J. R. HOPKINS.

Watch.

No. 161,513. Patented March 30, 1875.

Fig. 1.

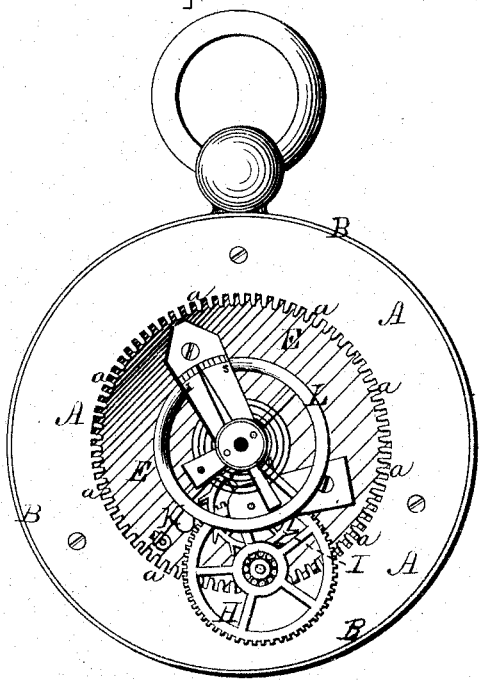


Fig. 2.

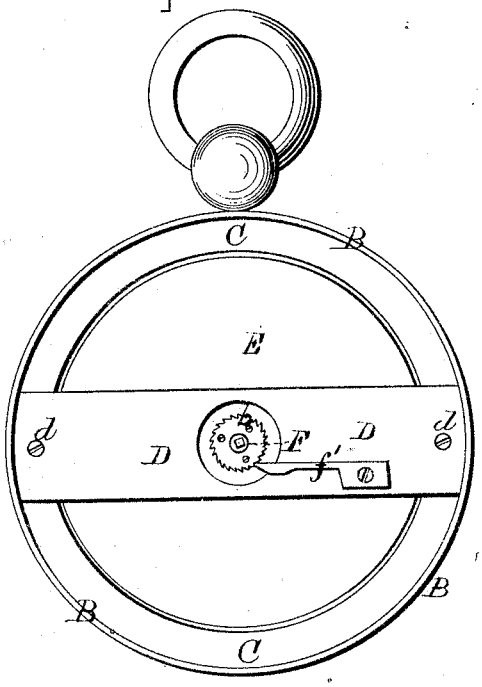
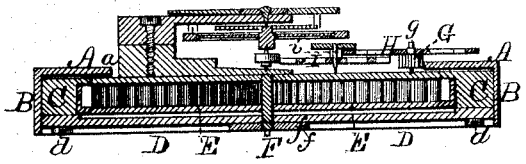


Fig. 3.



WITNESSES:

Jas. E. Hutchinson

John R. Young

INVENTOR.

Jason R. Hopkins, by

Prindle and Deane, his attys

UNITED STATES PATENT OFFICE.

JASON R. HOPKINS, OF WASHINGTON, DISTRICT OF COLUMBIA.

IMPROVEMENT IN WATCHES.

Specification forming part of Letters Patent No. **161,513**, dated March 30, 1875; application filed November 13, 1873.

To all whom it may concern:

Be it known that I, JASON R. HOPKINS, of Washington city, in the county of Washington and in the District of Columbia, have invented certain new and useful Improvements in Watches; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing, making a part of this specification, in which—

Figure 1 is a plan view of the rear side of my improved watch. Fig. 2 is a like view of the front side of the same, and Fig. 3 is a cross-section upon line *x x* of Fig. 1.

Letters of like name and kind refer to like parts in each of the figures.

In the construction of watch-movements much difficulty is experienced in so adjusting the balance-wheel as to render its motion uniform under the varying conditions of temperature and position. This is more especially true with regard to the latter, it being well known that a watch that will keep correct time while suspended by its ring will vary its time when carried about the person, which variation is caused by changes in the position of the watch.

To remedy this liability to change in rate it is customary, in the construction of the fine grades of watch-movements, to fix the same in different positions, and, after noting the time made in each, to change the adjustment of the balance until the motion of the latter approximates to uniformity; but as such adjustment is expensive it is applied to comparatively few movements.

To obviate the necessity for such adjustment is the design of my invention, which consists in a watch-movement in which the operative parts are placed upon and revolve with a centrally-pivoted spring-barrel, and the balance-wheel is pivoted at the center of such motion, substantially as and for the purpose hereinafter specified.

In the annexed drawing, A represents an annular metal disk, which is provided around its inner periphery with gear-teeth *a*, and at its outer edge is secured to or upon one edge of the ring B, that forms the circular portion or edge of the watch-case. Within the angle formed at the intersection of the disk A and ring B is secured an annular piece of metal, C, which nearly fills the space, laterally, between said disk and the opposite edge of said ring, and radially extends from said ring inward to a sufficient distance to furnish bearings for two screws, *d*, which are used to attach thereto the ends of a bridge, D, that extends centrally across upon the side opposite to said disk A. Between the inner sides of the disk A and bridge D is placed a spring-barrel, E, which substantially fills the space laterally and radially, and contains a central arbor, F, that passes through a suitable bearing within said bridge, and forms an axis for and upon which said barrel revolves. Upon the side of the barrel E opposite to the bridge D is placed a stud, *g*, that extends laterally outward from a point near the line of the teeth *a* of the disk A, and forms a bearing for a pinion, G, which meshes with said teeth. A toothed wheel, H, secured upon the upper end of said pinion, meshes with the pinion *i* of a scape-wheel, I, which latter is suitably pivoted between said wheel H and the center of the barrel, and engages with the detent K of a chronometer-escapement, while the latter, in turn, is operated by means of suitable mechanism attached to the staff of a balance-wheel, L, that is pivoted at the center of said barrel. The arbor F is journaled within the barrel E, and provided upon its projecting end with a toothed ratchet-wheel, *f*, that engages with a spring-pawl, *f'*, attached to the bridge D, so that said arbor may be turned in one direction only, while within said barrel said arbor is attached to the inner end of a coiled spring, the outer end of which latter is attached to or upon the inner periphery of said barrel, said arbor thus forming a winding-arbor for coiling said spring, which latter, in uncoiling, turns said barrel, all in the usual manner.

As thus constructed, it will be seen that the force of the coiled spring will move the barrel, and cause the mechanism attached thereto to revolve; and that such rotary motion will be communicated through the toothed disk to the train, so as to cause the same to operate in the usual manner, and regulate the speed with which said barrel shall move.

By means of dial-wheels the motion of the barrel may be communicated to hands, and the time indicated in the usual manner.

The principal advantage obtained by this construction is in the position of the balance-wheel, which, as seen, is placed at the center of motion, and rotates around the same, in addition to its usual vibratory movement, the result being a constant change in the relative radial positions of said balance and the case, which effectually prevents any deficiency in the poise of the former from operating for any length of time in any one direction, and thus renders uniform its movement.

In addition to the above-named advantage, the size of the balance is limited only by the size of the case, so that it becomes practicable to use a balance having such dimensions as to render the work of compensating and poising far more easy and certain than is possible in case of the ordinary balance.

Having thus fully set forth the nature and merits of my invention, what I claim as new is—

A watch-movement in which the operative parts are placed upon and revolve with a centrally-pivoted spring-barrel, and the balance-wheel is pivoted at the center of such motion, substantially as and for the purpose specified.

In testimony that I claim the foregoing I have hereunto set my hand this 11th day of November, 1873.

J. R. HOPKINS.

Witnesses:

GEO. S. PRINDLE,

EDM. F. BROWN.