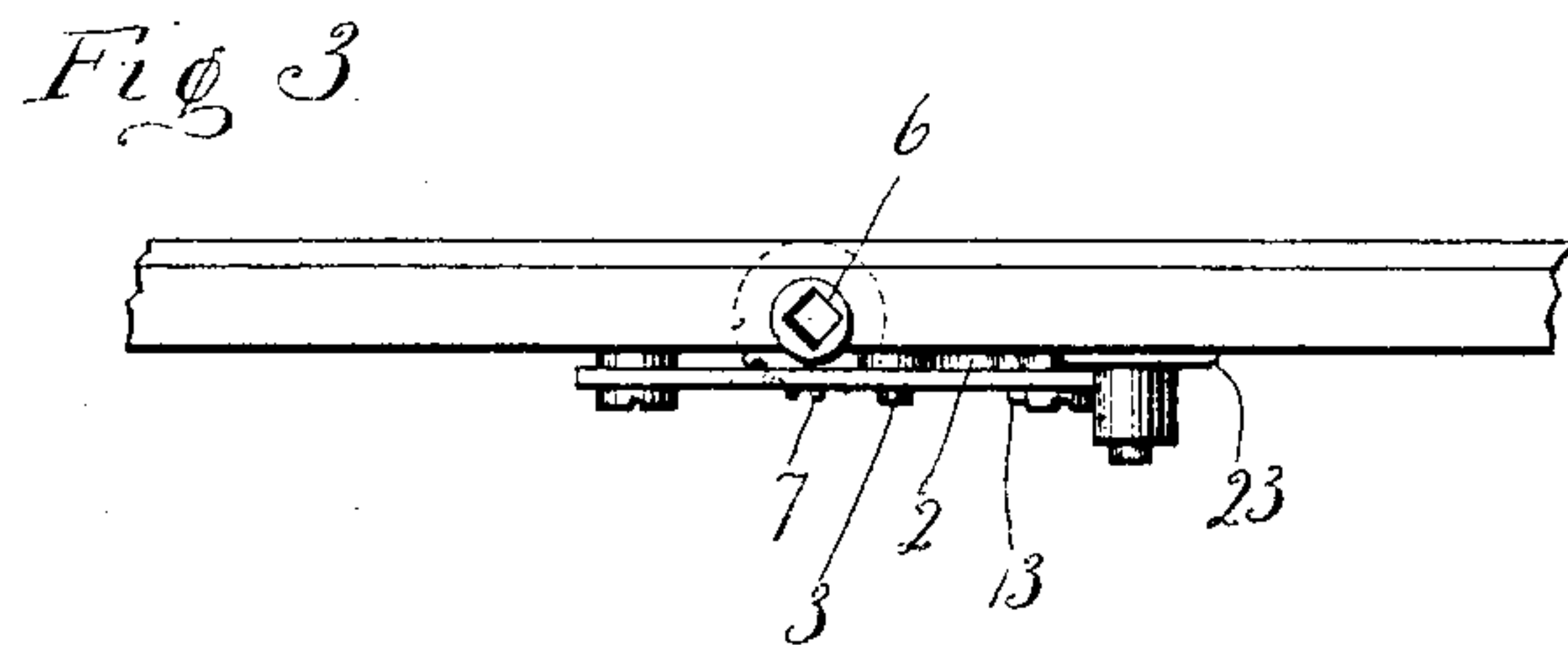
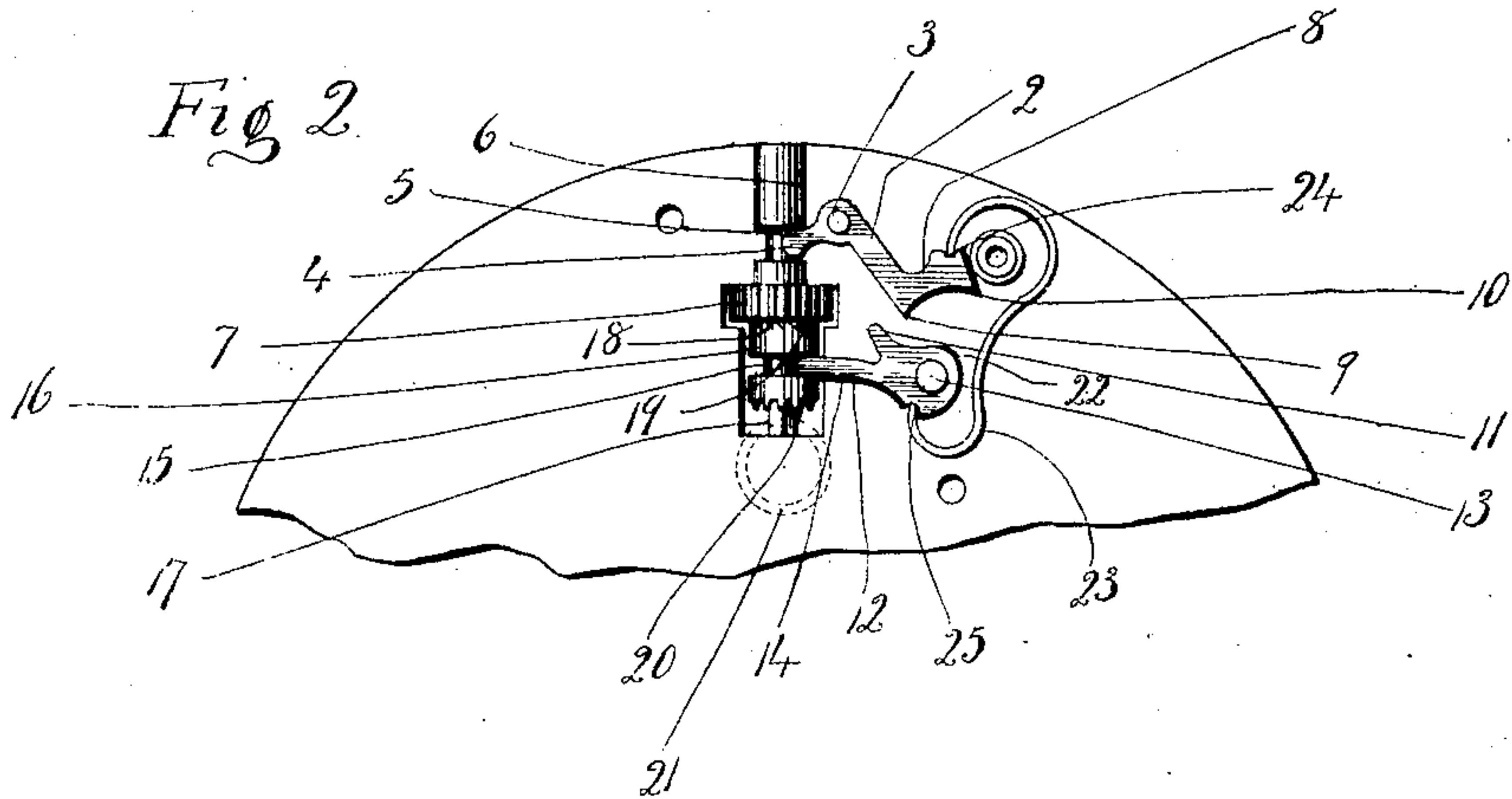
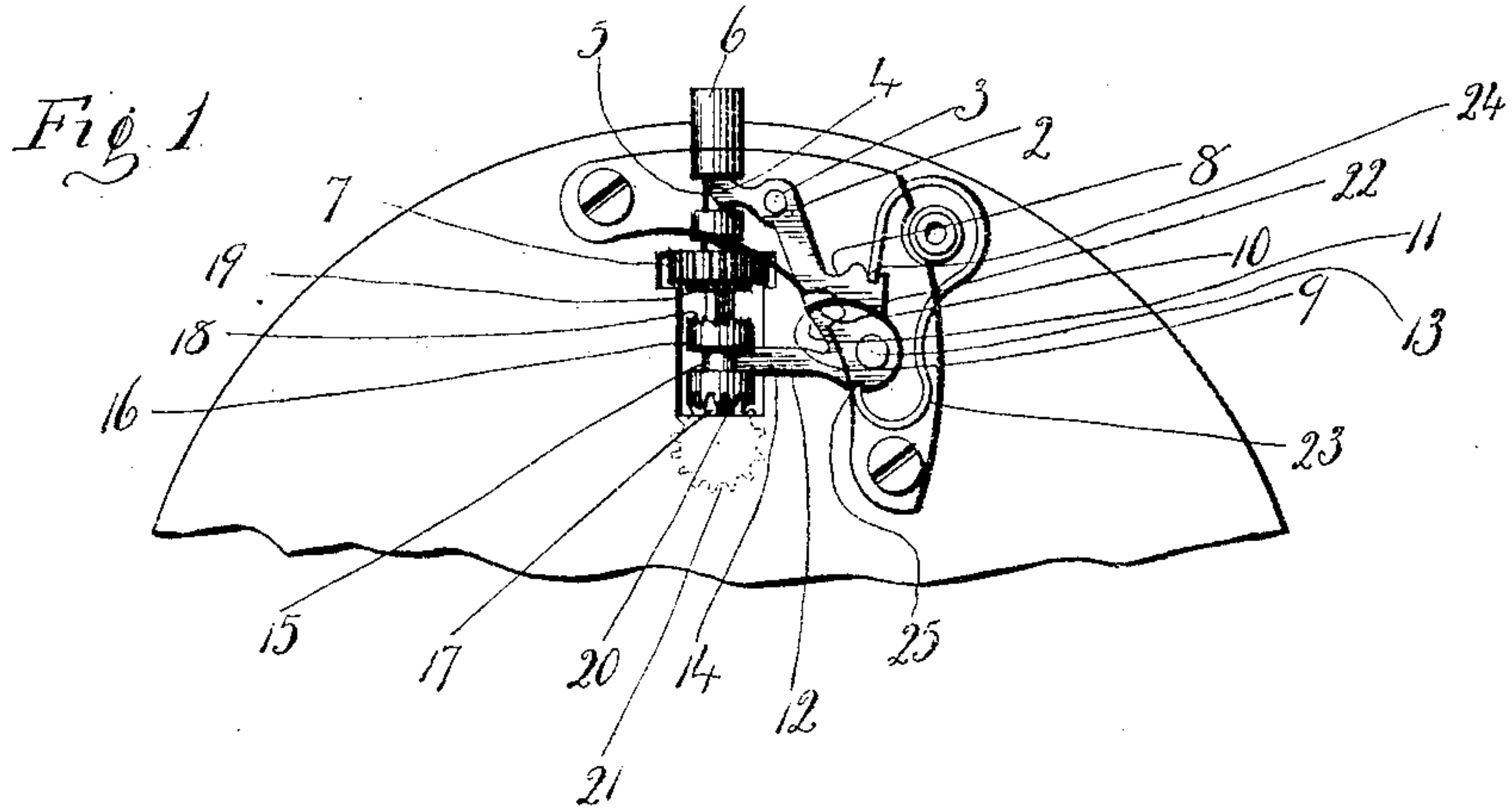


E. HART.
WINDING AND SETTING MECHANISM FOR WATCHES.
APPLICATION FILED NOV. 1, 1909.

944,860.

Patented Dec. 28, 1909.



Witnesses
C. J. Reed.
C. L. Reed.

Inventor
Edwin Hart
by Seymour T. Carey
Atty

UNITED STATES PATENT OFFICE.

EDWIN HART, OF WATERBURY, CONNECTICUT, ASSIGNOR TO THE NEW ENGLAND WATCH CO., OF WATERBURY, CONNECTICUT, A CORPORATION.

WINDING AND SETTING MECHANISM FOR WATCHES.

944,860.

Specification of Letters Patent. Patented Dec. 28, 1909.

Application filed November 1, 1909. Serial No. 525,792.

To all whom it may concern:

Be it known that I, EDWIN HART, a citizen of the United States, residing at Waterbury, in the county of New Haven and State of Connecticut, have invented a new and useful Improvement in Winding and Setting Mechanism for Watches; and I do hereby declare the following, when taken in connection with the accompanying drawings and the numerals of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this specification, and represent, in—

Figure 1 a broken view in elevation of a watch provided with my improved winding and setting mechanism with the parts in position for setting. Fig. 2 a corresponding view showing the parts in position for winding. Fig. 3 a plan view thereof.

My invention relates to an improved stem-winding and stem-setting mechanism for watches of the class of stem-winding and stem-setting watches in which the stem is pulled out for throwing the mechanism into position for setting, the object being to produce a simple, compact and reliable device designed with particular reference to having its two main parts shaped so as to permit them to be stamped out of wrought metal without injury to the dies employed, and so as to reduce wear in use to the minimum.

With these ends in view my invention consists in a watch having certain details of construction as will be hereinafter described and pointed out in the claim.

In carrying out my invention, as herein shown, I employ a two-armed sheet-metal lever 2 hung upon a pivot 3 and having its upper arm 4 entered into an annular groove 5 in the longitudinally movable and rotatable stem 6 upon which the winding pinion 7 is loosely mounted and through which the stem is free to be longitudinally moved, this pinion being normally coupled with the stem for the discharge of its winding function as will be described later on. The inner arm 8 of the said lever 2 is formed with a locking nose 9 and a stop nose 10. The said locking nose 9 coacts with a corresponding nose 11 formed upon a sheet-metal lever 12 which is hung upon a pivot 13 and formed with an arm 14 entering an annular groove 15 in a sliding sleeve 16 mount-

ed upon the inner end of the stem 6 for sliding movement thereupon, as well as for rotation therewith for which latter purpose the stem 6 is squared as at 17, the said sleeve being formed with a corresponding opening which is not shown. The outer end of the said sleeve is furnished with clutch teeth 18 corresponding to clutch-teeth 19 upon the lower face of the pinion 7, while the inner end of the sleeve is formed with a pinion 20 having spur-teeth meshing into a wheel 21 of the dial work which need not be described. The stop nose 10 of the inner arm 8 of the lever 2 coacts with a cam-surface 22 formed upon the lever 12.

A spring 23 hooked at one end into a notch 24 in the arm 8 of the lever 2, and at its outer end into the notch 25 in the lever 12, provides for operating the levers, exerting a constant effort upon the lever 12 to hold the same in position to maintain the sleeve 16 in the position upon the stem 6 in which it is coupled with the wheel 7 which is thus coupled for rotation with the stem 6 for the winding function thereof. In this position of the parts the locking noses 9 and 11 and the stop-nose 10 are out of play, as shown by Fig. 2. When, however, the stem 6 is pulled outward preparatory to setting, the lever 2 is swung upon its pivot 3 by the action of the spring 23, whereby its arm 8 moves inward toward the stem 6 and also downward. In this inward and downward movement of the arm 8 of the lever 2, its locking-nose 9 engages with and rides over the adjacent cam-like outer edge of the locking-nose 11 of the lever 12, whereby the same is turned on its pivot 13 against the tension of the spring 23, its arm 14 swinging inward and carrying with it the sleeve 16 which is thus disengaged from the winding-wheel 7 and engaged with the wheel 21 of the dial-work. After this has transpired and just before the arm 8 of the lever 2 completes its inward and downward swinging movement as described, its locking-nose 9 rides and snaps over the end of the locking-nose 11 as shown in Fig. 1, whereby the levers 2 and 12 are locked against the power used in setting, i. e., the power applied to the rotation of the stem 6 by the user of the watch through his fingers. If the levers were not locked at this time, as described, the sleeve 16 would be moved outward on the squared portion 17 of the stem 6 by the riding of the spur-teeth of

the pinion 20 out of mesh with the teeth of the dial-wheel 21. The locking of the two levers takes place, be it noted, at a point inside of a line drawn between the pivots 3 and 13 which line intersects the stem 6 at an acute angle. As the parts move into their final setting positions, as shown in Fig. 1, the stop-nose 10 engages with the cam-surface 22 of the lever 12, whereby the lever 2 is prevented from swinging too far inward when the parts are adjusted for setting since it is apparent that the swinging movement of the lever 2 at this time must be arrested at the point where its nose 9 will coact with the nose 11 of the lever 12. When the stem 6 is again pushed inward to restore the parts to their normal or winding positions, the nose 9 of the lever 2 pressing against the nose 11 of the lever 12 forces the same just enough downward against the tension of the spring 23, to permit the nose 9 to ride over the nose 11. The inward thrust upon the stem 6 being continued, the lever 2 is forced into the position in which it is shown in Fig. 2 against the tension of the spring 23, which spring, however, is left free to swing the lever 12 into the position shown in Fig. 2 whereby the sleeve 16 is moved upward and coupled with the winding wheel 7.

I wish to call attention to the fact that in the setting adjustment of the parts the power of the spring 23 is so developed as to cause the lever 2 to assume and hold the position shown in Fig. 1 of the drawings, this being due to the particular construction and arrangement of the levers 2 and 12 and the spring 23. On the other hand when the stem 6 is pushed inward, the lever 2 is swung on its pivot 3 so as to raise the notch 24 and the upper lobe of the spring 23 whereby the power of the spring is changed and thrown upon the lever 12 which is then turned on its pivot 13 so as to move the sleeve 15 outward on the square portion 17 of the stem for the engagement of the clutch-teeth 18 with the corresponding clutch-teeth 19 upon the lower face of the pinion 7. It will thus be seen that the notch 24 in the lever 22 forms, as it were, the tension point of the spring 23, and that as this notch is changed in position by the swinging of the lever 2 upon its pivot 3 the power of the spring is developed at one time so as to throw it upon

the lever 2 and at one time so as to throw it upon the lever 12, all as just above described.

I particularly wish to point out that the levers 2 and 12 are shaped with particular reference to being stamped out of wrought-metal without wearing the dies to any appreciable extent as would result if one lever was provided with a sharp tooth and the other constructed with an acute notch to receive the same. Furthermore, levers constructed in accordance with my invention do not in the coaction of their noses 9 and 10 wear or jar, or strain the parts in use so that my improved mechanism is very reliable in operation and is exposed to almost no wear.

I claim:—

In a winding and setting mechanism for watches, the combination with a longitudinally movable and rotatable stem, of a winding-wheel loosely mounted upon the stem and carrying upon its inner face one member of a clutch, a sleeve non-rotatably mounted upon the said stem on which it is longitudinally movable and provided at its outer end with a clutch-member, and at its inner end with spur-teeth, a dial-wheel in position to coact with the said spur-teeth, a two-armed lever having one of its arms connected with the said stem for operation thereby and its other arm formed with a locking nose and a stop-nose, a lever connected with the sleeve for the operation thereof and having a nose for coaction with the locking nose of the said two-armed lever, and a spring for operating the said levers, the locking noses of the two levers operating to lock the levers in their setting positions by the engagement of the two noses on a line inside of a line passing through the pivots of the two levers and the stop-nose of the two-armed lever engaging with the other lever to prevent the two-armed lever from swinging too far inward when the parts are positioned for setting.

In testimony whereof, I have signed this specification in the presence of two subscribing witnesses.

EDWIN HART.

Witnesses:

E. M. GRILLEY,
CHARLES SCHMIDT.