointer b^4 points to the mark "Light." The slide c is now shifted vertically by means of its handle until a colored disk c^2 is interposed in front of the window a^2 through which the object can just still be recognized. The test for the correct choice of disk is the fact that the succeeding darker disk will blot out the object. If all the disks prove to be too light, the slide b is shifted over to the right, from "Light" to "Dark," so that the ruby plate b^2 is interposed between window a^2 and slide c , and the color disks are successively tried again until the correct one has been found. Upon the device thus having been adjusted, the time required for the exposure can now be read off directly from the respective table showing through the corresponding cut-out a^1 , by following the vertical column, corresponding to the sensitiveness of the negative employed, down to the horizontal line, corresponding

to the stop used. The square in which these two lines intersect contains the required exposure time. By way of example:—A kodak film is used; the object to be photographed is very bright, consequently the slide *b* is shifted into the right-end position, its color plate *b*² then lying back of the window *a*², and the left table of exposure figures being exposed; the slide *c* is in its lowermost position, its darkest color disk registering with the color plate *b*² and the window *a*²; kodak stop 32 is set. The required exposure will then be found to be 1/2 second. Without stop the exposure would be reduced to 1/50 second. Again, for a badly lighted object, the lowest color disk of greatest translucence has been determined on; the slide *b* is shifted to the lefthand position with its empty cut-out back of the window *a*²; a normally rapid plate and continental stop 6, 8 are used; then the correct exposure is shown to be 1/2 minute. With kodak stop 32, it would be 8 minutes.

It will be noticed that the stop column in every square shows two different figures, except in the fourth division, the upper figure giving the stop as denoted on most continental cameras, and the lower figure that of kodak manufacture. The stop figure is identical in the two makes.

The figures 111, 90 and 78 on the plate *a* and the slide *c* denote the speed number of the plate or film.

It is obvious that the form of the device may also be different, for instance oval or circular, instead of oblong as shown.

What I claim is:—

1. In a photometer, the combination of a stationary front plate provided with plate-speed indications and stop inscriptions and with a window, a slide provided with columns of exposure figures, and with a plurality of disks of graded translucence, and means for vertically reciprocating said slide, whereby said disks are successively made to register with the window in said stationary plate, substantially as and for the purpose set forth.

2. In a photometer, the combination of a stationary front plate provided with two sets of inscriptions denoting the character of the negative, with a stop column down the center, with a window and with two cut-outs flanking said stop column, a slide having two cut-outs, and a colored translucent plate in one such cut-out, means for laterally reciprocating said slide, and means for indicating its respective end positions, a second slide, a series of colored disks of graded translucence down the center of this second slide, two sets of vertically disposed columns of exposure figures thereon, and means for vertically reciprocating said second slide back of said first slide, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

ALBRECHT ERHARDT.

Witnesses:

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