H. F. CRAWFORD.
Burglar-Alarm.

No. 199,034. Patented Jan. 8, 1878.

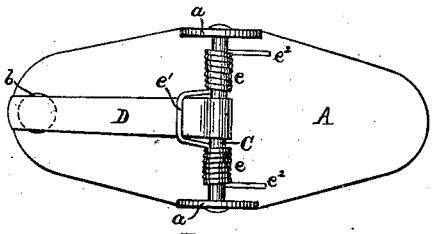

FIG. 1.

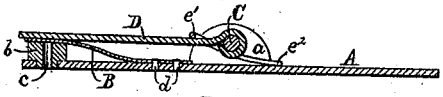

FIG. 2.

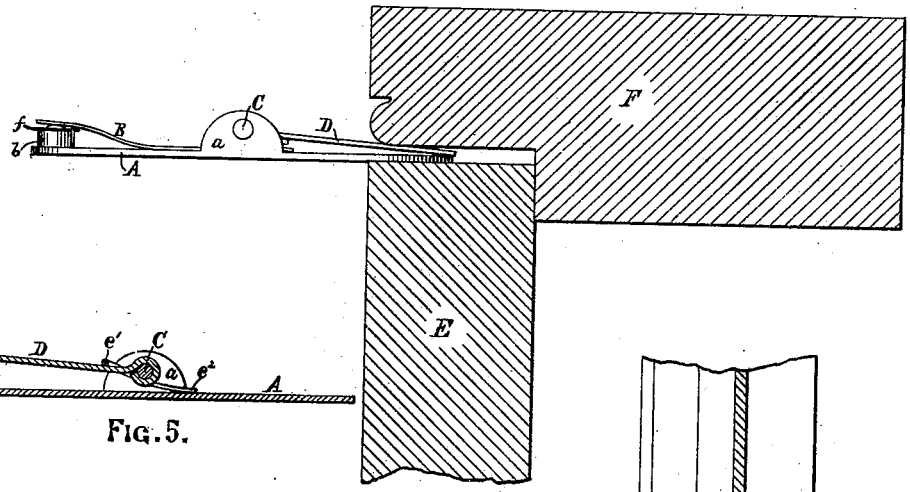

FIG. 3.

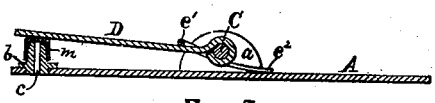

FIG. 5.

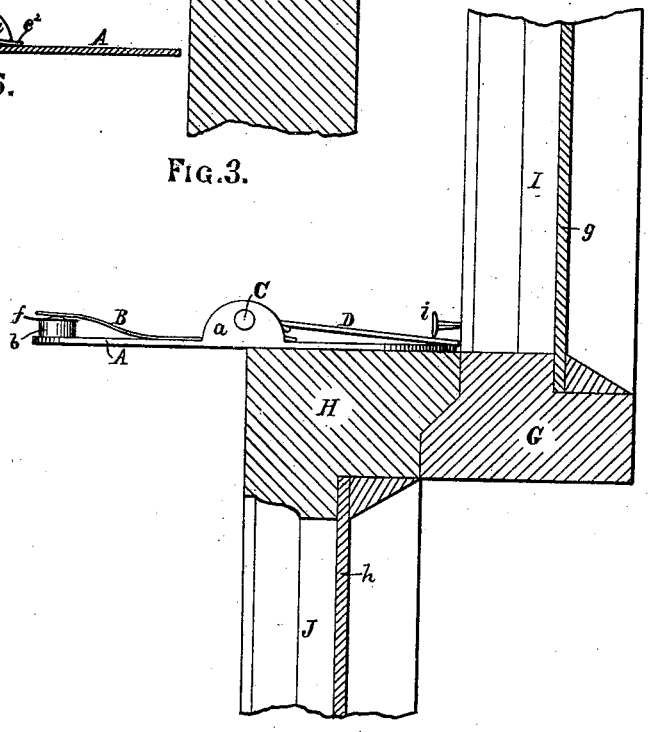

FIG. 4.

WITNESSES:

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HARVEY F. CRAWFORD, OF BROCKTON, MASSACHUSETTS.

IMPROVEMENT IN BURGLAR-ALARMS.

Specification forming part of Letters Patent No. **199,034**, dated January 8, 1878; application filed November 16, 1877.

To all whom it may concern:

Be it known that I, HARVEY F. CRAWFORD, of Brockton, in the county of Plymouth and State of Massachusetts, have invented certain new and useful Improvements in Burglar-Alarms, of which the following, taken in connection with the accompanying drawings, is a specification:

My invention relates to that class of burglar-alarms which may properly be called "portable burglar-alarms," and has for its object the production of a safe and reliable alarm of simple construction, and so compact in form and size as to be easily carried in the vest-pocket; and it consists of a plate of thin sheet metal, oblong or oval in form, and having at one end a small raised boss or anvil; a thin leaf-spring secured at one end to said plate, with its movable end resting on said anvil, and adapted to hold a percussion-primer in position thereon; a shaft extending transversely across said plate at the center of its length, and mounted in bearings formed upon or secured to said plate; a hammer or lever secured to the center of said shaft in such position that its movable end may rest upon the leaf-spring before mentioned, directly over the anvil; and a spring wound around said shaft, and so connected to said hammer-lever and the plate as to force said hammer-lever onto the leaf-spring and the anvil, and at the same time permit said hammer-lever to be turned backward about the axis of said shaft till its movable end is in contact and even with the end of the plate opposite to the anvil, the tension of the spring on the shaft being so increased by such vibratory motion of the hammer-lever that said lever will be thrown with great force in contact with the leaf-spring when released, and by its blow thereon explode the percussion placed upon the anvil.

Figure 1 of the drawings is a plan of my improved burglar-alarm. Fig. 2 is a central longitudinal section of the same. Fig. 3 illustrates the manner of applying my invention to the door of a room to prevent intrusion unannounced. Fig. 4 represents the manner of applying it to a window; and Fig. 5 is a longitudinal section, illustrating the device adapted to use percussion-caps.

A is a plate of thin sheet metal, cut to the form shown in Fig. 1, and provided at the middle of its length with the two ears *a a*, one upon either side, which ears may form a part of the plate A, and be bent at right angles thereto, as shown; or the plate and ears may be cast in one piece; or the ears may be made separate, and secured to the plate by screws or otherwise.

The plate A has set in one end thereof the steel anvil *b*, provided with the vent-hole *c*, as shown in Fig. 2.

B is a thin leaf-spring, secured at one end, by rivets *d*, to the upper side of the plate A in the position shown, with its free or movable end resting with a degree of tension upon the anvil *b*. C is a shaft mounted in bearings in the ears *a a*, and having firmly secured to the middle of its length the hammer-lever D, extending at right angles therefrom, with its outer or movable end resting upon the leaf-spring B, directly over the anvil *b*, said hammer-lever being made of such a length that its outer or movable end shall be even, or nearly even, with the end of the frame A, whether it rests in its normal position on the nipple or anvil or thrown back upon the rear portion of the frame A, and inserted therewith into the crack of a door or window, to set the hammer ready to give an alarm by exploding the primer or cap.

The shaft C has wound thereon the coiled springs *e e*, formed from a single piece of wire, said coils being connected by the stirrup or loop e^1, which engages with the hammer-lever D, as shown, the ends e^2 e^2 of the wire from which said coils *e e* are formed extending to the rear of the shaft C, and resting upon the surface of the plate A, all arranged in such a manner that the tension of the springs *e e* tend to force the outer or movable end of the hammer-lever D toward the anvil *b*, and that the tension of said springs shall be greatly increased by swinging the hammer-lever D into the position shown in Figs. 3 and 4.

In Fig. 3 the device is shown as applied to a door, for the purpose of sounding an alarm in case the door should be unwarrantably opened.

To properly apply the device, the hammer-lever D is swung into the position shown in Fig. 4, with its end in contact with the plate A, in which position the plate A and the end of the lever D are crowded endwise into the crack between the top of the door E and the

top jamb or transom F of the door-frame, in which position it remains till the door is opened, when the lever D, being released, is thrown violently, by the springs *e e*, into the position shown in Figs. 1 and 2, exploding the percussion *f* previously placed upon the anvil *b* beneath the spring B, and causing a report sufficiently loud to arouse the soundest sleeper.

In Fig. 4, G and H are the meeting-rails, respectively, of the upper and the lower sashes of an ordinary window; I, the side rail of the upper sash; J, the side rail of the lower sash, and *g* and *h* the glass, respectively, of the upper and lower portions of the window.

The alarm device is applied to the window by resting the plate A upon the upper surface of the meeting-rail H of the lower sash, with its rear end and the end of the lever D between said rail and the head of a tack, *i*, which is partially driven into the side rail I of the upper sash, as shown.

If an attempt is made to move either of the sashes in either direction—provided they are so placed that they can be moved in either direction—the hammer-lever D will be released by the breaking or removal of the tack, and the lever D operates as before to explode the percussion and sound an alarm.

The device may be applied to a window when closed, as shown, or when either sash is partially opened, it only being necessary to insert the tack *i* the proper distance above the meeting-rail H of the lower sash. It may also be applied to the door by inserting it between the edge of the door and the side jamb; but I prefer applying it to the top of the door, as previously described.

If desired, the spring B may be dispensed with, and a nipple, adapted to receive and hold by friction an ordinary tubular percussion-cap, may be substituted for the plain anvil *b*, as shown in Fig. 5, where *b* is the nipple, and *m* the cap.

What I claim as new, and desire to secure by Letters Patent of the United States, is—

1. In a burglar-alarm, the combination of the frame A, provided at one end with an anvil or nipple adapted to receive and hold a percussion cap or primer, the hammer-lever D, pivoted by one end to the frame A at the middle of its length, and having its movable end made thin and adapted to be swung into a position in contact and even with the rear end of the frame A, and to be inserted with said rear portion of the plate A into the crack between a door or window and its jamb or casing, and a spring for operating said hammer-lever when released, substantially as described.

2. The combination, in a burglar-alarm, of the plate A, provided with the anvil *b*, the spring B, adapted to hold a percussion-primer in position on said anvil, and the hammer-lever D, actuated by one or more springs, *e e*, and adapted to be set with its movable end in contact with the plate A at the end opposite to the anvil, and to be inserted with said plate between the edge of a door and its jamb, substantially as described.

Executed at Boston, Massachusetts, this 14th day of November, A. D. 1877.

HARVEY F. CRAWFORD.

Witnesses:

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