No. 773,485. PATENTED OCT. 25, 1904.

B. DUBINSKI.

ELECTRIC TIME SWITCH.

APPLICATION FILED MAR. 26, 1904.

NO MODEL. 2 SHEETS—SHEET 1.

Fig. 1.

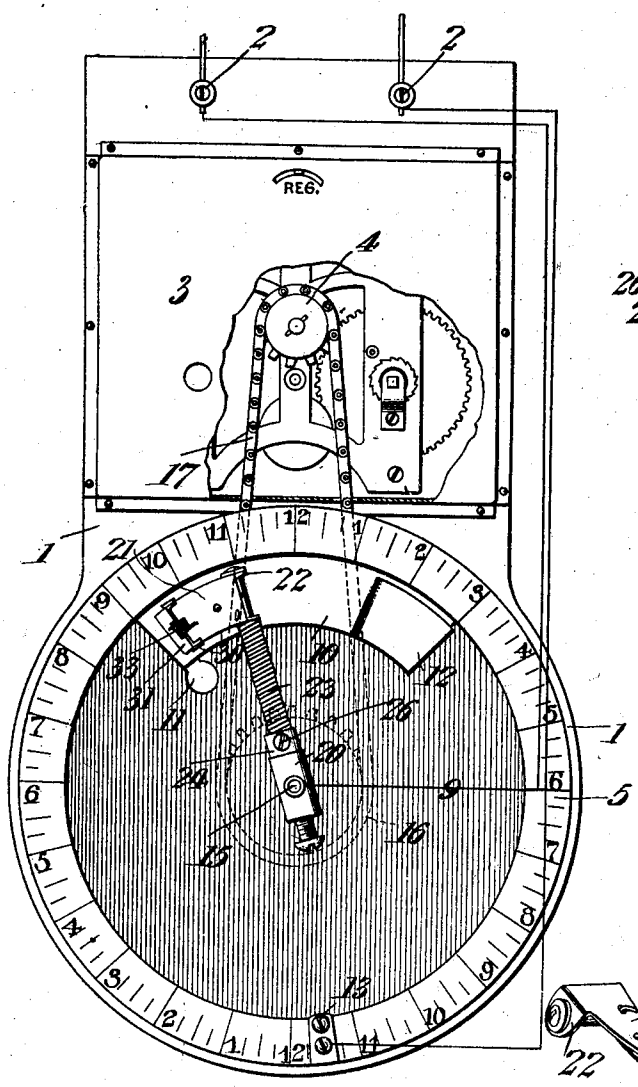


Fig. 2.

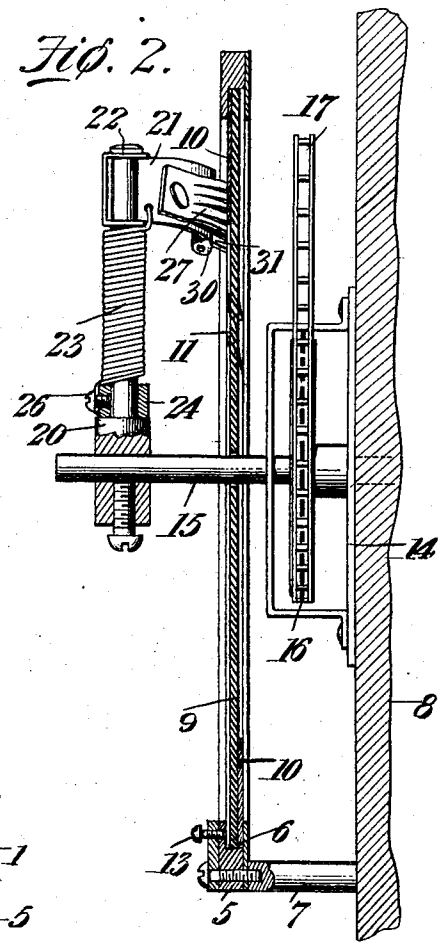
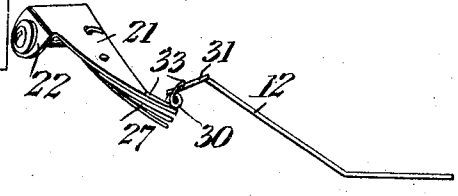


Fig. 3.



Witnesses
E. F. Stewart
Jno. E. Parker

Benjamin Dubinski Inventor
by C. A. Snow & Co.
Attorneys

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ELECTRIC TIME SWITCH.

APPLICATION FILED MAR. 26, 1904.

NO MODEL. 2 SHEETS—SHEET 2.

Fig. 4.

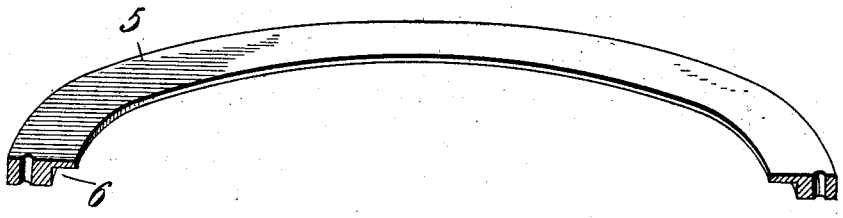


Fig. 5.

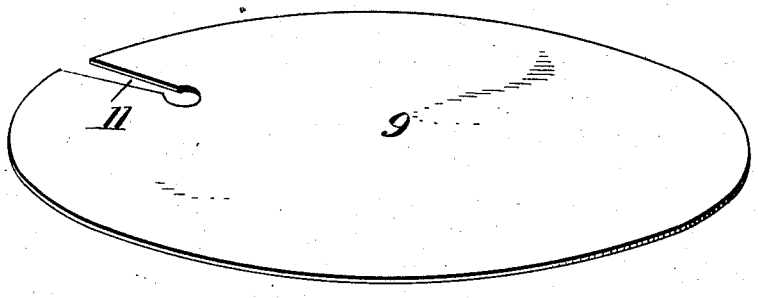
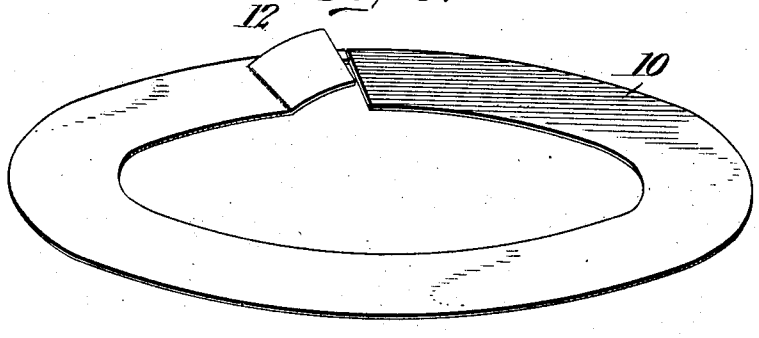


Fig. 6.



Witnesses
E. F. Stewart
Jno. E. Parker

Benjamin Dubinski Inventor
by Church & Church
Attorneys

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No. 773,485. Patented October 25, 1904.

UNITED STATES PATENT OFFICE.

BENJAMIN DUBINSKI, OF SAN ANTONIO, TEXAS.

ELECTRIC TIME-SWITCH.

SPECIFICATION forming part of Letters Patent No. 773,485, dated October 25, 1904.

Application filed March 26, 1904. Serial No. 200,175. (No model.)

To all whom it may concern:

Be it known that I, BENJAMIN DUBINSKI, a citizen of the United States, residing at San Antonio, in the county of Bexar and State of Texas, have invented a new and useful Electric Time-Switch, of which the following is a specification.

This invention relates to improvements in electric time-switches.

The principal object of the invention is to provide a switch that is connected to and operable by a clock-train, the contacts being so arranged as to permit of the necessary adjustment to close the circuit at any hour, to maintain the circuit closed for a predetermined length of time, and to open the circuit at any hour or minute of the day or night.

With these and other objects in view, as will more fully hereinafter appear, the invention consists in the novel construction and arrangement of parts hereinafter described, illustrated in the accompanying drawings, and particularly pointed out in the appended claims, it being understood that various changes in the form, proportions, size, and minor details of the structure may be made without departing from the spirit or sacrificing any of the advantages of the invention.

In the accompanying drawings, Figure 1 is an elevation of an electric time-switch constructed in accordance with the invention. Fig. 2 is a sectional elevation of the same. Fig. 3 is a detail sectional view, drawn to an enlarged scale, illustrating the position of the fixed and movable terminals when about to brake the circuit. Figs. 4, 5, and 6 are detail perspective views of portions of the apparatus more specifically referred to hereinafter.

Similar numerals of reference are employed to indicate corresponding parts throughout the several figures of the drawings.

In the drawings, 1 designates a base which may be of any desired shape and size, and at different points on the base are binding-posts 2, to be connected to the conductors of the circuit to be controlled. On the base is mounted a clock-train 3, on the hour-arbor of which is secured a sprocket-wheel 4, that will preferably be formed of vulcanized fiber or a similar non-conductor, or it may be a metallic wheel having an insulated hub portion in order to prevent any accidental grounding of the current.

At a point adjacent to the clock-train is a ring 5, having an annular groove 6 of such shape that that the ring will present the form of a channel-bar in cross-section, and on the outer surface of this ring are graduations, preferably twenty-four in number, to represent the twenty-four hours of the day, and these graduations may be further subdivided to any desired extent.

The ring 5 is made in two sections, which are supported by posts 7 on an insulated base 8, and in the groove of the ring are arranged a disk 9, formed of insulating material and a circular strip 10, a portion of which is disposed on one side of the disk and the remaining portion on the opposite side thereof, said disk being provided with a radially-disposed slit 11, through which the strip may be passed, and said strip at the end on the outside of the slit is uptured, as at 12, in order that it may be conveniently grasped, the strip being adjustable, and any desired portion of its length being moved to the outer face of the disk, the greater the length of the strip exposed the longer the time the circuit will be closed. The outer surface of the ring is provided with a threaded opening for the passage of an adjusting-screw 13, which may be turned after the disk and strip have been properly adjusted and the two members firmly clamped in position.

On the insulated base is secured a frame 14, having bearings for the reception of a spindle 15, and on the spindle is a sprocket-gear 16 of a diameter twice as large as the diameter of the sprocket-gear 4, and these two gears are connected together by a sprocket-chain 17, so that two complete rotative movements of the gear 4 will impart a single complete rotative movement to the spindle each twenty-four hours. The spindle projects through a suitable opening in the center of the insulating-disk, and at or near its outer end is secured a radially-disposed arm 20, having a reduced end portion on which is mounted a contact-carrying arm 21, the arm being pref-

erably formed of copper and having downturned wings 22, which are perforated for the passage of the reduced portion of the arm. On the main body of the arm is mounted a helical torsion-spring 23, one end of which is attached to the contact-carrier, while the opposite end thereof is secured to a collar 24, carried by the arm 20, said collar being adjustable circumferentially of the arm in order to increase the degree of stress of the spring and provided with a set-screw 26 to clamp the collar in any position to which it may be adjusted. The contact-carrier 21 is provided on its under face with a brush 27, formed of copper or other suitable material and adapted to engage the contact-strip 10, the arm and contact-carrier forming one terminal of an electric circuit, while the opposite terminal is formed by the metallic ring and the adjustable strip. The lower end of the carrier 21 is provided with upturned ears 30, between which is pivoted a small guard 31, and a spindle, which forms the pivotal connection between the guard and clamp, is surrounded by a helical torsional spring 33, having one end bearing on the guard and the opposite end bearing on the carrier 21.

In using the device the locking-screw is loosened and the disk is turned until the slit through which the metallic strip passes is in alinement with the graduation representing the time at which it is desired to close the circuit. The strip is then pulled or pushed, as the case may be, to adjust its outer end, or that end which is on the outer face of the disk, to a position in radial alinement with the graduation representing the hour when the circuit is to be broken, so that the user may quickly adjust the devices for closing the circuit at any desired time as well as for opening it at any desired time, and the time during which the circuit will be closed may vary from a fraction of an hour to any fraction of a day.

The guard which is pivoted to the carrier 21 serves as a wiper to remove any foreign material which may accumulate on the surface of the metallic strip and maintain the strip bright and clean, so as to insure contact and at the same time permit the quick breaking of the circuit when passing from the higher end of the strip, which, as previously described, is bent outward at an angle to the face of the disk in order to form a convenient handle for purposes of adjustment. The guard, moreover, will prevent the breakage of the more delicate brush-contacts, and the latter will be moved down from the end of the metallic strip and contact with the surfaces of the insulated disk.

It will be observed that the brush-contacts will leave the end of the strip in advance of the guard, and as the light torsional spring of the guard is much weaker than the main carrier-depressing spring the guard will be turned up at an angle and the brush-contacts will be allowed to descend close to the disk before the guard finally leaves the metallic strip, and thus insures full contact of the guard with the strip, so that full current strength may be carried without danger of burning the brushes. Without the employment of a guard of this character the brushes in elevating the metallic strip would gradually lessen the area of contact and burning of the brushes would result; but by the employment of a guard full and sufficient contact is insured until the circuit is finally broken.

Having thus described the invention, what is claimed is—

1. The combination with an electric time-switch, of an insulating-disk, a conducting-strip passing through a slit in such disk, and adjustable to expose a greater or less portion of its area, and a traveling contact for engaging said conducting-strip.

2. In a switch, a disk having a slit, and a strip extending through said slit to dispose portions of its length on opposite sides of the disk.

3. In a switch, a slitted disk formed of insulating material, and a curved strip of conducting material extending through the slit and revolubly adjustable with respect to said disk.

4. In an electric switch, a slitted disk formed of insulating material, and a curved strip of conducting material extending therethrough, the strip and disk being independently adjustable.

5. In an electric switch, a slitted disk formed of insulating material, and a strip of conducting material extending through the slit, the disk and strip being mutually and independently adjustable.

6. In an electric switch, a supporting-ring bearing graduations representing the division of time, an insulating-disk carried by the ring and provided with a radial slit, a curved strip of conducting material extending through the slit and adjustable in the direction of its length, and a revoluble contact for engaging said strip.

7. In an electric switch, a ring, a disk formed of insulating material mounted in said ring and provided with a radial slit, a curved strip of conducting material extending through the slit, means for clamping the strip and disk to the ring, and a revoluble contact for engaging the strip.

8. The combination with an electric switch, of a grooved ring, a disk of insulating material supported thereby and provided with a radial slit, a curved metallic strip extending through the slit and adjustable in the direction of its length, and a traveling contact for engaging the strip.

9. The combination in an electric switch, of a supporting-ring having a groove in its in-

ner face, said ring being provided with graduations representing divisions of time, a slitted disk of insulating material supported within the groove, a curved strip of conducting material extending through the slit and adjustable in the direction of its length, the disk being also adjustable to present its slit in alinement with any one of the graduations, a clamping-screw carried by the ring and serving to confine both the strip and disk in adjustable position, and a movable contact for engaging said strip.

10. The combination in an electric switch, a grooved supporting-ring having graduations representing divisions of time, a slitted disk of insulating material supported within the groove, a curved strip of conducting material extending through the slit, both strip and disk being independently adjustable, a shaft or arbor extending through an opening in the insulating-disk, an arm carried by the shaft or arbor, and a circuit-closing contact carried by the arm and adapted to travel over the disk and strip.

11. In an electric time-switch, a slitted disk, a curved strip of adjusting material extending through said strip and provided with a curved upturned end at an angle to the base of the disk, a revoluble contact-arm, a spring-pressed contact supported thereby and adapted to engage the strip, and a pivotally-mounted spring-pressed guard disposed at the end of said contact.

12. The combination in an electric switch, of a slitted insulating-ring, an adjustable metallic strip extending through the slit and provided with an upturned end portion, a spring-pressed contact for engaging the strip, yieldable arms forming a part of said contact, and a pivotally-mounted guard disposed at the end of the contact, substantially as specified.

13. In an electric-switch mechanism, the combination with a metallic conductor, of a movable brush, and a guard member formed of metal and serving as an auxiliary circuit-closer for holding the circuit closed after the brushes are moved from contact with said metallic conductor.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

BENJAMIN DUBINSKI.

Witnesses:
E. W. FELTER,
W. G. SCHIMMELPFENNING.