June 13, 1944. M. NEUNER 2,351,448

ELECTRIC APPARATUS

Filed Nov. 27, 1942

FIG. 1.

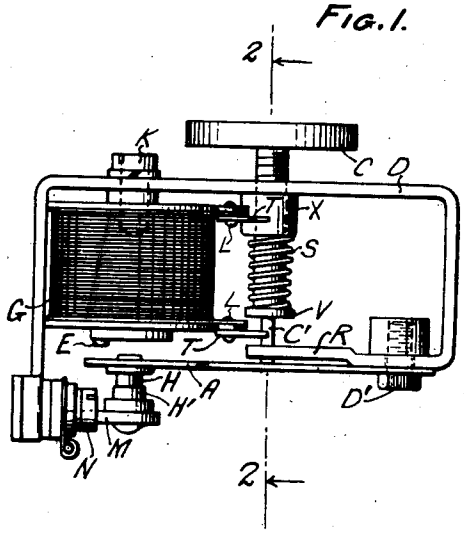
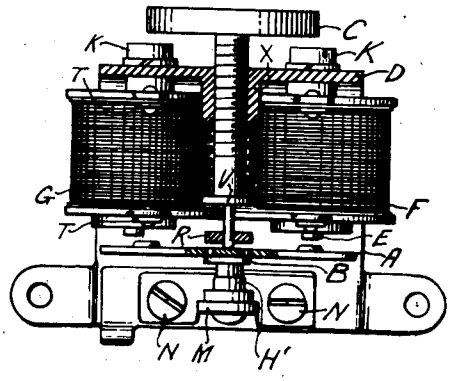


FIG. 2.



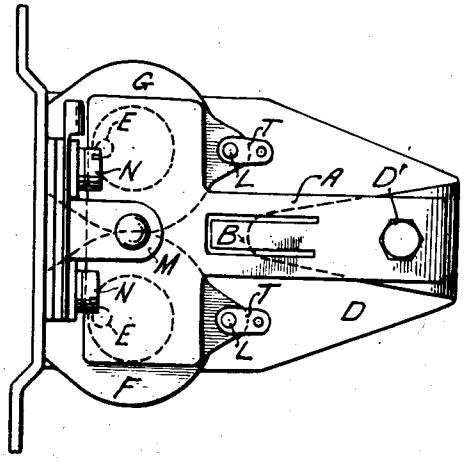


FIG. 3.

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ELECTRIC APPARATUS

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2 Claims. (Cl. 200—87)

This invention relates to electric apparatus, and particularly to electromagnetic relays.

In the illustrated embodiment the invention is readily applicable as a regulator of current or voltage for a direct current generator, but the invention is not limited to such application.

An object of the invention is to provide an improved relay of the vibratory armature class.

A further object is to provide a relay armature of novel structure.

Another object is to provide a novel control of the armature of a relay.

Another object is to provide a novel structural relationship between a relay and its armature.

A further object is to provide a novel structural relationship between a relay armature and the armature adjusting means.

These and other objects of the invention will become apparent from inspection of the following specification when read with reference to the accompanying drawing wherein is illustrated the preferred embodiment of the invention. It is to be expressly understood, however, that the drawing is for the purpose of illustration only, and is not designed as a definition of the limits of the invention, reference being had to the appended claims for this purpose.

In the drawing:

Fig. 1 is a view in elevation;

Fig. 2 is a view along line 2—2 of Fig. 1; and

Fig. 3 is a bottom plan view.

Referring to the drawing, there is provided a leaf spring type of armature A, in lieu of the usual heavy armature together with its pivotal mounting and associated coil spring. The leaf spring armature A is substantially T-shaped, and is constructed with a tongue B between the end fixed to the frame and the opposite end carrying the contact H. This tongue B is engaged by the lower end of the reduced section C' of an adjusting screw C having threaded engagement with the boss X of the frame D, in order to regulate the pressure between the grounded contact H and the insulated contact H'.

A brass button E protrudes from each of the cores F, G to prevent the armature from sticking thereto when attracted to said cores, upon passage of current through the coil windings.

The coil cores are fastened to the frame D by screws K, and the coil ends are secured to contact rivets L, as are also the terminal tabs T. The contact H' is mounted in a bracket M having a projecting lug to which the circuit lead attaches. Screws N hold bracket M to the frame, but insulation is provided between bracket and screws, also between bracket and frame.

A disc V is threaded on screw C, and a coil spring S is provided between threaded disc V and the frame boss X, to act as a resilient lock opposing any unintended shift or play of the screw with respect to its boss X.

By engaging the tongue B, rather than the main surface of the armature, the screw end C' provides the desired measure of control over the armature movement, by regulating the pressure thereon, yet without interfering with the free flexing of the armature along the region of the slots which define the tongue B. Moreover, as the end C' engages the armature tongue at a point substantially midway between support screw D' and contact H, there is provided a decidedly more sensitive degree of adjustment than would be true if the armature adjustment were made close to the hinge point, as in most prior art armatures of the pivoting type.

The frame end section R is offset from the portion adjacent the screw D', to provide a clearance between the frame and the armature and thus increase the length of the free section of the armature. If desired, the free length may be made variable by altering the shape of frame section R so as to provide a curved surface along which the armature may "wrap" itself as it moves toward the coils F, G.

Although the threaded boss X is shown as integral with the frame D, as by being welded thereto, it may alternatively be a separate piece secured to the frame mechanically, as by staking, riveting, or other pressure fit.

What is claimed is:

1. In a switch, a pair of current receiving coils, a rectangular box-shaped frame supporting said coils, a circuit terminal post mounted on said frame, said terminal post including a contact piece, a second contact piece in alignment with said first contact piece, an armature having one end secured to said frame and carrying said second contact piece at its opposite end, said armature having slots to form a tongue portion, and also having a resiliency facilitating flexing thereof toward and away from said first contact piece, and also having lateral extensions to cooperate with the magnetizable cores of said coils, and means extending from said frame to the tongue portion of said armature, and disposed between said coils to regulably apply pressure to said armature, without interfering with free flexing thereof.

2. In a switch, a current receiving coil, a rectangular box-shaped frame supporting said coil, a circuit terminal post mounted on said frame, said terminal post including a contact piece, a second contact piece in alignment with said first contact piece, an armature having one end secured to said frame and carrying said second contact piece at its opposite end, said armature having slots to form a tongue portion, and also having a resiliency facilitating flexing thereof toward and away from said first contact piece, and positioned to cooperate with the magnetizable core of said coil, and means extending from said frame to the tongue portion of said armature to regulably apply pressure to said armature, without interfering with free flexing.

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