(No Model.) 3 Sheets—Sheet 1.

A. W. THOMAS, G. W. WAY & H. R. STICKNEY.

COMBINED DOOR BELL AND BURGLAR ALARM.

No. 356,606. Patented Jan. 25, 1887.

Fig I.

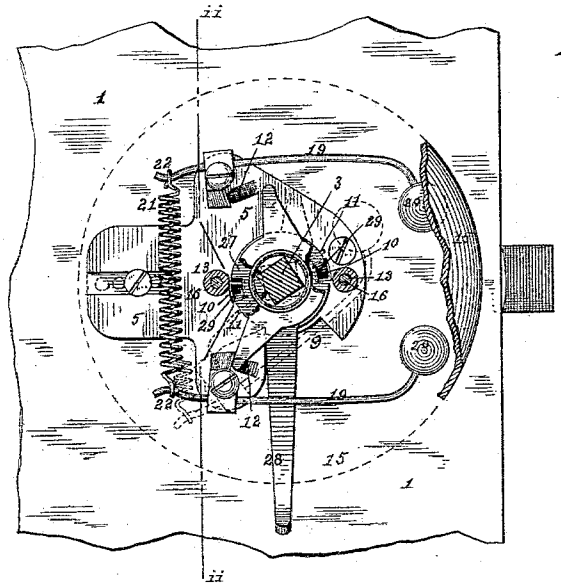

Fig II.

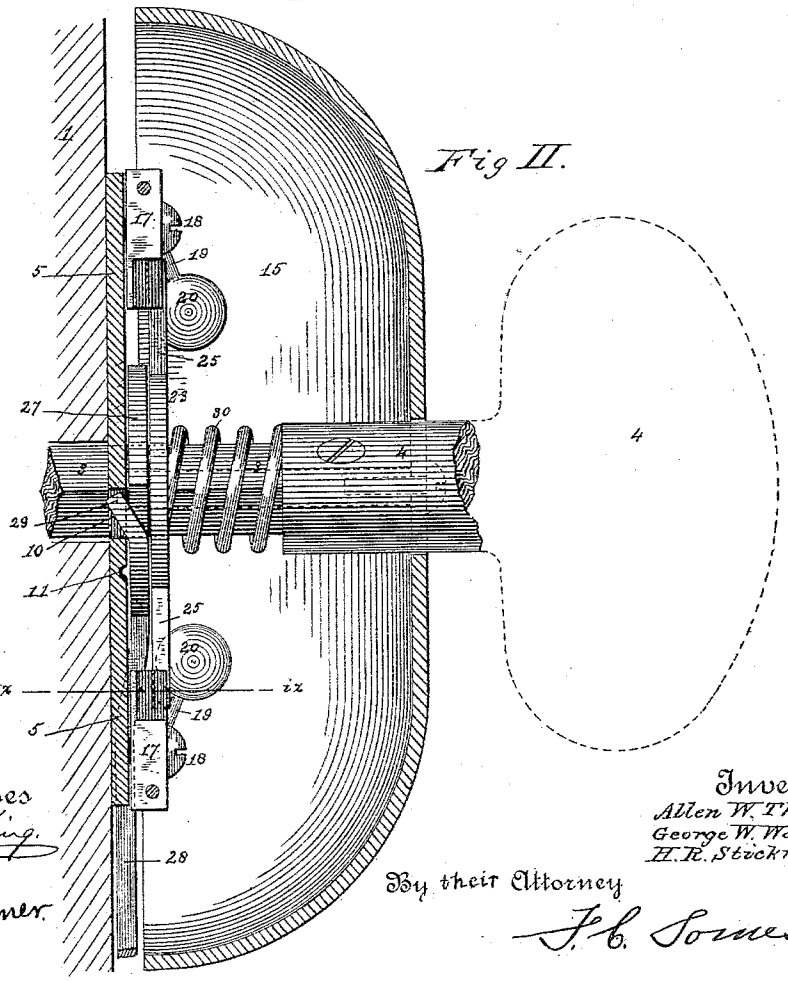

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Fig III.

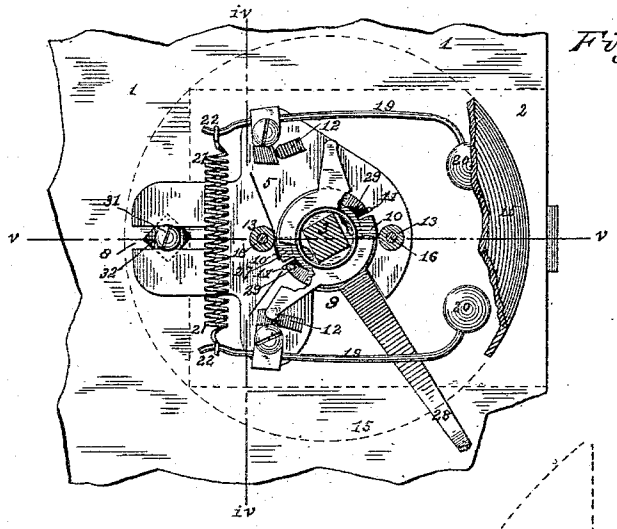

Fig IV.

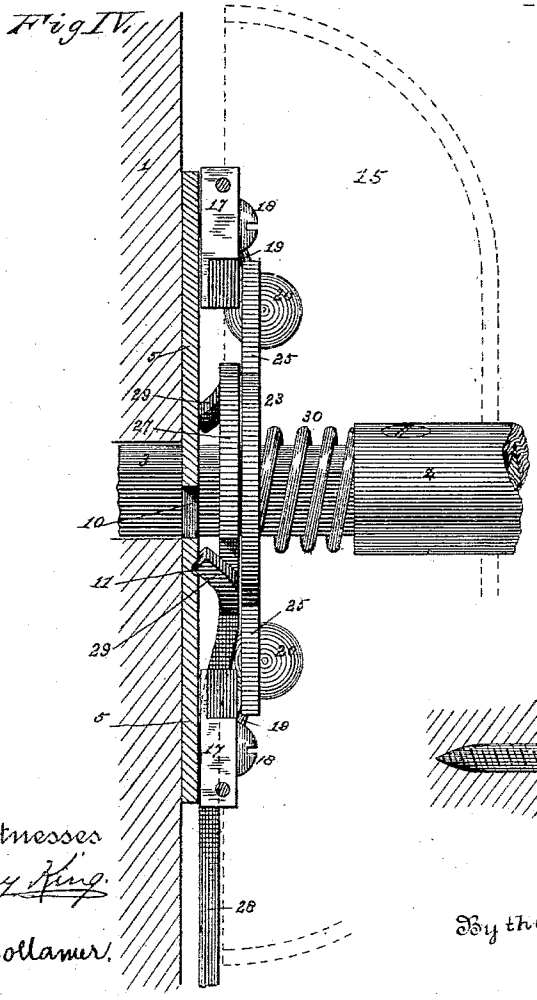

Fig V.

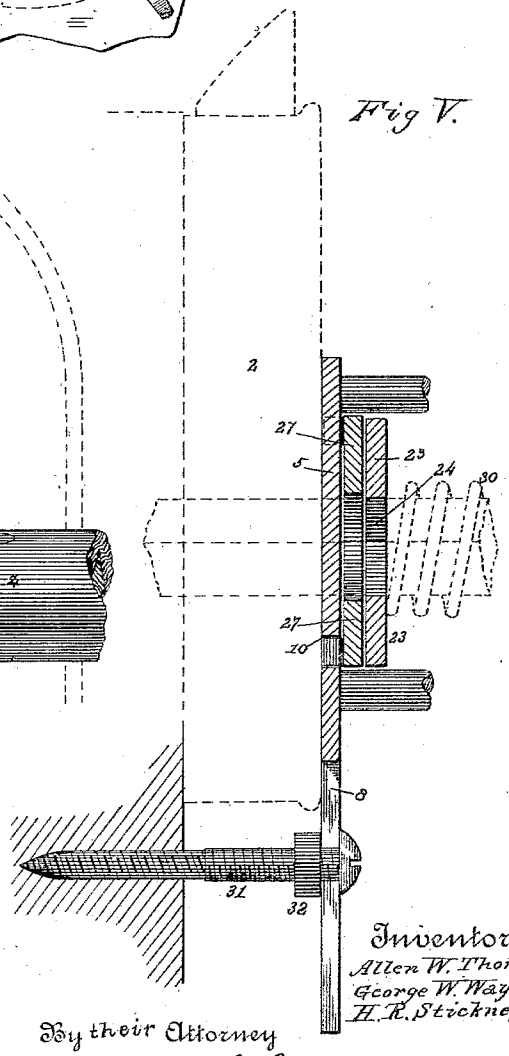

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Fig. VI.

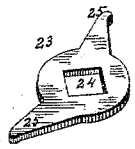


Fig. VII.

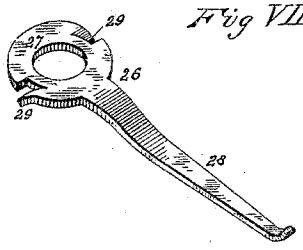


Fig VIII

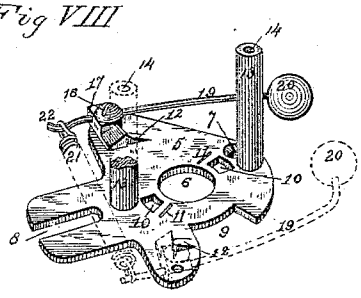
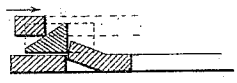


Fig IX.



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UNITED STATES PATENT OFFICE.

ALLEN W. THOMAS, GEORGE W. WAY, AND HENRY R. STICKNEY, OF PORTLAND, MAINE, ASSIGNORS TO SAID THOMAS AND WAY.

COMBINED DOOR-BELL AND BURGLAR-ALARM.

SPECIFICATION forming part of Letters Patent No. 356,606, dated January 25, 1887.

Application filed October 6, 1886. Serial No. 215,425. (No model.)

To all whom it may concern:

Be it known that we, ALLEN WINDSOR THOMAS, GEORGE WELLS WAY, and HENRY R. STICKNEY, citizens of the United States, all residing at Portland, in the county of Cumberland and State of Maine, have invented certain new and useful Improvements in Combined Door-Bells and Burglar-Alarms, of which the following is a specification, reference being had to the accompanying drawings, forming a part thereof.

This invention relates to a device to be applied to the inner face of a door and to be connected with the knob-spindle of the door lock or latch in such a manner that the turning of the door-knob will sound a bell, which may thus serve the purpose of an ordinary door-bell and also as a burglar-alarm, and when applied to the door of a sleeping-room as a waking-signal, being an improvement upon the burglar-alarm described in the Letters Patent of the United States No. 336,449, issued to A. W. Thomas and G. W. Way, dated February 16, 1886.

The object of the invention is to provide a device of this character which will be of even greater simplicity and economy of construction than that described in the patent referred to.

Figure I of the accompanying drawings is a front elevation of this improved burglar-alarm with the bell broken away, the parts being in their normal positions. Fig. II is an enlarged section on line *i i* of Fig. I. Fig. III is a front elevation of this improved burglar-alarm with the bell removed, the bell-striking mechanism being adjusted in such a position that the knob may be turned without ringing the bell. Fig. IV is an enlarged section of the device on line *i v* of Fig. III. Fig. V is an enlarged diametrical section of the base-plate, duplex latch and switch, and the means for attaching the device to a door having a rim-lock. Fig. VI is a perspective view of the duplex latch. Fig. VII is a perspective view of the switch-lever. Fig. VIII is a perspective view of the base-plate and the bell-striking mechanism attached thereto. Fig. IX is an enlarged section of a portion of the base-plate, showing its lug, the pivoted cam in contact therewith, and a prong of the latch riding over the cam.

Similar numerals indicate corresponding parts in the different figures.

This combined door-bell and burglar-alarm is illustrated as applied to an ordinary door, 1, which is provided with an ordinary knob latch or lock, 2, having a knob-spindle, 3, to which the door-knobs 4 are applied.

The main supporting-plate 5 of this improved burglar-alarm is designed to be attached directly to the inner face of the door, or to a rim-lock thereon. This plate is provided with a hole, 6, through which the knob-spindle passes, with a screw-hole, 7, for an attaching-screw, and with an elongated slot, 8, also for an attaching-screw. The plate is also provided with a recess, 9, on its under side, in which the handle of the switch-lever plays. The plate is provided, on opposite sides of the hole 6 for the knob-spindle, with two slots, 10, and adjacent to said slots with notches 11, arranged on opposite sides of said slots. This plate is also provided with lugs 12, which are preferably swaged up from the face of the plate. Two posts, 13, are fixed at their inner ends to the base-plate 5 and provided at their outer ends with screw-threaded sockets 14. The gong-bell 15 is secured to the posts 13 by means of screws 16, which pass through holes in the bell into said sockets.

Two oscillating cams, 17, are pivoted on opposite sides of the plate 5, adjacent to the lugs 12, which serve as stops therefor, by means of pivot-screws 18. Two hammer-levers, 19, are attached to these cams, respectively, and extend parallel with each other on opposite sides of the plate, their outer ends being bent inward and provided with bell-hammers 20, and their inner ends, which extend beyond the cams, being connected by a spiral spring, 21, which extends across the plate at right angles to the hammer-levers, the inner ends of the levers being preferably provided with hooks 22, to receive and retain the spring.

A duplex latch, 23, provided with a square or angular hole, 24, and with radial arms 25, is placed on the knob-spindle in such a position that one of its arms 25 will ride over the stops 12 of the plate 5 and engage one of the pivoted cams when the knob is turned in either direction.

A switch-lever, 26, is interposed between the base-plate 5 and the duplex latch 23. This switch-lever comprises a ring, 27, which encircles the knob-spindle, and a handle, 28. The ring is provided on its inner face with lugs 29, which are preferably swaged out of the ring. These lugs 29 rest in the slots 10 of the base-plate 5 when the parts are in their normal position, and in the notches 11 when the duplex latch is switched out of connection with the cams of the bell-striking mechanism. The handle of the switch-lever is slightly bent near its connection with the ring, so as to be on the same plane with the base-plate 5, and whereby it may be passed under one of the hammer-levers. This enables the bell to be set close to the door.

A spiral spring, 30, surrounding the knob-spindle is interposed between the shank of the knob and the duplex latch, and tends to hold the latter in position for engagement with the pivoted cams. When the knob is turned to open the door, this spring permits the latch to ride over said cams on the return-stroke of the knob-spindle. When, instead of a mortise-lock, the door is provided with a rim-lock, as shown in Fig. V, a screw, 31, is employed for attaching the burglar-alarm to the door. This screw is provided with the usual right-hand thread from its point upward, and above said thread the body of the screw is enlarged, the enlarged portion being provided with a left-hand screw-thread adapted to receive a nut, 32. The base-plate 5 is placed against the outer face of the rim-lock and the knob-spindle and knobs placed in position. The slotted rear end of the plate 5 projects beyond the rear end of the rim-lock. The double-threaded screw 31 is passed through the elongated slot 8, and its inner end is screwed into the door until its head rests against the outer face of said base-plate. The nut 32 is then screwed up on the double-threaded screw 31, against the inner face of the plate 5, and the plate is thus firmly held in position on a plane parallel with the outer face of the rim-lock. The spring 30 serves to hold the outer end of the burglar-alarm in contact with the lock. The elongated slot 8 enables the double-threaded screw to be adjusted to suit rim-locks of different lengths, and when the burglar-alarm is used in connection with doors having mortise-locks this elongated slot enables the attaching-screw to be placed so as to engage the wood-work of the door at the most suitable point.

Instead of the nut, a block or other suitable means may be employed to prevent the plate from tilting when applied to a rim-lock.

The slot 8 may be in the form of a series of holes, if desired, although the fixed slot is preferable.

The operation is as follows: The parts being in the position shown in Figs. I and II, the turning of the knob in either direction causes one of the arms 25 of the duplex latch 23 to engage one of the pivoted cams 17, whereby said cam is oscillated. This oscillation of one of the cams oscillates the hammer-lever connected thereto, throwing the inner end of said lever outward against the tension of the spring 21 and the hammer end inward, preparatory to the striking of a blow against the bell. When the knob is released, the tension of the spring 21 throws the inner end of the hammer-lever inward and causes its hammer to strike the bell. When it is desired to disengage the bell-striking mechanism from the knob-spindle in such manner that the knob may be turned without causing a sounding of the bell, the switch-lever 26 is swung upward and the parts shifted into the position shown in Figs. III and IV. This swinging of the switch-lever causes its lugs 29 to ride out of the slots 10 of the base-plate 5, and they then engage the notches 11 of said plate, whereby the switch-lever is held in this position. In riding out of the slots the lugs 29 cause a lifting or outward movement of the switch-lever, and consequently of the duplex latch 23, this outward movement being sufficient to throw said latch in a plane beyond the pivoted cams 17, so that when the knob is turned the latch will ride over said cams without actuating the bell-striking mechanism. The hammer-levers being bent inward at the point where the hammer-levers are attached thereto, the levers have a longer sweep and strike the bell with greater force when released from the latch and subjected to the action of the spring.

We claim as our invention—

1. The combination, substantially as set forth, of a base-plate provided with stops near its opposite sides, two cams pivoted to said plate adjacent to said stops for engaging therewith, said cams having faces inclined to the plane of said plate, hammer-levers attached to said cams, a spring connecting the inner ends of said hammer-levers, and a duplex latch consisting of a hub on the knob-spindle and radial arms adapted to engage either of said cams on the turning of the knob, and to ride over said cams on the release of the knob.

2. The combination, substantially as described, of a base-plate provided with an opening for the knob-spindle, slots on opposite sides of said opening, bell-striking mechanism, a latch for causing the retraction of the bell-hammers, and a switch-lever interposed between said plate and said latch, said lever being provided with lugs on its under side adapted to engage said slots.

3. The combination, substantially as described, of a base-plate provided with an opening for the knob-spindle, slots on opposite sides of said opening, and notches adjacent to said slots, bell-striking mechanism, a latch for causing the retraction of the bell-hammers, and the switch-lever interposed between said plate and said latch, said lever being provided with lugs on its under side adapted to engage said slots and notches.

4. The combination, substantially as described, of a base-plate provided with an opening for the knob-spindle, slots on opposite

sides of said opening, bell-striking mechanism, a latch for causing the retraction of the bell-hammers, and a switch-lever interposed between said plate and said latch, said lever being provided with lugs on its under side adapted to engage said slots, said plate being provided with a recess on one side, and said switch-lever being bent on a plane with said plate and engaging said recess.

5. A detachable burglar-alarm for attachment to a door, the base-plate of said burglar-alarm being designed to be fixed to the door and having an opening for the passage of the knob-spindle, said plate being provided with an elongated extension having an elongated slot for receiving the attaching-screw at different points along the plate, substantially as described.

6. The combination, with a rim-lock, of a detachable burglar-alarm for attachment to a door, said burglar-alarm having a base-plate provided with a slotted extension extending beyond said lock, a screw for engaging said slotted extension for securing the burglar-alarm to the door, and a device for interposition between said plate and door for holding the plate on a plane parallel with the outer face of the lock, substantially as described.

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