

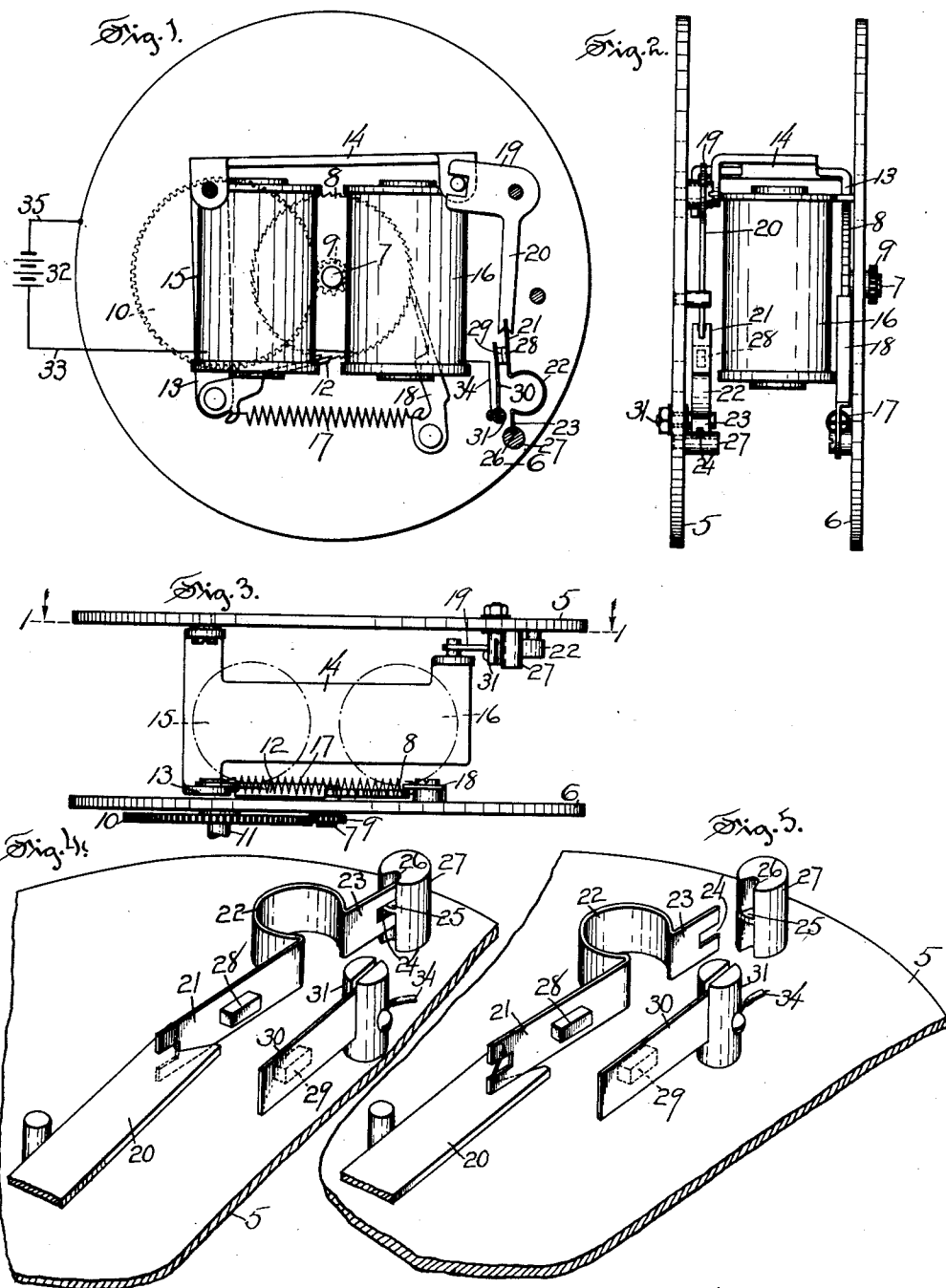
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ACCELERATOR SWITCH FOR CLOCKS

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ACCELERATOR SWITCH FOR CLOCKS

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4 Claims. (Cl. 200—67)

My invention relates more especially to the class of devices employed for accelerating movements of a member for making and breaking an electric circuit, more commonly known as a switch, and particularly in connection with clock mechanisms, although the device is not necessarily limited to such a structure. An object of my invention, among others, is to obtain a device of this character that shall be simple and inexpensive in construction, that may be readily placed in position or removed from the structure, and that shall be particularly effective in operation.

One form of mechanism embodying my invention and in the construction and use of which the objects herein set out, as well as others, may be attained, is illustrated in the accompanying drawing, in which—

Figure 1 is a plan view of an accelerating unit of a clock mechanism with my improved device attached thereto, on a plane denoted by the dotted line 1—1 of Figure 3, this with the back plate removed.

Figure 2 is a view in side elevation of the device shown in Figure 1, showing both the front and back plates.

Figure 3 is a similar view, but looking from a point located at right angles to the point of view of Figure 2.

Figure 4 is a detail view, scale enlarged, illustrating my improved device assembled in an accelerating mechanism.

Figure 5 is a view similar to Figure 4, but illustrating the manner of disconnecting my improved device from such mechanism.

My improved accelerator, although not limited to use in connection with any special mechanism, is particularly adapted for use in connection with the accelerating mechanism of an electric clock, and is, in fact, an improvement upon the device illustrated and described in my copending application for switch accelerators, filed December 30, 1926, Serial No. 158,103, and relates to the type of mechanism particularly illustrated and described in my patent for motor dated February 3, 1925, No. 1,525,179, and to which patent reference is hereby made for such further knowledge, as may be required, relating to the clock mechanism as a whole. I have therefore shown my improved device as applied to a mechanism of this sort, but as illustrated in the drawing herein only so much of the mechanism as will be required for a thorough and complete understanding of my invention has been shown.

In the accompanying drawing the numerals 5

and 6 indicate the back and front plates respectively of an accelerating unit for an electric clock, and which unit embodies a ratchet shaft 7 rotatably mounted in the front plate 6, with a ratchet wheel 8 secured to the shaft on one side of the plate 6 and a pinion 9 secured to said shaft on the opposite and outer side of said plate. The pinion 9 meshes with a gear 10 secured to a winding arbor 11 that extends into a winding drum comprising a part of the mechanism in a manner that will be readily understood by those skilled in the art, the arbor 11 being connected with said spring in a manner that will be readily understood and for which reason a showing of such parts is omitted herein.

Briefly stated, the shaft 11 is intermittently rotated as by means of a winding pawl 12 pivotally mounted on a winding arm 13 of an actuating lever pivotally supported between the plates 5 and 6, another arm 14 of said lever comprising an armature operating in connection with an electro-magnet comprising coils 15 and 16. The pawl 12 is forced toward the ratchet wheel as by means of a spring 17 connected at one end to said pawl and at its opposite end to a holding pawl 18 pivotally mounted on the plate 6 and forced by said spring into engagement with the teeth of the ratchet 8 to prevent backward movement thereof.

All the parts thus far described will be found illustrated and explained in my application and in my patent hereinabove referred to, and, therefore, except in connection with mechanism now to be described, form no part of my present invention.

The armature 14 is loosely connected, as by means of a pin located in a slot of a width slightly greater than the diameter of the pin, with one arm 19 of a make and break or switch lever pivotally mounted on the plate 5, the other arm 20 of said lever being loosely engaged with a switch blade 21. This engagement is such as to permit said blade and arm 21 to be readily engaged and disengaged, as herein shown such connection comprising notches in the ends of the two members, the notch in each member receiving the end of the other member, and as shown in Figs. 4 and 5 of the drawing. The blade 21 is an integral part of an accelerating spring 22 preferably formed from flat stock and of bow shape and comprising a supporting blade 23 having a notch 24 in its end within which a web 25 is received, said web extending across a groove 26 formed in the side of a spring supporting post 27 projecting

from the inner surface of the plate 5, and as shown in Figs. 3, 4 and 5 of the drawing.

The blade 21 has a contact 28 adapted to engage with and be disengaged from a contact 29 on a conducting blade 30 secured and projecting from a conducting post 31, secured to and projecting from the plate 5, and as shown in Figs. 4 and 5 of the drawing.

In order to provide for the ready removal and renewal of the contacts as herein mentioned the blade 30 is inserted in a slot in the end of said post, the fit being such that while the blade is securely held it may be removed by the application of a little force. The post, in the structure herein shown, is insulated from the plate 6.

Any ordinary means may be employed for energizing the magnet and explanation thereof is unnecessary herein. However, briefly stated and as an illustration, one pole of a battery 32 may be electrically connected as by wire 33 with one of the magnets and the two magnets will be connected in a common and ordinary manner. In this instance the blade 30 will be insulated from the structure as a whole and may be connected as by wire 34 with the magnet 16. The opposite pole of the battery from that above mentioned may be connected as by wire 35 to form a ground with any suitable part of the structure, as for instance, the plate 6, and as shown in Figure 1.

It will be obvious that with the parts as thus arranged the current will be from the battery to and through the magnets, to the blade 30, and through the contacts 29 and 28 to the ground, and from thence by wire 35 to the battery.

It will be noted that the parts are shown herein in the positions they will occupy at the instant of contact of the switch member, and before such parts have responded to the electrical conditions created by the contact of such members.

In structures of this class it frequently happens that the contacts must be renewed owing to deterioration by reason of the frequent making and breaking of the electric current, and this has been a serious objection owing to the fact that, in prior devices, substantial parts of the mechanism bearing such contacts have also been required to be renewed. My invention illustrated and described herein simplifies this condition, as by mounting one of the contacts on the spring 22 and by mounting the other contact on the blade 30 removably secured to the post 31 the renewal of the contacts simply means a renewal of the spring or of the blade, both of which parts may be readily removed and as readily replaced.

Further than this, by mounting both of the con-

tacts on flexible supports such contacts will readily squarely seat themselves one against the other, therefore providing for a substantial contact surface for the transmission of the electric current. Then, again, as the contacts engage one with the other, owing to this flexible mount, a sliding action is caused between the two contacts, thus tending to preserve a bright contact surface between them.

I claim—

1. An electric switch including a movably mounted actuating member, a post, a spring removably attached to said post by seating its extremity in a groove in said post and to said member for placing the latter under tension, a blade extending from said spring, a contact secured to said blade, a second contact located in the path of movement of the first contact, means for operating said actuating member, and members constituting an electric circuit including said contacts.

2. An electric switch including a pivotally mounted actuating member, a post, a spring removably attached to and supported solely by said post by seating its extremity in a groove in said post and said member for placing the latter under tension, a blade extending from said spring, a contact secured to said blade, a blade removably supported relatively to said spring, a contact secured to said blade in the path of movement of the first mentioned contact, and members constituting an electric circuit including said contacts.

3. In an electric switch, a pivotally mounted actuating member having a notch, a notched post, a spring removably held with its ends seated in said notches by its own resiliency, said spring being supported solely by said lever and post, said spring also including a blade projecting in extension thereof, a contact on said blade, a blade removably supported relatively to said spring, a contact secured to said blade in the path of movement of the first mentioned contact, and members constituting an electric circuit including said contacts.

4. In an electric switch, a post having a longitudinal groove with a web extending across the groove, a spring notched at one end to seat in the groove with the web entering the notch and also notched at its opposite end to receive an actuating member, a blade projecting in extension of said spring, a pair of contacts one of which is mounted on said blade, and means for moving the spring to make and break said contacts.

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