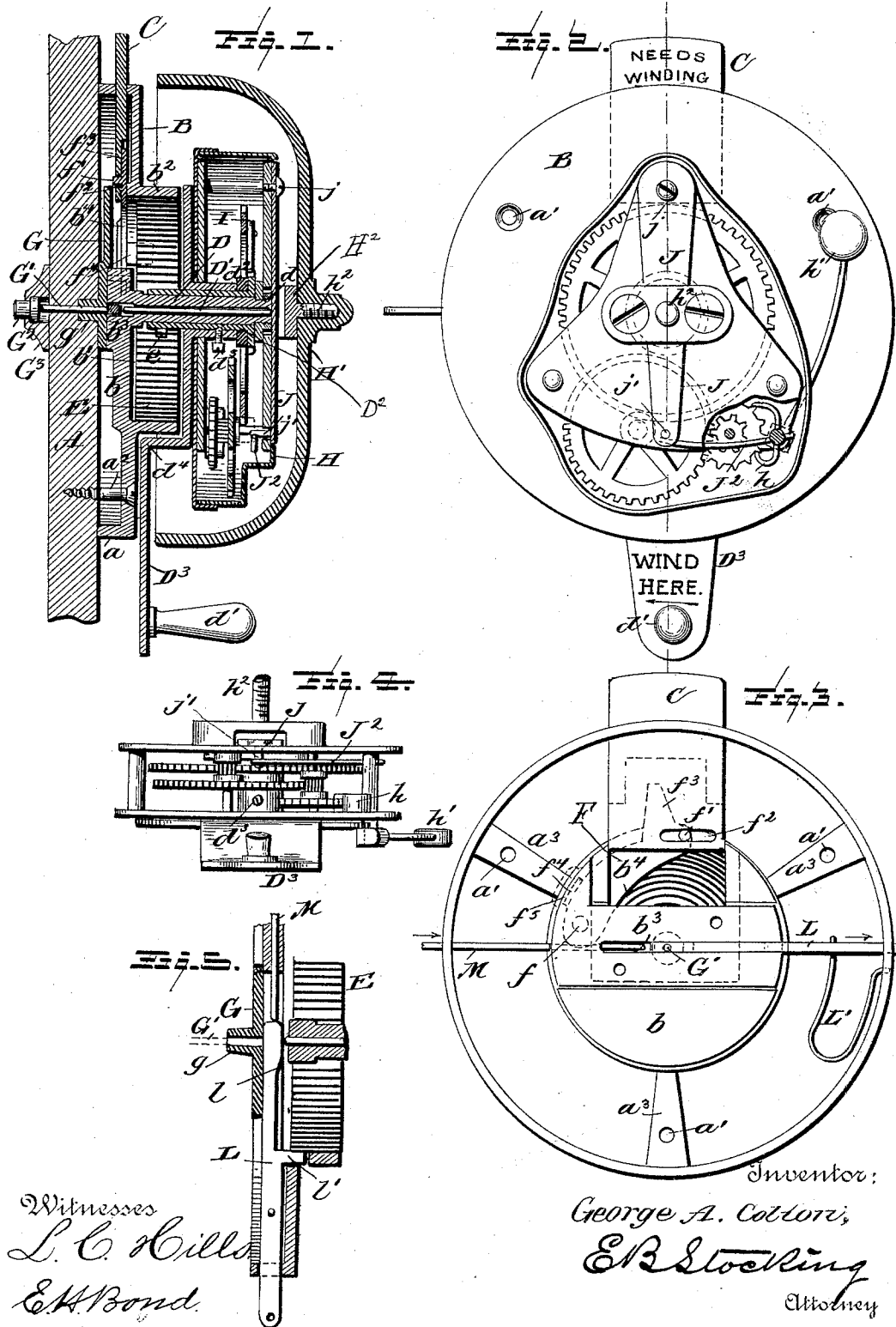


(No Model.)

G. A. COLTON.
DOOR BELL.

No. 460,114.

Patented Sept. 29, 1891.



UNITED STATES PATENT OFFICE.

GEORGE A. COLTON, OF CHICAGO, ILLINOIS.

DOOR-BELL.

SPECIFICATION forming part of Letters Patent No. 460,114, dated September 29, 1891.

Application filed July 24, 1890. Serial No. 359,726. (No model.)

To all whom it may concern:

Be it known that I, GEORGE A. COLTON, a citizen of the United States, residing at Chicago, in the county of Cook, State of Illinois, have invented certain new and useful Improvements in Door-Bells, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to certain new and useful improvements in alarms; and it has for its object, among others, to provide an improved device of this character which may be so connected as to form a burglar-alarm, and in which notice is given when the spring needs winding. The warning-card may be thrown out at any point; but the top is preferred, as by this arrangement it will be returned by its own weight.

Other objects and advantages of the invention will hereinafter appear, and the novel features thereof will be specifically defined by the appended claims.

The invention is clearly illustrated in the accompanying drawings, which, with the letters of reference marked thereon, form a part of this specification, and in which—

Figure 1 is a central section through my improved bell, shown in operative position. Fig. 2 is a face view with the bell removed and parts broken away. Fig. 3 is a view from the reverse side with parts removed. Fig. 4 is a plan of the alarm-train. Fig. 5 is a detail, partly in section and partly in side elevation, which will be hereinafter more particularly referred to.

Like letters of reference indicate like parts throughout the several views.

Referring now to the detail of the drawings by letter, A represents a part to which the device is secured. It may be a door or any other part of a house or structure.

B designates a circular plate, having surrounding flange *a*, as shown best in Fig. 1, so as to provide a space between the plate and the part A for the movement of an arm and the warning-card, as seen in said Fig. 1. This plate is formed with suitable holes *a'* for the reception of screws or other securing means *a''*, by which it is held in position. The inner face of the plate is strengthened by radial ribs *a'''*, through which the holes *a'* are made, as

shown in Fig. 3. The under side of this plate B is provided centrally with a depression *b*, which forms a chamber *b'* upon the outer face for the reception of the spring, a circular flange *b''* upon the outer face of the plate forming the surrounding walls of said chamber. The bottom of this chamber is provided with a transverse slot *b'''*, and upon the upper side is cut away, as shown at *b''''*, to provide for the reception of the warning-card C, as shown in Figs. 1 and 3.

D is an arbor extending from the plate B, and at its outer end screw-threaded, as shown at *d*, being bored for the reception of a push-pin D', as shown best in Fig. 1.

D² is a sleeve surrounding this arbor, and D³ is the winding-lever, provided with suitable handle *d'* and having a hub *d''*, which surrounds the sleeve D' and is secured thereto in any suitable manner—as, for instance, by the set-screw *d'''*, as shown in Fig. 1. This lever is provided with an offset *d''''*, as shown, so as to bring the lever between the spring and train, as will be understood from Fig. 1, the lever being designed to be revolved between the plate B and the bell, as hereinafter described.

E is a spring arranged within the chamber of the plate B, and secured at one end to the sleeve D², as shown at *e*, and its other end suitably connected to the flange *b''*. F is a segmental plate pivoted at *f* to the plate B and near its free end provided with a lateral pin *f'*, which works in an elongated transverse slot *f''* of the warning-card C, said card being preferably halved out to receive the extension *f'''* of the segmental arm, as shown in Fig. 1, which serves to guide the same. Upon the upper portion of this warning-card I affix the words "Needs winding," as shown in Fig. 2. This segmental plate is provided with a lug *f''''*, extending at right angles thereto and working in a recess *f'''''* of the flange *b''* of the plate B, said lug being arranged in the path of the spring, so that as the latter unwinds it will force the segmental plate around on its pivot and by reason of the engagement of the pin thereof with the elongated slot of the warning-plate thus gradually raise the same until the words "Needs winding" are displayed. As the spring is wound up, the warning-plate

falls to its normal position by its own weight. On the winding-lever I may affix letters or words "Wind here," as shown in Fig. 2.

G is a bracket secured to the plate B upon the inner face thereof and provided with a boss *g*, fitted into an opening or socket therefor in the part A, as shown in Fig. 1, and through this boss is an opening in which works loosely the pin G', designed to be actuated by a push-button G², of any preferred form, working through a retaining-socket G³, which may be as ornamental in design as desired.

Confined within a suitable case H, secured upon the arbor D, is a suitable train of gearing, which may be of any preferred construction, provided with ordinary escapement *h*, arranged to vibrate the bell-hammer *h'*, arranged to sound an alarm upon the bell H', which is secured upon a screw-threaded piece *h*² on the plate H², which is secured to the outer face of the case H. The main gear-wheel I of this train is secured on the sleeve D², as shown in Fig. 1, and is provided with an ordinary ratchet. (Not shown.)

J is a plate secured at one end, as at *j*, and at the other end provided with an inwardly-projecting pin *j'*, which is designed to engage the arms J² of the escapement and hold the same normally inactive.

The operation will be readily understood. With the spring wound up and the pin of the spring-plate J holding the train from motion, when the push-button is pushed open the sliding pin moves the spring-plate J outward and disengages its pin *j'* from the alarm-train, when said train is set in motion and the bell-hammer vibrated and the alarm sounded. As the spring unwinds it contacts with the lug *f*⁴ of the segmental plate and gradually forces the warning-card C outward, giving notice that the device will soon need winding or is nearly run down. If not attended to and wound up after the warning-card is shown, if the bell is rung it will continue to strike until the spring is run down.

I may sometimes arrange the device to form a burglar-alarm, and for this purpose I employ a bar L, which is designed to work in the slot *b*³ of the plate B and having one end extended beyond the case, where it may be connected in any suitable manner by cords or chains connected in the well-known bell-crank and wire way and lead across doors or windows, so that any strain on the connection will actuate the rod or bar and cause the bell to ring. The inner end of the bar L is formed with a cam portion *l*, as seen in Fig. 5, which, as the said bar is actuated, engages the push-pin D' and actuates the bar J and sets the bell to ringing. The bar L is provided with a lateral lug *l'*, which is arranged in the path of the unwinding spring, as shown in Fig. 5, so that the unwinding of the spring continues to force the bar outward and keep the bar J stretched outward from engagement with the alarm-train. A spring L' may be employed to normally keep the bar L in

position, as shown in Fig. 3. I may sometimes employ a pin M, acting against the inner end of the bar L and arranged to actuate the same from the opposite side. While I do not design ordinarily to employ all of these different forms of operating the device in connection with a single bell, having simply illustrated them to show some of the different forms, yet they may be all connected to the one bell if occasion should require.

It will be observed that the operating parts are all supported and operated upon the one arbor. I preferably place upon the winding-lever an arrow or other indicating-mark to designate the direction in which it should be turned.

What I claim as new is—

1. In a door-bell of the class described, the combination, with the warning-card and with the guides therefor, arranged radially to the axis of the spring, and said card provided with transverse slot, of the spring and the pivoted arm arranged in the path of and adapted to be moved on its pivot by contact of the spring as it unwinds and having a pin working in the transverse slot of the warning-card, substantially as shown and described.

2. The combination, with the warning-card having elongated slot and recessed upon one face, of the spring and the pivoted arm having a lug arranged in the path of the uncoiling spring and provided with a pin working in a slot in the warning-card and with an extension working in the recess thereof, substantially as described.

3. The combination, with the spring and its arbor, of the alarm-train and its casing supported upon said arbor, and the winding-lever secured to the arbor and working between the spring and the case and having an offset, substantially as described.

4. The combination, with the plate B and its arbor, of the sleeve on the arbor, the spring secured to the sleeve, the alarm-train, its inclosing case, and the winding-lever having a hub surrounding and secured to said sleeve, and the movable push-pins moving loosely in the case and arbor, substantially as described.

5. The combination, with the plate having chamber and hollow arbor, of the spring within the chamber, the sleeve around the arbor and having the spring connected thereto, the alarm-train, the inclosing case, the retaining-arm J, having lateral pin engaging the alarm-train, and the pin working loosely in the arbor with one end to engage the retaining-arm, substantially as described.

6. The combination, with the plate having chamber and hollow arbor, of the spring within the chamber, the sleeve around the arbor and having the spring connected thereto, the alarm-train, the inclosing case, the retaining-arm J, having lateral pin engaging the alarm-train, and the pin working loosely in the arbor with one end to engage the retaining-arm and the movable part arranged to actuate said pin, substantially as described.

7. The combination, with the spring, the alarm-train, and the retaining-arm, of the pin sliding in the arbor and the movable part at right angles to the pin, substantially as and
5 for the purpose specified.

8. The combination, with the spring, the alarm-train, and the retaining-arm, of the pin sliding in the arbor, and the movable part at right angles to the pin and provided with a
10 cam portion adapted to engage said pin, substantially as described.

9. The combination, with the spring, the alarm-train, and the retaining-arm, of the pin

sliding in the arbor, and the movable part at right angles to the pin, and provided with a
15 cam portion adapted to engage said pin, and provided with a lateral arm arranged in the path of the uncoiling spring, substantially as described.

In testimony whereof I affix my signature in
20 presence of two witnesses.

GEORGE A. COLTON.

Witnesses:

HENRY H. MUNGER,
CHAS. L. MUNGER.