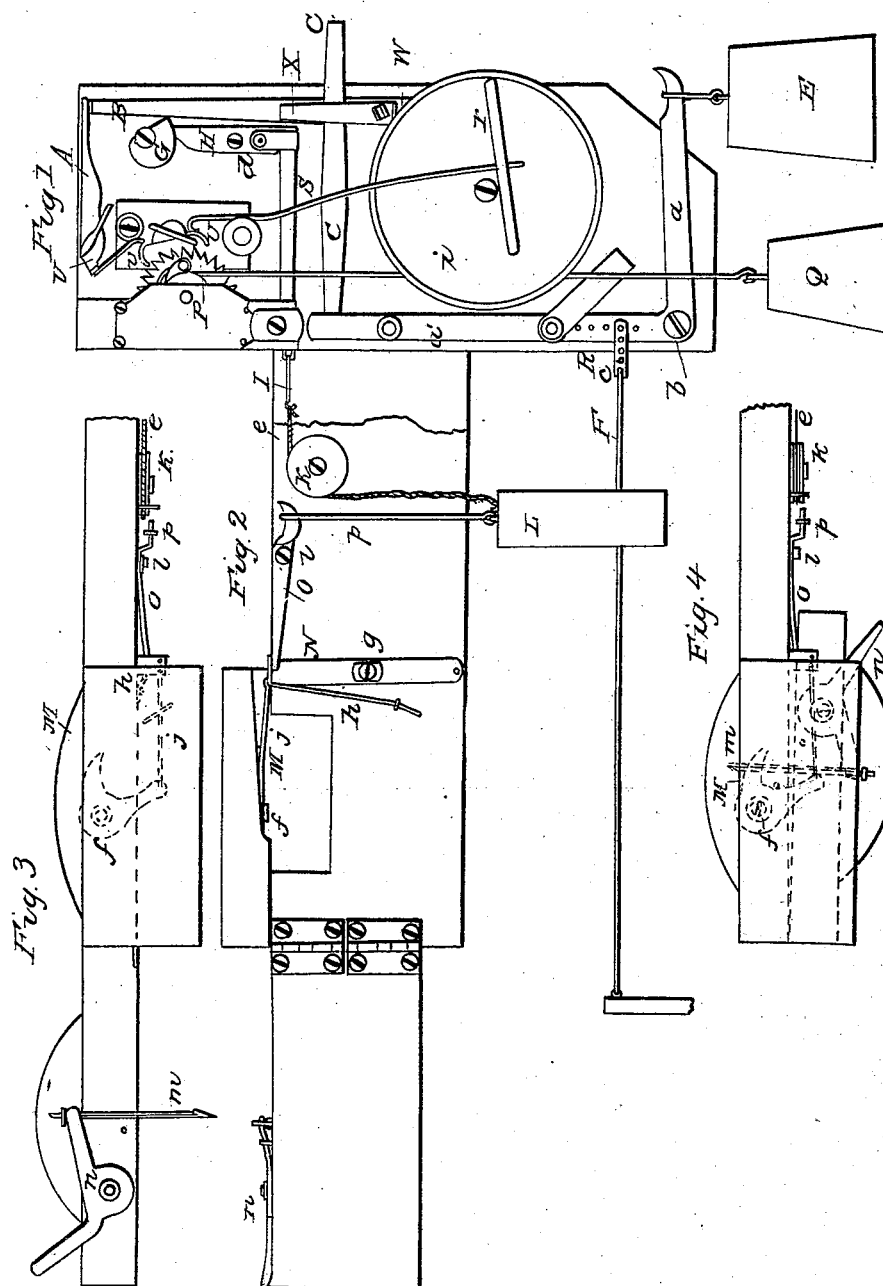


**Fire Alarm.**

Patented June 12, 1847.



# UNITED STATES PATENT OFFICE.

D. TOMLINSON AND H. S. HOPKINS, OF BROOKFIELD, CONNECTICUT.

## FIRE-ALARM.

Specification of Letters Patent No. 5,152, dated June 12, 1847.

*To all whom it may concern:*

Be it known that we, DANIEL TOMLINSON and HIRAM S. HOPKINS, of Brookfield, in the county of Fairfield and State of Connecticut, have invented a new improvement, being a contrivance for giving alarm in case of accidental fire in any building or apartment of any building, and also for giving alarm in case of felonious breaking open or entering any building, which may be called "The fire and burglary alarm;" and we do hereby declare that the following is a full and accurate description.

The nature of our invention consists, in the putting in action an alarm, similar to that of the common alarm clock, or any other alarm to give notice of danger, by means of the expansibility of metallic wire, passing through the place to be guarded, and connected with said alarm in case of fire, and producing the same effect, by opening the door, or by other movement, within the place to be guarded, by means of a wire, or cord, extending to, and connected with, the said alarm in case of burglary. The same improvement may be applied to the ringing a large bell, or any other means of giving alarm.

To enable others skilled in the art to make and use our invention, we will proceed to describe its construction and operation.

Figure 1 is a front elevation of the apparatus, for giving alarm by the expansion of a rod of metal. Fig. 2 is a front elevation of the apparatus, for giving alarm by the felonious entrance of a burglar, in a disengaged or open position. Fig. 3 is a top view of ditto—disengaged. Fig. 4 is a top view of the said apparatus, engaged or set ready for the approach of the burglar.

1st. The alarm is similar to that of the common alarm clock, viz. a verge wheel P, with a weight Q, and cord so constructed that it may be wound up in the common way, a verge v, with the bell tongue s, and bell z, as in common use, the verge wheel P, is near the upper end of the case, and near its side.

2d. A small lever A, acting on a pin U, lies across near the top of the case, it is so formed that its short end, when it is held in a horizontal position, rests against the upper end of a cross bar v, attached to, and extending upward from the verge, preventing its vibration, when the longer end falls, the short end rises above the bar, and leaves the verge at liberty to vibrate.

3. Directly under the long end of said lever, stands an upright bar, or supporter B, its top movable back and forth, and acting on a pin w, at its lower end supporting the end of said lever; or easily removed from under it, to let it fall. At the lower end of said lever is attached a spring x, extending up a short distance, and pressing toward its side, compressing the sword c which passes between, and which is below described.

4th. A bar or sword c, passes across the case near its middle, parallel with, and directly under the small lever A, above described, one end of this passes between the upright bar B, and its spring X, receiving the necessary pressure to produce a slight friction, but also allowing it to slide endwise, back and forth, and at the same time moving the top of the lever, so far as the same is at liberty, by means of the said friction. The other end of the sword, acts on a pin projecting out sidewise from the top of the main acting lever a below described.

5th. The main acting lever is a crooked lever or elbow a, one end of which stands upright on the opposite side of the case, from the bar above described, its upper end reaching a little higher, than the lower end of the former, and on this is the end of the sword attached. The other end of the elbow, passes horizontally across, near the lower end of the case, directly under, and parallel with, the sword, and acts on a pin b, passing through at the angle, and fastened to the corner of the case. On the extremity of this arm of the lever, is suspended the weight E which produces the action required, as hereafter described. The upright portion of the elbow, may be used alone without the horizontal arm, by suspending the weight on a cord, passing it over a pulley, and attaching it to the inside of the same; or a spring against the outside may do the same office.

6th. The wire F, which is the chief agent, is attached for alarm in case of fire, to the upright portion of the crooked lever, a small distance above the pin, on which it acts by means of a perforated plate c, and is extended away in the direction opposite the arm of the elbow, and in the manner of the common door bell, passes through the rooms, or places to be guarded, in such manner as to be most readily acted on, by any increase of heat to give it expansion, and its extremity is attached to the building, or any fixed

object. To the end of the wire connected with the elbow, is attached a short strip of iron, or brass C, with holes close to each other, along its whole length, this is hitched on a pin R, on the side of the upright portion of the elbow, a short distance above the pin, at the angle on which it acts; and the number of holes, are for the adjustment of the elbow in an upright position, when the wire is drawn tight by the hanging on the weight E.

7th. The weight E may be, say 7 pounds more or less, to be suspended at the extremity of the horizontal arm of the elbow, to keep the wire drawn tight, and straight, and move the upright parts to which the wire and sword are attached, forward, when the wire in any part of its length yields up by expansion.

8th. A small eccentric button G, turning on a pin or screw, is placed within the upper portion of the bar B, described, in the preceding paragraph (3d), by turning this button, the top of the bar is regulated, so as to stand under the small lever, at a greater or less distance from its end, requiring more or less expansion of the wire, to give action to the alarm.

The above constitutes the description of the alarm, as acting in case of fire. For the burglary action of the same alarm, there is to be added as follows:

9th. Just within the upright bar, described in the 3d preceding paragraph, near to, and parallel therewith, is a short upright bar H, acting on a pin d, in its center, the moving one end of this either way, forces one of its ends against the side of the other bar B, and drives its top away from the support of the end of the small lever A, and lets it fall. To one end of this bar is attached the wire I, which leads away to the place to be guarded against burglary, and may be attached to the bar, in the same manner, as that used for the alarm of fire. This wire passes along side by side with the former wire, and in the same manner, and enters the place to be guarded; to this end is attached a cord e, which passes over a pulley k, and has a small weight L, suspended on its end—and within the place to be guarded, are the following fixtures, to convey action by means of said wire to the alarm, viz.

10th. Underside the casing of any door, and over head, is attached a small elbow or bell crank M, acting on a pin, or screw f, one end of the elbow stands crosswise of the casing, extending a little inside; the other lies lengthwise, its edge on the underside, next the door, a little beveled, and on the opposite side made circular, or slanting, to facilitate the sliding of the catch, hereafter described, from its end on opening the door.

11th. Near that point in the place to be

guarded, where the wire attached to the alarm terminates is affixed an upright bar N, acting on a pin g, on its center, its top bent over on a right angle or hooked to hold down the long end of the lever o, described in the next paragraph, a spring presses against the bar N, pushing its top toward the point where the wire enters from the alarm bell i, a wire j connects one end of this upright bar N, with that end of the elbow M, over the door which projects inside the casing, and when the elbow is acted on by opening the door, pulls the bar N, against the spring h, giving it the necessary action.

12th. Forward of the upper, and hooked end of the bar above described, is a short horizontal lever o, its longer end lying just within said hooked end, its shorter end terminating close to the pulley K, mentioned at the latter end of the 9th foregoing paragraph, acting on a pin l, near this shorter end, and on this end may be hooked the small weight L, mentioned in the same paragraph, to slide off when the other end is at liberty to tilt upward.

13th. On the top of the door is attached a spring catch m, its extremity hooked, and slanting off to a point on its upper side, its end easily pressed a small distance in any direction, by means of a slender shank, this lies across the door in such a position that when the door is closed, the slanting end of the catch slides under the beveled end of the elbow M, on the casing, and hooks over on the circular or slanting side, and on re-opening the door pulls it forward, and slides over its end, giving it the action which produces the alarm.

14th. A button n, is attached on the top of the door one end of which lies on the spring catch m, when this button is turned backward, so as to rest on the hinder end of the spring, the catch is at liberty to rise, and perform the action intended, but when turned forward, it depresses the catch out of the way of the elbow, and the door is opened, and shut without its acting on the elbow.

The operation of the improvement in the fire alarm first described is as follows, in the case of fire. The weight E attached to the horizontal end of the crooked lever a, pulls forward the upright end a', to which the wire F is attached, pulling it straight, and giving it the proper tension, and the whole remains at rest; but when additional heat acts on the wire in any part of its length, the weight pulls forward the upright end a', of the elbow, in consequence of the expansion of the wire yielding to it, the sword c is pushed forward at its top, and carries with it the upright bar B, by means of its friction, caused by the pressure of the spring X, removing the top of the bar from

the end of the small lever A, which falls, leaving the short end to rise from the arm V, of the verge, which is left at liberty to vibrate, and the verge wheel P to revolve, and continue the vibration, until the weight Q is run down, producing the alarm by the ringing of the bell *z*, during the time.

The operation of the improvement for security against burglary is as follows, viz:  
 10 The small weight L, at the extremity of the wire I, in the place to be guarded suspended over the pulley K, by a cord *e*, as described, in paragraph 9 is hooked on the short end of lever, *o*, by the chain *p*. The button *n*  
 15 on the top of the door is turned backward, leaving the catch *m*, at liberty to spring upward, the door is closed, and the spring catch passes over the arm of the elbow M, without disturbing its position, but when  
 20 the door is opened, it pulls forward the arm of the elbow, drawing back at the same time the other arm, which by means of the wire attached to it, and connecting it with the hooked bar N, draws back the hooked end  
 25 of it, leaves the short lever *o*, at liberty to fly upward, and causing the weight to slide off the short end of said lever, the weight falls till it is arrested by the cord *e*, which passes over the pulley and attaches to the  
 30 end of the wire *j*; it pulls this wire endwise, and with it the end of the short bar H to which it is attached, carrying forward its other end, which forces out the top of the up-

right bar B, for supporting the end of the small lever *a* which falls, raising its shorter end and leaving the alarm to act as in the case beforementioned.

This description of apparatus, for giving alarm in case of fire, may be applied to banks, vaults, safes, or in any place where its use may be required.

We do not claim as our invention combining levers, cords, weights, and pulleys with a verge wheel, and bell, to form an alarm, as this has been done, in a certain manner; but

What we do claim as our invention, and desire to secure by Letters Patent is—

The particular manner of combining, and arranging the lever A, bar B, sword C, right angled weighted lever *a a'* perforated plate *c*, with the metallic rod or wire F, attached to the said right angled weighted lever *a, a'*, and a fixed object *t*, kept in a state of tension by said weighted lever *a a'*, and caused to operate on the sword *c* by a change of temperature, disengaging the bar B, from the lever A, and thus causing the verge *v*, to vibrate, and the hammer *r*, to operate on the bell *z*, by the action of the weight Q, and verge wheel P.

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Witnesses:

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