June 19, 1923. 1,459,343

W. E. PORTER

SELF CONTAINED, REMOVABLE POWER UNIT FOR CLOCK MOVEMENTS

Filed Aug. 22, 1921

Fig. 1.

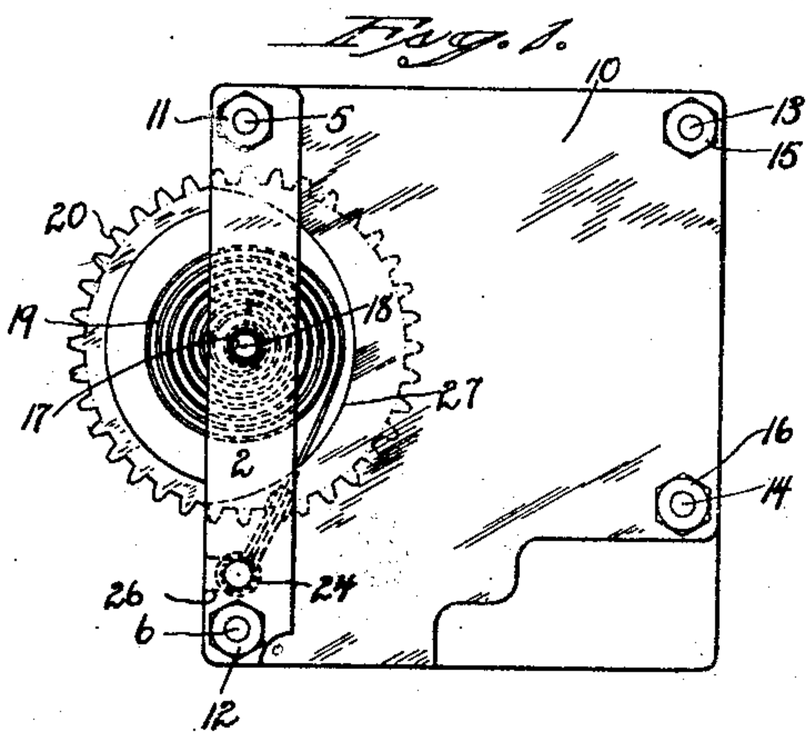


Fig. 2.

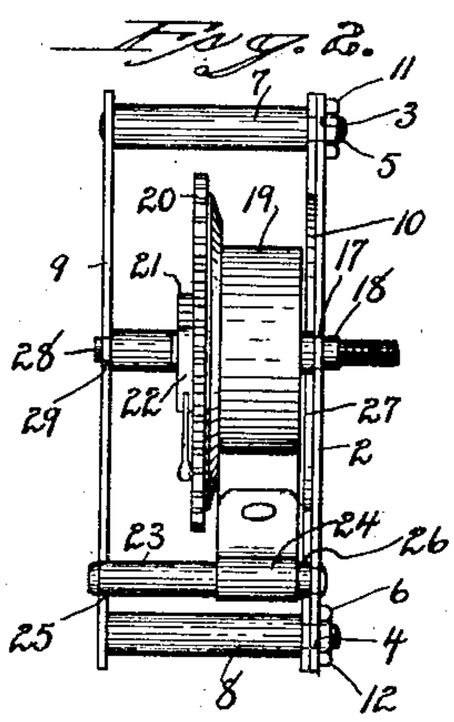


Fig. 3.

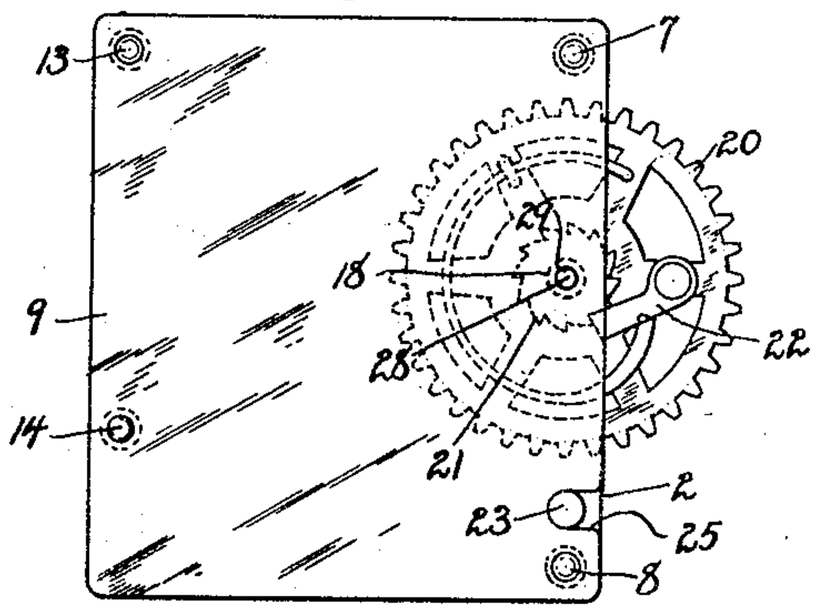


Fig. 4.

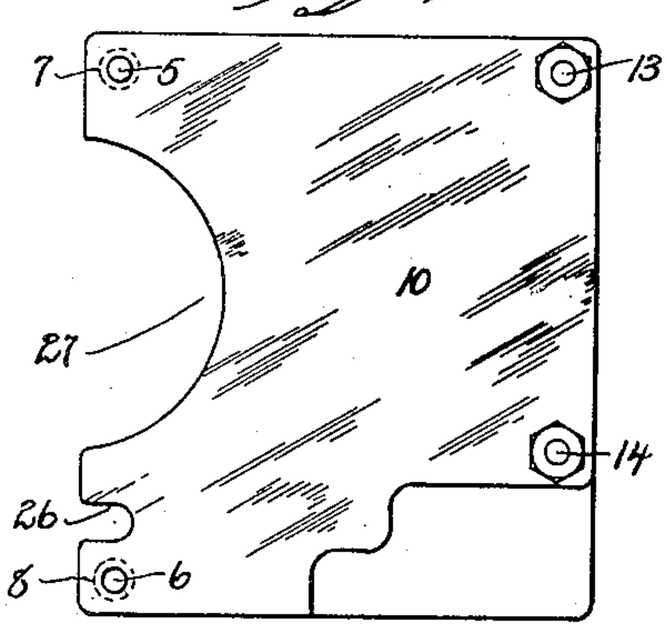


Fig. 5.

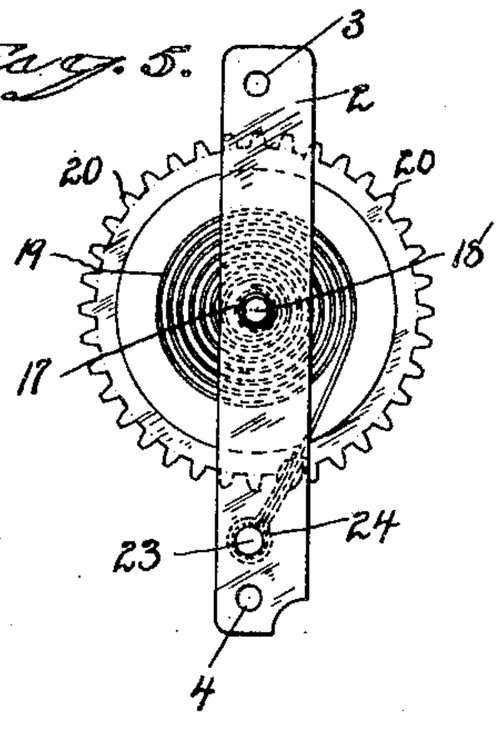
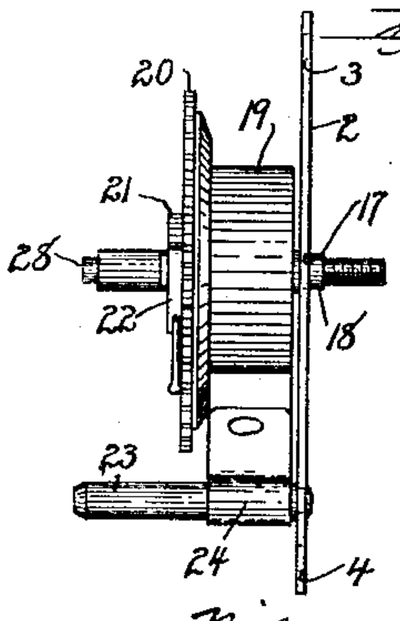


Fig. 6.



Inventor.
Wilson E. Porter
by Seymour & Earle
Attys

Patented June 19, 1923. 1,459,343

UNITED STATES PATENT OFFICE.

WILSON E. PORTER, OF NEW HAVEN, CONNECTICUT, ASSIGNOR TO THE NEW HAVEN CLOCK COMPANY, OF NEW HAVEN, CONNECTICUT, A CORPORATION.

SELF-CONTAINED REMOVABLE POWER UNIT FOR CLOCK MOVEMENTS.

Application filed August 22, 1921. Serial No. 494,060.

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 Self-Contained Removable Power Units for Clock Movements; 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—

Fig. 1 a view in rear elevation of a clock-movement provided with a self-contained power-unit constructed in accordance with my invention, the train itself being omitted for clarity.

Fig. 2 an edge view thereof.

Fig. 3 a view thereof in front elevation.

Fig. 4 a view of the movement with the said self-contained power-unit removed.

Fig. 5 a detached view in rear elevation of the unit.

Fig. 6 an edge view thereof.

My invention relates to an improvement in clock movements, the object being to provide simple and convenient means whereby any given power-unit thereof may be installed or removed as a self-contained or unitary structure, without demounting or spreading either of the movement-plates or removing any of the pillars employed for holding the same together, or otherwise disturbing the movement-structure, or employing a pillar of the movement for the anchorage of the outer end of the spring of the power-unit.

With these ends in view, my invention consists in a self-contained power-unit for clock-movements, characterized by providing a bearing for one end of the spring-arbor of the unit and an anchorage independent of any pillar of the clock-movement for the outer end of the spring of the unit. My invention further consists in certain details of construction as will be hereinafter described and pointed out in the claim.

In carrying out my invention as herein shown, I employ a mounting-bridge 2 consisting of a long, narrow plate provided at its respective ends with holes 3 and 4 adapted to be slipped over the projecting rear ends 5 and 6 of the pillars 7 and 8, which are two of the pillars employed to secure the front and rear movement-plates 9 and 10 together. The projecting rear ends 5 and 6 of the said pillars 7 and 8 are made additionally long for the application to them of the bridge 2 and are threaded, as usual, for the application of nuts 11 and 12. The said movement-plates 9 and 10 are also secured together by two other pillars, 13 and 14, receiving nuts 15 and 16. I do not, however, limit myself to removably fastening the mounting-bridge 2 to the clock-movement in any particular manner, the only requirement being that it shall be fastened in place so that it may be removed from and applied to the clock-movement without demounting either of the plates thereof, or spreading them apart or removing any of the pillars employed to hold the same together.

The said bridge 2 is formed with a bearing-opening 17 for the reception of the outer end of a spring-arbor 18 carrying a spiral-spring 19, a wheel 20, a ratchet-wheel 21, which is swaged on the arbor, and a spring-actuated pawl 22, pivoted to the wheel 20, the said bridge, arbor, spring, wheel, ratchet and pawl being organized together, handled as a unit and constituting, with the stud 23, now to be described, a self-contained power-unit of the clock-movement, whether for the time-train, strike-train or alarm-train.

The bridge 2 also mounts a spring-anchoring stud 23 passed through a loop 24 at the outer end of the spring 19 for anchoring the same. Heretofore, one of the structural or binding pillars of the clock-movement has generally been used as an anchorage for the outer end of the spring, with the result that it has been necessary to partly demount the movement to remove the spring.

Inasmuch as the draft of the spring when fully wound is relatively heavy, I preferably form a supporting-notch 25 in the front movement-plate 9, as shown in Figure 3, for the reception of the outer end of the stud 23, so that the strain imposed thereupon by the spring, when fully wound, is largely removed from the bridge. The rear movement-plate 10 is formed with a corresponding clearance-notch 26 for the reception of the rear end of the stud 23 close to the point where the same is riveted into the bridge 2.

To permit my self-contained power-unit to be readily removed and replaced, the rear movement-plate 10 is formed with a large,

semi-circular assembly-opening 27 cut in one of its edges. The forward end 28 of the winding-arbor 18 is set into a bearing-hole 29 near the edge of the front movement-plate 9.

In practicing my invention, such a self-contained power-unit as above described is introduced into the movement through the cut or opening 27 in the rear movement-plate 10, the forward end 28 of the arbor 18 being at this time set into the bearing-hole 29 in the front movement-plate 9. At the same time, the forward end of the stud 23 enters the supporting-notch 25 in the front movement-plate 9, and the holes 3 and 4 at the ends of the bridge 2 pass over the projecting rear ends of the movement-pillars 7 and 8, after which the nuts 11 and 12 are applied to the threaded pillar-ends 5 and 6 for securing the unit in place. In this manner the unit is installed in the clock-movement, after the same has been entirely assembled. To remove the unit without in any way disturbing the clock-movement, it is only necessary to remove the nuts 11 and 12, thus freeing the unit to be pulled away from the movement through the cut 27.

In applying my invention to different forms of clock-movements, the shape, location and size of the mounting-bridges of the self-contained power-units will vary, as well as the particular means employed for fastening them in place, my invention broadly comprehending the use of a self-contained power-unit providing a bearing for one end of the spring-arbor and an anchorage for the outer end of the spring, without employing a pillar of the movement proper for such anchorage, whereby the demounting of the movement-plates, or spreading the same, or removing one or more of the binding-pillars thereof is avoided. Clock repairers, in particular, will find my improved self-contained power-unit of great assistance to them, as it avoids the necessity of demounting one of the movement-plates, in order to renew the main-spring, or the strike-spring, or the alarm-spring, as the case may be, or repair other features of the movement.

I claim:

The combination with the movement-plates and connecting pillars of a clock-movement, one of the plates having a supporting-notch, of a removable, self-contained power-unit, providing a bearing for the spring-arbor of the unit, and having a fixed stud for the anchorage for the outer end of the spring of the unit, the said slot in one of the movement-plates being positioned to receive the outer end of the stud when the power-unit is located between the movement-plates, whereby the said removable, self-contained power-unit may be installed in and removed from the clock-movement without spreading the movement-plates or removing any of the pillars thereof.

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

WILSON E. PORTER.

Witnesses:
MALCOLM P. NICHOLS,
GEORGE DUDLEY SEYMOUR.