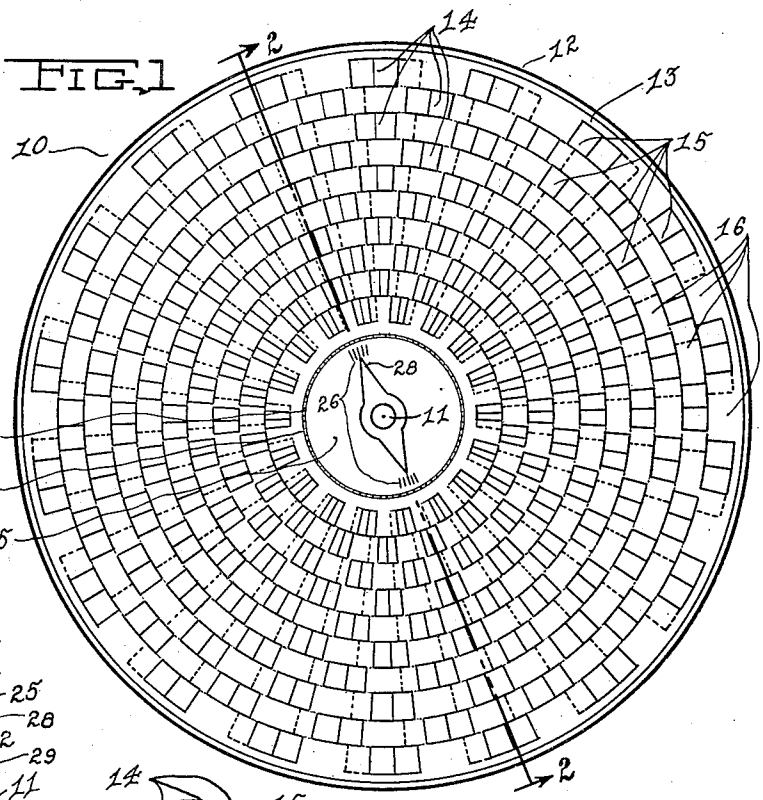
May 31, 1932. A. O. TATE 1,860,824

APPARATUS FOR TREATING LIGHT AND SIMILAR RAYS

Filed Nov. 7, 1928

FIG. 1



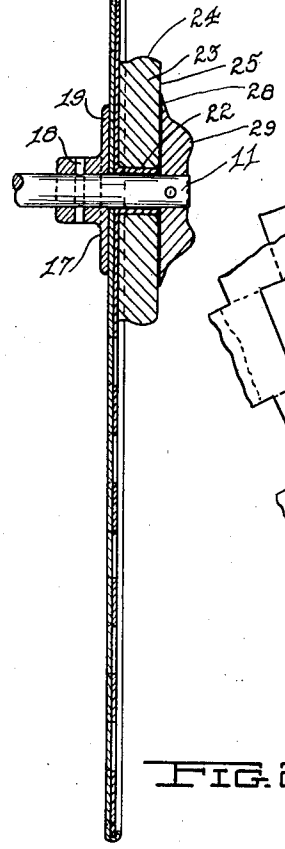
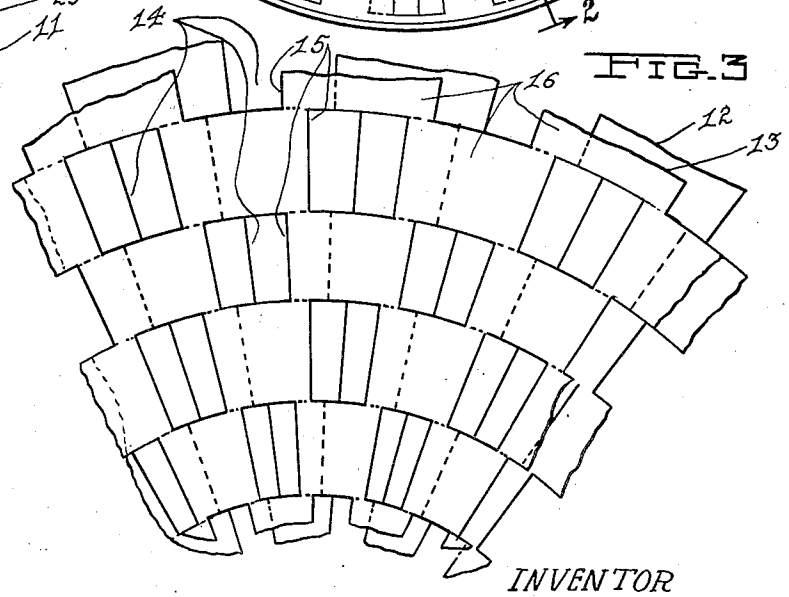


FIG. 2

FIG. 3



INVENTOR
A. O. Tate
ATTORNEY
E. J. Kirkpatrick

Patented May 31, 1932 1,860,824

UNITED STATES PATENT OFFICE

ALFRED ORDE TATE, OF TORONTO, ONTARIO, CANADA

APPARATUS FOR TREATING LIGHT AND SIMILAR RAYS

Application filed November 7, 1928. Serial No. 317,840.

This invention relates to a method for regulating the quantities of light transmitted through apertures in a revolving disc for the purpose of visualization and involves the use of two discs, similarly apertured, one being imposed upon the other and one being fixed with relation to the rotating shaft on which it is mounted, and the other rotatably movable relative to the said shaft. This combination has been devised particularly to meet the conditions which arise in the operation of moving vehicles where natural light volumes vary under the influences of time and weather and where varying intensities of artificial light values are also encountered.

It has also been designed with the view of adapting it for permanent or constant use as differentiated from temporary or emergency use, to promote the flexibility, simplification and convenience of the installation and operation of revolving visualizing discs as described more particularly in my application for United States Letters Patent Serial No. 311,118, filed October 8, 1928, for apparatus for treating light and similar rays.

The constant use of this double disc combination is rendered feasible by providing initial apertures of such relatively comprehensive areas that almost normal light values are transmitted therethrough. The reduction of these values for purposes of clearer vision is effected through the graded reduction of these areas in the manner hereinafter described.

In the accompanying drawings forming part of this specification is shown an acceptable method of mounting the apertured discs and of controlling the amount of light passing through said apertures on the rotation of said discs by means of a rotating drive shaft or other suitable rotating means.

In the drawings, Figure 1 is an elevational view showing the controlling mechanism.

Figure 2 is a section view taken on lines 2—2 in Figure 1.

Figure 3 is an enlarged fragmentary view of Figure 1.

Like numerals of reference indicate corresponding parts in the various figures.

Referring to the drawings, the numeral 10 indicates the device complete, which consists essentially of a driving shaft 11 suitably driven, an apertured circular disc 12 rigidly mounted at its central axis on said drive shaft, and a similar apertured circular disc 13 rotatably mounted at its central axis on said shaft 11 and closely situated to said disc 12 so as to present a friction contact therewith. The apertures 14 in the disc 12 are situated in concentric circumferential areas or zones and are bounded by radial lines extending from the central axis and by the arcs between said radial lines of said inner and outer circumferential boundaries of said zones, as described more fully in my application for United States Letters Patent No. 311,118, filed October 8, 1928, for apparatus for treating light or similar rays.

Apertures 15 are formed in the disc 13 similar to the apertures 14 and are similarly spaced and situated in regard to the central axis of the disc 13, as are the apertures 14 in regard to the central axis of the disc 12. The apertures are preferably formed to admit the maximum amount of light therethrough when the discs are rotated but at the same time there must be sufficient blank space, as indicated at 16, between the apertures in each concentric zone, to allow the apertures in the disc 12 to be hidden by the said blank space when the disc 13 is rotated a sufficient distance relative to the disc 12. The disc 12 may be rigidly mounted to the shaft 11 in any suitable manner of mounting well known to the art.

In Figure 2, I show one particular method of mounting in which a hub portion 17 is keyed to the shaft 11 by the key 18 passing therethrough and has a flange portion 19 secured to the disc 12 either by bolts or rivets or by welding or soldering. The disc 13 is mounted so as to bear against the flat surface of one side of the disc 12, preferably on the side presented to the eye. One convenient method of securing this disc in place is by forming a peripheral flange 20 on the disc 12 engaging the periphery of the disc 13 and bent over as at 21 to retain said disc 13 in place. The disc 13 at its central axis has the hub portion 22 formed thereon and

bored to form a snug working fit with the shaft 11. A suitable knob 23 preferably knurled on its outer periphery as at 24 to form a convenient gripping member, is mounted on the hub portion 22 and is rigidly secured to the disc 13 in any suitable manner, such as riveting, bolting, or welding, as desired.

The rear surface 25 of the knob 23 is planed and graduated as at 26. An indicating needle 28 having suitable flanges or wings 29 is rigidly secured adjacent to the end of the shaft 11 and so positioned that the needle 28 will register on the graduations 26. The purpose of this indicating needle 28 and the graduations 26 are to indicate the angle of rotation of the disc 13 relative to the disc 12, or in other words, to indicate the portion of the apertures 14 formed in the disc 12 that is hidden by the blank space 16 formed between the apertures 15 in the disc 13 and incidentally the amount of light that will be admitted through the apertures 14 and 15 for a certain position of the disc 13 relative to the disc 12. The disc 13 is so mounted to the disc 12 that although it may be rotated relative to said disc 12 when desired, there will be sufficient friction in its mounting to releasably lock the discs relative to each other, in any particular position.

What I claim is:

1. In an apparatus for treating light or similar rays, a disc rigidly mounted at its central axis on a shaft suitably rotated, concentric apertures in said disc formed between circumferential and radial line boundaries and adapted to reveal an object in vertical sections and so arranged that the time of exposure for any vertical section will be equal, a second disc having similar apertures and rotatably mounted at its central axis on said shaft, a peripheral flange on said first named disc engaging the periphery of said second named disc and bent over to bear on the portion of said second named disc adjacent to the periphery thereof to form a snug working fit therewith, a knob or gripping member secured to said second named disc and in the central axis thereof, graduations on said knob, and a wing nut mounted on said shaft and having a needle or extension therefrom registering on said graduations.

2. A device for revealing an image by sections which comprises a disc having a plurality of apertures therein arranged at varying distances from the center of said disc and spaced circumferentially thereof to intermittently reveal said image, a second disc having apertures similarly arranged, means for mounting said discs for rotation about the same axis, and means for shifting one of said discs relative to the other thereof whereby the effective area of said apertures may be varied.

3. A device for sectionally revealing an image which comprises a disc having a plurality of apertures therein variably spaced from the center thereof, said apertures being spaced circumferentially of said disc to intermittently reveal said image, each of said apertures being bounded by radii of said disc and by arcs of concentric circles, and means for adjusting the area of said apertures to control the volume of light transmitted thereby.

4. A device for sectionally revealing an image which comprises a disc having a plurality of apertures therein variably spaced from the center thereof, said apertures being spaced circumferentially of said disc to intermittently reveal said image, each of said apertures being bounded by radii of said disc and by arcs of concentric circles, and means for adjusting the area of said apertures to control the volume of light transmitted thereby, comprising a second disc having apertures similarly arranged and being mounted for rotation about the same axis as said first disc and normally held in fixed position with respect thereto.

5. A device for sectionally revealing an image comprising a disc having a plurality of apertures bounded by radii of said disc and concentric circles, said apertures being variably spaced from the center of said disc and being spaced circumferentially of said disc to intermittently reveal said image, the apertures on a given circle being spaced circumferentially a distance greater than the width of each aperture, a second disc having similar apertures similarly arranged, means for mounting said discs for rotation about the same axis, and means for varying the relative angular position thereof for controlling the size of said apertures.

Signed at the city of Toronto, this 29th day of October, 1928.

ALFRED ORDE TATE.