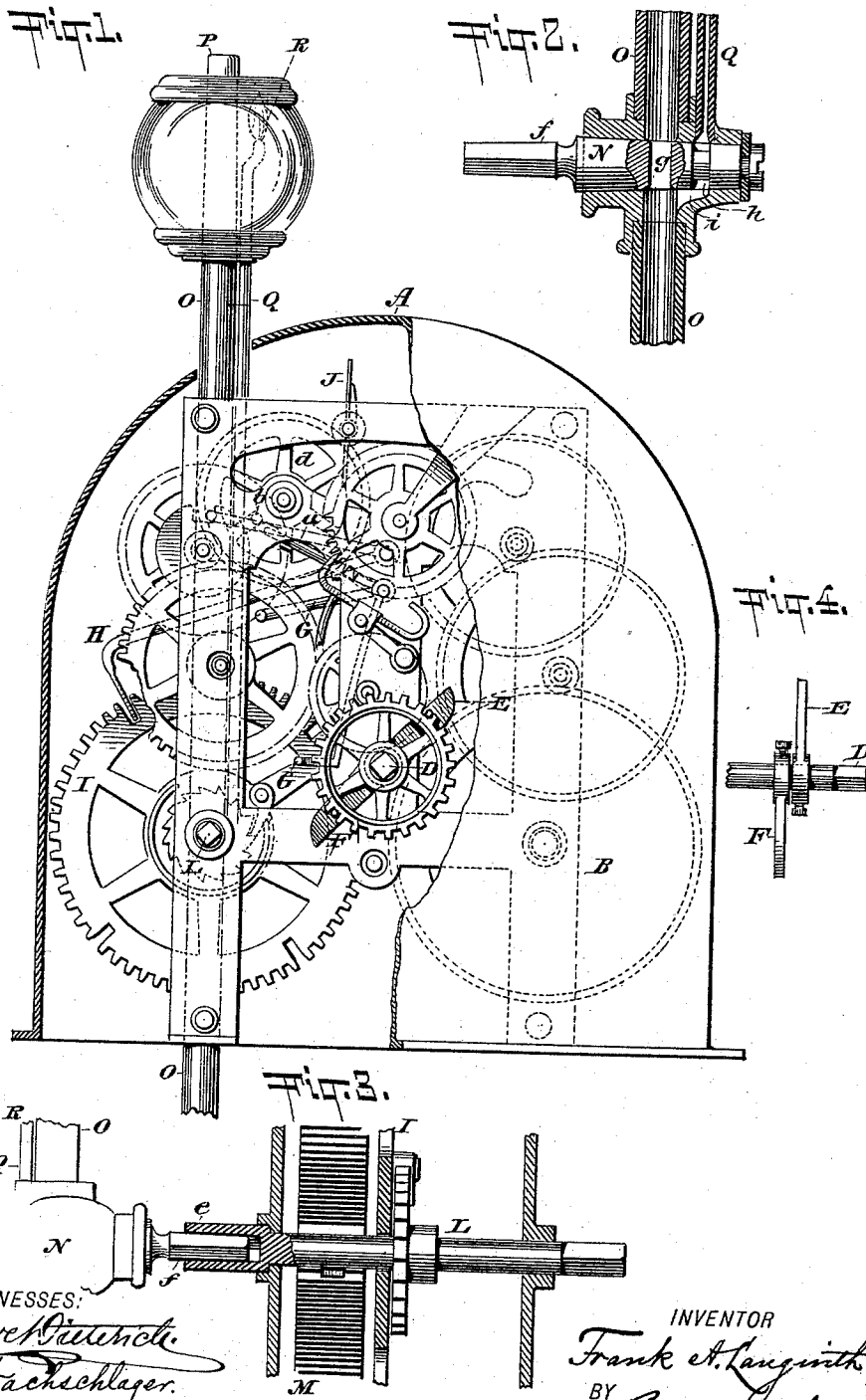


(No Model.)

F. A. LANGWITH.
TIME GAS LIGHTER AND EXTINGUISHER.

No. 495,556.

Patented Apr. 18, 1893.



WITNESSES:
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UNITED STATES PATENT OFFICE.

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TIME GAS LIGHTER AND EXTINGUISHER.

SPECIFICATION forming part of Letters Patent No. 495,556, dated April 18, 1893.

Application filed December 21, 1892. Serial No. 455,869. (No model.)

To all whom it may concern:

Be it known that I, FRANK A. LANGWITH, a resident of Brooklyn, Kings county, in the State of New York, have invented an Improved Gas Lighter and Extinguisher, of which the following is a specification, reference being had to the accompanying drawings, forming part hereof, in which—

Figure 1 is a front view, partly in section, of my improved gas-lighter and extinguisher. Fig. 2 is a vertical central section of the gas-cock used therein. Fig. 3 is a detail vertical section through the main spring and the parts connected therewith. Fig. 4 is a detail side view of the main clock arbor.

This invention relates to a new arrangement and combination of parts for automatically lighting and extinguishing street lamps and the like, so that the use of a person for doing the individual work every evening and morning may be dispensed with.

The invention mainly consists in supplying what otherwise might be termed the minute arbor of an ordinary clock-work with two adjustable cams or trip-hooks, and also in combining these adjustable cams or trip-hooks with the leverage of the ordinary striking mechanism of clock-work, so that at the proper intervals said leverage will be disengaged to allow a certain main spring to impart the requisite degree of rotation to a shaft which controls the gas-cock.

The invention also consists in the new construction of gas-cock, all as hereinafter more fully described.

In the drawings the letter A represents the frame or casing of a clock-movement, which in all respects, except in the particulars hereinafter specially specified, is like an ordinary clock-movement, and in which a main spring contained in a drum B, which is shown by dotted lines in Fig. 1, is intended to impart rotary motion to an arbor D, which corresponds in position to the minute arbor of a clock, but which in this machine is intended to be geared in such fashion that it shall make one revolution during every twenty-four hours. Upon this minute arbor are hung two projecting arms E and F. These are adjustably secured to the arbor as indicated in Fig. 4, so that they

may set, as in Fig. 1, to be diametrically opposite one another, or at any desired other angle to one another. During the rotation of the arbor D, these arms act as trip-hooks against the lever G of the striking attachment, so that when one of the trip-hooks H F moves the lever G, one arm of said lever G lifts the hook H out of the notched wheel I that pertains to what may be termed mechanism analogous to an ordinary striking attachment; while another arm *a* of the lever G when raised is thereby brought into the path of a pin *b* on a wheel *d* which is under the control of the wind-gage J which arrests the parts of the striking attachment until the trip-hook that lifted the lever G shall have cleared said lever, allowing it to drop and allowing the hook H to drop toward the wheel I. All these parts, excepting the two adjustable trip-hooks E F are in every respect analogous to the ordinary clock movement, but the wheel I, instead of having the deep notches to correspond to the hours that are to be struck, has in this instance four deep notches ninety degrees apart from one another, so that whenever a trip-hook moves the lever G, the wheel I will make a quarter revolution, and will then stop. When after that the next trip-hook moves the lever G, the wheel I makes another quarter revolution, and then stops, &c. The wheel I is connected with a shaft L (see Fig. 3) which in turn connects with a main spring M, so that, the main spring being properly wound, whenever the wheel I makes a quarter revolution, the shaft L makes a quarter revolution. One end of the shaft L forms a key *e* that engages the angular projection *f* of the gas-cock N. This gas-cock N is perforated diametrically, as at *g* Fig. 2, so that in one position (the position shown in Fig. 2) it opens the passage through the main gas-pipe O to the main burner P, while in the position at right angles to that shown in Fig. 2 the gas-cock N intercepts communication from the pipe O to the burner P. The gas-cock N also has a groove which is constantly in communication with a very small gas-pipe Q that extends from the pipe O to a little pilot-burner R. Below the gas-cock N a branch *i* from the pipe O communicates with the groove *h*, all these parts

being so arranged that, no matter how the gas-cock is turned, gas will always be supplied to the pilot-burner R.

Having now described my invention, so far as the construction of parts goes, I will briefly state how it operates: According to the time of year, the arms E and F are set on the arbor D, so that one shall open and the other shall close the gas-cock at the proper time of day. Assuming the arm E to be intended to open the gas-cock and the arm F to be intended to close the gas-cock, the arm E will be set to open the gas-cock at a later hour in summer than in winter, and the arm F will be set to shut the gas-cock at an earlier hour in summer than in winter. This adjustment is easily produced because the arms E and F are adjustable on the arbor D; and I may here state that the adjustment will be sufficiently exact for ordinary purposes if performed, say, once every month. When now, the parts having been properly adjusted, the arm E arrives in contact with the lever G, the wheel I will receive a quarter of a revolution and will thereby turn the gas-cock N into the position shown in Fig. 2, so as to admit gas to the burner P, where it is immediately ignited by the ever-burning pilot-burner R. The gas now continues to burn on P until the arm F moves the lever G, thereby producing another quarter revolution of the wheel I and causing the cock N to be turned so as to shut the gas off from the burner P, &c., it thus appears that

the apparatus may be left to itself after proper adjustment at long intervals, and that it will serve automatically to turn the gas on and off at the predetermined time.

The clock mechanism of this invention should be of a kind that will when wound up run a week or a month or any other considerable portion of time.

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

1. The combination of the main gas-pipe O, having cock N, with the arbor L of clock mechanism, notched wheel I, having diametrically opposite deep notches, the lever H, trip-lever G, main clock arbor D, and two adjustable trip-hooks E and F on said arbor D, all arranged so that during each revolution of the arbor D the gas-cock N will be automatically turned twice, once to turn on the gas and once to shut it off, all as specified.

2. In clock mechanism, the arbor D and mechanism substantially as described for turning the same, in combination with the two trip-hooks E and F which are adjustably secured to said arbor, and with the single trip-lever G which is adapted to be affected by both said hooks in succession, as and for the purpose specified.

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Witnesses:

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