

Dec. 20, 1955

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ELECTROMAGNET ADJUSTING MEANS

2,728,033

Filed July 16, 1951

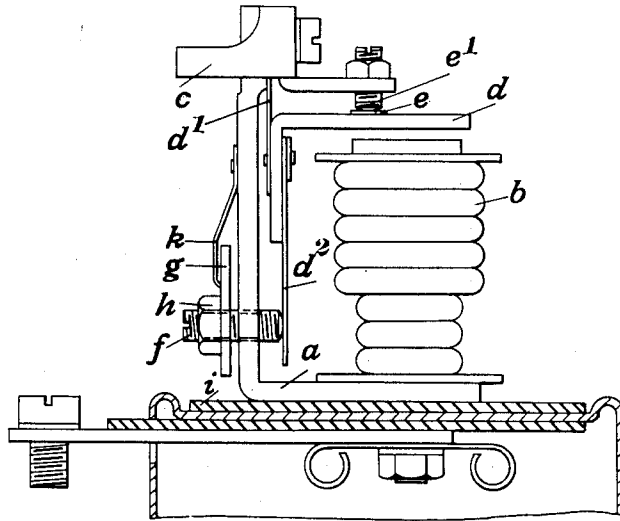


Fig. 1

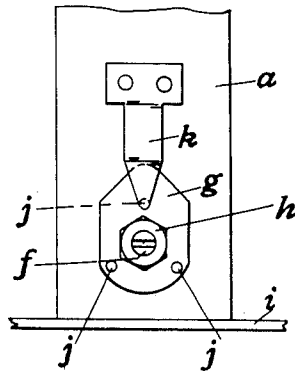


Fig. 2

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ELECTROMAGNET ADJUSTING MEANS

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Application July 16, 1951, Serial No. 236,961

Claims priority, application Great Britain August 10, 1950

1 Claim. (Cl. 317—176)

This invention relates to electromagnets, and particularly the electromagnets used in vehicle-dynamo regulators of the kind consisting in part of a spring-loaded and magnetically operable armature.

The object of the invention is to enable the user to vary the action of the spring within predetermined limits.

The invention comprises the combination with a spring-adjusting screw, of a screw-actuating member rotatable through a limited angle, and a catch for securing the said member in any of a series of predetermined positions.

In the accompanying drawings, Figure 1 is a side elevation and Figure 2 a fragmentary end view, of an electromagnet provided with the invention.

A conventional form of electromagnet for use in a vehicle-dynamo voltage or current regulator, comprises an iron member *a* of right-angle form. On the base of this member is secured one end of an iron core carrying the winding *b*, the core being situated parallel with the side part of the said member. To the upper end of the said part is secured by a clamp *c* one end of a spring in the form of a blade to which is secured an iron armature *d* extending across the upper end of the core and movable by magnetic attraction against the action of the spring. The armature carries, or is adapted to actuate, a movable contact *e* which co-operates with a fixed contact *e*¹.

In the example shown the spring is made from two parts *d*¹*d*² which at opposite ends extend from the armature. One of the parts is secured by the clamp *c*, and the other is attached at its upper end to the armature, the lower end extending to near the base of the iron member *a*. Alternatively the spring may be made in one piece, the armature being secured to one side of it.

The force exerted by the spring is adjustable by a screw *f* inserted through the side part of the member *a* and acting on the free end of the spring. The adjustment of the spring action is usually effected by the maker, so that the armature can be moved by the magnet only when a given current passes through, or a given voltage is applied to, the winding.

In some regulators one magnet is responsive to the current generated by the dynamo, and another is responsive to the dynamo voltage. It is sometimes required that the user shall be able to modify the action of either the "current" or the "voltage" magnet within certain limits, but more usually the "current" magnet,

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and the present invention is designed to meet this requirement.

In carrying the invention into effect, there is mounted on the spring-adjusting screw an adjusting member *g* which is securable to the screw *f* by a lock nut *h*. This member is conveniently in the form of a plate of non-circular shape as shown so that when turned through a given angle at either side of its central position its peripheral part can encounter a stop for limiting its movement. The base *i* of the apparatus on which the magnet is mounted may serve as the stop. Alternatively stop pieces may be formed on or secured to the iron side part *a* of the magnet. In the said adjusting member are formed three or more holes *j* or notches engageable by a spring detent *k* secured to the said side part.

The arrangement is such that the manufacturer makes the initial adjustment of the screw, so that the armature will respond when a given current passes through the winding. Having made this adjustment the adjusting member *g* on the screw *f* is suitably located in, for example, its central position, and is secured to the screw by the lock nut *h*, the screw being held against accidental movement by engagement of the detent *k* with the said member. If at any time the user desires to vary the adjustment, he can do so by rotating the adjusting member to one side or the other of the initial position, and causing another hole *j* or notch corresponding to some other definite current value to be engaged by the detent.

Whilst the invention is more usually required for adjusting the "current" magnet, it may likewise be used for adjusting the "voltage" magnet. Also it may be applied to electromagnets for other analogous purposes, where it is required that a limited adjustability shall be available to the user.

Having thus described our invention what we claim as new and desire to secure by Letters Patent is:

An electromagnetic device comprising in combination an electromagnet having a magnetically operable armature, blade spring means secured to and extending at opposite ends from the armature, a support to which the armature is connected by one of the extending end portions of the spring means, a spring-adjusting screw mounted on the support and acting on the other extending end portion of the spring means, a screw-actuating plate mounted on the screw and rotatable through a limited angle, stop means for determining the angle through which the screw-actuating plate is rotatable, a lock nut for securing the plate on the screw, and a catch mounted on the support and adjustably engageable with the plate for securing the latter in any of a series of predetermined positions.

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