(No Model.)

W. J. ACKERMAN.

BURGLAR ALARM.

No. 396,452. Patented Jan. 22, 1889.

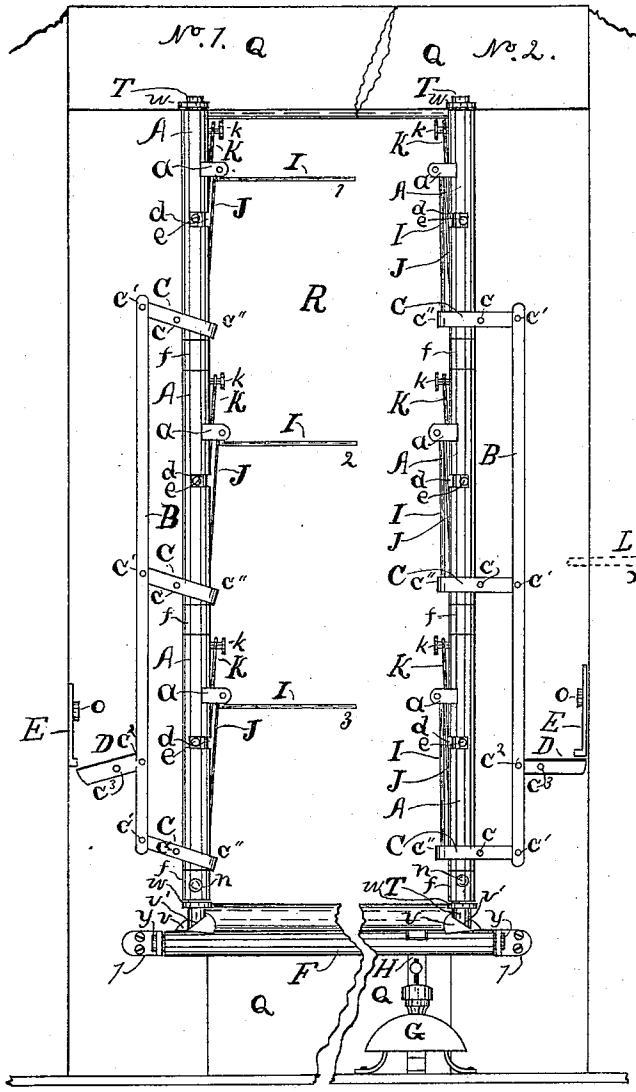


Fig. 1.

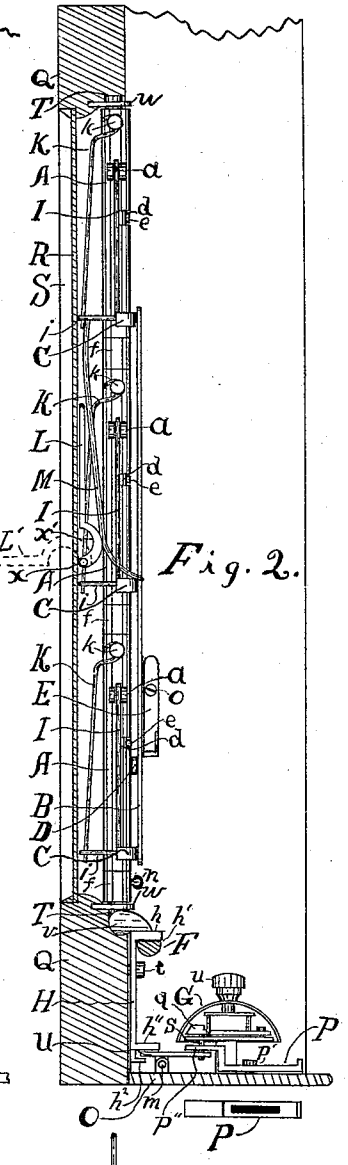


Fig. 2.

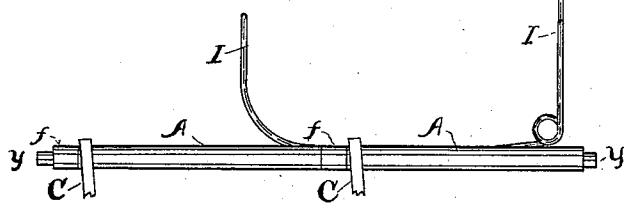


Fig. 3.

WITNESSES:

George H. White.

James Cilley

INVENTOR,

William J. Ackerman

BY

Ithiel J. Cilley

ATTORNEY

N. PETERS, Photo-Lithographer, Washington, D. C.

UNITED STATES PATENT OFFICE.

WILLIAM J. ACKERMAN, OF GRAND RAPIDS, MICHIGAN.

BURGLAR-ALARM.

SPECIFICATION forming part of Letters Patent No. 396,452, dated January 22, 1889.

Application filed September 17, 1888. Serial No. 285,632. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM J. ACKERMAN, a citizen of the United States, residing at Grand Rapids, in the county of Kent and State of Michigan, have invented a new and useful Improvement in Burglar-Alarms, of which the following is a specification.

My invention relates to improvements in appliances for use upon the windows of dwelling-houses, &c., for the purpose of giving an alarm when the window is raised or otherwise tampered with; and the objects of my invention are, first, to provide a burglar-alarm with which a window cannot be raised the least degree without sounding an alarm; second, to provide a burglar-alarm with which the glass in a window, or any considerable portion thereof, cannot be removed without sounding an alarm; third, to provide a burglar-alarm having pressure-bars extending over the surface of the glass that can be folded out of sight during the day; fourth, to provide a burglar-alarm with which the window cannot be raised the least degree without throwing pressure-bars out upon the surface of the glass, except when these pressure-bars are especially arranged for raising and lowering the window, and, fifth, to provide a burglar-alarm that may be instantly and conveniently disconnected, so that the window may be raised and lowered without sounding an alarm. I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a front elevation of my appliance as it appears when attached to a window, in which No. 1 shows the pressure-arms extended, and No. 2 shows the same secured to the side of the standard. Fig. 2 is a section of a window-sash with my appliance attached as a side elevation, showing the relative position of its several parts, the bell G being shown in section for the purpose of exposing the connecting mechanism; and Fig. 3 shows modified forms of applying the pressure-bars, whereby the projections *a* on the jackets and the detached springs J may be dispensed with.

Similar letters refer to similar parts throughout the several views.

In the accompanying drawings, A A, &c., are short lengths of small tubes arranged for the support and free action of pressure-bars or glass-pressers I. T is a rod which passes through and supports the tubes A. I I, &c., are a series of pressure-bars, which are arranged to press upon the surface of the glass. F is a cross-bar for the support and manipulation of the slide H. The combination of these several parts constitutes the main features of my invention; and G is an ordinary alarm-bell, any form of which may be used with my appliance.

The supports A are made of small tubing, preferably not exceeding one-fourth of an inch in its outside diameter, and are fitted to work freely upon the rods T. They are each provided with a small slot, *d*, for the free action of pins *e* in the rods, and with a pin, *k*, for the reception of the end of a spring, K. Each side of the window may be provided with one or more of these supports, to each of which an arm or pressure-bar, I, is attached in such a manner that it may be folded down by the side of the supports, as shown at No. 2 in Fig. 1, or may be extended over the surface of the glass, as shown at No. 1. These arms are held in place, when folded down by the side of the supports, by means of catches C, and are thrown out to and held in position, as shown at No. 1, either by means of a detached spring, J, acting upon their lower sides, or by a coil or bow spring formed in the arm, as shown in Fig. 3, or in any other convenient form. Their outer ends are turned down or out, as shown in Fig. 2, so that the points *i* rest upon the surface of the glass, and are drawn snugly upon it by the action of the springs K upon the supports A. When the hinged joint *a* and the detached spring J, as shown in Fig. 1, are made use of, the spring is attached solidly at one end to the body of the support A, the opposite end being left free to act upon the pressure-arm, as specified; but when the coil or bow spring shown in Fig. 3 is used the arms are attached solidly to the support, and the projection *a* and spring J are dispensed with.

The rods T should be made the entire length of a window-sash and supported at each end by plates *w*, which are firmly attached one to each rail of the sash, and it should be fitted to work freely inside of the supporting-tubes A, (except when but one pressure-arm is used, in which case the pressure-arm may be at-

tached directly to the rod and the supporting-tubes dispensed with,) and provided with narrow collars *f*, firmly attached at proper points to support each of the supporting-tubes independent of the other, one of these collars being provided with a small knob, *n*, with which to turn the rods to position by hand when desired. They are also provided with pins *e*, which are arranged to work in slots *d* in the supports A in such a manner that if one pressure-arm be allowed to drop through an aperture in the glass the wall at the end of the slot will engage with the pin and carry the rod with it, while the balance of the pins will carry around freely in the slots, so that the other pressure-arms may stand in position upon the glass. The lower ends of the rods are provided with an incline, *v'*, which is arranged to act upon a corresponding incline projecting from the surface of the cross-bar F. These rods are secured to the sash in such a position that the supports A will stand in the "hollow" of the "ogee" of the sash-stile with the outer surface just flush with the surface of the stile.

The catches C are pivoted to the sash-stile at *c'*, the end *c* projecting over the support and bent back, as shown in Fig. 2, in a proper form to clasp over and hold the ends of the pressure-arms in position when folded down by the side of the supports. The opposite ends of these catches are pivoted to a bar, B, which in turn is pivoted to a lever, D, at c^2, and this lever is pivoted to the sash-stile at c^3, with the outer end projecting and arranged to engage with a bracket, E, which is secured to the jamb-casing of the window-frame in such a manner that it may be thrown around over the end of the lever, or may be drawn aside so that the end of the lever will pass between it and the line of the surface of the sash and allow of the raising of the window without freeing the ends of the pressure-arms.

When an ordinary alarm-bell is attached to the window-stool, as shown in the accompanying drawings, I also attach a cross-bar, F, to the bottom rail of the sash by means of plates 1, in which it is fitted to turn freely. I provide this cross-bar with an incline, *v*, for each standard or rod used upon a window, arranged to act with the beveled end *v'* of the rods, for the purpose of turning the cross-bar by the action of the rod when turned. I also provide, at any convenient point on the cross-bar, a flattened surface, *h'*, for the support and working of the slide H, which is attached to the rail of the sash in such a manner that it may freely work up and down by means of a pin, *t*, and a slot, *r*, in the slide. This slide is provided with an angled projection, *h*, which rests upon the flattened surface *h'* on the cross-bar and supports the entire weight of the slide, with a long projection, *h''*, arranged to rest upon the top of the stop-lever *u*, and hold its projecting end up behind the stop-pin *s* on the bell-hammer, and a short projection, h^2, arranged to rise up against the end of the stop-lever, trip it, and pass by.

The stop-lever *u* is pivoted to the standard *m*, with the shorter end projecting toward the sash-rail and resting between the projections *h''* and h^2, and the opposite end projecting out to engage with the pin *s* on the hammer of the alarm-bell. The standard *m* is secured to the window-stool between the bell and the sash, and the bell G, which may be any ordinary stem-winding or other alarm-bell, is secured to the window-stool in position to be acted upon by the alarm mechanism, as hereinbefore described.

For the purpose of allowing the window to be raised without sounding an alarm, I provide a slide, P, which is provided with a slot for the reception of the pin or screw P', upon which it works freely. The inner end at P'', I elevate so that it will come behind the pin *s* on the bell-hammer and prevent the hammer from moving when the stop-lever *u* is dropped from behind it; and for more fully insuring the springing of the alarm in case the glass is removed when the pressure-fingers are confined along the body of the support, as shown in Fig. 2, I sometimes pivot a lever, L, to the ogee of the sash-stile, as at *x*, Fig. 2, near each catch. This lever is provided with a bend or elevation, *x'*, near the point of attachment, for the support of a spring, M, the opposite end of the lever being supported by resting upon the glass.

The spring M is attached firmly at one end to the sash-stile. The opposite end, being supported by passing over the lever, projects upward at a sharp incline and rests upon the edge of the catch in such a manner that when the glass is removed from under the end of the lever the lever will fall around to the position indicated by the dotted lines L' and allow the spring M to press upon the end of the catch with sufficient force to throw it off from the end of the pressure-arms and allow them to fall through the aperture in the glass, or extend themselves upon the surface of the glass, though this appliance is not an absolute necessity, as the springs K may be made strong enough to draw the pressure-arms around from under the catches when the support (or glass) is removed from under the end of a pressure-bar.

When I desire to attach my alarm-bell at a distance from the window, or wish to attach an electric bell to my glass-pressure attachment, I dispense with the cross-bar F, with the slide H, and with the inclines *v'* at the lower end of the rods, and connect the bell with the rod T by means of a small wire or other suitable device in the usual manner, and in such a way that the raising of the window or the turning of the rod will cause the alarm to sound.

To set my alarm mechanism, wind up the alarm-bell, withdraw the slide P from behind the pin *s*, and throw the bracket E over the

end of the lever D. With the appliance in this position, a slight raising of the window will cause the stop-lever *u* to drop from behind the pin *s* and sound an alarm, and at the same time will trip the lever D upon the bracket E and release the pressure-arms I from the catches C′ and allow them to throw out over the surface of the glass, as shown at No. 1, (or the pressure-bars may be thrown out in the first instance,) with the pressure-bars resting upon the surface of the glass. If any portion of the glass upon which the end of the pressure-bars rests is cut away or taken out, the bar will drop through the aperture and turn the rod T sufficiently to throw the cross-bar F over and raise the slide H, drop the end of the stop-lever *u* from behind the pin *s*, and sound an alarm. As soon as the pressure-bar is brought back to place the weight of the slide H upon the flattened surface *h′* will turn the cross-bar F back to position.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. A burglar-alarm having an alarm-bell and stop-lever, in combination with a tripping device, H, attached to the sash in such a manner that it may be raised and lowered with or without raising the sash, and provided with a projection, *h*, which rests upon the cross-bar, a projection, *h″*, that rests upon the stop-lever, and a slot, *r*, to allow of its being raised and lowered without raising and lowering the sash by turning the cross-bar, a cross-bar, F, arranged to turn freely in and supported by plates 1 and provided with a flattened surface, *h′*, so arranged that the turning of the bar will raise or lower the slide H, and with inclines *v*, which act with corresponding inclines on the end of the rod T to turn the cross-bar when the rods turn, supporting-rod T, having the lower end cut diagonally to correspond with the inclines *v* on the cross-bar, pressure-bars I, attached to the supporting-rods and arranged to throw out over the surface of the glass or to fold down by the side of the supporting-rod, springs J, attached to the support and arranged to throw the pressure-bars out over the glass, spring K, arranged to draw the pressure-bars toward the glass, and pins *k* in the support, for the reception of the spring K, substantially as and for the purpose set forth.

2. The combination, in a burglar-alarm, of an alarm-bell and a stop-lever with a tripping device or slide, H, attached to the sash by a pin, *t*, passing through the slot *r*, and provided with projections *h* and *h″*, a cross-bar, F, supported by and arranged to turn freely in plates attached to the window-sash, and provided with a flattened surface for the support and manipulation of the slide H, and with projecting inclines *v*, for turning the cross-bar by the action of the diagonal end of the supporting-rod T, supporting-rod T, having the lower end formed to act upon the inclines *v*, so as to turn the cross-bar when the rod turns, and provided with jackets or tubes A, within which it is arranged to turn freely, with collars for the support of the tubes, pins *e*, which are acted upon by the tubes to turn the rod, and a knob, *n*, with which to turn the rod to place by hand, and is attached to the sash-stile by means of plates *w*, in which it turns freely, tubes or supports A, which are arranged to work freely upon the rod T, and are provided with slots *d*, for the free action of the pins *e*, and with a pin, *k*, for the reception of the end of the spring K, pressure-bars I, attached to the tubes or supports A in such a manner that they may be folded down by the side of the supports or thrown out over the glass, springs J, attached at one end to the tubes and arranged to act upon the pressure-bars in throwing them out over the glass, springs K, attached at one end to the sash and at the other end to the pin *k*, for the purpose of drawing the pressure-bars against the glass, catches C, pivoted to the sash and arranged to hold the pressure-bars down to the side of the supports, connection B, lever D, and bracket E, arranged to act upon the catches C, all substantially as described, and for the purpose set forth.

3. The combination, in a burglar-alarm, of an alarm-bell and stop-lever with a slide, H, having projections *h*, *h″*, and *h‴*, and a slot, *r*, and attached to the sash by means of a pin, *t*, a cross-bar, F, provided with a flattened surface for the support of the slide, and inclines to facilitate turning the cross-bar, and attached to the bottom rail of the sash by means of plates, in which it turns freely, supporting-rods T, attached to the sash-stile by means of plates, in which it is arranged to turn freely, supports A, arranged to work freely upon the supporting-rods, springs K, arranged to turn the supporting-rods by attaching one end to the sash-stile and the other end to a pin on the support, catches C, pivoted to the sash-stile and arranged to extend over the support and hold the pressure-bars to place, connection B, lever D, and bracket E, arranged to act upon the catches, and a lever, L, pivoted to the sash-stile with one end resting upon the glass, and a spring, M, one end of which is attached to the sash-stile, and the other end passes over the lever and against the end of the catches in such a manner that when the lever is thrown down the spring will force the catches around and allow the arms to throw out over the surface of the glass, substantially as and for the purpose set forth.

4. The combination, in a burglar-alarm, of an alarm-bell provided with the necessary stop-motion, with supporting-rods T, arranged to turn freely in plates *w*, attached to the sash-stile and provided with a pin, *k*, pressure-bars I, attached to the supporting-rods in such a manner that they may be folded down by the side of the rod, or may be extended out over the glass, a spring, K, which attaches at one end to the sash-stile and at the other end

to the pin *k* on the supporting-rod, to hold the pressure-bars solidly against the glass, and a catch for holding the pressure-bars in place at the side of the supporting-rod, substantially as and for the purpose set forth.

5. The combination, in a burglar-alarm, of an alarm-bell provided with the necessary stop-motion, with supporting-rods for the support of the tubes A, said supporting-rods being provided with collars *f*, one below each tube, and a pin, *e*, to work in each slot *d* in the tubes, and supported in bearings or plates secured to the sash, supports A, which are arranged to turn freely upon the supporting-rod, and are provided with slots that work over the pins *e* in the rod, and with pins *k* to receive one end of the springs K, pressure-bars I, so attached to the supporting-tubes that they may be folded down by the side of the support, or may be thrown out over the glass, springs J, arranged to throw the pressure-bars out over the glass, catches C, arranged to secure the pressure-bars down to the body of the supports, connections B, lever D, pivoted to the sash-stile, and bracket E, pivoted to the window-jamb for the purpose of operating the catch, substantially as and for the purpose set forth.

6. A burglar-alarm having an alarm-bell with the necessary stop mechanism, and having supporting-rod T, supporting-tubes A, pressure-bars I, catches C, with connections B, D, and E, spring J, for throwing the pressure-bars to position, spring K, for holding the pressure-bars solidly against the glass, and a pin, *k*, for the reception of the spring K, in combination with a lever, L, pivoted at one end to the ogee of the sash-stile, the other end being left free to rest upon the glass, and a spring, M, attached at one end to the sash-stile, the other end passing over the lever and resting against the end of a catch, C, substantially as and for the purpose set forth.

7. A burglar-alarm consisting of an alarm having the necessary stop-motion, in combination with pressure-bars pivoted to a standard at the side of the sash-stile, arranged to extend out over and be held firmly against the surface of the glass, substantially as and for the purpose set forth.

Signed at Grand Rapids, Michigan, this 13th day of September, 1888.

WILLIAM J. ACKERMAN.

In presence of—

ITHIEL J. CILLEY,

W. H. MCCORD.