

(No Model.)

F. SANDERSON.
DOOR OR ALARM BELL.

No. 385,574.

Patented July 3, 1888.

Fig. 1

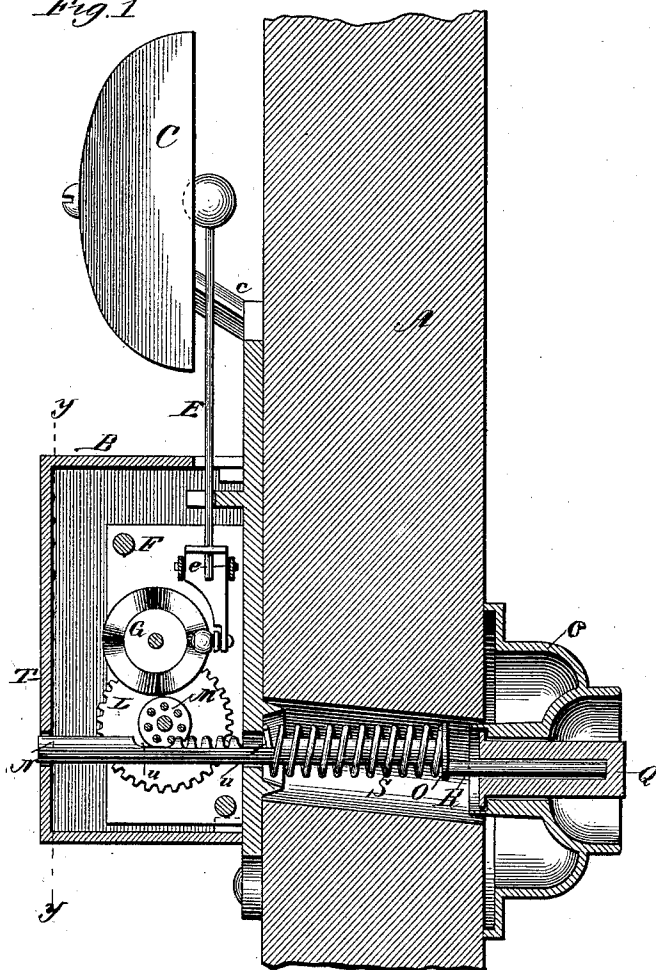


Fig. 2

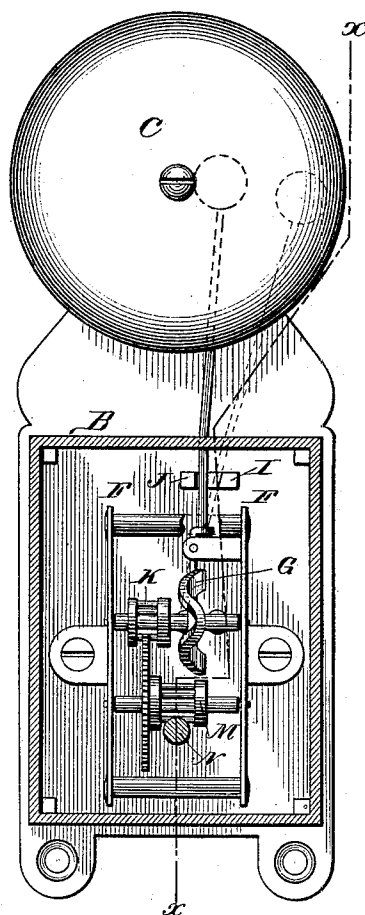


Fig. 3.



Witnesses,

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FREDERICK SANDERSON, OF PROSPECT PARK, ILLINOIS.

DOOR OR ALARM BELL.

SPECIFICATION forming part of Letters Patent No. 385,574, dated July 3, 1888.

Application filed January 27, 1888. Serial No. 262,159. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK SANDERSON, a citizen of the United States, residing at Prospect Park, in the county of Du Page and State of Illinois, have invented certain new and useful Improvements in Door or Alarm Bells, of which the following is a specification, to wit:

The principal object of my invention is to produce a simple, cheap, and effective bell or alarm for doors or other uses; also to produce a bell which may be easily put up by others than skilled workmen. Other objects will be apparent from the subjoined description.

To these ends the invention consists in the combination of a bell, mechanism for vibrating the bell-hammer, and a push-button for operating said mechanism, and in certain other devices or combinations recited in the claims at the end hereof.

In the accompanying drawings I have represented a door-bell containing my invention in the form preferred by me. Figure 1 is a cross-sectional view through the line *xx* of Fig. 2. Fig. 2 is a back view with the front plate of the casing removed. Fig. 3 is a view of the bell-hammer with its attachments.

A is a section of the panel or other part of a door or a door-jamb.

B is a box or casing which may be screwed to the door A.

C is a bell supported upon the arm *c* of the casing.

D is the bell-hammer; E, the hammer-stem, which is pivoted at *e* to brackets on the side plates, F, of the train of wheel-work.

G is a cam-disk with a corrugated edge.

H is a short arm pivoted on the lower end of the hammer-stem D.

h are two friction-rollers, one on each end of arm H. These rollers embrace the corrugated edge of the cam-disk G, so that the latter by its revolution will vibrate the hammer-stem. The arm H by rocking on its pivot conforms to the corrugations of the disk and the rollers *h h* prevent friction. The motion of the disk is thus perfectly free and easy.

I is a lug against which the hammer-stem strikes just before the hammer reaches the bell, as shown by the dotted lines in Fig. 2. The remainder of the hammer's stroke is made by the spring of the stem and the momentum of the hammer. The hammer therefore springs

back from the bell the instant the blow is given, thus leaving the bell free, so that it will emit a clear ringing sound. The lug I also takes the strain of vibration off the cam and relieves the pivot of the hammer-stem.

J is a similar lug on the other side of the hammer-stem from lug I, against which the hammer-stem impinges on its backward stroke.

K is a pinion on the cam-disk arbor. L is a gear-wheel meshing therewith, and M is a pinion on the arbor of wheel L.

N is a rack, which meshes with pinion M and whose reciprocation drives the train and rings the bell. I construct the rack by taking a round bar and cutting away a portion of it, leaving the teeth, as is apparent in Fig. 1. At each end of the toothed portion is a blank portion or recess, *u*, in the bar. When the bar is reciprocated to the end of its stroke, the pinion M passes into the recess free from the rack-teeth, and will continue to revolve and ring the bell till the momentum of the train is expanded. By using a round bar N, I can form its bearings in the casing B by simply boring holes of suitable size and save the labor and expense incident to making holes of another shape.

O is a flat head on the end of bar N.

P is a push-button casing, and Q a push-button therein.

R is a rod extending into a hollow in the button and resting against the flat head O.

The casing P has a long bearing to guide button Q in its movement and keep it straight. The hollow in the button extends nearly to its end, so that the resistance of rod R will not cause it to turn and bind, as it would tend to do if the hollow were shallow.

S is a spring to keep the bar constantly against the rod R and the latter against the button. I make the bar N of such length that its end will be flush with the surface T of casing B when the parts are all at rest, as in Fig. 1. By this means, in applying the invention to the door, I can place the parts in position on the door, observe how much the bar N is out of position, and use a longer or shorter rod R, as may be required to accommodate the thickness of the doors. If in applying the invention to a door the hole through the door is bored obliquely, as shown in Fig. 1, and as it is very apt to be by an unskilled person, the

rod R will still come against some part of the flat head O and the parts be in operative position.

The provision of the hole in the case acts as a gage for the push-bar N. In the event it projects through the hole when in its normal position, then the rod R is too long, and if it does not come through to be flush with the casing then the rod is too short. The length of rod is cut to suit any thickness of door, and the position of the end of the push-bar at the hole determines this for the workman, so that he will be able to put the proper length of rod in the device.

What I claim as new, and desire to secure by Letters Patent, is—

1. The combination, substantially as set forth, of the bell, its hammer, the hammer-stem, a cam to vibrate the hammer and stem, and the lug I, against which the hammer-stem impinges just before the hammer strikes the bell.

2. The combination, substantially as set forth, of the bell, its hammer, the hammer-stem, and cam to vibrate the hammer and stem, and the lugs I and J, between which the hammer-stem vibrates.

3. The combination, substantially as set forth, of the bell, its hammer, the hammer-

stem, the disk cam with a corrugated edge, and the arm H, pivoted to the hammer-stem and carrying the friction-rollers to embrace the cam-edge.

4. The round push-bar N, having round bearings to guide it, the rack-teeth on it to drive the train mechanism, the recesses *u* at each end of the toothed portion, and the flat head on one end of bar, in combination with the push-button and the rod R, the rod located between the button and the head on the push-bar, substantially as shown and described, and for the purpose set forth.

5. The combination, in a door-bell, of the push-button Q, hollow its entire length except the head, the rod R, loosely located in the hollow of the push-button, and the round push-bar N, having rack-teeth and flat head, the rod R having bearings against the head of the push-bar and the inner surface of the head of the push-button, whereby friction is avoided and side draft prevented, substantially as shown and described.

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

FREDERICK SANDERSON.

Witnesses:

H. HARRISON,
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