

(No Model.)

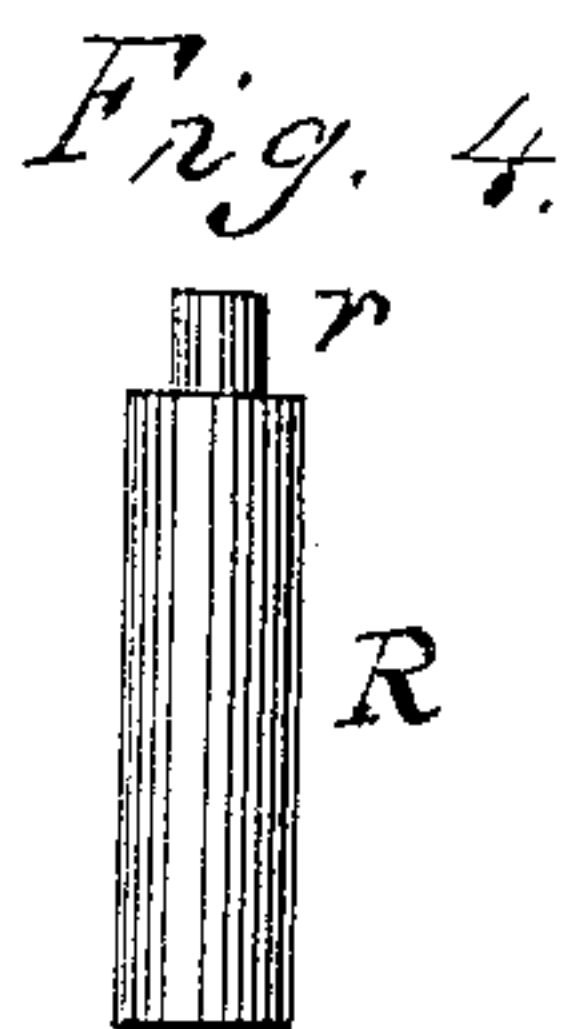
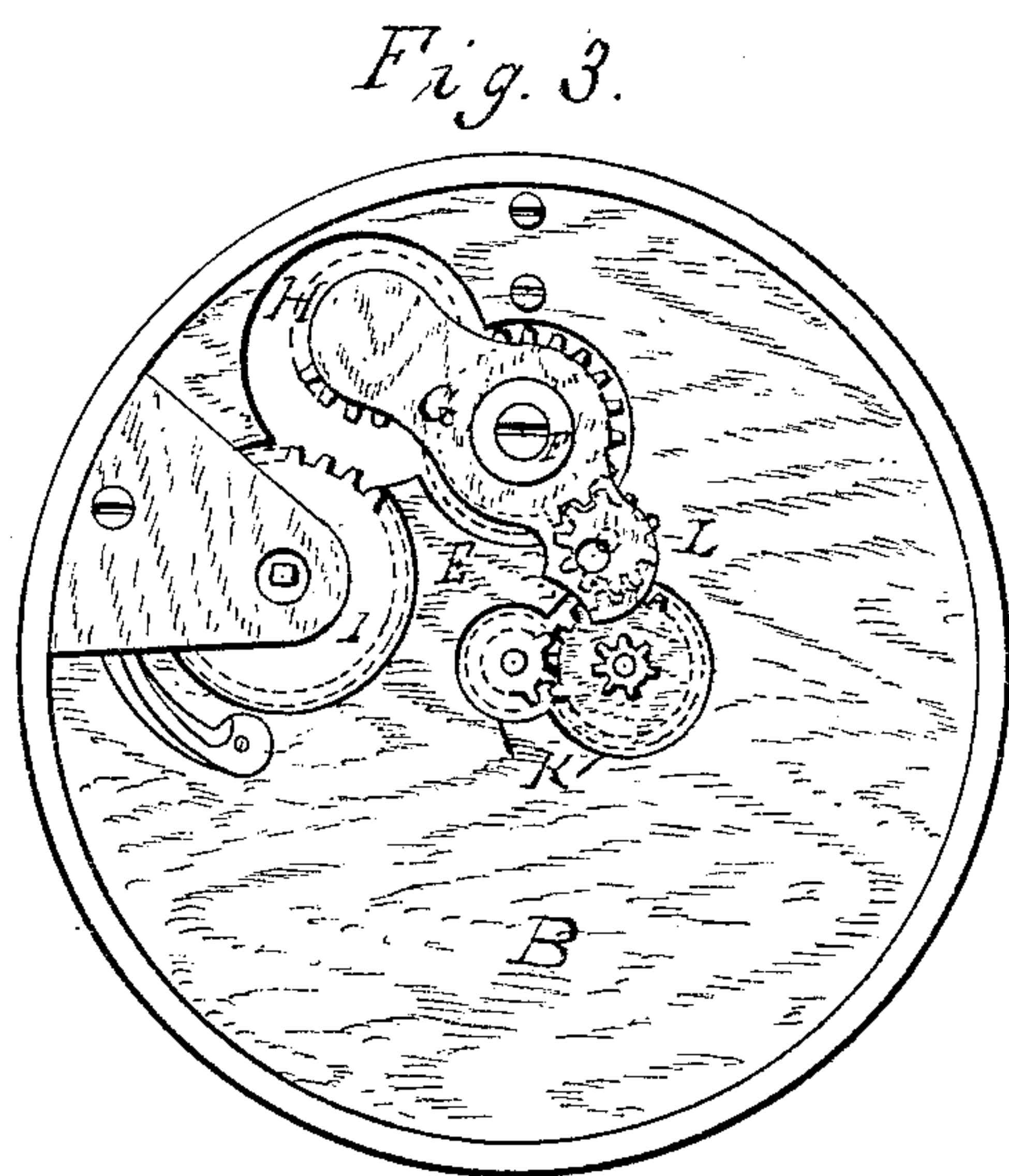
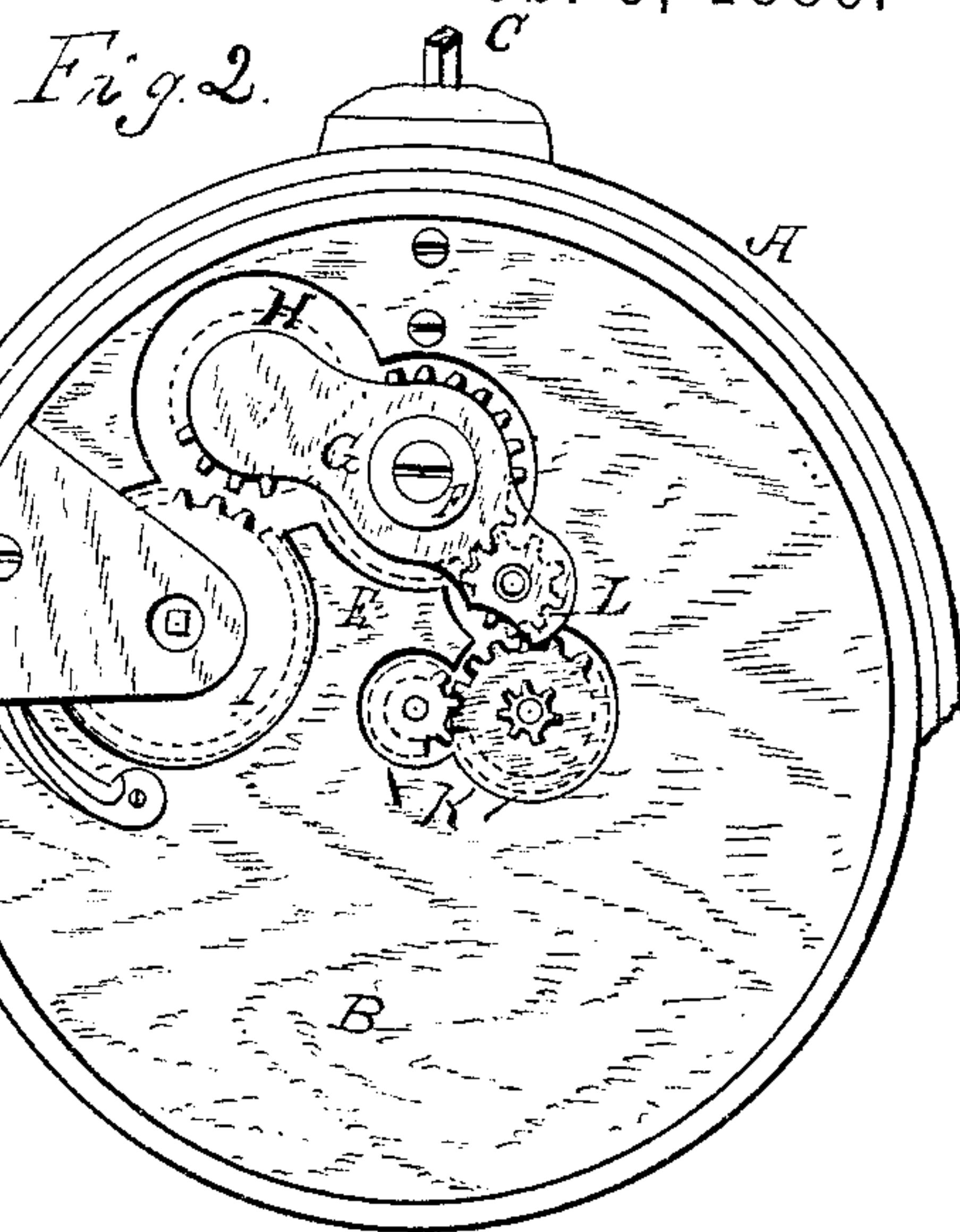
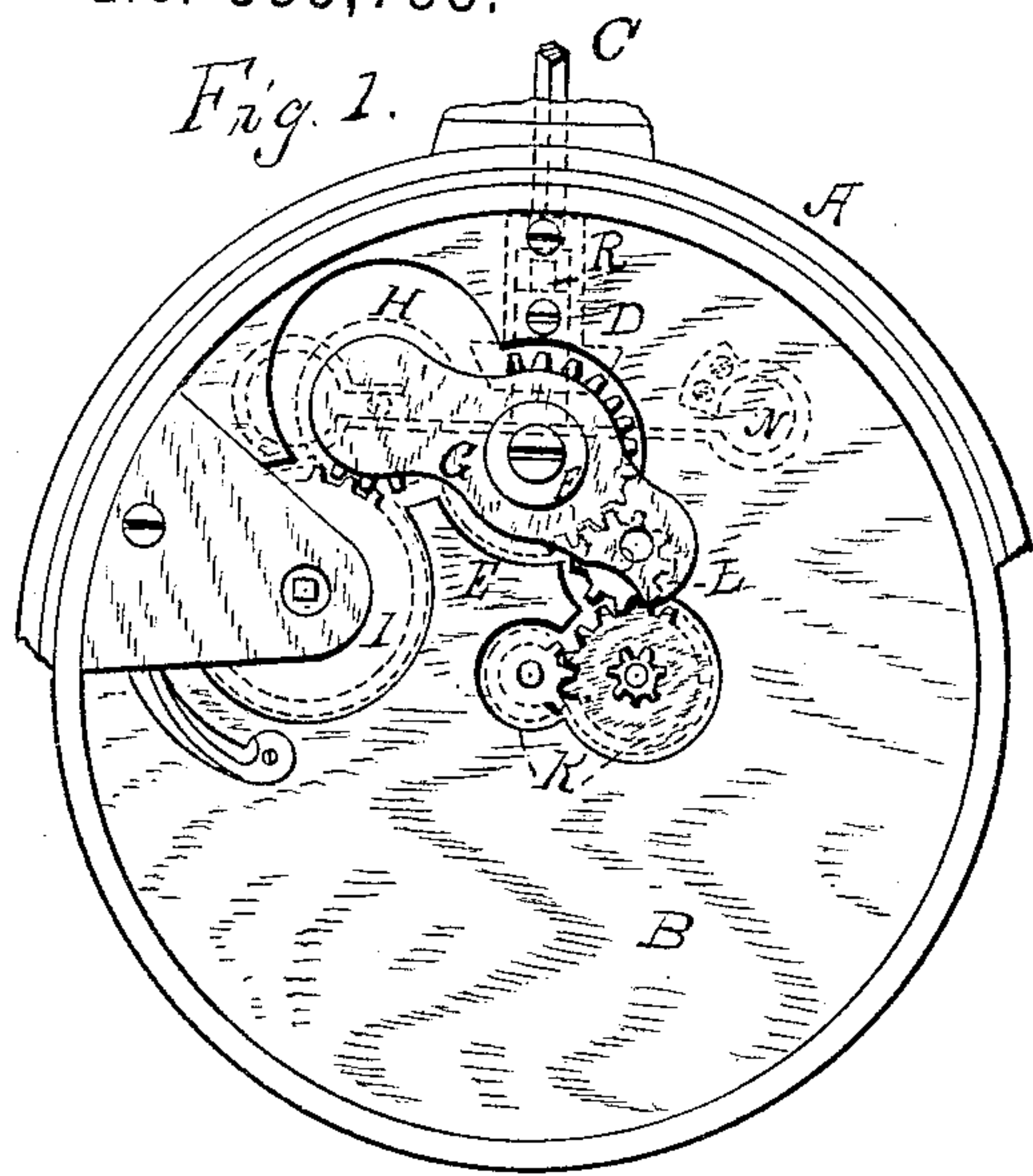
2 Sheets—Sheet 1.

H. ABBOTT.

STEM WINDING AND SETTING ATTACHMENT FOR WATCHES.

No. 335,733.

Patented Feb. 9, 1886.



witnesses:

John C. Tunbridge.  
Albert Kamp.

Inventor.

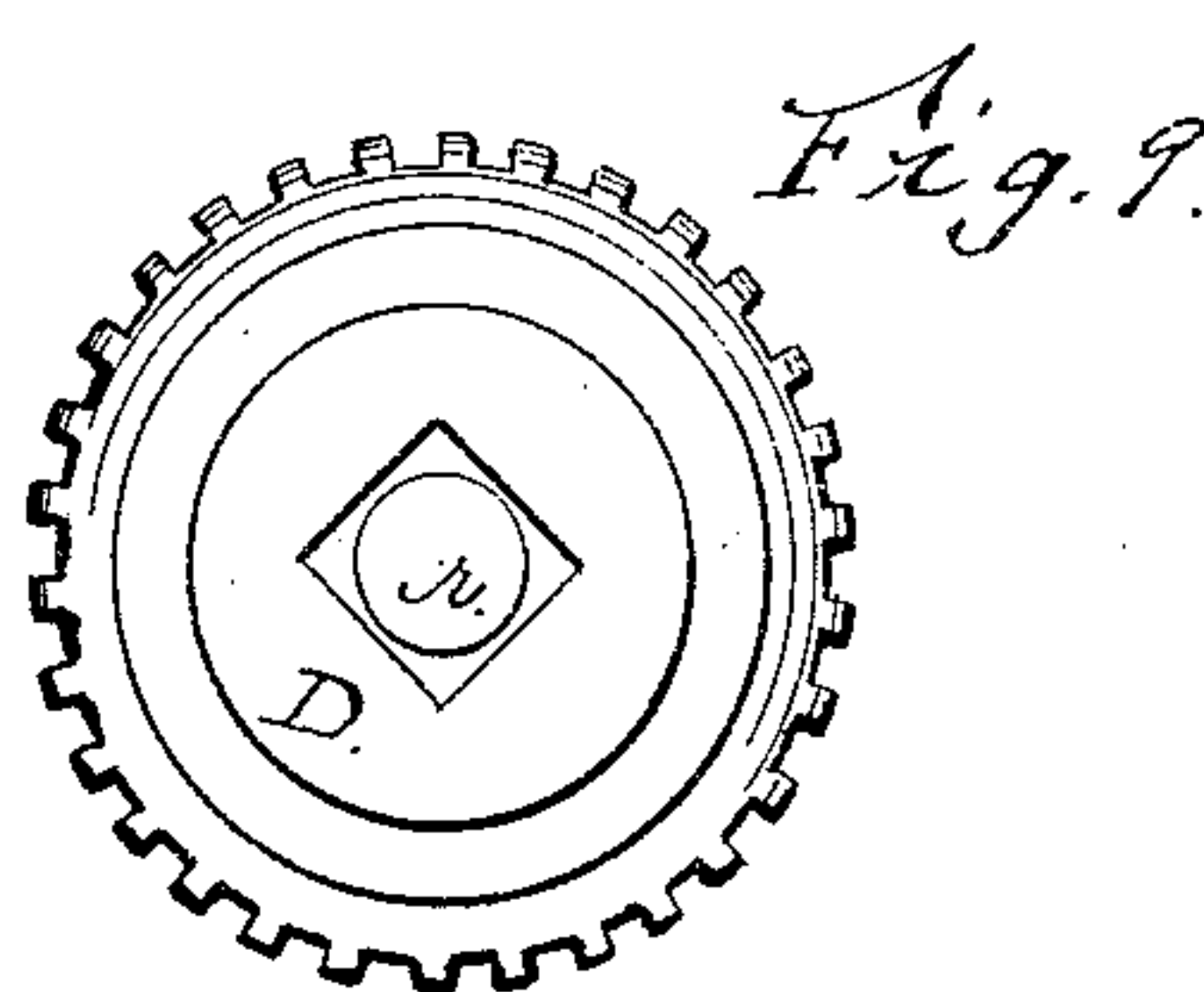
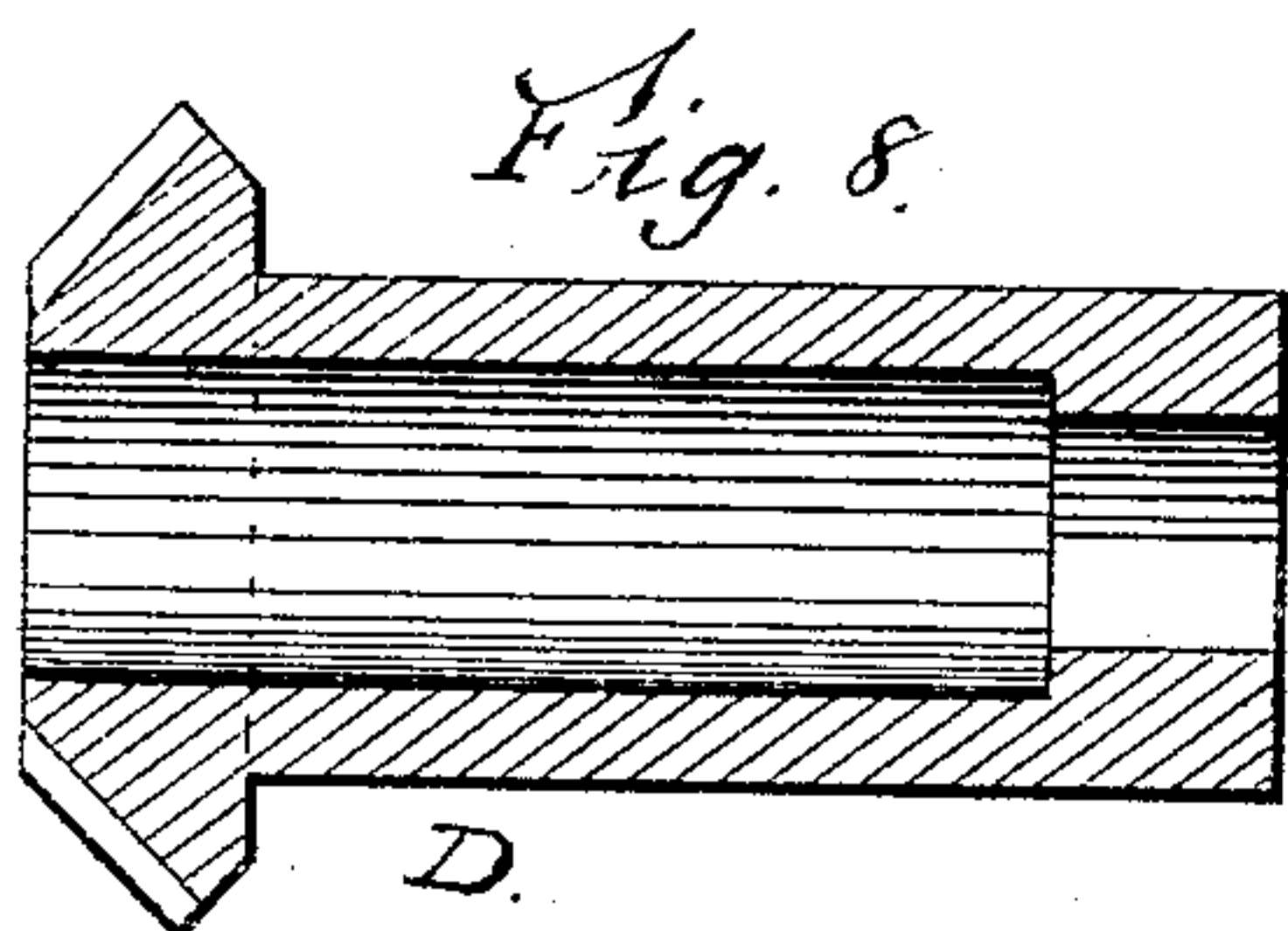
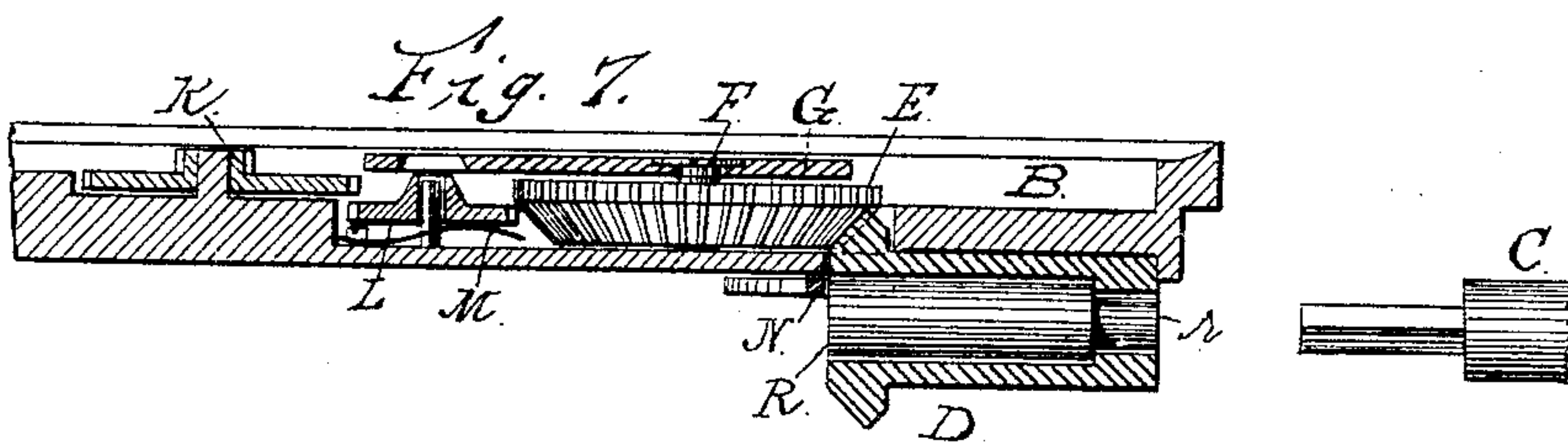
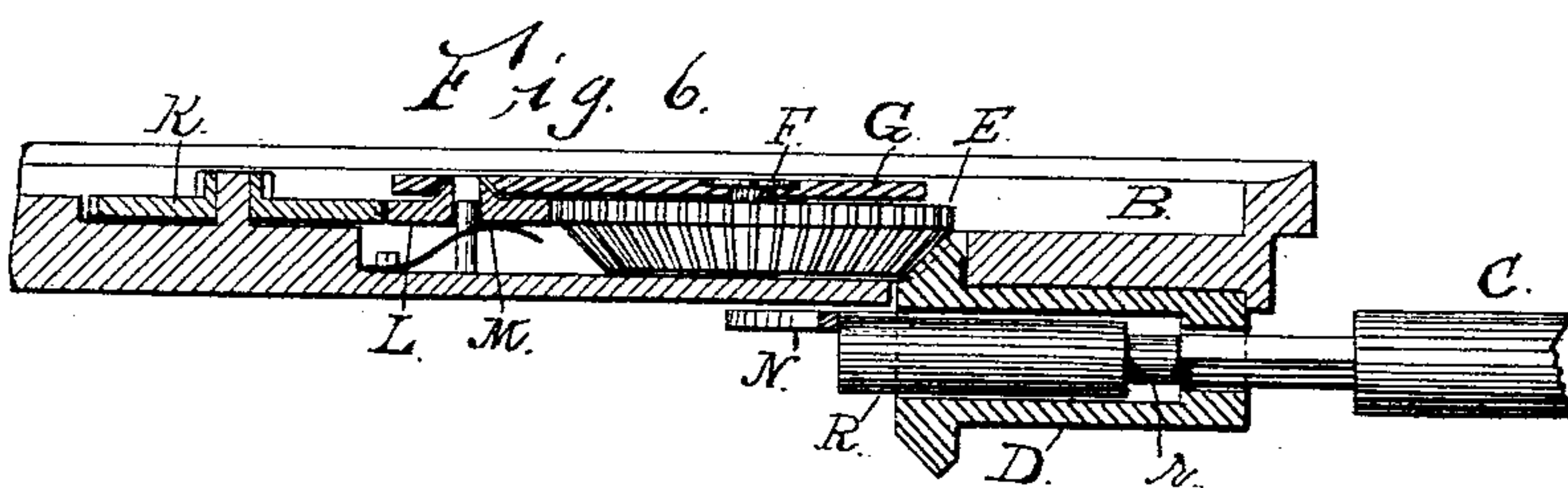
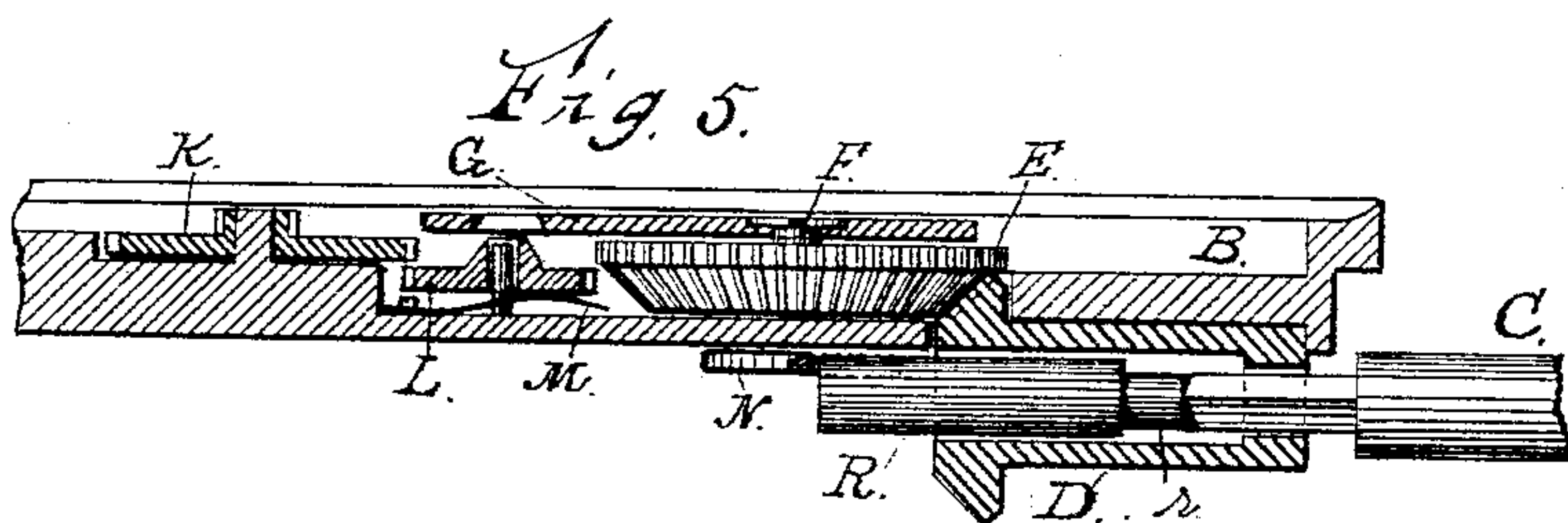
Henry Abbott

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STEM WINDING AND SETTING ATTACHMENT FOR WATCHES.

No. 335,733.

Patented Feb. 9, 1886.



WITNESSES:

John C. Tunbridge  
Jas. B. Mann

INVENTOR

Henry Abbott.



# UNITED STATES PATENT OFFICE.

HENRY ABBOTT, OF NEWARK, NEW JERSEY.

## STEM WINDING AND SETTING ATTACHMENT FOR WATCHES.

SPECIFICATION forming part of Letters Patent No. 335,733, dated February 9, 1886.

Application filed October 1, 1885. Serial No. 178,714. (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 Stem-Winding and Hand-Setting Attachments for Watches, of which the following is a specification.

My invention relates to a class of stem-winding and hand-setting watches in which connection is made between the stem-driven train and the dial-wheels by means of the movement endwise of the stem, and in which, on the removal of the said stem from the watch, the said train remains in engagement with the said dial-wheels.

My said invention consists, principally, in so improving the form and arrangement of the parts of said winding and setting mechanism as to cause the said train to become automatically disengaged from the dial-wheels by the act of removing the said stem from the watch, and has for its object to thus relieve the time-train and mainspring of the watch from the additional strain put upon them by such engagement of the winding and hand-setting train with the dial-wheels, and to enable the watch-movement to run and keep time equally well, whether in its case with the stem inserted or out of its case with the stem removed, (said stem in watches of this class being usually a fixture of the case.)

My improvement relates more particularly to the class of watches described in Letters Patent No. 295,484, dated March 18, 1884, reissued No. 10,580, April 14, 1885. These watches, as therein described and as heretofore constructed and for sale in this market, have their stem-driven trains "normally," or whenever the stem is removed therefrom, in engagement with the dial-wheels, thus adding the weight and friction of the winding and setting mechanism to the running or time train of the watch, and rendering it impracticable to run or regulate the watch-movement while out of its case, or while its stem is removed therefrom.

I attain the object above stated by an arrangement of the parts composing the winding and setting mechanism, which permits a new and additional movement of the pivoted yoke G on its center, carrying its outer end, with

the intermediate winding-wheel, H, farther away from the barrel-arbor wheel I, and at the same time forcing the intermediate setting-wheel, L, down and out of engagement with the dial-wheels upon removing the stem entirely from the watch, thus placing the wheels of the stem-driven train out of engagement with both barrel-arbor wheel and dial-wheels. This arrangement of parts is illustrated in the accompanying drawings, which form a part of this specification, and in which—

Figure 1 is a plan view of a portion of a watch of the class above named, showing the position of the winding and setting mechanism when the movement is in the case, and with the stem inserted to the inner limit of its motion endwise, and with the wheels of said mechanism in engagement for winding. Fig. 2 is a like view of the same, but with the stem withdrawn to the outer limit of its motion and with the wheels in engagement for setting the hands. Fig. 3 is a like view of the same watch-movement when separated from its case and with the stem removed therefrom, showing the new position of the yoke G, with the wheels of the stem-driven train disengaged from both barrel-arbor wheel I and dial-wheels K. Fig. 4 is an enlarged view of the loose sliding bar R, of improved shape, which permits the additional movement of the yoke G, as shown in Fig. 3, without changing the length of the stem, which in watches of this class is usually made of standard length, so as to be interchangeable. Fig. 5 is a sectional view through the yoke G, plate B, and pinion D, showing the position of the stem C, sliding bar R, spring N, and intermediate wheel L, when the parts are in gear for winding, as in Fig. 1. Fig. 6 is the same as Fig. 5, but with the parts in position for setting the hands, as in Fig. 2. Fig. 7 is the same as Fig. 5, but with the stem removed and with the intermediate wheel L depressed and the parts in position shown in Fig. 3. Fig. 8 is a sectional view of the hollow pinion D. Fig. 9 is an end view of the same, showing the small end *r* of the sliding bar R where it passes through the square hole in the pinion D.

Similar letters of reference indicate like parts in each of the views.

A represents a portion of the center of a



watch-case; B, the main plate of a watch-movement; C, the stem; D, the hollow pinion of the stem-driven train; E, the crown-wheel; F, the hub on which the crown-wheel and yoke are pivoted.

H is the intermediate winding-wheel, pivoted to the yoke G on its under side.

I is the barrel-arbor wheel, or main winding-wheel; K, the minute-wheel and cannon-pin-  
 10 ion, also called "dial-wheels;" L, the intermediate setting-wheel, pivoted to the main plate B on a stud, and shiftable on said stud in a line perpendicular to its plane of rotation, being forced upward against the yoke G by means  
 15 of a spring, M, a beveled hub on the upper side of said wheel falling into a recess formed in the under side of the yoke G, when by the movement of said yoke on its pivot said recess is brought into line with said hub, thus  
 20 raising said wheel L into the plane of the crown-wheel E and the dial-wheels K and engaging the stem-driven train with the dial-wheels, the said wheel L being forced down and out of engagement with said dial-wheels  
 25 and said crown-wheel by the pressure of said yoke against the beveled sides of its hub, when said yoke is turned on its pivot in either direction.

N is a spring lever on the under side of the  
 30 plate B, (shown by dotted lines in Fig. 1,) said spring being in engagement with a stud attached to the yoke G at its outer end, and pressing against the inner end of the sliding  
 35 bar R, thus communicating the end-thrust of the stem C to the yoke G and causing said yoke to turn on its pivot F.

R is a sliding bar or plunger adapted to fit loosely in the round portion of the hollow pinion D, and to move endwise therein, and  
 40 having its outer end reduced in diameter, as at r, to adapt it to pass through the squared portion of the hollow pinion D at its outer end, thus permitting it to follow the stem C, when said stem is removed from the watch,  
 45 nearly or quite through the hollow pinion D, and giving the additional movement to the yoke G, as shown in Fig. 3.

The operation of this mechanism is as follows: The movement being in its case, the stem  
 50 is inserted to the inner limit of its motion, and, pressing against the outer end of the sliding bar R, forces the spring-lever N in toward the center of the watch, causing the yoke G to turn on its pivot F until the intermediate  
 55 wheel H is brought into engagement with the barrel-arbor wheel I. At the same time the intermediate setting-wheel, L, is forced down and out of engagement with the wheels E and K. The stem C may now be rotated and the watch  
 60 wound. (See Fig. 1.) The stem C being drawn out to the outer limit of its motion against a stop usually provided in the case, the spring-lever N will follow it, causing the yoke G to turn on its pivot F until the recess  
 65 on its under side comes in line with the beveled hub on the wheel L, when the wheel L will fall into said recess and engage with the

wheels E and K. At the same time the wheel H on the outer end of the yoke G will be disengaged from the barrel-arbor wheel I. The  
 70 stem C may now be rotated and the hands turned in either direction, as required. (See Fig. 2.) Upon withdrawing the stem C entirely from the watch the spring-lever N will  
 75 continue its movement outward until it rests against the inner end of the hollow pinion D, and the sliding bar R, with its reduced outer end, has followed the outward movement of the stem C entirely through the square hole in the  
 80 outer end of the hollow pinion D. At the same time the yoke G, following the movement of the spring-lever N, its outer end, with the wheel H, is carried farther away from the wheel I, while the wheel L is again forced down and  
 85 out of engagement with the wheels E and K. In this position of the yoke G, as shown in Fig. 3, the stem-driven train is at the same time out of engagement with both dial-wheels and barrel-arbor wheel, and the time-train of the watch is free to run, and can be regulated  
 90 as well as if the movement were in its case and the stem inserted, as in Fig. 1.

I do not claim, broadly, the mechanism herein described; but the form and arrangement of parts which permit the position of the  
 95 yoke G, as shown in Fig. 3, with the stem-driven train out of engagement with both dial-wheels and barrel-arbor wheel, constitutes a feature of my invention.

Having thus fully described the nature and  
 100 merits of my invention, what I claim, and desire to secure by Letters Patent, is—

1. As an improvement in a stem-winding and hand-setting watch provided with a stem that is shiftable endwise, and an intermediate  
 105 wheel that is shiftable in a line perpendicular to its plane of rotation, a pivoted yoke that is adapted, upon the removal of the stem from the watch, to take such position automatically as will disconnect the stem-driven train from  
 110 both the dial-wheels and the barrel-arbor wheel, substantially as and for the purpose specified.

2. As an improvement in a stem-winding and hand-setting watch provided with a stem  
 115 that is shiftable endwise, and a pivoted yoke, an intermediate wheel that is shiftable in a line perpendicular to its plane of rotation by means of the movement of said yoke on its pivot, and that is adapted to be automatically  
 120 disengaged from the dial-wheels of said watch by the act of removing said stem from the watch, substantially as and for the purpose specified.

3. As an improvement in stem-winding and  
 125 hand-setting watches, the combination of a stem that is adjustable endwise, a pivoted yoke, and a stem-driven train having an intermediate wheel that is shiftable in a direction perpendicular to its plane of rotation, said parts being  
 130 so arranged that when said stem is placed at the inner limit of its motion said train will be in engagement with the barrel-arbor wheel, when said stem is placed at the outer limit of



its motion said train will be in engagement with the dial-wheels, and when said stem is removed entirely from the watch said train will be disengaged from both dial-wheels and  
5 barrel-arbor wheel, substantially as and for the purpose specified.

4. The sliding bar R, having its outer end reduced, as at r, in combination with the pin-

ion D, stem C, spring-lever N, yoke G, and intermediate wheel L, substantially as described, 10 and for the purpose specified.

HENRY ABBOTT.

Witnesses:

J. T. SCOTT,  
ALBERT KAMP.