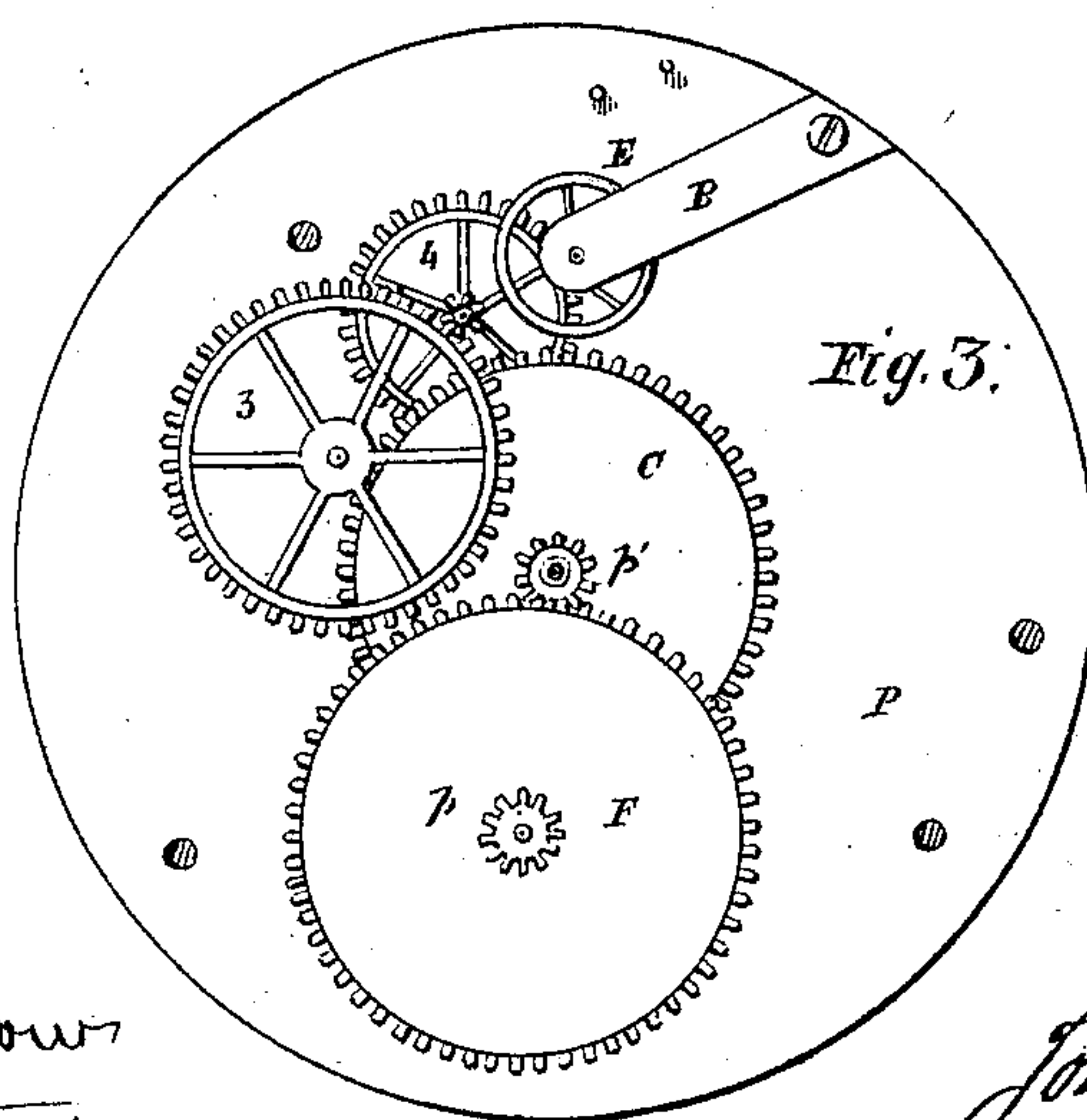
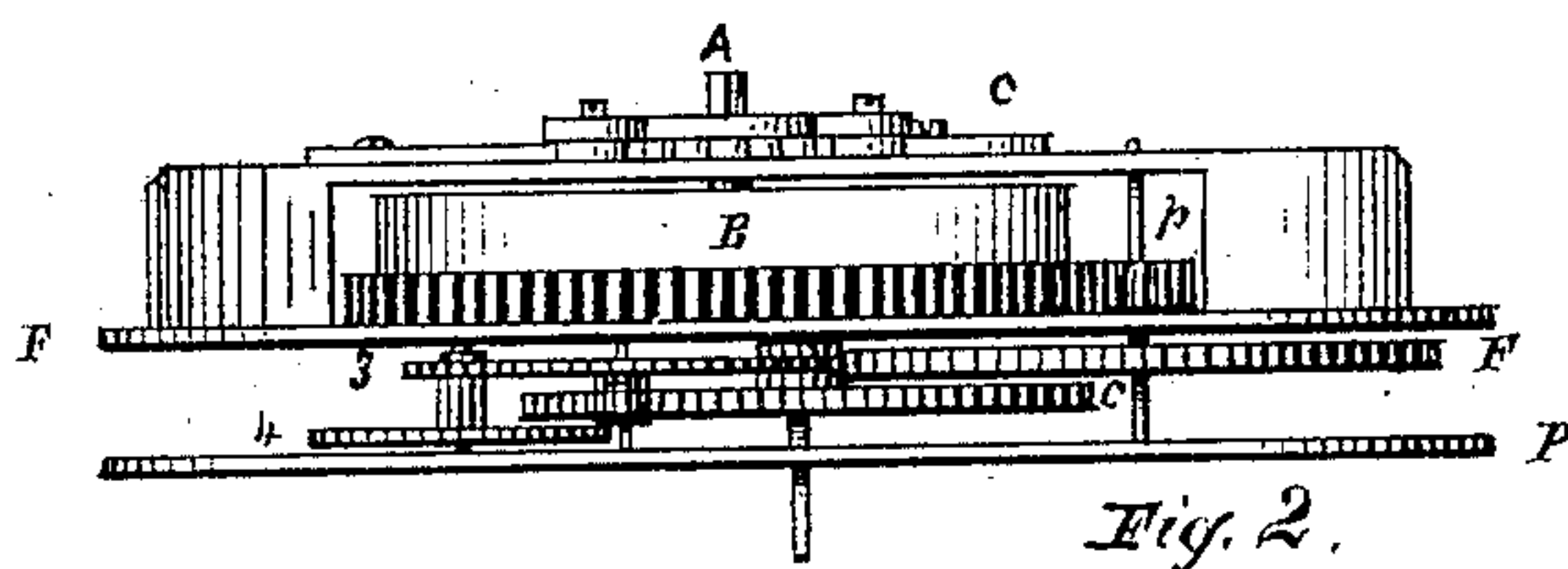
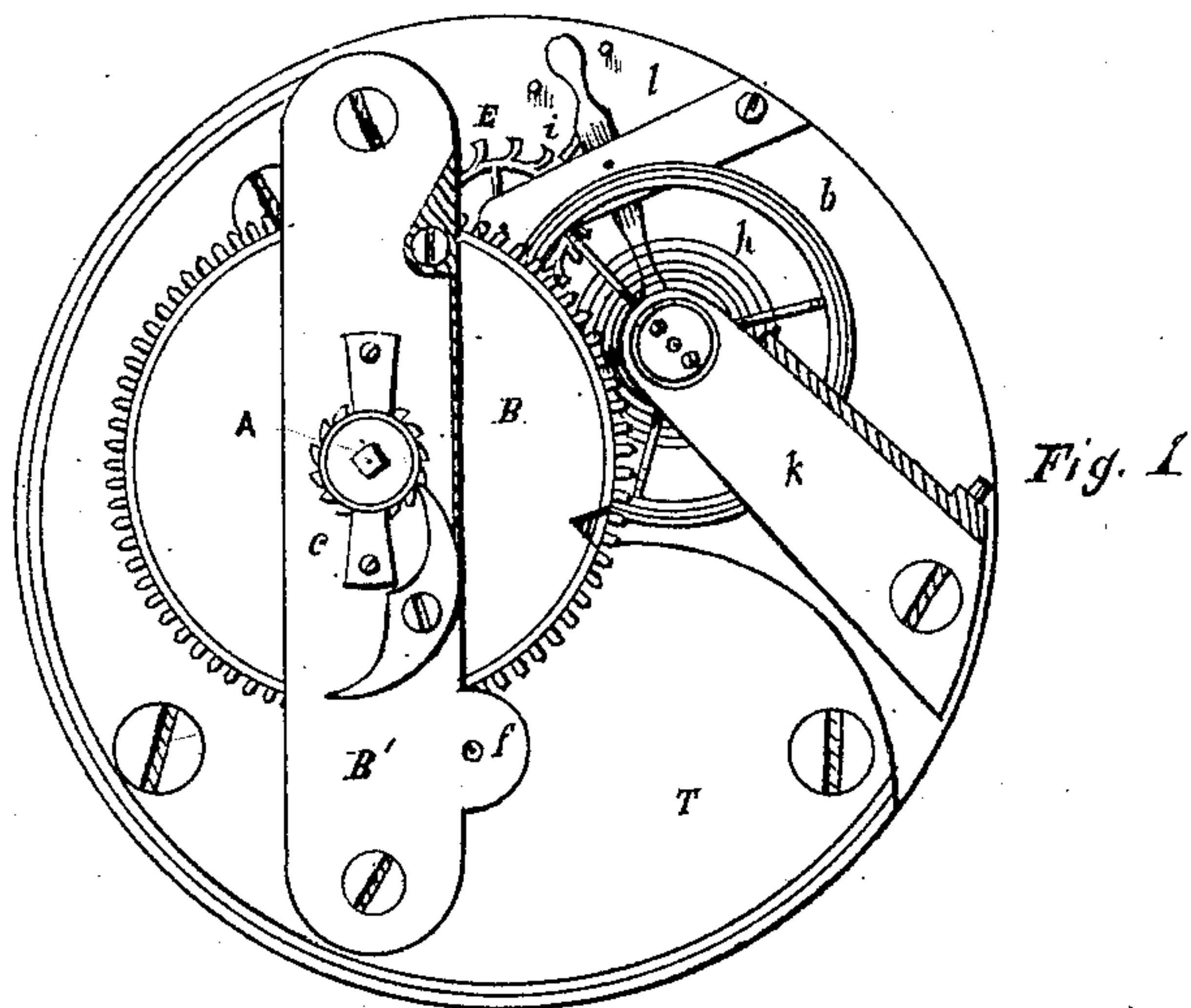


J. HARRIS.

WATCHES.

No. 176,748.

Patented May 2, 1876.



WITNESSES:

Lorenzo Winslow
E. C. Patterson

INVENTOR:

John Harris

UNITED STATES PATENT OFFICE.

JOHN HARRIS, OF CANANDAIGUA, NEW YORK.

IMPROVEMENT IN WATCHES.

Specification forming part of Letters Patent No. **176,748**, dated May 2, 1876; application filed
December 5, 1872.

To all whom it may concern:

Be it known that I, JOHN HARRIS, of the town of Canandaigua, in the county of Ontario and State of New York, have invented a certain new and useful Improvement in Watches; and I do hereby declare the following to be a full, concise, and exact description of the same, sufficient to enable those skilled in the art to which it appertains to understand, construct, and make use of the same, reference being had to the drawings accompanying this specification, and to the letters and figures of reference marked thereon, like letters and figures referring to like parts throughout the same.

My invention relates to the ordinary pocket-watch for measuring time, and its object is to extend the time of running between winding the same.

The difficulty has heretofore been in getting space for a barrel that should contain sufficient power to run a watch eight days.

My improvement, consisting of a large barrel and an elongated pinion placed above the top plate and supported by a bridge in combination with the ordinary train of wheels, will run eight, fourteen, twenty-one, or any number of days, if power is given, and this can be given by changing the position of the going barrel to the center, so as to make the barrel larger.

Figure 1 is a plan of my improvement and the parts with which it is connected. Fig. 2 represents a vertical sectional view of a train of wheels with my improvement attached. Fig. 3 represents a plan of a train of watch-wheels without my improvement, and showing the combination of the several parts.

T is the top plate, on which my improvement is placed, having a part of the plate cut away for the balance-cock and balance-wheel. B is the barrel, placed in such a position on the top plate as to pitch in with the pinion *p* of the first wheel F. B' is the bridge over the barrel, into which and the top plate the barrel-arbor is pivoted.

The pinion *p*, into which the barrel-teeth pitch, is, on the arbor of the first wheel F, extended for the purpose of forming the pinion upon it, and is pivoted in the bridge at *f*. On the bridge is the click and ratchet wheel *c*, and A the winding-arbor.

k is the balance-cock, and *b* balance-wheel pivoted to the same. *h* is the hair-spring, *l* lever, *i* pallet, and E escape-wheel.

P is the pillar-plate, between which and the top plate T runs the train of wheels, consisting of first wheel, center, third, fourth, escape wheels, and pinions, as seen at Figs. 2 and 3. F is the first wheel, whose arbor is extended to form the pinion *p* and teeth pitched into the barrel-teeth. O is the center, 3, (third,) 4, (fourth,) wheels. *p p' p* are pinions.

By taking the barrel from between the pillar and top plates, and locating it at some favorable point above the same, space is gained for a larger barrel than in common use, into which may be inserted, as I have done, a more powerful spring than in ordinary use, also, by an increased sized barrel a larger number of teeth may be employed on its periphery, which, when properly adjusted with the pinions and other attachments, will extend the running-time of a watch from one to twenty-one days, or longer, according to the size or diameter of the barrel. This improvement may be applied to watches that have bars or bridges in the place of a top plate, as well as to those that have a top plate or above the train of any ordinary watch. It may be also applied between the pillar-plate and dial-plate, or between an extra plate inserted between the pillar-plate and dial-plate, as in that case the barrel could have a tube-arbor for the center pinion to pass through and have a stem-winder.

I put one hundred teeth on the base of the barrel B of my improvement, sixty on the first wheel F, and ten on each of the first and center wheel pinions *p* and *p'*, and the main-spring winds six rounds. Six rounds of the spring multiplied by one hundred (the number of teeth on the barrel) gives six hundred, which, divided by ten (the number of leaves of the first wheel-pinion *p*) gives a quotient of sixty. Sixty multiplied by sixty (the number of teeth on first wheel) gives a product of thirty-six hundred, which, divided by ten (the number of teeth on the center pinion) leaves a quotient of three hundred and sixty hours. Divide this again by twenty-four (the number of hours in a day) and we have fifteen, as the number of days the watch will run without winding, which may be thus expressed:

$6 \times 100 \div 10 \times 60 \div 10 \div 24 = 15$ days, the running-time of any watch having my improvement attached. Some allowance is made, and as my model runs fourteen days I call it a fourteen-day watch; but by placing the barrel over the center-wheel or between the plates of the watch, as explained above, it may be made still larger, so that the running-time may be increased to double or even to more than double that of my model, or to twenty-eight days, or longer.

The barrel being removed from between the plates, the plates will be brought nearer together and the arbors shortened, which will equalize the strain on the spindles, the friction on the pivots, and lessen the liability, in falling, to get out of repair. Consequently, the watch will be more serviceable and durable. It may be made to have a slow or quick beat, and with any escapement. It may be made to run eight, fourteen, twenty-one days, or longer, which will be a great convenience in case of forgetting to wind the watch, the losing of a key, or in traveling long distances. The click-work will not wear out as soon, nor the winding-stem, and a key will last longer than in an ordinary watch.

Having tested my improvement I am confident it will do all I claim for it, and believe that in making this known I am doing the public a service.

I am aware that efforts have been made to increase the running-time of watches; but I disclaim all that has been done in that direction heretofore. In the ordinary train also I disclaim the center, third, fourth, and escape wheels, balance, hair-spring, and pellet, with their arbors and pivots; but

What I claim, and wish to secure by Letters Patent, is—

The combination, with a train arranged between two plates, or between a plate and suitable bridges, of the barrel and elongated pinion located above the train, and supported by a bridge, all so arranged and combined that the barrel is not limited as to size by the center pinion, as and for the purposes substantially as set forth.

In testimony whereof I have hereunto set my hand this 15th day of November, 1872.

JOHN HARRIS.

Witnesses:

WILSEY G. BARNES,
B. F. PARSONS.