W. H. KNOWLES, Jr.

Burglar-Alarms.

No. 196,023. Patented Oct. 9, 1877.

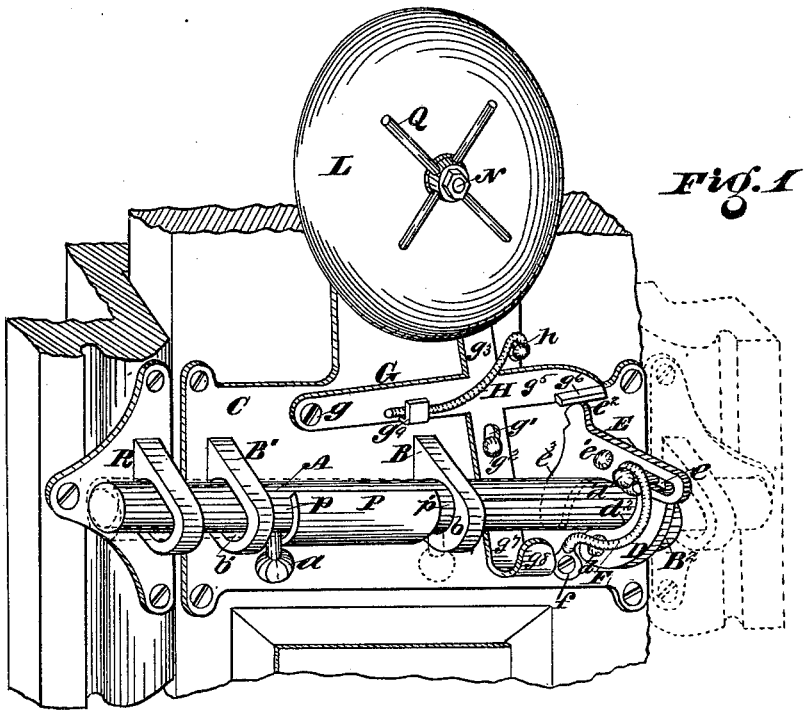

Fig. 1

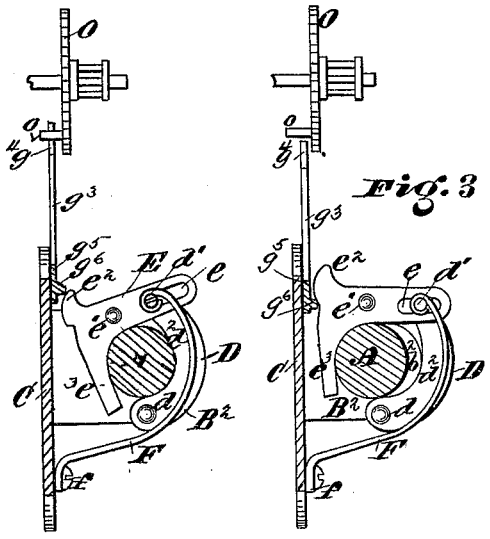

Fig. 2

Fig. 3

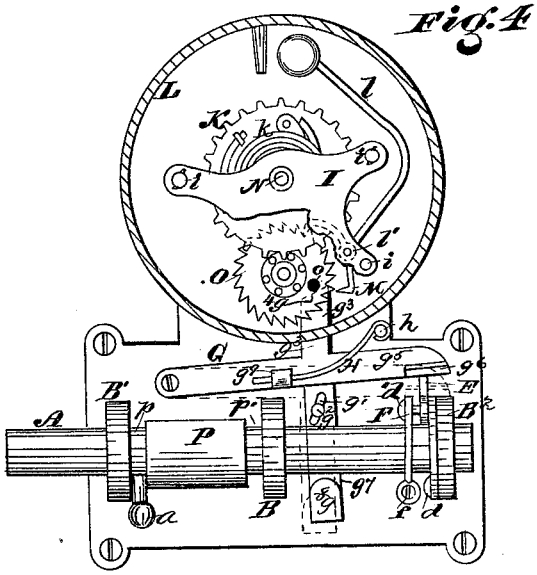

Fig. 4

WITNESSES:

Saml. J. Van Staveren

Jos. B. Connolly

INVENTOR

William H. Knowles Jr.

By Connolly Bros, ATTORNEYS.

UNITED STATES PATENT OFFICE.

WILLIAM H. KNOWLES, JR., OF CAMDEN, NEW JERSEY.

IMPROVEMENT IN BURGLAR-ALARMS.

Specification forming part of Letters Patent No. **196,023**, dated October 9, 1877; application filed September 8, 1877.

To all whom it may concern:

Be it known that I, WILLIAM H. KNOWLES, Jr., of Camden, in the county of Camden and State of New Jersey, have invented a certain new and useful Bolt Burglar-Alarm; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification, in which—

Figure 1 is a perspective of the alarm. Figs. 2 and 3 are vertical transverse sections of a part of the alarm, showing the position of mechanism locking and unlocking the train of gear attached to the alarm. Fig. 4 is a front elevation, partly in section.

My invention has for its object to provide a burglar-alarm attachment for doors, which will be actuated by a very slight movement, insufficient to open the door to which said device is applied.

My invention consists in the combination, with a bolt, of a train of gearing, a bell or gong, striker, and stop-motion, constructed and arranged, as hereinafter described, so that if the door be moved very slightly, and not even sufficiently to open the same, the stop-motion will be released, causing the gearing to be actuated and an alarm sounded.

Referring to the accompanying drawing, A designates a common sliding bolt, having a finger-piece, *a*. B B^1 B^2 are standards or projections from a plate, C, in which the bolt A is fitted and moved. The central standard, B, has a circular opening, *b*, for the passage of the bolt, while the standards B^1 and B^2 have slotted openings b^1 b^2, or elongated passages, for the same purpose, these allowing lateral play to said bolt at either end. D is a curved lever, pivoted at *d* to the standard B^2, having at its opposite extremity a pin or stud, d^1, which passes through a slot, *e*, in a dog, E, pivoted at e^1 to said standard. F is a spring, fastened at *f* to the plate C and to the stud d^1, the office of said spring being to keep the inner edge d^2 of the lever D in contact with the bolt A. G is a four-armed lever, pivoted at *g* to the plate C, having also a slot, g^1, through which passes the shank of a screw or rivet, g^2, into said plate C. The arm g^3 is beveled, as shown at g^4, the arm g^5 has a flange or bead, g^6, and the arm g^7 is turned up at its end, to form a finger-piece, g^8. H is a spring, fastened to the plate C at *h*, and impinging against a lug, g^9, on the lever G. I is a plate, sustained on posts *i i*. K is a train of gearing, actuated by a spring, *k*, and L is a bell or gong, having a striker, *l*, fastened on a rod, *l'*, proceeding from the escapement M. N is the main shaft of the gearing, by means of which and a key or nut, Q, the latter is wound up. O is a ratchet-wheel, with which the escapement M engages, said wheel being provided with a stud or pin, *o*. P is a shield, secured between the standards B B^1 to the plate C, slots *p p'* at either end preventing the longitudinal sliding of the bolt, said bolt being rotated in the usual manner to cause its finger-piece to enter one of said slots after the bolt has been shot into its keeper.

The object of the two slots *p p'*, and the longitudinal movement of the bolt with reference to both, is to permit the device to be applied to left as well as to right hand doors, it operating equally in either case.

The operation is substantially as follows: The plate C is screwed to the door, so that the bolt A will occupy the ordinary position of a bolt—viz., where it can be shot into a keeper, R, secured to the door-frame. The spring *k* having been wound up by means of a nut or key, Q, the lever G is swung on its pivot by taking hold of and pushing up the finger-piece g^8 until the beveled end g^4 of the arm g^3 meets the pin *o* on the ratchet-wheel O, thus preventing the running down of the gearing and the movement of the hammer *l*. The foot e^2 of the dog E, under the influence of the spring F, now engages with the flange g^6 of the arm g^5, operating as a stop, and holding the lever G in the position to which it has been pushed. The bolt A is now (or it may previously have been) slided forward into the keeper R. Now, if the door be moved ever so slightly on its hinges—a quarter of an inch will suffice—it will produce a lateral movement of the bolt A against the lever D, which, in turning, acting on the dog E, will raise its foot e^2 out of engagement with the flange g^6, permitting the lever G to be swung on its pivot under the influence of the spring H, moving the end of

the arm g^3 away from the stud *o*, permitting the train of gearing to move, and causing an alarm to be sounded, and continued until the spring *k* is fully unwound.

The operation will be substantially the same where the device is applied to a left-hand door, only that in such case the lateral movement of the bolt A will cause it to act directly upon the dog E through the tail-piece e^3, instead of intermediately through the lever D, as when on a right-hand door, as above described.

The bolt A may be moved longitudinally without affecting the alarm, thus permitting the door to be bolted and unbolted *ad libitum* without necessitating unnecessary noise or requiring the frequent winding of the spring.

The bolt subserves all the purposes of an ordinary bolt, and may be used as such, and the alarm only comes into play when it is attempted to open the bolted door without sliding back the bolt.

What I claim as my invention is—

1. The sliding bolt A, sustained in standards or projections B B^1 B^2, the central standard, B, having a circular opening, *b*, and the end standards having elongated slots for the passage of the bolt and the permission of a lateral movement in the latter, substantially as shown and described.

2. The four-armed lever G, pivoted on the plate C, in combination with the dog E and stop *o*, substantially as shown and described.

3. The combination of lever D, dog E, and spring F with the bolt A and lever G, substantially as shown and described.

4. The combination of sliding bolt A, sustained in standards B B^1 B^2, levers D and G, springs F H, gearing K, gong L, and striker *l*, the several parts being secured to a common base or plate, C, and arranged for operation substantially as shown and described.

In testimony that I claim the foregoing I have hereunto set my hand this 28th day of August, 1877.

WILLIAM HENRY KNOWLES, JR.

Witnesses:

M. DANL. CONNOLLY,

CHAS. F. VAN HORN.