

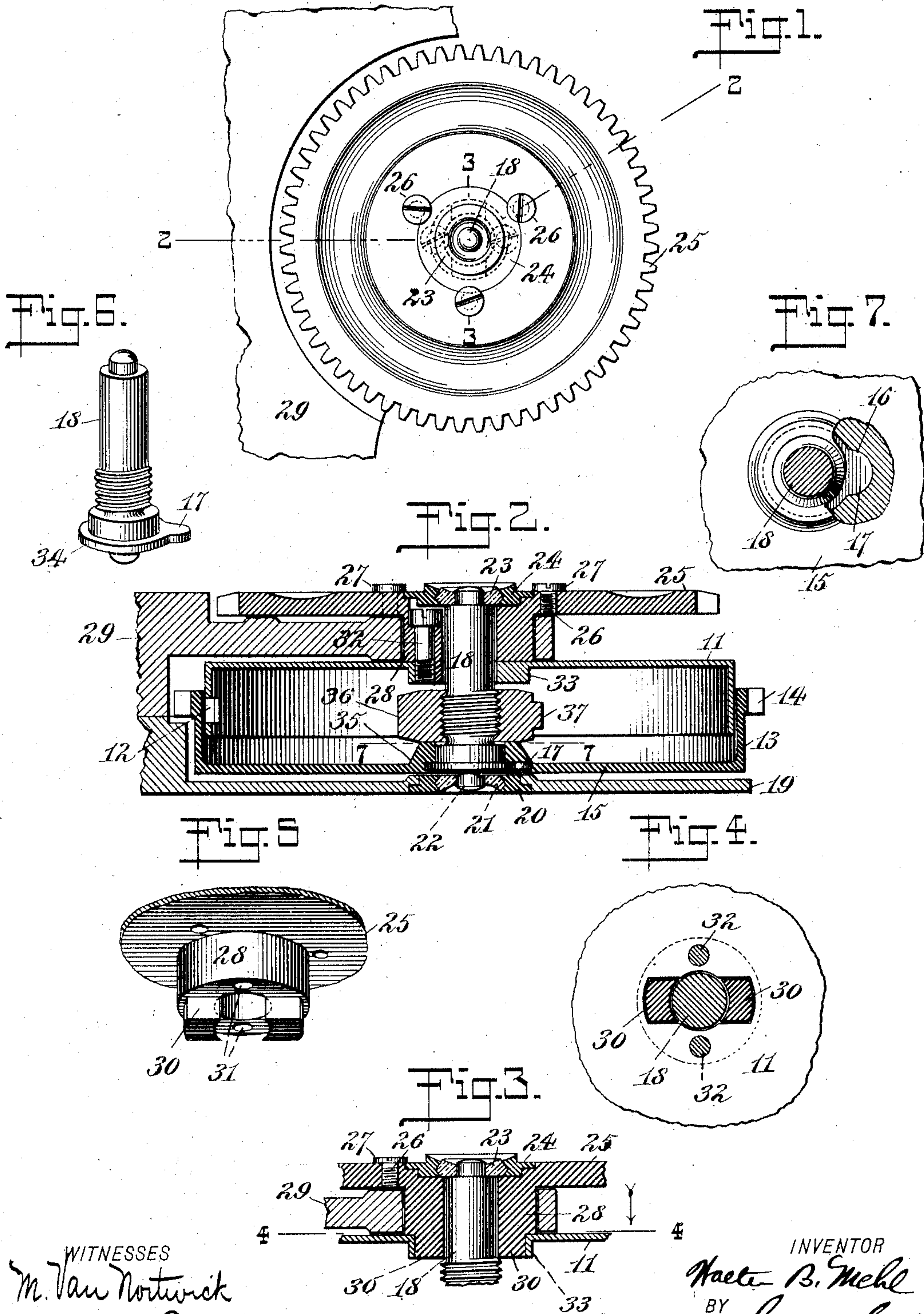
No. 886,387.

PATENTED MAY 5, 1908.

W. B. MEHL.
WATCH BARREL.

APPLICATION FILED SEPT. 27, 1906.

2 SHEETS—SHEET 1.



WITNESSES
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A. B. Smith

INVENTOR
Walter B. Mehl
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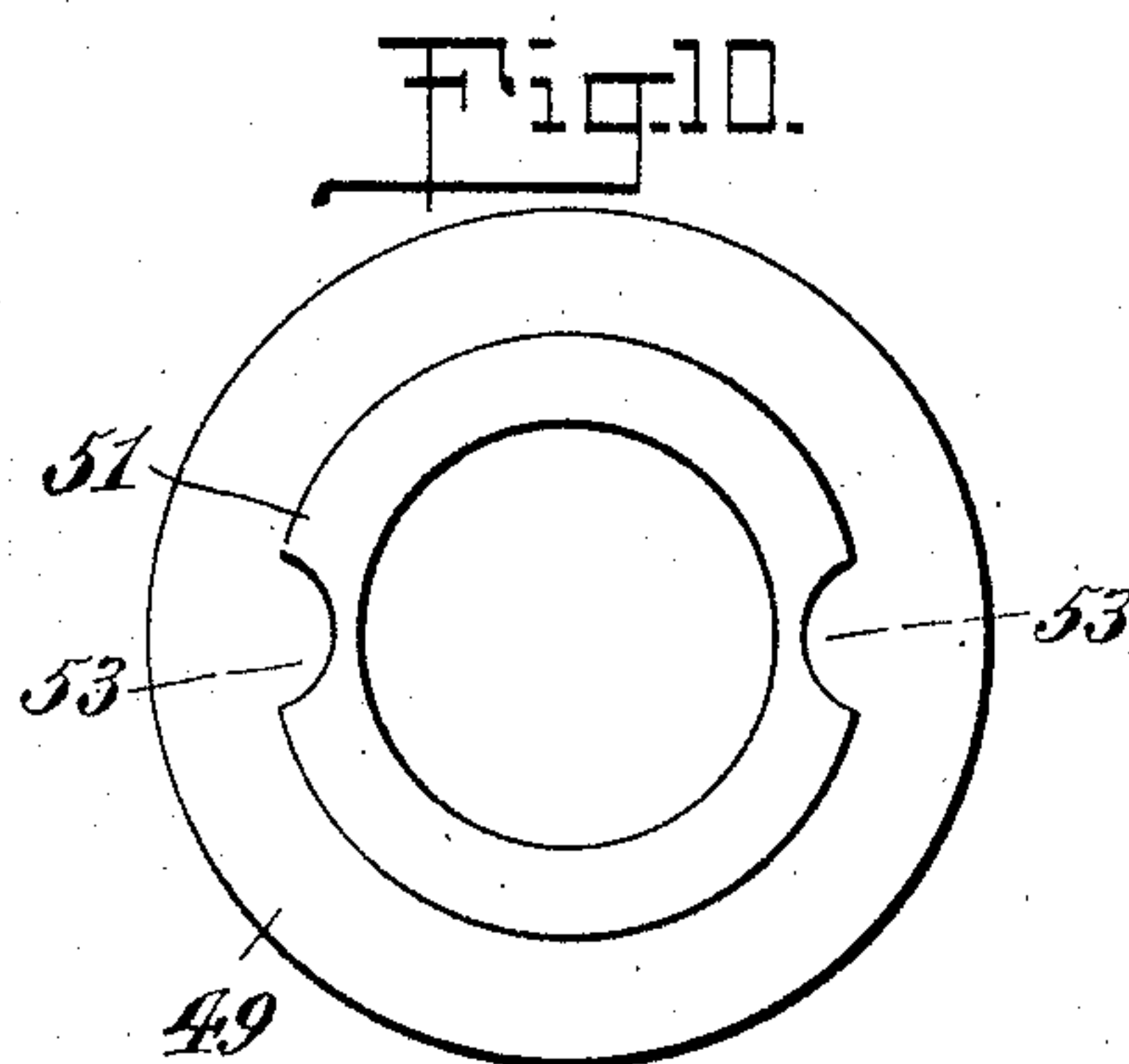
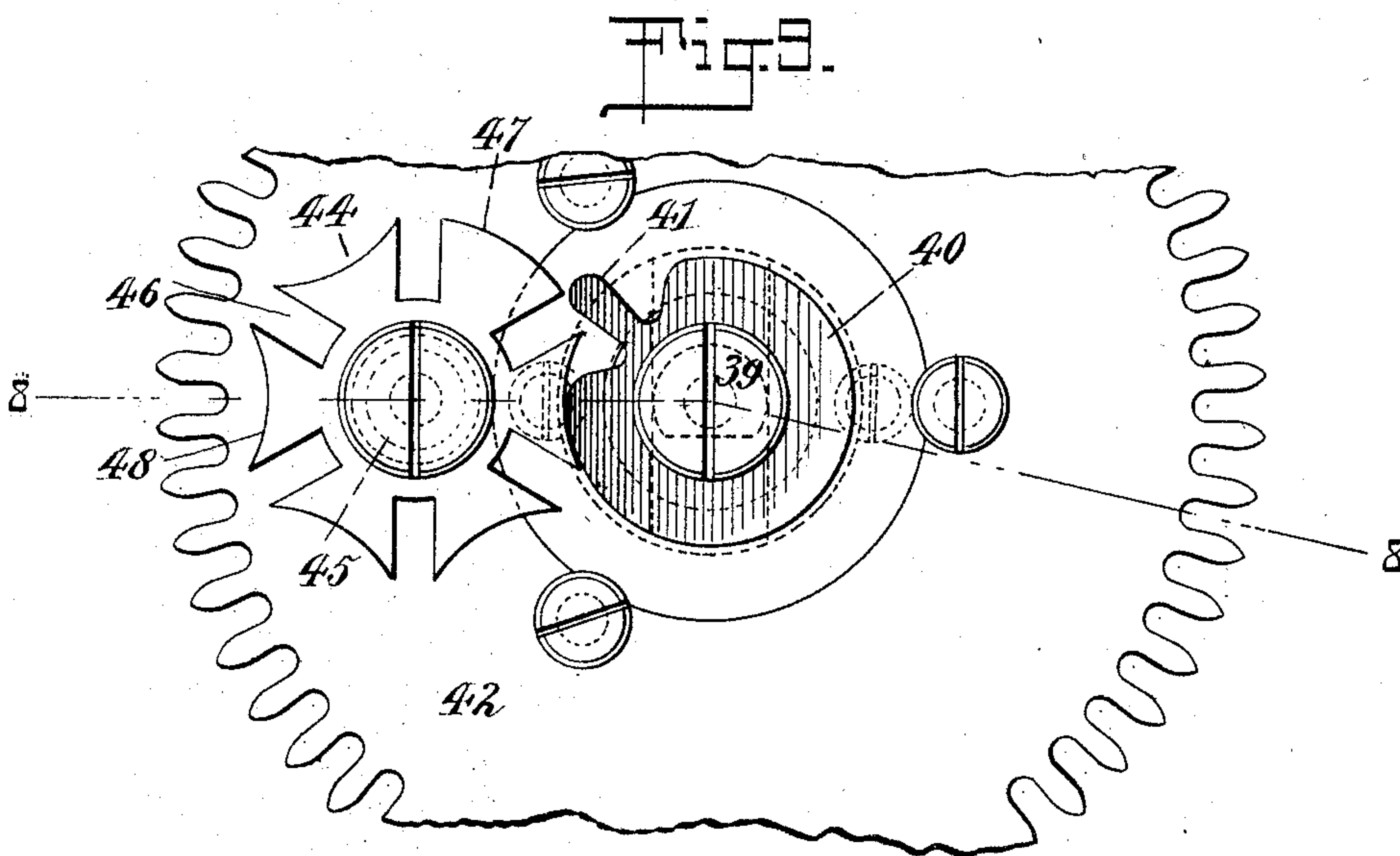
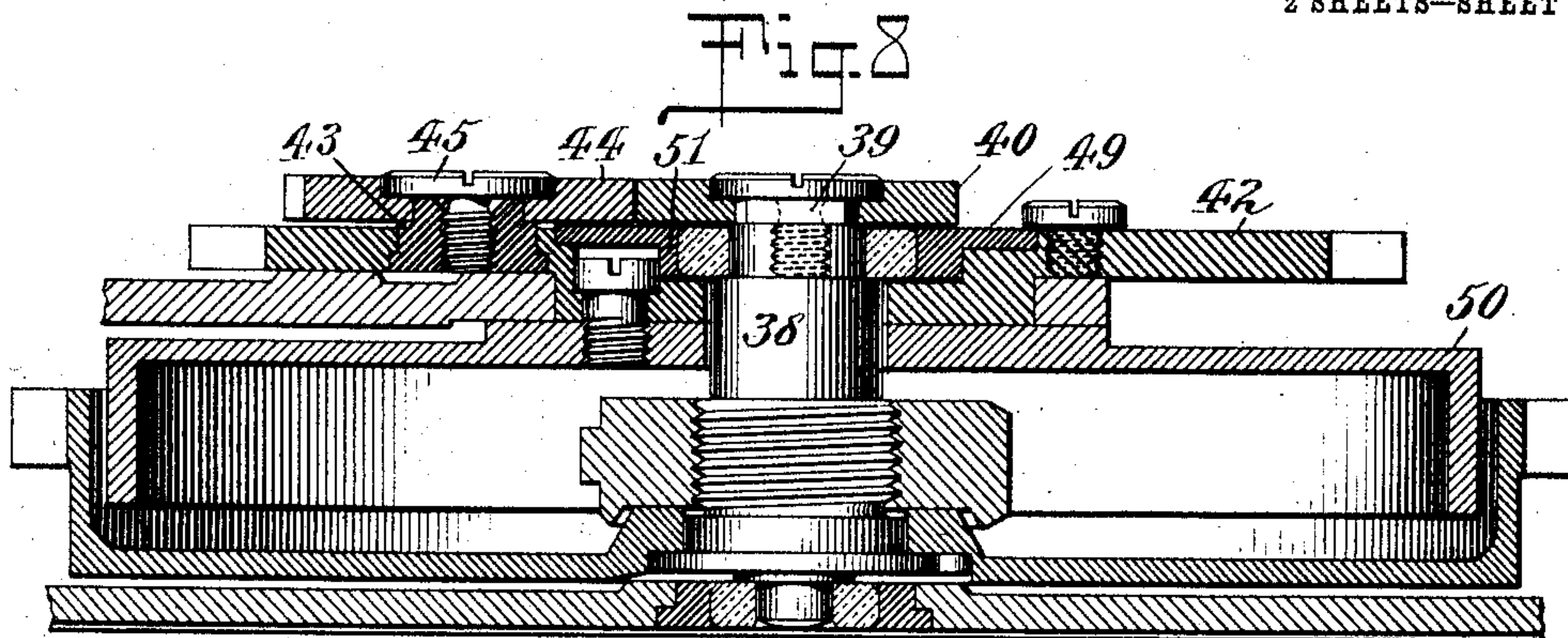
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2 SHEETS—SHEET 2.



WITNESSES

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N. B. Smith

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UNITED STATES PATENT OFFICE.

WALTER B. MEHL, OF WALTHAM, MASSACHUSETTS, ASSIGNOR TO E. HOWARD WATCH COMPANY, OF RIVERSIDE, NEW JERSEY, A CORPORATION OF NEW JERSEY.

WATCH-BARREL.

No. 886,387.

Specification of Letters Patent.

Patented May 5, 1908.

Application filed September 27, 1906. Serial No. 336,386.

To all whom it may concern:

Be it known that I, WALTER B. MEHL, a citizen of the United States, and a resident of Waltham, in the county of Middlesex and State of Massachusetts, have made and invented certain new and useful Improvements in Watch-Barrels, of which the following is a specification.

My invention relates to an improvement in watch movements, and more particularly to those parts or portions thereof usually known and referred to as the arbor and main spring barrel, the object of the invention being to so construct and arrange these parts that they may be employed either with or without the addition of a Geneva stop, that is, upon the upper side or surface of the ratchet wheel.

A further object of the invention is to so construct and arrange the parts that when employed without the addition of a Geneva stop, both settings for the arbor will be exposed, and so arranged that said arbor will have its bearing points at or close to its extremities; further, to simplify the construction of this portion of the movement, and also reduce the number of the separate parts, whereby the cost of manufacture shall be materially decreased and the time and labor of assembling the several parts, materially lessened.

With these and other ends in view, the invention consists in certain novel features of construction and combination of parts, as will be hereinafter fully described and pointed out in the claims.

In the accompanying drawings, Figure 1 is a plan view of a part of a watch movement showing the manner of attaching the setting to the ratchet wheel. Fig. 2 is a sectional view taken on the line 2—2 of Fig. 1. Fig. 3 is a sectional view taken on the line 3—3 of Fig. 1. Fig. 4 is a sectional view taken on the line 4—4 of Fig. 3. Fig. 5 is a perspective view showing the ratchet wheel having the boss or hub made integral therewith. Fig. 6 is a detached perspective view of the arbor. Fig. 7 is a sectional view taken on the line 7—7 of Fig. 2, showing the lower end of the arbor locked in position in the main wheel. Fig. 8 is a sectional view of the device having the Geneva stop applied to the upper side or surface of the ratchet wheel, and taken on the line 8—8 of Fig. 9.

Fig. 9 is a plan view of a portion of the device shown in Fig. 8. Fig. 10 is a detached plan view of the setting adapted to contain the jewel bearing for the upper end of the arbor.

Referring to the drawings, 11 represents the spring barrel provided with the catch or lug 12 to which is secured one end of the main spring, the latter being omitted for the sake of clearness. Partially surrounding this spring barrel is the main wheel 13, provided with the teeth 14, the lower plate 15 of said main wheel being provided with a recess 16, as illustrated in Fig. 7, for the purpose of receiving the projection 17 formed on the lower portion of the arbor 18. Into a recess formed in the dial plate 19, is burnished the setting 20, containing the jewel 21 forming the bearing for the lower end 22 of the arbor 18, the upper end of the latter having a bearing in the jewel 23 confined in the setting 24. This setting is fitted into a recess formed in the upper face or surface of the ratchet wheel 25, and held in proper position by means of the screws 26, threaded into said ratchet wheel, and the heads 27 of which slightly overlap said setting 24 and lock the same in position.

The ratchet wheel 25 is provided with an integral hub 28 acting as a bearing therefor in the barrel bridge 29, the lower end of said hub being provided with the elongated projection 30, adapted to fit in a hole or opening of similar size and shape formed in the spring barrel 11, whereby to turn the latter when said ratchet wheel is turned or rotated in winding.

Through the hub 28 are formed the holes or openings 31, through which pass the screws 32, the lower ends of the latter being threaded into openings formed in the central thickened portion 33 of the spring barrel 11, this construction and arrangement securely locking the ratchet wheel 25 to the spring barrel 11, and removably holding them in their proper relative positions.

The arbor 18 is provided near its lower end with the flange 34, which fits in a recess formed in the main wheel hub 35, a nut 36 being threaded on the arbor and also fitting against the upper side or surface of said hub 35, whereby to fasten or lock said arbor to the main wheel. The nut 36 is provided on its outer side or circumference with a hook 37,

to which the opposite end of the main spring is secured.

From the foregoing, it will be understood that when the ratchet wheel 25 is turned or rotated, as in winding, the arbor 18 remains stationary, one end of the spring being secured to the hook 37 and held tightly thereby. The ratchet wheel 25, however, being tightly secured to the barrel 11, will cause the latter to rotate, and thereby wind the main spring, the opposite end of which is secured to the hook 12 formed on said barrel. By reason of this construction, it will also be seen that the bearings for the arbor are approximately at the extreme ends thereof, both settings with their contained jewels being exposed. Further, by reason of the novel construction, the number of parts constituting this part of the mechanism of a watch movement, is reduced, and the labor and time required for assembling the parts, materially lessened. This construction and arrangement of parts also permits of the application of a Geneva stop to the upper side or surface of the ratchet wheel, such mechanism being usually located below or under the main spring barrel, where it is not visible or accessible, excepting by the removal of the dial.

As illustrated in Fig. 8, when the Geneva stop is applied to the mechanism, the arbor 38 is somewhat increased in diameter, in order that sufficient metal may be provided in which to thread a screw 39 therein, said upper end of the arbor being formed of D-shape and adapted to fit in a similar shaped opening in the disk 40, the latter being provided with the stop finger 41, the head of the screw 39 fitting down in a recess formed to receive it in said disk 40, and securing the latter to the arbor 38.

In the ratchet wheel 42 is provided the bearing 43, around the upper end of which rotates the star wheel 44, the latter being held in its proper position with relation to the ratchet wheel 42 and fingered disk 40, by means of the screw 45 threaded into said bearing 43, and having its head fitting in a recess formed in the upper side or surface of the star wheel.

The star wheel 44 is provided with the usual recesses 46, the periphery of the wheel between two of said recesses, as indicated at 47, being convex, while between the remaining recesses the periphery is concave, as illustrated at 48.

In view of the fact that the diameter of the upper end of the arbor 38 is increased, it will of course, be necessary to increase the size of the jewel bearing therefor, and also of the setting 49. In order, therefore, to permit of a screw of sufficient size to lock the ratchet wheel 42 to the barrel 50, the offset 51 of the setting 49, is provided with the recesses 53, as illustrated in Fig. 10.

In Geneva stops of the ordinary construction and arrangement, the fingered disk 40 in the act of winding the watch, is rotated with the arbor to which it is attached, and in turn rotates the star wheel 44. In my improved construction, however, the fingered disk 40 remains stationary in the act of winding the watch, the star wheel on the contrary, revolving around the fingered disk, and at the same time is rotated by reason of the finger 41 engaging in the recesses 46 upon each revolution of the ratchet wheel. When, however, the finger 41 enters the recess adjacent to and at one side of that portion of the star wheel having a convex periphery, the parts are so locked as to prevent any further rotation of the ratchet wheel to which said star wheel is secured, and thereby prevents that undue strain on the main spring which the stop is designed to overcome.

As the spring unwinds and the movement runs down, the star wheel is rotated in the opposite direction by means of the rotation of the fingered disk 40, the latter by reason of its being tightly secured to the arbor, rotating therewith. When, however, the finger 41 enters the recess adjacent to and at the other side of that portion of the star wheel having a convex periphery, the parts are so locked as to prevent any further rotation of the arbor to which the fingered disk is secured.

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

1. In mechanism of the character described, the combination with a barrel bridge and dial plate, of a spring barrel located between said bridge and plate, a main wheel surrounding said barrel and having a recess formed therein, a ratchet wheel provided with an integral hub extending downwardly through said bridge, means for securing said ratchet wheel to said spring barrel, a cylindrical arbor, the ends of which are mounted in bearings provided in said ratchet wheel and dial plate, and provided near its lower end with a projection fitting in the recess in said main wheel, and a nut threaded on said arbor for locking the latter to said main wheel, substantially as described.

2. In mechanism of the character described, the combination with a barrel bridge and dial plate, of a spring barrel located between said bridge and plate, a main wheel surrounding said barrel having a recess formed therein, a ratchet wheel provided within integral hub extending downwardly through said bridge, means for securing said ratchet wheel to said spring barrel, an arbor, the ends of which are mounted in bearings provided in said ratchet wheel and dial plate, said arbor being provided near its lower end with a flange having a projection formed thereon fitting in the recess in said main

wheel, and a nut threaded on said arbor for locking the latter to said main wheel, substantially as described.

3. In mechanism of the character described, the combination with a barrel bridge and dial plate, of a spring barrel provided with a hook and located between said bridge and plate, and having an elongated opening formed in the same, a main wheel surrounding said barrel and formed with a recess therein, a ratchet wheel provided with an integral hub extending down through said bridge and provided on its lower end with an elongated projection adapted to fit in said opening in said spring barrel, screws passing through said hub and threaded into said spring barrel for holding the latter and ratchet wheel in proper position, an arbor, the ends of which are mounted in bearings provided in said ratchet wheel and dial plate and provided with a projection fitting in the recess in said main wheel, and a nut provided with a hook and threaded on said arbor and bearing on the hub of said main wheel for locking said arbor thereto, substantially as described.

4. In mechanism of the character described, the combination with an arbor, of a

ratchet wheel mounted thereon and means, part of which are secured to said arbor and part to the upper visible side of said ratchet wheel for locking said wheel and arbor against movement at predetermined points, substantially as described.

5. In mechanism of the character described the combination with a ratchet wheel of an arbor the end of which extends through said ratchet wheel, a fingered disk secured to the upper end of said arbor and stationary with relation thereto, a star wheel mounted on the upper visible side of said ratchet wheel and revolving around and rotated by said stationary fingered disk when said ratchet wheel is rotated in the act of winding and whereby, in the act of unwinding, the star wheel on the stationary ratchet wheel is rotated by the rotating fingered disk, substantially as described.

Signed at Waltham, in the county of Middlesex, and State of Massachusetts, this 20th day of September, A. D. 1906.

WALTER B. MEHL.

Witnesses:

M. VAN NORTWICK,
N. B. SMITH.