

No. 774,926.

PATENTED NOV. 15, 1904.

S. WELLS.
TIME LIGHT EXTINGUISHING APPARATUS.

APPLICATION FILED APR. 25, 1904.

NO MODEL.

2 SHEETS—SHEET 1.

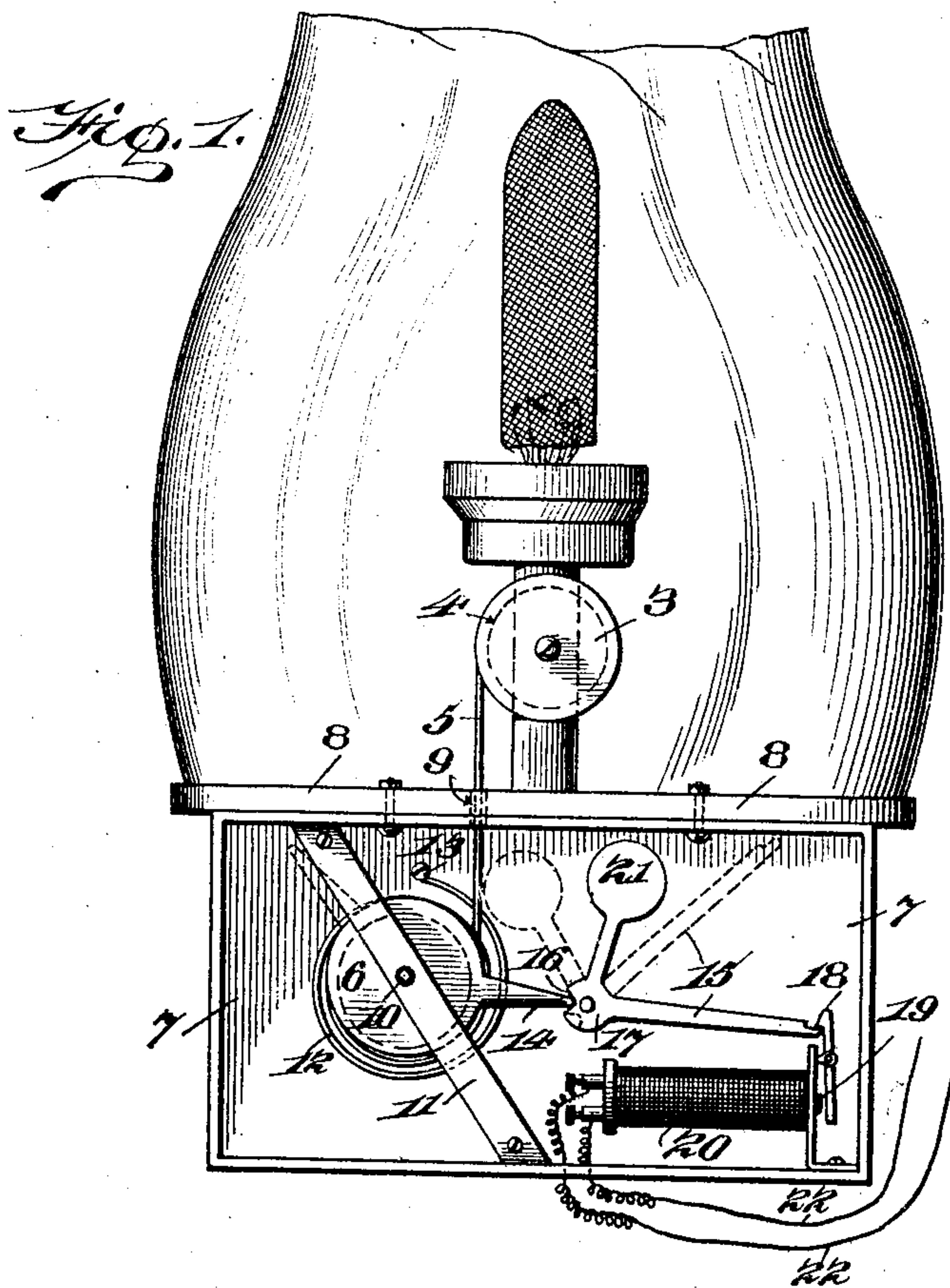
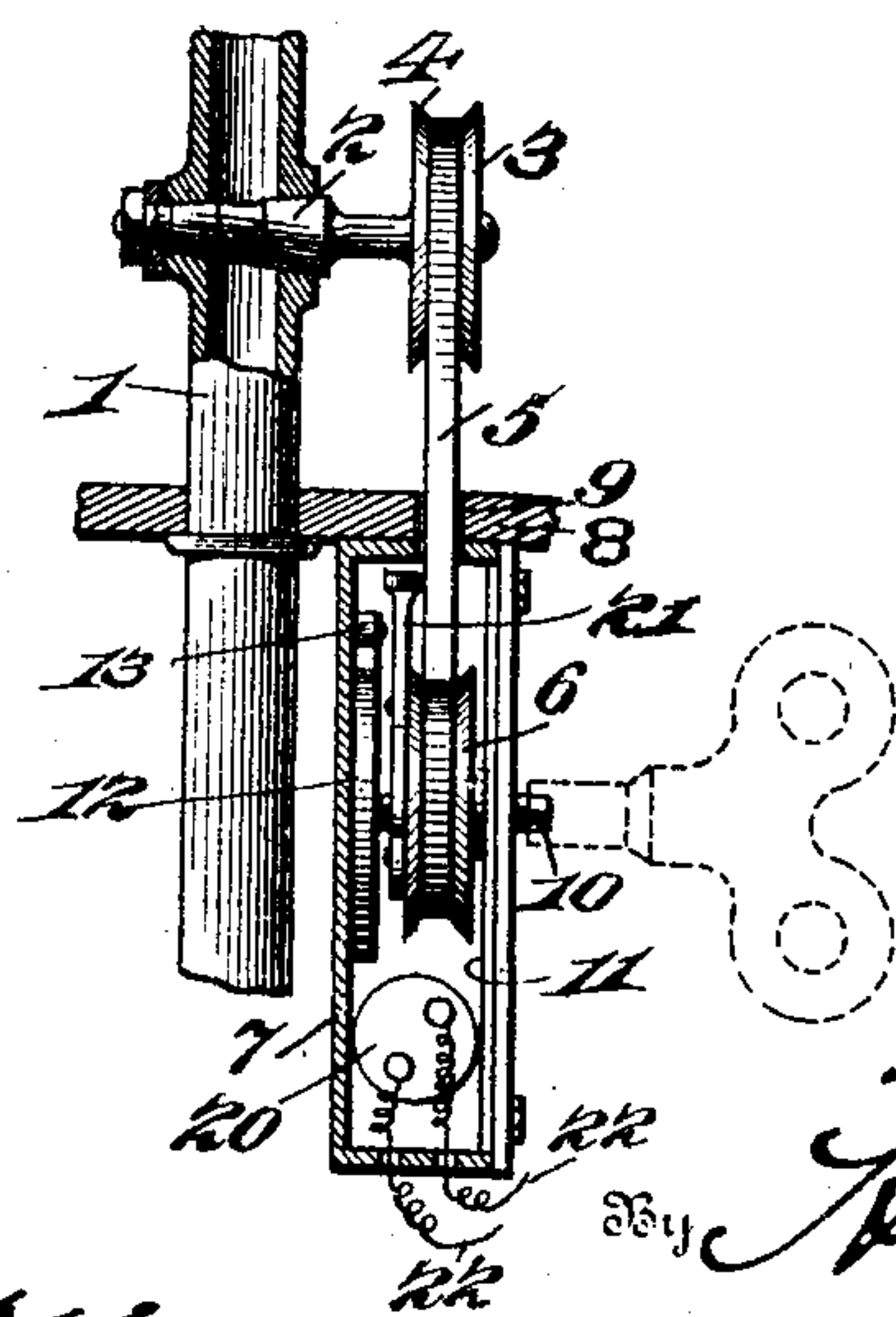


Fig. 2



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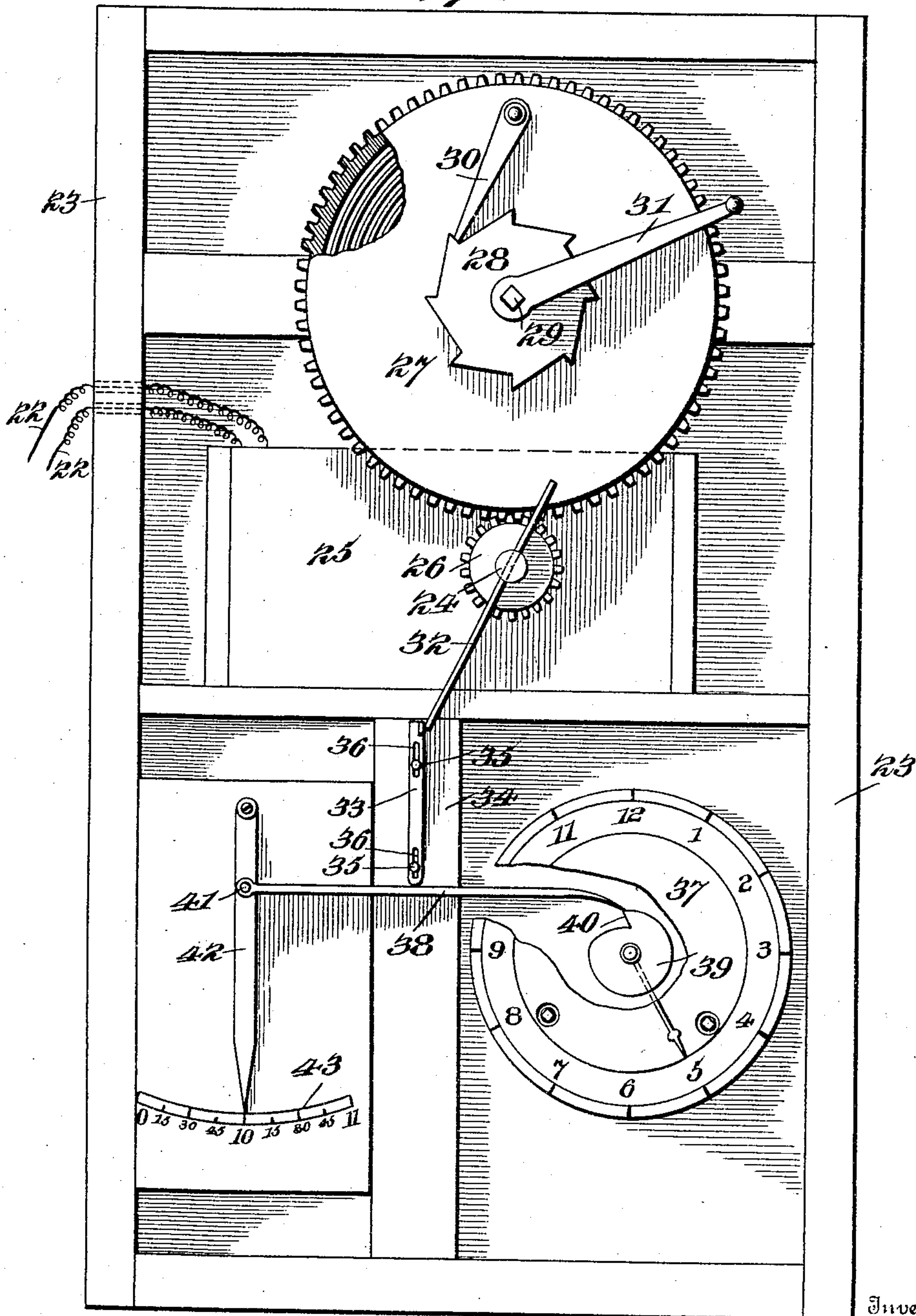
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Fig. 3.



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UNITED STATES PATENT OFFICE.

STERLING WELLS, OF SCHALLER, IOWA.

TIME LIGHT-EXTINGUISHING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 774,926, dated November 15, 1904.

Application filed April 25, 1904. Serial No. 204,839. (No model.)

To all whom it may concern:

Be it known that I, STERLING WELLS, a citizen of the United States, residing at Schaller, in the county of Sac and State of Iowa, have
5 invented certain new and useful Improvements in Light-Extinguishing Apparatus, of which the following is a specification.

This invention relates to light-extinguishing apparatus for use in connection with a gas-lighting system and involving a cut-off-actuating mechanism at each burner electrically controlled from a central station; and the object
10 of the invention is to provide a time-controlled apparatus of this character suitable for operation in connection with street-lamps that will be simple in construction, positive in operation, and inexpensive to maintain.

To this end the invention consists in the novel features in the arrangement and construction of parts, all as hereinafter described,
20 and specifically pointed out in the appended claims.

In the accompanying drawings, Figure 1 is a side elevation of a gas-lamp, showing the
25 cut-off-actuating mechanism of the invention applied thereto; Fig. 2, an end view in elevation of the cut-off-actuating mechanism in connection with a portion of the lamp, and Fig. 3 a face view in elevation of the time-
30 controlled electric generator.

Referring to the drawings, 1 indicates the terminal of a gas-supply pipe within the lamp shown and is provided with a rotary valve-plug or cut-off 2, upon the projecting part of
35 which is carried the usual operating-disk 3 for rotating the same, and in the present instance this disk is designed to be operated by hand when it is desired to turn on the flow of gas. This disk is provided with a peripheral
40 groove 4 to receive a belt 5, which is secured to said disk at one end and at the other end to a winding-drum 6 of the mechanism by which the valve-plug or cut-off is operated to extinguish the light.

The cut-off-actuating mechanism is mounted
45 within a narrow casing 7, secured firmly to the base structure 8 of the lamp and as near the center thereof as practicable, so as to bring the drum 6 in a vertical plane with the cut-
50 off disk 3, an opening 9 being provided in the

case and the base structure through which the belt 5 passes.

The winding-drum 6 is rigidly mounted upon a shaft 10, having its bearings in one side of the casing 7 and in the frame-bar 11, the
55 end of said shaft projecting through an opening in the hinged side of the casing and being squared to receive a setting-key. (Shown in dotted lines.) Coiled around the shaft and connected thereto is a flat spring 12, the outer
60 end of which is affixed to the pin 13, carried by the casing. This spring is applied so as to be maintained under a strong tension at all times and is further tensioned by means of
65 the setting-key, which is designed to impart a three-quarter revolution to the drum 6 in the act of setting the device.

The drum 6 carries a radially-projecting arm 14, which maintains the same set by engaging a trip-lever 15, pivoted upon the shaft
70 16 and having a notch 17 for the reception of the arm 14. This trip-lever is held in set position by means of a latch-lever 18, mounted to maintain normally the position shown either
75 by gravity, as shown, or by spring-pressure and arranged so as to be attracted to the core 19 of the electromagnet 20 to release the trip-lever when said core is energized. Upon the
80 release of the trip-lever 15 in this manner the said lever under the action of the motor-spring 12 is carried into the position shown in dotted lines, thus allowing the arm 14 to escape from the notch 17 and return to the un-
85 set position indicated in dotted lines, and thereby causing the gas flow to be cut off by a quarter-turn of the cut-off plug while the drum 6 is making a three-quarter revolution, which difference in rotation of the cut-off
90 plug and the drum, together with the high degree of tension of the motor-spring, gives the necessary power and its application for the positive operation of the cut-off.

The trip-lever is provided with a weighted arm 21, which maintains said lever in the
95 dotted position shown, so that upon the turning of the drum 6 to its set position the arm 14 will enter the notch 17 and cause the trip-lever to engage with its electrically-controlled releasing-latch.

It will be observed that in setting the mech- 100

anism for actuating the cut-off the cut-off remains closed, but is readily turned to open the same to the proper degree after the setting operation, as the tension of the operating-belt is then removed and the belt brought into a very slack condition.

The apparatus for the central station by which a current of electricity may be supplied by means of the conductor 22 to operate at a predetermined time the mechanism above described will now be referred to.

In the upper compartment of the case 23 is mounted an electric generator of well-known type, the main shaft 24 thereof projecting from the inclosing case 25 and being provided with a small gear 26, which is in mesh with the large gear 27 of a spring-motor, the spring 27^a of which acts upon the gear 26 to impart rapid rotation to the generator during a brief interval of time. The spring 27^a is tensioned through the agency of the ratchet-wheel 28, carried by the winding-shaft 29, and the pawl 30, carried by the gear 27. The usual crank 31 is employed for winding the motor-spring.

The shaft 24 of the generator is locked against rotation by means of a laterally-projecting stop-arm 32, which engages a vertically-arranged gravity-operated slide 33, secured to the frame-bar 34 by means of the headed pins 35 passing through the slots 36 of said slide. This slide is controlled by the clock mechanism 37 and the arm 38 in cooperation therewith, which arm sustains the slide in its raised position, which brings it into the path of the stop-arm 32. Upon the hour-hand arbor of the clock mechanism is provided a cam 39 for raising said arm 38 and permitting the same to drop when the notch 40 of the cam is reached. This cam is so arranged as to cause its notch to reach the point of the arm 38 at a given time; but in order to provide for the slight change of time to which the apparatus may be set from day to day or as may be necessary for the extinguishment of street-lamps the arm 38 is pivoted at 41 to a pointer-arm 42, which as said pointer-arm is moved toward the clock mechanism will cause the notch 40 to be delayed in reaching the point of the arm, and in this connection a scale 43 is employed to indicate minutes and seconds. In the drawings the apparatus is shown set to operate at ten minutes after five.

Provision is readily made for adjusting the operating-cam when it is necessary to change the time of operation beyond that for which provision is made by the setting device referred to.

From the foregoing it will be seen that before the lamplighter can turn on the gas at each lamp he must set the cut-off-actuating device and further tension the motor-spring thereof, and in thus utilizing power capable of application by the lamplighter one economy is made, while an inexpensive current-supply capable of effecting the release of said mech-

anism is employed for the light work required thereof, this current-supply being manually generated. The current produced by the generator shown is necessarily of high potential, but of brief duration, and requires but a comparatively slight expenditure of power on the part of the attendant at the central station, and thus it will be seen that the entire apparatus is designed to be operated through the application of manual power, though in a manner to produce greater convenience and economy of time and labor and obviate the employment of expensive devices or the need of a costly electric-current supply.

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

1. In a light-extinguishing apparatus the combination with a cut-off, a motor device for closing the same, electrically-controlled releasing mechanism for said motor device, an electric generator, means for locking said generator against action, and time-controlled means for said locking means, substantially as and for the purpose set forth.

2. In a light-extinguishing apparatus, the combination with a cut-off, a motor device for closing the same, electrically-controlled releasing mechanism for said motor device, an electric generator, means for locking said generator against action, time-controlled means for said locking means, and means for setting said time-controlled means, substantially as and for the purpose set forth.

3. In a light-extinguishing apparatus, the combination with a cut-off, a motor device for closing the same, electrically-controlled releasing mechanism for said motor device, a rotary generator, a stop carried by said generator, a movable member for engagement with said stop, and time-controlled means for maintaining said movable member in engagement with said stop, substantially as and for the purpose set forth.

4. In a light-extinguishing apparatus, the combination with a cut-off, of a motor device for closing the cut-off adapted to be set before the cut-off can be opened, electromagnet releasing mechanism for said motor device, and a time-controlled source of electric-current supply for energizing said electromagnet, substantially as and for the purpose set forth.

5. In a light-extinguishing apparatus, the combination with a cut-off, of a motor device for closing the same, a belt connecting said motor device with the cut-off, electromagnet releasing mechanism for said motor device, and a time-controlled source of electric-current supply, substantially as and for the purpose set forth.

6. In a light-extinguishing apparatus, the combination with a cut-off, of a motor device, flexible means wound thereon and connecting the cut-off, a trip device in connection with said motor, an electrically-controlled catch for

said trip device, and a time-controlled source of electric-current supply, substantially as and for the purpose set forth.

7. In a light-extinguishing apparatus, the
5 combination with a cut-off, a motor device for closing the same, electrically-controlled releasing mechanism for said motor device, an electric generator, means for locking said generator against action, and time-controlled
10 means for said locking means, comprising a sway-arm for maintaining said locking means in locking engagement, releasing means for

said sway-arm, carried by the clock mechanism, and a movable setter-arm carrying said sway-arm, substantially as and for the purpose 15 set forth.

In testimony whereof I have signed my name to this specification in presence of two witnesses.

STERLING WELLS.

Witnesses:

C. WELL BRIMBRALL,
J. C. HUDSON.