

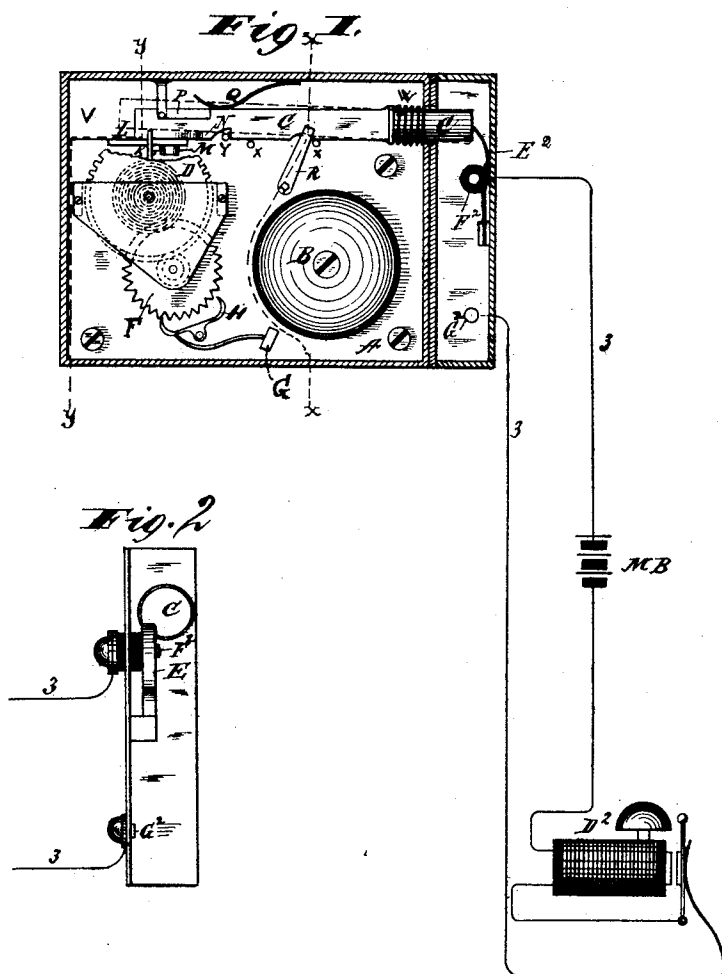
(No Model.)

2 Sheets—Sheet 1.

R. G. VASSAR.
BURGLAR ALARM.

No. 474,980.

Patented May 17, 1892.



WITNESSES:
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(No Model.)

2 Sheets—Sheet 2.

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Fig. 3.

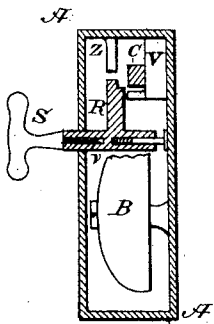


Fig. 4.

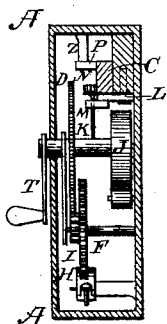


Fig. 5.

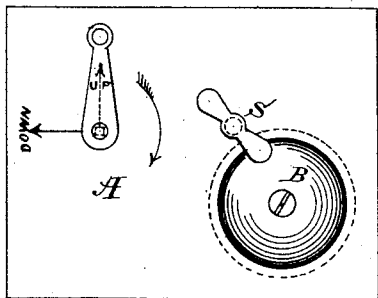
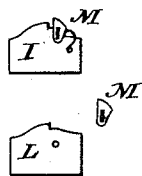


Fig. 6.

ATTEST:

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INVENTOR:

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UNITED STATES PATENT OFFICE.

ROBERT G. VASSAR, OF NEW YORK, N. Y., ASSIGNOR TO THE VASSAR
BURGLAR ALARM MANUFACTURING COMPANY, OF NEW JERSEY.

BURGLAR-ALARM.

SPECIFICATION forming part of Letters Patent No. 474,980, dated May 17, 1892.

Application filed April 11, 1887. Serial No. 234,338. (No model.)

To all whom it may concern:

Be it known that I, ROBERT G. VASSAR, a citizen of the United States, and a resident of New York, in the county of New York and State of New York, have invented a certain new and useful Combined Mechanical and Electrical Burglar-Alarm, of which the following is a specification.

My invention relates to burglar-alarm apparatus designed for use in connection with doors, windows, or other barriers and adapted to give an alarm in case of an unauthorized attempt to effect an entry.

The object of my invention is to provide an improved means whereby an alarm may be given at any desired distance on the mere attempt to open the door, window, or other barrier; and to this end my invention consists in the combination, with a bolt adapted to have a limited lateral movement, of an electric-circuit controller governing the circuit of an electrical alarm and arranged with relation to the bolt in such manner that the pressure upon the door or upon the bolt itself by a tool so as to move said bolt laterally will cause the circuit-controller to be operated so as to close, open, or otherwise affect the electric circuit and produce the sounding of an alarm.

The object of my invention is further to provide a burglar-alarm device which shall give a double alarm, one at the immediate point of attack and the other at the same or any other desired point at a distance.

To this end my invention consists in the combination, with a bolt and a mechanical alarm whose detent is operated by said bolt when moved laterally, of an electric-circuit controller also operated upon or released by the bolt when moved laterally and governing an electric circuit for an alarm or indicator placed at any desired point. By this means I attain a double protection, inasmuch as if the electric circuit should become impaired or disturbed the mechanical alarm remains at the point of attack; or in case the mechanical alarm should become deranged the electric alarm will be sounded to give warning of an attempt at unauthorized entry.

My invention consists, further, in the combination, with a bolt and an alarm mechanism having suitable detent devices adapted to be

operated by either a lateral or longitudinal movement of the bolt, of an electric-circuit closer or breaker properly arranged in relation to said bolt so as to be operated or brought into action by either a lateral or a longitudinal movement of the same and connected with the circuit of an electrical alarm or indicator.

My invention consists, further, in certain combinations of devices and improved details of construction, which will be first described in connection with the accompanying drawings, and will then be specified more particularly in the claims.

In the accompanying drawings, Figure 1 is a plan of one form of the apparatus embodying my invention. Fig. 2 is an end view of a bolt, showing a circuit-controller properly arranged with relation to the same so as to be operated through a lateral movement of said bolt. Fig. 3 is a vertical section on the irregular line X X, Fig. 1. Fig. 4 is a vertical section on the straight line Y Y, Fig. 1. Fig. 5 shows in detail parts of a guard-plate applied to the stop of a detent-arm, as in a prior patent granted to me, No. 293,690, February 19, 1884. Fig. 6 is a plan of the exterior of the casing for the mechanical alarm.

C indicates a bolt, and B the alarm-bell of a suitable mechanical alarm apparatus properly constructed and arranged with relation to said bolt so that on a lateral movement of the same when the bolt is in position to lock the door, window, or other barrier the alarm will be released. Detent mechanism is also combined with said alarm mechanism and bolt in proper manner to be released on a longitudinal rearward movement of the bolt for the purpose of unlocking the door or barrier. The bolt is properly mounted in the casing or on its support so that it may have a slight lateral movement either when pressure is applied to the door or window when the bolt locks the same or when a tool or instrument strikes the bolt from the outside of the door or window. A construction of bolt and detent mechanism suitable for this purpose is described in my prior patent, No. 293,690, and is as follows:

A indicates the containing-casing. The bolt slides on the face of a vertical guide-plate V, secured to the interior of the casing,

being held against said plate by a spring P, affixed to a stud Z, which latter serves to limit the lateral movement of the free end of the bolt when it is forced to one side either by a tool or an attempt to enter the door when bolted. The end of the bolt C projects through the edge of the casing, the opening being sufficiently large to allow the opposite end of the bolt to move laterally or longitudinally while supported at the edges of the opening, as a fulcrum. A spring Q serves to normally hold the free end of the bolt down, except when it is raised by the operation of a key or knob, to be presently described, while a coiled spring W tends to normally hold the bolt back. A pin Y holds the bolt "shot;" but when the free end of the bolt is raised so as to disengage it from the pin the spring W throws the bolt back.

K indicates a detent-arm secured to the arbor of the mainspring J for the alarm mechanism and adapted to engage with a stop formed by a shoulder or step upon the edge of a horizontal plate L, supported by the plate V or in any other suitable manner. When so engaged, the alarm mechanism is prevented from acting. The end of the detent-arm projects upward upon the lower end of the bolt and also in the path of a shoulder or projection N upon the side of the bolt, so that, as will be readily seen, the detent will be sprung out of engagement with the stop if the bolt is forced against it laterally, either by a tool or by the swinging of the bolt upon its fulcrum when an attempt is made to open the door without throwing the bolt back, or if the bolt be moved back longitudinally in the event of pin Y being broken off or removed, so as to cause the beveled or rounded shoulder N to come into engagement with it. The alarm mechanism is of any desired kind, that here shown consisting of the tooth-wheel D, secured to the mainspring-arbor, the spring J, fastened at one end to a fixed post and at the other end to the arbor, pinion I, gearing with wheel D, escapement-wheel F, vibrating escapement H, bell-hammer G, connected thereto, and bell B.

E is a plate secured upon studs projecting from the side plate of the casing, in which plate one end of the spindles of the alarm mechanism are supported, while the other ends are supported in the side plate of the casing A or in any other suitable manner.

T is a handle fixed to the mainspring-arbor, by means of which the alarm mechanism is wound up and the detent K set in engagement with its stop. The words "up" and "down" upon the casing indicate the condition of the alarm mechanism—that is, whether it is wound up or run down.

In order to allow the arm K to pass the stop or shoulder on the stop-plate L in the act of running down or winding up, I have devised what I term a "guard-plate," shown in detail in Fig. 5 and consisting of a plate M, having an elongated opening or slot O, through which

passes a pin secured to the plate L. A spring applied to the guard-plate tends to hold it out and in the position shown in Fig. 5, so that its edge projects beyond the upper edge of the shoulder upon the stop-plate and in the act of winding up the arm K will come into engagement with the guard-plate, but will force the same over to one side until it snaps by it. When, however, the arm is disengaged from the step or shoulder on the plate L, so as to release the alarm mechanism, said arm moving in the reverse direction will ride upon the curved edge of the guard-plate, and will thereby be kept from engaging with the step. The mechanism is thus allowed to run completely down. To set the device, the mechanism is wound up and the arm K turned until it comes against the square edge of the plate M, at which point it is stopped and allowed to engage with the shoulder on the plate L. These devices form no part of my present invention.

S is the knob or handle by means of which the bolt is operated from the inside of the door, so that it can spring back without affecting the alarm. The handle S is fixed permanently or otherwise, as desired, to the operating arm or key R, which plays between two stops X X and is mounted upon a spindle carrying a coiled spring, as shown, which latter serves to hold the arm out of line with the bolt until said arm is forced back against the tension of the same in position, where its web may by turning the handle be caused to lift the bolt away from the stop-pin Y. As the arm R is turned it lifts the free end of the bolt, which then rides on the pin Y, so that the shoulder N passes above the detent K and avoids it when the bolt is forced back. By this means the alarm mechanism is prevented from acting. By a reverse movement of the arm the bolt is thrown back to lock the door, the spring Q at the same time acting to force its free end down, so as to cause it to engage with the pin Y.

Other arrangements of detent mechanism suitable for the same purpose are described in my prior application for patent, Serial No. 205,083, filed June 14, 1886, wherein I have described the alarm device so arranged that on the movement of the bolt by means of the key in a longitudinal direction the alarm will be released. In that application a suitable setting device is employed for setting the detent mechanism at pleasure into position to be operated in the manner just mentioned.

The electric-circuit controller may be either in the casing of the alarm and bolt or may be in a box or casing into which the bolt projects, so as to lock the door or barrier. I have in the present instance shown it as arranged in the latter position and as consisting of a circuit-controller, which is normally open, though, as will be obvious to electricians, such circuit-controller might be arranged with its contacts normally closed.

A form of circuit-controller suitable for the

purpose of my invention consists of a spring E^2 , suitably mounted on one side of a plate of metal forming a side of a box or casing constituting, also, the nose-plate for the end of the bolt. The spring E^2 has its free end arranged in the path of the bolt, as indicated, so that when the bolt is shot the spring will be held away from a contact-stud F^2 , which, as indicated, is insulated from the plate bearing spring E^2 and has suitable clamping devices for the attachment of an electric conductor.

A second clamping-post (indicated at G^2) serves for the attachment of another electric conductor. The electric circuit, consisting of the wires 3 3, is connected with a battery or other generator of electricity M B, and contains an electric alarm-bell D^2 of any desired construction, placed at any suitable point, either close to or remote from the bolt. The spring E^2 has a bias such that when the bolt is moved rearwardly it will come into contact with the stud F, and thus close the circuit of the conductors 3 3 and cause the alarm-bell to sound. The spring is also, as indicated in Fig. 2, arranged to make contact with the end of the bolt near its edge, so that if the bolt should move sideways into the position indicated in the dotted lines the spring would be released and would make contact, as before, and cause the electric bell to sound. Such lateral movement of the bolt would obviously be produced by any pressure applied to the portion of the bolt within the casing of the mechanical alarm, either through pressure on the door or barrier or through the impact of a tool against the side of the bolt. As will be seen, therefore, should an attempt be made to enter through the door or window the pressure incident to an attempt to open the door or window would not only set off the mechanical alarm and cause the bell B to sound, but would also, through the action of the electric-circuit controller, by the lateral movement of the bolt result in a sounding of the alarm-bell at D^2 . It is also apparent that a longitudinal move-

ment of the bolt in the manner described in my prior patent or in any other manner of a kind which would set off the mechanical alarm would likewise result in a sounding of the electrical alarm, thus giving in both cases a double protection and permitting an alarm to be sounded not only at the point of the attack, but at any distant point, as before referred to in the beginning of this specification.

Any electrical alarm or indicator may be used on the circuit 3 3.

What I claim as my invention is—

1. The combination, with a laterally-movable bolt, an alarm mechanism, and mechanical releasing devices for the latter arranged in the path of the laterally-movable bolt, of an electric-circuit controller arranged in the path of the laterally-movable bolt and an electric circuit connecting the same with an electro-magnetic alarm or indicator, as and for the purpose described.

2. The combination of a bolt having a lateral movement, so that it will be moved sideways by pressure upon the bolt itself or upon the door when the bolt is shot, an electric-circuit controller brought into action by said bolt when moved laterally, as described, and a circuit governed thereby and containing the magnet of an alarm or indicator.

3. The combination, with a bolt and an alarm mechanism having detent devices arranged in proper relation to said bolt, as described, so as to be operated by a lateral or longitudinal movement of said bolt, of an electric-circuit controller placed in proper relation to said bolt, as described, so as to be released or operated both by a lateral and by longitudinal movement of the same, and an electric circuit connecting said circuit-controller with an electrical indicator or alarm.

Signed at New York, in the county of New York and State of New York, this 5th day of April, A. D. 1887.

ROBERT G. VASSAR.

Witnesses:

WM. H. CAPEL,
HUGO KOELKER.