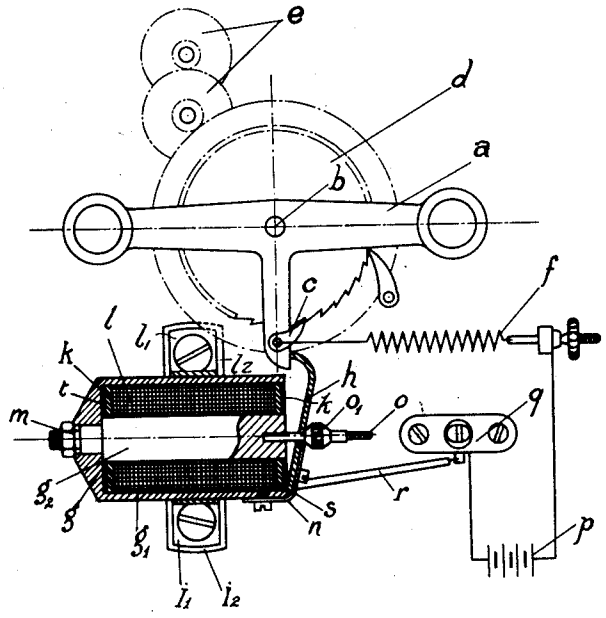
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ELECTRIC WINDING-UP DEVICE FOR CLOCKWORKS

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ELECTRIC WINDING-UP DEVICE FOR CLOCKWORKS

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The present invention relates to an electric winding up device for clock-works of the type comprising a driving member operated by a driving spring and an electro-magnet the armature of which stretches this driving spring, and in which the driving member and the armature form the switch for the circuit of the electromagnet.

The invention has for its object to provide a device of the type indicated of simplified construction, decreasing the space occupied and therefore more particularly adapted for use with small clocks, and one pole of the source of current such as are for instance employed in automobiles.

The winding-up device according to the present invention consists of a driving member connected to the body of the apparatus, i. e. the clock, while the frame of the electromagnet, insulated from the apparatus is connected to the other pole of the source of current and the armature is arranged in such a way that the current can flow from the core of the magnet directly to the armature.

The accompanying drawing illustrates by way of example a practical embodiment of the invention.

The balance a swinging round the axle b is provided with a pawl c, engaging the ratchet wheel d which forms the first member of the driven gears e and is provided with the brake not shown on the drawing. f is the driving spring, g the electromagnet and h the armature. The electromagnet g is fastened with a saddle i^1 to the insulating plate i^2 which is supported by the body of the apparatus. The shell g^1 and the core g^2 are provided with the two insulating discs k which hold the core l. The core g^2 has one of its ends threaded, on which is screwed the nut m provided to secure the core g^2 with the coil l in the interior of the shell g^1. The armature h arranged to form the cover of the shell is connected to this latter by a spring blade n, adapted to serve simultaneously as hinge and as reciprocating spring. o is a spindle adapted to guide the armature and o^1 is an adjustable stop with which the play of the armature can be regulated.

When the electromagnet is excited, the armature h drives the balance a in clockwise direction, as seen on the drawing and stretches the driving spring f until the armature comes to lean against the shell g^1. The balance a owing to its kinetic energy keeps on turning and when not in contact with the armature, opens the circuit of the electromagnet. In this moment the antagonistic spring n drives the armature back in its position of rest, while the driving spring f pulls the balance a in counter-clockwise direction, as seen on the drawing, and the latter with the pawl c turns the ratchet wheel.

One pole p of the source of current is connected to the body of the apparatus and therefore also with the balance a. The other pole is connected to the fixed terminal q from which a solid connecting wire r leads through an opening in the shell g^1 to the interior of the shell and is there connected to the coil l. On the opposite side of the latter, the bare end t of the wire penetrates through the insulating disc and is lying between this latter and the inner surface of the back wall of the shell g^1. When the nut is tightened, the wire is pressed against this inner surface; this arrangement makes soldering of the wire superfluous and therefore simplifies the insertion and removal of the coil. The electric current flows thereby from the coil l first to the shell g^1, then to the spring blade and finally to the armature h.

I claim:

1. The combination with a spring actuated oscillating lever, of an electromagnet, an armature cooperating with said lever for re-energizing said spring, said armature and said lever forming cooperating contact pieces to open and close the circuit of the electromagnet, said electromagnet including a wind-

ing placed in the interior of a shell insulated from said lever, and an opposing spring forming a hinge for connecting said armature to said shell, one end of said winding being connected to said shell thereby permitting the current to flow from the shell to the opposing spring and then to the armature.

2. In an electric winding-up device for clock-works comprising a driving member, operated by a driving spring and an electromagnet, of which the armature stretches the driving spring and in which the driving member and armature form the switch for the circuit of the electromagnet, the combination of the driving member connected to the body of the apparatus, an electromagnet insulated from said body, the driving member being connected to one pole of the source of current, an electromagnet connected to the other pole of the source of current, and a spring hinging the armature and opposing the driving spring, said armature being connected to the frame of the electromagnet so that the current flows directly from the frame to the armature.

3. In an electric winding-up device for clock-works comprising a driving member, operated by a driving spring and an electromagnet, of which the armature stretches the driving spring and in which the driving member and armature form the switch for the circuit of the electromagnet, the combination of the driving member connected to the body of the apparatus, an electromagnet insulated from said body, the driving member connected to one pole of the source of current, an electromagnet connected to the other pole of the source of current, a spring hinging the armature and opposing the driving spring, said armature being connected to the frame of the electromagnet so that the current flows directly from the frame to the armature, and means for guiding and regulating the movement of the armature.

In testimony whereof I affix my signature.

JEAN GEISSLINGER.