

E. M. WOODWORTH.
TIME EXPOSURE METER.
APPLICATION FILED JULY 5, 1911.

1,032,260.

Patented July 9, 1912.

Fig. 1.

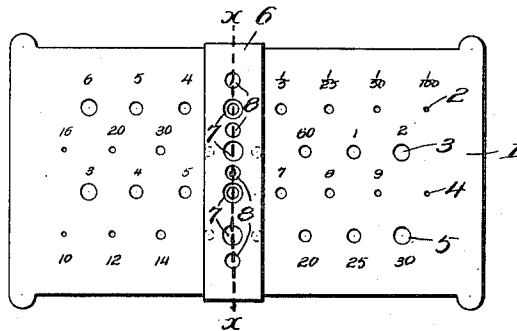


Fig. 2.

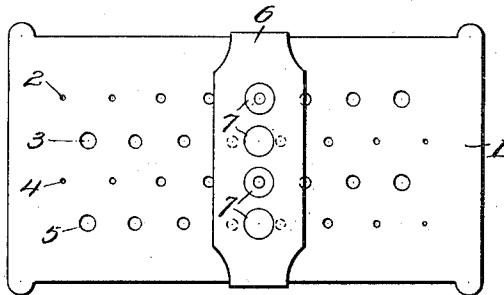


Fig. 3.

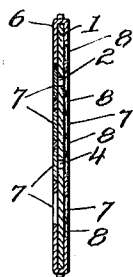
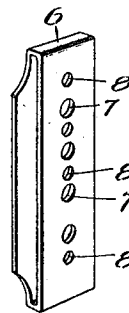


Fig. 4.



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TIME-EXPOSURE METER.

1,032,260.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, EDRED M. WOODWORTH, a subject of the King of Great Britain, residing at Lacolle, in the Province of Quebec and Dominion of Canada, have invented new and useful Improvements in Time-Exposure Meters; of which the following is a specification.

This invention enables the length of time of an exposure in photographic work to be determined with accuracy so as to attain the best possible results under varying conditions of light.

In accordance with the present invention a plate is employed as a base and has a series of openings formed therein and adapted to be covered by material made more or less transparent, said material being preferably mounted upon a slide which is movable upon the plate so as to be brought opposite a selected opening. The series of openings formed in the base are graduated and provided with indications to designate the length of time of an exposure, the opening being selected which will enable a clear outline of the object to be photographed being discerned.

The invention consists of the novel features, details of construction and combination of parts, which hereinafter will be more particularly set forth, illustrated in the accompanying drawing, and pointed out in the appended claim.

Referring to the drawing, forming a part of the specification, Figure 1 is a view in elevation of a photographic time exposure meter embodying the invention. Fig. 2 is a reverse view of the meter. Fig. 3 is a sectional view on the line $x-x$ of Fig. 1. Fig. 4 is a detail view of the slide.

Corresponding and like parts are referred to in the following description, and indicated in all the views of the drawing, by the same reference characters.

The meter comprises a base 1, which may consist of a plate, card or like part. The base or plate 1 has a series of openings, the same being indicated at 2, 3, 4 and 5. The openings of each series are arranged in a straight line and the openings gradually increase in size from first to last. The series of openings are reversely arranged, that is the openings of the series alternately increase in size from right to left and left to right so as to economize space. In the first line of openings the smallest opening

at the end of the line is marked to designate the shortest period of time, the intervals increasing from the smallest opening to the largest opening at the end of the line. The time indications progressively increase from the first line of openings to the last. In the present instance the smallest opening at the end of the line of openings 2 represents one hundredth of a second, whereas the largest opening at the end of the line of openings 5 indicates thirty minutes.

A slide 6 is mounted upon the plate or base 1 to move across the same from one end to the other. This slide has openings 7 in register with the lines of openings 2, 3, 4 and 5. The openings 7 are of uniform size. Other openings 8 are formed in the slide 6 opposite the respective lines of openings 2, 3, 4 and 5 for convenience of enabling the proper indication being accurately read. The slide 6 may be of any construction and as indicated is in the form of a band which extends around the base 1, both members being provided with registering openings 7. Several of the openings in the rear member of the slide are covered with material rendered more or less transparent. The material covering the topmost opening of the slide is the least transparent and that covering the next opening is a little more transparent and that covering third opening more transparent than the preceding opening, whereas the last opening is unobstructed so that the rays of light may pass freely therethrough.

When the object to be photographed can be seen through the upper opening of the slide opposite the line of openings 2 the light is the strongest. When the slide is moved to bring the upper opening 7 opposite the smallest opening of the line of openings 2 and the object to be photographed is clearly visible the light is the strongest possible and the exposure should be the smallest amount possible, which, according to the measure is one hundredth of a second. According to the degree of intensity of the light the time of exposure is varied, the same being determined by moving the slide along the plate 2. If the object cannot be discerned through the smallest opening of the series 2 the slide is moved until the object is clearly visible through one of the openings of the series 2, the time of exposure being indicated by the marking or graduation. In a subdued light it may not

be possible to clearly discern the object through any one of the series of openings 2 and recourse is had to the second line of openings 3 and when the light is further
5 diminished it may not be possible to view the object through any one of the series of openings 3, hence the third line of openings 4 is selected. In cloudy weather or in places
10 where the light is dimmed the time of exposure is determined on reference to the fourth line of openings 5.

From the foregoing it will be understood that the meter determines the time of exposure when making a photographic picture
15 first by reference to variously sized observation openings and secondly by reference to material possessing more or less transparency and to a combination of these features. The material covering the openings 7 of the
20 slide may be of any nature, such as mica, glass, celluloid or the like, the same being treated in any manner to obstruct the rays of light to a greater or less degree. Coloring matter of any kind may be applied to
25 the material or the same may be smoked or otherwise subjected to treatment to offer a greater or less resistance to the passage of the rays of light therethrough. The plate is
30 provided at its corners with stops 9 to prevent displacement of the slide, said stops being formed integrally with the plate.

From the foregoing description, taken in connection with the accompanying drawing,

the advantages of the construction and of the method of operation will be readily apparent to those skilled in the art to which
35 the invention appertains, and while I have described the principle of operation of the invention, together with the device which I now consider to be the embodiment thereof,
40 I desire to have it understood that the device shown is merely illustrative, and that such changes may be made when desired as are within the scope of the claim appended
45 hereto.

Having thus described the invention what is claimed as new, is:—

A photographic exposure meter comprising a plate having lines of openings, the openings of each line progressively increasing
50 in size from one end of the line to the opposite end, a slide movable upon the plate and having observation openings to register with the lines of openings of the plate, and material covering the openings of the
55 slide and selected to offer a greater or less obstruction to the passage of the rays of light, the openings of the lines of openings being indicated by graduations corresponding
60 with intervals of time.

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

EDRED M. WOODWORTH.

Witnesses:

H. WOODWORTH,
M. A. WOODWORTH.