

No. 711,198.

Patented Oct. 14, 1902.

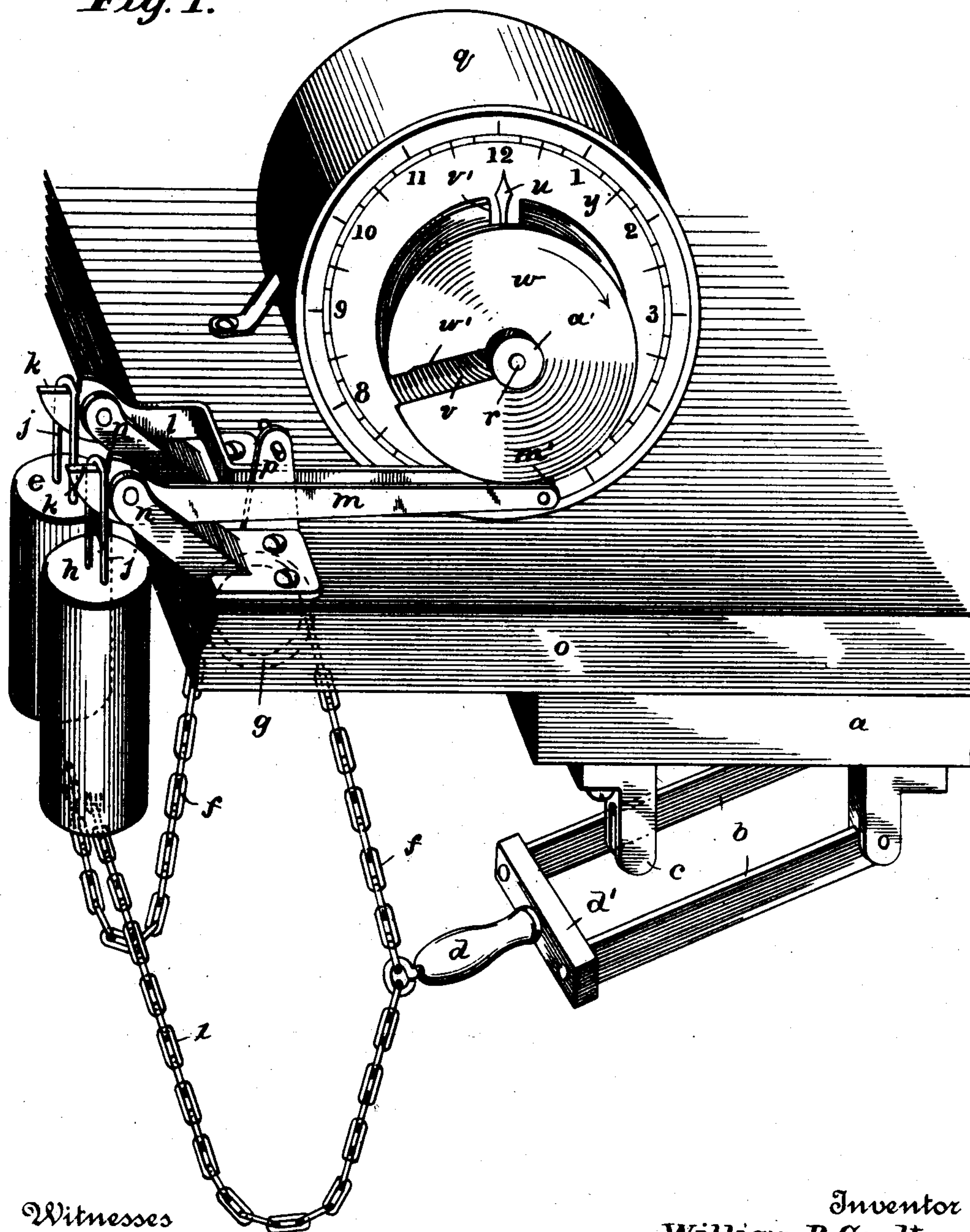
W. B. COULTER.
ELECTRIC TIME SWITCH.

(Application filed Feb. 24, 1902.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1.



Witnesses

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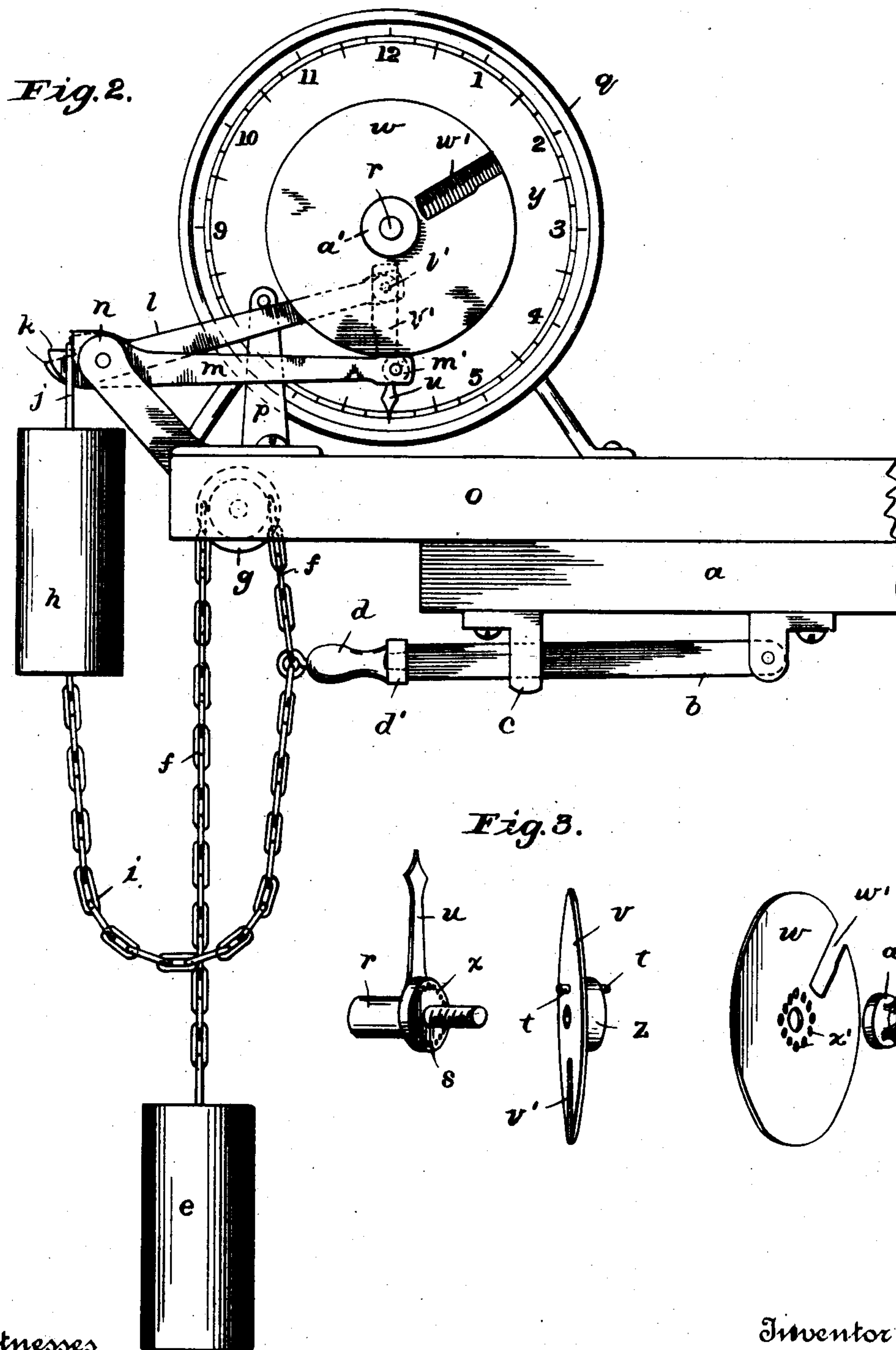
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UNITED STATES PATENT OFFICE.

WILLIAM B. COULTER, OF WATERBURY, CONNECTICUT.

ELECTRIC TIME-SWITCH.

SPECIFICATION forming part of Letters Patent No. 711,198, dated October 14, 1902.

Application filed February 24, 1902. Serial No. 95,247. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM B. COULTER, a citizen of the United States, and a resident of Waterbury, in the county of New Haven and State of Connecticut, have invented certain new and useful Improvements in Time-Switches for Electric Lights, of which the following is a specification.

This invention relates to devices for automatically turning on and off electric lights, and comprises in part a time-movement which can be set to trip the mechanism to perform said operation at any predetermined time.

It is the object of the invention to simplify, cheapen, and improve the construction of devices of this class, and especially to produce what I will term a "double-acting trip mechanism"—that is, one which will both turn the lights on and turn them off without the presence of an attendant, as will later be more fully explained.

With the above objects in view my invention resides and consists in the novel construction and combination of parts shown upon the accompanying two sheets of drawings, forming a part of this specification, upon which similar characters of reference denote like or corresponding parts throughout the several figures, and of which—

Figure 1 shows a perspective view of my improved time-switch complete. Fig. 2 is a front elevation of the same, the switch being in a closed position and the other parts changed accordingly. Fig. 3 shows in perspective view part of the clock-movement dial-stem and the several external members, including special disks forming a part of my invention.

Referring in detail to the characters of reference marked upon the drawings, *a* indicates the switch-block; *b*, the operating-lever, which is suitably pivoted to a stud secured to said block. *c* represents a socket that is also secured to the switch-block and into which the lever before mentioned is thrown to form the circuit. This stud and socket also constitute the attaching-points for the field-wires in the usual manner. There may be any number of these levers, sockets, and pivotal points in accordance with the capacity of the switch desired, and, in fact, any form of this class of switch may be operated by my invention. A handle *d* is applied to the levers through an in-

ulating cross-bar *d'* in the manner indicated, and to this handle I make my operative connections, as will be later described.

Weights are employed as the direct medium for operating this switch, one of said weights serving to throw the switch in and the other one to throw it out. The weight *e*, which serves to draw the switch in, is provided with a chain *f*, which is connected to the handle and runs over a pulley *g* and draws up on the switch-lever, while the weight *h* is connected to the lever direct by the chain *i* and draws the switch out by gravity when freed from its holding. Each of these weights is provided with an engaging loop or staple *j*, which in practice serves as a means for engaging the short end *k* of operating-levers *l* and *m*. These levers are pivoted in suitable brackets *n*, which are secured to the base *o*.

The lever *l* for convenience is preferably bent slightly, as shown in Fig. 1, while the lever *m* is straight. The weights are suspended from the short end of the levers in a manner to exert a slight upward tendency to the opposite or long end, as will again be referred to. Intermediate of these levers I provide a post *p*, having stop-pins therein to limit the upward throw of the long end of the levers, as is obviously desirable.

q represents a clock-movement, which may be of the usual or any preferred make of clock. This movement is secured to the base by screws, as shown, or otherwise, and its main stem *r*, which carries the hands, would be made slightly longer than usual, so as to receive special disks *v* and *w*, that I employ to operate the levers, as will now be more specifically referred to. The stem *r* is provided with a suitable shoulder *s*, to the back of which the hand is soldered and against which disks *v* and *w* are threaded or placed. In order to secure a proper adjustment of these disks upon the stem and to set the movement to operate at any predetermined time, I provide a series of twenty-four holes in the shoulders, before mentioned, and a series of twelve or more holes *x'* in the outer disk *w*. The inner disk *v* is provided with a hub *z*, and a pin *t* is carried by the disk and hub in a manner to project and engage any one of the holes in the shoulder or disk, thus making the disk adjustable with relation to the dial

y of the clock-movement, which latter is divided and numbered to represent the hours, halves, and quarters.

The parts referred to are assembled in substantially the order indicated in Fig. 3, the pointer or hand being preferably soldered to the shoulder s. The disk v, which trips the lever l for turning on the lights, and its hub z are a sliding fit on the stem. The outer disk w, which controls the lever m for turning off the lights, is next applied, and finally a thumb-nut a', which engages the threaded end of the stem r to hold the parts in place, it being obvious, of course, that this nut can be screwed off and the disks readjusted whenever it may be desired to change the time of operation. The disks v and w referred to are provided with radial slots or pockets v' and w', respectively. The levers are provided with rolls l' and m' to ride upon the under side of the periphery of said disks and drop into the pockets when their respective disks have moved around sufficiently. When this registration takes place, the weight upon the other end of the lever causes the long end of the lever to fly up, pending the sliding off of the weight, which by the force of its drop throws the switch in or out, according to the particular lever operated.

Having described the construction, I will briefly refer to the operation of my device, calling attention to Fig. 1, where the machine is shown complete, the switch being open. As set, this arrangement would cause the operation of the lever l at about six o'clock, and thus when the dial had turned around until the pointer n and the slot v' registered with the numeral "6" upon the dial said slot would have likewise registered with the roll of the lever l, thus permitting the same to drop into the slot and slide its weight off, drawing the switch-lever into the socket, as shown in Fig. 2, whereupon the lever would immediately assume its original position and the disks would continue to turn with the movement of the clock-stem until the slot in the second disk, which is set four hours later, would register with the roll of the second lever, causing it to tilt up and free its weight, which has a direct fall and would throw the switch open.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In an electric-circuit time-switch, the combination with a time-movement, of a fixed shoulder upon the movement-stem provided with a series of holes, a notched disk adjustably mounted upon the stem and bearing a pin to register with one of said holes, means for clamping the parts together, a lever pivoted to bear against the periphery of the disk, a weight detachably connected to the oppo-

site end of the lever, an electric switch and chain connection between the weight and the switch whereby the latter is operated by the releasement of the former.

2. In an electric time-switch the combination with a time-movement, of a rotary disk carried thereby bearing a peripheral pocket, a lever pivoted to engage the disk, a weight detachably connected to the opposite end of the lever in a manner to hold it in engagement with the disk, a switch, a chain connected with said weight, and switch, a roll over which the connection is carried in a manner to close the switch by the fall of the weight.

3. In an electric time-switch, the combination with a movement, of the stem driven thereby bearing a shoulder having a series of holes, a notched disk mounted in said stem and bearing a pin on opposite sides, a second disk mounted upon said stem bearing a series of holes to register with one of the pins of the previous movement, means for securing the parts together, levers to engage the disks, weights for the levers, a switch and connections therefrom with the weights whereby said switch is closed by the releasement of one weight and opened by the releasement of the other.

4. In an electric time-switch, the combination with a time-movement, of a stem driven thereby bearing a shoulder having a series of holes, a notched disk adjustably mounted on said stem bearing a pin to engage one of said holes and a second pin upon the opposite side of said disk, an outer disk detachably mounted on the stem and bearing holes to register with said second pin, means for securing the parts together, levers and weights interposed between the disk and switch whereby the latter is opened or closed at predetermined times by the clock-movement.

5. In an electric time-switch, the combination with a switch, a pair of weights connected with the same, one adapted to open and the other to close the switch, pivotal levers upon which the weights are hung, pocketed disks controlling the position of the opposite end of the lever, a time-movement bearing a stem upon which the disks are mounted, means for adjusting the disks upon the stem to change the time of operation, comprising a series of holes guided by the stem and one of the disks, and pins carried by the other disk to engage one of each set of holes, and means for retaining the parts in position.

Signed at Waterbury, in the county of New Haven and State of Connecticut, this 15th day of February, A. D. 1902.

WILLIAM B. COULTER.

Witnesses:

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GEORGE ROBBINS.