

No. 753,369.

PATENTED MAR. 1, 1904.

N. W. GRANDALL.  
BELL.

APPLICATION FILED OCT. 29, 1903.

NO MODEL.

Fig. 1.

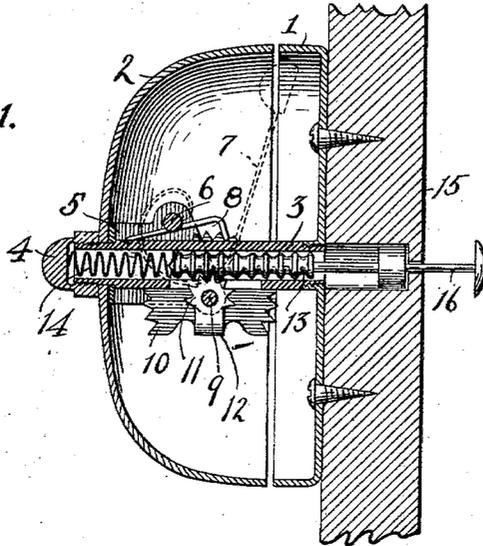


Fig. 2.

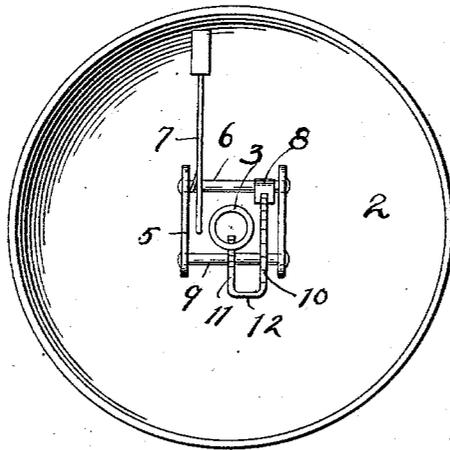
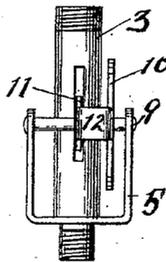


Fig. 3.



WITNESSES:

*Geo. V. Rasmussen*

*[Signature]*

INVENTOR

*Nathan W. Grandall.*

BY

*[Signature]*  
ATTORNEY

# UNITED STATES PATENT OFFICE.

NATHAN W. CRANDALL, OF MERIDEN, CONNECTICUT, ASSIGNOR TO THE  
RUSSELL & ERWIN MFG. CO., OF NEW BRITAIN, CONNECTICUT, A CORPO-  
RATION OF CONNECTICUT.

## BELL.

SPECIFICATION forming part of Letters Patent No. 753,369, dated March 1, 1904.

Application filed October 29, 1903. Serial No. 179,020. (No model.)

*To all whom it may concern:*

Be it known that I, NATHAN W. CRANDALL, a citizen of the United States, residing at Meriden, in the county of New Haven, State of Connecticut, have invented certain new and useful Improvements in Bells, of which the following is a full, clear, and exact description.

My invention relates to improvements in bells, and particularly to a mechanical construction which is to be operated by a push-button or the like.

The object of the invention is to construct a bell mechanism of such a form that its manufacture may be economical and that it shall be efficient and reliable in operation and easy to install.

The invention consists in mounting the bell upon a post and in using in conjunction with this post a spring-controlled operating member engaging with gears which operate the striking mechanism, so as to give a repeated stroke. The details will be understood from an inspection of the accompanying sheet of drawings, in which—

Figure 1 is a cross-section and side elevation of a bell embodying the improvements of my invention attached to a support. Fig. 2 is a rear elevation of the bell portion, together with the supporting-post. Fig. 3 is a detail showing the supporting-post and operating-gears.

1 indicates the base, which is formed to correspond with the shape and size of the bell.

2 is the bell proper, and 3 is the supporting-post, which is screwed into the base 1 and passes through a hole in the bell 2, where it is held in place by the cap-nut 4.

The operating parts are centered and supported about the post 3 by means of the frame 5, which is held in place against the inside of the bell by a shoulder on the post.

6 is a shaft which carries the spring-arm 7 of the striker. 8 is a double-armed pawl or seesaw which is mounted on this shaft 6 and which gives to the striker-arm a vibratory movement.

9 is a second shaft carried by the frame 5, which supports the two gears 10 and 11 for

transmitting the reciprocating motion of the plunger into vibratory motion of the hammer. These two gears 10 and 11 are formed simply as segments and preferably stamped out from one sheet of metal, the parts being united by the bar 12. These two gears are loose on the shaft 9, but are held in their proper position by the engagement of the gear 11 in a slot in the post 3.

Coöperating with the post 3 is the plunger 13, which is adapted to be reciprocated and transmit motion to the gears. This plunger is formed with annular ridges or teeth with indentations between them, so as to be, in effect, a rack cylindrical in cross-section.

14 is a spring which holds the plunger in its position shown substantially as in Fig. 1.

The base of the bell is adapted to be secured to a support, as 15, through which a button 16 of suitable construction passes for coöperation with the plunger 13.

The parts may be easily disassembled by removing the cap-nut 4 or by removing the bell and post 3 from the base 1.

The frame 5 is preferably of sheet metal and has the sides bent up into suitable formation to support the two shafts 6 and 9 and form bearings therefor. It has an irregular-shaped opening to seat the post 3.

The bell is operated by the reciprocation of the plunger 13, which movement is transmitted by the gears 10 and 11 and causes a rapid vibration of the striker-arm and hammer.

The bell will be seen to be compact and to contain all the operating elements within itself. This adapts the bell particularly for general use in sale and ready installation.

What I claim is—

1. A mechanism of the character described comprising a bell, a tubular post forming a support for said bell, a plunger in said post, a spring therefor, a striker, a gear projecting through a slot in said post and engaging the reciprocating member, and a second gear formed integrally with said first gear for giving a vibratory motion to the striker-arm.

2. A mechanism of the character described comprising a bell, a tubular post forming a

support for said bell, a base for supporting  
 said post, a cap screw-threaded on the outer  
 end of said post for holding the bell in place,  
 said post being secured to the base by a screw-  
 5 threaded portion, a vibratory striking device  
 mounted within said bell, a reciprocating mem-  
 ber inside of said post, a removable spring for  
 said member held in place by said cap and  
 means for connecting the reciprocating mem-  
 10 ber and the vibratory device.

3. A bell, a post-support therefor, a vibra-  
 tory striking device, a reciprocating member

coacting with said post, and a pair of gears  
 formed from an integral piece of metal, one  
 of said gears engaging said reciprocating mem- 15  
 ber and the other of said gears engaging the  
 striking device.

Signed at New Britain, Connecticut, this  
 27th day of October, 1903.

NATHAN W. CRANDALL.

Witnesses:

M. S. WIARD,  
 F. E. SUNBURN.