N° 10,960 A.D. 1901

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COMPLETE SPECIFICATION.

Circuit Closing Device for the Winding Gear of Electric Clocks and the like.

I, MAX MÖLLER, of Grosse Elbstrasse, 41, Altona, (Elbe), Germany, Merchant, 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:—

The circuit closing device which is the subject of the present invention is characterized by being provided with a spring which is not under tension before or after the circuit is closed, but is under tension while the circuit is closed so as to operate in increasing the friction between the contact pieces.

The spring for increasing friction therefore only operates whilst the circuit is closed, and the friction produced by it does not check the going of the clock, not being therefore disadvantageous in that respect, the friction continues for a short time only, during which time it cannot well be dispensed with, if the contact surfaces are to remain clean and be protected against the sparking that occurs when closing the circuit owing to the shaking or concussion to which such clocks are as a rule necessarily subject.

One form of carrying the invention into practice is shown on the accompanying drawings, in which,

Fig. 1, represents an elevation;

Fig. 2, represents a perspective view; and

Figs. 3 to 6, represent detail views.

The coils of the electro magnet are marked, 1, and the pole pieces of such magnet are marked, 2, and between these the armature, 3, swings freely on a spindle, 4, in the usual manner.

On the spindle, 4, is fixed a ratchet wheel, 5, which, when the armature returns, is rotated (always in the same direction,) by a pawl, 6. The return motion of the armature is effected by the operation of a spring, 7, whilst its forward movement is produced as follows: On the armature, 3, is fixed a disc, 10, from which projects a sleeve, 9, and which has a curved contact surface, 11. On the disc is fixed, by screws, 12, a projecting angle piece, 13, at the end of which is soldered a contact piece, 14, above which there is a small pallet like projection, 15, hereinafter referred to simply as the pallet.

A narrow contact lever, 16, is mounted on a pin, 18, so as to be free to turn, on an insulated base plate, 17, in a usual manner, and is controlled by a clock spring, 20, screwed to an angle piece, 19, so that the lever, 16, always tends to turn towards the spindle, 4. At its end, the lever, 16, carries a screw, 21, for securing an adjustable contact pin, 22, which is capable of being raised or lowered in a hole drilled in the lever, 16.

Behind the contact pin, 22, a plate of insulating material, 23, is secured to the lever, 16, and to its under side screws, 24, attach a flat spring, 25, terminating in a pallet like piece, 26, which has two inclined faces, 27, and 28, which, when the clock is going, engage with the inclined faces, 29, 30, on the pallet, 15.

The operation of the circuit closing mechanism consisting of these parts, is as follows:—

After the armature, 3, has been attracted, it will assume the position shown in Fig. 2. The magnetism in the electro magnet, 1, has ceased, and by the opera-

tion of the spring, 7, the armature now slowly returns to the position shown in Fig. 1, in which the circuit is closed. In the return motion of the armtaure, the inclined face, 29, on the pallet, 15, will first strike the incline, 28, on the piece, 26, and thus cause the contact lever, 16, to be raised. When the armature goes back further, the pallet like projection, 26, lies on the pallet, 15, (Fig. 3,) the contact pin, 22, can therefore not touch the contact plate, 14. Contact between these two only takes place when the armature has been so far oscillated backwards that the projecting edge of the incline, 27, can pass the incline, 30, then the contact pin, 22, will strike the contact plate, 14. The circuit is closed and the armature, 3, is again attracted.

When the armature is attracted, the incline, 30, of the pallet, 15, presses against the incline, 27, and this and the spring, 25, assume the positions shown in Fig. 4, this increasing the friction between the contact pin and contact plate in accordance with the strength of the spring, and the parts will be maintained in that manner until the contact plate, 14, is pulled away from the contact pin, 22, at which moment the spring, 25, springs back again.

By these very simple means, the said invention attains that contact is made and broken at (locally) different points of the contact devices, that, moreover, the contact of the contact devices during the time the circuit is closed is very uniform and firm, and, that, therefore, deposit of dust upon the contact devices is harmless.

Finally, it has to be noted that the contact pin, 22, must always touch the contact plate, 14, when the lever, 16, comes into engagement even if much worn, accumulation of dust or foreign bodies cannot affect this, as when the armature goes back any accumulated dust and the like on the curved surface, 11, and the upper face of the pallet, 15, will be brushed off by the leading edge of the plate, 23, or the piece, 26. This contact device, therefore, satisfies the highest requirements that can be made in such a device as to simplicity of construction and certainty of operation.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:—

1. A circuit closing device for the winding gear of electric clocks and the like characterized by having a spring on the contact closing devices which spring is not under tension before or after the circuit is closed, but is put under tension when the armature is attracted and for the time of contact, thereby increasing the friction of the contact parts, as set forth.

2. A circuit closing device such as indicated by Claim, 1, characterized by said friction increasing spring consisting in an insulated flat spring, 25, attached to the contact lever, 16, said spring being flexed by an incline, 30, on pallet, 15, when the armature is being attracted and then maintained under tension by the pallet, so as to increase the pressure whilst the circuit is closed by the contact pin, 22, pressing on the contact plate, 14.

Dated this 28th day of May, 1901.

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MÖLLER'S Complete Specification. (1 SHEET)

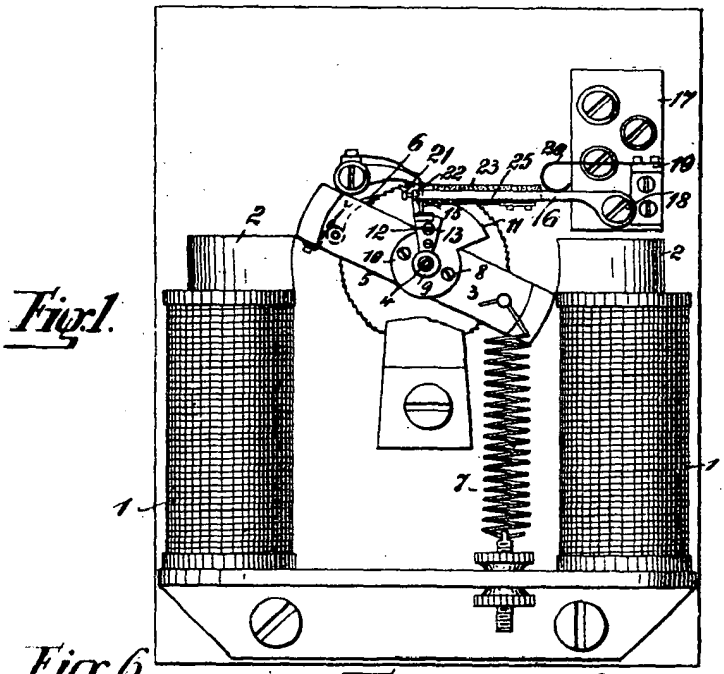

Fig. 1.

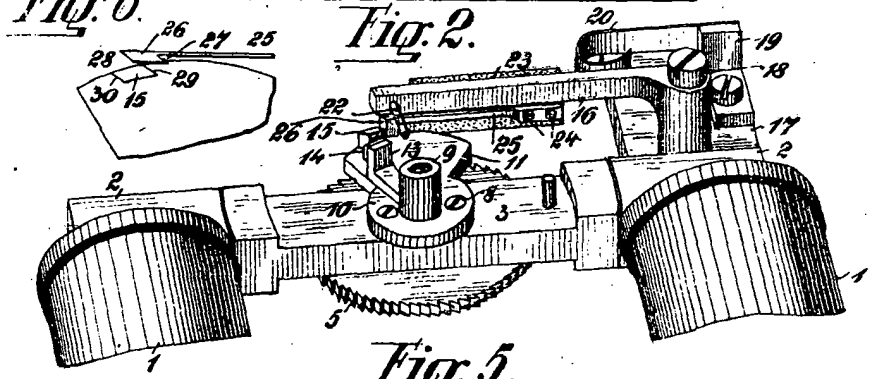

Fig. 2.

Fig. 6.

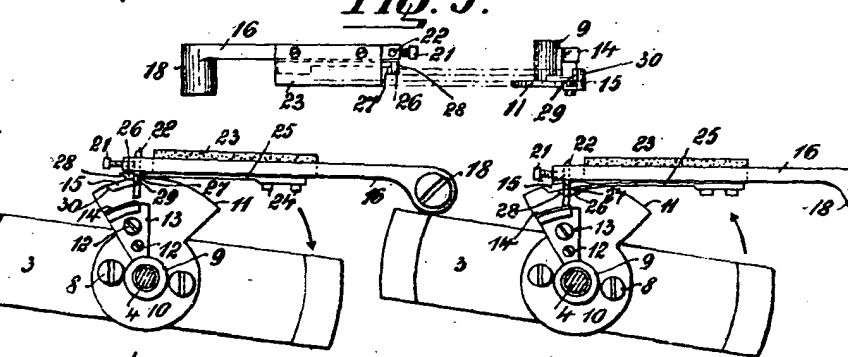

Fig. 5.

Fig. 3.

Fig. 4.

[This Drawing is a reproduction of the Original on a reduced scale.]

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