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P. DARGIER DE SAINT VAULRY

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ELECTRIC WATCH SETTING MECHANISM

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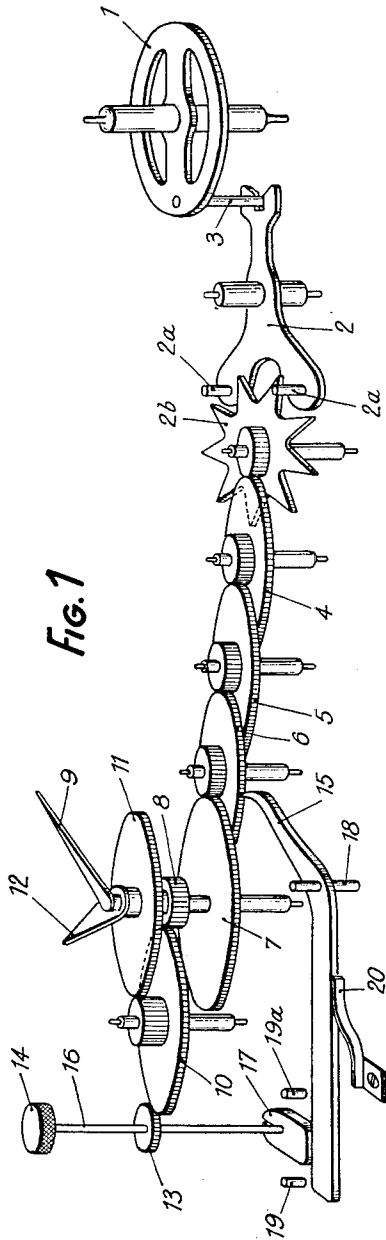


Fig. 1

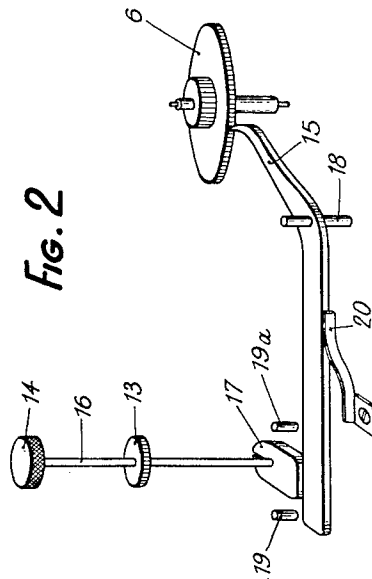


Fig. 2

Inventor
Paul Dargier de Saint-Vaulry
By *James Downing Tebbel*
Attys.

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ELECTRIC WATCH SETTING MECHANISM

Paul Dargier de Saint-Vaulry, Byans-sur-le-Doubs, France, assignor to Lip S. A. d'Horlogerie, Besancon, France

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1 Claim. (Cl. 58—80)

It is a well known fact that in watches having a driving balance, the oscillations of which are sustained by electromagnetic means and control through the agency of a connecting member the movements of a gearwork connected in its turn with the hands of the watch, said connecting member has for its object to transform the reciprocating movement of the driving balance into a continuous movement of the gearwork in a single direction.

Such a connecting member is always brittle and is liable to be damaged when the gearwork is positively controlled with a view to setting the watch right.

My invention removes this drawback and covers means for locking a portion of the gearwork with a view to protecting said connecting member and to hold it fast while the watch is being set right.

To allow my invention to be properly understood, I will disclose hereinafter a preferred embodiment of my invention given by way of a mere exemplification, and illustrated in accompanying drawings showing diagrammatically the system including the gearwork, the connecting member and the driving balance. In said drawings:

Fig. 1 shows diagrammatically the whole system referred to.

Fig. 2 shows a section of said system providing for the control of the braking means incorporated thereto.

In the drawings, the balance 1, the oscillation-sustaining means and the hairspring of which are not illustrated for sake of simplicity, cooperates with the connecting member 2 inserted between said balance 1 and the gearwork through the agency of the pin 3 rigid with the balance 1.

The connecting member 2 is constituted in the case illustrated by an anchor carrying two pins 2a which cooperate alternately with a star wheel 2b operatively connected with the gearwork to be described hereinafter.

For each oscillation of the balance 1, the anchor 2 rocks alternately in either direction and the pins 2a act each in its turn on the star wheel 2b so as to make it revolve continuously in the same direction.

The rotary movement is transmitted in succession to the different wheels 4, 5, 6, 7 forming the gearwork or motion work, starting from the star wheel 2b.

The spindle of the wheel 5 forming the seconds wheel carries the seconds hand. The spindle of the wheel 7 or minute wheel carries in the conventional manner a pinion 8 generally termed the cannon pinion adapted to revolve with friction over the spindle of said wheel 7. Said cannon pinion 8 carries the minute hand 9 and engages a gearwheel 10 meshing in its turn with a wheel 11 forming the hour wheel, revolving freely and coaxially with reference to the cannon wheel 8 and carrying the hour hand 12.

The setting right of the watch is performed by making

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a watch setting wheel 13 revolve as provided by the rotation of a milled knob 14, said wheel 13 cooperating with the gearwheel 10 so as to make the motion work constituted by the wheels 11, 8, 7, 6, 5, 4 revolve in the desired direction together with the star wheel 2b. This rotation produces in conventional watches substantial shocks, firstly between the teeth of the star 2b and the pins 2a and also between the connecting member 2 and the pin 3 rigid with the balance 1, said shocks leading easily to a damage to said parts.

In order to cut out this drawback, I provide a brake 15 adapted to lock one of the wheels 2b, 4, 5, 6 or 7, i. e. one of the wheels inserted between the hands 9—12 and the connecting member 2.

To make things clearer, I have shown by way of example the brake 15 as engaging the intermediate middle wheel 6. When said wheel 6 is held fast by the brake 15, the rotation of the milled knob 14 produces a corresponding rotation of the wheel 10 cooperating with the cannon wheel 8 which is frictionally fitted over the spindle of the wheel 7, which latter cannot be shifted in unison with said cannon wheel since it is locked by the wheel 6 held fast by the brake 15 as described. Thus, the wheels 5 and 4 and the star wheel 2b are all held fast against rotation. The brake 15 may be operatively connected with the milled knob 14 or otherwise.

Fig. 2 shows by way of example a preferred embodiment of the control means for the brake 15 cooperating with the control of the angular movement of the spindle 16 rigid with the milled knob 14. In the example illustrated in said Fig. 2, the spindle 16 when operative engages frictionally a cam 17 which is driven in either direction by the said spindle 16 until said cam engages either of the stops 19 and 19a located to either side of said cam. The cam 17 has a slip-friction fit on the brake lever 15 which pivots round a spindle 18 and one end of which is adapted to engage the teeth at the periphery of the wheel 6 with a view to locking said wheel. Said brake lever 16 is urged away from the wheel 6 and against the cam 17 by a spring 20.

What I claim is:

In an electrically controlled watch, the combination of a balance, a connecting member controlled by said balance, a gearwork including a plurality of wheels controlled by said connecting member, watch hands frictionally controlled by the last wheel of said gearwork, lever means pivotally secured at a stationary point and when moved adapted to engage one of the wheels of said gearwork to hold it fast together with the other wheels of the said gearwork, a cam member for actuating said lever, resilient means urging said lever against the cam, a time-setting spindle carrying said cam and being slip-frictionally connected therewith and two stop means for limiting the rotation of said cam in either direction upon rotation of said spindle, the rotation of said spindle controlling the setting of the watch hands and simultaneously urging and pivoting the said lever into its wheel-engaging position.

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