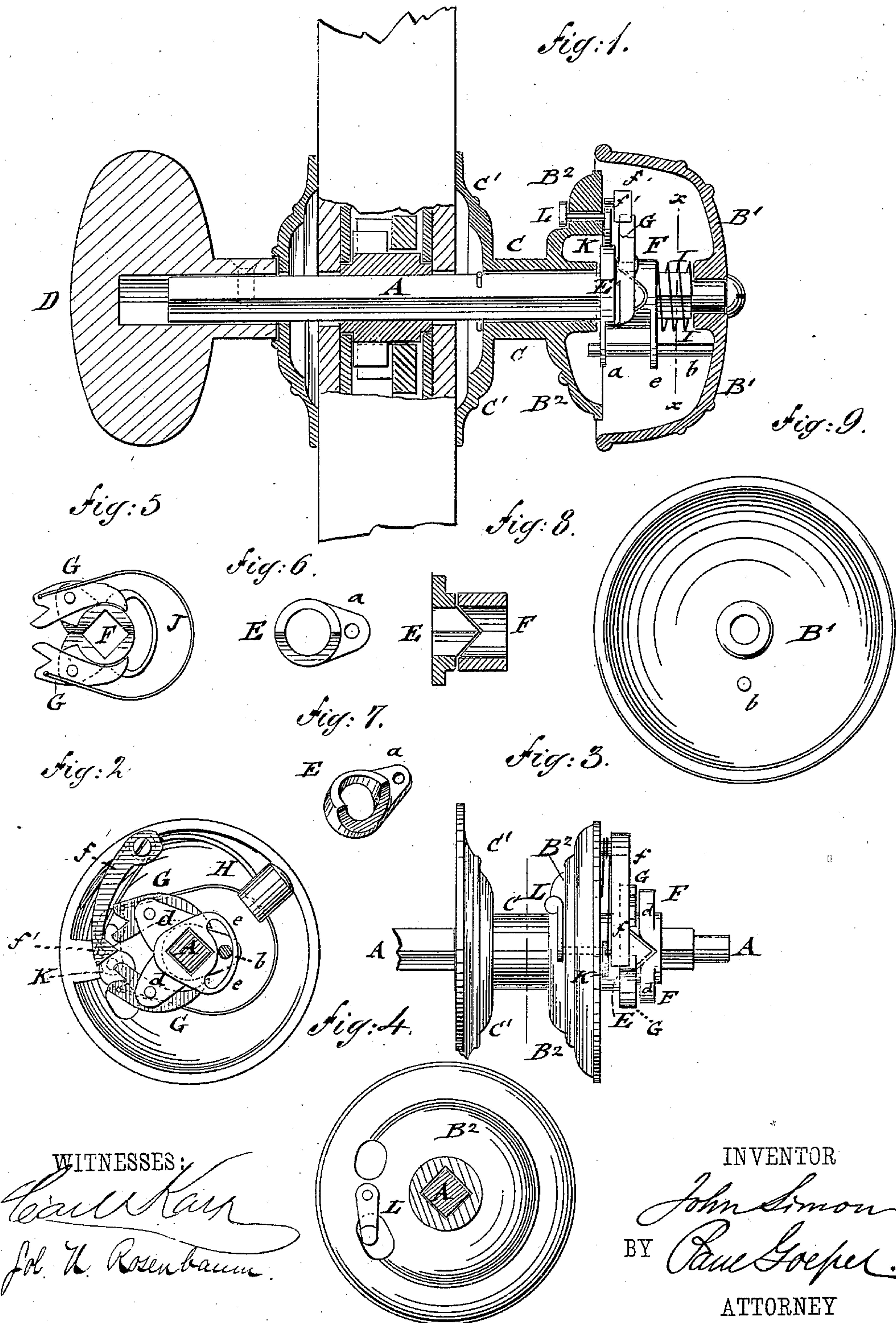


(Model.)

J. SIMON.
DOOR KNOB ALARM.

No. 256,924.

Patented Apr. 25, 1882.



UNITED STATES PATENT OFFICE.

JOHN SIMON, OF NEW YORK, N. Y.

DOOR-KNOB ALARM.

SPECIFICATION forming part of Letters Patent No. 256,924, dated April 25, 1882.

Application filed January 16, 1882. (Model.)

To all whom it may concern:

Be it known that I, JOHN SIMON, of the city, county, and State of New York, have invented certain new and useful Improvements in Door-Knob Alarms, of which the following is a specification.

This invention has reference to an improved alarm-bell which is used in connection with the door-knob and spindle to announce the opening of the door or attempts at opening, the bell being arranged in such a manner that it is sounded when the door is opened or attempted to be opened from the outside, but is not sounded when the door is opened from the inside.

Door-knob alarms have been used heretofore and have been constructed in many different ways, either as an attachment to the door or to the knob itself; but in all these cases they were either inconvenient or unsightly, or they sounded the bell also when the door had to be opened from the inside, which is not necessary in practice, as the alarm should only be sounded when the door is opened or attempted to be opened from the outside.

The invention consists of the combination, in a door-knob alarm, of an alarm mechanism contained within the inner knob, with a bell forming part of such knob, and with mechanism whereby the alarm mechanism is thrown out of contact with the ringing device when the inner knob is turned for opening the door.

It also consists of the combination of a knob-spindle, having an inner door-knob formed of a disk and a bell loose on the spindle, and a pawl-frame sliding on the spindle and having wings and pawls pivoted thereto, with a striking mechanism and a cam-sleeve having a perforated ear, to which the bell is connected by a fixed pin, the cam-sleeve being adapted to engage the pawl-frame and move it forward, so as to clear the striking mechanism.

The alarm mechanism may also be thrown out of use from the inside by a suitable lever and eccentric whenever the alarm-bell is not to be sounded.

In the accompanying drawings, Figure 1 represents a sectional side elevation; Fig. 2, a transverse section, looking inward on line *x x*, Fig. 1. Fig. 3 is a side elevation with the outer portion or shell of the knob removed.

Fig. 4 is a front view of the inner disk of the inner knob. Fig. 5 is a back view of the parts shown in Fig. 2. Fig. 6 is a face view of the cam-sleeve. Fig. 7 is a perspective view of the part shown in Fig. 6. Fig. 8 is a longitudinal section through the cam-sleeve and a portion of the pawl-frame. Fig. 9 shows the inner face of the shell or bell portion of the inner knob.

Similar letters of reference indicate corresponding parts.

The spindle A is square in cross-section, its outer end fitting into a square socket of the outer knob, D, which latter is of any ordinary construction. The inner knob, B, is composed of a cup-shaped shell, B', and a disk, B², the former serving the purposes both of knob and bell and the latter carrying a portion of the striking mechanism. The shell B', which is composed of bell-metal or other resonant material, turns loosely on the inner rounded end of the spindle A, which passes through a central slot thereof, while the disk B² is rigidly connected to the door, being cast in one piece with a tubular shank, C, and the rose C' at the opposite end of said shank. The diameter of the shell B' exceeds that of the disk B², so that there is no contact between them, and the former is free to vibrate under the strokes of the bell-hammer.

On the spindle A, adjoining the face of the disk B², is arranged a cam-sleeve, E, provided with a perforated ear, *a*. This cam-sleeve has a round central hole sufficiently large to enable it to turn loosely on the spindle A, and is provided with a sidewise-projecting cam or ear, *a*. Immediately in front of the cam-sleeve E is arranged on said spindle a sliding sleeve, F, which serves as a pawl-carrying frame, being provided with laterally-projecting ears *d d*, to which the pawls G G are pivoted. This sleeve or pawl-frame is provided with recesses into which the tapering cams of the cam-sleeve E project, and with a square central hole whereby it is made to turn with the spindle. The pawls G G, which are compressed by the spring J, are notched at their outer ends, so as to be engaged by a tongue, *f*, of the spring-actuated striking-hammer H, which is applied to a fixed pivot of the disk B².

The shell B' is connected to the cam-sleeve E by means of a pin, *b*, the outer end of which

is fixed to the shell, while the inner end projects into the perforated ear *a* of the sleeve. The pawl-frame *F* is provided with an arc-shaped slot, *e*, through which the pin *b* passes without disturbing the frame. A spiral spring, *I*, is interposed between the pawl-frame and the shell *B'*, serving to press the pawl-frame into contact with the cam-sleeve *E*. Now, when the spindle is turned from the outside by the outer knob the pawl-frame turns therewith the loose cam-sleeve *E* and the bell *B*, and brings one of the spring-acted pawls *G* in contact with the tongue of the hammer, according as the spindle is turned to one side or the other, and thus the bell is sounded; but when the door is to be opened from the inside the turning of the bell or shell *B'* causes, by the action of the connecting-pin *b*, the turning of the cam-sleeve *E*, whereby the pawl-frame *F* is forced forward on the spindle, so that the pawls are thrown clear of the tongue of the hammer, and consequently the bell is not struck by the same. The cam-sleeve *E* rotates the pawl-frame *F*, by which the spindle is turned and the door opened without ringing the bell. The slot of the pawl-frame for the pin of the alarm-bell *B* has to be large enough to provide for the turning of the spindle in either direction, so that the pin does not interfere with the sounding mechanism. As soon as the spindle returns to its normal position the pawl-frame also is moved forward by its spiral spring, and thus placed again into position for being sounded by the turning of the spindle from the outside.

For the purpose of throwing out the alarm mechanism entirely, whenever desired, an eccentrically-pivoted cam, *K*, is arranged in connection with the disk *B²* of the inner knob, said eccentric engaging a pin, *f'*, of the tongue end *f* of the hammer and throwing it in outward direction, so as to correspondingly throw in the hammer. The shaft of the eccentric is operated by a small handle, *L*, from the outside. The entire alarm mechanism of the door-knob is entirely stored away within the inner knob, being made of a simple and compact construction.

In place of the mechanism for throwing out the pawls clear of the tongue of the hammer, a muffling device composed of suitable damper-springs may be used, by which the muffling of the bell is effected automatically, though for practical purposes I prefer to throw the alarm mechanism entirely out of contact with the striking mechanism, so as to positively prevent the ringing of the bell when the door is opened from the inside, so as to dispense with the disagreeable muffled sound of the bell, and also with any muffling of the bell by the hand.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. As an improvement in door-knob alarms, the combination of an alarm mechanism contained within the inner knob with a bell which forms part of such knob, and with mechanism whereby the alarm is thrown out of contact with the ringing device when the inner knob is turned for opening the door, substantially as and for the purpose set forth.

2. The combination of a knob-spindle, an inner knob composed of a disk connected to the door and a bell loose on the knob-spindle, a pawl-frame sliding on the knob-spindle and having wings or ears and pawls pivoted thereto, with striking mechanism, and a cam-sleeve having a perforated cam or ear, to which the bell is connected by a fixed pin, whereby the cam-sleeve is adapted to engage the pawl-frame and slide it forward clear of the striking mechanism, substantially as set forth.

3. The combination of the fixed disk, the bell, the striking mechanism, an eccentrically-pivoted cam on said disk, adapted to engage a pin of the hammer-tongue, and means for turning said cam from the outside of the knob, whereby the striking mechanism may be thrown out of gear at will, substantially as described.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of two witnesses, this 29th day of July, 1881.

JOHN SIMON.

Witnesses:

PAUL GOEPEL,
CARL KARP.