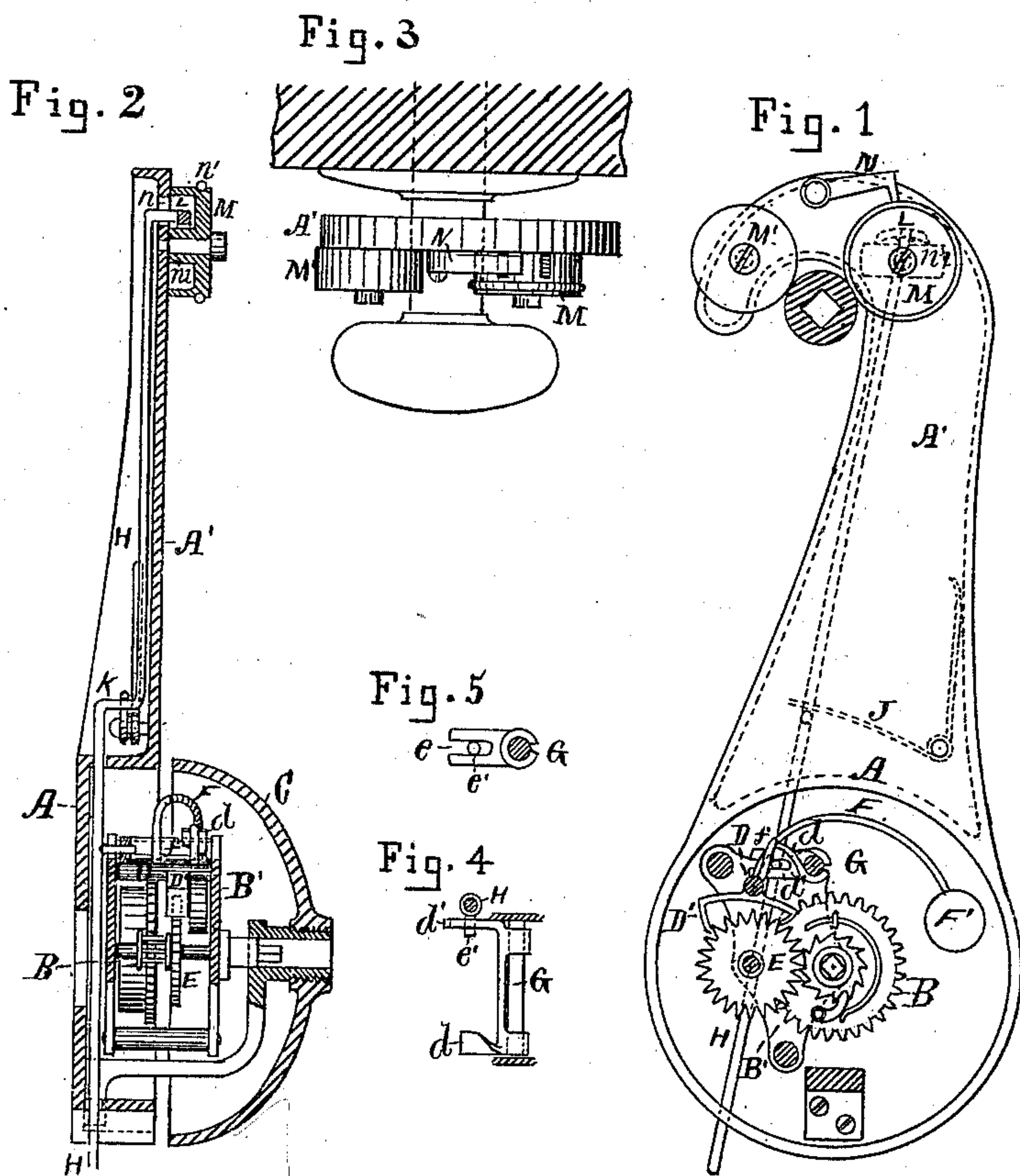


C. O. MALMGREN.  
BURGLAR-ALARM.

No. 169,821.

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# UNITED STATES PATENT OFFICE

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## IMPROVEMENT IN BURGLAR-ALARMS.

Specification forming part of Letters Patent No. **169,821**, dated November 9, 1875; application filed October 11, 1875.

*To all whom it may concern:*

Be it known that I, CHARLES O. MALMGREN, of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Alarm-Bells; and I do hereby declare the following to be a full, clear, and exact description thereof, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawing forming part of this specification, in which—

Figure 1 is a front elevation of an alarm-bell embodying my said invention, showing its position when attached to the door-knob. Fig. 2 is a vertical central section of the same. Fig. 3 is a top view of the same when attached to the door-knob. Figs. 4 and 5 are detached sections of the parts employed in starting and stopping the parts operating the hammer.

Similar letters of reference indicate like parts in the several figures of the drawing.

My invention is designed more especially for a burglar-alarm, but may be used as a door or signal bell; and consists in the several arrangements of parts, as will be more fully understood by the following description and claims.

In the drawing, A represents the case supporting the operating parts, which is made of metal, in the form shown in Figs. 1 and 2, or in any other suitable form that will admit of the proper adjustment of the parts. B is a system of geared wheels, journaled to a frame, B', permanently secured within the case A, and operated by a spring in the usual manner. C is the bell, centrally secured to the case A, as shown in Fig. 1. D is the pallet-shaft, journaled to the frame B', and carrying the pallet D', which engages an escapement-wheel, E, the latter being operated by the gearing B, in the usual manner. Permanently attached to the pallet-shaft D is an arm, F, carrying the hammer F', as shown in Fig. 1. The arrangement of these parts is such that, as the gearing is made to rotate by the action of the spring, a vibratory motion is imparted to arm F, causing the hammer to impinge upon the bell. G is a rock-shaft, journaled to the frame B' in such a manner as to admit of a free and easy rocking movement. Permanently

attached to one end of this shaft is an arm, d, adapted to bear against a stop-pin, f, attached to the pallet-shaft D. Permanently attached to the opposite end of shaft G is an arm, d'. (Shown in Figs. 1, 4, and 5.) This arm is provided at its outer end with a slot, e, adapted to receive a pin, e', on an adjusting-rod, H, extending upward through the case A, as shown in Figs. 1 and 2. The arrangement of this adjusting-rod, rock-shaft, and arm d' is such that, as the adjusting-rod is moved upward, it imparts a slight rocking movement to the shaft G, disengaging arm d from stop-pin f, allowing the operating parts to be set in motion by the action of the spring, and when the adjusting-rod is moved downward to its normal position arm d again engages the stop-pin, holding the operating parts at rest. Permanently attached to the case A is a spring, J. (Shown by dotted lines, Fig. 1.) This spring bears upon a shoulder, K, on the adjusting-rod, and its tension is such as to force the rod downward, holding arm d against the stop-pin f. Permanently attached to the upper end of the adjusting-rod is a lug, L, passing loosely through a mortise, n, formed through the elongated portion A' of the case. Journaled to the upper end of the elongated portion A' of the case is a clog-wheel, M, arranged to freely revolve on its bearings. Permanently attached to the center or hub of this wheel is a cam, m, adapted to bear against the lower surface of lug L on the adjusting-rod H, as shown by dotted lines, Fig. 1. The arrangement of this cam and wheel is such as to impart an upward movement to the lug, consequently to the adjusting-rod, by a slight rotary motion of the wheel. Pivoted to the elongated portion of the case is a pawl, N, adapted to take into openings formed in the periphery of wheel M, by which means the latter is held in a fixed position, and at the proper point to cause the cam to hold the adjusting-rod in a fixed position when at the limit of its upward movement. The upper end of the elongated portion A' of the case is bent downward, as shown in Fig. 1. Journaled to this downward-bent portion is an auxiliary wheel, M', arranged in the same plane with wheel M, and at a point near the same.

The operation of my invention is as follows:



The spring is first properly adjusted, when the case is suspended upon the door-knob, allowing the periphery of wheels  $M M'$  to rest upon the shank of the same, with the pawl disengaged from the openings in wheel  $M$ , and as the knob is turned in either direction a slight rotary movement is imparted to wheel  $M$ , causing cam  $m$  to engage lug  $L$ , imparting an upward movement to the adjusting-rod  $H$ , consequently a rocking movement to shaft  $G$ , disengaging arm  $d$  from the stop-pin  $f$ , when the tension of the spring imparts a rotary movement to the gearing, consequently a vibratory movement to arm  $F$ , causing the hammer to impinge upon the bell producing the alarm.

It will be observed that the lower end of the adjusting-rod extends below the case, the object of which is to allow the case to be placed upon the floor, so that the door, when opened, will hit the end of the rod, imparting a longitudinal movement to the same, which will disengage arm  $d$  from the stop-pin.

It will also be observed that wheel  $M$  is provided with a groove,  $n'$ , the object being to provide a means of suspending the case from

the door-knob by a cord fitting into the groove and passing around the knob, which will communicate any rotary motion of the knob to the wheel.

Having thus described my invention, I claim—

1. In combination with the system of gearing for operating the hammer, the rock-shaft  $G$ , provided with arms  $d$  and  $d'$ , arm  $d$  adapted to engage stop-pin  $f$ , as specified.

2. In combination with rock-shaft  $G$ , provided with arms  $d$  and  $d'$ , the adjusting-rod  $H$ , as specified.

3. In combination with the adjusting-rod  $H$ , provided with lug  $L$ , the clog-wheel  $M$  and cam  $m$ , as specified.

4. The wheels  $M M'$ , so arranged on the case with relation to each other as to serve as supports in suspending the case  $A$  from the spindle of the door, and by which the wheel  $M$  is adapted to operate the alarm upon turning said spindle, as set forth.

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