No. 835,183. PATENTED NOV. 6, 1906.

H. W. EDEN.

ELECTRIC BELL.

APPLICATION FILED DEC. 26, 1905.

Fig. 2.

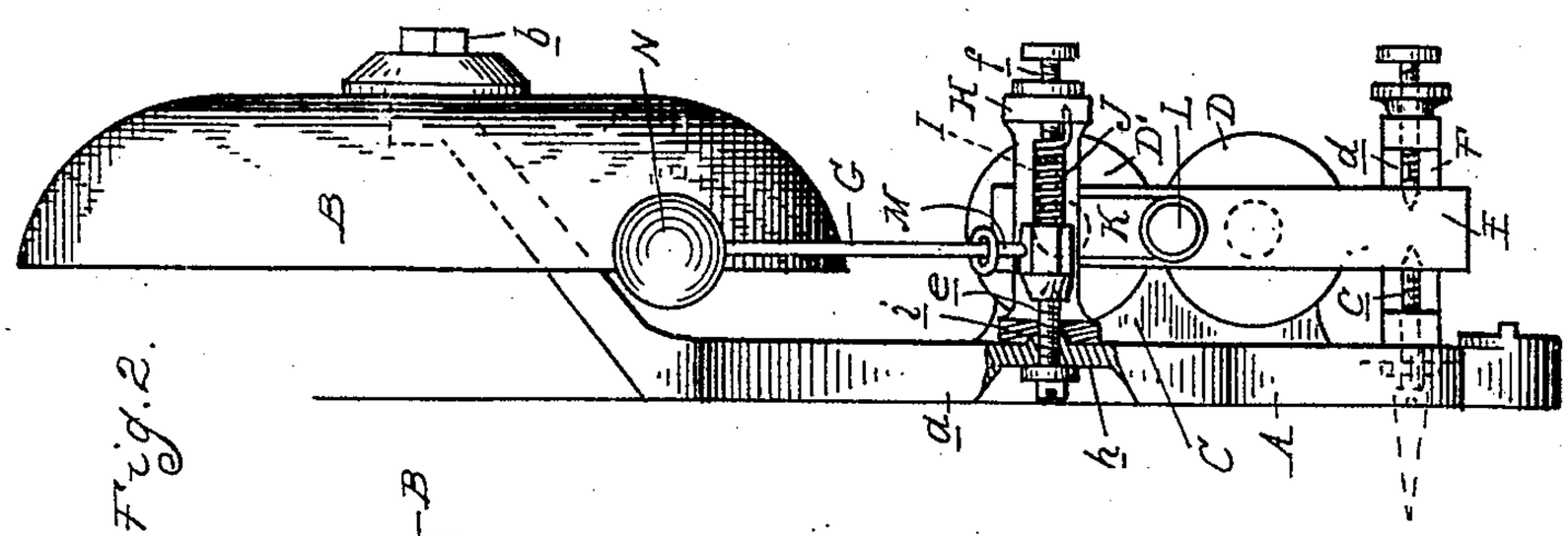


Fig. 1.

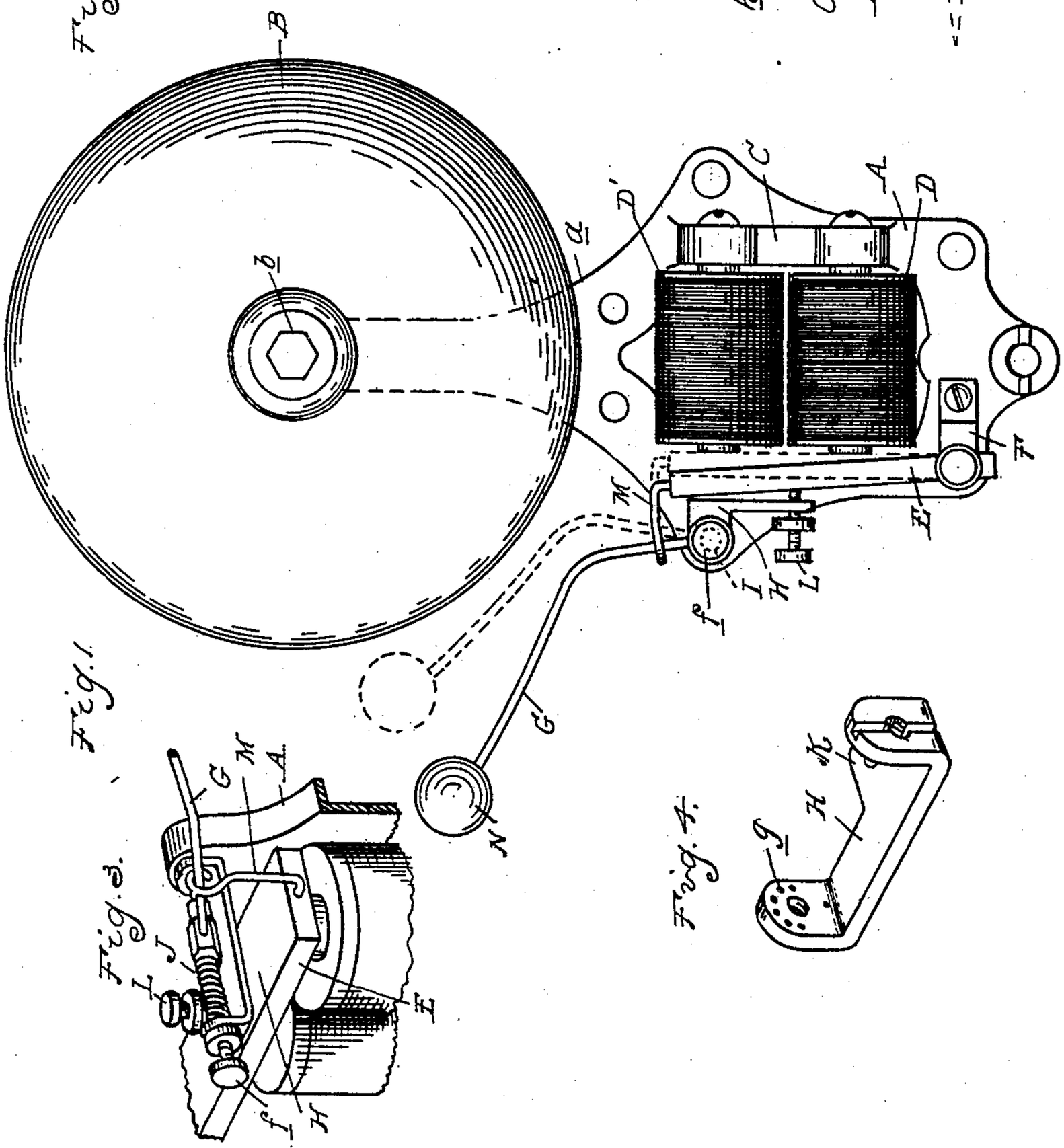
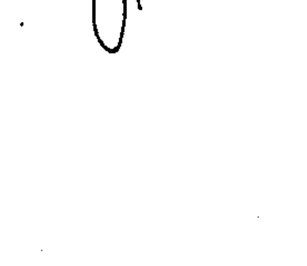


Fig. 3.

Fig. 4.



Witnesses
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UNITED STATES PATENT OFFICE.

HAROLD W. EDEN, OF DETROIT, MICHIGAN, ASSIGNOR, BY MESNE ASSIGNMENTS, TO P. R. MANUFACTURING COMPANY, OF DETROIT, MICHIGAN, A CORPORATION OF MICHIGAN.

ELECTRIC BELL.

No. 835,183. Specification of Letters Patent. Patented Nov. 6, 1906.

Application filed December 26, 1905. Serial No. 293,295.

To all whom it may concern:

Be it known that I, HAROLD W. EDEN, a citizen of the United States of America, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Electric Bells, of which the following is a specification, reference being had therein to the accompanying drawings.

The invention consists in certain features of construction, as hereinafter set forth.

In the drawings, Figure 1 is a front elevation of my improved bell. Fig. 2 is a sectional side elevation thereof. Fig. 3 is a perspective view illustrating the connection between the armature and the bell-striker; and Fig. 4 is a perspective view of the post in which the bell-striker is pivoted and to which the adjustable stop is attached.

A is a suitable base or wall plate having an upwardly and outwardly extending arm *a*, to which the gong B is attached, as by the tap-bolt *b*.

C is a lug projecting outward from the base A and constituting a bridge for connecting the cores of the two electromagnet-coils D D′.

E is the armature, which is pivotally secured in a bracket F, attached to the lower portion of the base, preferably by the pointed screws *c d*, engaging recessed centers in the armature.

The hammer or bell-striker G is separate from the armature and is pivotally secured in a bracket H, attached to the base A. This bracket is located at a point near the upper end of the magnet and adjacent to the free end of the armature E. The hammer or striker is attached to a rock-shaft I, which is pivoted in point-bearings formed by the pointed screws *e f* in the bracket, the former also constituting a means for attaching the bracket to the base. J is a coil-spring sleeved upon the rock-shaft I, one end thereof being attached to said rock-shaft and the opposite end engaging one of a series of apertures *g* at the end of the bracket H, thereby permitting of adjusting the tension of the spring by shifting its engagement from one aperture to another. The bracket H is provided with a laterally-extending arm K, preferably formed integral therewith, and L is an adjustable stop which engages a threaded aperture in this arm and extends into contact with the armature in retracted position. The free end of the armature is provided with a link M, preferably formed of wire, which extends laterally to the hammer G and is provided with an eye for engaging the latter. This eye is elongated sufficiently to provide a lost motion, so that the hammer when actuated by the armature is free to continue its movement by its own momentum and after the limit of movement of the armature is reached. Thus the parts may be adjusted so that the position of the hammer when drawn inward by the armature and when the latter has reached its point of reversal will be as indicated in dotted lines in Fig. 1, where the hammer-ball is spaced a considerable distance from the gong. When, however, the hammer is actuated by the movement of the armature under the pull of the magnet, the momentum acquired in its initial movement will be sufficient to carry it onward beyond this point so as to strike the gong, while the lost motion in the link will permit a quick rebound and will avoid deadening the sound.

It is to be observed that the armature and hammer both constitute levers of the third class which are connected in compound—*i. e.*, the power is applied to the armature between the fulcrum and its point of attachment to the hammer—and this point of attachment to the hammer is between the fulcrum and the striking-ball N at the free end thereof. Furthermore, the point of attachment of the link M to the hammer is so close to the fulcrum as to make a very material increase in the amplitude of movement imparted to the hammer over that of the armature. Thus a clear ringing tone is produced, even where the movement of the armature is very slight.

The post H, together with the arm K thereof, in which the adjustable stop L is secured, may be formed from sheet metal struck up into the shape shown, and to hold it in position, so as to prevent turning, a lug *h* is formed on the cast base, which engages a groove *i* in the base of the post.

The spring J not only returns the hammer, but also retracts the armature, and its arrangement about the axis of the rock-shaft I

is a convenient one and one favorable to ease and adjustment and a quick operation of the hammer.

What I claim as my invention is—

1. In an electric bell, the combination with a gong and an electromagnet, of a vibratory armature, an independently-pivoted hammer and a connection between said armature and hammer adjacent to the pivot of said hammer whereby a compound lever of the third class is formed which is actuated by the magnet in a direction to strike the gong.

2. In an electric bell, the combination with a gong and an electromagnet, of a vibratory armature, a hammer independently pivoted near the free end of said armature and a lost-motion connection between said armature and hammer, whereby a compound lever of the third class is formed which is initially actuated by the magnet in a direction to strike the gong, the blow being delivered by the momentum of the hammer.

3. In an electric bell, the combination with a gong and an electromagnet, of an armature pivoted at one end, a hammer pivoted at a point adjacent to the free end of said armature, a link connecting said armature and hammer between the fulcrum of the latter and its striking end and providing lost motion to permit an independent movement of the hammer and a spring actuating said hammer to return the same and retract the armature.

4. In an electric bell, a vibratory armature, an independently-pivoted hammer, a rock-shaft to which said hammer is secured, a link connecting the free end of said armature to said hammer between the fulcrum and free end thereof and a coil-spring on said rock-shaft for returning said hammer and armature.

5. In an electric bell, the combination with a base, of a vibratory armature pivotally secured thereto, an independently-pivoted hammer, a post secured to said base, a rock-shaft to which said hammer is secured, pivoted in said post, a link connecting said armature and hammer and an adjustable stop secured to said post and extending into contact with said armature.

6. An electric bell comprising a base, a gong secured thereto, a pair of electromagnet-coils, a lug integral with said base forming the bridge connecting the cores of said coils, an armature pivoted at its lower end to said base and extending in proximity to the poles of said magnet, a hammer independently pivoted near the free end of said armature, a post in which said hammer is pivoted, an adjustable stop secured in said post and extending toward said armature and a link connecting the free end of said armature with said hammer.

In testimony whereof I affix my signature in presence of two witnesses.

HAROLD W. EDEN.

Witnesses:
EDWARD D. AULT,
JAMES P. BARRY.