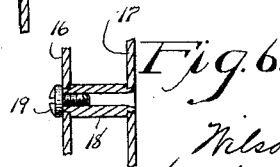
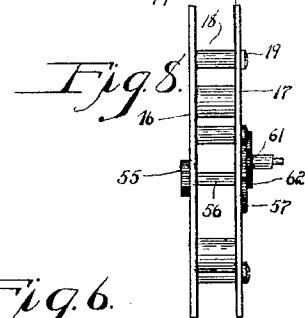
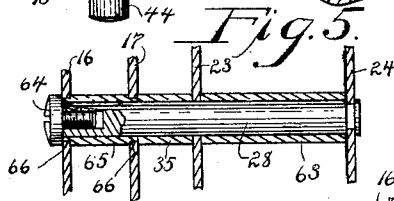
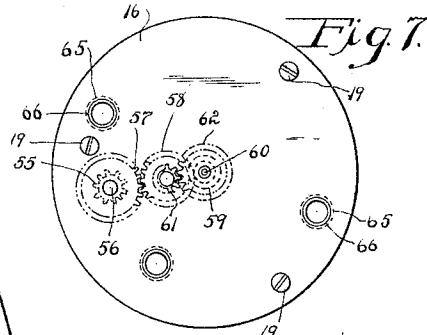
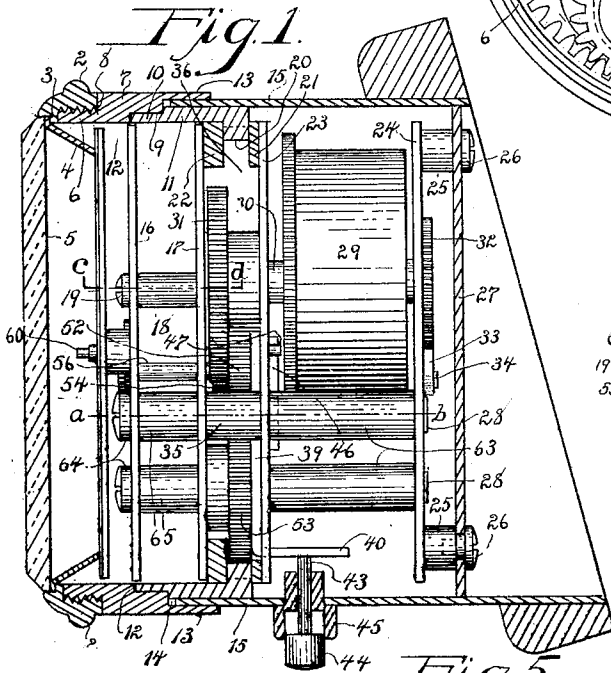
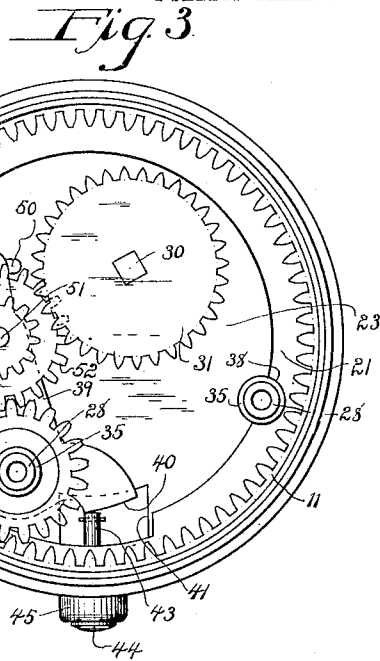
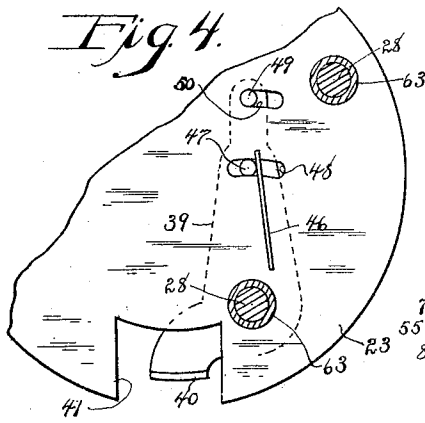


W. E. PORTER.
RIM WINDING KEYLESS CLOCK.
APPLICATION FILED MAR. 18, 1913

1,102,798.

Patented July 7, 1914.

2 SHEETS—SHEET 1.



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RIM WINDING KEYLESS CLOCK.
APPLICATION FILED MAR. 19, 1913.

1,102,798.

Patented July 7, 1914

2 SHEETS—SHEET 2.

Fig. 9.

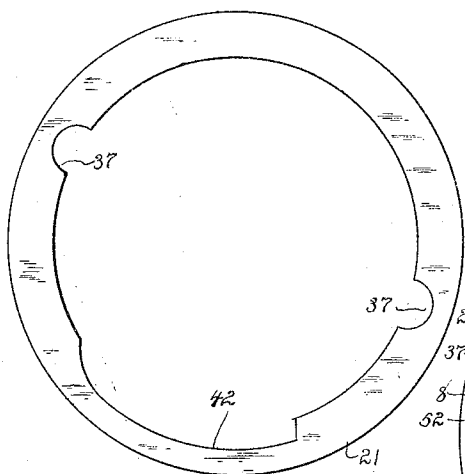


Fig. 2.

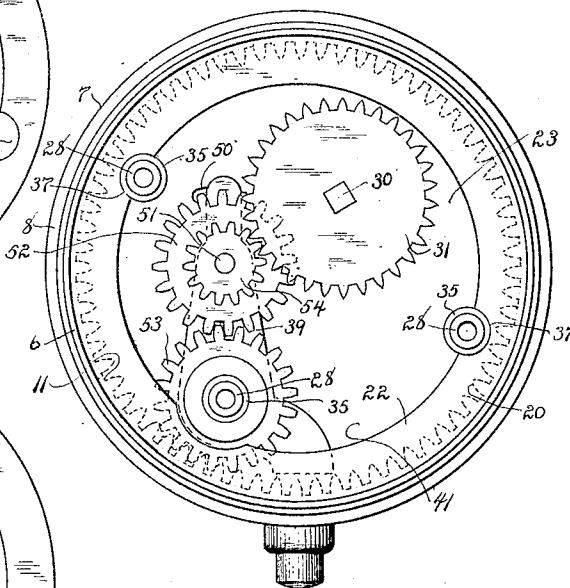


Fig. 10.

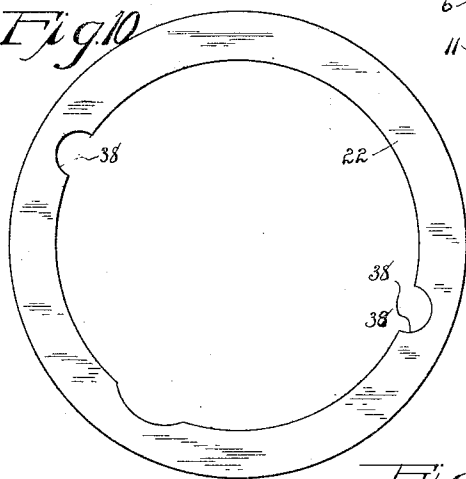
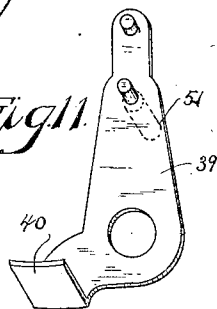


Fig. 11.



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UNITED STATES PATENT OFFICE.

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RIM-WINDING KEYLESS CLOCK.

1,102,798.

Specification of Letters Patent.

Patented July 7, 1914.

Application filed March 19, 1913. Serial No. 755,539.

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 Rim-Winding Keyless Clocks; and I do hereby declare the following, when taken in connection with the accompanying drawings and the characters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this application, and represent, in—

Figure 1 a view in vertical central section through the case and spacing-rings of a keyless automobile clock constructed in accordance with my invention, the movement being shown in side elevation. Fig. 2 a view of the clock with the bezel, dial and independently organized time-train removed to show the winding and setting wheels in their normal or winding positions. Fig. 3 a corresponding view with the winding and setting wheels shifted in position preparatory to setting the clock, the internal winding-and-setting gear being in this view exposed by the removal of the outer spacing-ring. Fig. 4 a detached broken view in rear elevation of the front plate of the power-movement, showing the oscillating winding and setting yoke. Fig. 5 a detached broken sectional view on the line *a-b* of Fig. 1 showing the arrangement of the time- and power-movement plates with respect to the pillars by which they are tied together. Fig. 6 a detached, broken sectional view on the line *c-d* of Fig. 1 showing one of the pillars employed to hold the two plates of the independently organized time-movement together. Fig. 7 a detached view in front elevation of the separately organized time-movement which is shown on actual scale. Fig. 8 an edge view on the same scale, of the time-movement from which the parts between the plates are omitted. Fig. 9 a detached view of the rear spacing-ring. Fig. 10 a corresponding view of the front spacing-ring. Fig. 11 a detached perspective view of the yoke.

My invention relates to an improvement in that class of rim-winding and rim-setting keyless clocks in which the parts are placed in position for setting without the lateral movement of the winding-member, the object being to produce a simple and reliable

clock constructed with particular reference to smallness of size, convenience of being assembled, and adaptation to be used with any style of case.

With these ends in view, my invention consists in a rim-winding keyless clock having certain details of construction and combinations of parts as will be hereinafter described and particularly recited in the claims.

In carrying out my invention, as herein shown, I employ a bezel 2 formed at its outer end with a rabbet 3 receiving the flanged outer edge of the dial-mat 4 which is held in place by the edge of the crystal 5 also fitting into the said rabbet 3 in the bezel. The said bezel 2 is internally threaded to adapt it to be screwed upon the externally threaded annular flange 6 of a bezel-carrying ring 7 substantially corresponding in external diameter to the bezel and formed at its forward end with a shoulder 8 upon which the rear edge of the bezel comes to a bearing. The said ring 7 is formed at its rear end with an internal annular recess 9 for the reception of a mounting-flange 10 formed upon the forward end of the internal winding-and-setting gear 11 which constitutes the rim-winding and rim-setting member of the clock. As shown the said ring 7 and gear 11 are permanently soldered together as at 12. It is not necessary to separate these two parts after they have once been constructed, and so they may be soldered together; but, if preferred, they may be threaded and screwed together. At its rear end, the ring 7 is undercut to form an overhanging dust-flange 13. The annular space 14 produced between the said flange 13 and the periphery of the gear 11, provides for the reception of the forward edge of the circular sheet-metal case 15, whereby the dust is effectually prevented from working into the clock at this point.

In its rotary movement the internal winding-and-setting gear 11 bears upon the edges of the circular front and rear plates 16 and 17 of a separately organized time-train movement, so called because it is constructed and arranged to be handled as one piece and contains the time-train proper and carries the dial-work. The time-train included between the said plates 16 and 17, may be of any approved construction and is not shown. These two plates 16 and 17 are united by

hollow pillars 18 one of which is shown in Fig. 6, being riveted at its inner end into the rear plate 17 and having its outer end shouldered and internally threaded for the reception of a screw 19 by means of which the two plates are permanently held together. The said screw 19 passes through the plate 16 which is held against the shoulder of the pillar 18 by the bearing of the head of the screw upon the outer face of the said plate.

The internal gear teeth 20 of the gear 11 extend inward at a right angle from the extreme inner end of the said gear and are interposed between a rear spacing-ring 21 and a front spacing-ring 22, though I do not limit myself to the use of two spacing-rings as it is conceivable that I might find it convenient to employ more in the same positions. The said rear spacing-ring 21 is a loose ring and rests directly upon the front face of the front movement-plate 23 of the power-movement the rear movement-plate 24 of which carries three short pillars 25 the rear ends of which are threaded for the reception of screws 26 passing through the back 27 of the case in which the clock-movement is thus supported. Three universal binding pillars 28 are riveted at their rear ends (Fig. 5) in the rear plate 24 of the power-movement, and extend forward therefrom toward the front of the case 15. The front plate 23 of the power-movement is slipped over these pillars and rests upon the outer ends of spacing-sleeves 63 encircling the rear portions of the pillars as shown in Fig. 5. The main-spring barrel 29 is located between the plates 23 and 24 upon an arbor 30 the projecting forward end of which is squared as shown in Figs. 2 and 3 for the reception of a removable winding wheel 31. The projecting rear end of the arbor 30 is squared for the reception of a ratchet wheel 32 engaged by a spring-actuated pawl 33 mounted upon a stud 34 in the rear face of the plate 24. The rear end or edge of the internal winding-and-setting gear 11, including the rear ends or edges of the internal gear teeth 20 thereof, bears upon the forward face of the said rear spacing-ring 21 which is thus seen to be interposed directly between the rear edge of the said gear 11 and the front plate 23 of the power-movement, or, as it might also be called, the winding-train movement. The said front spacing-ring 22 is interposed directly between the forward edges or ends of the internal teeth 20 of the said gear 11 and the rear face of the rear movement-plate 17 of the separately organized time-movement.

It will thus be seen that the internal winding-and-setting gear 11 and hence the bezel-carrying ring 7 to which the gear 11 is rigidly secured, and the bezel 2 which is mounted upon the ring 7, are held against

lateral movement in the direction of the longitudinal axis of the case, by the interposition of the internal teeth 20 of the gear 11 between the spacing-rings 21 and 22 just described, so that while the said internal gear 11 or winding and setting member is left free to rotate, it is firmly held against movement forward and back in line with the axis of the clock-case 15.

The rear plate 17 of the time-movement is separated from the front plate 23 of the power-movement by spacing-sleeves 35 interposed between the said plates and mounted upon the universal binding pillars 28 as clearly shown in Fig. 5, whereby a space 36 is formed between the said plates 17 and 23. This space receives the spacing-rings 21 and 22 which are formed with locking notches 37 and 38 respectively which fit over the said sleeves and lock the said rings against rotation in the space 36 into which the internal gear teeth 20 of the winding and setting gear 11 enter between the said rings, whereby the said gear 11 is held against lateral movement front and back.

In the lower end of the space 36 I locate an oscillating yoke 39 corresponding in thickness to the thickness of the rear spacing-ring 21 and swung upon the spacing sleeve 35 mounted upon the lower universal binding pillar 28. The said yoke bears upon the front face of the front plate 23 of the power-movement and is formed at its lower end with an operating arm 40 extending rearward at a right angle to it. For the purpose of clearing the arm 40, the plate 23 is formed with a clearance cut 41, and the ring 21 with a clearance cut 42. The said arm 40 of the yoke is engaged by the inner end of a plunger 43 furnished at its outer end with a push-button 44 and mounted in a bushing 45 set into the periphery of the case 15, whereby the yoke is swung, when the plunger 43 is pushed inward, from its winding or normal position into its setting position, against the tension of a spring 46 secured to the rear face of the plate 23 and engaging with a pin 47 projecting rearward from the yoke 39 through a segmental slot 48 in the plate 23. A stop-pin 49 located in the extreme inner end of the yoke, projects rearward into a slot 50 formed in the plate 23, and by engaging with the ends of this slot limits the oscillatory movement of the yoke.

Upon its forward face, the yoke 39 is provided with a stud 51 mounting an intermediate oscillating driven wheel 52 constantly in mesh with a corresponding driven wheel 53 turning loosely upon the spacing-sleeve 35 which also, provides a bearing for the yoke 39, as already described. The said driven wheel 53 is constantly in mesh with the teeth 20 of the internal gear 11 as clearly shown in Figs. 2 and 3. The said oscillat-

ing driven-wheel 52 carries a winding-and-setting pinion 54 which is alternately meshed into the winding-wheel 31 before mentioned, and the setting-wheel 55. Normally the spring 46 holds the yoke 39 in position to keep the wheel 54 in mesh with the winding-wheel 31, so that normally the clock is in readiness for winding. When, however, the button 44 is pushed inward, the yoke 39 is swung against the tension of the spring 46, so as to demesh the pinion 54 from the wheel 31 and intermesh it with the setting-wheel 55 which is mounted upon the projecting rear end of an arbor 56 forming a feature of the separately organized time-movement and furnished at its forward end with a wheel 57 meshing into an ordinary dial-wheel 58 in turn meshing into a cannon pinion 59 on the center-arbor 60. The said dial-wheel 58 carries a pinion 61 meshing into a socket-wheel 62 turning upon the said center-arbor 60.

I wish now to call attention to the fact that the winding wheel 31, the intermediate oscillating driven wheel 52, the driven wheel 53, the winding-and-setting pinion 54 and the setting wheel 55 are all located in the space 36 which also contains the yoke 39, the front and rear spacing rings 22 and 21, and the inwardly extending internal gear teeth 20 of the winding-and-setting gear 11. The said parts, it will be understood, are assembled in this space 36 after the power-movement has been located within the case 15, and its front movement-plate 23 slipped over the pillars 28 and brought to its home position upon the three spacing-sleeves 63 which encircle the rear portions of the pillars 28.

After all of the parts just above mentioned have been properly placed in the space 36 with the exception of the setting-wheel 55, the separately organized time-movement is slipped as one piece over the outer ends of the said pillars 28 and brought to a bearing upon the outer ends of the spacing-sleeves 35. The entire clock structure is now bound together by means of screws 64 entering the threaded outer ends of the pillars 28, the heads of these screws being brought to a bearing upon the outer faces of the front movement plate 16 of the time-movement, which, for the purpose of being handled as one piece and assembled as described, has its plates 16 and 17 furnished with permanently located assembling-sleeves 65 set into special openings 66 in the plates 16 and 17. These sleeves 65 prevent any pressure of the screws 64 from binding any of the wheels or running parts of the time movement.

The clock is wound by grasping its bezel 2 and rotating the same. To set the clock its plunger 43 must be pushed inward after which the said bezel is rotated for setting

the clock which automatically goes back to its normal winding adjustment when inward pressure upon the said plunger is removed.

I particularly wish to call attention to the fact that after the several parts of the clock are prepared for assemblance, the entire clock goes together without riveting operations, and that all of the parts are finally bound together by the three binding-screws 64. This not only makes the clock convenient to assemble, since there is no riveting to be done during the assembling operation, but it also makes the clock reliable in use since there are no rivets to work loose.

I do not in this application include any claim for the separate organized time-movement herein shown and described, as the same has been made the subject of another application filed Mar. 19, 1913, Serial No. 755,542.

I claim:—

1. In a rim-winding keyless clock, the combination with the case thereof, of an independently organized time-train located in the said case and having front and rear movement-plates, a power train located in the said case and having front and rear movement-plates, a predetermined space being formed between the adjacent plates of the respective trains, an internal winding-and-setting gear having rotary bearing upon the edges of the front and rear plates of the said independently organized time-train and having its teeth entered into the said space; and connections between the said gear and time- and power-trains.

2. In a rim-winding keyless clock, the combination with the case thereof, of an independently organized time-train located in the forward portion of the said case and having front and rear movement-plates, a power-train located within the rear portion of the said case and having front and rear movement-plates, a predetermined space being formed between the adjacent plates of the respective trains; a ring gear having rotary bearing upon the edges of the plates of the time-train and having its teeth entered into the said space, spacing rings located within the said space and arranged on opposite sides of the said teeth for preventing the said gear from lateral movement in the said space, and connections between the teeth of the said gear and the time- and power-trains.

3. In a rim-winding keyless clock, the combination with the case thereof, of an independently organized time-train located therein and having front and rear movement-plates, a power-train located in the said case and having front and rear movement-plates, the adjacent plates of the said trains being separated from each other by a predetermined space; universal binding pillars mounted in the rear plate of the said

power-train and extending through all of the said plates for binding the trains together, a ring gear having rotary bearing upon the edges of the plates of the said time-train and having its teeth entered into the said space, and connections between the said gear and time and power-trains.

4. In a rim-winding keyless clock, the combination with the case thereof, of an independently organized time-train located in the forward portion of the said case and having front and rear movement-plates, a power-train located in the rear portion of the said case and having front and rear movement-plates, the adjacent plates of the said trains being separated by a predetermined space; a manually operable ring gear having rotary bearing upon the edges of the plates of the said time-train and having its teeth entered into the said space, and connections located in the said space, between the said time- and power-trains and the said gear.

5. In a rim-winding keyless clock, the combination with the case thereof, of a rear movement-plate secured to the back of the case, universal binding pillars secured at their rear ends to the said plate, spacing-sleeves encircling the rear portions of the said pillars, a front movement-plate bearing upon the front ends of the said sleeves, spacing sleeves bearing upon the front face of the said front movement-plate, a separately organized time-movement adapted to be applied as one structure to the outer ends of the said pillars with its rear movement-plate resting upon the forward ends of the said sleeves last mentioned which create a

predetermined space between the time and power-trains of the movement, a ring gear having rotary bearing upon the movement-plates of the time-movement and having its teeth entered into the said space, and connections between the said gear and trains with means for shifting the connection from one train to the other, and vice versa.

6. In a rim-winding keyless clock the combination with the case thereof, of an independently organized time-train located in the forward portion of the said case and having front and rear movement-plates, a power-train located in the rear portion of the said case and having front and rear movement-plates, a predetermined space being formed between the adjacent plates of the respective trains; universal binding-pillars mounted at their rear ends in the rear plate of the said power-train, extending forward through the respective plates of the said trains for binding the trains together, a ring gear having rotary bearing upon the edges of the plates of the said time-train and having its teeth entered into the said space, and connections between the said gear and the time- and power-trains including an oscillating yoke located in the said space and turning upon one of the said universal binding-pillars.

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

WILSON E. PORTER.

Witnesses:

CLARA L. WEED,
GEORGE ONSLEY SEYMOUR.