

P. C. BURNS.
 TELEPHONE BELL OR RINGER.
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954,167.

Patented Apr. 5, 1910.

Fig. 1.

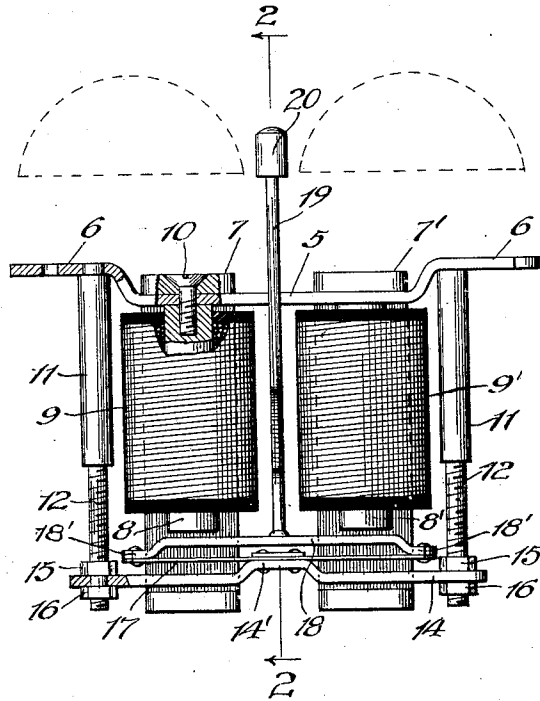
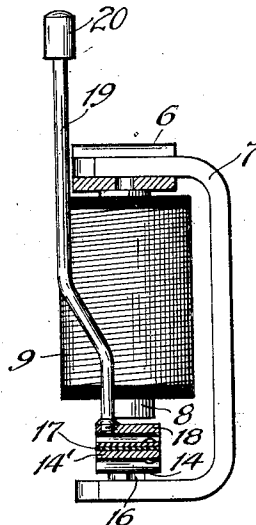


Fig. 2.



Witnesses
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UNITED STATES PATENT OFFICE.

PETER C. BURNS, OF CHICAGO, ILLINOIS.

TELEPHONE BELL OR RINGER.

954,167.

Specification of Letters Patent.

Patented Apr. 5, 1910.

Application filed December 24, 1906. Serial No. 349,308.

To all whom it may concern:

Be it known that I, PETER C. BURNS, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Telephone Bells or Ringers, of which the following is a specification.

My invention relates to improvements in telephone ringers, and has for its salient object to provide an improved construction, which is simple, cheap and efficient, for positioning the armature in such relation to the electromagnet cores that it is normally balanced therebetween, and is free to assume, under the influence of the electromagnet, its operating position in such plane as will make it most responsive to the attracting and repelling influence of the electromagnet.

Other and further objects of my invention will become apparent to those skilled in the art from the following description, taken in conjunction with the accompanying drawing, wherein;

Figure 1 is an elevation with parts broken away, of a telephone bell ringer movement embodying my invention; and, Fig. 2 is a central section on line 2—2 of Fig. 1.

Throughout the figures like numerals of reference refer always to like parts.

In the drawing 5 indicates a usual magnetic yoke, having its ends bent as at 6 to form feet.

7, 7' indicate permanent magnets of wide U-shape.

8 and 8' indicate electromagnet cores, surrounded by coils 9, 9' respectively.

10 indicates a screw securing core 8 and permanent magnet 7 to the yoke 5, in the customary manner, such that the free end of the magnet 7 overlies the free end of the electromagnet core 8 at a suitable distance therefrom.

11, 11 indicate side posts secured to the feet 6 of the yoke, extending in parallelism to the electromagnet, in the customary manner, and having their free extremities threaded as at 12.

14 indicates a bridge member, preferably of diamagnetic material, at its opposite ends perforated and engaging the threaded stem 12, and adjustably secured thereon by upper and lower nuts 15 and 16, constituting a pair. The central portion 14' of the bridge 14 is deflected into a plane parallel to the body of the bridge, but closer to the poles

of cores 8, 8' than the body of said bridge. To such deflected portion of the bridge is secured a spring 17 preferably lying in a plane substantially parallel to the bridge 14, and from points on said spring respectively opposite to the central point of attachment, an armature 18 receives its support. In the construction which I herein illustrate the armature 18 is directly secured at its end to the ends of the spring 17, the extremities of the armature being deflected out of the general plane of the armature as indicated at 18' on the drawing, so that the armature lies in a plane generally parallel to that of the spring but slightly removed therefrom. Thus it will be seen that the permanent magnets and electromagnets being constructed and related in accordance with the usual teachings of polarized bell constructions, the armature is free to respond to the attracting and repelling influences of the magnets, so that the armature and the free ends of the spring will be tilted first in one direction and then in the other. To a suitable portion of these moving parts, preferably to the center of the armature, I secure the striker rod 19, equipped with its usual striker 20 adapted for coaction with suitable sounding devices illustrated in dotted lines as a customary bell. I find that a bell movement constructed in this manner is very sensitive, the armature being free to adjust itself bodily under the influence of the magnetic forces acting thereon, to planes of position wherein it may most readily respond to such influences.

While I have herein described in some detail a specific embodiment of my invention, involving a spring and armature extending in the same linear direction, with the spring bending under strain in a direction transverse to its longitudinal directions, it will be understood that I do not intend to limit myself to this specific construction further than as specified in the claims, as departures may readily be made from the mechanical construction of the apparatus without departure from the spirit and scope of my invention.

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

1. In an electric bell or ringer, an electromagnet, a rocking armature normally polarized, a striker connected with the armature, bells to be struck by the striker in the rock-

ing movements of the armature, a spring supporting said armature for rocking movement, having said armature secured thereto at separated points, and a support for said
5 spring between said separated points.

2. In an electric bell or ringer, electromagnetic means, a normally-polarized, rocking armature, a spring to which the opposite ends of the armature are attached, a support
10 for said spring intermediate the points of attachment of the armature, and a striker suitably associated with the armature.

3. In an electric bell or ringer, permanent magnets, and an electromagnet, suitably associated, a bridge, a substantially straight
15 spring centrally secured to said bridge, a rocking armature suitably associated with the magnets and normally polarized, secured at opposite ends to said spring and arranged
20 when rocked in response to energization of the electromagnet to put such spring under tension, and a striker operatively associated with the armature.

4. In an electric bell or ringer, electromagnetic means having two poles, and an
25 armature arranged with its ends overlying said poles, said armature being free and unsupported adjacent its center, a striker connected with the armature, a spring extending
30 throughout in a linear direction substan-

tially parallel to the armature, centrally supported, and at its ends secured to the ends of the armature, and means for affording central support to said spring.

5. In a telephone bell or ringer, electromagnetic means having two poles, a normally-polarized, rocking armature having its ends overlying said poles, a substantially straight spring centrally supported and at
40 its ends normally engaging said armature and maintaining its ends in position substantially equidistant from the electromagnet poles, means for affording such central support to the spring, and a striker operatively associated with the armature. 45

6. In an electric bell or ringer, electromagnetic means, an armature having its extremities deflected out of the general plane thereof, a spring secured to and connecting the deflected extremities of the armature and
50 leaving the mid-portion of the armature free of all support, and a central support for said spring.

In testimony whereof I hereunto set my hand in the presence of two witnesses.

PETER C. BURNS.

In the presence of—

FORÉE BAIN,
MARY F. ALLEN.