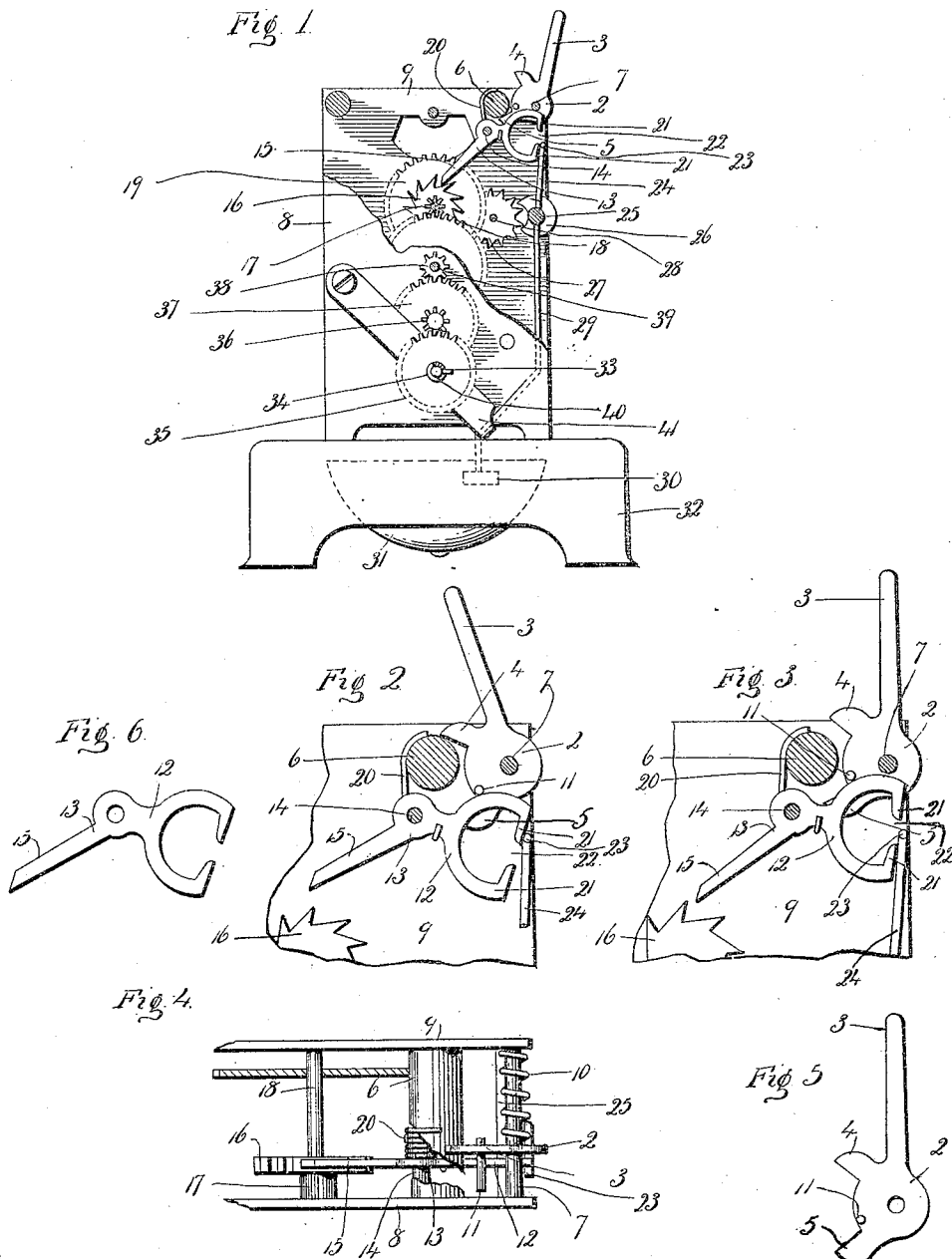


W. E. PORTER.
ALARM CLOCK.
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Patented Nov. 23, 1909.



Witnesses
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ALARM-CLOCK.

941,042.

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To all whom it may concern:

Be it known that I, WILSON E. PORTER, a citizen of the United States, residing at New Haven, in the county of New Haven and State of Connecticut, have invented a new and useful Improvement in Alarm-Clocks; and I do hereby declare the following, when taken in connection with the accompanying drawings and the letters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this specification, and represent, in—

Figure 1 a view in front elevation of a clock-movement embodying my improvement, the upper portion of the front plate being broken away, some of the pillars and arbors being shown in vertical section, and the alarm-changing and alarm cut-off lever being shown at the extreme limit of its outward movement, which is the position in which it is placed for the sounding of an intermittent alarm. Fig. 2 a detail broken view in front elevation of the alarm-mechanism with the alarm-changing and alarm cut-off lever at the limit of its inward movement in which position the alarm is cut off. Fig. 3 a corresponding view showing the alarm-changing and alarm cut-off lever in its intermediate position in which it is placed for sounding a long or continuous alarm. Fig. 4 a broken plan view showing the parts of the alarm-mechanism in the positions in which they are represented in Fig. 2. Fig. 5 a detached view of the alarm-changing and alarm cut-off lever. Fig. 6 a corresponding view of the intermittent-alarm lever.

My invention relates to an improvement in alarm-clocks convertible for sounding an interrupted or intermittent alarm, or a long or continuous alarm, the object being to produce at a low cost for manufacture, an extremely simple, convenient and reliable convertible alarm-mechanism of the character described.

With these ends in view, my invention consists in an alarm-clock having certain details of construction and combinations of parts as will be hereinafter described and pointed out in the claims.

In carrying out my invention, as shown, I employ an alarm-changing and alarm cut-off lever 2 having an operating-arm or han-

dle 3 by which the lever is manually operated as desired. The said lever is also furnished with stop arms 4, 5, which engage with the upper and lower faces of the movement pillar 6 and limit the rocking of the lever which is mounted upon a rock-shaft 7 journaled at its ends in the front and rear movement plates 8 and 9. A helical friction-spring 10 encircling the inner portion of the rock-shaft 7 abuts at its inner end against the rear plate 9 and at its forward end against the inner face of the lever 2 and holds the same in any one of its three positions, but this may be provided for in other ways. The said alarm-changing and alarm cut-off lever 2 carries an operating-pin 11 arranged in position to engage with the upper edge of the upper arm of a yoke 12 forming the outer end of an intermittent alarm-lever 13 mounted on a rock-shaft 14 and having at its inner end a long finger 15 which coacts with the teeth of an intermittent alarm-wheel 16 which is secured to the pinion 17 of the time-train, which may be of any approved construction and needs no detailed description. As shown, the pinion 17 is carried by an arbor 18 also carrying the third wheel 19, so called, of the time-train by means of which the intermittent alarm-wheel 16 is constantly rotated under the beveled end of the finger 15 of the intermittent alarm lever 13 which is provided with a spring 20 exerting a constant effort to press the finger 15 down into engagement with the teeth of the wheel 16.

The outer ends of the arms of the yoke 12 are turned inward to form fingers 21, 21, which are separated by a clearance space 22 which is provided for the vibration between the said fingers of a stop-arm 23 formed by turning downward into the horizontal plane of the upper end of a stop-wire 24 which is mounted in the usual manner upon a rock-shaft 25 carrying the verge 26, of the alarm-train. This verge coacts with the teeth of an escape-wheel 27 mounted upon the arbor 28 of the alarm-train which may be of any approved construction and which needs no detailed description. The arbor 28 also carries and vibrates the hammer-wire 29 carrying the hammer 30 which strikes a bell 31 located within the base of the clock-case.

Having now described in detail my im-

provement as embodied in the clock shown in the accompanying drawing, I will proceed to set forth the operation of the alarm-mechanism.

5 When the alarm-changing and alarm cut-off lever 2 is thrown, as shown in Fig. 1, to the limit of its outward movement in which it is held by the friction spring 10, its operating pin 11 is lifted sufficiently
10 above the upper edge of the upper arm of the yoke 12 of the intermittent-alarm lever 13 to clear the same so that the said lever is left free to be rocked by the action of the intermittent alarm-wheel 16 and the spring
15 20. Now when the finger 15 of the lever 13 is lifted by the teeth of the wheel 16, the clearance space 22 of the yoke 12 will be brought into alinement with the stop-arm 23 of the stop wire 24 and permit the same
20 to vibrate into and out of the yoke 12 through the space 22, it being understood that at this time the alarm-mechanism proper has been released in the usual way by the dropping of the alarm-cam pin 33
25 off an alarm-cam 34 carried by an alarm-wheel 35 which is meshed into by a pinion 36 carried by a wheel 37 meshing into and driven by the cannon-pinion 38 on the center-arbor 39, all in the well known manner.
30 The said pin 33 is mounted in the projecting front end of the alarm-setting arbor 40 which passes as usual through a sheet-metal alarm-trip spring 41 the free end of which is hooked for engagement with the hammer
35 wire 29. The clearance-space 22 in the yoke 12 having, as aforesaid, been brought into registration with the stop-arm 23, the same will vibrate in the said space, and an alarm will be sounded until the particular tooth
40 of the wheel 16 with which the finger 15 was engaged at the beginning of the sounding of the alarm has, by the action of the time-train, been carried beyond the beveled end of the said finger which will drop off the
45 point of the said tooth and fall to the bottom of the cut between the same and the next tooth in front of it on the said wheel. In other words the spring 20 will now assert itself and quickly rock the intermittent
50 alarm-lever 13 with the effect of lifting the yoke 12 so that the finger 21 of the lower arm of its yoke 12 will catch the stop-arm 23 on its inner or outer edge, as the case may be, whereby the vibration of the arm 24
55 will be stopped, and hence the alarm-train, which will be held until the finger 15 of the lever 13 has been gradually lifted by the rotation of the wheel 16 so as to again bring the clearance space 22 into registration with
60 the stop-arm 23. The alarm will now be again sounded until the finger 15 drops off the next tooth of the wheel 16 and so on. In this way an intermittent alarm is sounded, the intermissions between the soundings
65 of the alarm being regulated by the amount

of separation between the teeth of the wheel 16.

By moving the alarm-changing and alarm cut-off lever 2 into its intermediate or vertical position, as shown in Fig. 3, its pin 11
70 will be engaged with the upper edge of the upper arm of the yoke 12, and the intermittent-alarm lever 13 will be rocked, against the tension of its spring 20, enough to bring its clearance space 22 into registration with
75 the stop-arm 23 and to clear its finger 15 from the wheel 16. Under these conditions the lever 13 is virtually cut out of action or retired, and a long alarm is sounded just as though the lever 13 was not present.
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By swinging the alarm-changing and alarm cut-off lever 2 to the limit of its inward position in which it is shown in Fig. 2, the pin 11 acting against the spring 20, rocks
85 the lever 13 still further so as to bring the inner or outer edge of the finger 21 of the lower arm of the yoke 12 into engagement with the stop-arm 23, whereby the stop wire 24 is held against vibration. Under these conditions neither an intermittent nor a long
90 alarm can be sounded.

It will thus be seen that by shifting the single lever 2 the clock may be converted from an intermittent to a long alarm, and vice versa, and also that the alarm may be
95 suppressed altogether by the same simple means.

I claim:—

1. In an alarm-clock convertible from an intermittent to a long alarm and vice versa,
100 the combination with an alarm-wheel continuously rotated by the time-train, of an intermittent alarm-lever operated by the said wheel, and a combination long-alarm, intermittent-alarm, and cut-off lever co-acting di-
105 rectly with the said intermittent alarm-lever for causing the clock to sound an intermittent-alarm, or a long-alarm, or to cut-off the alarm altogether.

2. In an alarm-clock convertible from an
110 intermittent alarm to a long alarm, and vice versa, the combination with an alarm wheel continuously rotated by the time-train, of an intermittent alarm lever coacting with the said wheel and provided with a yoke the
115 arms of which terminate in fingers separated by a clearance space, an alarm-changing lever coacting with the intermittent alarm-lever for shifting the position thereof, and a stop-arm vibrated by the alarm-mechanism
120 and coacting with the said fingers and the said clearance space in the sounding of an intermittent or a long alarm, and in cutting off the alarm altogether.

3. In an alarm-clock convertible from an
125 intermittent to a long alarm and vice versa, the combination with an alarm-wheel continuously rotated by the time-train, of an intermittent alarm-lever operated by the said wheel, and a combination long-alarm, inter-
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mittent-alarm, and cut-off lever coacting directly with the said intermittent alarm lever and provided at its lower end with stops limiting its rocking movement in either direction.

4. In an alarm clock convertible from an intermittent alarm to a long alarm and vice versa, the combination with an alarm wheel continuously rotated by the time-train, of an intermittent alarm-lever coacting with the said wheel and provided with a yoke the arms of which terminate in fingers separated by a clearance space, an alarm-changing lever provided with an operating-pin engaging with the upper arm of the said yoke for shifting the position of the said alarm-changing lever, and a stop arm vibrated by the alarm mechanism and coacting with the said fingers and the said clearance space in the sounding of an intermittent alarm or a

long alarm, and in cutting off the alarm altogether.

5. The combination of alarm mechanism and a forked lever to control the same, said lever being capable of occupying three positions, in two of which the two prongs will coöperate with a part of said alarm mechanism to stop the alarm, and in one position of said lever said part of the alarm will vibrate between said prongs and operate said alarm, and a manually operable part for positioning said lever.

In testimony whereof, I have signed this specification in the presence of two subscribing witnesses.

WILSON E. PORTER.

Witnesses:

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CLARA L. WEED.