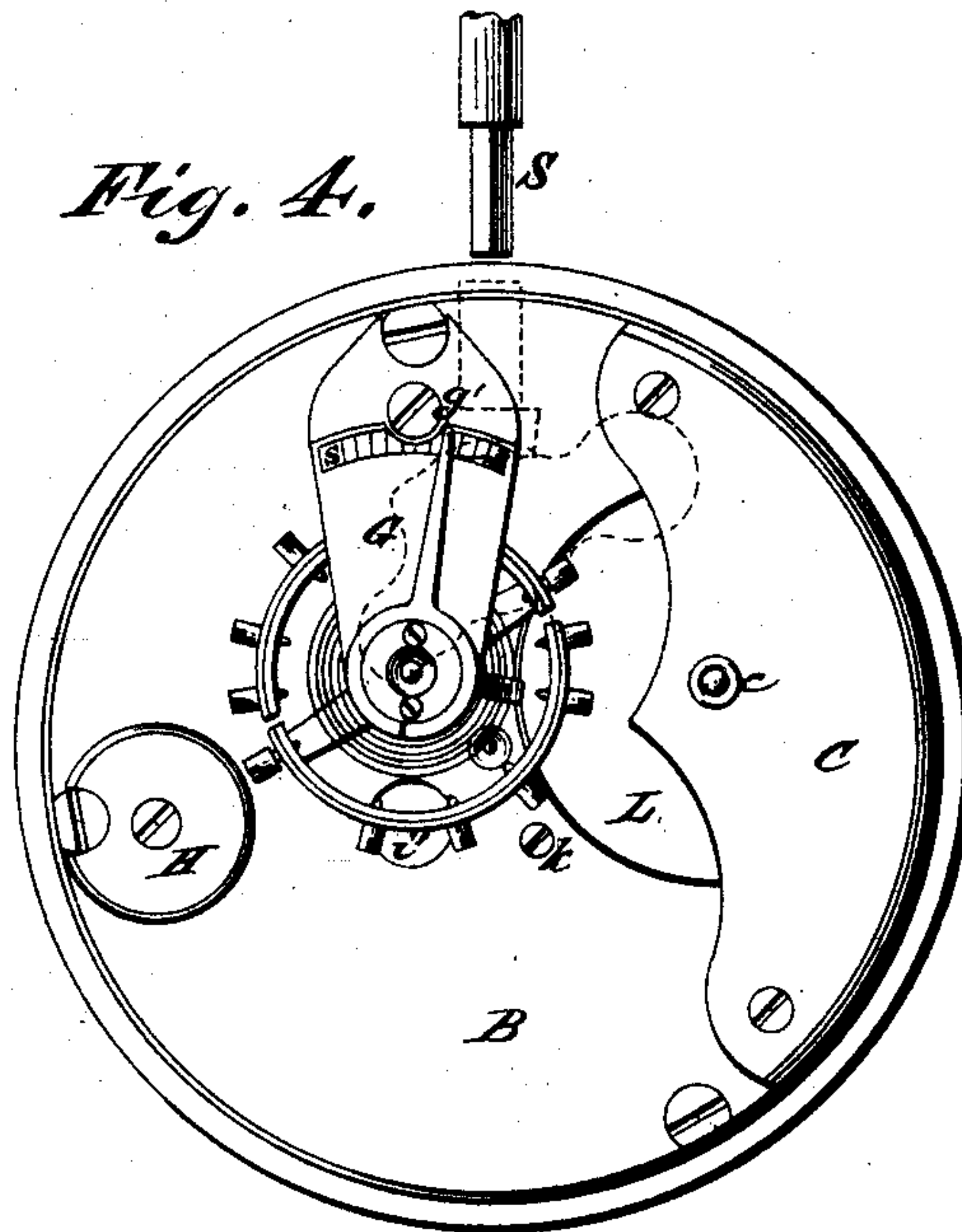
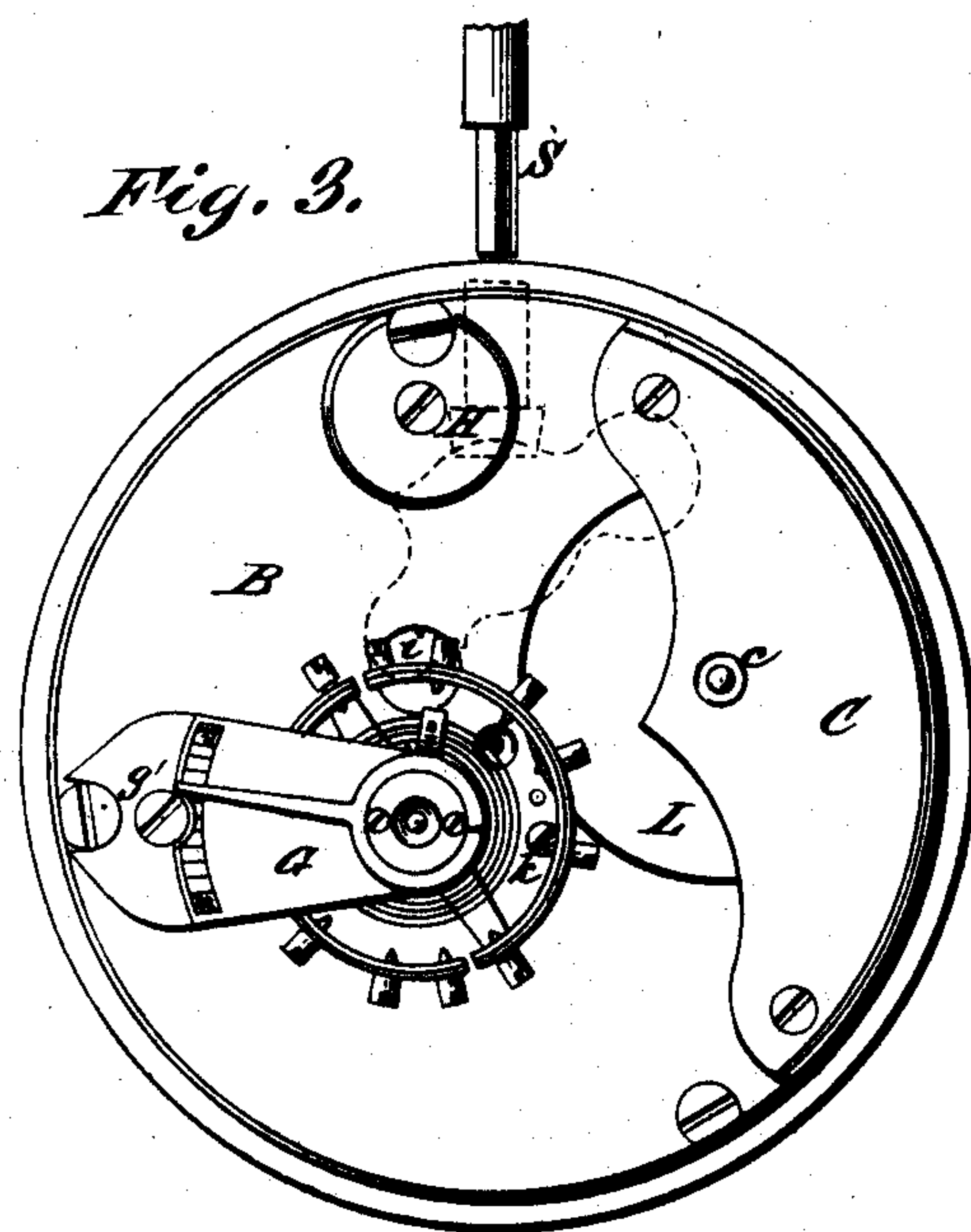
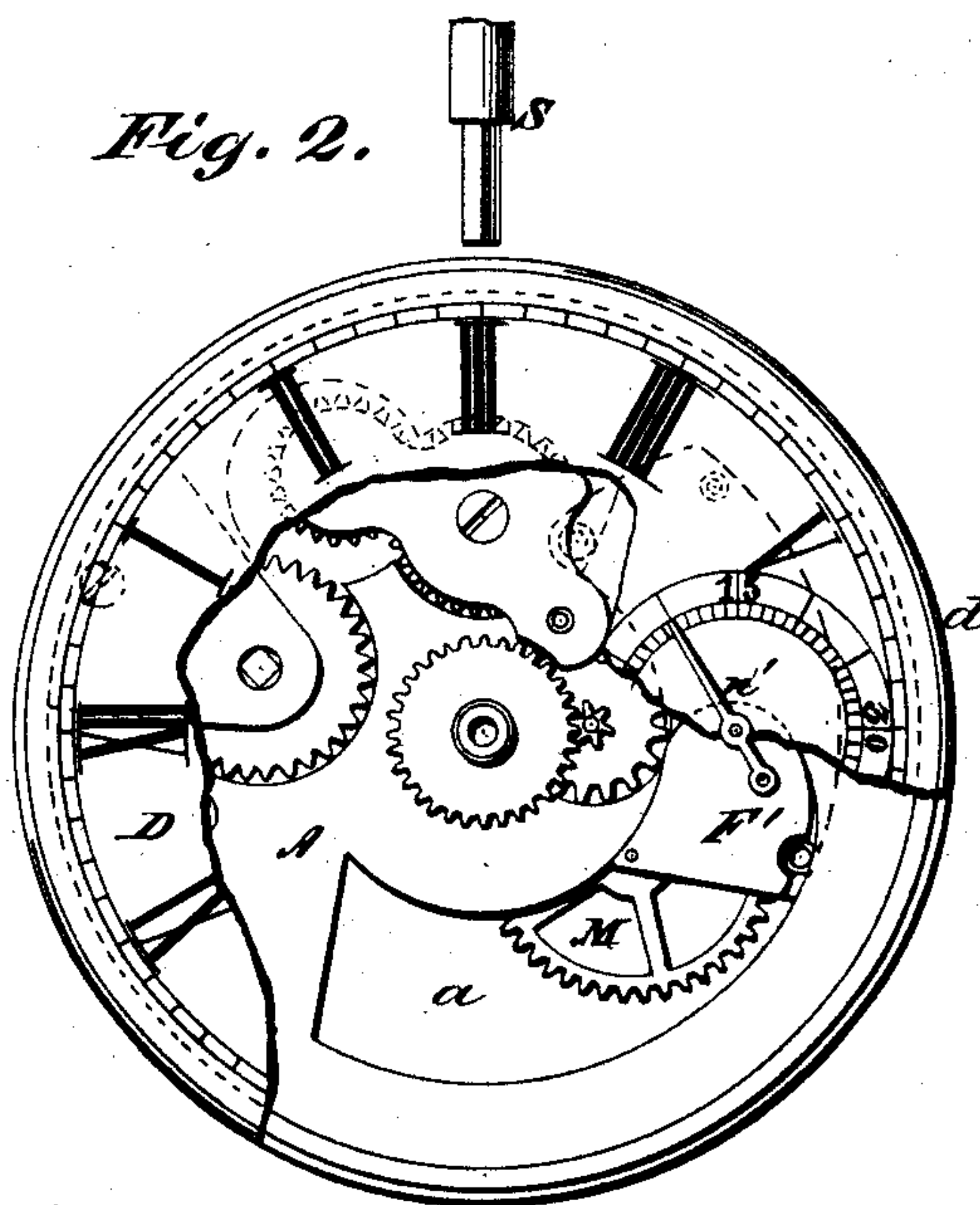
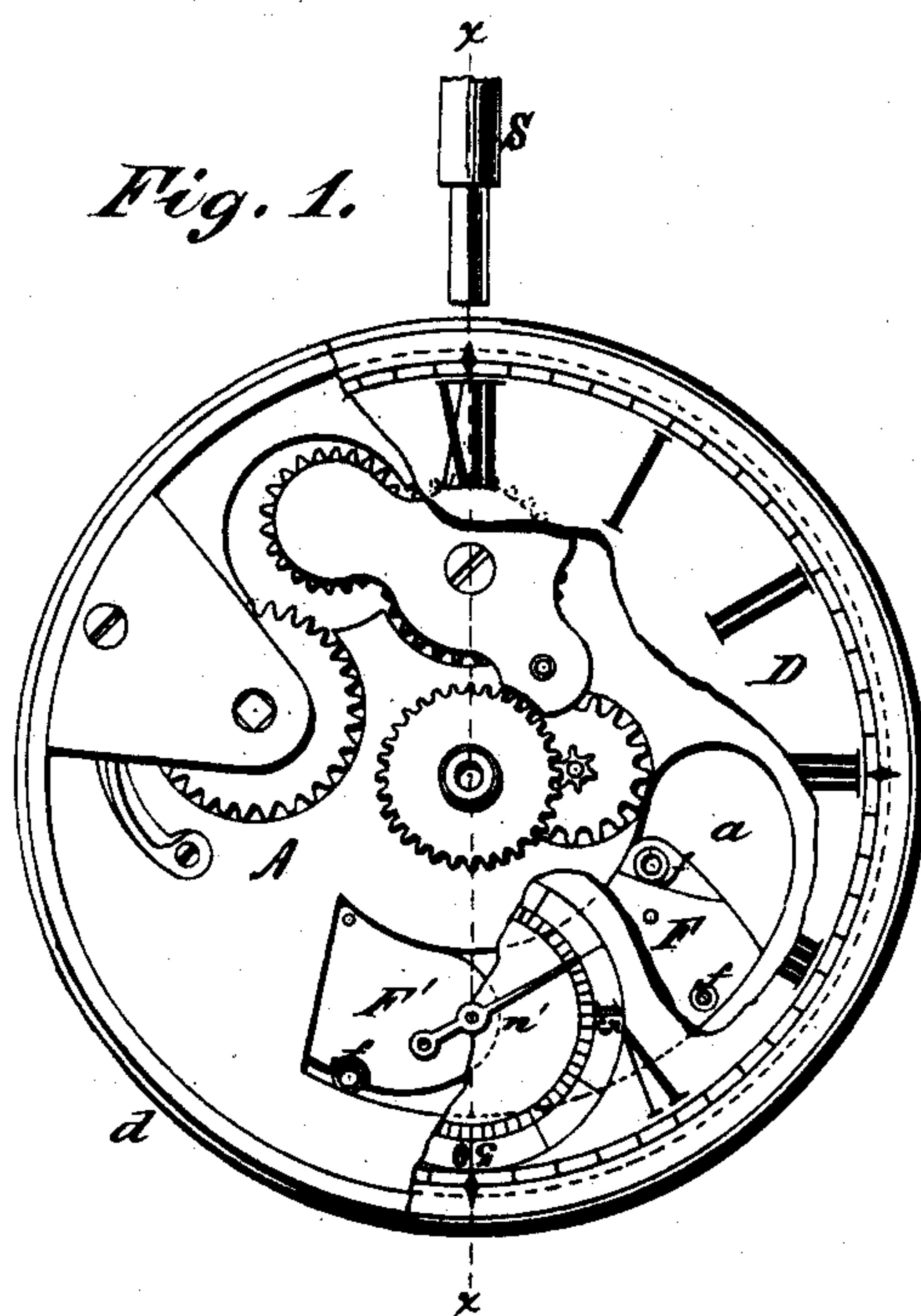


H. ABBOTT.

INTERCHANGEABLE STEM WINDING WATCH MOVEMENT.

No. 432,256.

Patented July 15, 1890.



Witnesses:

Geo. H. Miall

Albert Kamp.

Inventor:

Henry Abbott

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INTERCHANGEABLE STEM WINDING WATCH MOVEMENT.
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Fig. 5.

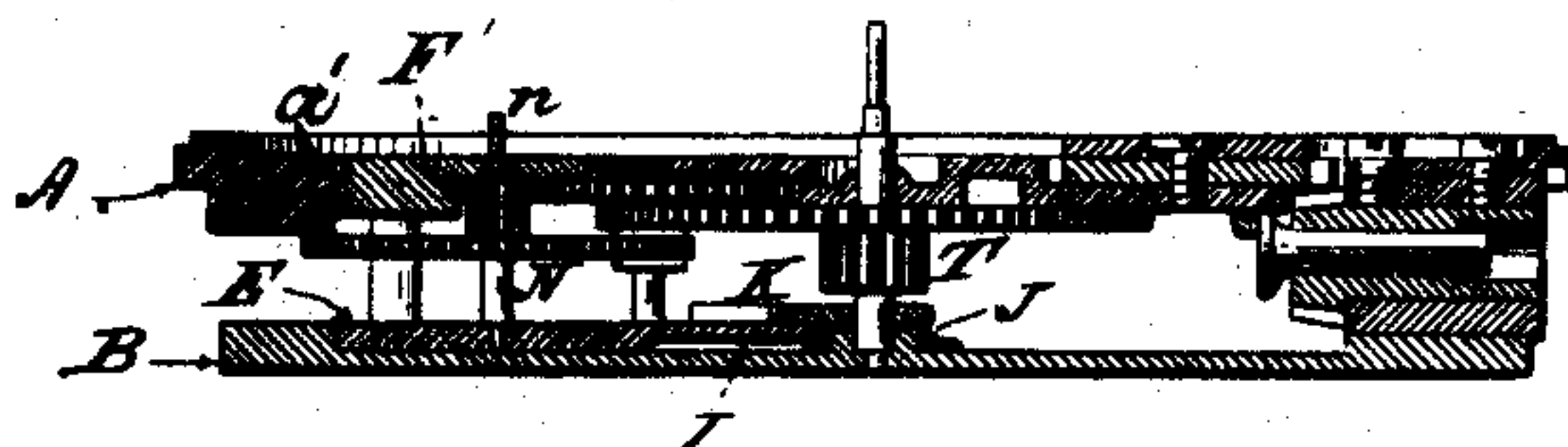


Fig. 6.

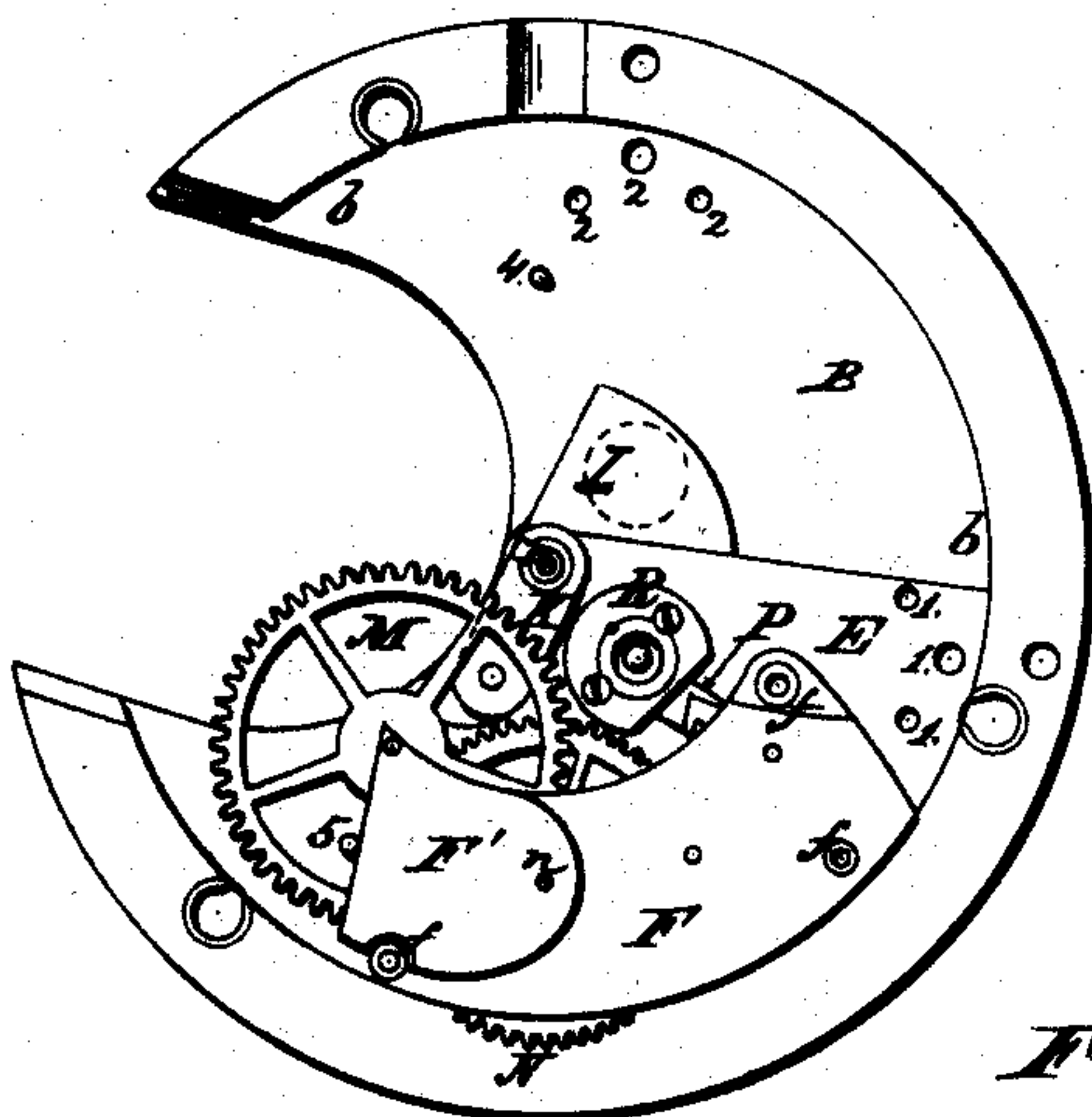


Fig. 7.

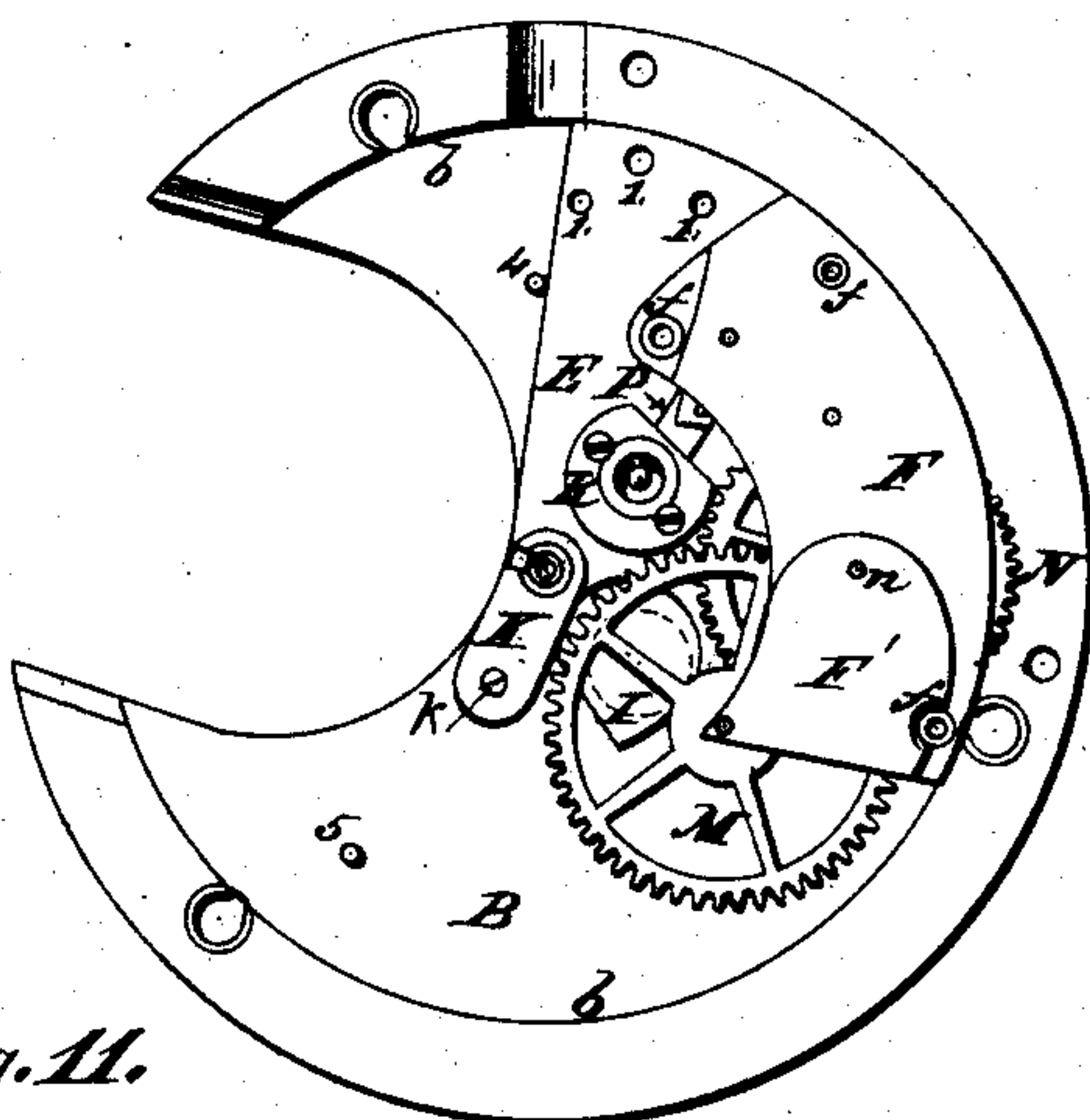


Fig. 11.

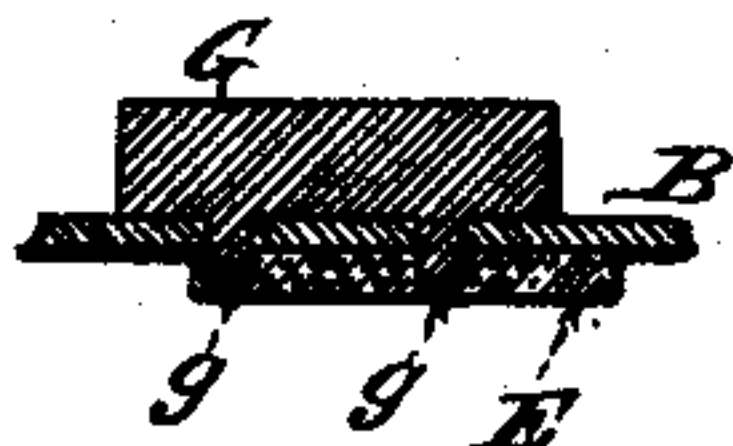


Fig. 8.

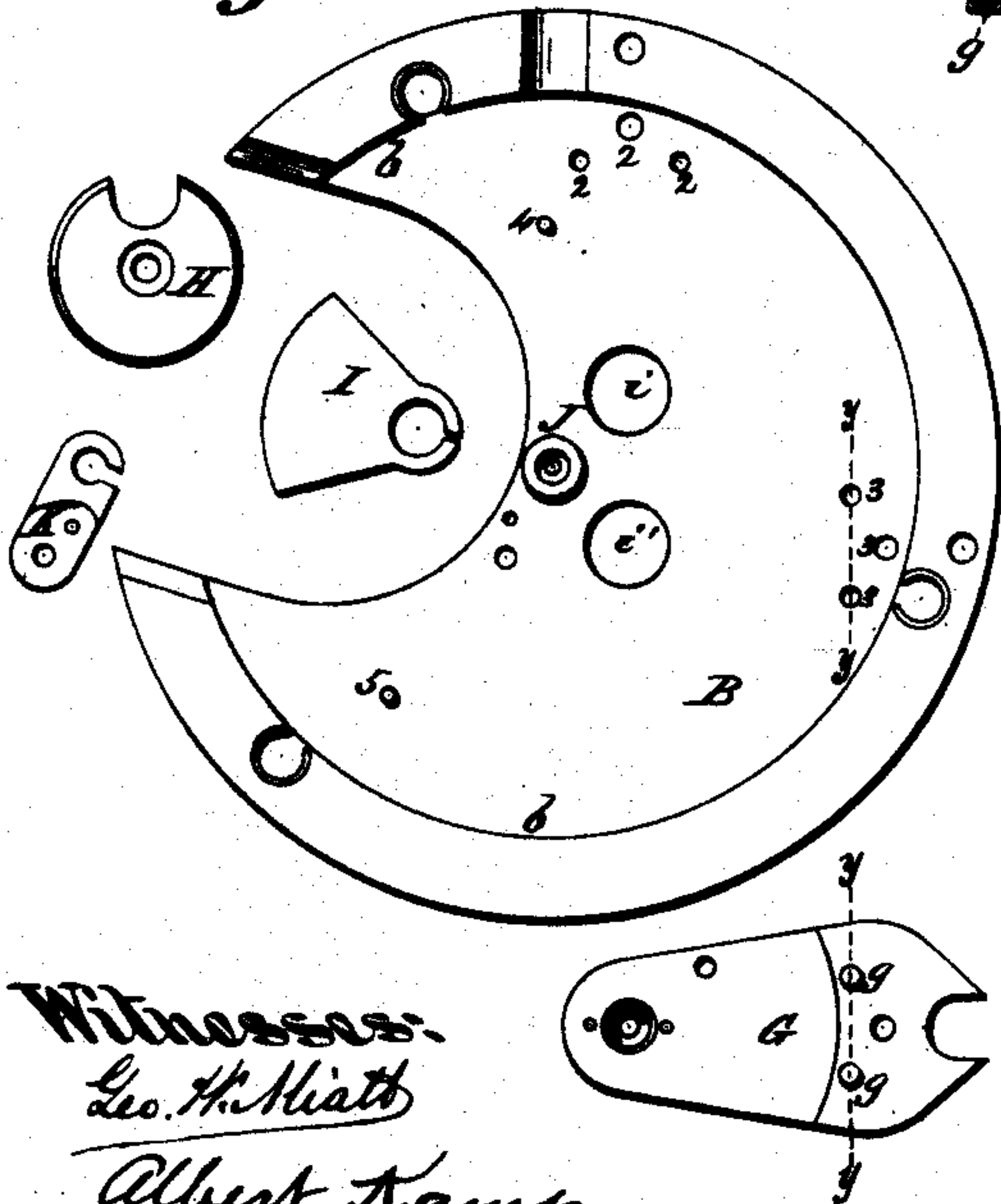


Fig. 9.

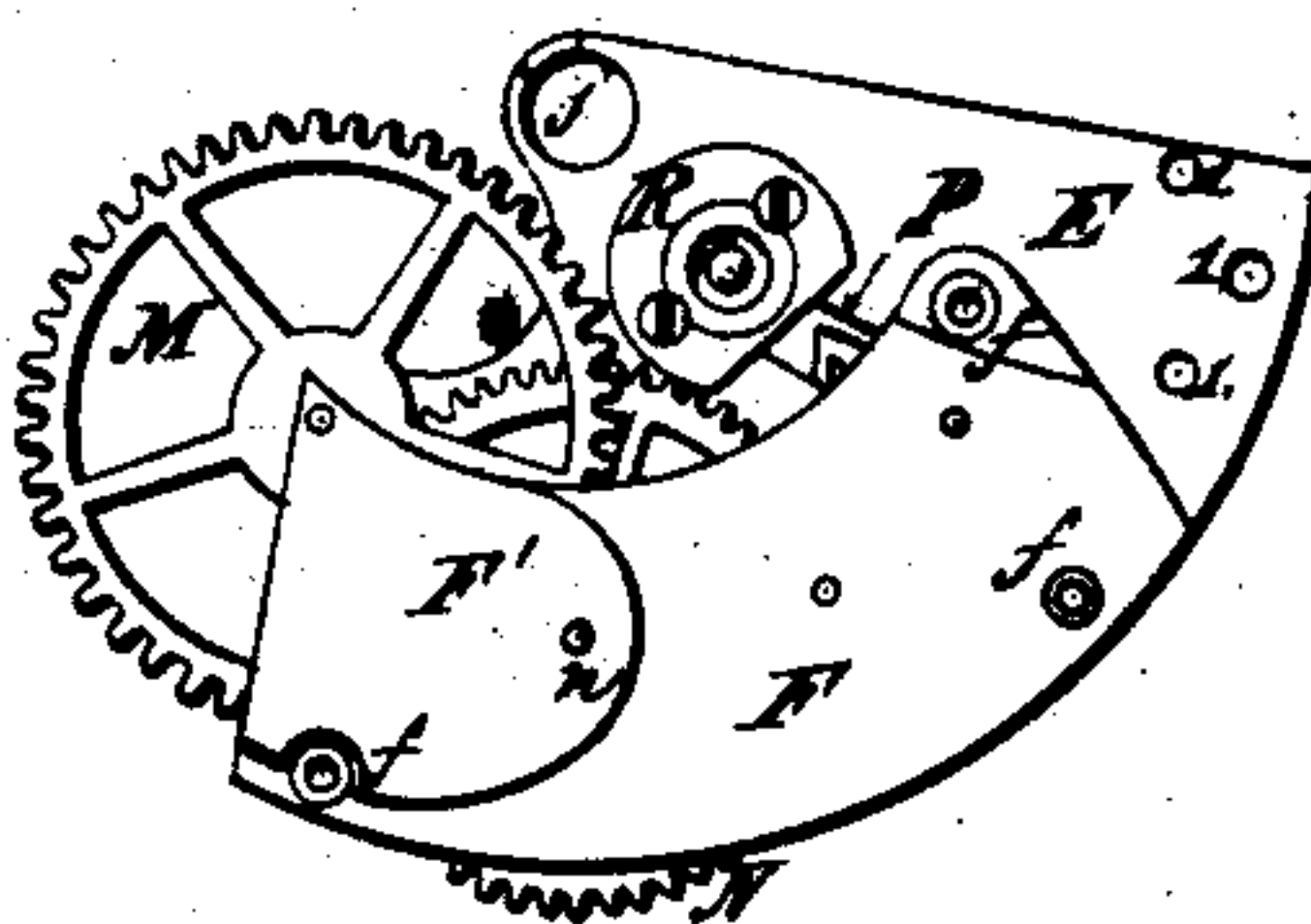
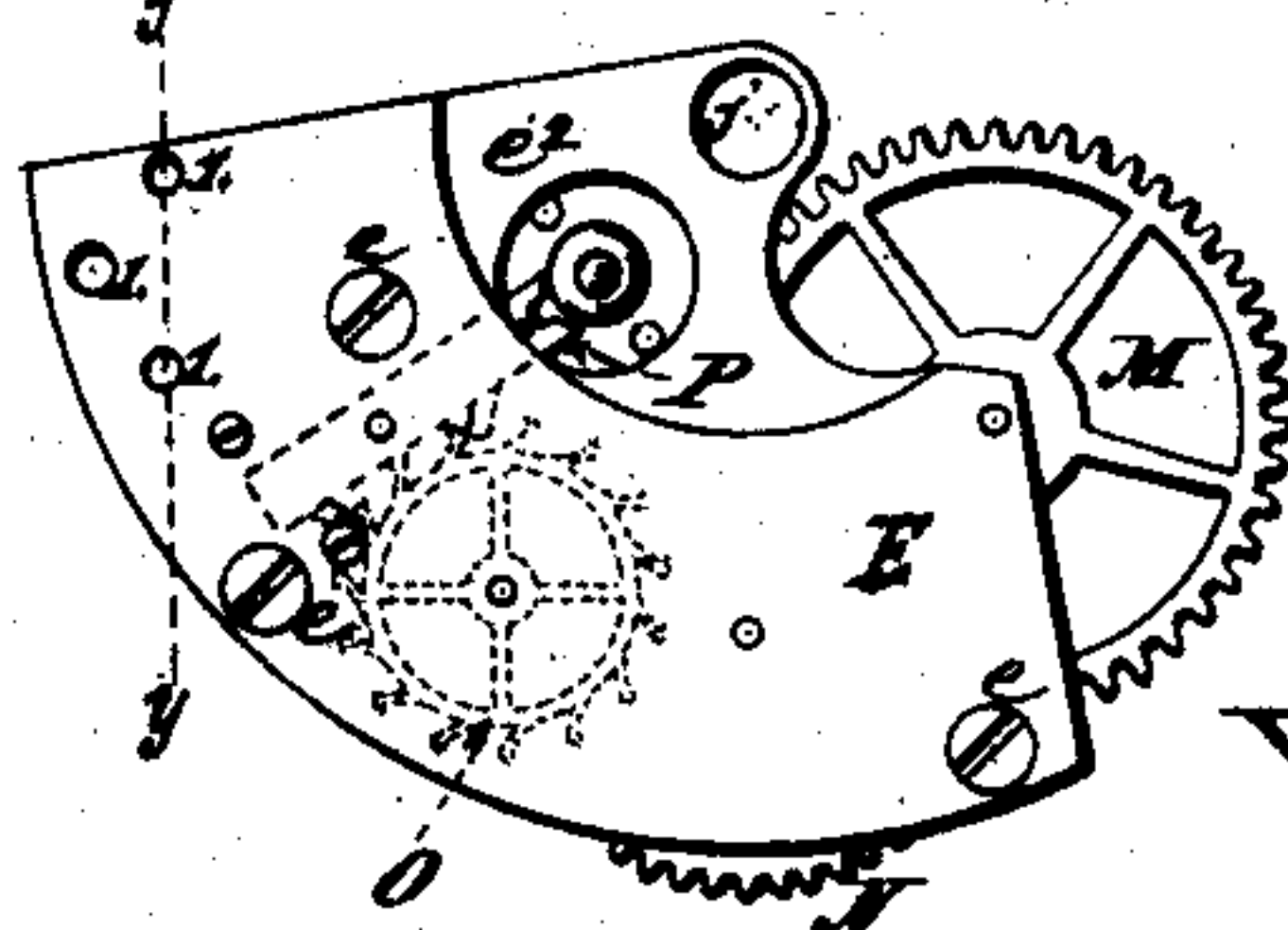


Fig. 10.



Witnesses:

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UNITED STATES PATENT OFFICE.

HENRY ABBOTT, OF NEWARK, NEW JERSEY.

INTERCHANGEABLE STEM-WINDING-WATCH MOVEMENT.

SPECIFICATION forming part of Letters Patent No. 432,256, dated July 15, 1890.

Application filed July 29, 1886. Renewed May 24, 1887. Serial No. 239,235. (No model.)

To all whom it may concern:

Be it known that I, HENRY ABBOTT, a citizen of the United States, residing at Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Watch-Movements, of which the following is a specification.

My invention relates to that class of stem-winding-watch movements which are adapted to be used either in an open-face case or a hunting-case.

Custom and convenience have established the practice of placing the movement in an open case with the figure XII of the dial at the pendant, which, in a stem-winding watch, is also the point at which the winding-stem enters the movement; but in a hunting-case the figure III of the dial is placed at the pendant.

The usual practice has been to make, in stem-winding watches, one style of movement adapted only for use in an open case and another adapted for use only in a hunting-case. The few attempts heretofore made to produce stem-winding movements adapted for use interchangeably, either in open-face or in hunting cases, are all open to objections. In one variety the usual fourth-staff seconds-hand is dispensed with. The seconds-hand, if used at all, is placed in the center of the watch, and the dial is adapted to be secured upon the movement in two different positions. The absence of the usual fourth-staff seconds-hand is a serious objection, and it is not possible to use the center or sweep seconds-hand in all styles of watches. In another variety the mainspring-barrel is located in the movement midway between the figures XII and III, and openings are made in the movement at the two points XII and III on either side of the barrel for the insertion of the winding-stem. In this arrangement the diameter and height of the mainspring-barrel are limited. The style of winding mechanism that may be used is of necessity limited by lack of available space, and it is not possible to adapt the method to some popular styles of movements. Another variety is provided with a ring-gear having internal teeth surrounding the movement. This variety is expensive in construction, and the friction in

winding is so great that it has never been successfully employed.

The object of my invention is to produce a stem-winding-watch movement which shall conform to the styles now in popular demand, and which shall at the same time be equally well adapted for use either in an open case with the figure XII at the pendant or in a hunting-case with the figure III at the pendant, the fourth staff carrying the seconds-hand in each case being retained in its usual and proper position on a straight line drawn across the face of the watch and passing through the figure XII point and the center of the face, and my said improved stem-winding-watch movement being so constructed as not to limit the free use of a proper proportioned mainspring-barrel or other parts of the train or of any desired style of stem-winding mechanism.

My invention consists in providing a stem-winding-watch movement with two sets of relatively-adjustable plates or frames, each set supporting and having journaled therein or thereon a portion of the active mechanism of the watch, whereby the said movement may be adapted for use either in an open case with the figure XII of the dial placed at the pendant or in a hunting-case with the figure III at the pendant.

My invention further consists in providing a stem-winding-watch movement having a fourth pinion carrying a seconds-hand with two sets of relatively-adjustable plates or frames, each set supporting and having journaled therein or thereon a portion of the active mechanism of the watch, whereby the movement may be adapted for use either in an open case with the fourth pinion in line with the stem and center of the watch, or in a hunting-case with the fourth pinion in a line at right angles to a line passing through the said stem and center.

My invention further consists in providing a stem-winding-watch movement having a fourth staff carrying a seconds-hand with two sets of plates or frames, one set supporting and having journaled therein or thereon the winding mechanism and a portion of the train, the other supporting and having journaled therein or thereon the remainder of the train

and the escapement, said sets of plates or frames being adjustable with relation to each other, whereby the dial may be placed on the movement either with the figure XII at the stem to adapt the movement for use in an open case or with the figure III at the stem to adapt the movement for use in a hunting-case.

My invention further consists in providing a stem-winding-watch movement with two sets of plates or frames, one set supporting and having journaled therein or thereon the winding mechanism and a portion of the train, the other supporting and having journaled therein or thereon the remainder of the train and the escapement, said sets of plates or frames being adjustable with relation to each other, whereby the fourth pinion of the train may be placed in line with the stem and center to adapt the movement for use in an open case, and whereby the fourth pinion may be placed on a line at right angles to a line passing through the stem and said center to adapt the movement for use on a hunting-case.

My invention further consists in providing a stem-winding-watch movement with two sets of plates or frames, one set supporting and having journaled therein or thereon the winding mechanism, the main wheel, spring and barrel, and the center wheel, the other set supporting and having journaled therein or thereon the remainder of the train and the escapement, said sets of plates or frames being adjustable with relation to each other in such manner that the fourth pinion of the train may be placed in a line with the stem and center or on a line substantially at right angles to a line passing through said stem and center.

My invention further consists in providing a stem-winding-watch movement with a supplemental frame in which the train or a portion of the train and the escapement are supported and journaled, said supplemental frame being supported between and having pivotal bearing upon the main plates of the watch and adapted to be secured to said plates in such positions that the fourth pinion may be either in line with the stem and center or in a line at right angles to the line passing through the said stem and center.

My invention further consists in the method hereinafter described of securing to the main plates of a stem-winding-watch movement the adjustable train-carriage or supplemental frame in the different positions required.

My invention consists, finally, in the details of construction and the combination of elements hereinafter more fully described.

In the accompanying drawings, which form a part of this specification, Figure 1 is a plan view of the dial side of a stem-winding-watch movement containing my improvement with the parts in position for use in an open-face case, the dial being partly broken away. Fig. 2 is the same view as Fig. 1, but with the parts shown in position for use in a hunting-

case. Fig. 3 is a view of the back of the movement with parts in the same position as in Fig. 1. Fig. 4 is a view of the back of the movement with the parts in the same position as in Fig. 2. Fig. 5 is a sectional view on the line X X of Fig. 1. Fig. 6 is a view of the under side of the plate B with the supplemental frame or carriage E F attached in the position shown in Figs. 1 and 3. Fig. 7 is the same view as Fig. 6, but with the carriage E F in the position shown in Figs. 2 and 4; Fig. 8, separated details; Fig. 9, the supplemental frame or train-carriage detached from the main plate B, showing the side toward the dial; Fig. 10, the reverse of Fig. 9; Fig. 11, a section on the lines *y y*, Fig. 10, showing the method of securing the train-carriage in position upon the plate B.

Similar letters and figures of reference indicate like parts throughout the different views.

A is the main pillar-plate of a stem-winding-watch movement of usual construction, except that it is recessed on its inner side, as at *a'*, and is provided with an opening *a*, through which the raised portion *F'* of the plate F comes flush with the upper side of the plate A.

B is the upper main plate of the movement, recessed on its under side, as at *b b*, and provided with a hub J, but without the usual pivot-holes for the train, except for the center pivot.

C is the barrel-bridge.

D is the dial secured to the plate A by bezel *d*, which snaps over the edge of the plate A in either position. (Shown in Figs. 1 and 2.)

E is a plate connected with F by the pillars *f f f* and screws *e e e*, forming a frame or carriage supporting the third wheel M, fourth wheel N, scape-wheel O, fork and pallets P, and potance R. E is also provided with the screw and pin holes *1 1 1* for the reception of the screw *g'* and pins *g g* of the balance-cock G. E is recessed at *e'* to admit the plate I, which serves to cover the unoccupied hole *i* or *i'* of the plate B. E is also provided with the hole *j*, which fits the hub J. I is provided with a caliper-shaped jaw, which fits over the hub J and is held in position by friction thereon.

K is a cock or bridge secured to the plate B by a steady-pin and the screw *k* and adapted to retain the plates I and E under it in close contact with B, but with sufficient freedom to turn on the hub J a limited distance.

H is a cap adapted to be secured to the plate B by a screw and to cover the unoccupied screw and pin holes *2 2 2* or *3 3 3*.

T is the center wheel.

L is the "barrel," so called, constituting, as usual, combination of main wheel and confining and retaining surfaces, within which is contained mainspring.

S is the stem.

The operation of my invention is as follows, viz: Assuming that the movement is already

arranged for use in an open-face case, with the parts in position, as shown in Figs. 1 and 3, then in order to change the same in position and into condition for use in a hunting-case first remove the hands and dial, then remove the balance-cock G by loosening the screw g' , lift out the balance, remove the cap H, and replace it in the position formerly occupied by the balance-cock G, as shown in Fig. 4. Then with tweezers or other instrument reach between the plates A and B and push the plate I around on the hub J until the opening i' , formerly occupied by the balance-staff, is covered and the opening i is uncovered. Then push the train-carriage E F around until its edge rests against the stop-pin 4, as shown in Fig. 7. The screw and pin holes 1 1 1 in the plate E will now coincide with the holes 2 2 2 in the plate B, and the balance-cock G and balance may now be replaced, but in the new position shown in Fig. 4, the balance-staff now passing through the opening i in the plate B. The steady-pins $g g$ passing freely through the plate B and fitting snugly in the holes in plate E, and the screw g' passing freely through B and being threaded in E, the plates E and B and the balance-cock G are thereby firmly secured together. The relative position of plate E and balance-cock G being unchanged, the balance will be equally upright in the positions shown either in Figs. 3 or 4, and the thickness of the plate B being the same at both points the end shake of the balance-staff will be the same in both positions. The train-carriage E F having been moved from its former position—say one-quarter of a circle around the hub J—the pinion of the fourth wheel N, which carries the seconds-hand n' , and which was formerly in a straight line with the stem and the center of the watch, is now in a line at right angles to a line passing through said stem and center. The dial and hands may now be replaced and the movement will be in condition for use in a hunting-case with the figure III at the stem, as seen in Figs. 2 and 4. The reverse of this operation would be employed to change the condition of the movement from a hunting to an open-face movement. It will be found safer to let the mainspring down before making the change in position of the train-carriage; but the change may be made in both directions when the watch is partly wound and in one direction when fully wound. The hub J being concentric with the center-pivot hole, it follows that the depth of gearing between the pinion of the third wheel M and the center wheel T will be the same in either position in which the train-carriage is placed. The plate E may also have a bearing against the annular shoulder formed on the plate B by the sides of the recess $b b$, in which E rests, to give the structure additional strength and stiffness; also, the peripheries of the segments formed by the edges of the plate F may have a bearing

against the shoulder formed by the sides of the recess in the plate A for the same purpose. The center wheel T may have its bearings in the train-carriage E F by extending the plate F to correspond in size and shape with the plate E, in which case the hub J should be formed on the plates E and F and have its bearings in holes in the plates A and B corresponding to j in the plate E.

It will be evident that my train-carriage E F, instead of being pivoted to the hub J, may be secured in each of the two positions described by steady-pins and screws, and when a change in position is required it may be lifted out of one position and placed in the other. This, however, would be more troublesome, and is not, in my opinion, the best method of applying my invention.

The style of winding mechanism shown in the drawings is well known and requires no detailed description; but it will be evident that any required style of winding mechanism may be employed, as the space usually occupied by that portion of the watch is not restricted or curtailed by the use of my improvement.

In the drawings the dial is shown as secured to the plate A by a bezel, which snaps on in either position; but it is evident that the dial may be secured by posts or screws or by any known method; also, that the dial may be secured to the train-carriage E F, if desired, and be adapted to revolve with it from one position to the other instead of being attached to the plate A and requiring removal with each change in position of the train-carriage.

The same result which it is the object of my invention to attain, as aforesaid, may, by the use of the improvements which I have described, be attained by modifications in the relations of the active machinery of the movement to the train-carriage or movable plates, which modifications must be apparent to any person of ordinary mechanical skill in the art to which my invention pertains.

In describing the structure, operation, and function of the various parts and details of watch-movements in combination with which my improvements are applied and used, as aforesaid, I have not deemed it necessary to specifically describe every minute part of "watch material," nor those parts thereof which are so plainly required in order to render those mentioned by me operative that any person skilled in the art must necessarily understand that the use thereof in the combinations described by me is intended and, in fact, necessary, and I wish, therefore, to be understood in all parts of this specification, including the claims, to intend the mention and use of all ordinary screws, stay-pins, hair-springs, fastenings, arbors, pivots, pinions, jewels, casings, letterings, hands, sockets, &c., which are necessarily incident in the manufacture of watches and watch-movements to

the use of those parts which I have specifically described.

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

1. In a stem-winding-watch movement, the combination of two sets of relatively-adjustable plates or frames, each set supporting and having journaled therein or thereon a portion of the active mechanism of the watch, whereby the said movement may be adapted for use either in an open case with the figure XII of the dial placed at the pendant or in a hunting-case with the figure III at the pendant, substantially as described.

2. In a stem-winding-watch movement having a pinion carrying a seconds-hand, a pair of plates or frames carrying a portion of the active mechanism of the watch, combined with another pair of plates or frames carrying another portion of said mechanism, said pairs being adjustable relatively to each other, so that said movement may be used either in an open-case watch with said pinion in line with the watch stem and center or in a hunting-case watch with the said pinion on a line substantially at right angles to said line of stem and center, substantially as described.

3. In a stem-winding-watch movement having a fourth pinion carrying a seconds-hand, the combination of two sets of relatively-adjustable plates or frames, each set supporting and having journaled therein or thereon a portion of the active mechanism of the watch, whereby the said movement may be adapted for use either in an open case with said fourth pinion in line with the stem and center of the watch or in a hunting-case with said fourth pinion on a line substantially at right angles to the line of said stem and center, substantially as described.

4. In a stem-winding-watch movement having a fourth pinion carrying a seconds-hand, the combination of two sets of plates or frames, one set supporting and having journaled therein or thereon the winding mechanism and a portion of the train, including main-spring and barrel, the other set supporting and having journaled therein or thereon the remainder of the train and the escapement, said sets of plates or frames being so adjustable with relation to each other that the dial may be placed on the movement either with the figure XII at the stem to adapt the movement for use in an open case or with the figure III at the stem to adapt the movement for use in a hunting-case, substantially as described.

5. In a stem-winding-watch movement, the combination of two sets of plates or frames, one set supporting and having journaled therein or thereon the winding mechanism and a portion of the train, the other set supporting and having journaled therein or thereon the remainder of the train and the escapement, said sets of plates or frames be-

ing adjustable with relation to each other, whereby the fourth pinion of said train may be placed in a line with the stem and center to adapt said movement for use in an open case, and whereby said fourth pinion may be placed in a line substantially at right angles to the line of said stem and center to adapt said movement for use in a hunting-case, substantially as shown and specified.

6. In a stem-winding-watch movement, the combination of two sets of plates or frames, one set supporting and having journaled therein or thereon the winding mechanism, the main wheel, spring and barrel, and the center wheel, the other set supporting and having journaled therein or thereon the remainder of the train and the escapement, said sets of plates or frames being adjustable with relation to each other in such manner that the fourth pinion of said train may be placed in line with the stem and center or on a line at right angles to said line of stem and center, substantially as described, and for the purpose specified.

7. In a stem-winding-watch movement, the combination of main plates A B, supporting and having journaled therein or thereon the winding mechanism, the main wheel, spring and barrel, and the center wheel, with the supplemental swinging plates or frames E F, supporting and having journaled therein or thereon the remainder of the train and the escapement, substantially as and for the purpose described.

8. In a stem-winding-watch movement, a supplemental frame in which part of the train and the escapement are supported and journaled, said supplemental frame being pivotally connected with and having pivotal bearing upon the main plates of the watch and adapted to be secured to said main plates in such positions that the fourth pinion of said train may be in a straight line with the stem and center or in a line substantially at right angles to such line, substantially as shown and described, and for the purpose specified.

9. In a stem-winding-watch movement, the combination of the adjustable train-carriage E F with the main plate B, said main plate B being provided with two similar sets of pin-holes and screw-holes through which the steady-pins *g g* and screw *g'* of the balance-cock G may freely pass into their respective holes 1 1 1 in the plate E of said train-carriage E F, substantially as shown, and for the purpose specified.

10. In a stem-winding-watch movement, the plate B, provided with two similar openings *i* and *i'*, through which the balance-staff is adapted to pass into its bearing in the adjustable train-carriage E F, substantially as shown and described, and for the purpose specified.

11. In a stem-winding-watch movement, the plate E, provided with the recess *e*², in which the plate I is adapted to freely turn, substantially as shown, and for the purpose specified.

12. In a stem-winding-watch movement having an adjustable train-carriage E F, the cap H, adapted to cover the unoccupied screw and pin holes 2 2 2 or 3 3 3 in the plate B, substantially as shown and specified.

13. In a stem-winding-watch movement, an adjustable train-carriage E F, in combination with the bridge or cock K, adapted to secure the inner end of the plate E upon the hub J and adapted to allow said plate E to turn freely under it, substantially as shown and specified.

14. In a stem-winding-watch movement provided with an adjustable train-carriage, the main plate B, recessed on its inner side and provided with stops 4 5, in combination with the train-carriage E F, substantially as shown and described, and for the purpose specified.

15. In a stem-winding-watch movement, the plate B, provided with the hub J and openings *i i'*, in combination with the carriage E F, cover I, bridge K, and balance-cock G, substantially as shown and described, and for the purpose specified.

16. In a stem-winding-watch movement, the combination of the plate B, adjustable train-carriage E F, balance-cock G, cover I, and cap H, substantially as shown and described, and for the purpose specified.

17. In a stem-winding-watch movement provided with an adjustable train-carriage, the plate E, provided with the hole *j*, in combination with the plate B, having hub J, holes *i i'*, and stops 4 5, the plate I, bridge K, balance-cock G, and cap H, substantially as shown and described, and for the purpose specified.

18. In a stem-winding-watch movement provided with an adjustable train-carriage, the plate A, provided with an opening *a* to admit the raised portion F' of the plate F, substantially as shown and described, and for the purpose specified.

19. In a stem-winding-watch movement, the plate A, provided with the opening *a* and recessed on its inner side, in combination with the plate B, recessed on its inner side, and the adjustable train-carriage E F, substantially as shown and described, and for the purpose specified.

20. In a stem-winding-watch movement, an adjustable train-carriage E F, in combination with the plate A, the plate B, and an adjustable dial D, substantially as shown and described, and for the purpose specified.

Dated July 28, 1886.

HENRY ABBOTT.

Witnesses:

JAS. J. KENNEDY,

WM. COTTER DICK.