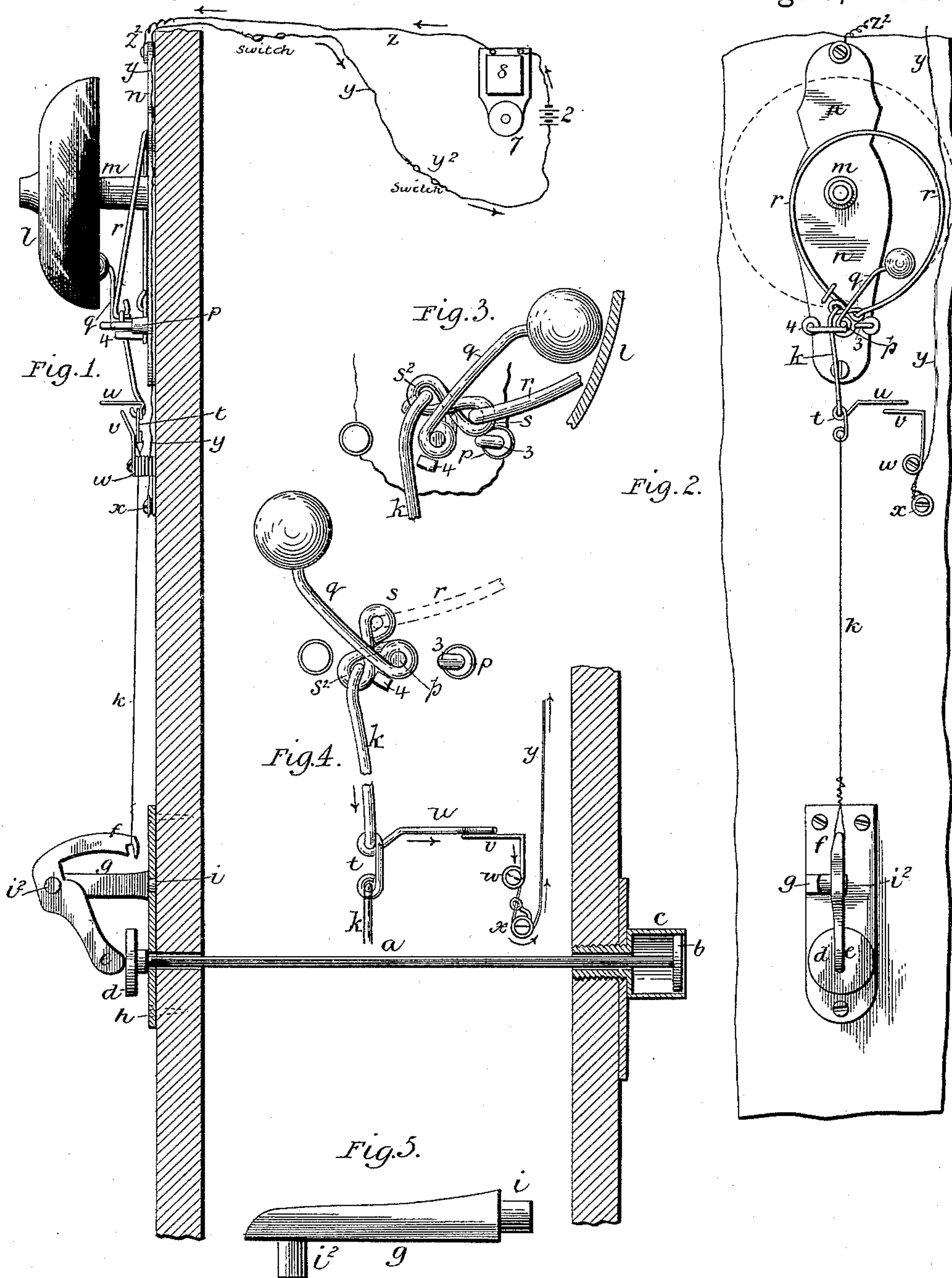


(No Model.)

C. A. EMME.
DOOR BELL.

No. 433,724.

Patented Aug. 5, 1890.



WITNESSES:

Wm. Norton
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INVENTOR

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BY
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ATTORNEYS.

UNITED STATES PATENT OFFICE.

CHARLES ALBERT EMME, OF WASHINGTON, DISTRICT OF COLUMBIA,
ASSIGNOR OF ONE-HALF TO ANDREW ARCHER, OF SAME PLACE.

DOOR-BELL.

SPECIFICATION forming part of Letters Patent No. 433,724, dated August 5, 1890.

Application filed February 5, 1890. Serial No. 339,333. (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 city, in the District of Columbia, have invented new and useful Improvements in Door-Bells, of which the following is a specification.

My improvement is directed to a construction of door-bells whereby the push-rod for ringing the bell is maintained in its normal position by means of the ordinary bell-hammer spring and a hook-lever arranged to maintain a constant bearing upon the inner end of the push-rod and thus provide a very simple and durable bearing for the push-rod, dispense with the retracting-spring heretofore used coiled upon the bell-push rod within the casing, and also to provide a simple means for the connection of one or more electric bells directly with the door-bell wire. The provision of the hook-lever not only serves to keep the push-rod out in its normal position, but gives the advantage of permitting the bell-wire to be readily unhooked, so that the bell cannot be rung when the house is not occupied, or in case of sickness.

The accompanying drawings illustrate my improvements, in which—

Figure 1 represents in vertical section a portion of the door-casing and the bell and its ringing connections mounted thereon, the hook-lever being held to its bearing upon the push-rod by the hammer-spring. Fig. 2 shows the bell-hammer, its spring, and hook-lever connections in face view. Fig. 3 is a detail of the bell-hammer connections and its controlling-stops. Fig. 4 is a similar view showing the hammer in the position which it occupies when thrown by the action of the push-rod against the force of the hammer-spring. Fig. 5 is the post of the hook-lever.

The push-rod *a* is suitably secured in the casing and has the usual push-button *b* and housing-plate *c* therefor, while its inner end is provided with a disk *d*, screwed upon the end of said rod at the inner side of the door frame or casing. A hook-lever is mounted in a post, so that its cam end *e* will hang down and rest against the face of the disk, and its

other end *f* will overhang horizontally the said disk near the casing.

The post *g* is riveted by a pin *i* to a plate *h*, secured to the casing, and has a rivet-pin *j* at the side of its other end upon which the hook-lever is secured, so as to stand in vertical position, so that its hook-formed end *f* will be near the wall for the attachment of the bell-wire *k*, which leads upward to the bell-hammer.

The bell or gong *l* is secured to the outer end of a post *m*, which is riveted to or cast with a plate *n*, secured to the wall or frame, while a short stud or pin *p* on said plate just below the bell serves as a pivot for the bell-hammer arm *q*, the pivoted end of which, as seen in Fig. 3, is preferably formed into a T-shaped eyed part standing upward. The hammer-controlling spring *r* is secured at one end into one eye *s* of this T-shaped part, and its other end is secured to the plate at the pivot-stud. To the other eye *s* of this T-shaped part the hook-lever-connected wire *k* is secured, so that the tension of the hammer-controlling spring is constantly exerted to maintain the hammer at one extreme of its stroke and the bearing-arm of the hook-lever in contact with the disk of the push-rod, and it is by means of this hook-lever and hammer-spring that the push-rod is maintained in position to ring the bell when the hook-lever is vibrated by the inward movement of the push-rod, which throws the bell-hammer into the position shown in Fig. 4 by the downward pull of the hook-arm *f*, while the retracting force of the spring throws the hammer into the position seen in Fig. 3, and pulling the wire *k* upward forces the bearing-arm of the hook-lever against the push-rod disk and holds the latter in its normal position with its push-button standing out, as in Fig. 1.

When it is desired to operate one or more electric bells, together with the door bell or gong, I provide a coupling *t* in the wire *k*, which connects the hammer and hook-lever, so that an arm *u* of said coupling stands in position to make contact with an arm *v*, standing up from a coil *w* on a stud secured in the framing, the other end of said coil

being secured to the framing by a binding-screw x , from which one terminal of a wire y of an electric circuit leads to the battery 2 and to such bell, while the other terminal wire z leads from the bell 7 and connects with the bell-post plate n , to complete the circuit. The arm u of the coupling t forms one contact of the circuit-closer from the bell-plate n to the bell-wire k , and the arm v of the coil w forms the other contact of the circuit-closer through the wire y and the battery 2. Both these arms u and v are of wire and form springs, so that when brought into contact when the coupling is pulled down by the hook-lever, as seen in Fig. 4, the arm u of said coupling strikes and rests upon the arm v of the coil w , and thus maintains the contact of the circuit-closer during the full stroke of the hammer, and at the same time ringing one or more electric bells 7. This electric-connection of circuit-closers may be put in the wire at any point in the house, instead of being under the gong, and such connection may be made at different points along the bell-wire k . A switch y^2 may be placed in the battery-connecting wire y , to cut out the electric bell 7, if desired.

A stop 3 limits the throw of the hammer in its position shown in Fig. 3, and a stop 4 limits the throw of the hammer in its position shown in Fig. 4, and it is obvious that the hammer g may be pivoted and connected to its controlling-spring r and to the hook-lever wire k in any suitable way.

Referring to Fig. 1, the electric bell is indicated at 7 near the battery, and the magnet is indicated as being inclosed in the box or cover 8.

Referring to Fig. 4 of the drawings, it will be seen that when the bell 7 is in the closed circuit, as therein shown, of the battery and magnet connected wires k y h and the bell-plate n , and the push-rod a is forced inward to ring the door-bell l , the electric current will pass from the battery 2 to the electric bell 7, and thence by the wire h to the bell-plate n at the point z^2 , and through this plate by its post p to the wire k , from the coupling t of which it passes back by the coil w and the binding-screw x to the battery by the arm v and the battery-connecting wire y , which connects with the coil w , thus complet-

ing the circuit and ringing the electric bell, at the same time ringing the door-bell l by means of the wire k , the hook-lever e f , and the push-rod through the same coupling which makes and breaks the circuit. For this purpose I may place electric bells at any convenient place in the circuit and put them in or out of the circuit by the switches, which are indicated at y^2 in Fig. 1. The electric circuit thus described is indicated by the arrows, and from which it will be seen that it cannot pass the coupling u v to the push-rod, but must pass back to the battery and ring the hammer of the electric bell in the well-known way of electric bells.

In Figs. 1 and 2 the arms u and v are shown as separated, and it is only in ringing the door-bell that they are brought together to close the circuit to ring the electric bell.

I claim as my improvement—

1. In combination, the bell l , the bell-hammer g , having two arms s and s^2 , the spring r , and the push-button rod a , the lever having its lower arm e in alignment with said push-rod, and the upper lever-arm f overhanging said lower arm, the wire k , connected to the hammer-arm s^2 , and the said spring connected to the hammer-arm s , and the stops 3 and 4 for said hammer-arms, the connection of the said wire with the lever-arm f and with the bell-hammer arm being arranged to exert its force to constantly pull up said lever-arm to force the push-button rod out, as shown and described.

2. In a door-bell, the combination of the bell-supporting plate, the bell-hammer and its controlling-spring, the push-rod, the hammer-connecting wire and suitable means for connecting it with the push-rod, with an electric-alarm circuit having one circuit-closer formed by a spring-armed coupling in the hammer-connected wire and the other circuit-closer formed by a spring-arm secured to the framing, substantially as described.

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

CHARLES ALBERT EMME.

Witnesses:

A. E. H. JOHNSON,
PHILIP F. LARNER.