

(No Model.)

V. L. GEORGE & C. L. WOODSIDE.
EXPOSURE METER.

No. 554,865.

Patented Feb. 18, 1896.

Fig. 1.

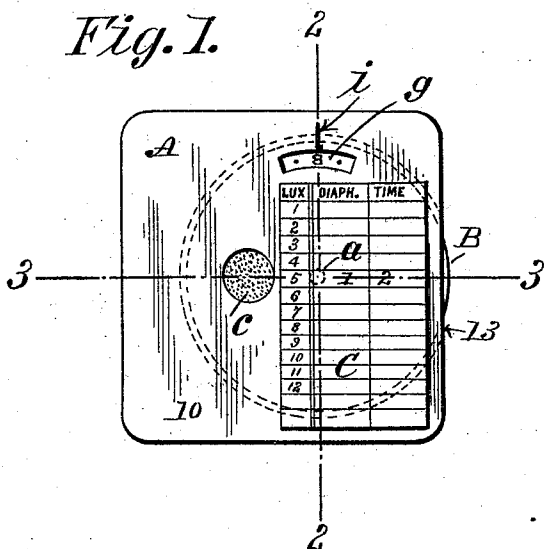


Fig. 2.

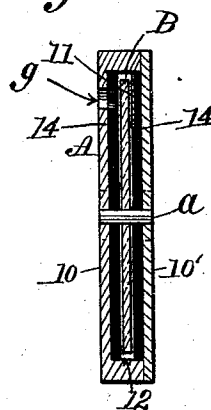


Fig. 3.

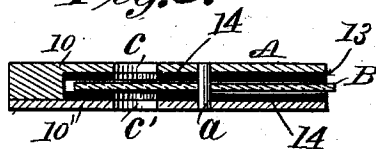


Fig. 4.

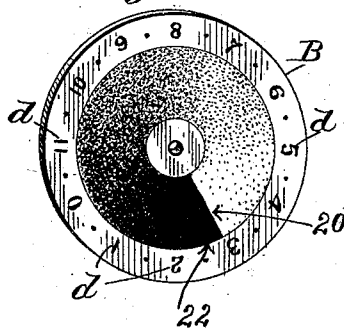
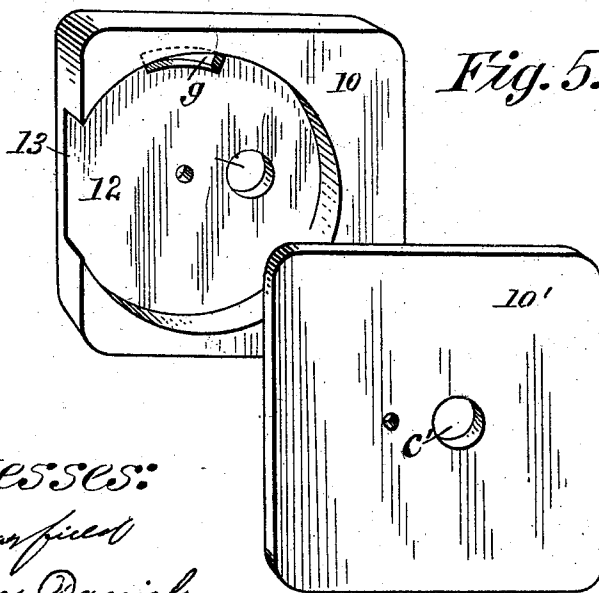


Fig. 5.



Witnesses:

J. W. Garfield
James Daniel

Inventors,

Vesper L. George and
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UNITED STATES PATENT OFFICE.

VESPER L. GEORGE AND CHARLES L. WOODSIDE, OF MALDEN, MASSACHUSETTS, ASSIGNORS OF ONE-THIRD TO CHARLES W. HILLS, OF MANCHESTER, NEW HAMPSHIRE.

EXPOSURE-METER.

SPECIFICATION forming part of Letters Patent No. 554,865, dated February 18, 1896.

Application filed May 27, 1895. Serial No. 550,743. (No model.)

To all whom it may concern:

Be it known that we, VESPER L. GEORGE and CHARLES L. WOODSIDE, citizens of the United States, and residents of Malden, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Exposure-Meters for Photographers, of which the following is a specification.

10 This invention relates to improvements in exposure-meters or devices for use by photographers for determining at any time when they propose to make an exposure, using a camera with any lens with which it may be equipped, the actual degree of light whereby
15 they may with any given or known photographic plate and diaphragm at the front of the lens know with accuracy the length of the exposure proper and requisite to secure
20 a fine negative, one which is neither under-timed nor overtimed.

The object of the invention is to provide a device for this purpose which shall be very efficient and convenient in use, very compact and self-contained and in no way cumbersome, very simple, inexpensive and durable, and also susceptible of being produced in such an attractive and desirable form as to render it especially meritorious and acceptable commercially.

The invention consists in the constructions and combinations of parts, all substantially as will be hereinafter fully described and set forth in the claim.

35 Reference is to be had to the accompanying drawings, in which—

Figure 1 is a front view of the exposure-meter. Fig. 2 is a vertical cross-sectional view on the line 2 2, Fig. 1. Fig. 3 is a horizontal cross-section taken on the line 3 3, Fig. 1. Fig. 4 is a perspective view of the disk as removed from the case, and Fig. 5 is a perspective view of the separable portions of the case as separated the one from the other.

45 The device will be now described as to its construction.

A wooden case A is first provided, which may be about two inches square, more or less, and it is preferably made in the two sections
50 10 10', as seen in Figs. 2, 3, and 5. The

thicker section, 10, of the case is hollowed out circularly, as seen at 12, so that the disk B may be therein contained, the recess 12 opening to one edge of the case, as seen at 13.

The disk may have the pivot *a* provided therefor, on which it may rotate, and when mounted in the case it will have its edge projecting a little way outwardly beyond the edge of the case, as shown, so as to turn it with the forefinger.

The holes *c c'* are bored entirely through both thicknesses of the casing-sections 10 10', their location being to one side of the central pivot for the interposed disk B.

In making up the exposure-meter two layers of felt 14 14 are glued to the internal flat walls of the casing at opposite sides of the disk to prevent the latter from being scratched.

The disk B is advantageously of glass, and it may be a photographic negative or reproduction with a graduated amount of opacity, and, as represented, it may be clear transparent glass at the line 20, then graded in uniform degree to a black and entirely obscure condition at 22. The disk has marginally a series *l* of numerals to represent seconds of time, with intermediate dots or graduations of subdivisions. These figures are preferably black. A piece of white paper 11 is placed at a location under the marginal portion of the disk and opposite the aperture *g*, which is formed through only the one front wall 10 of the case, for the purpose of rendering the figures and graduations more conspicuous. The said aperture may be made long enough to show one figure and the half-points at either side thereof. A small line, as seen at *i*, will be marked above the middle of the aperture to render the register more accurate.

The operations and effects will be now described and explained.

The disk should be turned, primarily, until "0" comes at the register-opening *g*, when the clear transparent part 20 of disk will appear at the eyehole *c*. Now further revolve the disk from the top downward, when by degrees the light will fade until, when a sufficiently opaque portion of the disk, corresponding to the brightness of the day, comes opposite the

eyehole *c*, the light will become extinct. Just when it disappears will be the time to note the degree at the register. Of course on a bright day the light would remain longer, giving a higher register. On a dark day it would disappear soon, giving a low register.

The face of the casing may have a tablet *C*, as shown. This may be celluloid or a card, or several cards, and on the tablet may be kept a formula, as of course each exposure-meter will require to be regulated with the camera with which it is used. The tablet may have three columns, one headed "Lux" or "Light," another designating "Diaphragm," and the third "Time."

A serious trouble is experienced by amateur photographers because of their inability to judge accurately of the intensity of the light. The size of the diaphragm used with the lens is definite, as is also the time of exposure. The only indefinite part is the judgment of the degree of light; but by the present device accurate exposures may be readily made. For example, the person takes a good picture, using, say, No. 1 diaphragm and giving two seconds' exposure, and finds that at the time of taking the picture the degree of light registered by the exposure-meter is five. He notes this "5" on his card under "Lux," placing "1" under "Diaphragm" and "2" under "Time," and thus he has a standard by which he may determine that when the device measures "5," by using the No. 1 diaphragm and giving the two seconds' time, (the plates employed being of the same kind or degree of sensitiveness,) he will be assured of

getting a good and properly-exposed picture. Should the picture, instead, be overexposed, he will know that the next time he finds the light at "5" he must give less than two seconds' exposure, and thus he very soon will have a complete and perfect scale arranged on his card corresponding to all the numbers under "Lux," which in turn corresponds with the numbered degrees of opaqueness of the disk *B*, so that, whatever the degree of light, he may always know what diaphragm to use and what time to give to produce a perfect exposure.

We claim—

In an exposure-meter, a circular disk which is adapted to be rotated, is provided with a series of numerals around its edge, and which has a circular space around its center that is transparent at one part but from this part is opaque in a constantly-increasing degree; combined with a frame having a recess formed therein to receive the disk and provided with a light-aperture *c*, and a slot *g*; the recess being eccentrically placed in the frame so that the edge of the disk will project through the frame at one side, substantially as shown.

In testimony that we claim the foregoing as our invention we have signed our names, in presence of two witnesses, this 18th day of May, 1895.

VESPER L. GEORGE.
CHARLES L. WOODSIDE.

Witnesses:

H. C. HILL,
C. B. CUMMINGS.