

(No Model.)

J. W. ROSS.
DOOR BELL.

No. 468,403.

Patented Feb. 9, 1892.

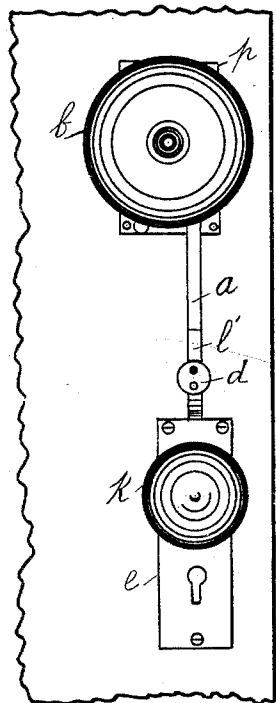


Fig-1-

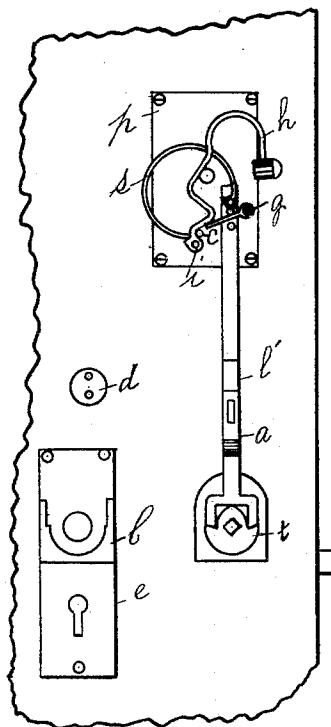


Fig-2-

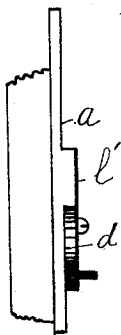


Fig-3-

Witnesses

C. C. Woodward
E. W. Hart

Inventor

James W. Ross
By L. D. Woodward
Attorney

UNITED STATES PATENT OFFICE.

JAMES W. ROSS, OF YOUNGSTOWN, OHIO.

DOOR-BELL.

SPECIFICATION forming part of Letters Patent No. 468,403, dated February 9, 1892.

Application filed March 30, 1891. Serial No. 386,886. (No model.)

To all whom it may concern:

Be it known that I, JAMES W. ROSS, a citizen of the United States, residing at Youngstown, in the county of Mahoning and State of Ohio, have invented certain new and useful Improvements in Door-Bells; and I do hereby declare the following to be a full, clear, and exact description of my invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to that class of door-bells not employing electricity; and its object is a door alarm-bell so combined with a door-lock having a latch-bolt moved by knobs that the turning of a knob in either direction rings the bell unless disconnected, thus dispensing with the pull-knobs, handles, and buttons by which such bells are now operated, and for use not only in calling for admission, but also as an automatic door-alarm of great value in giving notice to the occupants of a building or room of the opening of a door. I accomplish this object by the mechanism hereinafter described, and illustrated in the drawings, in which—

Figure 1 is an elevation view of the inner surface of a section of a door having my invention as it appears in place. Fig. 2 is a plan view showing the several parts of my door-bell in relative positions uncovered by the bell proper and the escutcheon and disconnected from the door. Fig. 3 is a side elevation of the disconnecter and its co-operating parts.

The several parts are indicated by letters, and similar letters refer to similar parts throughout.

In the drawings my invention is shown as combined with a mortise-lock; but it may, with slight variations in the manner of application not requiring invention, be used with any door-lock having a latch-bolt moved by knobs. The drawings also exhibit the bell as placed above the lock; but it may with equal readiness be placed at any point on the door desired.

To provide room beneath the inner escutcheon of the lock for the parts connecting the bell-arm *a* with the knob-shaft, a sink is made

in the door-surface, having the knob-shaft opening in the center rectangular, except on the upper edge, which is arched, with a channel extending upward far enough so that the bend in the bell-arm *a*, which at this point is embedded therein, such bend being to gain the surface of the door, shall not in its vertical movement strike the edge of the escutcheon *e*. The lift *l* appearing on the under side of the escutcheon *e*, and which rests in the sink when in place, is in form three sides of a hollow square, the open side being upward and the inner edge of the lower side being concave to closely incase the parts connected with the knob-shaft. The tumbler *t* is a disk with a central angular opening for the passage of the knob-shaft, from which has been cut away in its right and left upper quarters two equal sections on lines extending from each side inward and slightly downward, each for about one-fourth the breadth of the disk, and thence upward with a curve to a point on the periphery above the central opening, presenting the form seen at *t* in Fig. 2 of the drawings. This tumbler *t* is placed upon the knob-shaft, its notched parts upward, to receive the bifurcated parts of the bell-arm, one in each notch. The bell-arm *a* is a strip of flat metal of suitable size, bifurcated in the form of a common wrench at its lower end, which rests, as already stated, and extends upward, entering the slot in the bell-plate *p*. Near the escutcheon *e* it rests in the channel described, bending outward, so as to lie against the door-surface the greater part of its length. At a convenient point on the outer side of the bell-arm *a* there is placed the lift *l*, with an abrupt lower side, below which there is a longitudinal slot, through which passes the screw upon which the disconnecter *d* turns. The disconnecter *d* is a disk-cam, the upper edge of which is in contact with the lower side of the lift *l*, so that when the edge most distant from the pivot is uppermost the bell is disconnected by elevating the lower end of the bell-arm *a* above contact with the tumbler *t*. Near the upper edge of the bell-arm *a* there extend outward from its outer surface three short posts aligned nearly longitudinal with the arm, the uppermost to form a rest for one end of the bell-spring *s* and the other

two to move the bell-lever *g*, which, pivoted on the bell-plate *p* at the right of the bell-arm *a*, passes between them.

The bell-plate *p* is a flat rectangular piece of metal having the slot already mentioned cut upward from its lower edge, carrying at its center the post that supports the bell, and attached to the door-surface by means of screws. Near its left lower corner it carries the pivot-pin *i* and the check-post *c* for the handle of the bell-hammer. The bell-hammer handle *h* is of wire. Pivoted at its lower end on the pivot-pin *i*, it curves to the right and upward to the edge of the slot, and thence to the left and still upward, forming an elbow, against which the bell-lever *g* acts above and below, and thence passing upward beyond the bell-post it curves outward, terminating in a hammer, which acts against the inner side of the bell. The bell-spring *s* is of spring-wire. At one end it clasps over the upper post of the bell-arm *a*, and thence curving to something like a parallel with the lower edge of the bell and held to the bell-plate *p* by staples. It passes to and its foot rests against the side of the handle of the bell-hammer near its pivot. The bell is attached to the bell-post by means of a threaded opening in the center of the bell-dome and corresponding threads upon the upper end of the post.

The several parts of my invention and their operation will now be understood. By turning the door-knob in either direction a notch of the tumbler *t*, if not disconnected, is elevated, lifting the bell-arm *a*, which presses the bell-lever *g* upward, forcing backward the hammer, which by force of the bell-spring *s* is driven forward to strike the inner side of the bell as soon as the lever has passed the elbow of the handle *h*, the force of the spring being sufficient to send the lever to its first position by the reverse of its first movement, again causing the hammer to strike the bell.

The operation of the disconnecter, which is

of great value when from illness or other cause the ringing of the bell is undesirable, has already been fully explained.

What I claim is—

In door-bells, the combined door-bell and automatic alarm consisting, in combination with any door-lock having a latch-bolt moved by knobs, of the tumbler *t*, shafted upon the knob-shaft, with its right and left notched sides upward, the flat metal bell-arm *a*, having the branches of its bifurcated lower end resting in the notches of the tumbler *t* and provided with the lift *l* upon its outer surface immediately above a longitudinal slot there-through and extending upward to contact with the bell-hammer handle *h*, the cam-disk pivoted upon a screw passing through the slot in the bell-arm *a*, forming the disconnecter *d*, the rectangular bell-plate *q*, having a slot cut upward from its lower edge, in which rests the bell-arm *a*, and carrying near its center the bell-post and near its left lower corner the pivot-pin *i* and the check-post *c*, the wire bell-hammer handle *h*, pivoted on the pin *i*, from thence curving to the right upwardly, and then to the left upwardly beyond the bell-post, and thence outward and downward, terminating in a bell-hammer, the wire bell-spring *s*, clasped at one end over the upper part of the bell-arm *a*, and thence curving above the bell-post and held to the bell-plate *q* by a staple, passing to a contact at the other end, with the bell-hammer handle *h* below its elbow, and a dome-formed bell held by threads upon the bell-post, the upper end of which passes through its center, substantially as described in the foregoing specification, and for the purpose therein expressed.

In testimony whereof I hereunto affix my signature in the presence of two witnesses.

JAMES W. ROSS.

Witnesses:

A. J. PACKARD,

FRANK B. MEDBURY.