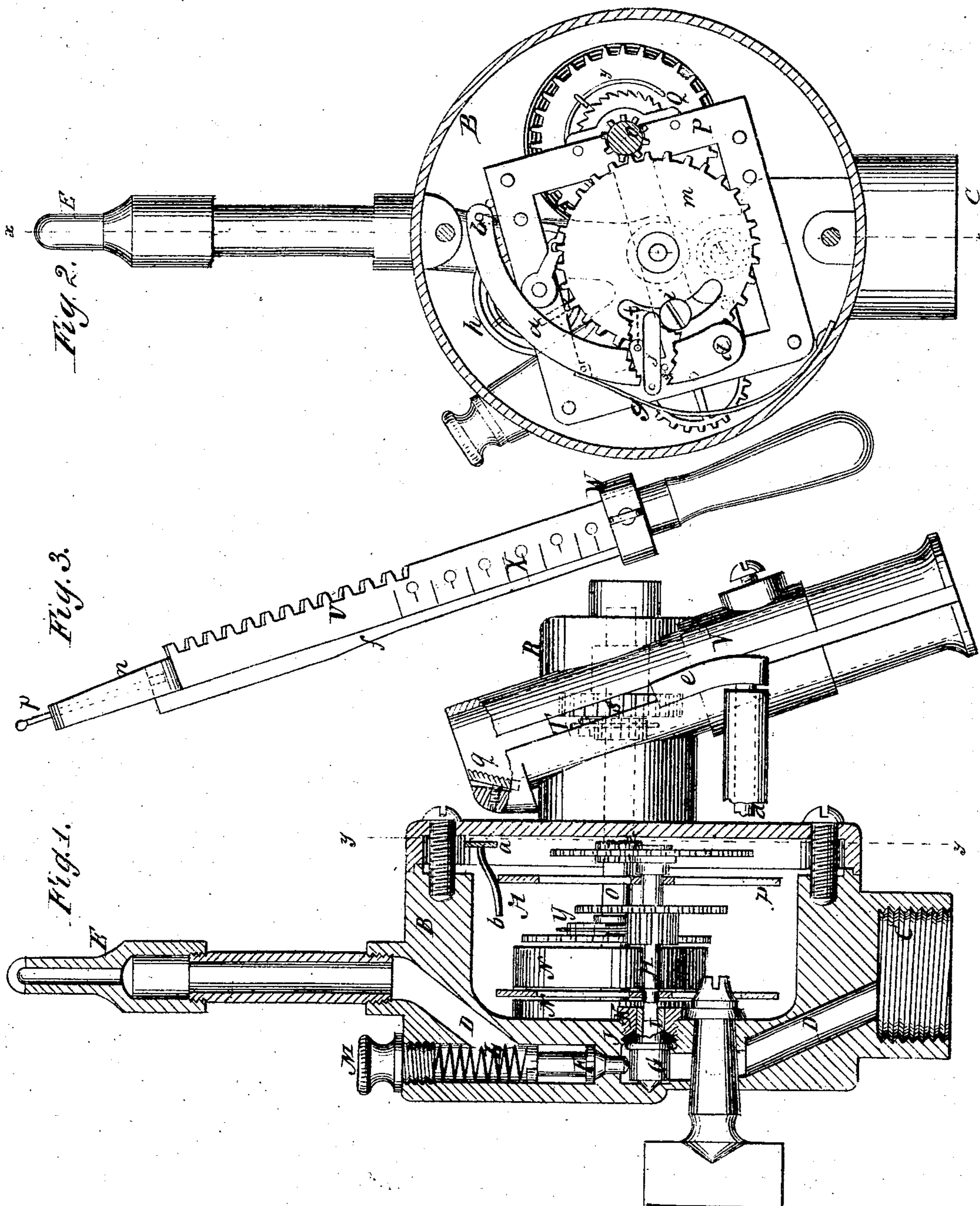


G. S. DUNBAR.

Automatic Gas Lighters and Extinguishers.

No. 153,549.

Patented July 28, 1874.



WITNESSES:

*E. Wolff*  
*Chadwick*

INVENTOR:

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ATTORNEYS.

# UNITED STATES PATENT OFFICE

GEORGE S. DUNBAR, OF PITTSFIELD, MASSACHUSETTS.

## IMPROVEMENT IN AUTOMATIC GAS LIGHTERS AND EXTINGUISHERS.

Specification forming part of Letters Patent No. **153,549**, dated July 28, 1874; application filed April 25, 1874.

*To all whom it may concern:*

Be it known that I, GEORGE S. DUNBAR, of Pittsfield, in the county of Berkshire and State of Massachusetts, have invented a new and Improved Automatic Gas Light and Extinguisher, and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing, forming a part of this specification:

The invention will first be fully described, and then pointed out in the claims.

Figure 1 is a sectional elevation of Fig. 2, taken on the line *xx*. Fig. 2 is a sectional elevation of Fig. 1 on the line *yy*, and Fig. 3 is a side elevation of the starting-bar for the clock-train and the gas-lighting device.

A is a chamber in a metal case, B, which screws onto the lamp-post at C, and has a passage, D, for the gas to pass along one side of the chamber to the burner E, in which passage is a stop-valve, F, to shut off the gas and extinguish the light when it is let fall by a cam, G, which is turned for the purpose by the clock-work contained in the chamber A; the cam being connected to the shaft H of the clock-gear by its hollow journal I, which extends from the gas-passage D, through a stuffing-box, J K, into the chamber A. The valve F has a pressure-spring, L, above it for pressing it firmly on its seat when the cam lets it fall, and above the spring is an opening through the top of the case for introducing the valve and the spring, which is closed by a plug, M. N represents strong clock-springs for turning the train, mounted on a shaft, O, which is secured on the outside of the frame P by caps Q, so that it can be put on and taken off without taking the train apart. This shaft has an extension along a tubular case, R, with a toothed wheel, S, and a pawl and ratchet, T, for winding up the springs by a toothed bar, V, which is slid along the wheel S in a guide-tube, U, by hand, for turning said wheel. This wheel turns the cam G back to set at the same time that it winds up the springs. The extent to which it is turned back determines the time the clock will run before extinguishing the light, and the extent to which it is turned back is governed by the adjustable collar W on the bar V, which strikes

against the lower end of the guide-tube U and arrests the movement of the wheel S. The collar is adjustable along the part of the bar having a scale, X, graduated to the springs and the train, so that the cam may be set for dropping the valve at any predetermined time by shifting the collar to the mark on the scale corresponding to the time wanted. The wheel S, being connected to the shaft by the ratchet-wheel and pawl, allows the setting-bar to be withdrawn after starting the clock. The usual ratchet mechanism, Y, is employed in connection with the clock-springs and shaft to allow the springs to be wound without turning the clock-train.

In order to start the train when wound up, in case it does not start by the springs, a lever, *a*, is arranged on a rock-shaft or spindle, *d*, with a pin, *b*, to push the balance-wheel *h* a little, the lever being swung to throw the pin against the wheel by the incline, *f*, on the starting-bar, running under and raising the arm *e* of the shaft *d* when the bar is pulled back after winding up the springs. A spring, *g*, throws the lever forward again, out of the way of the balance-wheel. For stopping the clock-mechanism, after the light is extinguished, sufficient friction is created by a lever, *j*, being pressed at its free end against the axle *t* of the escapement-wheel, by means of a stud, *i*, in the wheel *m*, said lever being pivoted to the frame of the clock-mechanism and held in place for the stud to strike it by a stud, *s*. The guide-tube V for the starting-bar is inclined toward the burner, and the bar is provided with match-holding fingers *n* at the upper end, to carry a match, *p*, at the same time that it is used to wind up the clock, and strike it against the striking-plate *q*, and then present the burner to ignite the gas-jet; thus allowing the winding and setting of the clock and the lighting of the gas all to be accomplished by one operation. The valve E is opened by the cam G when it is turned back.

Having thus described my invention, what I claim as new is—

1. The combination of spring-pressed valve F, cam G, and clock-mechanism shaft H with case B having the passage D leading to the burner, as and for the purpose described.

2. The toothed bar *U*, having scale *X* and adjustable collar *W*, combined with wheel *S* and guide-tube *V*, as and for the purpose set forth.

3. The spring-pressed lever *a* having pin *b*, the shaft *d* having arm *e*, and the bar *U* having incline *f*, combined with balance-wheel *h*, as and for the purpose specified.

4. In a lighting apparatus, the combination, with escapement-wheel shaft, of the short lever

*j* and the wheel *m* having stud *i*, as and for the purpose described.

5. The fingers *n* at the end of winding-bar *U*, combined with the striking-plate *q*, as and for the purpose set forth.

GEO. S. DUNBAR.

Witnesses:

W. R. PLUNKETT,  
ROB'T A. DUNBAR.