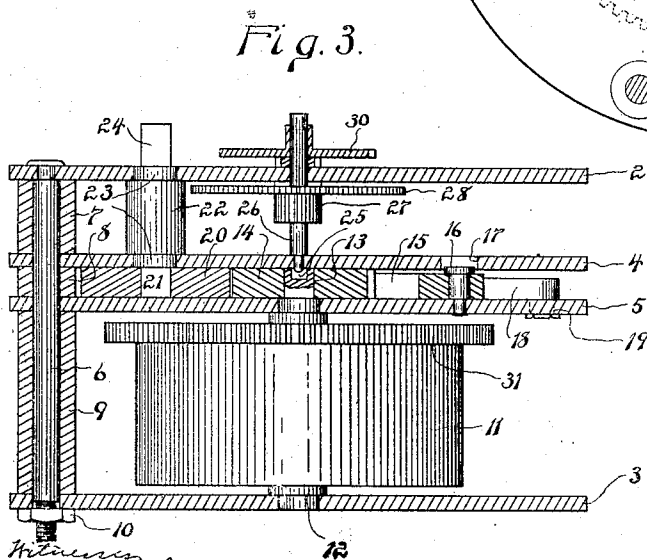
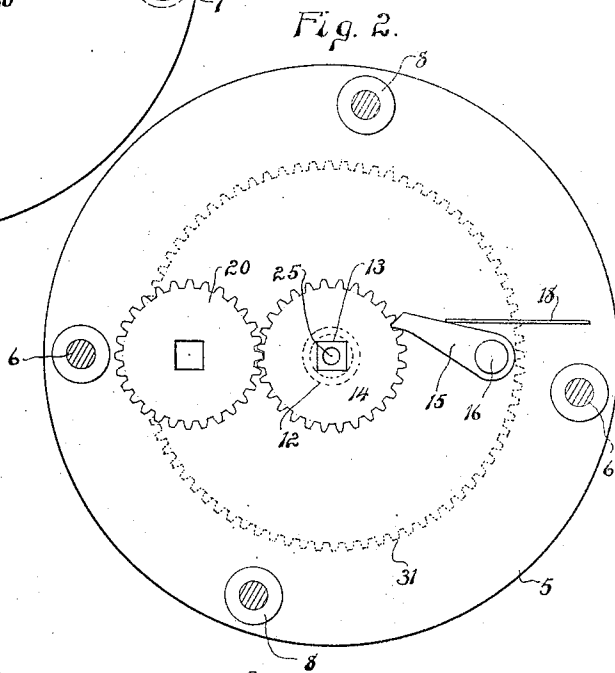
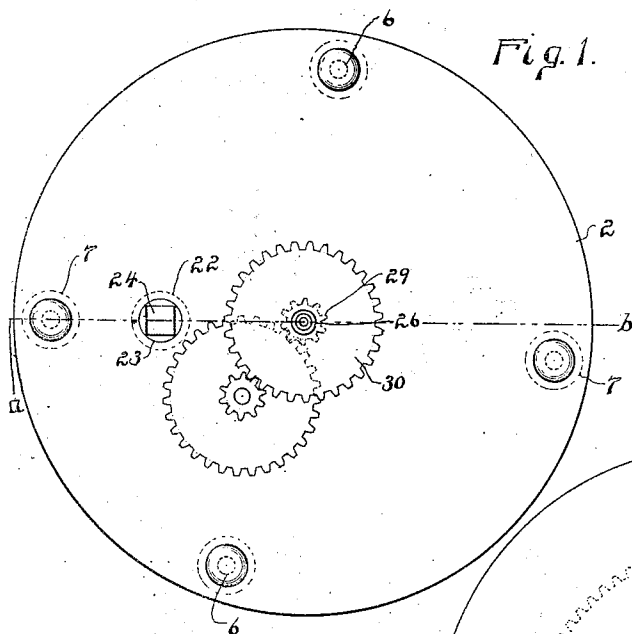


W. E. PORTER.
FRONT WINDING CLOCK MOVEMENT.
APPLICATION FILED JULY 8, 1912.

1,056,364.

Patented Mar. 18, 1913.



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UNITED STATES PATENT OFFICE.

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FRONT-WINDING CLOCK-MOVEMENT.

1,056,364.

Specification of Letters Patent.

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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 Front-Winding 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—

Figure 1 a view in front elevation of a front-winding eight-day marine clock-movement constructed in accordance with my invention. Fig. 2 a corresponding view with the front movement-plate and the front intermediate plate removed. Fig. 3 a view of the movement in horizontal section on the line *a-b* of Fig. 1.

My invention relates to an improvement in front-winding eight-day marine clock-movements primarily designed to be used in automobile clocks, though not limited to such use, the object being to produce an eight-day movement of small diameter in which the winding-arbor is positioned in the dial so as not to mutilate, or at least not to seriously mutilate the figures thereof.

A further object of my invention is to produce a clock-movement in which the wheels of the winding-train are held in place without securing them permanently to their arbors, by interposing them between intermediate movement-plates placed so close together as to leave but a narrow space between them.

With these ends in view my invention consists in a front-winding eight-day marine clock-movement 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, I employ a circular front movement-plate 2, a corresponding rear movement-plate 3, and circular front and rear intermediate movement-plates 4 and 5, these four plates being secured together by pillars 6 passing through spacing sleeves 7, 8 and 9 respectively varied in length in accordance with the spaces required between the said plates, the rear ends of the said pillars being

threaded and furnished with nuts 10 which, however, may be replaced by screws entering threaded counterbores in the pillars. An eight-day main-spring, not shown, is located in a main-spring barrel 11 placed between the rear plate 3 and the rear intermediate movement-plate 5, and mounted upon a main-spring arbor 12 journaled in the centers of the said plates and therefore concentric with the clock-movement. The forward end of the said arbor 12 projects into the narrow space between the intermediate plates 4 and 5 and is squared as at 13 for the reception of a concentric ratchet wheel 14 provided for this purpose with a correspondingly squared central opening and held in place by its bearing against the adjacent faces of the said plates 4 and 5 without being secured to the squared end 13 of the arbor. A pawl 15 co-acting with the wheel 14 is mounted upon a shouldered stud 16 riveted in the plate 5, the plate 4 being formed with a clearance hole 17 for the clearance of the head of the stud. The pawl 15 is maintained in engagement with the teeth of the wheel 14 by means of a spring 18 formed at its outer end with an integral finger 19 by means of which it is mounted in the plate 5 as clearly shown in Fig. 3. The ratchet 14 is meshed into by a winding-wheel 20 corresponding to it in diameter and formed with a square central opening adapting it to be set over the squared rear end 21 of a winding-arbor 22 having bearing-shoulders 23 by means of which it is journaled in the front movement-plate 2 and the front intermediate plate 4, the projecting forward end 24 of the arbor 22 being squared for the reception of the winding-key, which is not shown.

It will be seen from the foregoing that the ratchet wheel 14 and the winding wheel 20 are held in place by the plates 4 and 5, the separation between which is just wide enough to permit the introduction of the wheels between them, whereby the fixed attachment of the wheels to the main-spring arbor 12 and the winding-arbor 22 respectively is rendered unnecessary. It will also be observed that under my construction the winding-arbor 22 is brought to the front of the clock-movement through the front movement-plate 2 thereof in such a position that it necessitates little or no mutilation of the figures on the dial, which is not shown. Of

course by changing the sizes of the wheels 14 and 20 the winding-arbor 22 may be positioned anywhere between the center and periphery of the front movement-plate 2—
 5 anywhere where it will not collide with other parts. This construction imposes no limitations upon the size of the main-spring barrel 11 since the same is located entirely to the rear of the ratchet and winding wheels
 10 14 and 20 and the winding-arbor 22, whereas if the said arbor had to be carried rearward through the rear movement-plate 3 the main-spring barrel 11 must be made small enough to clear it, or located to one side of
 15 the center of the movement for the same purpose. Even the latter expedient does not always permit the location of the winding-arbor in a convenient position because the main-spring barrel cannot in many cases be
 20 moved to one side to clear the winding arbor without interfering with other parts of the movement.

The squared forward end 13 of the main-spring arbor 12 is formed, as shown, with a
 25 clearance recess 25 for the reception of the rear pivot of the center-arbor 26 which is journaled at its rear end in the center of the front intermediate plate 4, the forward end of the arbor 26 being journaled in the center
 30 of the front movement-plate 2. The said center-arbor 26 carries the usual center pinion 27 to which the center wheel 28 is attached, the said wheel and pinion being located just within the front movement-plate
 35 2. Upon the projecting forward end of the center-arbor, I mount the cannon pinion 29 with the socket wheel 30 in front of it. The main-spring barrel 11 is provided, as usual, with a main wheel 31 which meshes into a
 40 pinion, not shown, but forming a part of the ordinary time-train.

The time-movement and dial-work are not fully shown as they constitute no part of my
 45 present invention and may be of any ordinary construction.

I claim:—

1. In an eight-day front-winding marine clock-movement, the combination with front and rear movement plates and front and rear intermediate movement plates, of a
 50 main-spring barrel located between the rear movement-plate and the rear-intermediate movement-plate, a main-spring arbor for the said barrel, a winding arbor mounted at its rear end in the said front intermediate move-
 55 ment-plate and projecting forward through the front movement-plate and held in place thereby, and wheels interposed between the said intermediate plates and connecting the
 60 said arbors.

2. In a front-winding clock-movement, the combination with front and rear movement-plates, of front and rear intermediate movement-plates, a main-spring barrel located between the rear movement-plate and the rear
 65 intermediate movement-plate, a main-spring arbor journaled in the rear movement-plate and the rear intermediate movement-plate and having its forward end squared and projecting into the narrow space between
 70 the two intermediate movement-plates, a ratchet-wheel loosely mounted upon the said squared portion of the main-spring arbor, and interposed between and held in place by the said intermediate plates, a winding-ar-
 75 bor journaled in the front movement-plate and the front intermediate movement-plate and having its inner and outer ends squared, and a winding-wheel meshing into the said ratchet-wheel, loosely mounted upon the
 80 squared inner end of the said winding-arbor and interposed between and held in place by the said intermediate movement-plates.

In testimony whereof, I have signed this specification in the presence of two subscrib-
 85 ing witnesses.

WILSON E. PORTER.

Witnesses:

CLARA L. WEED,

GEORGE DUDLEY SEYMOUR.