April 9, 1929. J. GEISSLINGER 1,708,014

ELECTROMAGNET

Filed Aug. 29, 1927

Fig. 1

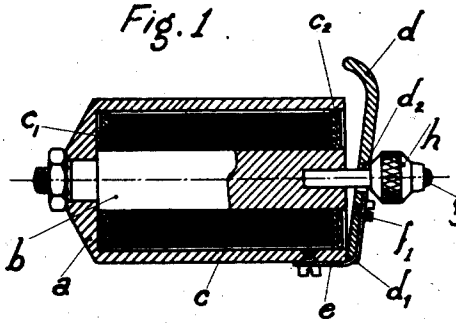


Fig. 2

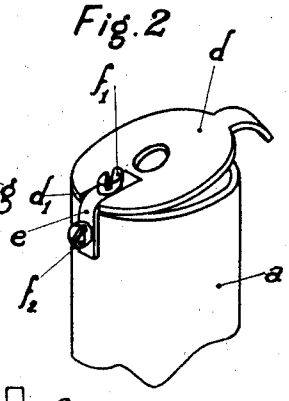


Fig. 3

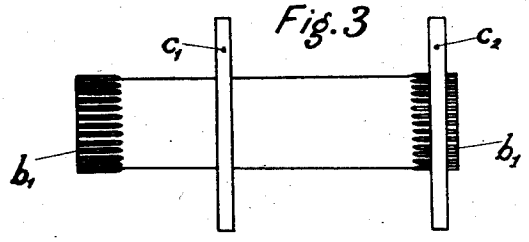


Fig. 5

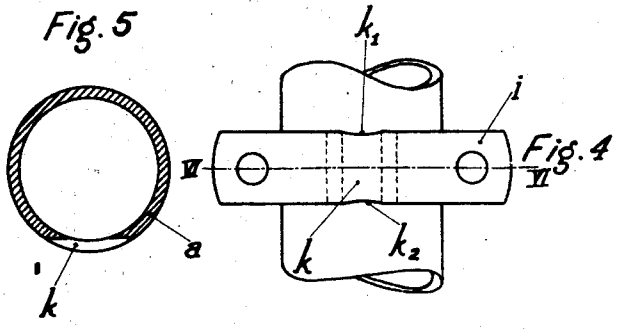


Fig. 4

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UNITED STATES PATENT OFFICE.

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ELECTROMAGNET.

Application filed August 29, 1927, Serial No. 216,235, and in Switzerland September 3, 1926.

My invention relates to an electromagnet of the kind often used in relays where the coil bearing core is arranged in the interior of a shell and the armature forms the cover of this shell so as to make use of the total magnetic flux.

It has for its object to provide an electromagnet of this class more particularly adapted for use of controlling small appliances, such as clockworks with electrical driving, where little space requires small dimensions, but nevertheless a certain electromagnetic capacity is wanted.

The invention consists substantially in the combination and arrangement of parts hereinafter described and illustrated in the accompanying drawings in which: Fig. 1 is a longitudinal section of the electromagnet, Figs. 2 to 5 show some detail parts.

The body of the electromagnet is formed by a shell a made of wrought iron; in the direction of the centre line of the shell is arranged the wrought iron yoke or core b, screwed on the shell. The coil c is arranged around the core b between the two insulating discs c^1 and c^2. The armature d consists of a circular plate which is flexibly connected with the edge of the shell so that it can cover the open face of the shell. When the electromagnet is excited, the armature is attracted and leaning against the annular edge of the shell, the total flux flowing from the core b to the shell a serves to keep the armature d tight on the shell. When the electromagnet is not excited, the armature has to stand off from the shell; the separation is generally made by an opposing spring. In the present invention this spring e (Fig. 2) is formed by a piece of spring steel bent in a right angle, one arm being attached with the screw f^1 to the armature, and the other arm with the screw f^2 to the shell; the centre part of the opposing spring e is lying in a notch d_1 on the armature d. It is obvious that the spring e serves to connect the armature with the shell as well as to separate these two parts when the electromagnet is deenergized.

A spindle g is disposed in the direction of the centreline of the core b. It penetrates through a hole in the armature and serves to guide this latter in its motion. The end of the spindle g is threaded and carries a nut h to regulate the play of the armature.

Fig. 3 illustrates a simple and reliable way to fasten the insulating discs c^1 and c^2 on the core b. First the discs are pushed towards the centre of the core and then small grooves b_1 are stamped on the extremities of the core, these grooves being the deepest on the outside and decreasing towards the centre of the core; in this way the extremities get thicker than the centre part of the core. Finally the discs are forced over these grooved ends so that they are securely fastened thereon.

In Fig. 4, i illustrates a saddle with which the electromagnet is fastened to its support. The saddle is inserted in a notch k on the shell a and the two edges of the notches k^1 and k^2 are flanged over the saddle. In Fig. 5 representing a section through line VI—VI of Fig. 4, the saddle is removed and the notch k can be seen.

I claim:

1. In an electromagnet consisting of a shell and a core in the direction of the centre line of the shell and of an armature forming the shell cover, the combination of a spring blade forming a flexible connection of the armature with the shell, one arm of said spring blade being attached to the armature and the other arm to the shell, and a spindle in the direction of the centre line of said shell, said spindle penetrating through a hole in the armature and provided with an adjustable stop, the spindle being adapted to guide the armature in its motion and the stop adapted to limit the play of the armature.

2. An electromagnet according to claim 1 in which said spring blade is inserted in a notch in the armature and is screwed together with the armature.

3. An electromagnet according to claim 1, in which said shell is provided with a saddle adapted to attach the electromagnet to its support, said saddle being inserted in a notch of the shell of which the edges are flanged over the saddle in order to secure the saddle on the shell.

In testimony whereof I affix my signature.

JEAN GEISSLINGER.