(No Model.)

C. A. EMME.

DOOR BELL.

No. 418,975. Patented Jan. 7, 1890.

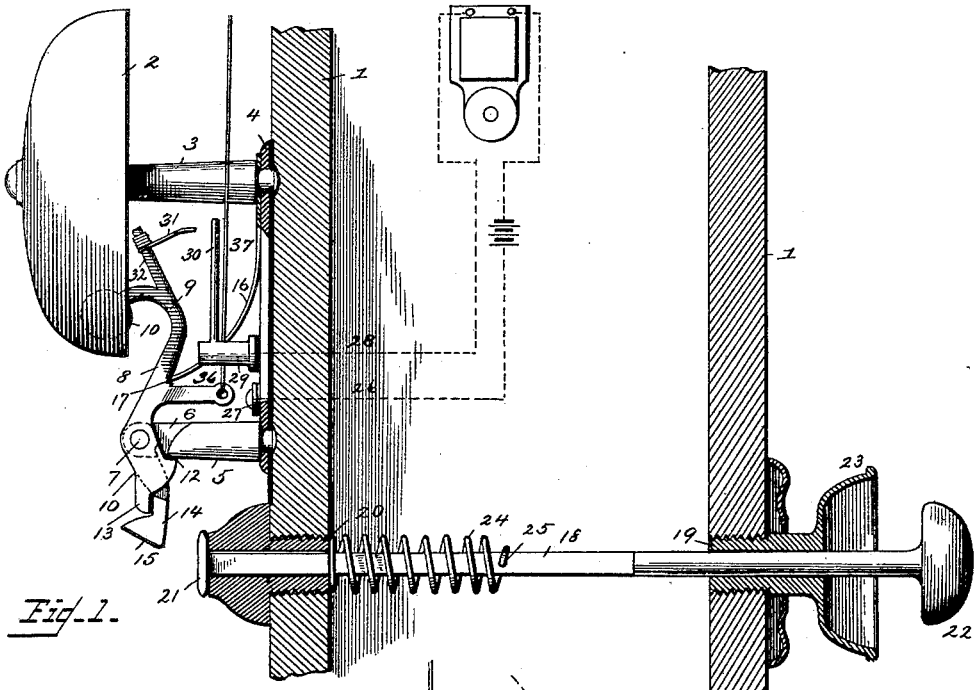

Fig. 1.

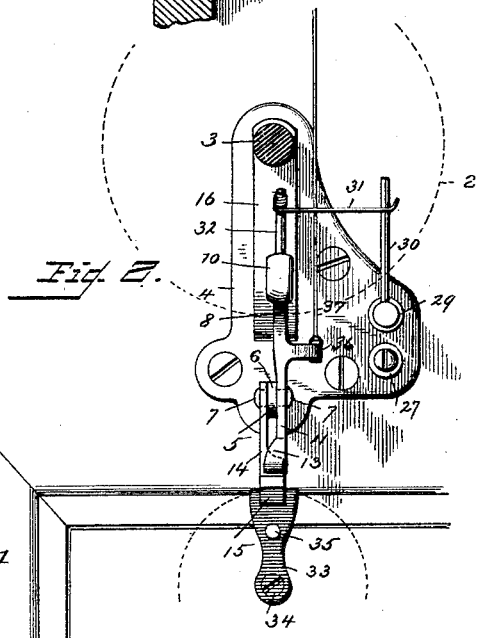

Fig. 2.

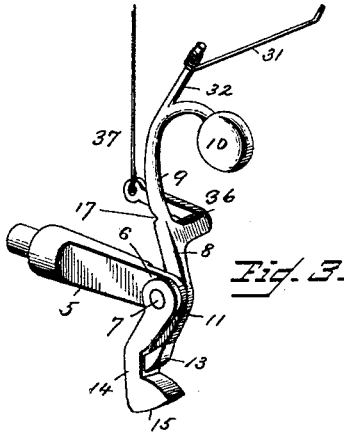

Fig. 3.

Witnesses
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UNITED STATES PATENT OFFICE.

CHARLES ALBERT EMME, OF WASHINGTON, DISTRICT OF COLUMBIA.

DOOR-BELL.

SPECIFICATION forming part of Letters Patent No. 418,975, dated January 7, 1890.

Application filed August 16, 1889. Serial No. 320,924. (No model.)

To all whom it may concern:

Be it known that I, CHARLES ALBERT EMME, a citizen of the United States, residing at Washington, in the District of Columbia, have invented new and useful Improvements in Door-Bells, of which the following is a specification.

My invention relates to door-bells; and my improvements therein consist in the construction and arrangement or combination of parts hereinafter fully disclosed in the description, drawings, and claims.

The object of my improvement is to provide for increasing the utility of the door-bell, whereby it may be used in connection with a door-gong, a jingle-bell, and an electric alarm, and to simplify and cheapen the construction of the parts.

My improvements in the door-bell are illustrated in the accompanying drawings, forming part of this specification, in which the same reference-numerals indicate the same parts, and in which—

Figure 1 represents a vertical section of a door-post, showing the bell and its operating parts in side elevation; Fig. 2, a front elevation of the bell-support and the parts thereupon, showing the bell in dotted lines and illustrating the mechanism for ringing the bell by the opening of a door, a portion of a door being shown; and Fig. 3, a perspective view of the post for the hammer, the hammer, and the gravitating catch for the same.

In the drawings, the numeral 1 indicates the portion of the wall or door-frame upon which the bell is supported.

The bell or gong 2 is secured to the outer end of a post 3, the inner end of which is riveted in the upper end of the base-plate or supporting-plate 4, which is suitably secured to the wall or door-frames. A post 5 is secured to the lower part of the base-plate 4, and has a reduced or flattened outer end 6, which is cast with two pivots 7 upon its flat faces. The hammer 8 is pivoted near its lower end upon one of said pivots 7, and has an upper forwardly-curved arm 9, which bears the striking-head 10, and a lower arm 11, which is formed upon its rear edge with a shoulder or offset 12, which bears against the under side of the post 5, and with a downwardly-projecting lip 13. A gravitating arm or catch 14 is pivoted at its upper end upon the other pivot 7, and has its upper portion reduced in thickness so as to bring its lower heavier end directly beneath the flat end 6 of the hammer-post 5. The reduced upper portion bears with its forward edge against the projecting lip 13 of the hammer, and the forward edge of the lower heavier end of the catch is beveled or cut off obliquely, as shown at 15. A flat outwardly-curved spring 16 is secured at its upper end between the shouldered inner end of the bell-post and the base-plate 4, and bears with its lower outwardly-curved end in a notch 17 in the rear edge of the upper hammer-arm a short distance above the pivot for the same.

When the bell is used as a front-door bell with a push-button, a rod 18 is arranged to slide in suitable bearings 19 and 20 in the front and inner side of the door-post or wall, and the inner end of said rod is provided with a cross bar or head 21, which may engage the gravitating catch, forcing it outward and slipping under it when the rod is pressed from the outside of the door-post. A suitable push-button 22 is secured upon the forward end of said rod, and the bearing 19, upon the front side of the door-post, is preferably provided with a protecting-cup 23 for said button. A coiled spring 24 is wrapped around said rod and bears with one end against said rod, being inserted through a hole 25 in the same, and with the other end against the inner end of the rear bearing 20.

When it is desired to operate an electric alarm together with the bell or gong, one terminal of a wire 26 of an electric circuit is connected to the supporting-plate 4, which is insulated from the door-post by a binding screw or post 27, and the other terminal wire 28 is secured to a post 29, which is insulated from the supporting-plate. An arm 30, which forms one contact of the circuit-closer, projects upward from said post 29, and a spring-wire 31 forms the other contact of the circuit-closer and has its inner end coiled around and secured to an arm 32, which projects upward from the curve of the upper hammer-arm.

When the bell or gong is to be operated by the opening of a door, a plate or arm 33 is se-

cured by a screw 34 to the face of a door near the upper edge of the same, said screw passing through one end of said plate or arm in such a manner that the plate may be turned upward upon the screw to project sufficiently far above the edge of the door to engage the gravitating catch of the hammer, the bell being secured to the lintel of the door-frame. Said plate or arm 33 is preferably provided with a stud or handle 35 for convenient manipulation when it is turned or tilted to put it out of use. A crank-arm 36 projects laterally and rearwardly from the upper hammer-arm, so as to clear the flat spring 16, and a wire 37, which is suitably carried to a jingle-bell or similar alarm, is secured to the end of said crank-arm, so that said bell or alarm may be sounded at a distance at the same time when the door bell or gong is sounded.

In practice, when the device is used as a front-door bell, the push-button is pressed inward, sliding the push-rod against the tension of the spring. This causes the cross bar or head of said push-rod to press against the gravitating catch, forcing the same forward and through it tilting the hammer back away from the gong. When said cross bar or head has passed under said catch and released the same, the flat spring of the hammer will force the hammer against the bell and strike the same. The spring of the push-rod has in the meantime returned said rod to its normal position and the cross bar or head of said rod may slip under the gravitating catch without interference, as said catch is free to swing inward without tilting the hammer.

When the bell is operated by the opening of the door, the plate or arm upon the same acts in the same manner as the cross bar or head of the push-rod. When the electric attachment is employed, the contact spring-wire 31 will come in contact with the contact bar or arm 30, closing the circuit, when the hammer is tilted back, and on account of the elasticity of said spring 31 it may remain in contact during the greater part of the backward and forward throw of the hammer, and thereby increase the certainty and the duration of the alarm.

The flat spring which operates the hammer will be strong and less liable to be either broken or weakened by use than the coiled or bent wire springs usually employed in bells or gongs of this class.

By casting the hammer-post separate from the supporting-plate it may be cast with the reduced forward end and with the pivots upon the same, so that here, as well as in all the other parts of my device, the construction is simple and consequently durable.

Having thus fully described the construction of the several parts of my improved bell, its operation, and advantages, what I claim as new is—

1. In a door-bell, the combination of a base-plate 4, a bell or gong secured to said plate, a hammer-post 5, secured at its inner end upon said plate and cast with a reduced or flat outer end 6, having pivots 7 7 upon its faces, a hammer pivoted upon one of said pivots, having a spring 16 for forcing it against the bell, and having a downwardly-extending lip 13 upon the forward edge of its lower arm, a gravitating catch, having a reduced upper portion 14 pivoted upon the other pivot of said hammer-post and bearing against said lip, and having a larger lower end beveled at the forward edges, and a movable arm 33, engaging the lower end of said catch, substantially as described.

2. In a door-bell, the combination of the base-plate 4, the bell or gong 2 upon the same, the hammer-post 5, having the flat end 6 formed with the pivots 7, the hammer 8 upon one of said pivots and provided with the shoulder 12 and the lip 13, the flat spring 16, the gravitating catch 14, pivoted with its reduced upper end upon the other pivot 7, and having the beveled enlarged lower end, and the push-rod having the cross bar or head 21, the push-button 22, and the spring 24, substantially as described.

3. In a door-bell, the combination of a base-plate, a bell or gong upon the same, a hammer having an upwardly-projecting bar upon its upper arm, a spring-wire 31, secured with its inner end to project laterally from said bar, a wire of an electric-alarm circuit secured to said base-plate, a post projecting and insulated from said base-plate and having an upwardly-projecting contact-arm 30, a wire of said circuit secured to said post, a gravitating catch upon the hammer, and a movable arm 33, engaging the end of said catch, substantially as described.

4. In a door-bell, the combination of a base-plate, a hammer pivoted upon said plate and having an upwardly-projecting bar upon its upper arm and a gravitating latch upon its lower arm, a movable arm engaging said latch, a spring-contact wire having its end secured to the bar of said hammer, a wire of an electric circuit connected to said base-plate, a post insulated from said plate and provided with a contact-arm, and a wire of said circuit connected to said post, substantially as described.

5. In a door-bell, the combination of a base-plate, a wire of an electric circuit connected to the same, a hammer pivoted upon said plate and having an upwardly-extending bar and means for rocking it, a spring-contact wire having its coiled end secured to said bar, a post insulated from said base-plate and having a contact-arm for said contact-spring, and a wire of said circuit connected to said post, substantially as described.

6. In a door-bell, the combination of a base-plate, a hammer pivoted upon said plate formed with a notch in the rear side of its upper arm and with a laterally and inwardly extending crank-arm, and provided with

means for rocking it, a bell-post riveted with its inner end in said plate, a gong upon said post, a flat spring riveted by said post to said plate and having its free end bearing in said notch, and the wire of a jingle-bell attached to said crank-arm, substantially as described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

CHARLES ALBERT EMME.

Witnesses:
R. D. TRUNDLE,
A. E. H. JOHNSON.