

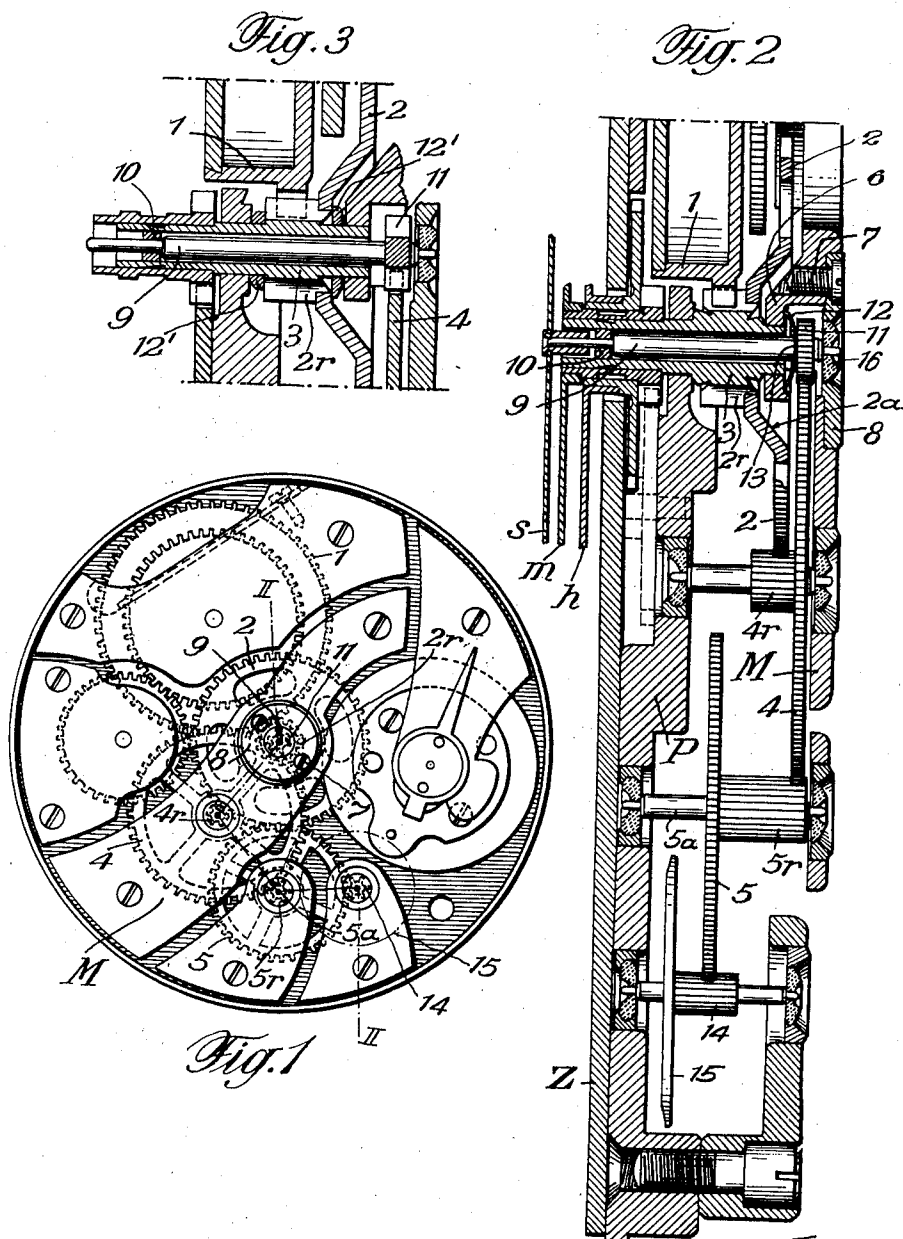
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TIMEPIECE MOVEMENT

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TIMEPIECE MOVEMENT

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This invention relates to a timepiece movement, and more particularly to a movement for small timepieces, such as pocket watches, wrist watches, and the like.

It is an object of the invention to provide a timepiece movement having a seconds hand in the center thereof, while preserving the usual disposition of the wheel train of ordinary watch movements, and without increasing the total height of the movement. In known watch movements with a seconds hand it was necessary, owing to the provision of the seconds pinion in the central axis, to increase the height of the movement with respect to an ordinary watch movement without a seconds hand in the center thereof, or else a specially designed wheel train had to be adopted in which the usual center wheel was laterally offset in order to make room for placing the seconds pinion in the central axis without increasing the height of the movement.

The invention consists in the provision of a center wheel mounted on the minute-hand sleeve and provided with a cavity in the central portion thereof, into which cavity extends a bearing bracket carried by the center bridge and supporting the minute hand sleeve, so that a seconds pinion can be inserted in the space formed between the bearing bracket and the bridge and mounted on the seconds-hand spindle which is guided in a bearing carried by the bridge. Owing to the provision of the cavity in the center wheel, it is possible to lodge the seconds pinion in the center axis together with a center wheel, without requiring any increase of the height of the movement and while preserving the usual disposition of the wheel train.

The invention further consists of the arrangement and construction of parts as will be described hereinafter, reference being had to the accompanying drawing in which:

Figure 1 is a plan view of a watch movement according to the invention;

Figure 2 is a section along the broken line II—II of Fig. 1, drawn to a larger scale; and

Figure 3 is a section through a modification.

In the drawing, P indicates the movement plate to which is secured the dial Z, and M indicates the center bridge. The spring barrel 1 meshes with the pinion 2r of the center wheel 2 which is rigid with the spindle 3 of the minute hand m. h designates the hour hand. The center wheel 2 meshes with the pinion 4r of the intermediate wheel 4, and this latter drives the pinion 5r of the seconds wheel 5, which in turn meshes with

the pinion 14 of the escapement wheel 15. This wheel train is accordingly arranged as usual in normal watch movements, and the spindle 5a of the seconds wheel 5 is situated as in any ordinary movement between the center and the number six on the dial.

The center wheel 2 is depressed in its central portion so as to present a cavity 2a into which extends a bearing bracket 6 formed integrally with the bridge M and arranged to guide the upper end of the spindle of the minute hand m, this spindle being moreover guided in the movement plate P. A bearing plate 8, disposed concentrically with the spindle axis, is sunk into the center bridge M and secured thereto by means of two screws 7. The bearing plate carries a perforated jewel 16 in which the pivot of a seconds hand spindle 9 is guided. The lower end of this spindle extends through a ring 10 which is forced into the bore of the minute hand spindle 3. An additional seconds pinion 11 is carried on the spindle 9 in the space formed between the bearing bracket 6 and the plate 8. This pinion 11 meshes with the intermediate wheel 4 which penetrates through a slot provided between the body of the bridge M and the bracket 6. For this reason, the wheel 4 is disposed above the center wheel 2 and its diameter is chosen so that it can mesh simultaneously with the seconds pinion 11 and with the pinion 5r of the seconds wheel 5. A spring washer 12 is inserted between the pinion 11 and the bracket 6 for the purpose of taking up the play which is present in the gears. In order to reduce the friction of this spring washer, a thin steel disc 13 is engaged on the spindle 9 of the seconds hand and makes contact with the spring washer and with one face of the pinion 11.

Figure 3 shows an arrangement for very small watch movements in which the minute hand spindle 3 cannot be made of a size sufficient to provide the necessary shoulders acting as stop against axial thrust. In this case two collars 12' are forced on the spindle 3 on either side of the center wheel pinion 2r, these collars forming the required thrust surfaces.

It is seen that in a watch movement according to the invention, it is possible to place a seconds hand s in the center of the movement or between the center and the number six of the dial, on the spindle 5a, without making any changes in the disposition of the wheel train, or, if desired, two seconds hands can be mounted simultaneously in the center and on the spindle 5a, respectively.

Owing to the provision of the cavity 2a in the center wheel, the additional seconds pinion 11

does not require an increase of the height of the movement with respect to an ordinary watch movement without a seconds hand in the center.

- While I have shown and described a preferred embodiment of my improved watch movement, it is to be understood, that minor changes may be made in the construction and disposition of the parts thereof without departing from the scope of the invention as defined in the appended claims.

I claim:

1. In a timepiece movement having a time train for transmitting movement from a driving member to time indicating members, a sleeve carrying one of the wheels of said time train, a spindle extending through said sleeve, a bridge carrying one end of said spindle, said wheel on the sleeve being provided with a cavity in the central portion thereof, a bracket carried by said bridge and extending into said cavity in spaced relationship with the bridge, said bracket supporting one end of said sleeve, and a pinion mounted on said spindle and being disposed between said bracket and the bridge.
2. A timepiece movement comprising a driving member, time indicating means, a time train transmitting movement from the driving member to said time indicating means, a minute-hand sleeve, a seconds-hand spindle extending through said sleeve, a bridge supporting one end of the seconds-hand spindle, one of the wheels of said time train being mounted on the minute-hand sleeve, said wheel being provided with a cavity in the central portion thereof, a bracket carried by said bridge and extending into said cavity in spaced relation to the bridge, said bracket supporting one end of the minute-hand sleeve, and a seconds pinion carried by said seconds-hand spindle and disposed in the space between said bracket and the bridge.
3. A timepiece movement comprising a minute-hand sleeve, a central wheel on said sleeve,

an intermediate wheel driven by said central wheel, a seconds wheel driven by said intermediate wheel, a seconds-hand spindle extending through the minute-hand sleeve, a bridge carrying one end of said spindle, the central wheel being provided with a cavity in the central portion thereof, a bracket integral with said bridge and extending into said cavity in spaced relationship with the bridge, said bracket supporting one end of the minute-hand sleeve, and a seconds pinion mounted on the seconds-hand spindle and disposed in the space formed between said racket and the bridge, said seconds pinion meshing with the intermediate wheel.

4. A timepiece movement comprising a minute-hand sleeve, a central wheel on said sleeve, an intermediate wheel driven by said central wheel, a seconds wheel driven by said intermediate wheel, a seconds-hand spindle extending through said minute-hand sleeve, a wheel bridge, a bearing plate secured to the bridge, a perforated jewel carried by said plate and receiving one end of said seconds-hand spindle, the central wheel being formed with a cavity in the central portion thereof, a bracket integral with the bridge and extending into said cavity in spaced relationship with the bridge, said bracket supporting one end of the minute-hand sleeve, and a seconds pinion on the seconds-hand spindle and disposed in the space formed between said bracket and the bridge, said seconds pinion meshing with the intermediate wheel.

5. A timepiece movement as defined in claim 3, in which a spring washer is inserted between the seconds pinion and said sleeve supporting bracket.

6. A timepiece movement as defined in claim 3, comprising a central pinion on said minute-hand sleeve and thrust collars forced on the sleeve on either side of said central pinion.

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