

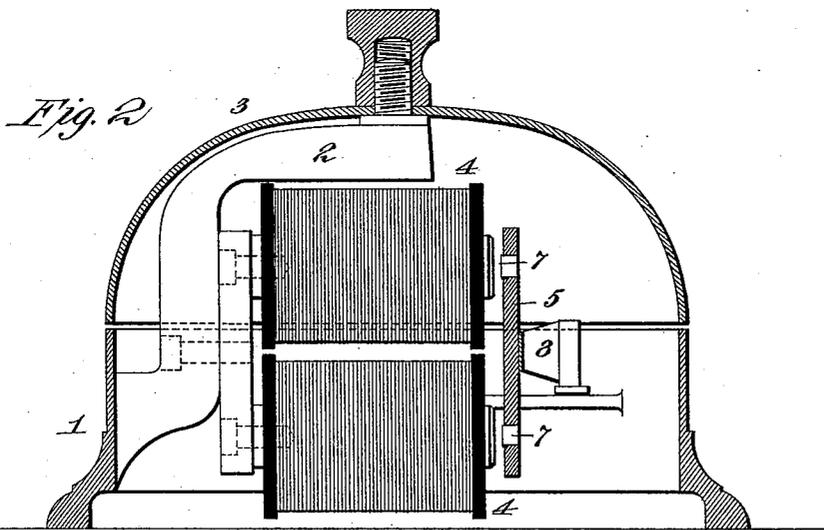
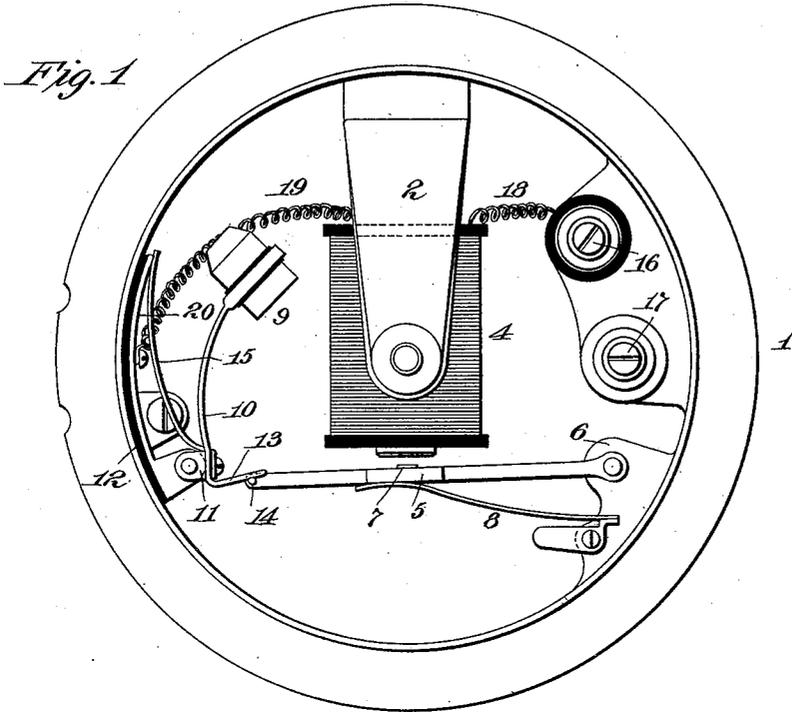
No. 636,069.

Patented Oct. 31, 1899.

D. ROUSSEAU.
ELECTRIC BELL

(Application filed July 21, 1899.)

(No Model.)



Witnesses:

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UNITED STATES PATENT OFFICE.

DAVID ROUSSEAU, OF NEW YORK, N. Y., ASSIGNOR TO CHARLES M. HIGGINS, OF SAME PLACE.

ELECTRIC BELL.

SPECIFICATION forming part of Letters Patent No. 636,069, dated October 31, 1899.

Application filed July 21, 1899. Serial No. 724,593. (No model.)

To all whom it may concern:

Be it known that I, DAVID ROUSSEAU, a citizen of the United States, residing in the borough of Bronx, city of New York, county and State of New York, have invented a certain new and useful Improvement in Electric Bells, of which the following is a description.

The object of my invention is to produce a vibrating or single-stroke bell in which the operating parts, circuit terminals, &c., are arranged within the bell and supporting-base. In bells of this type it is difficult to so arrange the bell-hammer that it will strike a square blow. I obviate this difficulty by pivoting the bell-hammer close to the supporting-base of the bell independently of the armature, the latter acting upon a short arm projecting from the bell-hammer, and by this means a short movement of the armature produces a comparatively long movement of the bell-hammer, thus imparting a sharp blow to the bell. By this arrangement I also avoid the employment of the usual form of stationary and movable spring-contacts commonly employed in vibrating bells. In my improved form of bell of that type the circuit is broken at the short arm of the bell-hammer and the free end of the armature, and the arrangement is such that when the magnet is energized and attracts its armature the degree of contact is increased instead of decreased, as is the case in bells as heretofore constructed. Furthermore, in my improved arrangement a good rubbing contact is obtained between the armature and bell-hammer, thus maintaining clean contact-surfaces. These two features are important for the reason that they result in great economy in battery power.

A further object of my invention is to provide an electric bell which shall be very compact in its make-up, composed of few parts, cheap in construction, durable in use, and wherein a superior order of vibration will be secured.

In order that my invention may be better understood, attention is directed to the accompanying drawings, forming a part of this specification, and in which—

Figure 1 is a plan view with the gong removed, and Fig. 2 a vertical sectional view.

In both of the above views corresponding

parts are represented by the same numerals of reference.

1 represents a circular base provided with a bracket 2, which carries the gong 3. The dimensions of these elements may be such as to give the appearance of the ordinary well-known hand-operated desk-bell.

4 4 are the magnet-coils, with which cooperates an armature 5, pivoted upon a bracket 6 on the base 1. The armature 5 is provided with non-magnetic buttons 7, which in operation come into actual contact with the polar faces of the magnet and which prevent the armature from sticking to the poles, due to the residual magnetism, as is well understood. These buttons also serve as stops for the armature, whereby the proper stroke is given to the bell-hammer. Instead of buttons 7 any other limiting-stops may be employed. A spring 8 limits the retracted movement of the armature and also acts as a cushion for it.

9 is the bell-hammer, carried by an arm 10 and preferably insulated therefrom, as shown, said arm being pivoted on a bracket 11, insulated from the base 1 by a layer of insulating material 12, as illustrated. The arm 10 is provided with a right-angled extension or arm 13, which engages a pin 14 on the end of the armature 5. The pin 14 is formed, preferably, of non-corrosive metal, so as to give a good electrical contact with the extension 13. In practice arm 13 will make contact with the free end of armature 5, and the contact-points will be of non-corrosive metal. The arm 10 is normally retracted to hold the extension 13 in normal engagement with the pin 14 by a spring 15. Two binding-posts 16 and 17 are employed, the former being insulated from and the latter connected electrically to the base 1. A wire 18 connects the binding-post 16 with the coils 4 4, and a wire 19 connects said coils with the plate 20, on which the bracket 11 is formed. The circuit through the pole will therefore be traced from binding-post 16, wire 18, coils 4, wire 19, plate 20, bracket 11, extension 13, pin 14, armature 5, base 1, and binding-post 17.

In operation it will be observed that the closure of the circuit at the push-button will energize the coils 4, attracting the armature 5 until the non-magnetic buttons 7 engage

the polar faces, thereby arresting the movement of the armature. The hammer 9 will, however, continue in its movement by reason of the momentum given to it by the attraction of the armature and will strike the gong 3. This further movement of the hammer breaks the circuit between the extension 13 and the pin 14, freeing the armature 5. After the gong has been struck spring 15 returns the hammer, and as arm 13 strikes pin 14 armature 5 is moved away from the magnet, the force of the blow being cushioned by spring 8. This spring back-stop for the armature may, if desired, be adjustable. A rigid adjustable stop might also be employed; but the spring is preferred to prevent the hammering of the parts and to guard against a rebound of the bell-hammer when arm 13 strikes pin 13, which would cause a premature break in the circuit. The magnet being again energized, the armature will be actuated again and the movements explained will be repeated.

It will be observed that in operation the pin 14 will slide slightly upon the extension 13, so that a rubbing contact will be obtained which will be always kept bright and capable of good electrical conductivity.

Having now described my invention, what I claim as new, and desire to secure by Letters Patent, is as follows:

1. In an electric bell, the combination of the coil, the pivoted armature therefor, a pin carried by said armature, a hammer with which said pin engages, whereby in operation the pin will actuate the hammer and simultaneously move laterally with respect to the same, an electric circuit extending through the coil and adapted to be broken between said pin and hammer, a spring for returning the hammer to its normal position, and a spring for limiting the return movement of the armature, substantially as set forth.

2. In an electric bell, the combination with a base and a gong carried thereby, of the coil, an armature therefor pivoted to said base, a pivoted bell-hammer, a support for the pivot of the bell-hammer carried by but insulated from said base, an extension carried by the hammer and with which the armature normally engages, an electric circuit extending through the coil, hammer and armature, and a spring for returning the hammer to its normal position, said spring engaging with said insulated support, substantially as set forth.

This specification signed and witnessed this 14th day of July, 1899.

DAVID ROUSSEAU.

Witnesses:

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