No. 846,227. PATENTED MAR. 5, 1907.

D. MENDELSON.

ELECTRIC MOTOR.

APPLICATION FILED JAN. 25, 1907.

Fig. 1

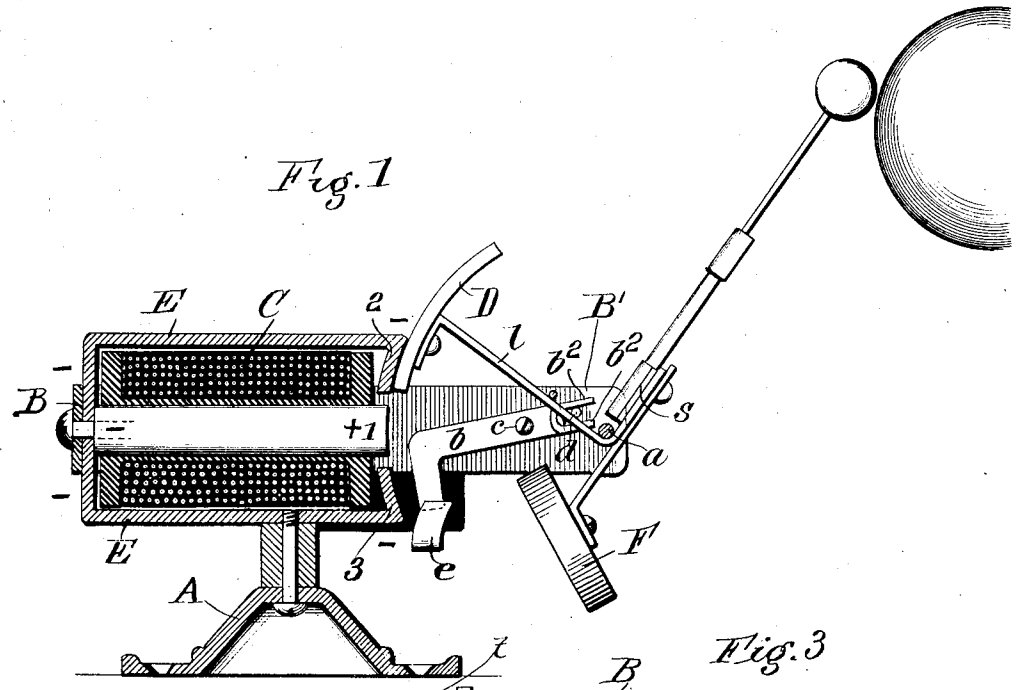


Fig. 3

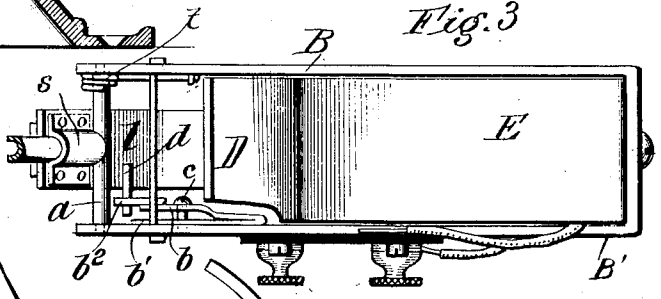
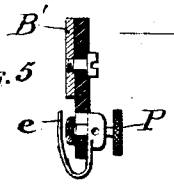


Fig. 2

Fig. 4

Fig. 5



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ELECTRIC MOTOR.

No. 846,227. Specification of Letters Patent. Patented March 5, 1907.

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To all whom it may concern:

Be it known that I, DAVID MENDELSON, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have made certain new and useful Improvements in Electric Motors, of which the following is a specification.

My invention is in the nature of an electric motor of the vibrating type designed, chiefly, to be used in small installations for advertising purposes, but applicable also to other uses; and it consists in the novel construction and arrangement of the motor parts with special reference to securing a large effective power in a relatively small motor, as hereafter fully described with reference to the drawing, in which—

Figure 1 is a side elevation, partly in section, showing one application of the same for ringing a bell. Fig. 2 is a side view from the opposite side, showing another application of the same for advertising purposes. Fig. 3 is a plan view. Fig. 4 is a detail in perspective of the circuit-closing device, and Fig. 5 is a sectional detail on line 5 5 of Fig. 2.

In the drawing, A represents any suitable base-stand, on which is mounted a horizontal electromagnet C. The electromagnet is contained within a U-shaped iron bar E, supported upon the stand A and having attached to its outer end a horizontal U-shaped brass frame B B′, which extends some distance past the inner end of the electromagnet.

Between the frame-bars B B′ there is pivotally mounted on a shaft *a* an iron armature D, whose face next to the electromagnet approaches its end very closely and is fashioned on its inner side with a convex curve conforming to the radius of the swing of the armature.

The electromagnet has at its inner end three poles—a center pole formed by the inner end 1 of the iron core of the magnet and two side poles 2 and 3, flanking the same, one being on each side of the center pole and both being of the same polarity with each other, but opposite polarity to that of the inner end 1 of the core. This result is obtained by making the two poles 2 and 3 on the inner ends of the U-shaped iron bar E, which embraces the electromagnet and has its outer or middle portion directly attached to and in magnetic connection with the outer end of the core of the electromagnet. As the outer end of the core is of opposite polarity to the inner end, the polarity of the outer end will manifest itself in the two parallel side branches or legs of the iron bar E to the extreme inner end, so that if the inner end of the core be positive then the adjacent ends 2 and 3 of the bar E will be negative, and the attractive influence of the armature on the three poles of the electromagnet will be increased and extended through a long range or amplitude of stroke of the electromagnet that gives it a much greater movement and available power.

On the inner side of one of the brass bars B′ is pivoted a switch *b b′*, formed as two divergent flat springs, one of which, *b′*, bears with a frictional contact against the inner surface of the bar B′ and the other one, *b*, of which spring bears against the inner side of the head of the pivot-screw *c* on which it is hung. The tendency of the two springs *b b′* to expand away from each other causes this double-branched switch to stay by frictional contact in any position to which it may be adjusted until positively moved again. The outer member *b* of the switch has two pins b^2 b^2, between which plays a horizontal tappet projection *d* on the armature-arm *l*, which pin *d* as the armature vibrates shifts the switch *b b′* into and out of contact with a plate *e*, which is connected to an insulated binding-post P, leading to one pole of the battery. A second binding-post P′, adapted to connect with the other pole of the battery, is connected to a wire *m*, which is one terminal of the helix of the electromagnet, and the other terminal is connected by wire *n* with the metal bar B′, so that whenever the switch *b* touches the plate *e* a circuit will be closed through the helix of the electromagnet and the poles energized to attract the armature.

The armature has on its rocking plate a socket *s*, into which detachably fits the shank of a bell-hammer, as in Fig. 1, or an index or pointer, as in Fig. 2.

To balance these parts, a counterweight F is attached to the rocking armature-frame, and to cause the position of the parts to be always ready to start working when the battery-circuit is turned on I arrange a spring *t* (see Fig. 3) about the shaft *a*, coiling it around and connecting it at one end to the shaft and connecting the other end to the frame-bar B. This spring tends to rock the

shaft *a* so as to throw the armature D up and the switch *b* down into contact with the terminal plate *e*, so that the normal position of rest is with a closed contact between *b* and *e*. This weighted arm and spring also serve to start the armatures back after having been advanced across the face of the electromagnet.

To vary the time of the closure of the circuit and adjust the length of the stroke of the armature, the contact-plate *e* is made adjustable. This is secured by making the binding-post P (which carries plate *e*) vertically adjustable, as shown by dotted lines in Fig. 2 and in sectional detail in Fig. 5.

I claim—

1. An electric motor, comprising a stationary electromagnet constructed with three poles, a vibrating armature moving about a center in front of the electromagnet across the pole-faces of the electromagnet and an automatic circuit-closing switch.

2. An electric motor, comprising a stationary electromagnet constructed with three poles having a concave face, a vibrating armature pivoted on an axis beyond the end and in front of the electromagnet and having a convex face arranged to move across the triple pole-faces and an automatic circuit-closing switch.

3. An electric motor, comprising a stand, a horizontal electromagnet constructed with three pole-faces and stationarily mounted upon the stand, a horizontal two-branched frame attached to the electromagnet and extending beyond the same, a rock-shaft arranged in bearings in the outer ends of the branches of the frame, and having a rigidly-attached and inwardly-projecting arm bearing a convex-faced armature playing across the triple pole-faces of the electromagnet and an automatic circuit-closing switch.

4. An electric motor, comprising an electromagnet having a supporting-frame, a vibrating armature with a tappet projection and a switch having two pins arranged on opposite sides of the armature-tappet, the switch being composed of two expanding flat springs binding with a frictional contact against the adjacent stationary surfaces to remain in the position to which it may be adjusted until moved again.

5. An electric motor, comprising a base, two horizontal frame-bars having between them a stationary electromagnet supported upon said base, a vibrating armature arranged in front of the poles of the electromagnet and a circuit-closing switch operated by the swing of the armature.

6. An electric motor, comprising a base, two horizontal frame-bars having between them a stationary electromagnet, an armature pivoted to swing across the end of the electromagnet, a circuit-closing switch operated by the swing of the armature and a weighted arm attached to the armature to balance same and start it back after being advanced.

7. An electric motor, comprising a vibrating armature, a fixed electromagnet, a circuit-closing switch operated by the oscillations of the armature and means for holding the circuit-closing switch closed when motor is at rest to enable it to be self-starting.

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Witnesses:
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