R. T. BOOTH.

Automatic Gas-Light Extinguishers.

No. 155,414. Patented Sept. 29, 1874.

Fig. 1.

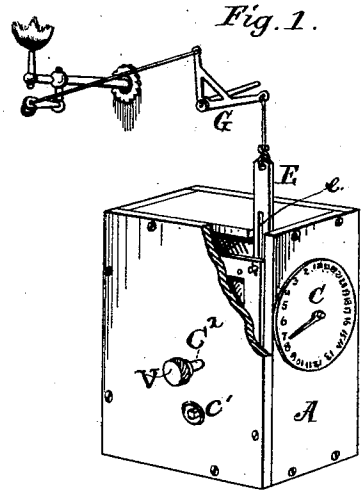


Fig. 2.

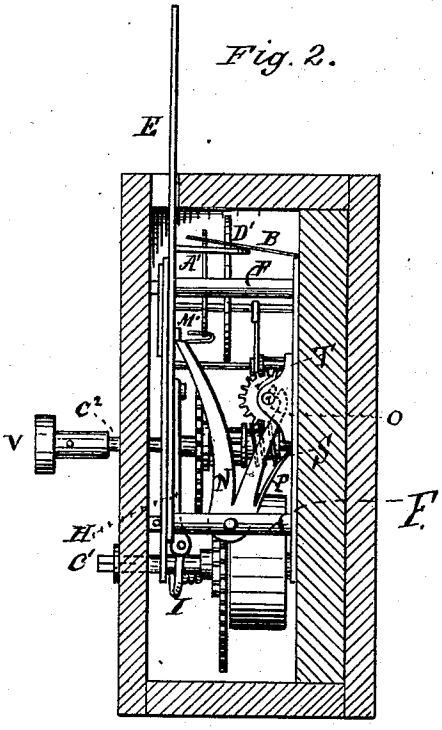


Fig. 3.

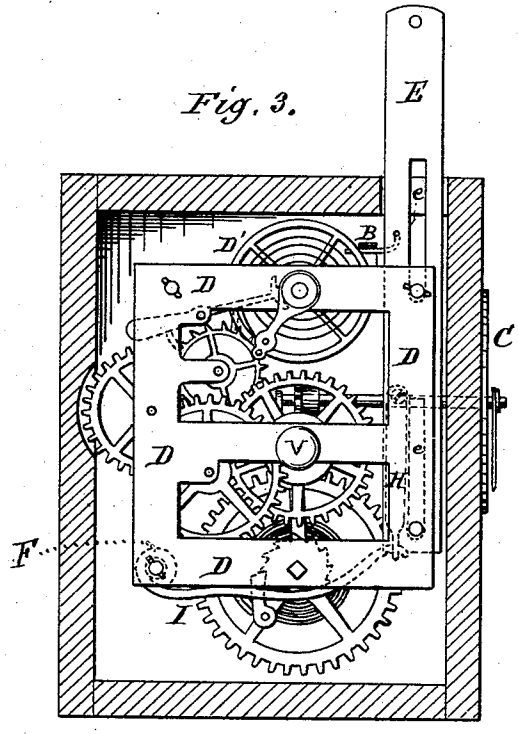
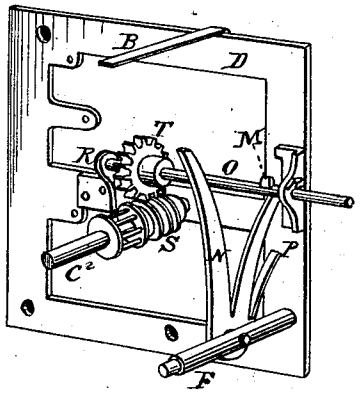


Fig. 4.



Witnesses.

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UNITED STATES PATENT OFFICE.

RICHARD T. BOOTH, OF TRUMANSBURG, NEW YORK.

IMPROVEMENT IN AUTOMATIC GAS-LIGHT EXTINGUISHERS.

Specification forming part of Letters Patent No. **155,414**, dated September 29, 1874; application filed September 21, 1874.

To all whom it may concern:

Be it known that I, RICHARD T. BOOTH, of Trumansburg, in the county of Tompkins and State of New York, have invented certain new and useful Improvements in Apparatus for Extinguishing Gas-Lights, of which the following is a specification:

My invention relates to certain improvements in that class of apparatus for extinguishing gas-lights in which the gas-cock is operated by means of clock-work, so as to cut off the gas and extinguish the light at any appointed time; and it consists, first, in a sliding bar adapted to open the gas-cock when raised and close it when depressed, in combination with a pawl, by which it may be locked when raised, and a spring, by which it is thrown downward when released, said pawl being operated by means of the shaft of the index-hand of an ordinary clock; second, in the combination of an adjusting-shaft with a leading-screw, a cog-wheel, and index-shaft, for operating the pawl which locks the sliding bar, by which the gas-cock is operated; third, in the combination of the sliding bar, provided with an arm for operating a spring, for stopping the balance-wheel, and the machinery of the train of gearing, when the slide bar is released and the gas shut off.

In the drawings, Figure 1 represents a perspective view of my apparatus attached to the gas-cock. Fig. 2 represents a vertical section through the same. Fig. 3 represents a front view of the apparatus with the front cover removed, and Fig. 4 a detached perspective view of the gearing operating the index-shaft and pawl by which the slide-bar is locked or released.

A represents a box or casing, adapted to be secured to a lamp-post, or within the same, or upon a wall, or in any other position contiguous to the gas-cock. Said box is securely closed to exclude dust, and contains the working parts of the apparatus. It is provided with dial-plate C at one side, upon which are marked figures, preferably from 1 to 24, corresponding with the hours of the day. The box is provided with apertures for the winding-shaft C^1 and adjusting-shaft C^2. D D represent the frame for supporting the various working parts of the apparatus. Said frame is similar to the ordinary frame-work for holding the working parts of a clock, and contains a train of gearing similar in most respects to the gearing employed to drive the index-hand of an ordinary clock. As such system of gearing is well known, it will not be necessary to describe it more particularly. To one side of the front of frame D I secure a bar, E. Said bar sits over the studs F F, by which the front and back portions of the frame D are united, being slotted, as shown at *e e*, for the purpose, a shoulder near the ends of said studs serving to keep said bar in position against the side of the frame. The upper end of said bar is provided with an aperture, by means of which it can be connected with a rod, wire, or other connection for operating the gas-cock. This may be connected directly to the gas-cock, or it may be connected therewith through the intervention of an angle-lever, G, as shown in Fig. 1, or by other suitable mechanism. To the lower part of the bar E is provided a link, H, extending downward, and connected to a spring, I, set upon the stud F at the opposite side of the frame. Said spring is of sufficient power to throw the bar downward and turn the gas-cock, when the bar is released, as will be described presently. Near the center of the sliding bar is a projection or stud, M′, which catches under the end of the pawl N, pivoted to the stud F at its lowest part, said pawl being formed with two arms, one of which falls under the index-shaft O, and is provided with a spring, which throws the pawl forward. The index-shaft O has its bearings in brackets R R, secured to the back part of the frame D, and extends horizontally across said frame, through the casing A at one end, and terminating at the other end directly over the adjusting-shaft C^2. The end over said shaft is provided with a cog-wheel, T, gearing into a leading-screw, S, on the adjusting-shaft. The wheel T of the clock-train, which gives motion to the index-shaft of the same, is set loosely over the adjusting-shaft. The adjusting-shaft may be provided with a ratchet-wheel and a pawl, so that the wheel will carry the shaft when moving in one direction, but allow it to turn independently in the opposite direction, to allow the index-shaft O to be properly set, as will be

described. The end of the adjusting-shaft C^2 is fitted with a knob or milled head V, by which it may be readily turned by the fingers, in order to operate the index-shaft to bring its pointer to the desired figure on the dial-plate. The cog-wheel on the index-shaft O is provided with teeth sufficient in number to give it one complete revolution in every twenty-four hours, the adjusting-shaft C^2 making twenty-four revolutions while the index-shaft O makes one. The index-shaft O is provided with a stud, M, directly over the rear end of the pawl N, which engages said pawl and forces it backward at every revolution of said shaft, so as to release the sliding bar F and shut off the gas. The pawl N may be weighted, so as to drop past the slide A by its inherent gravity when the stud on the index-shaft O moves the pawl N from contact with the stud M′ on the slide which operates the gas-cock. This would naturally occur in every twenty-four hours, and in order that the apparatus may be set to shut off the gas at any desired time a means must be provided for giving the index-shaft O a partial revolution, leaving the train of gearing to finish it. This is accomplished by means of the independent motion of the adjusting-shaft C^2, which can be set backward by hand, so as to set the index-shaft O in any desired position, which will be indicated by the index and dial. For instance, should it be desired to have the gas shut off in three hours, the adjusting-shaft C^2 is turned backward until the index points to the figure 3 on the dial. In this position the index-shaft O will accomplish its revolution when the adjusting-shaft C^2 has made three revolutions, when the stud will operate the pawl N and release the sliding bar.

In order to stop the train of gearing when the sliding bar is released, said bar is provided with an arm, A′, which engages and lifts a spring, B, away from the balance-wheel D′ of the train of gearing when the bar is raised, and releases it and allows to touch or bind and hold said wheel when the bar falls. The balance-wheel offers the least resistance; hence it will be found more convenient, in most cases, to employ the stop device in connection with said wheel instead of having a device acting upon the wheels or other parts composing the train.

In operation my apparatus will be fully understood from the foregoing description. It is set by turning the adjusting-shaft C^2 backward so as to clear the stud on the index-shaft O from the end of the pawl N, and then lifting the sliding bar until the pawl falls forward and locks under the stud or projection on said slide. In this position the gas is turned on, and is burning, and the action of the train of gearing will turn the cock and shut off the gas when the index-shaft O has completed its revolution, which may be made to occur at any desired or predetermined time, as has been fully explained.

The advantages and simplicity of construction of my apparatus are obvious. When used in connection with the ordinary city lamps, it dispenses with the services of the employé whose business it is to extinguish the lights, rendering half the labor necessary in attending to the lights, as they have only to be lighted and the apparatus properly set, being automatically extinguished at any desired hour. It is customary with most merchants and business men to leave the gas burning in some portion of their establishments during the night, and the apparatus will be found very convenient in such cases, as it may be set to cut off and extinguish the lights at the appearance of daylight, and thus save the expense of the gas usually consumed between that time and the commencement of business; and in all places where it is desired to have the light burning for a definite time the apparatus will prove invaluable.

What I claim as my invention is—

1. The combination of the sliding bar E and gas-cock with the spring I, pawl N, and index-shaft O, operated by a clock-train, for the purpose of shutting off the gas, substantially as herein described.

2. The combination of the adjusting-shaft C^2, leading-screw S, index-shaft O, and stud M, for operating the pawl N to release the slide connected with the gas-cock at a determinate hour, substantially as described.

3. The index-shaft O, having stud M and cog-wheel T, in combination with the leading-screw S, pawl N, slide E, stud M′, spring I, link H, and a train of gearing, substantially as described.

4. In combination with the sliding bar E, connected with a gas-cock, the arm A′ and spring B′, with the balance-wheel D′, in order to stop the clock-work when the sliding bar is released, substantially as described.

In testimony that I claim the foregoing I have hereunto set my hand.

Witnesses: RICHARD T. BOOTH.

JAMES L. NORRIS,

ALBERT H. NORRIS.