

J. B. IRWIN.

Lamp Lighter, Burglar and Fire Alarm.

No. 103,338.

Patented May 24, 1870.

FIG. 2.

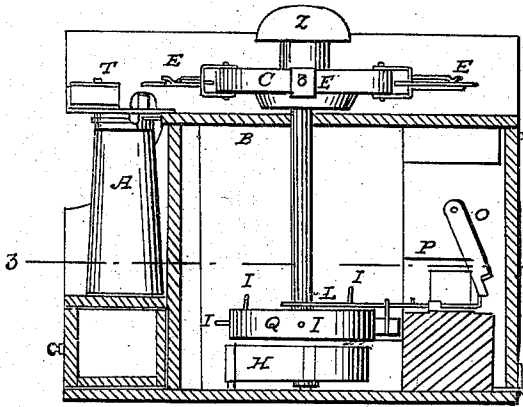


FIG. 3.

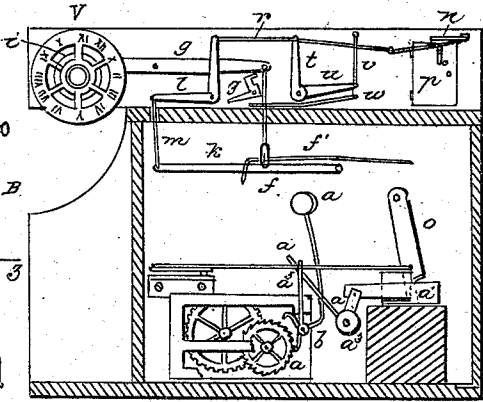


FIG. 1.

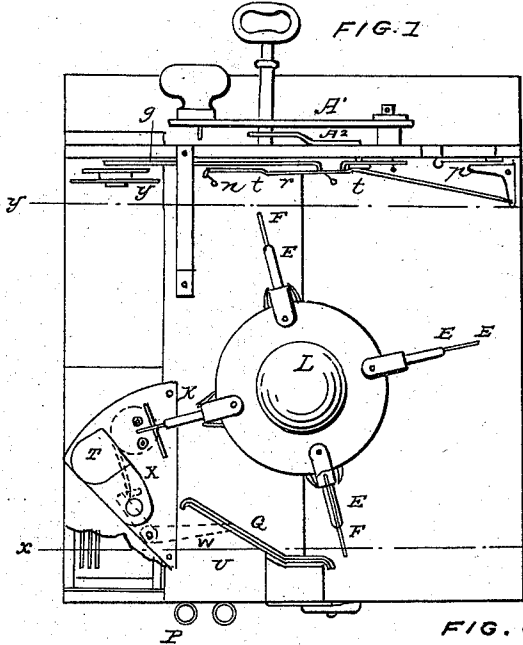


FIG. 4.

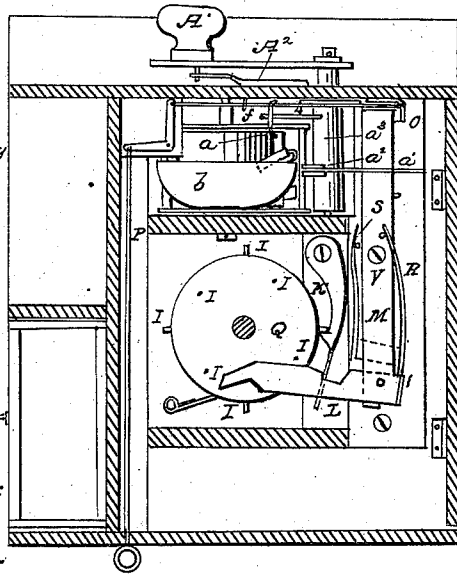
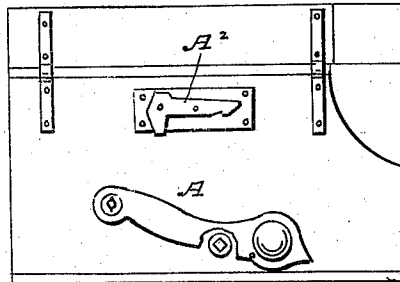


FIG. 5.



WITNESSES:

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United States Patent Office.

JAMES B. IRWIN, OF NEWARK, OHIO.

Letters Patent No. 103,338, dated May 24, 1870.

IMPROVEMENT IN LAMP-LIGHTER, AND BURGLAR AND FIRE-ALARM.

The Schedule referred to in these Letters Patent and making part of the same

To all whom it may concern:

Be it known that I, JAMES B. IRWIN, of Newark, in the county of Licking and State of Ohio, have invented a new and improved Lamp-Lighter, and Burglar and Fire-Alarm; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawing forming part of this specification.

This invention relates to improvements in apparatus for lighting and extinguishing lamps, and giving alarm for awakening persons at required times, or in case of burglars making attempts to enter buildings, or of fire; and

The invention consists in a revolving, match-holding, and scraping mechanism, worked by a spring, let free either by pulling a cord by a person in bed, or by a weight let fall at the required time by the action of attachment to a clock, or by the moving of doors or windows by the attempts of burglars to enter, or by strings burned off by fire in case of fire.

It also consists in the connection therewith of an alarm mechanism, to be set in motion by the clock, burglars, or fire, all constructed and arranged as hereinafter more fully specified.

Figure 1 is a plan view of my improved apparatus;

Figure 2 is a sectional elevation of the same, taken on the line *xx* of fig. 1;

Figure 3 is a sectional elevation on the line *yy* of fig. 1;

Figure 4 is a horizontal section on the line *zz* of fig. 2; and

Figure 5 is a side elevation.

Similar letters of reference indicate corresponding parts.

A is a lamp standing at the side of a case, B, and rising to the top of the same, or thereabout.

C is a match-holding disk, mounted on a shaft, D, which passes up through the case.

This disk has arms E, adapted to hold matches F, and, when revolved, to cause them to rub against the side of a roughened spring scraper, G, to ignite them.

The lower end of the shaft is provided with a coiled spring, H, for revolving it when let free, to light the matches.

It is also provided with holding-pins I, and a catch, K, for arresting it to hold the match, after being lighted, over the lamp, in order to ignite it.

To this catch is attached a retractor, L, jointed to a lever, M, which is pivoted at N, and against which a vibrating arm, O, works at its opposite end to retract the catch K, and let the spring H free.

This is effected when the said arm O is pulled by a wire, P, leading from it in any suitable direction over

bell-cranks or pulleys to the bed, or other place where it may be conveniently reached.

The top of the disk Q, carrying the pins I, has vertical pins I, which, when the shaft is rotated, (after the catch K has been disengaged,) come in contact with the retractor L, and carry it back away from contact with the catch K, to allow it, K, to engage the next pin I of the series, and thus arrest the match-carrier.

The said retractor is returned, after the pin passes it, by the spring R, and the lever M is returned by the spring S.

For extinguishing the lamp, a cap, T, is pivoted to a suitable support, and arranged to swing over the flame.

For operating this cap, I provide a bell-crank lever, W, and a cord, U, and, for retracting it, the spring X.

The spring H is wound up by turning the knob Z, the catch K and retractor L being so arranged as not to arrest the pins when moving in that direction.

This lighting apparatus is connected with the drop-lever A¹, which lets go an alarm-bell hammer, a, which is worked by spring clock mechanism, and strikes a bell, b.

This drop-lever is fixed on the outer end of the shaft or roller a³.

The lever A¹ is held up in an inclined position by a catch, A², which is operated to let said lever fall, by means of an arrangement of cords and levers connecting with a clock mechanism.

A pin, f, of the catch A², projects through and works in a slot in the side of the case, and enters a loop on the lower end of a rod, e, which passes up through the top of the case, and is attached to a pivoted lever, g.

g carries a pin at its opposite end, which bears on a cam-wheel or plate, i, attached to the arbor of the hour-hand of the clock y.

This clock may be set so as to cause the pin of the lever g to fall into the notch of the wheel i at any desired hour, thus raising the catch A² against the tension of the spring f, and disengaging the lever A¹.

As A¹ falls, it turns the shaft a³, causing its arm a⁴ to release the arm a⁵ of the escapement a⁶, to which last the bell-hammer is attached.

When the shaft a³ is thus turned, the escapement-wheel a⁷ is disengaged, so that the spring of the clock mechanism therewith connected revolves it rapidly, and imparts a continuous vibrating motion to the bell-hammer.

The connection between the alarm and match-lighting mechanism is established by means of the hooked catch a¹, which is pivoted to an arm, a², of the shaft

a^2 . Hence the rotation of the latter by means of the rod or cord P, and levers O and M, and catch a^3 , or by the fall of the lever A¹, has the same effect in each case, viz., to simultaneously light the candle and sound the alarm.

The lever g may be held down by the hook g' when it is not desired to employ the clock y , and the slot in rod e allows the pin f to be worked by other means.

To sound the alarm and light the lamp by the raising of windows or opening of doors, I have placed the lever k in connection with the pin f , to raise it when moved upward; and I connect this lever with the bell-crank l by a wire, m .

The other arm of the lever l is connected by a wire with a bell-crank, n , so arranged relatively to the small door p , which represents the door of the house, that, if it is opened, the levers will be moved to raise the catch A², and let the arm A¹ fall. In like manner this lever k may be connected with all the doors and windows of a house.

For sounding the alarm and making the light in case of fire in the house, I propose to attach to the wires r , (leading from the lever k to the door and windows,) the arms $t u$, which are jointed together and arranged so that the wire will be free to be moved by the movement of the doors and windows, as above described, and which will also be moved when the arms u drop, the said arms being suspended by cords V, which will burn off.

These arms u may have springs w or weights, to insure their falling with sufficient force.

As many of these arms $t u$ may be placed about the house as may be desired, and in such places as will be most likely to expose their suspending cords soonest to the fire.

Having thus described my invention,

I claim as new and desire to secure by Letters Patent—

1. The combination with the catch K of the retractor L, lever M, vibrating arm O, and cord P, substantially as specified.

2. The combination with the retractor L and lever M of the pins I, spring R and the spring S, substantially as specified.

3. The combination of the lever M with the alarm-bell mechanism, consisting of the catch a^1 , arm a^2 , and shaft a^3 , all substantially as specified.

4. The combination with the clock escapement $a^6 a^7$ of arms a^4 and a^5 , and the oscillating shaft a^3 , substantially as specified.

5. The combination of the dropping-arm A¹ with the catch A², pin f , wire e , lever g , and the cam-plate z , adjustably attached to the arbor of the hour-hand of a clock, substantially as specified.

6. The combination with the pin f of the catch A², the lever k , bell-crank l , wires $m r$, and the bell-crank n , attached to a door or window, all substantially as specified.

7. The combination with the lever k and connecting-arms, and bell-cranks, of the jointed arms $t u$, arranged for operation as described, and the arm u being suspended by a cord, all substantially as specified.

8. The combination with the lamp, of the extinguisher T, lever W, cord U, and springs X, all substantially as specified.

J. B. IRWIN.

Witnesses:

GEO. M. GRASSER,
HOWARD BROOKE.