

R. I. UTTER.

BUZZER.

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1,190,608.

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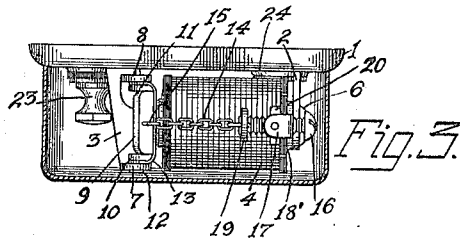


Fig. 3.

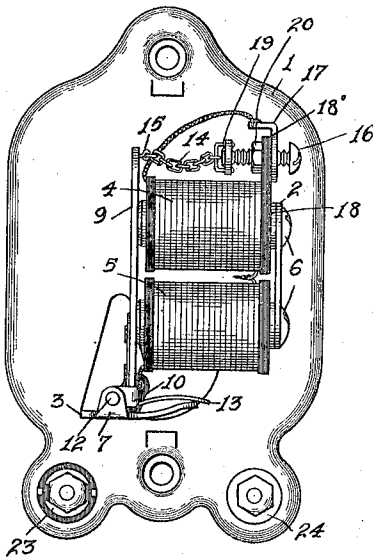


Fig. 4.

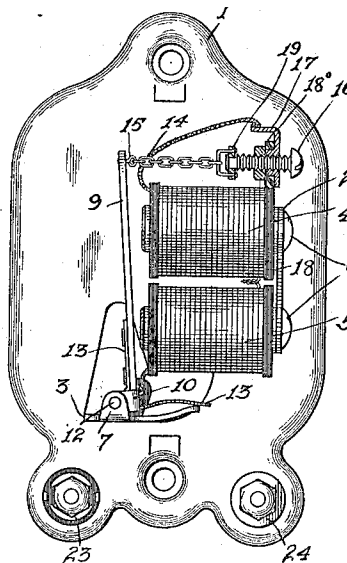


Fig. 1.

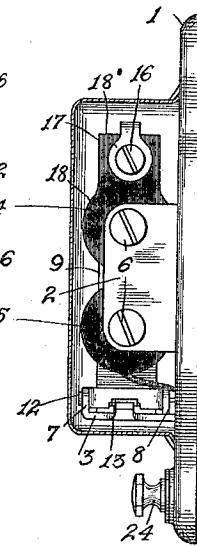


Fig. 2.

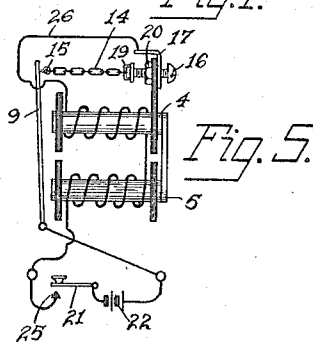


Fig. 5.

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UNITED STATES PATENT OFFICE.

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BUZZER.

1,190,608.

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To all whom it may concern:

Be it known that I, RICHARD I. UTTER, a citizen of the United States of America, residing in Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Buzzers, of which the following is a specification.

My invention relates to electrically operated buzzers or bells and has for its object an improved arrangement by which the strength of the magnets is varied to bring about the positive attraction and retraction of the armature when the magnet circuit is closed.

A feature of my invention is the use of a fine link chain which may either interrupt the magnet circuit entirely or vary the resistance of the circuit in which it is included to such an extent as will result in the attraction and release of the armature of the buzzer to produce an audible signal. By the use of this fine link chain I eliminate all expensive contacts which are commonly used and this results in a buzzer which is very simple in construction, cheap to manufacture, most positive in operation and less likely to get out of order.

For a more complete understanding of my invention reference is to be had to the accompanying drawing in which like reference characters denote like parts and in which—

Figure 1 is a face view of my buzzer with parts shown at normal and the protecting cover removed; Fig. 2 is a right side elevation of Fig. 1 showing its cover in section; Fig. 3 is a top view of Fig. 1 showing the cover in section; Fig. 4 is a view similar to Fig. 1 but with parts in their actuated position; and Fig. 5 illustrates diagrammatically the buzzer connected in an operating circuit.

Referring now more in detail to the preferred form of my invention as illustrated, it comprises a base 1, having portions 2 and 3 struck up from it, the portion 2 being bent at right angles to the base 1 and serving as a mounting plate for the magnets 4 and 5, they being suitably fastened to the portion 2 by means of the screws 6. A portion 3 is also bent at right angles to the base and has the two lugs 7 and 8 formed upon it, and forms supporting means for an armature 9. The armature 9 has the lugs 10 and 11 inte-

gral with it, the said lugs fitting between the lugs 7 and 8. Pin 12 passes through the lug 7 and 8 of the portion 3 and lugs 10 and 11 of the armature 9 and pivotally supports the armature in the portion 3. A tension spring 13 is suitably fastened to the armature 9 and serves as a restoring spring to restore the armature to its adjusted position when the energizing circuit for the magnets 4 and 5 is interrupted as will be hereinafter described.

In carrying out my invention for varying the strength of the magnets 4 and 5, so as to attract and release the armature, I provide a fine link chain 14 which is fastened at one end to the free end of the armature 9 by means of a loop or screw eye 15 which is suitably fastened to the said armature. To secure adjusting means for the armature so as to have a proper air gap between the armature and its pole pieces, I provide a screw which is threaded into a terminal 17, the said terminal being secured to the extension 18 of the spool head 18 of magnet 4 in a suitable manner. A swivel 19 is secured to the end of the screw 16 to which the other end of the fine link chain 14 is fastened. I use the swivel joint so that when the screw 16 is turned to give the armature 9 its proper adjustment the chain will not be twisted, and to hold the armature 9 in its proper adjustment a lock nut 20 is provided to hold the screw against rotation.

Referring to Fig. 5, the operation of the buzzer will now be described. In the diagrammatic circuit I show a push button 21 and battery 22 in circuit with the buzzer. Terminals 23 and 24 are provided and are mounted on the base 1, the terminal 23 being suitably insulated from the said base while the terminal 24 is directly connected to it. Now when the button 21 is operated to close its contact 25 the magnets 4 and 5 are energized over a circuit traced from the negative pole of battery 22, closed contact 25 of button 21, terminal 23 and winding of the magnets 4 and 5, conductor 26, terminal 17, screw 16, links 14, armature 9, base 1, terminal 24, to the other side of the battery 22. Magnets 4 and 5 are thus energized to attract the armature 9. When the armature is in its normal position the chain 14 is held taut by reason of the spring 13 which holds the armature 9 in its normally

adjusted position and the said chain being taut forms a conducting means for the current from the battery 22 when the circuit is closed at push button 21. The armature 5 being attracted as above described, the chain slackens and this slackening produces high resistance connections of the slackened links, or may interrupt their electrical connection so that the strength of the current which 10 passes through the said magnets is varied causing them to release the armature 9 which is carried back to its normal position by the tension spring 13. The link chain 14 is again taut and as long as the contact 25 of the push button 21 is closed the buzzer will be operated by reason of the chain being slack when the armature is attracted and taut when the armature is released.

While I have described one certain form of invention I do not wish to be limited to the same as I contemplate applying my invention in other ways than illustrated and I aim to cover all such changes and modifications as come within the spirit and scope 25 of the appended claims.

Having described my invention what I claim as new and desire to secure by United States Letters Patent is:

1. A buzzer comprising an electromagnet 30 and normally retracted armature, circuit connections for the electromagnet, and a normally taut link chain included in said circuit connections and controlled by said armature whereby when the armature is attracted said chain becomes slack to vary the 35 resistance of the circuit to cause a retraction of the armature.

2. A buzzer comprising an electromagnet and normally retracted armature, circuit 40 connections for the electromagnet, a plurality of conductive links normally held in electrical contact and included in said circuit connections and controlled by said armature whereby when the armature is attracted said 45 normal engagement between said links is changed to effect said circuit connections so as to cause a retraction of the armature.

3. A buzzer comprising an electromagnet and normally retracted armature, circuit 50 connections for the electromagnet, and a normally taut link chain included in said circuit connections and controlled by said armature whereby when the armature is attracted the links of said chain vary their 55 relative position to effect said circuit con-

nections so as to cause a retraction of the armature.

4. A buzzer comprising an electromagnet and normally retracted armature, terminals for the buzzer, circuit connections extending 60 from one terminal through the winding of said electromagnet to the other terminal, a conductive link chain included in said circuit connections and controlled by said armature whereby when the armature is attracted the links of said chain vary their 65 relative position to increase the resistance of said circuit connections between the terminals so as to cause a retraction of the armature. 70

5. A device of the character described comprising an electromagnet, an armature for said electromagnet normally under spring tension, a link chain for holding said armature in its normal position, circuit con- 75 nections for said electromagnet including said link chain, and means for closing a circuit through said magnet whereby said armature is attracted and said chain becomes slack to vary the resistance of the circuit 80 whereby said armature is retracted.

6. A buzzer comprising an electromagnet provided with terminals, an armature for said electromagnet, a link chain connecting one of said terminals to said armature, circuit 85 connections for said electromagnet including said chain and said armature, means for closing said circuit whereby said armature is attracted and the said chain operates to vary the resistance of the circuit to cause 90 a retraction of the said armature.

7. A device of the character described comprising an electromagnet, a normally retracted armature for said electromagnet, circuit 95 connections for said electromagnet, a link chain included in said circuit connections for holding said armature in its normal position, and means for closing a circuit through said electromagnet whereby said armature is attracted and said chain 100 becomes slack increasing the resistance of the circuit to cause a retraction of the armature.

Signed by me at Chicago, county of Cook and State of Illinois, in the presence of two 105 witnesses.

RICHARD I. UTTER.

Witnesses:

GEORGE E. MUELLER,
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