

# PATENT SPECIFICATION



Convention Date (Switzerland) : May 2, 1929.

343,787

Application Date (in United Kingdom) : March 24, 1930. No. 9415/30.

Complete Accepted : Feb. 26, 1931.

## COMPLETE SPECIFICATION.

### Combined Watch and Lighter.

We, FABRIQUES MOVADO, of Rue du Parc 117—119, La Chaux-de-Fonds, Switzerland, a body corporate organised under the laws of Switzerland, 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 subject of the present invention is a combined watch and lighter in which the winding mechanism of the watch is connected to a movable part of the lighter mechanism through the medium of an operating device so arranged that the main spring of the watch is wound automatically by the repeated operation of the igniting or other member of the lighter.

The accompanying drawing shows by way of example in partly diagrammatic form three embodiments of the invention. In the three examples the lighter mechanism employed is of known form and comprises a lever, serving to extinguish the light and the operation of which actuates the winding mechanism of the watch.

Fig. 1 is a front view showing one embodiment in which the watch has a pivoted detent form of winding mechanism.

Fig. 2 is a side elevation of Fig. 1 partly in section.

Fig. 3 is a front elevation illustrating a second embodiment employing a rack-operated winding mechanism, while

Fig. 4 is a side view of Fig. 3 partly in section.

Fig. 5 shows a winding pinion operated by means of racks having a reciprocating movement.

Fig. 6 is a front elevation of a third embodiment in which a rack winding mechanism is used.

Fig. 7 is a side elevation of Fig. 6 partly in section while

Fig. 8 shows the operation of the winding pinion by means of the reciprocating racks.

In the three examples illustrated the winding of the main spring of the watch is effected automatically by the repeated operation of a lever 1 of the lighter mechanism. The lever 1 which operates in well

known manner is mounted on a spindle 2 and can move through 90°. It has a cap adapted to cover the wick of the lighter and extinguish it. On the spindle 2 is mounted a pinion 3 which in the embodiment shown in Figs. 1 and 2 drives the train of gearing 4, 5, 6 and 7. The final pinion 7 is mounted on a pivoted arm 8 pivoting about the pivot 6<sup>1</sup> of pinion 6 and may have a planetary movement in relation to the pinion 6. The arm 8 presses by means of a lug 9 against a stop 10 under the action of a spring 11. The pinion 7 meshes normally with the winding ratchet 12 of the barrel 13 of the movement 14 of the watch. The push-operated setting mechanism 14 is operated by the stem 16 carrying a button 17 located externally of the watch casing. The embodiment described operates as follows:—

When the lever 1 is raised as indicated by the arrow the pinion 3 causes the pinion 12 to rotate in a direction to wind the watch through the medium of gearing 4, 5, 6 and 7. On the other hand when the lever 1 is lowered the ratchet 12 is not rotated by the gearing because the pinion turning now in the opposite direction is caused to move away from the ratchet 12 the arm 8 being caused to turn about its pivot. As a result the main spring of the watch is partly wound each time the lighter is used.

In the two examples illustrated in Figs. 3 to 8 the watch has a push operated winding and setting mechanism while the winding stem carrying the pinion is operated by means of two racks having a reciprocal movement.

Referring to Figs. 3 to 8 the winding stem 18 has a button 19. The two racks 20, 21 are intended to impart movement of rotation to a pinion 22 on the winding stem 18. To this end the racks receive a reciprocating rectilinear movement through the medium of two cords or bands or other flexible actuating devices 23, 24 (Figs. 3, 4 and 5) connected respectively to the racks 20, 21 and operated by the lever 1 of the lighter through the medium of the pinion 3, a train of gearing 4, 5 and 6 and a pulley 25 having two grooves.

[Price 1/-]

The bands 23, 24 pass over the rollers 26 and are attached to the pulley 25, each fitting within one groove in the latter. The pulley 25 is mounted on the spindle of pinion 6 and has a complete circular groove 25<sup>1</sup> and a part circular groove 25<sup>11</sup> formed by a pulley segment concentric with the pulley 6. This arrangement permits the pinion 5 to mesh with the pinion 6 and allows the pulley 25 to turn about its axis of rotation. The band 23 is connected to the part groove 25<sup>11</sup> while the band 24 is connected to the complete groove 25<sup>1</sup>. Each rack 20, 21 has a return spring 27 and 28.

This second embodiment has a double action i.e. the racks effect the direct reciprocal movement against the action of the springs 27 and 28 when the lever 1 is raised and a reciprocal backward movement under the action of the return springs when the lever 1 is lowered again. The direct movement of the racks is effected by means of the bands 23 and 24 which pull the latter and are wound slightly around the pulley 25. This direct movement of the racks is effective because the latter impart to the pinions 22 and to the stem 18 a rotary movement corresponding to the winding of the main spring while the retrograde movement of the racks is inoperative on the main spring, the pinion 22 and the winding stem being actuated in a direction opposite to the preceding.

The third embodiment (Figs. 6, 7 and 8), is a variant of the construction just described. In this instance again a push operated winding and setting mechanism is provided which comprises a winding stem 18 and a button 19, a pinion 22 on the stem 18 and two racks 20, 21 having a reciprocal rectilinear and alternating movement intended to mesh with the pinion 22 and to impart to it an alternate rotary movement. In Figs. 6 and 7, 1 is the lever of the lighter, 3 the pinion mounted on the spindle 2 of lever 1 and driving the pinion 6 through the two pinions 4, 5. The pinion 5 and the pinion 6 are located between the two bridges 30 supporting the spindles of these members. On the spindle of the pinion are keyed at opposite sides of the bridges 30 two discs 31, 32, each of which carries a laterally projecting pin 33 and 34. The pin 33 on the disc 31 is offset 180° in relation to the pin 34 on the disc 32 and each pin engages in a slot or groove 35 or 36 on a lever 37 or 38. These two levers are pivoted together at 39 and may oscillate about 39. The racks 20, 21 are respectively connected to the levers 37 and 38 by means of a pin 40 or 41 fitting in the groove 42

of the lever 37 or in the groove 36 of the lever 38.

The embodiment illustrated in Figs. 6, 7 and 8 operates as follows:

When the lever 1 is raised the train of gearing 3, 4, 5 and 6 imparts to the discs 31, 32 an angular movement in the direction of the arrow which gives a reciprocal oscillating movement to the levers 37 and 38, and produces a rectilinear reciprocating movement of the racks 20 and 21 which drive the pinion 22 in a direction corresponding to the winding of the main spring. The same operations are repeated on lowering the lever 1; nevertheless the movable members are moved in the backward direction and the rotation of the pinion 22 is without effect on the main spring.

The winding mechanism of the watch could be operated by any other convenient movable part of the lighter.

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

1. A combined watch and lighter characterised in that the watch winding mechanism is connected to a movable member of the lighter mechanism through the medium of actuating means so arranged that the watch is wound automatically by repeated operation of the said movable member.

2. A combined watch and lighter as claimed in claim 1 wherein the movable member of the lighter mechanism consists of a lever actuating by its movement a train of gearing.

3. A combined watch and lighter as claimed in claims 1 and 2 wherein the watch comprises a pivoted winding mechanism, the pinion mounted on the movable member of the lighter mechanism being entrained by one of the members of the train of gearing and itself driving in one direction only the barrel ratchet.

4. A combined watch and lighter as claimed in claims 1 and 2 wherein the watch has a winding stem, a winding pinion mounted on this stem and two racks adapted to be reciprocated and to rotate the said pinion, these racks being operated by the train of gearing each by means of flexible transmission means in association with a return spring.

5. A combined watch and lighter as claimed in claims 1 and 2 wherein the watch has a winding stem, a winding pinion mounted on this stem and two racks adapted to be reciprocated and to rotate the said pinion, these racks being operated by the train of gearing by means of two oscillating levers connected respectively

to the racks and each actuated by a rotating member.

5 6. A combined watch and lighter constructed and arranged substantially as described with reference to Figs. 1 and 2.

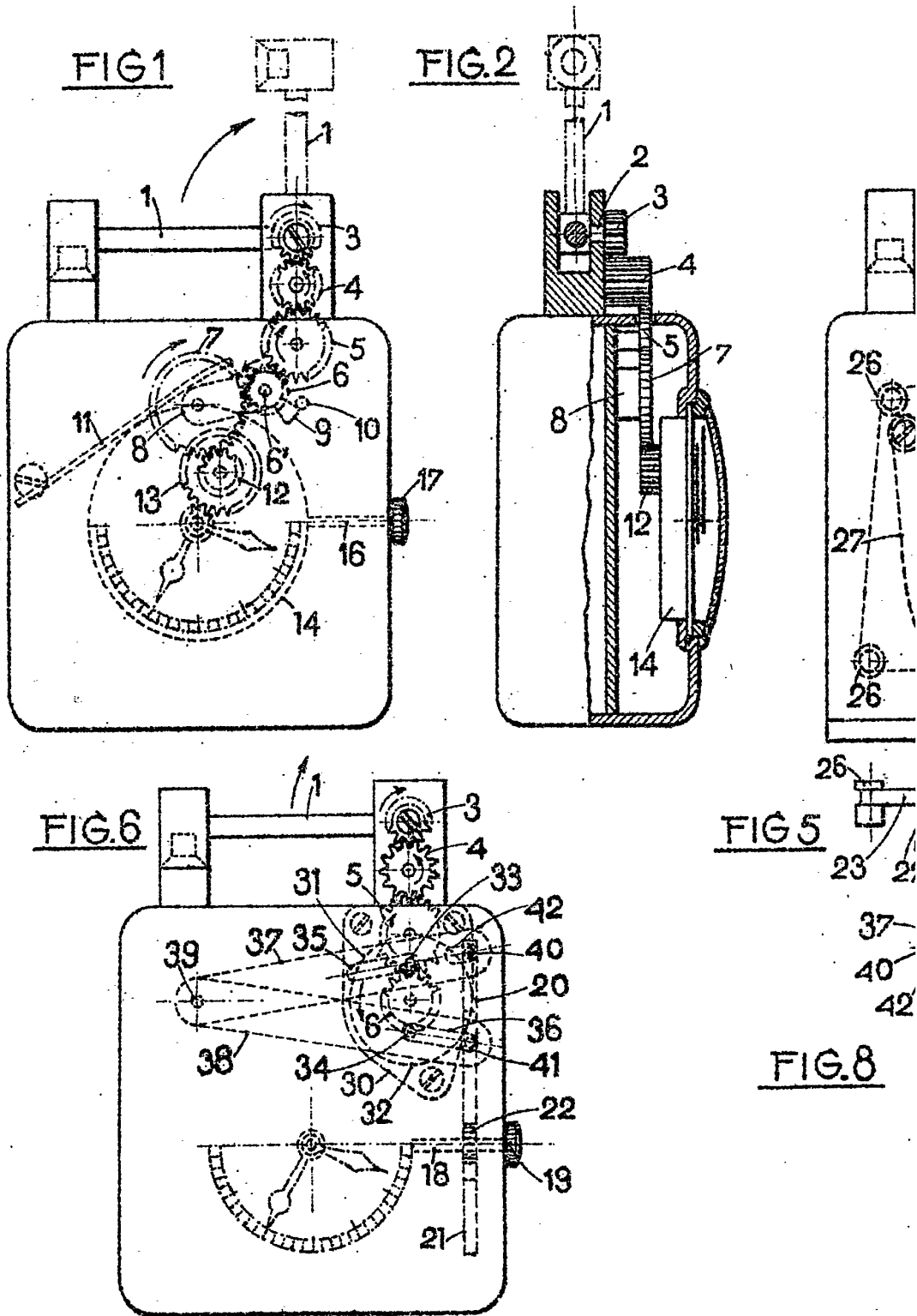
7. A combined watch and lighter constructed and arranged substantially as described with reference to Figs. 3, 4 and 5.

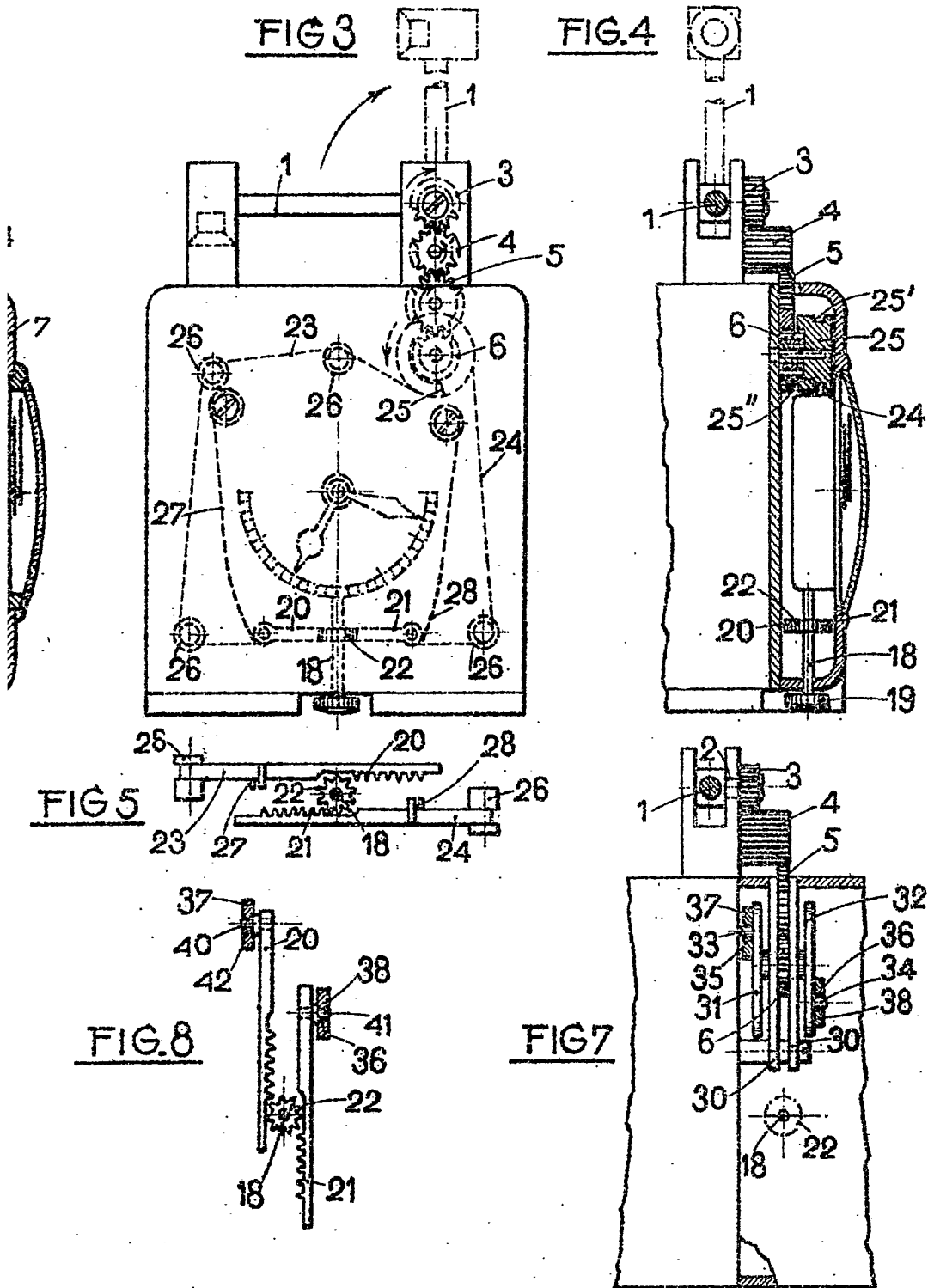
10 8. A combined watch and lighter con-

structed and arranged substantially as described with reference to Figs. 6, 7 and 8.

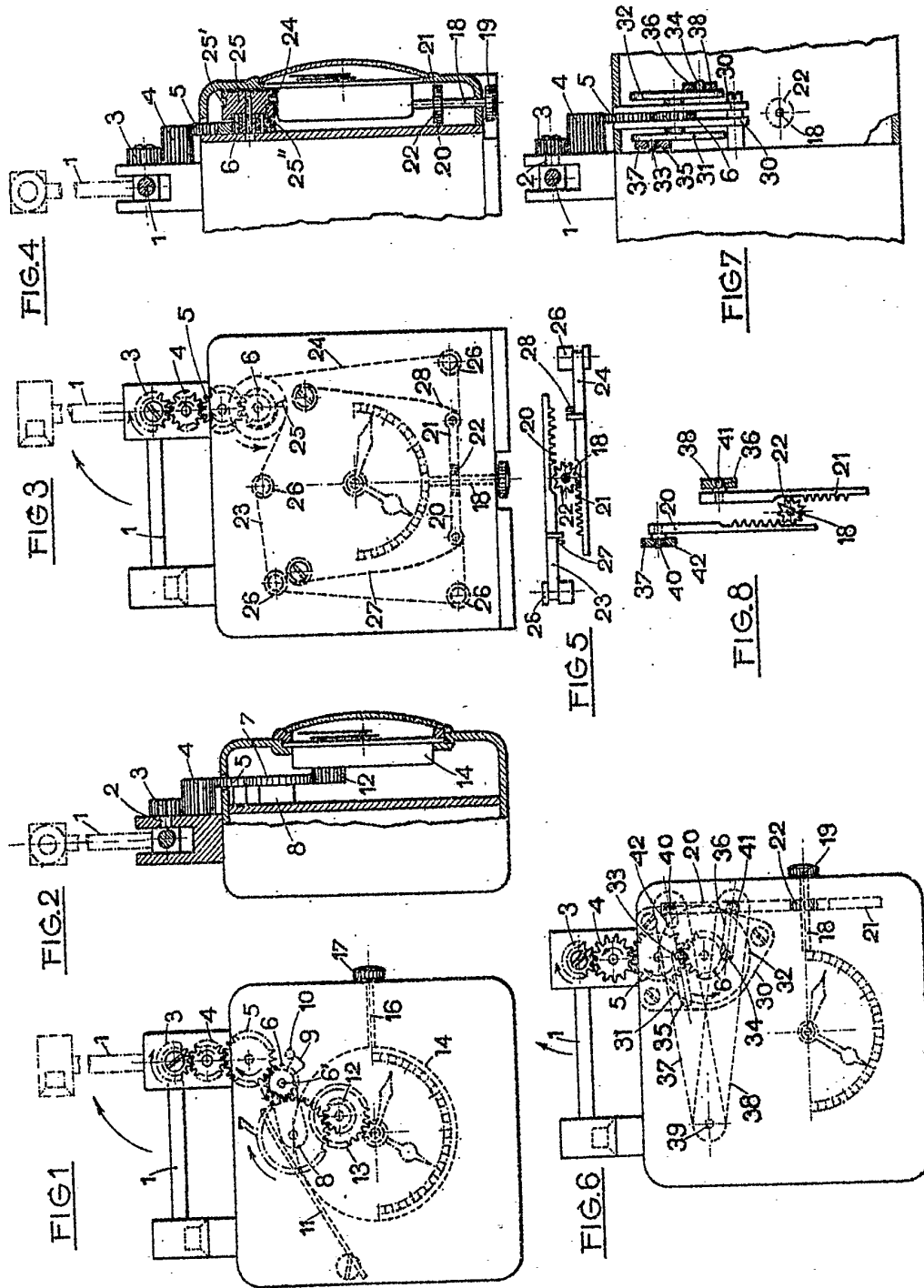
Dated this 23rd day of March, 1930.  
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*This Drawing is a reproduction of the Original on a reduced scale.*





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