No. 672,655. Patented Apr. 23, 1901.

J. THALHOFER.

WATCH BARREL.

(Application filed Apr. 4, 1900.)

(No Model.)

Fig. 1.

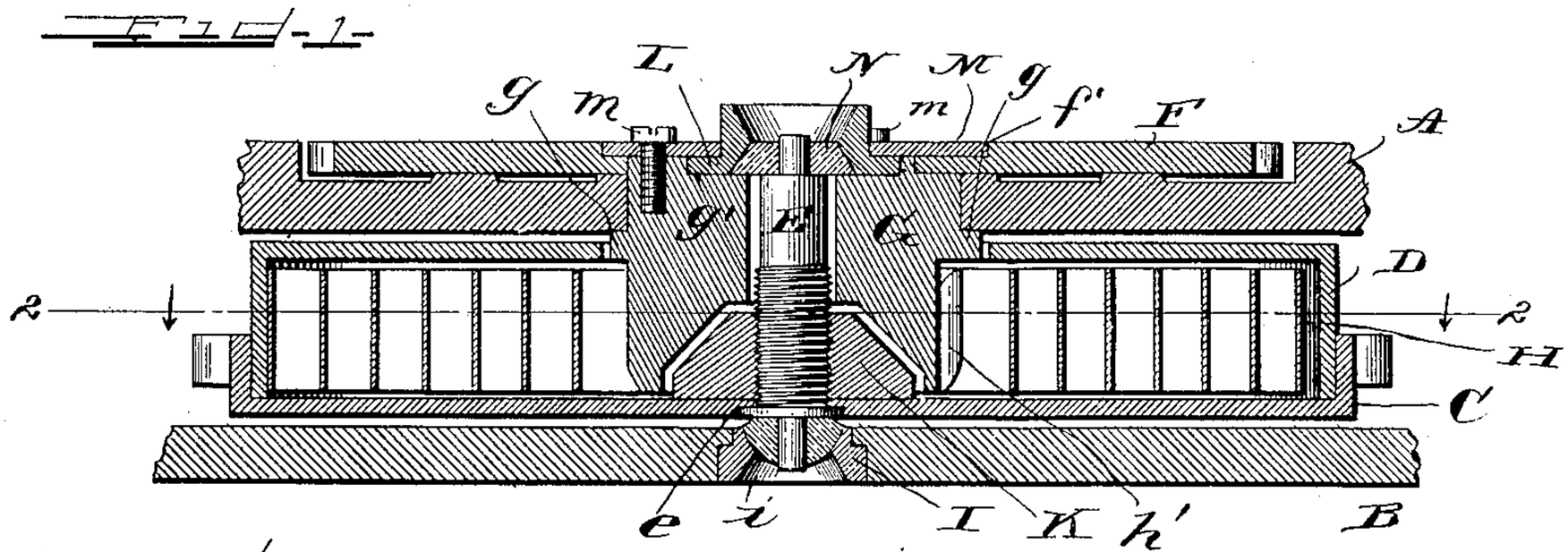


Fig. 2.

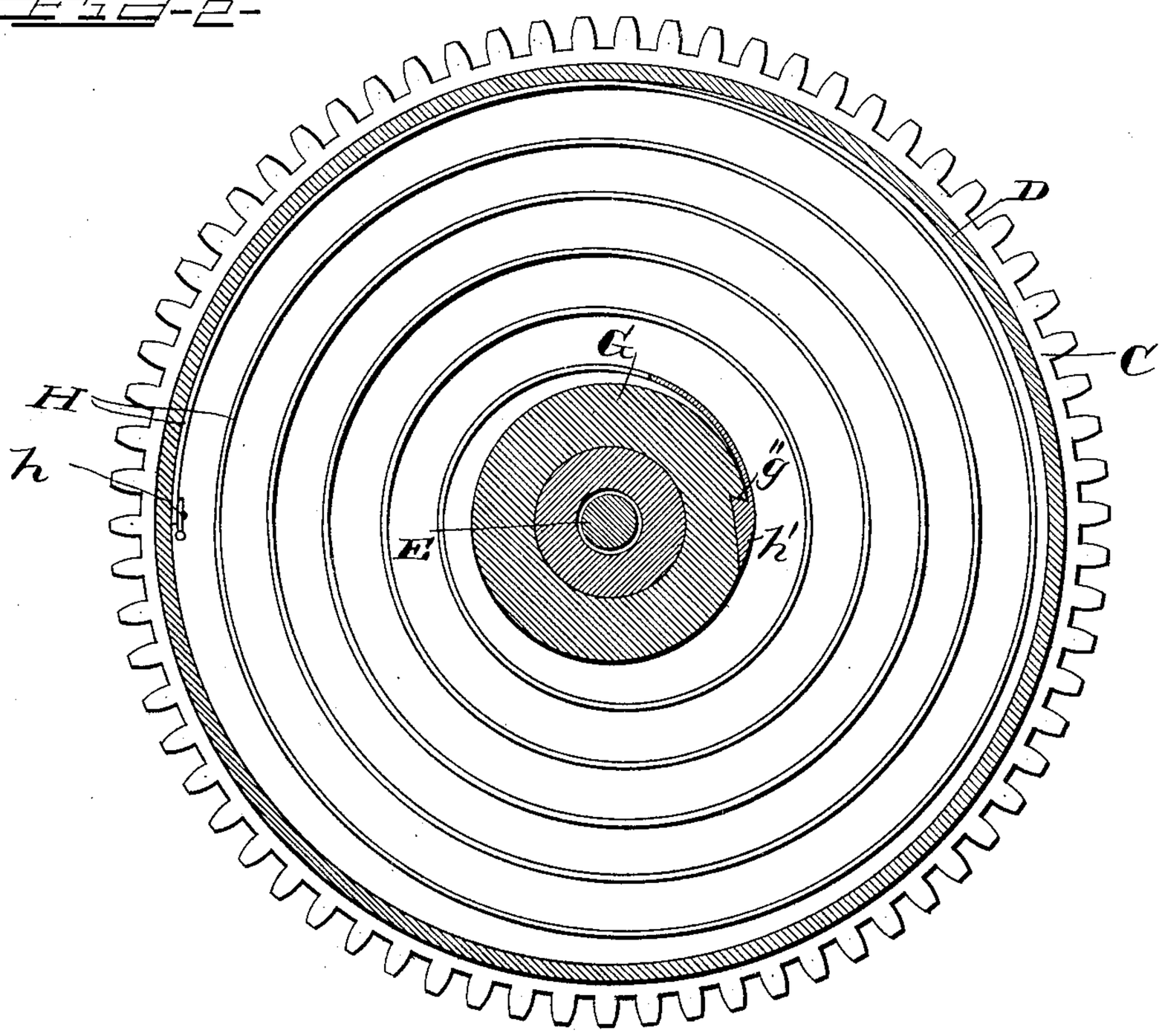
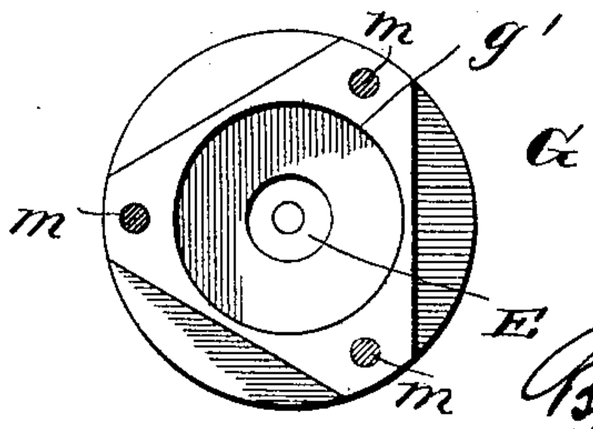


Fig. 3.



Witnesses

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JOSEPH THALHOFER, OF CHICAGO, ILLINOIS.

WATCH-BARREL.

SPECIFICATION forming part of Letters Patent No. 672,655, dated April 23, 1901.

Application filed April 4, 1900. Serial No. 11,425. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH THALHOFER, a citizen of the United States of America, residing at Chicago, in the county of Cook, in the State of Illinois, have invented a certain new and useful Improvement in Mainspring-Barrels for Watches or the Like, of which the following is a description.

Referring to the accompanying drawings, wherein like reference-letters indicate like or corresponding parts, Figure 1 is a sectional view illustrating my improvements. Fig. 2 is a section of the same, taken in line 2 2 of Fig. 1; and Fig. 3 is a plan view of the winding-arbor of the same.

The object of my invention is to produce a mainspring-barrel and its attendant elements in a winding mechanism which shall be simple in construction and effective in operation and in which the parts may be more readily and easily assembled or disconnected than in the similar constructions now in use.

To this end my invention consists in the novel construction, arrangement, and combination of the parts herein shown and described, and more particularly pointed out in the claims.

In the drawings, in which is shown the preferred mode of embodying my invention in a watch-movement, A and B represent the plates or equivalent bridge parts of a watch-movement; C, the main wheel; D, the spring-barrel proper; E, the main arbor, and F the ratchet-wheel of a watch winding mechanism.

G is an annular winding arbor or stud of novel construction, and H is the mainspring within the barrel.

As shown in the drawings, the shoulder *e* upon the main arbor E is positioned within a suitable recess in the main wheel C in the usual manner. A screw-threaded nut K, engaging the main arbor E, is positioned upon the opposite side of the wheel C and serves to retain the fixed relation of the main wheel with the arbor E. Equivalent means of well-known construction may be employed for the same general purpose, if preferred. A jewel-setting I, engaged with the plate B in any preferred manner, retains a jewel *i* in position for the reception of the end of the main arbor, as shown. The spring-barrel D is detachably connected with the main wheel C and rotates therewith. As shown in the drawings, this engagement is secured by means of the frictional contact of the barrel with the upturned flanges of the main wheel. The mainspring H is secured at its outer end to the barrel D or adjacent parts in any preferred manner, as by a T-brace *h*, while the inner end is constructed to engage in any preferred manner with the annular winding arbor or stud G. In the preferred form the engagement of the spring with the winding-arbor is so made that the latter may be removed with the plate without disturbing the spring and barrel. The winding arbor or stud G extends through the plate A in a manner permitting free rotation therein and is provided with means securing it in such position. The shoulders *g*, positioned beneath said plate and preferably located within the circular opening in the spring-barrel, as shown, have this function. The upper surface of the winding-arbor G is constructed to suitably engage with the ratchet-wheel F. In the preferred form an angular or irregular extension G′ is formed upon the upper surface of the winding-arbor, while a corresponding opening is formed in or through the ratchet-wheel F to engage therewith. In the preferred form also the jewel-setting L is seated in a suitable depression *g′*, also formed on the end of the winding-arbor, and a collar M, located in a suitable depression *f′* in the ratchet-wheel F, is secured to the winding-arbor in any preferred manner, as by screws *m*, securing all of the parts together. The jewel-setting L is provided with a jewel N, within which the end of the main arbor E is pivotally journaled. It is obvious that a simple bushing may be placed in the end of the arbor G or on the plate B in lieu of the jewel-setting and jewel, if preferred; but such bushings are obviously inferior equivalents of the jewel. As before stated, the end of the spring may be secured to the winding-arbor G in any preferred manner. As shown, a hook *h′* or its equivalent for this purpose may be formed in the end of the spring to engage with a corresponding notch *g″* in the winding-arbor, and the notch in the winding-arbor is a longitudinal groove which, as the arbor is placed in position, slidingly engages the

hook on the end of the spring, suitably connecting the two.

The mode of operation is obvious to those skilled in the art. The ratchet-wheel is provided with a click of any well-known form (not shown) and with suitable connections with the stem of a watch-movement. (Also not shown.) Upon operating the ratchet-wheel F by its connections with the stem the winding arbor or stud G is rotated, winding the spring which drives the main wheel in the usual manner. The parts may be disconnected by simply removing the screws securing the plate A in position, when the plate, carrying the various connecting parts, including the winding-arbor, may be easily disconnected from the movement and lifted off without removing the spring from the barrel or interfering with the barrel's connection with the main wheel.

The various connecting parts of the winding arbor or stud G may be easily disconnected by simply removing the connecting-screws *m*.

It will be observed that in my invention, as shown in the drawings, the mainspring-barrel D is detachably mounted upon the main wheel C and moves therewith, it having no other connection or engagement with the main-wheel arbor E and that the winding-arbor G has no other connection with the barrel D than by its connection with the inner end of the spring H. It is obvious that the parts may be reversed without departing from the spirit of my invention. Such changes, however, do not involve my invention and to a skilled mechanic having knowledge of my invention are simply such as would naturally occur. The essential point in considering the relation of these parts in my invention is that the main wheel and the barrel are secured to each other and rotate together in the movement and that one or the other, as preferred, is suitably mounted upon the main arbor, both the spring-barrel and the main wheel thus rotating with the arbor.

Another important feature of my invention consists in providing a watch-movement with an independent annular winding arbor or stud, through which the main arbor loosely extends and in which or upon a part carried by the arbor the end of the main arbor is pivotally journaled and, if desired, so journaled in a jewel provided for that purpose.

After having thus described my improvement and one way to practically employ the same it is obvious that various immaterial modifications may be made without departing from the spirit of my invention. Hence I do not wish to be understood as limiting myself to the exact form and arrangement shown.

It will also be understood that by the use of the term "plate" in the claims I include "bridges" and equivalent parts. Where, also, in the claims I refer to the outer end of the mainspring as attached to the "barrel," I wish to be understood as meaning secured to the inclosing wall, whether the same be a part of the barrel proper or of the main wheel.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A mainspring-winding mechanism, comprising an annular winding arbor or stud journaled in the movement-plate and provided with means for pivotally supporting the end of the main arbor, and with means for engaging the mainspring, in combination with a main arbor extending through the winding-arbor and pivotally journaled in the support thereon, a main wheel and a mainspring-barrel connected to rotate together, mounted upon and carried by the main arbor, and a mainspring within the barrel having one end attached to the barrel and the other end to the winding-arbor, substantially as described.

2. A mainspring-winding mechanism for watches, comprising an annular winding-arbor journaled within the movement-plate, in combination with a main arbor having its end pivotally journaled in the annular arbor, a main wheel C mounted upon and carried by the main arbor, a spring-barrel D detachably connected to and carried by the main wheel, and a mainspring H having its outer end attached to the barrel and its inner end to the winding-arbor, substantially as described.

3. In a watch winding mechanism, a main arbor pivotally supported in the movement, in combination with a main wheel and a mainspring-barrel connected to rotate together as a unit and mounted upon and rotating with the arbor, the connected main wheel and mainspring-barrel arranged to form a chamber for the mainspring supported by the arbor, substantially as described.

4. In a watch winding mechanism, a main arbor pivotally supported in the movement, in combination with a main wheel and a mainspring-barrel connected to rotate together as a unit and arranged to form a chamber for the mainspring, said chamber being supported by the main arbor, and a mainspring within the chamber having its outer end attached to the wall thereof and having its inner end constructed to engage with a winding-arbor, substantially as described.

5. In a watch winding mechanism, a main arbor pivotally supported in the movement, in combination with a main wheel and a mainspring-barrel connected to rotate together as a unit and arranged to form a chamber for the mainspring, said chamber being mounted upon the main arbor and rotating therewith, a mainspring within the chamber having its outer end attached to the wall thereof, and a rotatable annular winding-arbor loosely embracing the main arbor and connected with the inner end of the mainspring, substantially as described.

6. The combination, with a movement-plate, of an annular arbor journaled therein,

a main arbor journaled in a bearing carried by said annular arbor, a main wheel secured to said main arbor, a barrel detachably connected to and movable with said main wheel and rotatable about said annular arbor, a winding-wheel secured to said arbor, a mainspring secured at its outer end to said barrel and at its inner end detachably secured to said annular arbor, whereby the annular arbor can be removed without disturbing the barrel, spring and main wheel, substantially as described.

7. In a watch winding mechanism, an annular winding-arbor G rotatably secured to the movement-plate A, provided with means for pivotally supporting the end of the main arbor and with means for detachably engaging the mainspring, and a winding-wheel secured to said arbor, the several parts being carried by and removable with the plate A, in combination with a main arbor having its end pivotally supported in the annular arbor, a main wheel, and a mainspring-barrel connected to rotate together as a unit and arranged to form a chamber for the mainspring, said chamber being mounted upon the main arbor and rotating therewith, and a mainspring within the chamber having its outer end attached to the wall thereof, and its inner end detachably connected with the annular arbor, substantially as described.

8. In a watch mechanism, the combination with a plate having a bearing-opening therein, of an annular arbor journaled in said bearing-opening and having a shoulder *g* on one side of said plate, a winding-wheel fixed to said annular arbor on the other side of said plate whereby the annular arbor is accurately sustained in proper position, said annular arbor having a bearing for a main arbor and being adapted for the attachment of a mainspring, substantially as described.

9. In a watch mechanism, the combination with a plate having a bearing-opening therein, of an annular arbor journaled in said bearing-opening and having a shoulder *g* on one side of said plate, a winding-wheel on the other side of said plate and fixed to said annular arbor, whereby the annular arbor is accurately sustained in proper position, a jewel-setting for a main arbor mounted on said annular arbor, said annular arbor being adapted for the attachment of a mainspring, substantially as described.

10. In a watch mechanism, the combination with a plate having a bearing-opening therein, of an annular arbor journaled in said bearing-opening and provided with means upon the same for retaining the arbor in relative position, upon one side of the plate, a winding-wheel, and a collar securing said winding-wheel to said arbor on the other side of the plate, whereby the annular arbor is accurately sustained in proper position, said annular arbor having a bearing for a main arbor and being adapted for the attachment of a mainspring, substantially as described.

11. In a watch mechanism, the combination with a plate having a bearing-opening therein, of an annular arbor journaled in said bearing-opening and provided with means upon the same for retaining the arbor in relative position, upon one side of the plate, a winding-wheel, and a collar securing said winding-wheel to said arbor on the other side of the plate, whereby the annular arbor is accurately sustained in proper position, said annular arbor being provided with a jeweled bearing for a main arbor and being adapted for the attachment of a mainspring, substantially as described.

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