

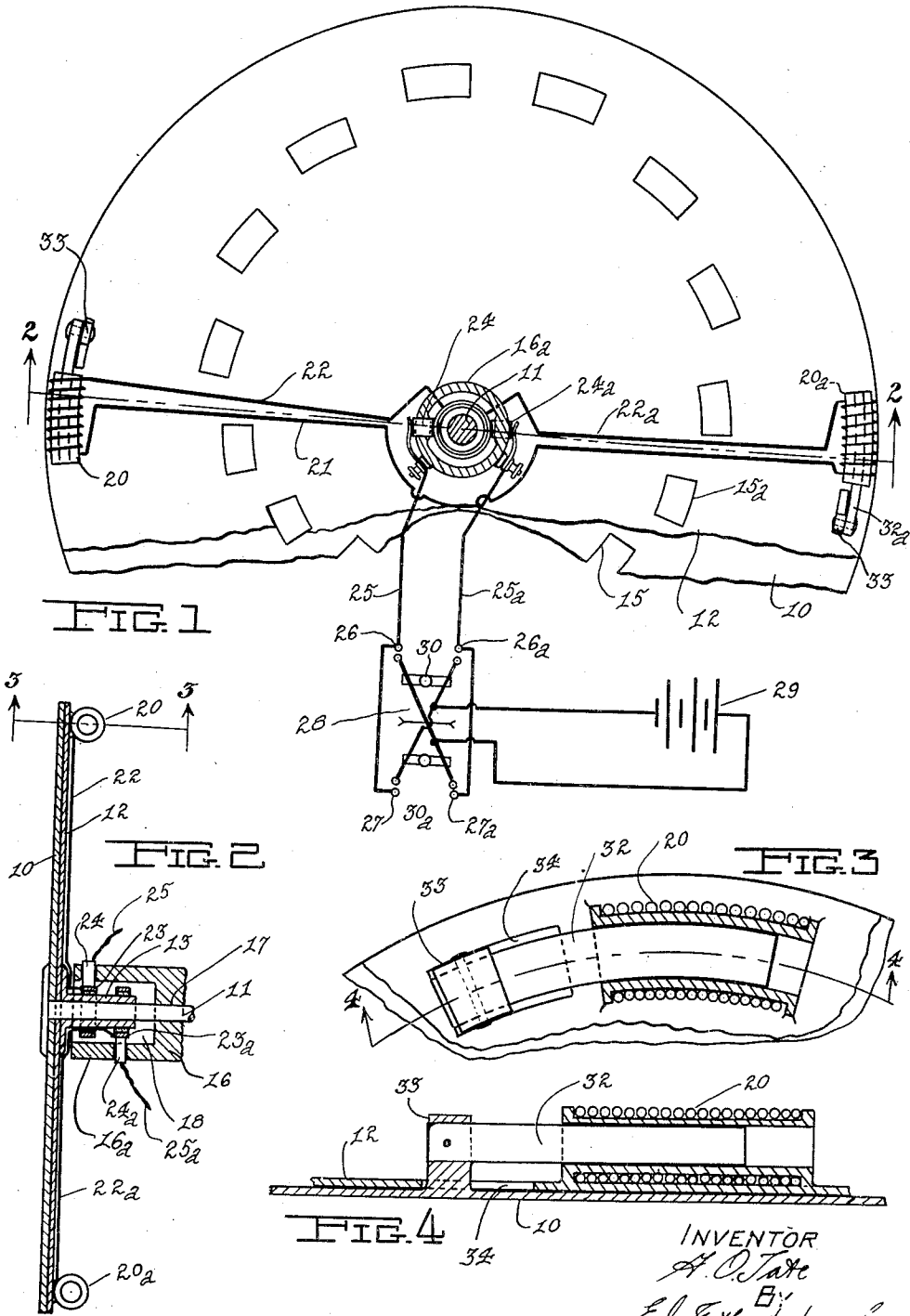
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APPARATUS FOR TREATING LIGHT AND SIMILAR RAYS

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APPARATUS FOR TREATING LIGHT AND SIMILAR RAYS

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This invention relates to a method of 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 also varying intensities of artificial light values are 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, and preferably, although not necessarily, such as described more particularly in my application for United States Letters Patent No. 311,118, filed October 8, 1928.

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, and by the provision of means as described herein whereby the volumes of light transmitted through the said apertures may be regulated while the said disc is revolving. The reduction of these values for purposes of clearer vision is effected through the graded reduction of these areas in the manner hereinafter described.

A further object is to construct an efficient means for controlling the effective openings through the combined apertures and to operate such means from the driving wheel of a motor vehicle or from some other point convenient to the driver, thus aiding in the adjustment of the size of said effective openings without distracting the attention of the driver from his driving duties and at the same time provide for this adjustment while the vehicle is in motion.

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 a diagrammatic plan view of the device complete.

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

Figure 3 is a section view taken on lines 3—3 in Figure 2.

Figure 4 is a section view taken on lines 4—4 in Figure 3.

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

Referring to the drawings, the numeral 10 indicates a circular disc rigidly secured at its central axis on a suitably rotated shaft 11. 12 is a second circular disc of the same dimensions as the disc 10 and is mounted, at its central axis on the shaft 11 and friction held thereagainst in close contact with the disc 10. The disc 12 is rigidly secured at its central axis on the sleeve 13 mounted on the shaft 11 and forming a working fit thereon. A plurality of view apertures 15 and 15A similarly situated and of the same dimensions are formed in the discs 10 and 12, respectively. The apertures 15 and 15A preferably have their boundaries defined by radial lines from the central axis of said disc and by circumferential lines concentric with said central axis. The apertures are so arranged in the disc that any object viewed therethrough when said discs are rotated will be revealed in successive sections from top to bottom or bottom to top. Thus the apertures 15 and 15A are arranged in a series from a point adjacent to the circumference to a point adjacent to the central axis.

Each aperture is preferably spaced from the neighboring aperture by respective sectors of the circular disc of the same radian measure. The discs 10 and 12 are so mounted in relation to each other that the respective apertures in each disc will partially or wholly correspond with each other. When the respective apertures 15 and 15A wholly coincide with each other a maximum amount of

light will be transmitted therethrough. As one disc is rotated slightly in relation to the other, the effective openings through the respective apertures will be decreased and the light volumes transmitted therethrough will be correspondingly decreased. The numeral 16 indicates a housing in which the shaft 11 is rotatably mounted as at 17 and which is rigidly secured to the frame of a motor or other vehicle in any suitable well known manner. The housing 16 has a recessed portion 18 formed adjacent the disc 12 in which the sleeve 13 is housed. In order to rotate the disc 12 through a slight angle in relation to the disc 10, I mount a pair of solenoids 20 and 20A preferably adjacent the circumference of the disc 12 and diametrically opposite each other. The solenoids 20 and 20A are preferably of the same weight and dimensions so that perfect balance will be retained on said disc 12 about its central axis. The solenoids 20 and 20A being wound in series are connected at one pole by the insulated wire 21 secured on the face of the disc 12. The lead wires 22 and 22A from the other poles of the solenoids 20 and 20A are led in towards the central axis and connected to respective insulated rings 23 and 23A respectively. Suitably insulated contact brushes 24 and 24A are carried on the sleeve 16A of the housing 16 forming the recessed portion 18. Lead wires 25 and 25A lead to two pair of contact points 26 and 26A and 27 and 27A, respectively.

A two button reversing switch 28 connected to a source of electricity 29 serves to make and break a circuit from said source of electricity 29 to the solenoids 20 and 20A wound in series and to reverse the direction of flow of electrical energy through said circuit when desired. The reversing switch 28 is operated by the push button 30 and 30A respectively, according to the desired direction for the flow of current. The switch 28 is preferably one that is normally in its open position and that may only be in operation when either of the buttons 30 or 30A is depressed by the operator. Said switch 30 may be mounted in any convenient place such as on the steering wheel of the motor vehicle so that it may readily be operated without distracting the driver's attention from the roadway or from the operation of the vehicle.

Armatures 32 and 32A are mounted in the solenoid coils 20 and 20A, respectively and are adapted to be attracted or repelled by said coils when the current is flowing through them. The armatures are rigidly secured at their outer ends to extensions or lugs 33 formed on or secured to the disc 10 and extending through the slotted openings 34 formed in the disc 12. The slotted openings 34 are preferably arcual in form as are the armatures 32 and 32A and the solenoid coils 20 and 20A. The slotted openings 34 are of sufficient length to allow the disc 12 to rotate through a sufficient angle relative to the disc 10 to cause a partial closing or reducing of the effective openings through the apertures 15 and 15A. The length of the openings 34 is determined according to the minimum amount of light to be transmitted through the effective openings in said apertures 15 and 15A.

The openings 34 are preferably so situated that when the extensions 33 are in contact with the end of said openings distant from the solenoid coils 20 and 20A, the apertures 15 and 15A will wholly coincide with each other.

In the operation of this invention for ordinary daylight driving it is usually preferable to have a maximum amount of light transmitted through the apertures 15 and 15A, hence the relative positions of the disc 10 and 12 will be such that the apertures 15 and 15A will coincide with each other. When any excessive glare such as results from lights of an approaching motor vehicle, it is usually preferable to reduce the effective openings through the apertures 15 and 15A. Hence, the driver will close the switch 28 in such a manner that the current passing through the solenoid coils 20 and 20A will attract the armatures 32 and 32A, thus rotating the disc 12 through a slight angle relative to the disc 10 and reducing the effective openings through the apertures 15 and 15A. The reverse operation, namely that of bringing the disc 10 and 12 to a position where the apertures 15 and 15A wholly coincide, is performed by closing the switch 28 in such a manner that the current flowing through the coils 20 and 20A will cause a repulsion of the armatures 32.

I do not limit myself with respect to the particular form of device which may be employed to effect the operations described herein nor to any specific kind of energy as it is obvious that other sources of energy with their adaptable mechanisms may be employed for the reason that I believe that the conception of regulating the flow of light volumes through apertures in a revolving disc as herein described is broadly new and that I am entitled to claims commensurate with the originality of the invention.

What I claim is:

1. In visualizing apparatus, a plurality of apertured discs fixedly and adjustably mounted respectively and having registering apertures, a solenoid coil rigidly mounted on one of said discs and acting on an armature on the other of said discs for causing a partial rotation of the adjustable disc to reduce or increase the visualizing apertures through the discs.
2. In visualizing apparatus, a plurality of apertured discs fixedly and adjustably mounted, respectively and having registering

apertures, a pair of solenoid coils secured on one of said discs and diametrically opposite each other, armatures reciprocally mounted in said solenoids and secured to the other of said discs, stops to limit the reciprocation of the armatures in said solenoids and means for reversing the flow of energy through said solenoids and a source of electricity for energizing said coils for moving the adjustable discs to reduce or increase the visualizing apertures through the disc.

3. In scanning discs, a plurality of apertured discs fixedly and adjustably mounted respectively, a pair of solenoid coils secured on one of said discs and diametrically opposite each other, armatures reciprocally mounted in said solenoids, extensions on the other of said discs passing through slots in said solenoid mounting disc and rigidly secured to said armatures and forming means for limiting the respective rotation of one disc relative to the other and a circuit including a reversing and breaking switch electrically connecting said solenoids to a source of electricity.

4. In visualizing apparatus, an apertured disc fixedly mounted on a rotating shaft, an adjustable disc having apertures registering therewith and mounted on a sleeve on said rotating shaft and having a pair of insulated rings, a pair of solenoid coils secured to said adjustable disc and situated diametrically opposite one another and electrically connected in series with each other and with the rings in the sleeve, armatures reciprocally mounted in the solenoid coils and connected to said fixedly mounted disc, brushes on said rings forming means for electrically connecting the solenoid coils to a source of electricity and a reversing switch in the circuit and forming means for moving the adjustable disc to reduce or increase the apertures through the disc.

5. In a device for treating light and similar rays, a circular disc rigidly mounted at its axis on a rotating shaft and having apertures formed therethrough spaced circumferentially from each other and situated in successive concentric zones, a similar disc having similarly shaped apertures therethrough and mounted at its central axis on a sleeve forming a snug working fit with said shaft, a pair of insulated rings on said sleeve, a pair of solenoid coils rigidly secured on said last named disc and situated diametrically opposite each other and electrically connected in series with each other and with said rings respectively, armatures reciprocally mounted in said solenoid coils and secured to said first named disc by means of an extension from said disc passing through slotted openings in said last named disc, brushes on said rings forming means for electrically connecting said solenoid coils to a source of electricity and a reversing switch in said circuit.

6. In visualizing apparatus, a plurality of discs having registering apertures arranged to progressively and successively reveal an image, said discs being mounted for relative rotational movement and adjusting means for controlling the relative positions thereof comprising a link associated with one of said discs, a magnetic device associated with the other of said discs and adapted to control the position of said link, said magnetic device being connected with a rotating commutator whereby it may be operated while said discs are in motion.

7. In visualizing apparatus, a plurality of discs having registering apertures arranged to progressively and successively reveal an image, said discs being mounted for relative rotational movement, means for controlling the relative positions of said discs comprising magnetically operated elements associated with the respective discs and adapted to open and close said apertures in accordance with the magnetizing force applied thereto and means for applying current to said magnetic devices while said discs are in motion.

Signed at the city of Toronto, this 23rd day of May, 1929.

ALFRED ORDE TATE.