N° 27,355 A.D. 1909

Date of Application, 24th Nov., 1909—Accepted, 25th Aug., 1910

COMPLETE SPECIFICATION.

Improvements in Electric Clock-driving Devices.

I, MAX FALK, Manufacturer, of 18, Bahnstrasse, Erkrath, near Düsseldorf, Germany, 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 devices for closing the circuit in electrically driven clockworks of the kind in which a weighted arm adapted to drive the clock-train through ratchet-gearing is periodically raised by means of the oscillating armature of an electro-magnet. The object of my present improvements is, to produce the desired result in a reliable manner by a simpler mechanism, than those hitherto known.

The drawings represent various modifications of the principal parts to be considered herein.

Figures 1 to 3 show three different modifications in the one working position and

Figure 4 the other position of Figure 3.

An armature *c* facing the branches *a* and *b* of an electro magnet is mounted on a pivot and is connected by a link *d* with a suitably weighted arm *f* which is mounted on an axle *g*. Fixed to this same axle *g*, is a ratchet-wheel *h*, which transmits its movement to the clockwork. The ratchet wheel *h* is actuated by the pawl *i*, which is pivoted on arm *f* and kept in gear with the said ratchet wheel *h* by a spring *k*.

On the shaft *g* is loosely placed a current conducting disc *l*, which may be of round or angular shape and on which presses a spring *o*. This spring *o* is connected with the field winding of the electro-magnet, which on the other hand is connected with the one pole of the source of current, while the other pole is connected with the clock-casing. The disc *l* is provided with radial pins *m*, *n*, between which projects a pin f^1 fixed to the arm *f*.

In the position shown by Figure 1 the electro-magnet is without current, because the tooth or pin *p* on the disc *l* slides on the insulating face *q* of the nose o^1 of the spring *o*. The armature *c* is consequently free to move, so that the weighted arm *f* turns in a downward direction and correspondingly influences the ratchet-wheel *h*, through pawl *i*, thereby driving the clockwork. At the same time pin f^1 presses against pin *n* and turns it downward together with the disc *l*.

On account of the continued pressure of pin f^1 against the disc-pin *n*, the pin *p* will travel over the insulating face *q* of the spring-nose o^1 and reach the conducting part of the said spring. Owing to the loose arrangement of the disc *l*, the further turning of the said disc will take place very rapidly, when the pin *p* has passed the edge of the non-conducting face *q* of the spring-nose o^1 and the latter causes the disc to turn further.

In using angular discs, the upper slanting surface of the spring-nose o^1 will, with great rapidity, press against the lower conducting surface of the disc *l*, as soon as in consequence of the continued pressure of pin f^1 against the disc pin *n* the nose o^1 of the spring *o* has passed over the corner of disc *l*. This position is shown in Figures 2 and 3. The shape of disc *l* as well as the strength of spring *o* have been so designed, that the lower side of the former

[*Price* 8*d*.]

and the inclined upper side of the nose o^1 of the spring are sufficiently long in contact, to ensure that the armature of the electro-magnet will be attracted by the poles of the magnet long enough to enable it to be drawn not only into an approximately horizontal position, but even beyond it (see Figure 4). During the upward motion of the arm f, the pin f^1 has met with the pin m on the disc l and has turned it upward together with the said disc, so that the insulated face q is caused to touch the nose o^1 of the spring o, while in Figure 2 the insulating face of the spring-nose o^1 will come to lie against the disc l, which is electrically conducting on all sides.

The electric circuit is now broken, and the magnet a b has consequently lost its magnetism, while the armature c has been turned accordingly.

The downward movement of the armature c by means of the weighted arm f and the pawl i is then not possible without actuating the clockwork.

To avoid the formation of sparks at the contacts, when the circuit is broken, a coil r is inserted between the branches a, b of the magnet.

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 electric clock-driving mechanism with oscillating armature, characterised by the feature, that the oscillating armature (c) serves to turn a loose conducting disc (l) relatively to a spring (o) and that a non-conducting face (q) is provided for breaking the circuit of the spring (o), substantially as described.

2. A circuit closing device according to Claim 1, and with the additional feature, that the current-conducting disc (l) has a tooth or pin (p) adapted to come in contact with the spring (o) provided with an insulating face (q), substantially as described.

3. A circuit closing device according to Claim 1, but with the modification, that it has an angular disc (l), against which presses the conducting spring (o) with an angular nose (o^1) having an insulating face (q), substantially as described.

4. A circuit closing device according to Claims 1 and 3, but with the modification, that it has an angular disc (l), one of whose sides is insulated against the angular spring nose (o^1), substantially as described.

Dated this 23rd day of November, 1909.

MAX FALK.
By J. Wetter,
Chartered Patent Agent.

Reference has been directed in pursuance of Section 7, Sub-section 4, of the Patents and Designs Act, 1907, to Specifications No. 82 of 1895 and No. 14,235 of 1899.

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FALK'S COMPLETE SPECIFICATION.

(1 SHEET)

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

Fig. 1.

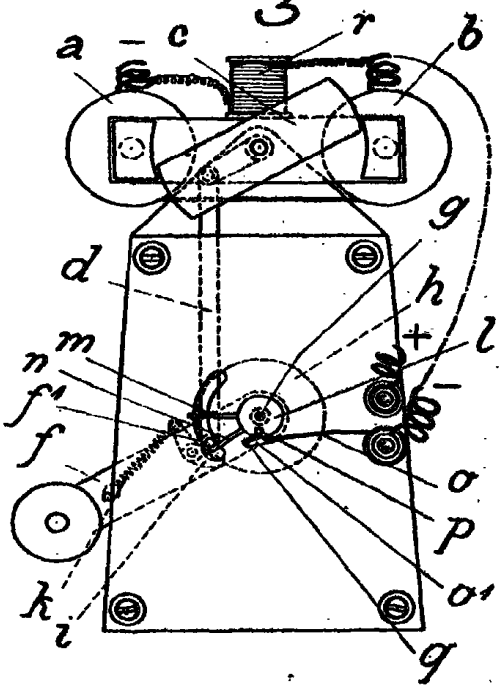


Fig. 2.

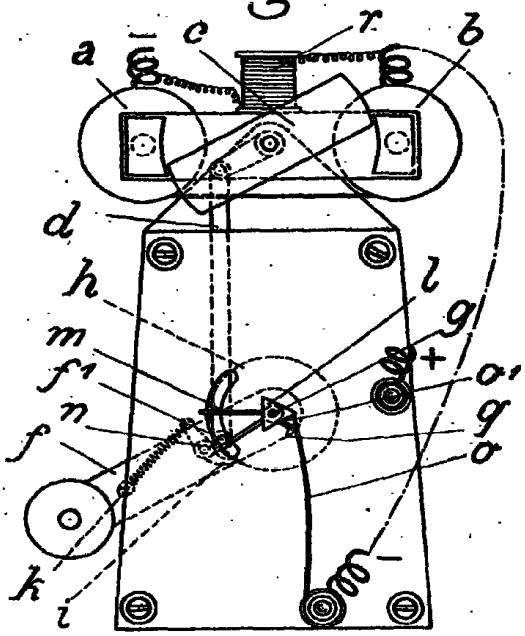


Fig. 3.

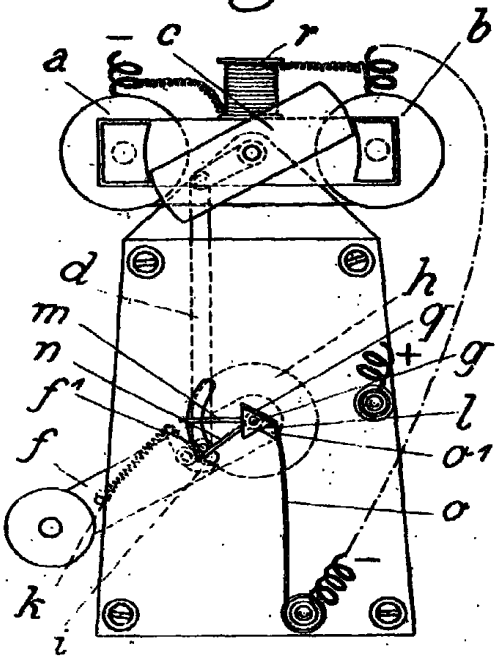
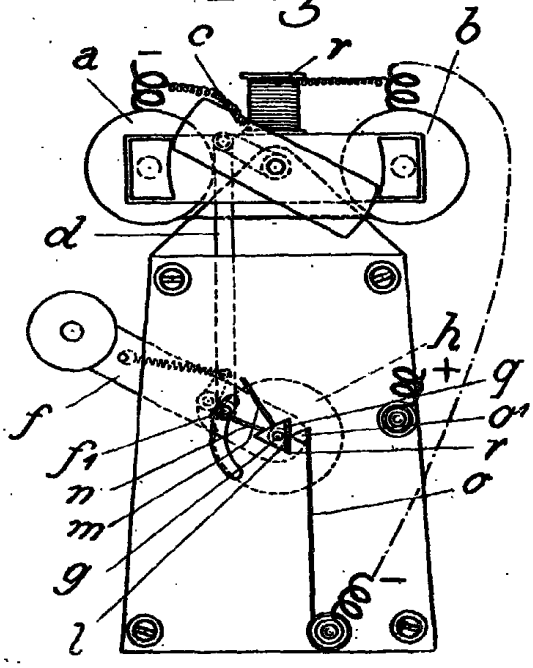


Fig. 4.



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