

No. 668,783.

Patented Feb. 26, 1901.

J. H. TOWAN.

TIME LAMPLIGHTING APPARATUS.

(Application filed Mar. 5, 1900.)

(No Model.)

Fig. 1.

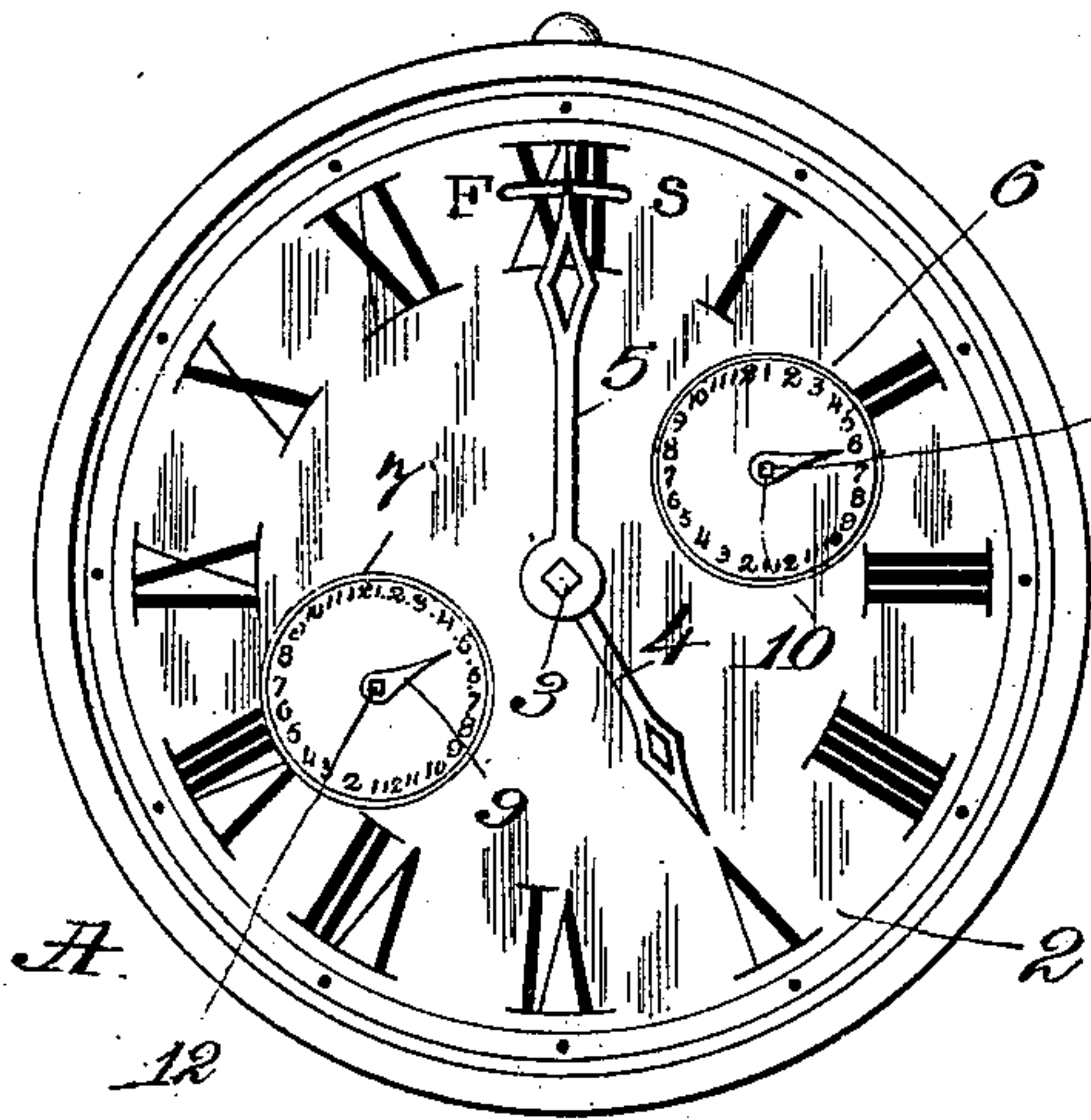


Fig. 2.

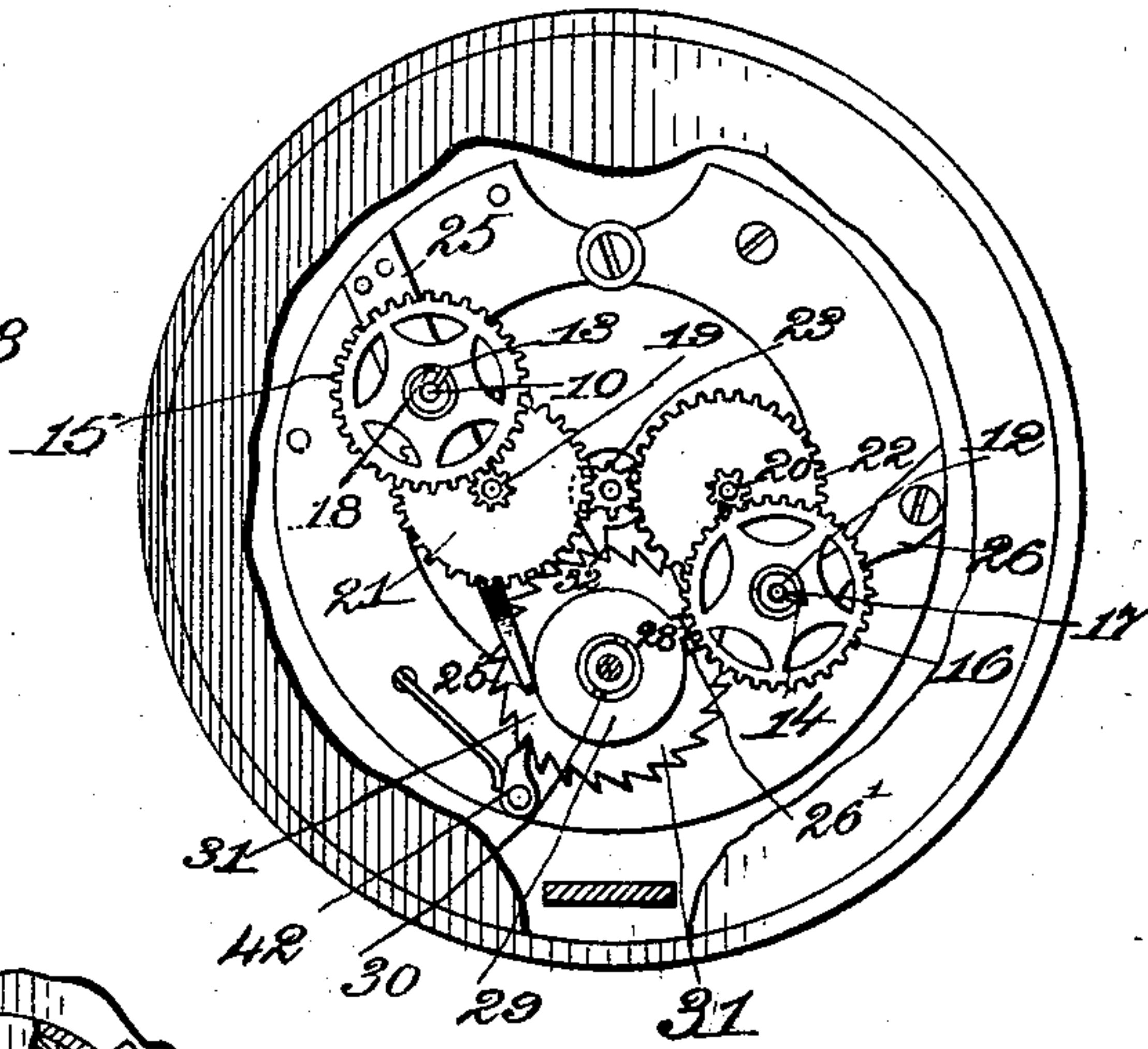


Fig. 6.

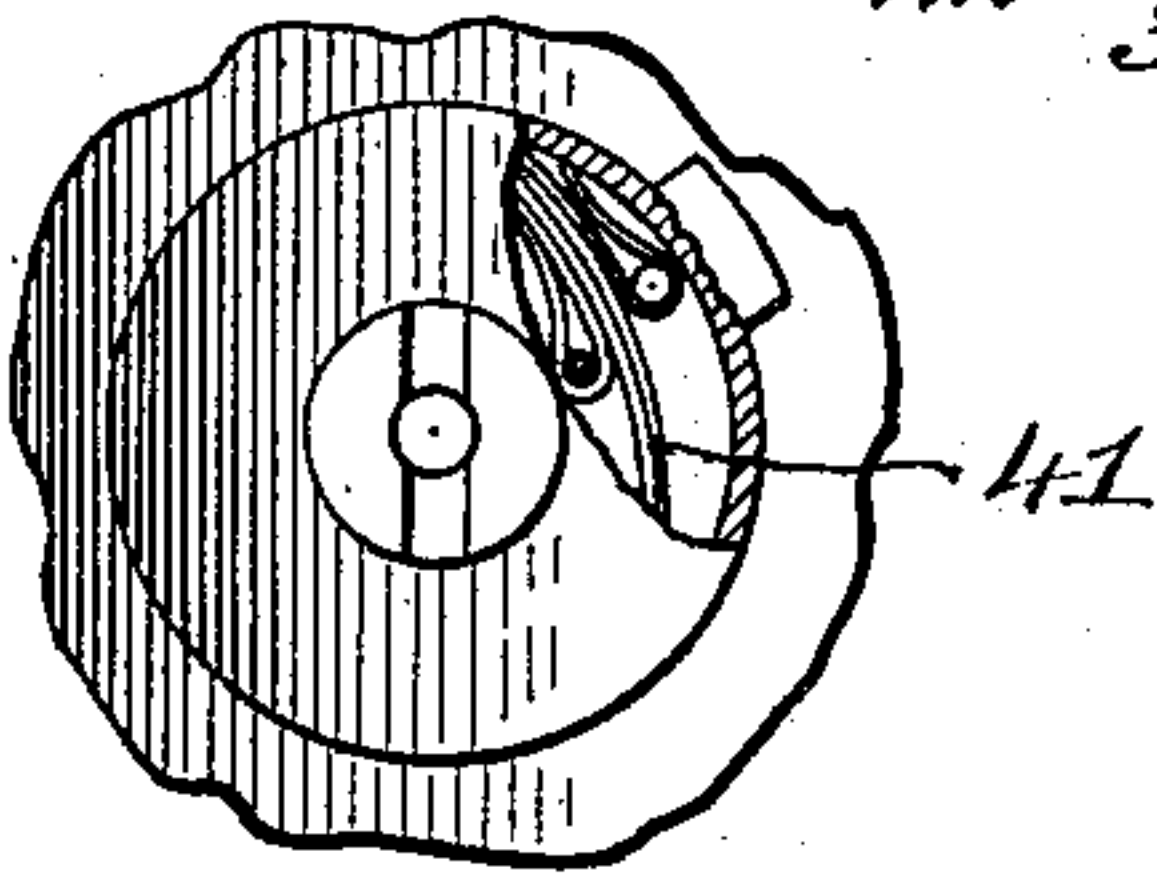


Fig. 3.

Fig. 4.

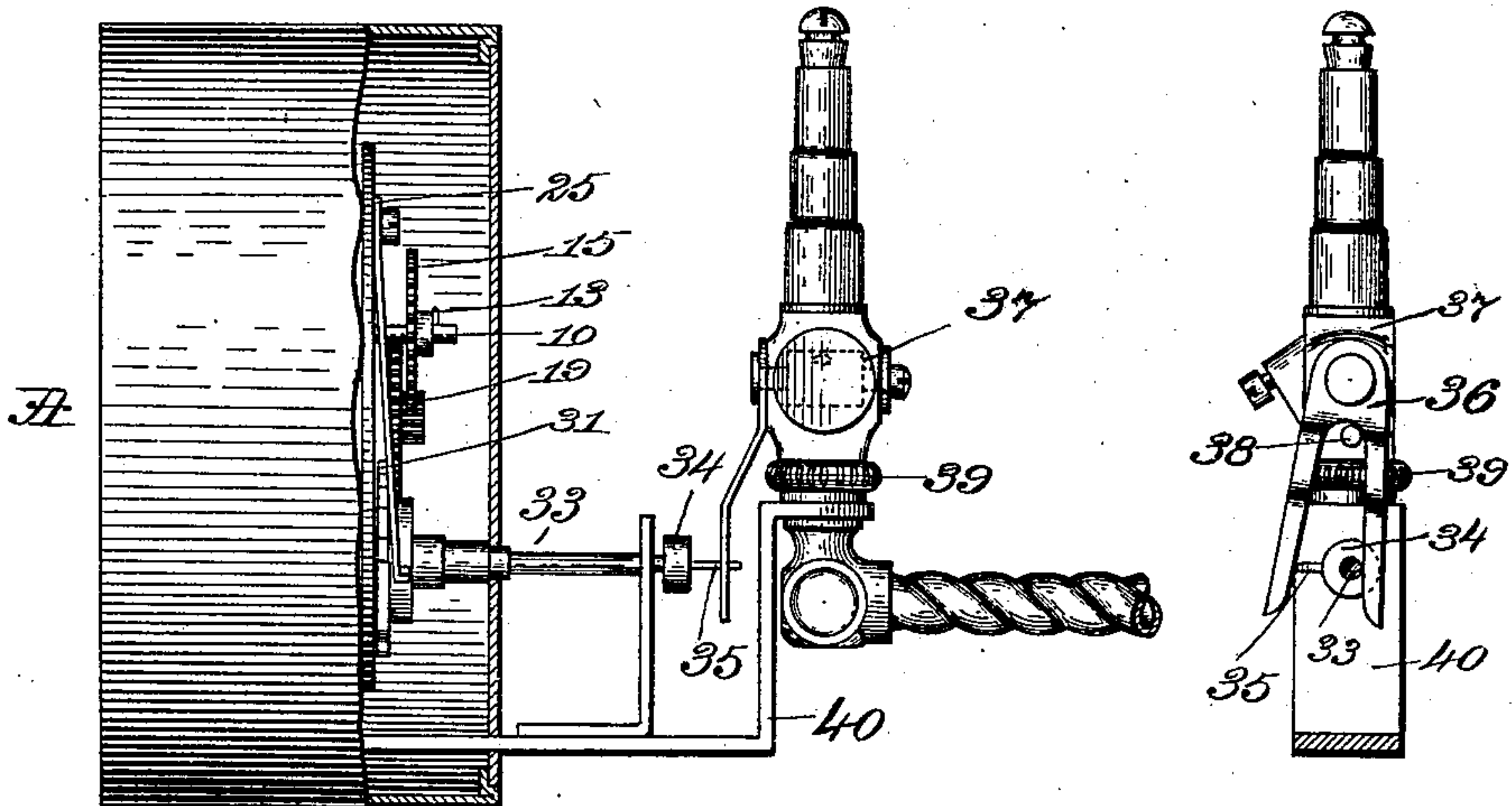
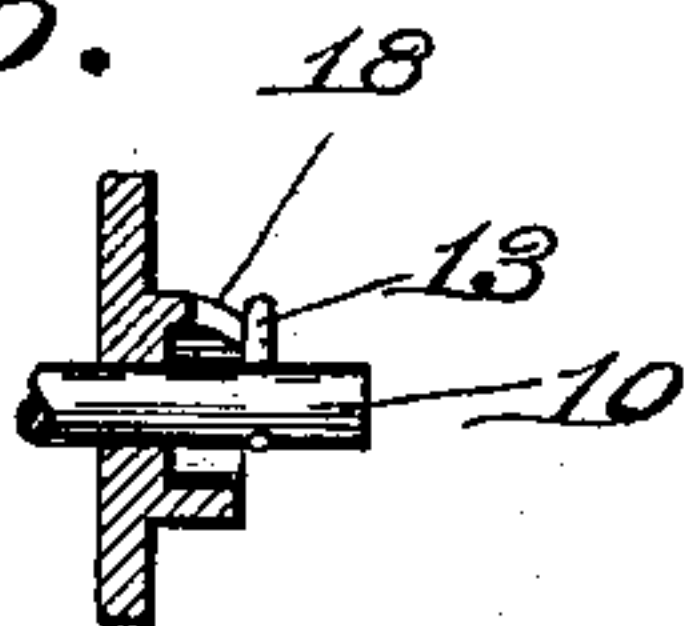


Fig. 5.



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# UNITED STATES PATENT OFFICE.

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## TIME LAMPLIGHTING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 668,783, dated February 26, 1901.

Application filed March 5, 1900. Serial No. 7,289. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES H. TOWAN, a citizen of the United States, residing at Boston, county of Suffolk, State of Massachusetts, have invented an Improvement in Light-Controlling Apparatus, of which the following description, in connection with the accompanying drawings, is a specification, like characters on the drawings representing like parts.

This invention relates to a light-controlling apparatus, and while capable of many different purposes I have shown it in connection with a gas-light, and in this use it is adapted to govern the raising and lowering of the flame at predetermined times, changeable at will by a manually-controlled means adapted to be operated by a clock constituting a part of the apparatus.

The improved apparatus involves as one of its features a device to produce a light and automatic mechanism to alternately effect the raising and lowering of the light, and to obtain the specified functions at desired times I prefer to control the automatic mechanism by a clock having manually-controlled means to raise or lower the light. In the present case the light is a gas one, although this is not essential, and I provide, in combination with the valve controlling the flow of the gas, means to alternately move the same in opposite directions.

The invention is shown in one simple embodiment thereof in the accompanying drawings, wherein—

Figure 1 is a front view of the apparatus shown in connection with a gas-bracket. Fig. 2 is a sectional rear elevation of the same, the section being taken in the line 2 2, Fig. 3, and with parts broken away. Fig. 3 is a side elevation of the apparatus and the gas-burner in connection therewith, part of the clock-case being broken out. Fig. 4 is a sectional front elevation, the section being taken in the line 4 4, Fig. 3. Fig. 5 is a detail of part of the latch-controlling means; and Fig. 6 is a similar view of a spring-barrel, part of the same being broken out.

As previously stated, the improved apparatus is capable of controlling many kinds of

lights or for similar purposes. It is represented in combination with a gas-bracket, it being adapted in such a connection to operate a valve controlling the flame. The valve represented is at no time fully closed, it being simply partially closed to lower the flame and afterward being fully opened to increase such flame. These operations occur, respectively, at different times, regulatable by hand-controlled means operated by a clock. The clock represented is denoted by A, and it may be of any suitable type, it having the usual dial or face plate 2 and main arbor or shaft 3, provided with hands 4 and 5. The dial 2 bears upon its face two auxiliary dials, as 6 and 7, each being scaled from "1" to "12," respectively, to represent the hourly divisions of a day. Small hands or pointers, as 8 and 9, cooperate with the auxiliary dials, the hand 8 constituting part of the means which open the valve to raise the flame, while the hand 9 constitutes part of the means which lower said flame. The hands are carried, respectively, by shafts or arbors, as 10 and 12, extending entirely through the clock, and said shafts carry at the inner ends thereof projections, as 13 and 14, in alinement with the respective hands and the purpose of which will hereinafter appear. The hands 8 and 9 may be readily turned to bring them opposite any one of the marks upon the auxiliary dials, so that at the desired times mechanism can be rendered effective for releasing an actuator, which actuator can turn the gas-valve. The shafts 10 and 12 receive upon their inner ends the gears 15 and 16, slidably mounted thereon, the hubs of which are engaged by the pins or projections 13 and 14 upon the shafts. Said hubs have upon their outer sides let-off notches or recesses, as 17 and 18, the function of which will be hereinafter explained. The gears 15 and 16 mesh with pinions, as 19 and 20, carried by suitable arbors, which latter also are provided with gears, as 21 and 22, meshing with the pinion 23 upon the main arbor or shaft 3. The gears 15 and 16 are operatively connected with the clock, and they serve to hold a pair of latches normally in their effective positions, the latches in the present case



consisting of springs which bear against the inner sides of the said gears.

Let it be assumed that the hand 8 is opposite the figure "6" and that the clock has been wound up. This being the case, the previously-described gears upon the back of the clock will be set in operation, and when the notch 18 in the hub of the gear 15 is opposite the projection 13 said gear will be released and can be forced along its shaft by the spring-latch, which it held under compression thereby. Upon the release of the latch it will free an actuator, which serves to operate the valve. The same action will be subsequently repeated by the gear 16 when the notch 17 in its hub comes opposite the pin 14.

The latches previously mentioned are denoted, respectively, by 25 and 26 and they are secured at their upper ends to the back of the clock-case and extend downward diagonally therefrom, being apertured to receive the shafts 10 and 12. Said spring-latches are provided with offsets 25' and 26', adapted to cooperate with the peripheral shoulder 28 upon the spring-barrel 29, rotatably supported by the spindle 30, projecting from the casing. This spindle also receives a ratchet 31, the back motion of which is prevented by a pawl 32 of ordinary kind.

The apparatus involves an actuator, and this may be of any suitable kind. That represented is denoted by 33, and it consists of a shaft extending centrally rearward from the spring-barrel 29 and having at its outer end a disk-shaped head 34, provided with an eccentric substantially L-shaped offset 35, disposed between the branches of the bifurcated arm 36, secured to the stem of the valve 37. (Shown by dotted lines in Fig. 3.)

The motion of the vibratory arm 36 is limited by a stop 38, carried by the gas-bracket 39.

The clock may be connected with the gas-bracket by means of a strip, as 40, bent to proper shape.

The part 35 is of such a shape that when it strikes what is shown in Fig. 4 as the right-hand branch of the bifurcated arm 36 the gas-controlling valve will be opened, and when it strikes the other branch said valve will be partially closed to reduce the gas-flame at the burner. These operations occur in alternation and are regulatable by the setting of the hands 8 and 9.

The spring-barrel receives within it a spring 41, connected, respectively, with the spring-barrel and with the ratchet 31. I have shown in Fig. 2 the direction of movement of the spring-barrel, it being adapted when the latch 26 is tripped to rotate until the shoulder or catch 28 thereon strikes against the offset 25' of the latch 25. This motion will be continued when the latch 25 is tripped, so that the shoulder can impinge against the offset 26'. The spring 41 is tensioned by means of the clock mechanism, so that it will be always at the proper degree of strength to secure prompt motion of the spring-barrel. The

pawl 42 engages the teeth of the ratchet 31, and it is secured to the main shaft 3 of the clock. Every time the shaft 3 makes a turn the pawl will engage the teeth of the ratchet, so as to partially rotate the same and keep the spring 41 at the proper state of compression.

The invention may be variously modified within the scope of the accompanying claims.

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

1. In an apparatus of the class described, a spring-operated actuator, a plurality of latches which operate in succession to hold the actuator ineffective, a clock and means controlled by the clock to release the effective latch, whereby the actuator may be operated until restrained by the next latch.

2. In an apparatus of the class specified, an actuator, a spring-barrel connected to the actuator to operate the same, a plurality of latches, each adapted to hold the spring-barrel in its ineffective position, a ratchet to which the spring in the spring-barrel is connected, a clock, means controlled by the clock to alternately effect the release of said latches, and a pawl connected with the clock mechanism to operate the latches.

3. In an apparatus of the class specified, an actuator, a clock, means to operate said actuator, a plurality of spring-latches adapted to alternately engage the actuator and hold the same in its ineffective position, shafts, each having a hand and a projection in line with said hand, and wheels upon the shaft driven by the clock mechanism, and serving to hold the latches normally in their effective positions, the hubs of the wheels having let-off notches to receive the respective projections.

4. In an apparatus of the class specified, an actuator, means to operate said actuator, a plurality of spring-latches adapted to alternately hold the actuator in its ineffective position, a clock, and means controlled by the clock to normally hold said spring-latches under compression and subsequently to release the same.

5. In an apparatus of the class specified, an actuator, a spring-barrel connected to the actuator to operate the same provided with a shoulder, a plurality of latches adapted to engage said shoulder, a clock, and means controlled by the clock to alternately operate said latches.

6. In an apparatus of the class specified, a pipe, a valve in said pipe, an oscillatory bifurcated member connected with the valve, a clock, and means connected with the clock to alternately engage the branches of the bifurcated portion of said oscillatory member to swing the latter successively in opposite directions.

7. In an apparatus of the class specified, an actuator, a spring-barrel connected with the actuator to operate the same, provided



with a shoulder, a plurality of latches adapted to engage said shoulder, a clock, means controlled by the clock to alternately operate said latches, and a light-producing device having a light-controller in position to be operated by said actuator.

8. In an apparatus of the class specified, an actuator, means to operate said actuator, a plurality of latches adapted to alternately hold the actuator in its ineffective position, a clock having independent dials, manually-operable hands coöperating with the respective dials, and mechanism controlled by said hands for operating the latches in succession.

9. In an apparatus of the class specified, an actuator, a spring-barrel connected with the actuator to operate the same, provided with a shoulder, a plurality of latches adapted to alternately engage said shoulder, a wheel to which the spring in the spring-barrel is connected, a clock, means controlled by the clock to alternately operate said latches, and means operative with the clock to turn said wheel.

10. In an apparatus of the class specified, an actuator, a clock, means to operate said ac-

tuator, a plurality of spring-latches adapted to alternately engage the actuator and hold the same in its ineffective position, shafts, each having a hand and a projection in line with said hand, wheels upon the shaft driven by the clock mechanism and serving to hold the latches normally in their effective positions, the hubs of the wheels having let-off notches to receive the respective projections, in combination with a device to produce a light having a light-controller in position to be operated by said actuator.

11. In an apparatus of the class specified, a device to produce a light, a light-controller, a clock having a plurality of dials, manually-movable hands coöperative with the respective dials, and mechanism controlled by the respective hands for effecting the action successively of the light-controller.

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

JAMES H. TOWAN.

Witnesses:

HEATH SUTHERLAND,  
LOUISE ROTHSTEIN.