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AUDIBLE ELECTRIC SIGNAL

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Fig. 1

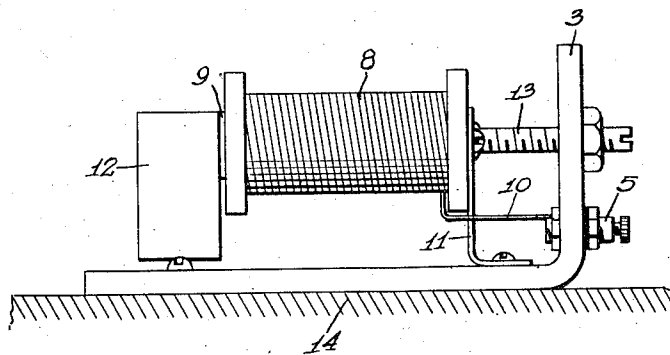
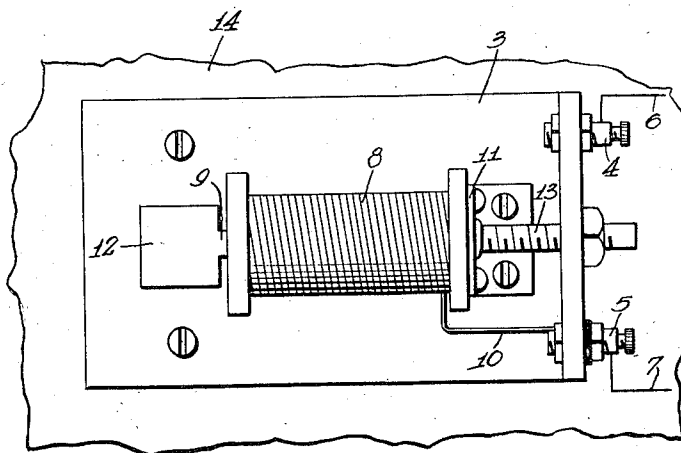


Fig. 2



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UNITED STATES PATENT OFFICE

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AUDIBLE ELECTRIC SIGNAL

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2 Claims. (Cl. 177—7)

This invention relates to audible electric signals operated by alternating current and especially to that class of signals commonly known as buzzers and an object of the invention is to produce a tone of greater intensity than has heretofore been possible with low voltage alternating current. Another object is to adjust the signal to vary the intensity and volume of the sound. Further objects are to utilize the frame of the signal and the wall or other medium upon which the signal is mounted as sounding boards or amplifiers to intensify and amplify the sound of the signal.

In the accompanying drawing I have illustrated the invention in a selected embodiment and referring thereto

Fig. 1 is a side elevation of the signal; and
Fig. 2 is a top plan view of the signal.

Referring to the drawing, a frame 3 made of steel, iron or other magnetic material carries binding posts 4 and 5, one of which, in this instance post 5, is insulated from the frame while the other, post 4, is grounded to the frame and from which suitable connections 6 and 7 lead to a source of alternating current. I have found that six volts, the usual voltage used in local signal systems, is ample to operate my signal. A coil 8 is mounted upon and surrounds an armature 9 and is electrically connected at one end by a wire 10 to the binding post 5 and at its other end to the armature. The coil and armature are resiliently supported at one end by a flat spring 11 which is mounted on the frame 3. The armature has an enlarged striker 12 extending beyond the coil and toward the frame at the opposite end of the coil from the support 11. The spring is tensioned so that it normally holds the striker 12 slightly away from contact with the frame 3. The distance that the striker is removed from the frame 3 determines the intensity of the sound of the signal and provision for varying the distance between the striker and frame is made by an adjustment screw 13 threaded into and extending through the bent up portion of the frame. The inner end of the adjustment screw engages the end of the armature and screwing the screw into the frame moves the striker 12 closer to the frame 3 against the tension of the spring 11 and screwing the adjustment screw out of the frame allows the spring to raise the striker farther from the frame.

The frame must be made of a magnetic metal and if the spring 11 and screw 13 is made of steel, iron or the like the base then becomes one of the poles and the striker becomes the other pole of

the magnet but if the spring 11 and screw 13 are made of brass, copper or the like the base will not become a pole but the other end of the armature will be the other pole of the magnet. The operation of the signal will be the same whatever kind of spring or adjustment screw is used. I have shown a ground wire fastened to a post connected directly to the frame as being probably the cheapest way of constructing the signal but the ground wire may just as well pass to an insulated post and then another wire from the post to the end of the coil.

The frame is mounted directly upon the wall 14 or other support so that the striking of the striker 12 on the frame will be amplified by the wall to intensify and increase the volume of the sound.

The alternating current magnetizes and demagnetizes the armature with the alternations of the current which attracts and repels the striker 12 to and from the frame to produce the sound. The coil, armature and striker constitute the vibrating element and provide a relatively heavy mass which strikes through the striker 12 upon the frame to produce the sound. It is obvious that more sound is produced in this manner than by having a relatively light vibrating element. My signal has no contact points to corrode nor does it produce any sparks which may ignite inflammable gases present in the room in which the signal is located. The signal is relatively foolproof and will operate over a protracted period without repair of any kind. If desired, a cover may be placed over the coil and armature to protect them from dirt and dust. This cover may be sealed as it is unnecessary to provide a removable cover for the purpose of making repairs. The adjustment screw will extend outside of the signal if the cover is used and it will hence not be necessary to remove the cover even for adjusting.

The invention is shown in a preferred embodiment for illustration and not for limitation and I reserve the right to use it in any form and for any purpose for which it is or may be adapted within the scope of the following claims:

I claim:

1. In an electric signal for use with alternating current, a one-piece frame including substantially right angularly extending parts, an armature, a resilient support secured at one end to said frame and at its other end to one end of the armature, a striker secured to the other end of the armature and extending toward the supporting frame, a coil supported on said armature and retained in position thereon by the support

and the striker, the flow of alternating current through said coil alternately magnetizing and demagnetizing the armature and striker whereby the coil, armature and striker are alternately 5 attracted and repelled from the frame to cause the striker to strike and disengage said frame and thereby produce a loud sound, and adjusting means carried by the other part of said frame and engageable with the supported end of said 10 armature to limit movement of the striker away from said frame.

2. In an electric signal for use with alternating current, a one-piece frame including substantially right angularly extending parts, an armature, a resilient support secured at one end to 15 said frame and at its other end to one end of the armature, a striker secured to the other

end of the armature and extending toward the supporting frame, a coil supported on said armature and retained in position thereon by the support and the striker, the flow of alternating current through said coil alternately magnetizing and demagnetizing the armature and striker 5 whereby the coil, armature and striker are alternately attracted and repelled from the frame to cause the striker to strike and disengage said frame and thereby produce a loud sound, adjusting means for limiting movement of the 10 striker away from said frame and carried by said frame, binding posts mounted in and insulated from said frame, and flexible conductors extending between said binding posts and said coil. 15

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