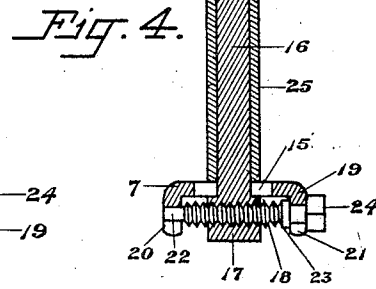
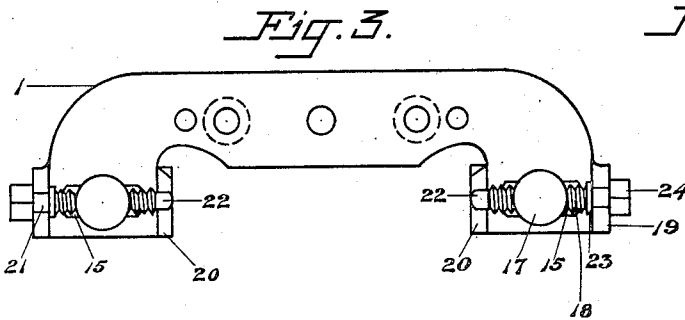
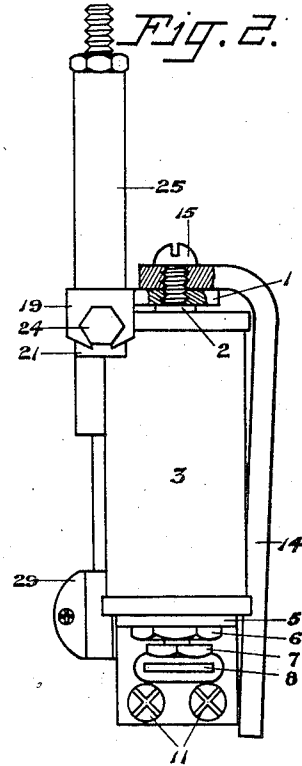
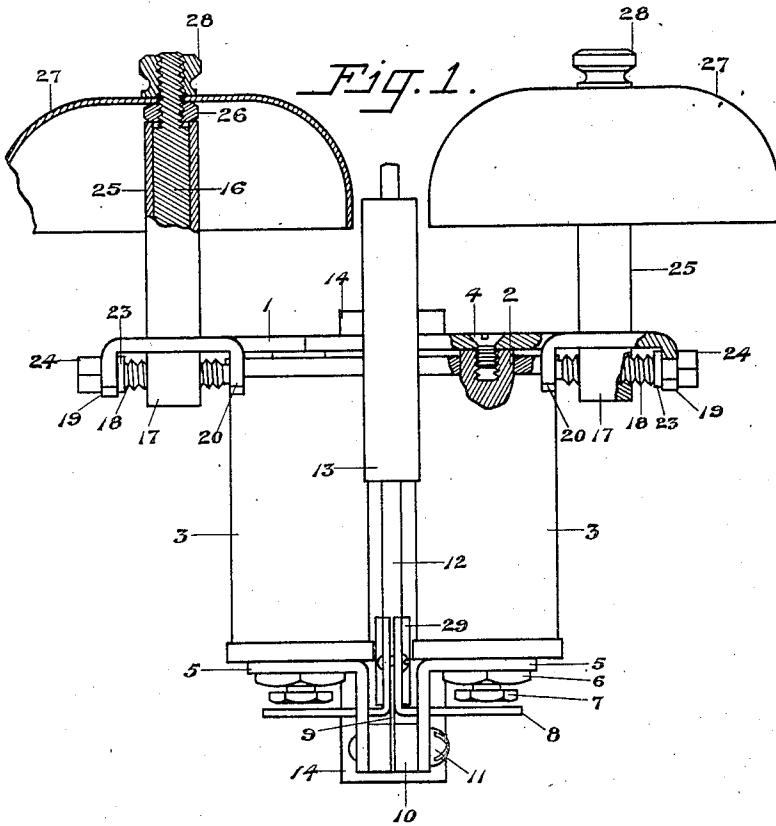


L. ERICSON.
 SIGNALING DEVICE FOR PARTY TELEPHONE LINES.
 APPLICATION FILED NOV. 15, 1906.

1,132,249.

Patented Mar. 16, 1915.



Witnesses

A. Dahl.
 C. Bradbury

Lawrence Ericson
 Inventor

By Curtis B. Bump
 Attorney

UNITED STATES PATENT OFFICE.

LAWRENCE ERICSON, OF CHICAGO, ILLINOIS, ASSIGNOR TO KELLOGG SWITCHBOARD & SUPPLY COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

SIGNALING DEVICE FOR PARTY TELEPHONE-LINES.

1,132,249.

Specification of Letters Patent.

Patented Mar. 16, 1915.

Application filed November 15, 1906. Serial No. 343,539.

To all whom it may concern:

Be it known that I, LAWRENCE ERICSON, a citizen of the United States of America, and resident of Chicago, county of Cook, and State of Illinois, have invented a new and useful Improvement in Signaling Devices for Party Telephone-Lines, of which the following is a specification.

My invention relates to improvements in party line ringers or annunciator devices adapted to be used in connection with the substation of telephone lines.

It has for its object the provision of an entirely self-contained device which is adapted to be placed in the box of any ordinary subscriber's set and is of the type known as "harmonic ringers"; that is, a ringer so constructed that it will respond to alternating currents of a certain frequency and will not respond to currents of other frequencies of alternation. In ringers of this class it is important that positive and accurate adjustment of the bells be available and my invention particularly relates to the means for readily adjusting the bells so that they may be rigidly held at the proper distance from the tapper of the device.

The invention further relates to certain details of construction which permit straight line adjustment of the bells whereby the tapper vibrates in the line of centers of the two bells in all positions of their adjustment and to other features which will be hereinafter described and particularly pointed out in the appended claims, reference being had to the accompanying drawings forming a part of this specification in which the same reference characters are used throughout the several view to designate like parts, and in which—

Figure 1 is a front view of the assembled device with some parts shown in section; Fig. 2 is a side view of the same device with the bells removed; Fig. 3 is a bottom view of the supporting plate and has the bell support and means of adjustment mounted thereon, while Fig. 4 is a sectional detail drawing of the bell support and means of adjustment.

The ringer consists of a soft iron plate 1, to which the cores 2 of the magnet coils 3 are secured by means of the counter-sunk

screws 4. To the other end of the core 2 the plates 5, which must be of non-magnetic material, are secured by nuts 6 which are threaded upon the outside of the core, while the bolt 7 extends into the core for the purpose of adjusting the distance between the end of the core and the armature 8. This armature is made in two pieces, each bent into a right angle, and the two are riveted together with the steel spring 9 secured between them, this spring being permanently riveted between the magnetic blocks 10 by the rivets 11 which pass through the plates 5 and the blocks 10. Between the armature pieces 8, which have an extended portion 29 for this purpose, is also secured the light rod 12 which carries the weight or tapper 13 rigidly secured to the rod 12 and permanently adjusted in position to respond to a predetermined frequency. The permanent magnet 14 is secured to the plate 1 by means of the machine screw 15 and extends along the rear side of the magnet coils, making contact with the magnetic blocks 10 at the lower end of the ringer. These blocks being in permanent magnetic connection with the armature 8 through the steel spring 9, a magnetic circuit is secured which is only broken by the air gap between the adjustable end of the magnetic core 7 and the armature 8. At each end of the plate 1 a slot 15 is cut out of the plate to allow the lateral movement of the stud 16 which extends through the slot. The lower end of this stud has a round head 17 and a shoulder which prevents the bolt from passing through the slot. Through a hole in the head of this stud the screw 18 is threaded and is adapted by the rotation of the screw to move the stud 16 into any desired position through the slot 15. At each end of the slot 15 the plate 1 has downwardly extending lugs 19 and 20 in which grooves 21 and 22 are cut to allow the screw to turn and to hold it in the proper position, the shoulder 23 and head 24 of screw 18 falling on either side of the lug 19 to prevent lateral motion in the screw. A shell 25 is placed over the stud 16 and is brought down against the upper surface of the plate 1 and is held in place by the nut 26 which threads on the end of the stud and presses against the top of the shell. The

stud and shell together thus form a support for the bell 27 which is held on the end of the post by cap screw 28.

In placing the device in a telephone box it is only necessary to remove the bells and secure the plate 1 against the inside of the box, the bell supports and the tapper protruding through holes in the wall of the incasing box, large enough to allow adjustment of the bell posts and vibration of the tapper.

Although the tappers 13 are made of different sizes to secure devices responsive to different frequencies, the external appearance of the differently tuned devices is the same since the different frequencies are secured by simply changing the length of the tapper 13 without changing the position of its upper or exposed end.

A particular advantage arising from the general construction of this ringer is in the time saved in assembling and installing the device. It will be noted that in order to assemble the studs or bell posts onto the plate it is only necessary to thread the screw 18 through the hole in the head of the stud and then to insert the body of the stud through the slot and allow the bearing portions of the screw 18 to rest in the grooves in the lugs 19 and 20. The casing 25 is then slipped over the body of the stud and the nut 26 threaded down.

After assembling a gong post upon the support 1 and before placing a gong 27 thereon, it will be apparent that the nut 26 may be adjusted to cause any desired degree of clamping action of the gong post, that is if desired the nut 26 may be turned until the gong post is absolutely locked against adjustment by screw 18 or by a less adjustment of nut 26 the gong post may be frictionally clamped and at the same time rigidly supported by the member 1 to such a degree that it may be adjusted after the gong 27 has been placed thereon by means of screw 18 without loosening the nut 26. From this it will be apparent that the gong post may be frictionally supported to such a degree that it will be substantially rigid but at the same time adjustment thereof may be secured by the screw 18 without loosening the lock nut 26.

It is to be understood that while my improvements are more particularly adapted to harmonic ringers they may be advantageously applied to other ringers and I do not desire to limit the scope of this invention to the particular application here shown.

Having thus described my invention, what I claim and desire to secure by Letters Patent is:

1. In a ringer, the combination with operating magnet-coils, of a support to which the cores of the coils are secured, integral lugs upon said support, a bell-post carried by said support and having a portion movable between said lugs, a screw threaded in said portion of the bell-post and guided by said lugs for adjusting the position of the bell-post, a clamping sleeve over said bell post and a nut threaded on said bell-post for frictionally clamping said bell-post against said support.

2. In a ringer, the combination with a slotted-plate, of a bell-post movably secured in said slot, and formed of a bolt-portion having an integral head abutting one side of the plate, a cylindrical sleeve incasing the bolt-portion and abutting the other side of the plate, a threaded member passing through an aperture in the head of said bolt for adjusting the position of the bolt, and a nut threaded on said bell-post for rigidly securing said post to said slotted plate.

3. In a ringer, the combination with a slotted plate, of a bell-post movably secured in said slot and having a head portion extending beneath the plate, of a screw threaded through said head portion perpendicular to the bolt, extensions on the plate engaging said screw to prevent the lateral movement of said screw, whereby the rotation of the screw moves the bolt along the slot in said plate, and a lock nut threaded on said bell post for frictionally and rigidly clamping said head against said slotted plate whereby it may still be adjusted by said screw.

4. In a ringer, the combination with a supporting plate, of a bell support extending through an opening in said plate, a screw threaded through the lower end of said bell support and adapted to be turned to adjust the bell support in said opening, a lock nut threaded on said support, and a sleeve between said nut and plate, said nut being adapted by one operation for frictionally and rigidly clamping the said support against said plate whereby said screw may still be turned to adjust said support.

Signed by me at Chicago, county of Cook, and State of Illinois, in the presence of two witnesses.

LAWRENCE ERICSON.

Witnesses:

CLIFFORD C. BRADBURY,
E. F. GRIER.