J. R. PUTNAM.

KEYLESS AUTOMOBILE CLOCK.

APPLICATION FILED JAN. 9, 1912.

1,034,733.

Patented Aug. 6, 1912.

2 SHEETS—SHEET 1.

Fig. 1.

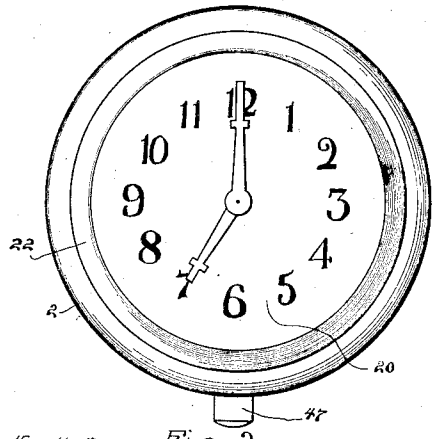
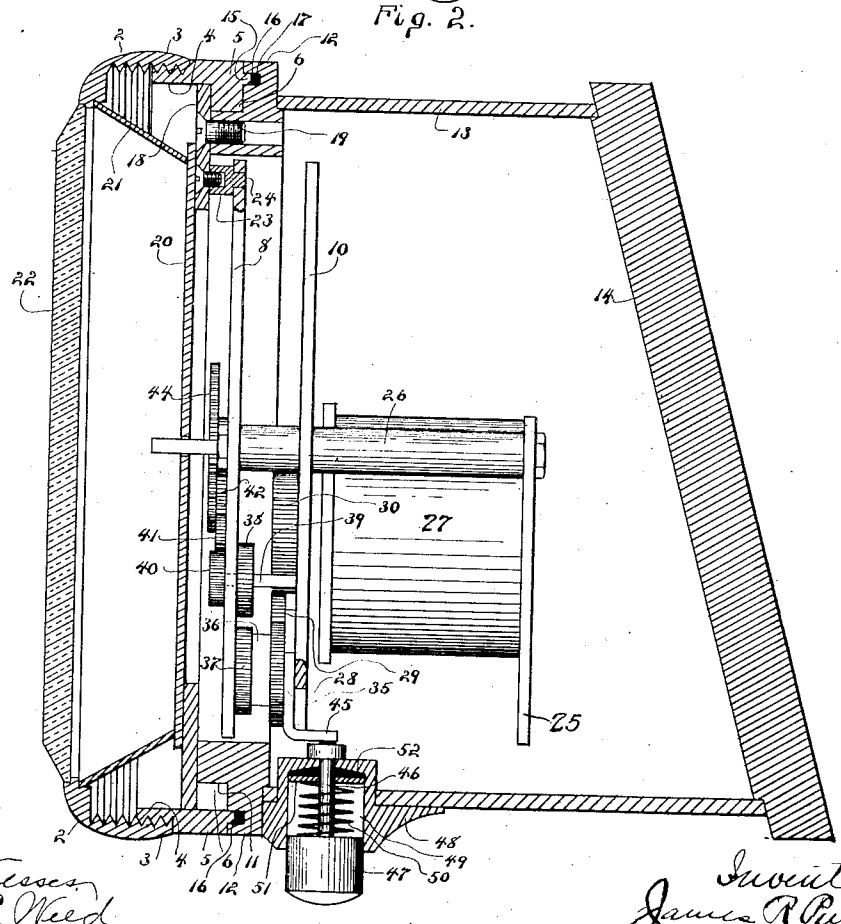



Fig. 2.

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2 SHEETS—SHEET 2.

Fig. 3.

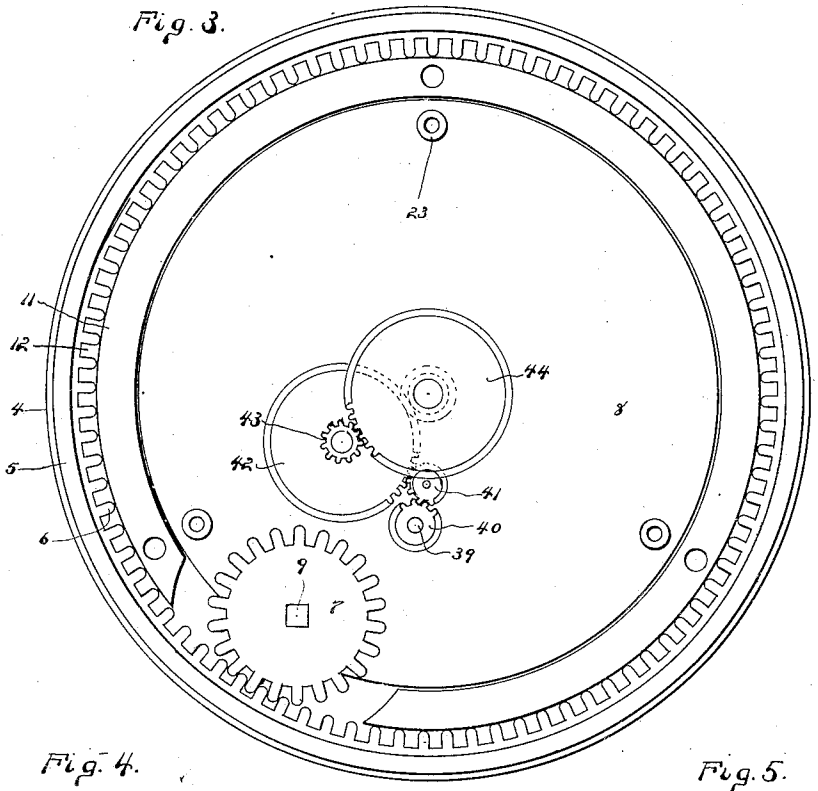



Fig. 4.

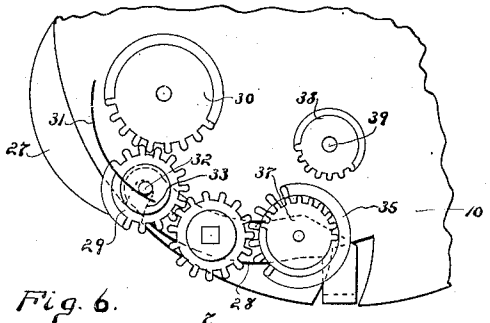



Fig. 5.

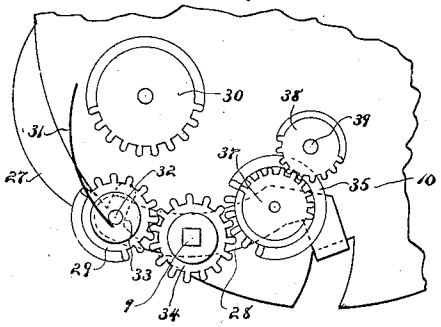
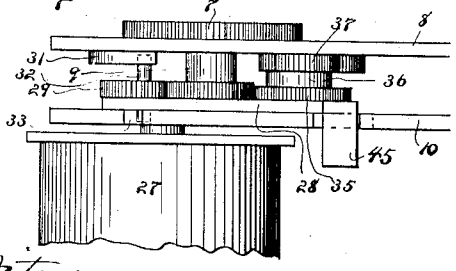



Fig. 6.

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# UNITED STATES PATENT OFFICE.

JAMES R. PUTNAM, OF WATERBURY, CONNECTICUT, ASSIGNOR TO WATERBURY CLOCK CO., OF WATERBURY, CONNECTICUT, A CORPORATION.

## KEYLESS AUTOMOBILE-CLOCK.

1,034,733. Specification of Letters Patent. Patented Aug. 6, 1912.

Application filed January 9, 1912. Serial No. 670,173.

*To all whom it may concern:*

Be it known that I, JAMES R. PUTNAM, a citizen of the United States, residing at Waterbury, in the county of New Haven and State of Connecticut, have invented a new and useful Improvement in Keyless Automobile-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 keyless automobile clock constructed in accordance with my invention. Fig. 2 a view thereof in vertical central section on an enlarged scale, the time-movement being shown in elevation with the time-train omitted. Fig. 3 a view of the clock in front elevation on the scale of Fig. 2, with the bezel, dial-mat, dial and dial-back removed for the purpose of showing the annular winding-and-setting gear in its relation to the winding-and-setting wheel mounted upon the time-movement. Fig. 4 a detail view with a portion of the front movement-plate removed to show the oscillating winding-and-setting yoke which is here represented in its winding position. Fig. 5 a corresponding view with the yoke in its setting position. Fig. 6 a broken reverse plan view of the parts shown in Fig. 4.

My invention relates to an improvement in keyless automobile clocks, the object being to produce a simple, compact, reliable, and dust-proof time-piece constructed with particular reference to being conveniently wound and set by the rotation in one direction or the other of the bezel of the case.

With these ends in view, my invention consists in a keyless automobile 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 herein shown, the bezel 2 is provided with a rearwardly extending flange 3 internally threaded for being screwed upon an externally threaded flange 4 projecting forwardly from a rotatable annular winding-and-setting gear 5 substantially corresponding to the bezel in diameter and having internal teeth 6 permanently meshed into a winding-and-setting wheel 7 located in front of the front movement-plate 8 and mounted upon the projecting forward end of an arbor 9 journaled at its forward end in the said plate and at its rear end in an intermediate movement-plate 10. Under the construction described, the bezel 2 and annular winding-and-setting gear 5 rotate in either direction as one piece.

The ends of the teeth 6 of the winding-and-setting gear 5 ride upon the periphery of an annular bearing-flange 11 projecting forward from a bearing ring 12 soldered or otherwise permanently fixed in the forward end of the cylindrical sheet-metal case 13 the rear edge of which is cut away on an incline and permanently secured to a heavy back 14 adapted to be secured to the dash-board of an automobile, whereby the clock when in position, will, on account of the cutting away of the rear edge of the case 13 on an incline, face upward so that it may be readily seen when looked down upon from above. The said gear 5 is formed upon its rear edge with an annular rib 15 entering an annular groove 16 formed in the forward face of the stationary bearing-ring 12 and containing a packing washer 17 for the exclusion of dust from the interior of the case. As shown, the gear is retained in place with its teeth 6 upon the bearing flange 11, by means of a dial-back 18 secured by screws 19 to the bearing-ring 12 aforesaid. A dial 20 of any approved construction is secured in any convenient manner to the said dial-back 18 which, as shown, is centrally cut away and made just small enough in diameter to fit within the flange 4 of the annular gear 5. A dial-mat 21 having its outer edge fastened within the bezel 2, has its inner edge rested upon the edge of the dial 20. The bezel 2 also carries the usual crystal or glass 22.

In addition to its function of retaining the annular gear 5 in place upon the bearing-flange 11, the dial-back 18 is also utilized for supporting the entire time-movement in position within the case 13. For this purpose I rivet in the front movemnt-plate 8 three counter-bored and threaded studs 23 receiving screws 24 passed from front to rear through the dial-back 18. The middle movement-plate 10 and the rear movement-plate 25 are supported from the front movement-plate 8 in the usual manner

by ordinary sectional pillars 26 only one of which is shown.

It will thus be seen that under my improved construction, the dial-back 18 discharges the threefold function of supporting the time-movement within the case, of retaining the rotatable annular winding-and-setting gear 5 in place upon the bearing-flange 11, and of carrying the dial 20.

As the teeth 6 of the gear 5 are always in mesh with the winding-and-setting wheel 9, the same will always be rotated when the bezel 2 and gear 5 are turned in either direction, with the effect of winding the main-spring (not shown) in the barrel 27, or of setting the hour and minute hands, according to the position of the oscillating yoke 28 which is hung upon the rear portion of the arbor 9 to the forward end of which the wheel 7 is secured. At one end the said yoke 28 carries a winding pinion 29 which is maintained normally in mesh with a gear 30 mounted upon the arbor of the main-spring, by means of a spring 31 fastened to the inner face of the front movement-plate and engaging with the forwardly projecting end of the arbor 32 of the pinion 29. The opposite end of the said arbor enters a notch 33 in the plate 10, and by engaging with the bottom of the said notch limits the rocking of the yoke 28 in one direction. The said winding pinon 29 is constantly in mesh with a winding-and-setting pinion 34 formed integral with the arbor 9 and thereby concentric with the center upon which the yoke 28 oscillates and partaking of every movement in either direction of the winding-and-setting wheel 7. At its opposite end, the yoke 28 carries a setting pinion 35 permanently meshed into by a pinion 34 and having a large hub 36 on which is formed a secondary setting pinion 37 having a greater number of teeth than the setting pinion 35, the teeth of which must be of coarse pitch in order to mesh into the teeth of the pinion 34 which must have teeth of coarse pitch for co-action with the teeth of the winding-pinion 29, it being necessary that the pinions 34 and 29 shall be large enough and strong enough to answer for winding the main spring. The secondary setting pinion 37 is normally demeshed from a supplemental setting-pinion 38 mounted upon a supplemental staff 39 the ends of which are respectively journaled in the front and middle movement-plates 8 and 10. At its forward end the staff 39 carries a pinion 40 constantly meshing into an intermediate reversing pinion 41 which meshes into an ordinary minute wheel 42 carrying a minute pinion 43 driving the hour wheel 44.

Normally the yoke 28 is maintained in its winding position as shown in Figs. 4 and 6, by means of the spring 31 referred to. For the purpose of oscillating the yoke to shift it from its winding to its setting position, it is furnished at one end with a finger 45 arranged in position to be engaged by the inner end of a spring-actuated plunger 46 furnished at its outer end with a push-button 47 mounted in a bushing 48 soldered or otherwise secured to the case 13 and containing a spring-chamber 49 which receives a helical spring 50 encircling the said plunger 46 and normally holding the same in its retracted position. The outer end of the spring 50 impinges against the inner face of the button 47 while its inner end engages with a washer 51 resting upon a packing 52 located in the bottom of the spring chamber 49 which is at its bottom concaved in form so that the tendency of the spring 50 is constantly to crowd the packing 52 into the bottom of the said chamber and around the plunger 46.

Under the construction above described, the main-spring of the clock will be wound when the bezel 2 is turned from left to right. On the other hand, when the bezel 2 is turned from right to left, the winding mechanism will "ratchet back", as the saying is, owing to the fact that the yoke is free to oscillate against the tnesion of the spring 31 as the teeth of the pinions in mesh ride over each other. When, however, it is desired to set the clock, the push-button 47 is pushed inward, whereby the yoke 28 is shifted from its winding position, as shown in Figs. 4 and 6, to its setting position as shown in Fig. 5. The inward pressure upon the push-button 14 being sustained, the hour and minute hands are set by the rotation of the bezel in either direction as necessary. The moment pressure is removed from the push-button 47, the spring 31 asserts itself to swing the yoke back into its winding position, the spring 50 returning the push-button to its normal position.

I claim:—

1. In a keyless clock, the combination with the case thereof, of a bearing-ring mounted upon the forward end of the said case, a dial-back supported by the said bearing-ring, a time-movement supported by the said dial-back, extending rearwardly therefrom into the said case, and provided with winding and setting devices, an annular gear bearing upon the said bearing-ring, retained in place by the said dial-back and co-acting with the said winding-and-setting devices of the time-movement, a bezel carried by the said gear, and a dial carried by the said dial-back, whereby the said bearing-ring is employed to support the said dial-back and the said annular gear, and whereby the said dial-back is employed to support the time-movement.

2. In a keyless clock, the combination with the case thereof, of a bearing-ring mounted upon the forward end of the said case and

provided with a forwardly projecting bearing-flange, a dial-back supported by the said bearing-ring, a time-movement supported by the said dial-back, extending rearwardly therefrom into the said case and provided with winding-and-setting devices, an annular gear the teeth of which ride upon the said bearing-flange and which co-act with the said winding-and-setting devices, a bezel carried by the said annular gear, and a dial carried by the said dial-back.

3. In a keyless clock, the combination with the case thereof, of a bearing-ring mounted upon the forward end thereof and formed with a groove for the reception of packing, a dial-back supported by the said bearing-ring, a time-movement supported by the said dial-back, extending rearwardly therefrom into the said case and provided with winding-and-setting devices, an annular gear bearing upon the said bearing-ring, formed with an annular rib entering the said groove and co-acting with the said winding-and-setting devices, a bezel carried by the said annular gear, and a dial carried by the dial-back.

4. In a keyless clock, the combination with the case thereof, of a time-movement provided with dial-work, a winding-and-setting pinion, a movable setting pinion in permanent mesh with the said winding-and-setting pinion and carrying a concentric pinion of finer pitch than the same, an annular winding-and-setting gear permanently connected with the said winding-and-setting pinion, and manually operable means for moving the said movable setting pinion into position for the meshing of its concentric pinion of finer pitch into a wheel of the dial-work of the clock and at the same time to disconnect the said annular winding-and-setting gear from the winding mechanism of the clock.

5. In a keyless clock, the combination with the case thereof, of a bearing-ring mounted upon the forward end of the said case, a dial-back supported by the said bearing-ring, a time-movement connected to the said dial-back, extending rearwardly therefrom into the said case and provided with winding-and-setting devices, an annular gear bearing upon the said bearing-ring and co-acting with the said winding-and-setting devices, a bezel carried by the said bearing-ring, a dial carried by the said dial-back, and manually operable means mounted in the clock-case for operating the said winding-and-setting devices to throw them into and out of operative relation with the said annular gear.

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

JAMES R. PUTNAM.

Witnesses:
C. W. SHADER,
C. I. GRIGGS.