PATENT SPECIFICATION

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Complete Accepted: Oct. 18, 1928.

COMPLETE SPECIFICATION.

Electromagnet.

We, SCHILD & Co., of 137, rue du Parc, La Chaux-de-Fonds, Switzerland, a body corporate organised under the laws of Switzerland (Assignees of JEAN GEISSLINGER, of 16, Quai du Cheval Blanc, Geneva, Switzerland, a citizen of the German Republic) do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention relates to an electromagnet of the type 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.

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

The invention consists in an electromagnet of the type comprising a coil bearing core in the interior of a shell and an armature forming the cover of the shell and being flexibly connected to the shell by means of a spring blade, the free end of the core being provided with an axially extending spindle penetrating a hole in the armature for guiding the same in its reciprocating motion, characterised in that the said spindle carries a nut forming an adjustable stop permitting to vary the extent of motion of the armature.

The accompanying drawing illustrates one embodiment of the invention.

Figure 1 is a longitudinal section through the electromagnet according to the invention,

Figures 2 to 5 show detail parts thereof.

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 *a*. 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 antagonistic spring. In the present invention this spring *e* (Fig. 2) is formed by an elastic blade bent in a right angle, one branch being attached with the screw f^1 to the armature, and the other branch with the screw f^2 to the shell; the centre-part of the antagonistic 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 gets in position of rest.

A spindle *g* is disposed in the direction of the centreline of the core *b*. It penetrates through a hole d^2 of the armature d^1 and serves to guide this latter in its reciprocating motion. The end of the spindle *g* is threaded and carries a nut *h* to regulate the play of the armature.

In order to fasten the insulating discs c^1 and c^2 in a simple and reliable way on the core *b* (see Fig. 3) the two discs are pushed towards the centre of said core and then small grooves b^1 are stamped on the extremities of the core by a knurling machine, the depth of the grooves decreases towards the centre and the grooves cause an increase of the diameter of the said extremities, after which operation the discs c^1 and c^2 can be forced on these extremities.

i illustrates a saddle (see Fig. 4) 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 notch k^1 and k^2 are flanged over the saddle. In Fig. 5 representing a section through VI—VI of Fig. 4, the saddle is removed and the notch *k* can be seen.

Having now particularly described and ascertained the nature of our said invention and in what manner the same

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is to be performed, we declare that what we claim is:—

1. An electromagnet of the type comprising a coil bearing core arranged in the interior of a shell and an armature forming the cover of the shell and being flexibly connected to the shell by means of a spring blade, the free end of the core being provided with an axially extending spindle penetrating a hole in the armature for guiding the same in its reciprocating motion, characterised in that the said spindle carries a nut forming an adjustable stop permitting to vary the extent of motion of the armature.

2. An electromagnet according to Claim 1, wherein the coil is held on the core by means of two insulating discs, characterised in that the two ends of the core have grooves pressed therein to enlarge the diameter of the ends and the discs being forced from the middle part of the core on the grooved ends.

Dated this 2nd day of September, 1927.
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Fig. 1.

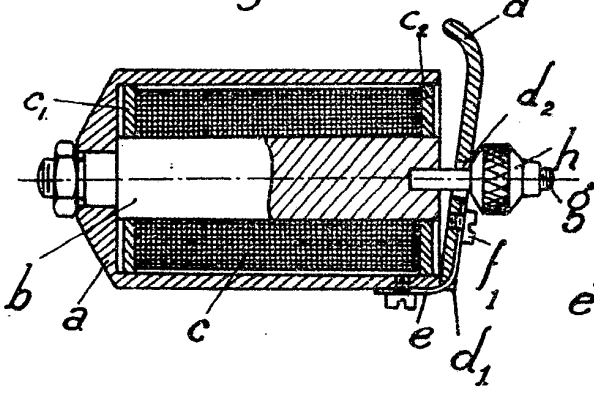


Fig. 2.

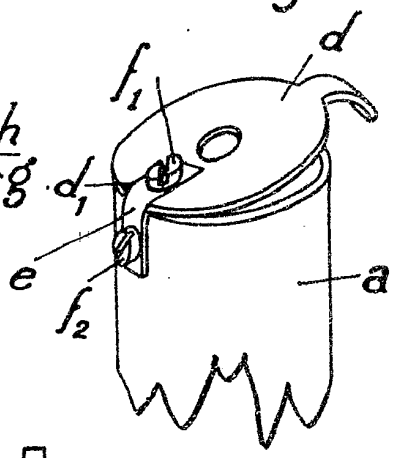


Fig. 3.

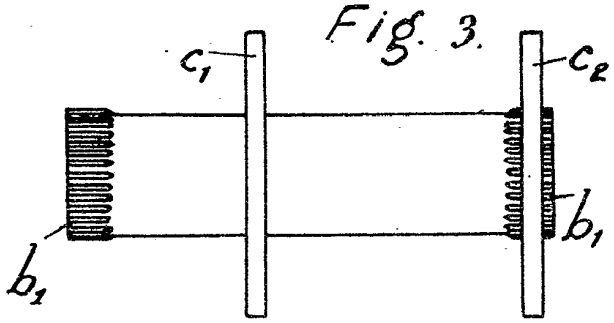


Fig. 5

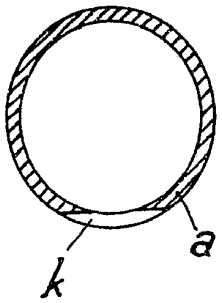
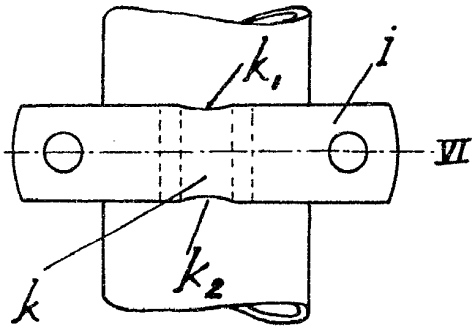


Fig. 4.



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