W. E. PORTER.

CLOCK MOVEMENT.

APPLICATION FILED OCT. 15, 1910.

988,660. Patented Apr. 4, 1911.

Fig. 1

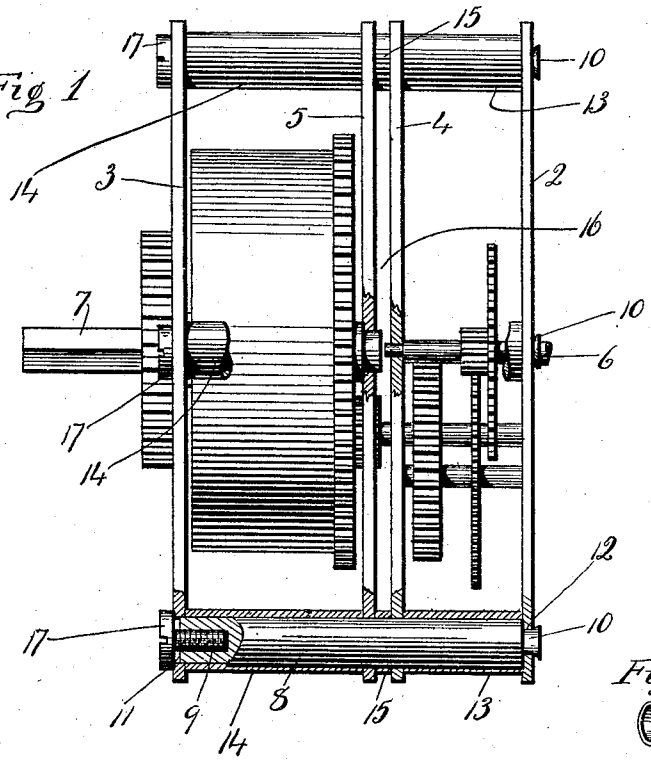


Fig. 4.

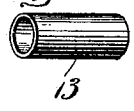


Fig. 2.

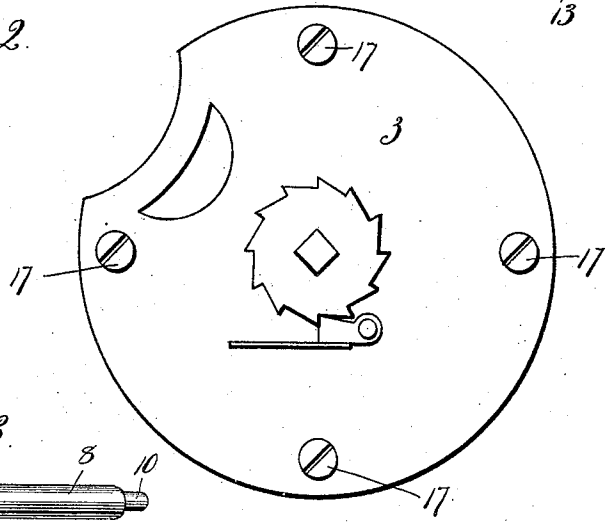
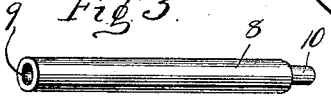


Fig. 3.



Witnesses
C. J. Reed.
Lyon H. Earle

Inventor
Wilson C. Porter
By Atty's
Symonds & Coare
Frederic C. Coare

UNITED STATES PATENT OFFICE.

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

CLOCK-MOVEMENT.

988,660. Specification of Letters Patent. Patented Apr. 4, 1911.

Application filed October 15, 1910. Serial No. 587,219.

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 Clock-Movements; 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 partly in side elevation and partly in section of a clock-movement constructed in accordance with my invention. Fig. 2 a detached view thereof in rear elevation. Fig. 3 a detached perspective view of one of the pillars. Fig. 4 a perspective view of one of the pillar-sleeves.

My invention relates to an improvement in clock-movements and particularly to that class of clock-movements having intermediate movement-plates and therefore requiring the employment of special pillars, such, for instance, as clock-movements in which the winding-arbor and center-arbor are located in line with each other, and which therefore require one or two intermediate movement-plates in addition to the ordinary front and rear movement-plates.

The object of my invention is not only to simplify the construction of all such clock-movements, but also to facilitate the assemblance and dismounting of their parts, and to secure for them greater accuracy of "lining up."

With these ends in view my invention consists in a clock-movement having certain details of construction as will be hereinafter described and pointed out in the claims.

For the purpose of illustration and description, I have chosen to apply my invention to a clock-movement having a front movement-plate 2, a rear movement-plate 3, and front and rear intermediate movement-plates 4 and 5. The center arbor 6 has bearing at its forward end in the front movement-plate 2, and at its rear end in the front intermediate plate 4, while the forward end of the winding-arbor 7 has bearing in the rear intermediate plate 5 and in the rear movement-plate 3. Under this construction the center-arbor 6 and the winding-arbor 7 are located in line, the rear end of the center-arbor and the forward end of the winding-arbor coming close together. Now the employment of the two intermediate movement plates 4 and 5 makes it necessary to organize them with the ordinary front and rear movement-plates 2 and 3. For this purpose I employ long pillars 8 each formed at one end with a screw-hole 9, and at the opposite end with a rivet 10, and each being adapted in length to connect the front and rear movement-plates 2 and 3, though made short enough to provide the take-up space 11 produced by failing to extend their rear ends clear through the rear plate 3. As shown there are four of these pillars, but the number may be varied as desired.

The rivets 10 of the pillars 8 are passed forward through rivet-holes 12 in the front plate 2 and swaged down thereupon, whereby the front-plate 2 is secured to all of the pillars. For the purpose of spacing the plates 3, 4 and 5 upon the pillars, I employ spacing-sleeves 13 and 14 and spacing-collars 15, all just enough larger in diameter than the pillars 8 to slip over the same and gaged in length by the spaces which it is desired to establish between the respective plates 2, 3, 4 and 5. Thus, the spacing sleeves 13 are made just long enough to establish a right distance between the plates 2 and 4. So, too, the spacing-collars 15 are made just wide enough to establish a sufficient clearance-space 16 between the intermediate plates 4 and 5. The sleeves 14 are made long enough to establish the required space between the plates 3 and 5. These spacing-sleeves and collars will, of course, be varied in length according to the particular requirements of each movement.

In assembling the parts of my improved movement, the rear movement-plate 3 is left to the last, it being placed over the rear ends of the pillars 8 so as to rest upon the rear ends of the spacing-sleeves 14. The pillar screws 17 are then entered into the screw-holes 9 in the rear ends of the pillars and turned home, whereby all lost motion between the plates and sleeves and collars is taken up in the take-up spaces 11. The pillars 8, spacing-sleeves 13 and 14 and the spacing-collars 15 may be very accurately produced at a low cost, and effect a far more accurate "lining up" of the clock-movement than do sectional pillars adapted to have their sections screwed into each other.

I have shown and described my invention as applied to a movement having four plates, on account of its peculiar applicability thereto, but it is apparent that it may be used in the construction of movements having only three plates. Whether applied to clock-movements having three or more plates, my improved pillars with their spacing-sleeves and spacing-collars invariably secure the correct predetermined distances between the plates, since even if the riveting of the pillars tends to break down or deform their shoulders, this will be corrected by the spacing-sleeves when the same are applied as they are invariably of the same length and not subject to any hammering or deformation in assembling the movement.

I am aware, however, that it was old prior to my invention to employ spacing-sleeves for spacing the movement-plates of clocks employing more than two movement-plates, and do not therefore claim such a construction broadly.

I claim:—

1. In a clock-movement, the combination with a center-arbor and a winding-arbor located in line with each other, of front and rear movement-plates respectively providing a bearing for the forward end of the center-arbor, and for the rear end of the winding-arbor, two intermediate movement-plates respectively providing a bearing for the rear end of the center-arbor and the forward end of the winding-arbor, pillars connecting the said front and rear plates, spacing-sleeves mounted upon the said pillars and respectively interposed between the said front and rear plates and the said intermediate plates, and spacing collars interposed between the said intermediate plates which have but a narrow clearance space between them.

2. In a clock-movement, the combination with the front and rear movement-plates thereof, of pillars formed at their forward ends with rivets entering rivet-holes in the front movement-plate and swaged down thereupon, and having their rear ends entered into holes in the rear movement-plate and formed with screw-holes, pillar-screws passed through the rear movement-plate into the said screw-holes in the pillars, one or more intermediate plates located between the front and rear movement-plates, and spacing sleeves mounted upon the said pillars and interposed between the several movement-plates, take-up spaces being formed in the said rear movement-plate by proportioning the pillars in length to the length of the said sleeves.

3. In a clock-movement, the combination with a center-arbor and a winding-arbor located in line with each other, of circular front and rear movement-plates respectively providing a bearing for the forward end of the center-arbor and for the rear end of the winding-arbor, two circular intermediate movement-plates respectively providing a bearing for the rear end of the center-arbor and the forward end of the winding-arbor, the said center and winding arbors being located in the centers of the said front, rear and intermediate plates, pillars connecting the said front and rear plates and passing through the said intermediate plates, spacing sleeves mounted upon the pillars and respectively interposed between the inner faces of the front and rear plates and the outer faces of the intermediate plates, spacing collars mounted upon the said pillars and interposed between the said intermediate plates which are separated by a narrow clearance space, and means for securing the pillars at their ends to the front and rear movement-plates.

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

WILSON E. PORTER.

Witnesses:
C. J. Reed,
Frederic C. Earle.