J. A. YOUNG.

MECHANICALLY OPERATED DOOR BELL.

APPLICATION FILED OCT. 1, 1910.

1,021,396. Patented Mar. 26, 1912.

FIG. 1.

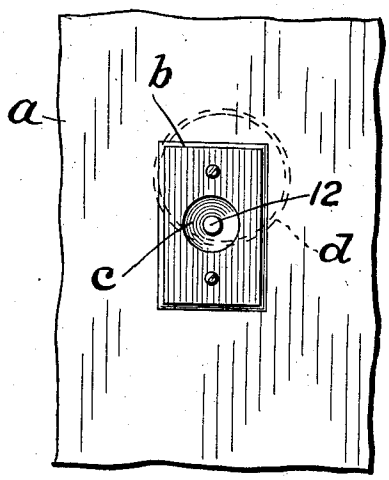


FIG. 2.

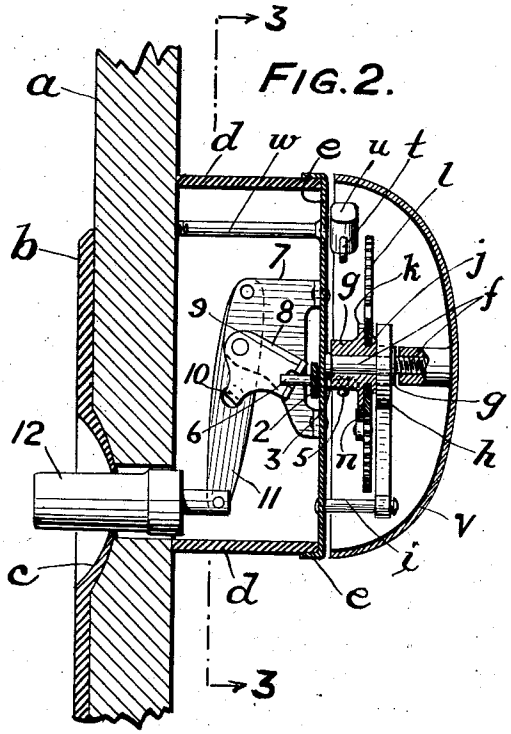


FIG. 3.

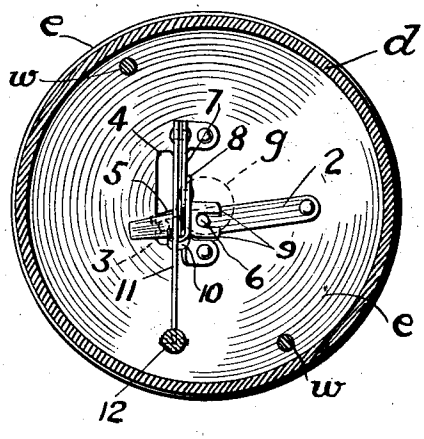
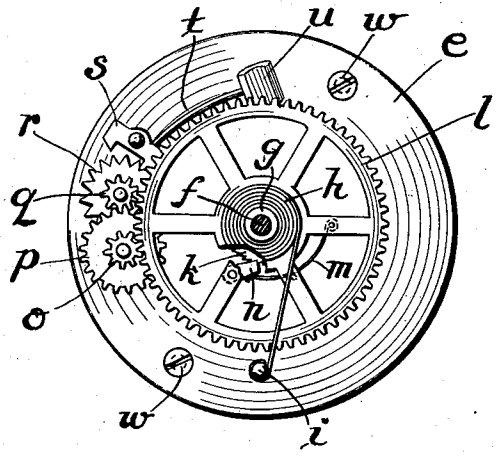


FIG. 4.



WITNESSES:

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UNITED STATES PATENT OFFICE.

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MECHANICALLY-OPERATED DOOR-BELL.

1,021,396. Specification of Letters Patent. Patented Mar. 26, 1912.

Application filed October 1, 1910. Serial No. 584,796.

To all whom it may concern:

Be it known that I, JEAN A. YOUNG, a citizen of the United States, residing at Millville, county of Cumberland, and State of New Jersey, have invented a new and useful Improvement in Mechanically-Operated Door-Bells, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, which form a part of this specification.

The object of my invention is to provide mechanism for actuating, by means of a push-button, a mechanically-operated bell or gong.

At the present time, there are in common use bells or gongs connected with cords and operated by sliding knobs pulled by hand; also bells or gongs connected with electric circuits and operated by push-buttons that close the circuit; also bells or gongs operated by means of mechanism connected with turnable hand-levers. The last-named contrivance is frequently arranged on the inside of a door with the hand-lever projecting outside the door in convenient positions for operation, and it is the more specific object of my invention to so construct and arrange the gong-operating mechanism that, as in the lever-operated mechanism, the same may be arranged on the inside of a door, with a push-button projecting outside the door in convenient positions for operation and so that it will present the same appearance on the outside as an electrically operated device.

In the drawings, which show a preferred embodiment of my invention: Figure 1 is a face view of a portion of a door with the bell attached. Fig. 2 is a longitudinal section through the bell and door drawn to an enlarged scale. Fig. 3 is a section on the line 3—3 Fig. 2. Fig. 4 is a face view of the bell striking mechanism with the bell removed.

a is the door, to which is secured on the outside a metal plate *b* having a depression *c* projecting beyond the rear face of the plate and a hole in the bottom of the depression. The door is also provided with a hole alining with the hole in the plate *b* and is cut away somewhat around the hole to receive the projection containing the depression *c*. Applied to the inside of the door is a ring *d* which is arranged eccentrically with respect to the hole in the door, and so that the ring, at one part of its circumference, lies quite close to the hole.

e is a flanged disk applied to the rear edge of the ring. Mounted on the disk *e* is a stud *f*. Turntable on stud *f* is a hub *g*. Secured to the hub *g* is a coil spring *h*, which is coiled about the hub and secured at its other end to a pin *i* on the disk *e*. Secured to the hub *g* is an annular flange *j* and a ratchet *k*. Between this annular flange and ratchet is loosely mounted a large gear *l*, to which is secured one end of a spring wire *m*, the other end of the wire bearing upon a pawl *n* pivoted on the gear *l* and engaging the ratchet *k*. The gear *l* engages a pinion *o* secured to a gear *p*. The gear *p* engages a pinion *q* secured to a star-wheel *r*. The star-wheel is arranged so that when rotating it will alternately engage two projections on an intermediately pivoted escapement *s*, which carries an arm *t* having on its end a hammer *u*. The gong *v* has a central nut which screws on to the threaded end of the stud *f*.

It will be understood that when the hub *g* is turned, the spring *h* is thrown into tension and the teeth of the ratchet *k* slip over the pawl *n*. When the hub *g* is released, the spring *h* unwinds, and the ratchet *k*, through the pawl *n*, turns the gear *l*. The latter, through the described chain of reduction gearing and the star-wheel *r*, rapidly reciprocates the lever *s*, whereby the hammer *u* is reciprocated to strike repeated blows upon the gong *v*. The disk *e* is shown as secured to the door *a* by means of screws *w*.

The following mechanism is provided to turn the hub *g*. 2 is a lever pivoted at one end on the inside of the disk *e*. This lever carries a pin 3, extending through a slot 4 in the disk and engaging a projection 5 on the hub *g*. The lever 2 also carries a pin 6 projecting toward the door. Secured to the inside of the disk is a plate 7 extending at right angles to the disk. Pivoted on the plate 7 is a lever 8 one arm of which is provided with fork members 9 extending at an angle to the lever and embracing between them, the pin 6. The other arm of the lever 8 is provided with an angular projection 10, which extends into a hole in a lever 11. The lever 11 is pivoted at one end on the plate 7. To the other end of the lever 11 is pivoted a pin 12, the outer end of which projects

through the hole in the door *a* and the hole in the plate *b* and presents, from the outside of the door, the appearance of an ordinary electric push-button. By pressing inwardly the pin 12, the lever 11 is swung toward the disk *e*, the lever 8 is turned on its pivot, the lever 2 is turned on its pivot, and the pin 3 on lever 2 engages the projection 5 on the hub *g*, turning the latter to wind the spring as before described. Upon release of pressure against the pin 12, the spring unwinds and the hammer is rapidly reciprocated, thereby operating the gong. At the same time the mechanism for operating the hub *g*, including the push-pin, is returned to its original position.

Having now fully described my invention, what I claim and desire to protect by Letters Patent is:

1. In a door bell, the combination with a ring, of a disk arranged behind the ring, gong-operating mechanism, including a turnable hub, arranged behind the disk, a pin extending through a slot in the disk and engaging said hub, a lever pivoted in front of the disk and carrying said pin, a push-pin in front of the disk, and levers connecting the push-pin and the first named lever.

2. In a door bell, the combination with a ring, of a disk arranged behind the ring, gong-operating mechanism, including a turnable hub, arranged behind the disk, a pin extending through a slot in the disk and engaging said hub, a lever pivoted in front of the disk and carrying said pin, a second pin carried by said lever, a second lever engaging the second pin, a third lever engaging the second lever, and a push-pin carried by the third lever.

3. In a door bell, the combination with a ring, of a disk arranged behind the ring, gong-operating mechanism, including a turnable hub, arranged behind the disk, a pin extending through a slot in the disk and engaging said hub, a lever pivoted in front of the disk and carrying said pin, a second pin carried by said lever, a plate secured to the disk, a lever pivoted to the plate, a push-pin carried by the second lever, and a third lever, also pivoted on the plate, one arm of which is engaged by the second lever and the other arm of which engages the second pin carried by the first lever.

4. In a door bell, the combination with a ring and a disk applied to the rear thereof, of a gong applied to the rear of the disk, a system of wheels between the gong and disk, a hammer actuated by said wheels, a hub on one of the wheels, a spring for actuating said hub, a system of levers within the ring in front of the disk, means connected with said levers and extending through an orifice in the disk and adapted to turn the hub to wind the spring, and a push pin connected with said levers.

In testimony of which invention, I have hereunto set my hand, at Millville, on this 28th day of September, 1910.

JEAN A. YOUNG.

Witnesses:
GEO. E. W. COXON,
FRANK WATHIER.