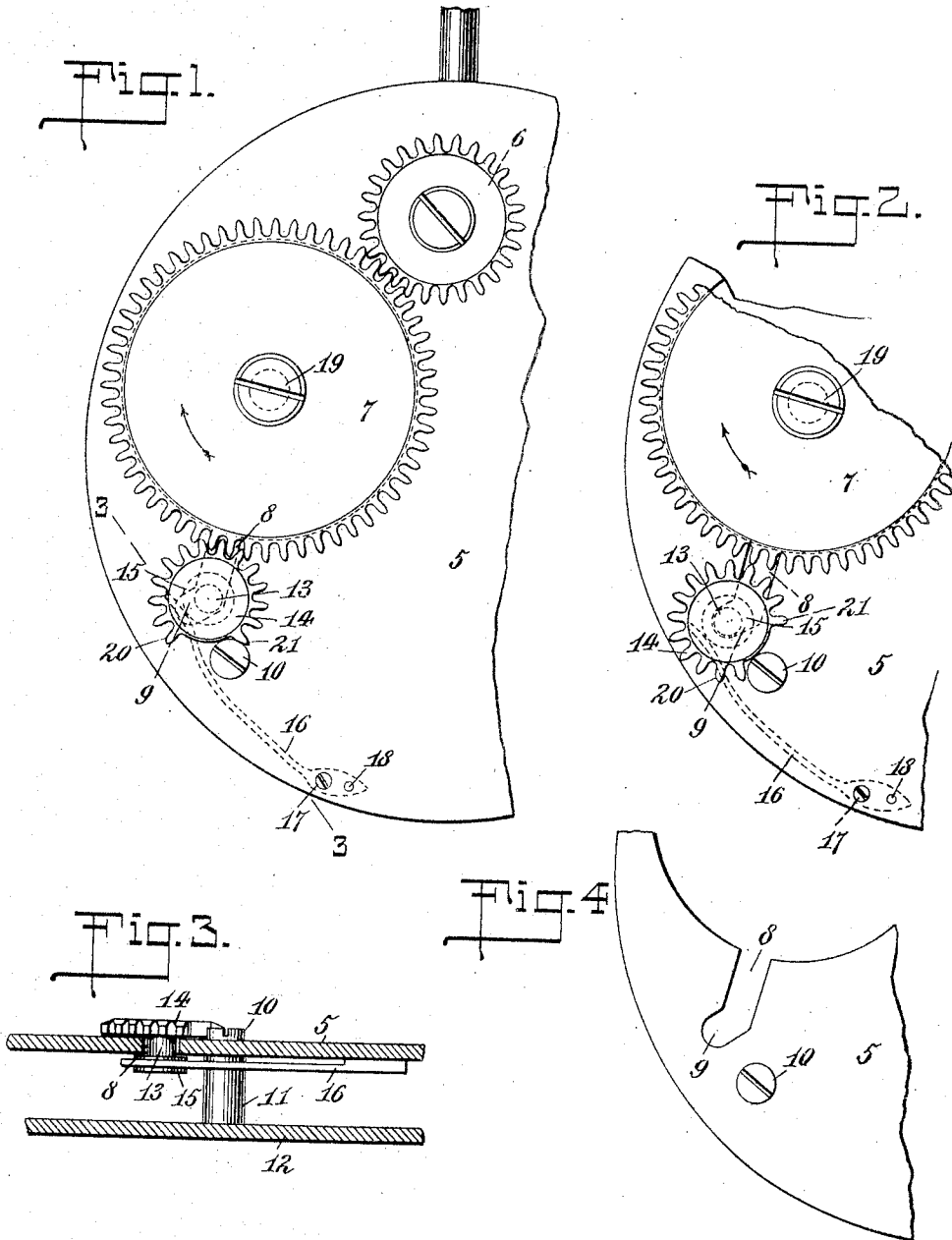


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WATCH MOVEMENT.
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UNITED STATES PATENT OFFICE.

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WATCH-MOVEMENT.

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To all whom it may concern:

Be it known that I, WALTER B. MEHL, a citizen of the United States, and a resident of Waltham, in the county of Middlesex and State of Massachusetts, have made and invented certain new and useful Improvements in Watch-Movements, of which the following is a specification.

My invention relates to an improvement in watch movements, and more particularly to that part or portion of the movement generally known and referred to as the click, comprising the winding wheel, ratchet wheel, and ratchet wheel click, the object of the invention being to provide a construction which will be cheap and economical to manufacture, the parts of which may be easily, readily and quickly assembled, and when assembled, will operate with the desired effect and precision.

With these and other ends in view, the invention consists in certain novel features of construction and combinations of parts, as will be hereinafter fully described and pointed out in the claims.

In the accompanying drawings, Figure 1 is a view of a part of a watch movement, illustrating in plan the construction and relative positions of the winding wheel, ratchet wheel, and click, these parts being shown in their normal positions. Fig. 2 is a plan view showing the ratchet wheel and click in their relative positions while winding. Fig. 3 is a sectional view taken on the line 3-3 of Fig. 1. Fig. 4 is a view of a part of the top plate, the click being removed.

Referring to the drawings, 5 represents the top plate of a watch movement, to which are pivoted the winding wheel 6 and the ratchet wheel 7. In this top plate is formed the slot 8 (Fig. 4), the extreme inner end 9 of which slot extends at an angle to the slot 8 and radial to a point on the head of the screw 10 passing through the pillar 11, and serving to assist in holding the top plate 5 and dial plate 12 in their proper relative positions. In this slot 8 formed in the top plate 5, fits the hub 13, being provided with the head or flange 15 for the purpose of preventing the click from accidentally leaving the slot 8 when assembled, as clearly illustrated in Fig. 3 of the drawings.

As illustrated in Fig. 1, when the parts are in their normal positions, the winding

wheel 6 meshes with the ratchet wheel 7, the latter meshing with the click or pinion 14, the latter being held in this position by means of a spring 16, one end of which is secured to the under side of the top plate 5 by means of the screw 17 and pin 18, the opposite free end of the spring bearing against the flanged end 15 of the hub 13 formed on the click 14, as before described, the tendency of this spring being to retain the click 14 in mesh or engagement with the ratchet wheel 7.

As clearly illustrated in Figs. 1 and 2 of the drawings, the pinion or click 14 has a part or motion of its periphery formed plain, that is, is minus several teeth, preferably two in number, although the extent of this plain edge will largely depend upon the extent of travel to be given the click during the act of winding.

In operation, when the ratchet wheel 7 is rotated on its pivot screw 19 in the direction as indicated by the arrow, (Fig. 1), as in the act of winding, the pinion or click 14 meshing with it, will also be rotated, the hub 13 turning or rotating in the slot 8. This rotation of the click will be continued until the tooth 20 strikes the head of the screw 10, that is, that point on the head of the screw to which the end 9 of the slot is radial, as illustrated in Fig. 2. The continued rotation of the ratchet wheel 7 will then cause the click to be forced down from the slot 8 into the radial portion 9 thereof, in order that the points of the teeth on the ratchet wheel 7 may clear the teeth on the click 14, and thereby permit of the continued rotation of the ratchet wheel 7, and the winding of the main spring, (not shown). When, however, the rotation of the ratchet wheel 7 is discontinued, the latter, as is usual, slightly recedes or rotates in the opposite direction, thereby permitting the spring 16 to force the hub of the click back into the slot 8 and the teeth of the click to again mesh or engage with the teeth on the ratchet wheel 7. As the ratchet wheel 7 recedes or rotates in the opposite direction from that as indicated by the arrow, the pinion or click 14 will also be turned thereby in the opposite direction until the tooth 21 assumes its normal or original position against the head of the screw 10, as illustrated in Fig. 1, the several parts again occupying the relative positions as illustrated in Fig. 1.

From the foregoing it will be understood that when the ratchet wheel 7 is turned in the act of winding, the click 14 will be rotated in the slot 8 until the tooth 20 strikes the head of the screw 10, the click being then forced into the radial portion of the slot 9. Upon releasing the strain on the ratchet 7, the click returns to its normal position, the amount of travel of the click in either direction being wholly governed by the extent of its plain periphery or edge. Should it be desired, this click may be formed minus three or more of its teeth, but in practice I have found that the space equivalent to two of the teeth, is sufficient for all purposes.

It will be further understood from the foregoing, that the invention is exceedingly simple in construction, and that the parts may be easily, readily and quickly assembled, it being necessary only to slide the hub 13 of the click 14 into position in the slot 8 prior to attaching the ratchet wheel 7 in position on the top plate, the spring 16, of course, being first attached in its proper position on the under side of the top plate 5; furthermore, it is very effective, in that any amount of receding movement of the click may be provided for whereby to avoid the locking of the main spring at the extreme end of its wind, and permit of a receding movement of the ratchet wheel, whereby to relieve the main spring of its greatest tension.

Having fully described my invention, what I claim as new and desire to secure by Letters Patent, is:—

1. In a watch movement, the combination with a top plate 5 having a slot formed therein, of a ratchet wheel pivoted to said top plate, a pillar screw passing through said top plate, a click movably mounted in said slot and meshing with said ratchet wheel, said click having a portion of its periphery plain and engaging with said pillar screw, and a spring for normally holding said click in engagement with said ratchet wheel, substantially as described.

2. In a watch movement, the combination with a top plate formed with an angular slot, of a pillar screw passing through said top plate and located radially to one portion of said slot, a ratchet wheel pivoted to said top plate, a click provided with a hub fitting in said slot and movable therein in a direction away from said ratchet wheel, said click having a portion of its periphery plain, and a spring for normally holding said click in engagement with said ratchet wheel, substantially as described.

3. In a watch movement, the combination with a top plate provided with an angular slot, of a click having a portion of its periphery plain and mounted and rotating in said slot and movable therein, a pillar screw passing through said top plate, with which en-

gages said click, a ratchet wheel pivoted to said top plate, and a spring normally holding said click in engagement with said ratchet wheel, whereby when said ratchet wheel is rotated said click will also be rotated thereby until forced out of engagement therewith, substantially as described.

4. In a watch movement, the combination with a top plate provided with an angular slot, of a pillar screw passing through said plate and having one point of the head thereof radial to said slot, a toothed click mounted in said slot and having one portion of its periphery plain, the tooth on either end of said plain portion adapted to engage with said pillar screw, a ratchet wheel pivoted to said top plate and normally meshing with said click, whereby when said ratchet wheel is rotated, said click will also be rotated in said slot the distance from the tooth at one end of said plain portion to the tooth on the opposite end of said portion, said click being then caused to recede in said slot until out of engagement with said ratchet wheel, and a spring for returning said click to its normal position in engagement with the ratchet wheel when rotated in the opposite direction, substantially as described.

5. In a watch movement, the combination with a top plate provided with a slot, one end of which is formed at an angle with the main portion of the slot, of a ratchet wheel pivoted to said top plate, a toothed click mounted and rotating in said slot and adapted to travel therein and normally meshing with said ratchet wheel, a portion of the periphery of said click being plain, a pillar screw passing through said top plate and with which the teeth bounding the plain portion of the periphery on said click are adapted to engage when said click is rotated in opposite directions, and a spring secured to said top plate and engaging with said click to normally hold it in engagement with said ratchet wheel, whereby when said ratchet wheel is rotated in one direction, said click will also be rotated until one of the teeth thereon engages with said pillar screw, whereupon said click will be caused to travel into the angular portion of said slot and out of engagement with said ratchet wheel, and when said ratchet wheel is rotated in the opposite direction, will be forced into engagement therewith by said spring, and rotated until the tooth at the opposite end of the plain portion of the periphery of the click engages with the pillar screw, substantially as described.

Signed at Waltham, in the county of Middlesex and State of Massachusetts.

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Witnesses:

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