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PATENTED MAY 29, 1906.

F. C. HUBER & J. E. MANZEL.

ELECTRIC TIME SWITCH.

APPLICATION FILED MAY 23, 1905.

2 SHEETS—SHEET 1.

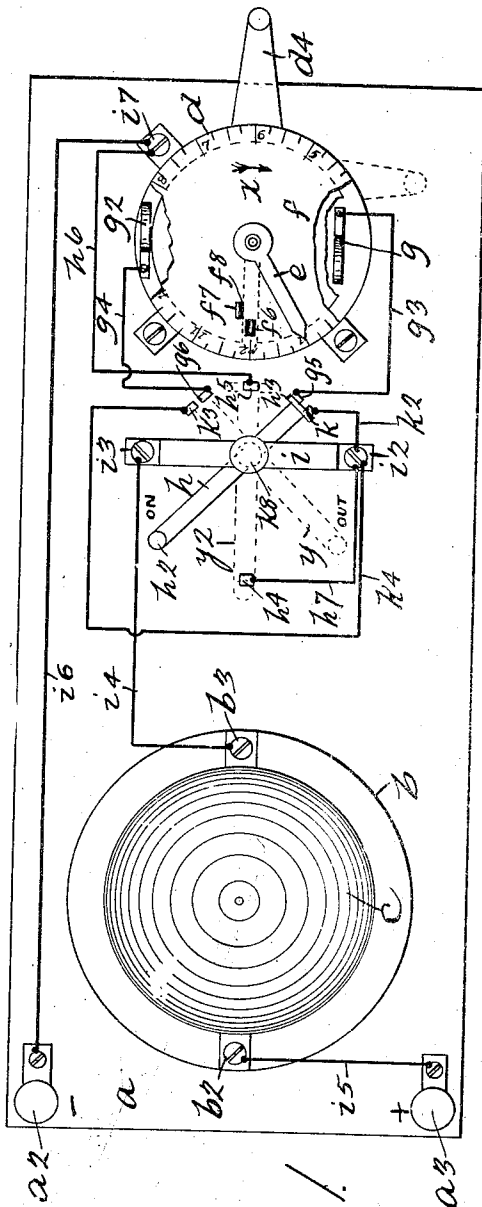


Fig. 1.

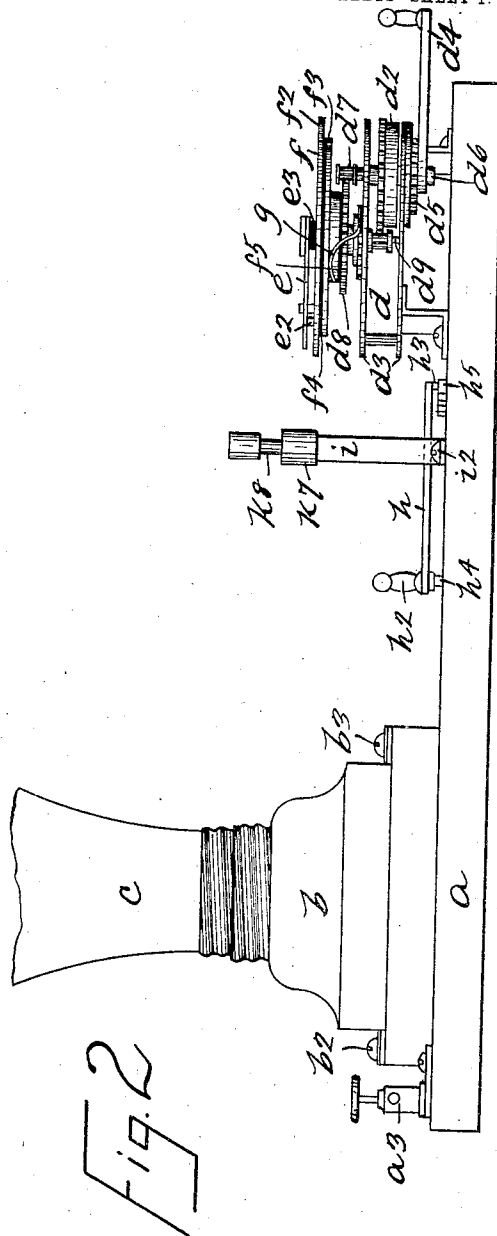


Fig. 2.

WITNESSES
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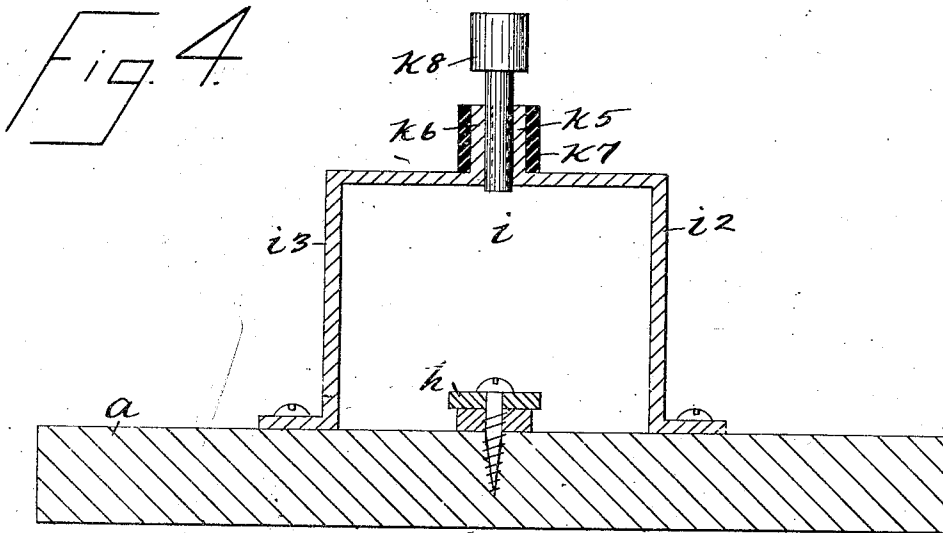
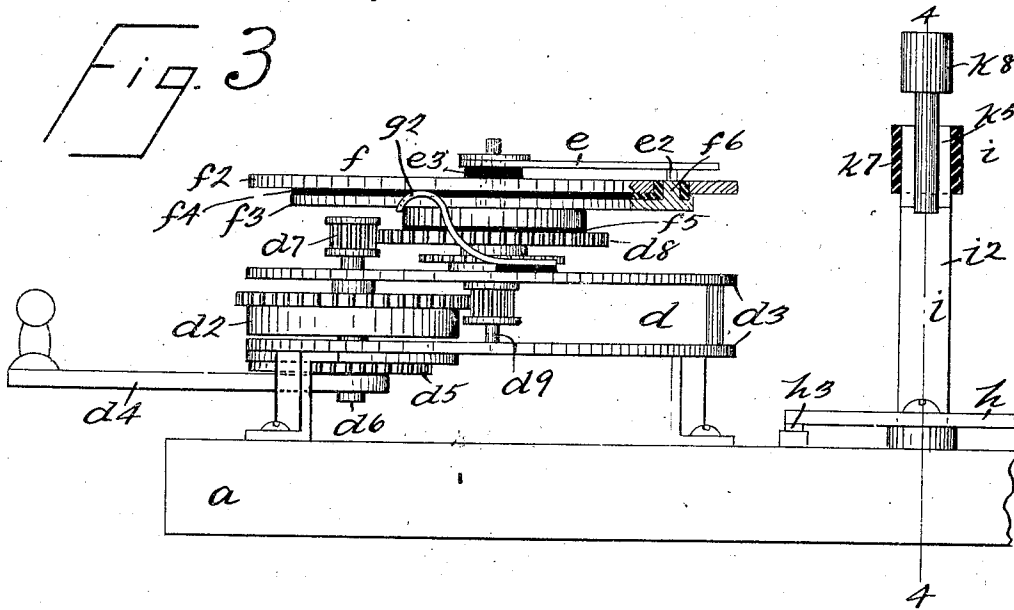
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UNITED STATES PATENT OFFICE.

FREDERICK C. HUBER AND JOHN E. MANZEL, OF ROSEBANK, NEW YORK.

ELECTRIC TIME-SWITCH.

No. 822,003.

Specification of Letters Patent.

Patented May 29, 1906.

Application filed May 23, 1905. Serial No. 261,753.

To all whom it may concern:

Be it known that we, FREDERICK C. HUBER and JOHN E. MANZEL, citizens of the United States, residing at Rosebank, in the county of Richmond and State of New York, have invented certain new and useful Improvements in Electric Time-Switches, of which the following is a specification, such as will enable those skilled in the art to which it appertains to make and use the same.

This invention relates to electric lighting; and the object thereof is to provide a device whereby an electric lamp may be automatically energized at a predetermined time, a further object being to provide a device of this class whereby an electric lamp may be energized for a given or predetermined length of time and at the expiration of which the said lamp may be automatically deenergized, a still further object being to provide a device of this class whereby an electric lamp may be energized and deenergized in the usual manner; and with these and other objects in view the invention consists in an electric-lamp energizer and deenergizer, as hereinafter described and claimed.

The invention is fully disclosed in the following specification, of which the accompanying drawings form a part, in which the separate parts of our improvement are designated by suitable reference characters in each of the views, and in which—

Figure 1 is a plan view of our invention in operative connection with an electric lamp; Fig. 2, a view of one side thereof; Fig. 3, a partial view of the other side thereof, said view being partially in section; and Fig. 4, a section on the line 4 4 of Fig. 3.

In the drawings forming part of this specification we have shown a base or support *a*, at one end of which is mounted an electric-lamp socket *b*, provided with binding-posts *b*¹ and *b*² and with a lamp *c*, and the base *a* is also provided with binding-posts *a*¹ and *a*², with which the wires of an electric-light circuit are adapted to be connected.

At the end of the base *a* opposite the lamp-socket *b* is mounted a time mechanism *d*, which comprises the usual spring-drum *d*¹, mounted in plates *d*² and provided with a winding device comprising a lever *d*³ in operation with a ratchet-wheel *d*⁴, mounted on the barrel-arbor of the mainspring, said spring not being shown in the drawings, and the barrel-arbor *d*⁵ of the mainspring is provided with a pinion *d*⁶ on its top, which is in

engagement with a gear-wheel *d*⁸, rotatable on but independent of the staff *d*⁹, in operative connection with which is a hand or pointer *e*, operating above the dial *f* of said time mechanism, and the hand *e* is provided with an electrical contact *e*² on the lower side thereof, and, as shown at *e*³, said hand *e* is insulated from the dial *f*.

The dial *f* is composed of two plates *f*¹ and *f*², which are insulated from each other, as shown at *f*⁴, and from the time mechanism, as shown at *f*⁵; but this dial *f* is secured to the gear-wheel *d*⁸ and rotates therewith, and, as shown in Figs. 1 and 3, the member *f*³ of the dial *f* is provided with an upwardly-directed member *f*⁶, which projects through the member *f*² of said dial and is insulated therefrom, as clearly shown in said figures, and the dial *f* is also provided with a stop *f*⁷, which limits the movement of the hand *e* and insures contact of the member *e*² of the hand *e* with the projection *f*⁶ of the member *f*³ of the dial *f*; but, as will be seen at *f*⁸ in Fig. 1, the hand *e* is insulated from the post or stop *f*⁷ when it bears against the same and the reason for which will be hereinafter described.

Connected to the upper plate *d*³ of the time mechanism and on either side thereof are two spring-arms *g* and *g*², the arm *g* being closer to the staff *d*⁹ than the arm *g*², and, as clearly shown in Fig. 2, the spring-arm *g* bears against the under side of the member *f*³ of the dial *f*, while the spring-arm *g*² bears against the under side of the member *f*² of the dial *f*, as shown in Fig. 3, and communicating with the spring-arms *g* and *g*² are electrical conductors *g*³ and *g*⁴ in electrical communication with contacts *g*⁵ and *g*⁶, respectively.

The details of the time mechanism are omitted from the drawings, as they form no part of this invention—such as, for instance, the balance-wheels, escapement, &c.; but it will be understood that these parts are all employed and are merely omitted to prevent confusion in the drawings, and the operation of the hand *e* is the same as the operation of the hour-hand in any watch or clock mechanism, both as to speed of movement as well as the direction thereof, and the dial *f* is provided on its upper side with the usual divisions, indicated by numerals and by means of which the time may be told.

Pivotaly mounted centrally of the base *a* and between the time mechanism *d* and the lamp-socket *b* is a switch *h*, provided with a

handle h^2 at one end thereof and with a contact h^3 beneath the other end thereof, and arranged on a central line on the base a are two contacts h^4 and h^5 , the contact h^5 being in electrical communication with the time mechanism d by means of an electrical conductor h^6 , while the contact h^4 is in electrical communication with one side of a yoke-shaped frame i , said side being indicated by the reference character i^2 , and the other side i^3 thereof is in electrical communication with a binding-post b^2 of the lamp-socket b by means of an electrical conductor i^4 , and the binding-post b^2 of the lamp-socket b is in electrical communication with the binding-post a^3 by means of an electrical conductor i^5 , the other binding-post a^2 of the base a being connected, by means of an electrical conductor i^6 , with the time mechanism d , as shown at i^7 .

Secured to the base a adjacent to the contact g^2 is a contact k , which is in electrical communication with the side i^2 of the yoke-shaped frame i by means of an electrical conductor k^2 , and adjacent to the contact g^2 is a contact k^3 , which is also in electrical communication with the side i^2 of the yoke i by means of an electrical conductor k^4 , and the contact h^3 of the switch h is adapted to rest on the corresponding pair of contacts g^2 and k or g^2 and k^3 , as is clearly shown in Fig. 1, and thereby placing said pairs of contacts in electrical communication with each other.

The yoke i , as previously stated, is composed of two parts i^2 and i^3 , which are independent of each other and are each provided with an upwardly-directed member k^5 and k^6 , respectively, around which is placed an insulating-collar k^7 , and the upwardly-directed members k^5 and k^6 are preferably segmental in cross-section and adapted to receive a conductive plug k^8 and be placed in an electrical communication with each other thereby, and said plug k^8 is always in position when our invention is in use.

In the practice of our invention, if it is desired to energize the lamp c at a given hour or at a predetermined interval of time, all that is necessary is to move the switch h to the position shown in Fig. 1 in full lines and then rotate the dial f in the direction of the arrow x a corresponding distance from the hand e , this operation being accomplished, as previously stated, by means of the lever d^1 , and in the operation of rotating the dial f the mainspring of the watch mechanism is wound correspondingly, the object thereof being to permit the time mechanism to run down approximately at the same time as the lamp c is to be energized, and when the parts are operated, as just described, the hand e rotates in the usual manner over the dial f , and the contact e^2 thereof rests on the conductive surface of the member f^2 of the dial f , and the rotation of the hand e continues, as

will be understood, until it bears against the insulation f^3 of the post f^7 , at which time the contact e^2 of the hand e rests on the projection f^6 of the member f^3 of the dial f , and the current from the main lighting-circuit then passes from the binding-post a^3 , through the lamp c and contact i^4 , to the yoke i , thence through the conductor k^2 to the contact k , switch h to contact g^2 , and through the conductor g^3 to the spring-arm g , which, as previously stated, bears against the under side of the conductive plate f^2 of the dial f , and the current then passes through the hand e and the staff thereof and through the time mechanism or frame thereof, and the conductor i^5 and binding-post a^2 , and the lamp c is thereby energized and continues to burn as long as the parts are in the position shown in Fig. 1. If it is desired to have the light burn a certain length of time, all that is necessary is to manipulate the lever d^1 to rotate the dial f a corresponding distance from the hand e and at the same time turn the switch h to the position indicated in dotted lines at y in Fig. 1, at which times the contacts g^2 and k^3 are placed in electrical communication by means of the contact h^3 of the switch h , and the current then passes from the contact a^3 and lamp c , through the conductor i^4 , yoke i , and conductor k^4 , to the contact k^3 , and thence through the contact g^2 and conductor g^3 to the spring-arm g^2 , which bears against the under side of the conductive plate f^2 of the dial f , and the current passes through the said plate f^2 and hand e and through the time mechanism to the conductor i^5 and binding-post a^2 , and the lamp c is therefore energized and continues to burn until the contact e^2 of the hand e rests on the projection f^6 of the plate f^3 of the dial f , which places the hand e out of electrical communication with the plate f^2 of the dial f , and thereby breaks the circuit through the lamp c , and said lamp is deenergized. If it is desired to use the lamp in the usual manner without reference to time, all that is necessary is to move the switch h into the position indicated in dotted lines at y^2 in Fig. 1; at which time the current passes through the lamp c , conductor i^4 , yoke i , conductor h^7 , to contact h^4 , thence through the switch h , contact h^5 , conductors h^6 and i^6 to the binding-post a^2 , and the circuit through the lamp c is completed and continues to burn as long as the switch h remains in this position, and if it is desired to prevent the manipulation of said lamp by an unauthorized person all that is necessary is to remove the plug k^8 from between the parts i^2 and i^3 of the yoke i , and in practice we prefer to inclose our apparatus in a casing in order to prevent injury thereto or meddling therewith, said casing, however, not being shown, and we reserve the right to make such other modifications in the construction herein shown and described as may properly come

within the scope of our invention, and, with this reservation,

What we claim as new, and desire to secure by Letters Patent, is—

5 1. An electric time-switch, comprising an electric lamp arranged in an electric circuit, a time mechanism intercepting said circuit, a switch in said circuit, a lever in operative connection with the winding mechanism of
10 said time mechanism, a rotatable dial on said time mechanism and in operative connection with said lever, said lever when operated being adapted to wind said time mechanism for a predetermined period and to rotate said
15 dial for approximately the same period, substantially as shown and described.

2. A time-switch, comprising an electric-lighting circuit, a time mechanism intercepting said circuit, a switch in said circuit. a

mainspring in said time mechanism, a rotatable dial on said time mechanism, devices for winding said mainspring and operating also to rotate said dial correspondingly, and devices for closing said circuit through said time mechanism in one position of said switch, and devices for opening said circuit through said time mechanism in another position of said switch, substantially as shown and described.

In testimony that we claim the foregoing as our invention we have signed our names, in presence of the subscribing witnesses, this 22d day of May, 1905.

FREDERICK C. HUBER.
JOHN E. MANZEL.

Witnesses:

F. A. STEWART,
C. J. KLEIN.