

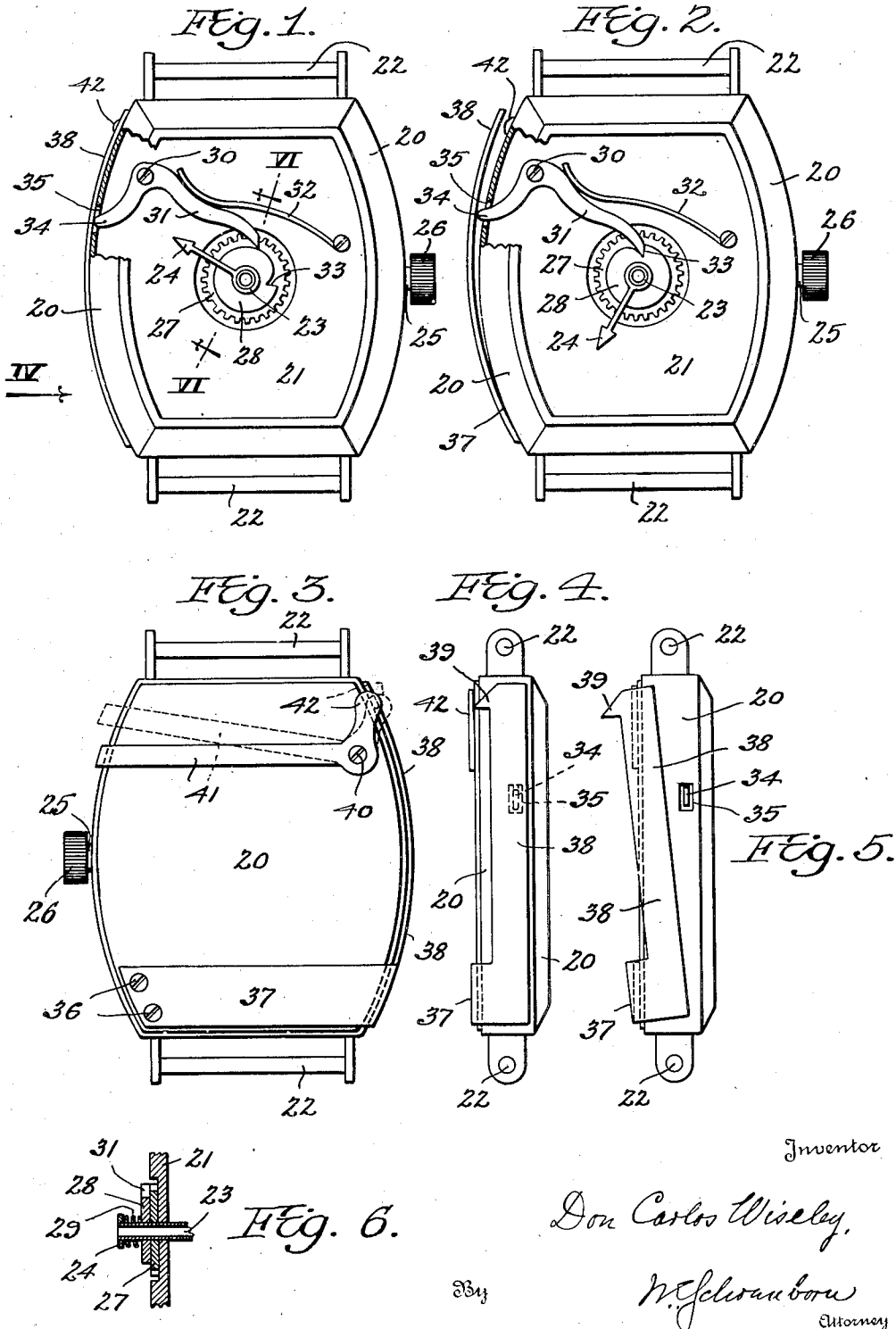
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ALARM WRIST WATCH

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ALARM WRIST WATCH

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12 Claims. (Cl. 53—16)

This invention relates to alarm wrist watches.

The principal object of the invention is to so construct a watch of the character specified that it will be inaudible and the vibratory alarm member, with which all such watches have heretofore been equipped, will be eliminated, the alarm member of the present watch acting to induce steady pressure upon the flesh of the wrist of the wearer.

A further object of the invention is to so construct such a watch that the induced pressure will be maintained, at constant strength, until manually released.

Another object of the invention is to so construct such a watch that the visual alarm time-set mechanism with which all such watches have heretofore been equipped will be eliminated, the time indicating means being utilized to set the alarm.

A still further object of the invention is to so construct such a watch that the customary actuating means for the alarm member, which must be reenergized or wound up for each operation of the alarm, such as that with which watches of this type have heretofore been equipped, will be eliminated, the alarm actuating means of the present watch being of constant and permanent potential and requiring no winding or other energizing process.

Another object is to install certain of the parts exterior of the watch casing, thereby reducing the size of the casing heretofore required in all prior alarm watches and for the purpose of least disturbing the adopted arrangements and association of parts of the usual watch movement.

A further object is to provide an arrangement in which no opening through the walls of the watch case is required for the movement of the striker, thereby minimizing the hazard of dust or other foreign matter entering the mechanism or movement of the watch.

Yet another object of the invention is to so construct such a watch that the alarm mechanism will consist of but few parts, and those of small size and light weight, whereby the watch will be but little larger and of barely greater weight than a similar watch without the alarm features.

With these and other objects in view, such as will hereinafter more fully appear, the invention consists, generally, in the combination of elements and arrangement of parts, such as shown in the accompanying drawing, described in the following specification, and particularly pointed out in the appended claims.

In the drawing:

Figure 1 is a front face view, partly in section, of a wrist watch constructed in accordance with this invention, the crystal, dial, and minute hand having been removed in order to more clearly show certain parts forming subject matter of the invention;

Figure 2 is a similar view, but with certain parts in different positions of adjustment;

Figure 3 is a rear face view of the watch;

Figure 4 is a side elevation looking in the direction of the arrow IV of Figure 1, and showing the alarm member in inoperative or non-alarm position;

Figure 5 is a similar view, but showing the alarm member in operative or alarm position;

Figure 6 is a sectional view on the line VI—VI of Figure 1.

In the drawing, there is shown a wrist watch comprising a casing 20 within which is mounted the usual watch movement 21. The casing 20 is provided, at its ends, with the customary strap or band receiving transverse pins 22.

Projecting forwardly from the watch movement 21 is the usual hour hand spindle 23 with hour hand 24 thereon and projecting laterally from the movement 21 through the casing 20 is the usual wind and set stem 25 with crown 26 at its outer extremity.

Secured to the hour hand spindle 23 inwardly of the hand 24 is a toothed disk 27 adapted to have rotative movement imparted to it from the stem 25 when the latter is in its setting position. The mechanism for imparting this rotative movement to the disk 27 is of the customary standard construction, and, as it forms no part of this invention, no attempt at illustration has been made.

Mounted on the spindle 23, but free to rotate thereabout and outwardly beyond but resting against the face of the disk 27, is another disk 28. This second disk 28 is maintained in frictional contact with the face of the disk 27 by means of a coiled spring 29 surrounding the spindle 23 and interposed between the face of the disk 28 and the hub of the hour hand 24, as shown in Figure 6. The tension of this spring 29 is such that the disk 28 is normally caused to rotate with the disk 27 and spindle 23, but may be held against such rotation in a manner and for a purpose to be hereinafter described.

Pivotally mounted, at 30, upon the face of the movement 21 is a lever, one arm 31 of which extends across the face of the movement in the plane of the disk 28 and has its end adapted to

ride upon the periphery of said disk or to be forced, by the action of a spring 32 into a ratchet notch 33 in the periphery of the disk. The other arm 34 of the lever has its end adapted to pass through an aperture 35 in the web of the side wall of the watch casing 20.

Adapted to the rear face of the casing 20 and secured thereto by means of screws 36, as shown in Figure 3, or by spot welding, or in any other desired manner, is an alarm member, preferably made of spring steel, and comprising a transverse bar 37 normally lying flush against the rear face of the casing and a longitudinally extending arm 38 normally lying flush against that side wall of the casing opposite that from which projects the wind and set stem 25. The flat of the bar 27 is at a substantial right angle to the flat of the arm 38 and they are integral with each other. The end of the arm 38 opposite the end which joins the bar 37 is provided with an offset pointed lug 39.

Pivotally mounted, at 40, upon the rear face of the casing 20, as, also, shown in Figure 3, is a lever, one arm 41 of which extends across the rear face of the casing from the pivot point 40 adjacent one side of the casing to the opposite side, terminating a short distance outwardly beyond the side of the casing. The other arm 42 of this lever is at a substantial right angle to the arm 41 and extends normally a short distance outwardly beyond the opposite side of the casing and has its end in a position to be normally contacted by the pointed lug 39 on the arm 38 of the alarm member.

When the alarm member is in inoperative or non-alarm position, it occupies the position shown in Figures 3 and 4, and the point of the lug 39 bears against the inner face of the lever arm 42 and the alarm arm 38 is in the path of the end of the lever arm 34.

The tension of spring steel alarm member is such that its bar 37 is under a constant urge to twist about its longitudinal axis with a resultant tendency to raise the upper edge of said bar from its normally maintained position flush against the rear face of the watch casing 20. This constant tendency is to raise the bar 37 from its position shown in Figure 4 to that shown in Figure 5, with resultant corresponding sidewise motion of the arm 38 as therein shown. This constant twisting tendency is, however, normally opposed and twist prevented by the contact of the point of the lug 39 against the inner face of the lever arm 42.

In operation, let it be assumed, for example, that it is ten o'clock, P. M., as shown by the arrangement of parts in Figure 1, and it is desired to set the alarm for seven o'clock, A. M. The hands of the watch are turned backward through the medium of the setting crown 26. As the disk 27 is rotated in this counter-clockwise direction, the disk 28 is frictionally rotated therewith until its peripheral ratchet notch 33 is brought into alignment with the end of the lever arm 31, whereupon the end of this arm, under the urge of the spring 32, engages the notch and prevents further counter-clockwise rotation of the disk 28. The hands of the watch are further turned backward until the hour hand 24 points to the numeral "7" on the dial of the watch, at which time the parts will be in the positions shown in Figure 2. In order to insure engagement of the inner end of the lever arm 31 with the notch 33, it is preferred that the hour hand be given one full counter-clockwise rotation from "10" to "10" on the dial and fur-

ther rotation to "7". This will insure proper engagement irrespective of the original relation between the hour hand 24 and the notch 33. The hands of the watch are then reset, in clockwise manner, to their original position with the time of ten o'clock indicated, whereupon the parts will be in the positions shown in Figure 1, the disk 28 having travelled, clockwise, with the disk 27 so that the notch 33 has moved away from the end of the arm 31 which now rides upon the edge of the disk.

Time passes until seven o'clock, A. M., when the normal action of the watch will have again brought the parts to the positions shown in Figure 2. As the end of the lever arm 31 is forced into the notch 33, the end of the opposite arm 34 of the lever is projected outwardly through the aperture 35 in the casing wall, pushing the arm 38 of the alarm member outwardly from its position flush against the side of the casing 20 until the point of the offset lug 39 is cleared from its contact with the inner face of the lever arm 42. The spring action inherent in the bar 37 is then free to act and the bar 37 is twisted to the position shown in Figure 5, causing the pointed lug 39 to forcefully press into the flesh of the wrist of the watch wearer.

The wearer of the watch, if asleep, will be quickly awakened by the pressure of this pointed lug 39 upon his wrist and, to free himself from this pressure, he will manually press the arm 38 back to its retracted position alongside the edge of the casing 20 and manually swing the lever arm 41 to the position shown by dotted lines in Figure 3, the arm 42 thus being swung outwardly a greater distance, as also shown by dotted lines, so that it will overlie the point of the lug 39 in its laterally outthrust position.

As further time passes, the notch 33 in the disk 28 is carried past the end of the lever arm 31, the latter again riding upon the edge of the disk, and the end of the lever arm 34 is swung back to its normal position and the alarm arm 38, owing to its inherent spring, returns to its normal position flush against the side of the watch casing, as shown in Figures 1, 3 and 4.

The lever arm 42 is, however, preferably to be left in the position shown by dotted lines until it is again desired to set the alarm. Otherwise, at seven o'clock, P. M., then following, the alarm member will again be tripped and automatically operate. When the alarm is reset, however, the lever arm 41 must be moved back to the position shown by full lines, so that the arm 42 will be correspondingly retracted and permit the alarm to operate at the time for which it has been set.

If it should be desired to cover the movable parts 37 and 41 so that they will not be in contact with the flesh of the wearer of the watch, this can be readily accomplished by means of a suitable cover plate secured to the rear face of the watch casing 20, in any desired manner. Such an expedient, being obvious to any one skilled in the art, calls for no special illustration, so none has been made.

Thus, it will be seen that there has been provided an alarm wrist watch wherein there is no vibratory alarm member, no visual alarm time-set mechanism, no alarm mechanism to be wound up after each operation, and where the alarm parts are few in number, small in size, and light in weight. Yet, withall, an alarm watch which is positive and forceful in action and highly efficient for the purpose intended.

It is, of course, obvious to those skilled in the art that many changes and modifications in the size, shape, and arrangement of parts may be made over those illustrated in the drawing and specifically described without departing from the principles of this invention. While such changes and modifications are not herein shown or described, they are contemplated as forming part of this invention and are reserved thereto insofar as they fall within the scope of the following claims:

What I claim is:

1. An alarm wrist watch, including a watch movement, a case therefor, an alarm member mounted on said case, said alarm member consisting of a transverse spring bar secured to the rear face of the case and under constant urge to spring outwardly therefrom and of a longitudinal arm integral with said spring bar and adapted to conform to one side of the case, a retaining member secured to the rear face of the case and normally contacted by the arm of said alarm member to maintain said arm flush against the side of the case and the spring bar flush against the rear face of the case, and means operated by said watch movement for moving said arm outwardly from the side of the case to release it from the influence of said retaining member.

2. An alarm wrist watch, including a watch movement, a case therefor, an alarm member mounted on said case, said alarm member consisting of a transverse spring bar secured to the rear face of the case and under constant urge to spring outwardly therefrom and of a longitudinal arm integral with said spring bar and adapted to conform to one side of the case, a retaining member adjustably secured to the rear face of the case and normally contacted by the arm of said alarm member to maintain said arm flush against the side of the case and the spring bar flush against the rear face of the case, and means operated by said watch movement for moving said arm outwardly from the side of the case to release it from the influence of said retaining member when the latter is in one position of adjustment, but said retaining member, in its other position of adjustment, being at all times contacted by said arm.

3. An alarm wrist watch, including a watch movement, a case therefor, an alarm member mounted on said case, said alarm member consisting of a transverse spring bar secured to the rear face of the case and under constant urge to spring outwardly therefrom and of a longitudinal arm integral with said spring bar and disposed in a plane at a substantial right angle thereto and adapted to conform to the side of the case, a retaining member secured to the rear face of the case and normally contacted by the arm of said alarm member to maintain said arm flush against the side of the case and the spring bar flush against the rear face of the case, and means operated by said watch movement for moving said arm outwardly from the side of the case to release it from the influence of said retaining member.

4. An alarm wrist watch, including a watch movement, a case therefor, an alarm member mounted on said case, said alarm member consisting of a transverse spring bar secured to the rear face of the case and under constant urge to spring outwardly therefrom and of a longitudinal arm integral with said spring bar and disposed in a plane at a substantial right angle thereto and adapted to conform to the side of the case,

a retaining member adjustably secured to the rear face of the case and normally contacted by the arm of said alarm member to maintain said arm flush against the side of the case and the spring bar flush against the rear face of the case, and means operated by said watch movement for moving said arm outwardly from the side of the case to release it from the influence of said retaining member when the latter is in one position of adjustment, but said retaining member, in its other position of adjustment, being at all times contacted by said arm.

5. Alarm mechanism for a wrist watch, including a watch movement casing, a non-vibratory body striking alarm member secured and fashioned to the periphery of the casing, restraining means interposed in the path of the body striking alarm member to obstruct the movement thereof, and means for releasing said restraining means.

6. An alarm wrist watch, including a casing, a non-vibratory body striking alarm member and propelling means therefor, fashioned to the periphery of the casing and mounted outside the walls of the watch movement compartment, restraining means interposed in the path of the body striking alarm member to obstruct the movement thereof, and means for releasing said restraining means.

7. An alarm wrist watch, including a casing and a time movement therein, a non-vibratory body striking alarm member and propelling means therefor, fashioned to the periphery of the casing and mounted outside the walls of the watch movement compartment, restraining means interposed in the path of the body striking alarm member to normally prevent the body striking member from striking the flesh of the watch wearer, and time controlled means to overcome the influence of the said restraining means upon the movement of the said body striking alarm member.

8. An alarm wrist watch, including a casing and a time movement therein, a body striking alarm member and propelling means therefor, fashioned to the periphery of the casing and mounted outside the walls of the watch movement compartment, restraining means interposed in the path of the body striking alarm member to normally prevent the body striking member from striking the flesh of the watch wearer, time controlled means to overcome the influence of the said restraining means upon the movement of the said body striking alarm member at a predetermined time, and cover means to conceal portions of the body striking alarm member.

9. An alarm wrist watch, including a casing, an L-shaped non-vibratory contacting member having one of its arms disposed on the outside of the back and the other arm on the side edge of said casing and normally held free from contact with the flesh of the watch wearer, means urging said member to contact and press into the flesh of the watch wearer, and releasable means for retaining said member in non-contacting position.

10. An alarm wrist watch, including a casing, an L-shaped distortable non-vibratory contacting member having one of its arms disposed on the outside of the back and the other arm on the side edge of said casing and normally free from contact with the flesh of the watch wearer, means urging said member to contact and press into the flesh of the watch wearer, and releas-

able means for retaining said member in non-contacting position.

11. An alarm wrist watch having a casing, a flat spring member secured at one end to the outer rear face of said casing and extending transversely across the same, a flat alarm member secured to said spring member and extending longitudinally along the side edge of said casing, retaining means normally retaining said spring and alarm members flush against the adjacent faces of said casing, and time controlled means for releasing said spring and alarm members from the influence of said retaining means so that said spring member is free to move itself and said alarm member in respect to said casing so that said alarm member will press against the flesh of the watch wearer.

12. An alarm wrist watch having a casing, a

flat spring member secured at one end to the outer rear face of said casing and extending transversely across the same, a flat alarm member secured to said spring member at substantially a right angle thereto and extending longitudinally along the side edge of said casing, retaining means secured to the outer rear face of said casing and normally retaining said spring and alarm members flush against the adjacent faces of said casing, and time controlled means for releasing said spring and alarm members from the influence of said retaining means so that said spring member is free to move itself and said alarm member in respect to said casing so that said alarm member will press against the flesh of the watch wearer.

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