

No. 886,693.

PATENTED MAY 5, 1908.

C. E. GETZ.  
TIME INDICATING DEVICE.  
APPLICATION FILED NOV. 20, 1902.

2 SHEETS—SHEET 1.

FIG. 1.

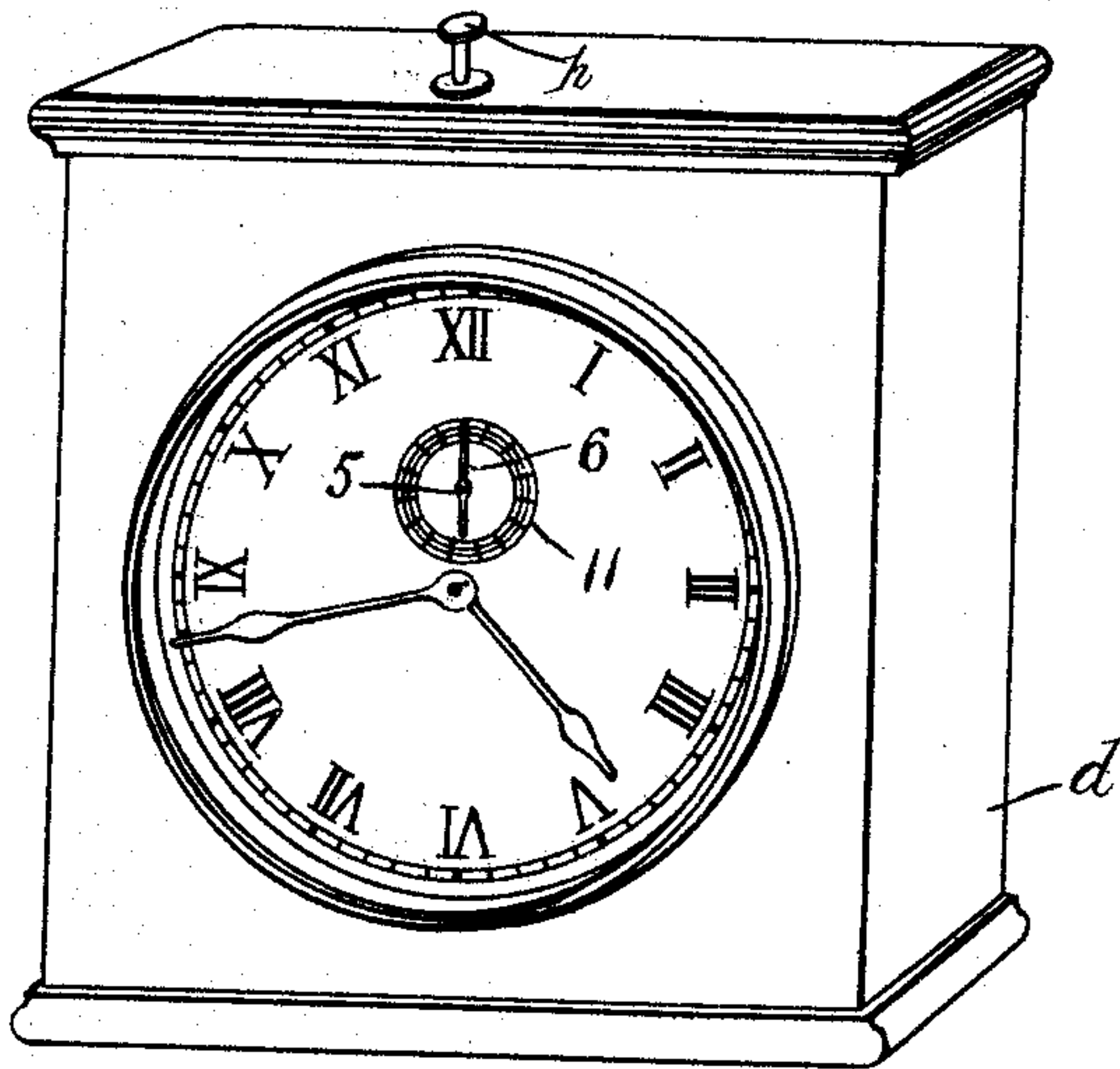


FIG. 3.

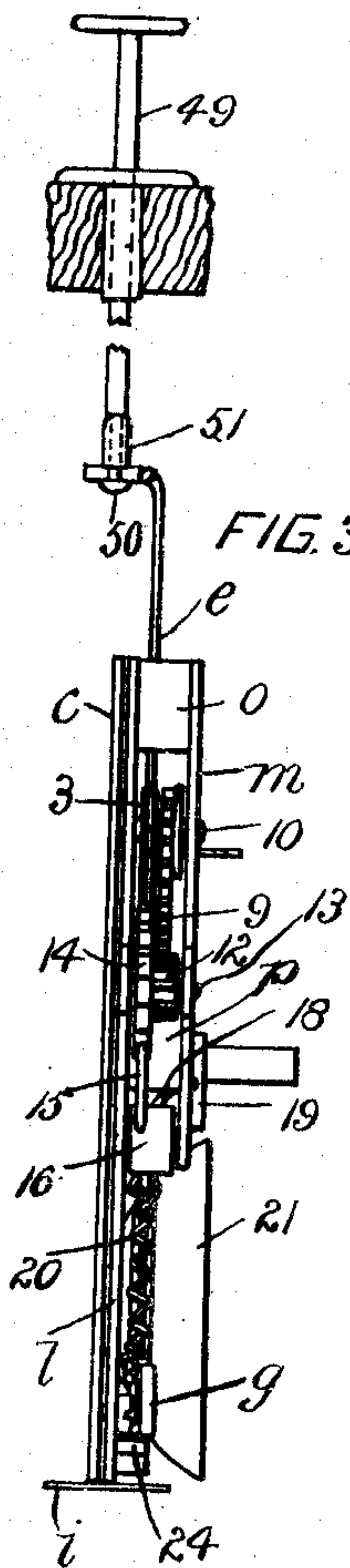


FIG. 2.

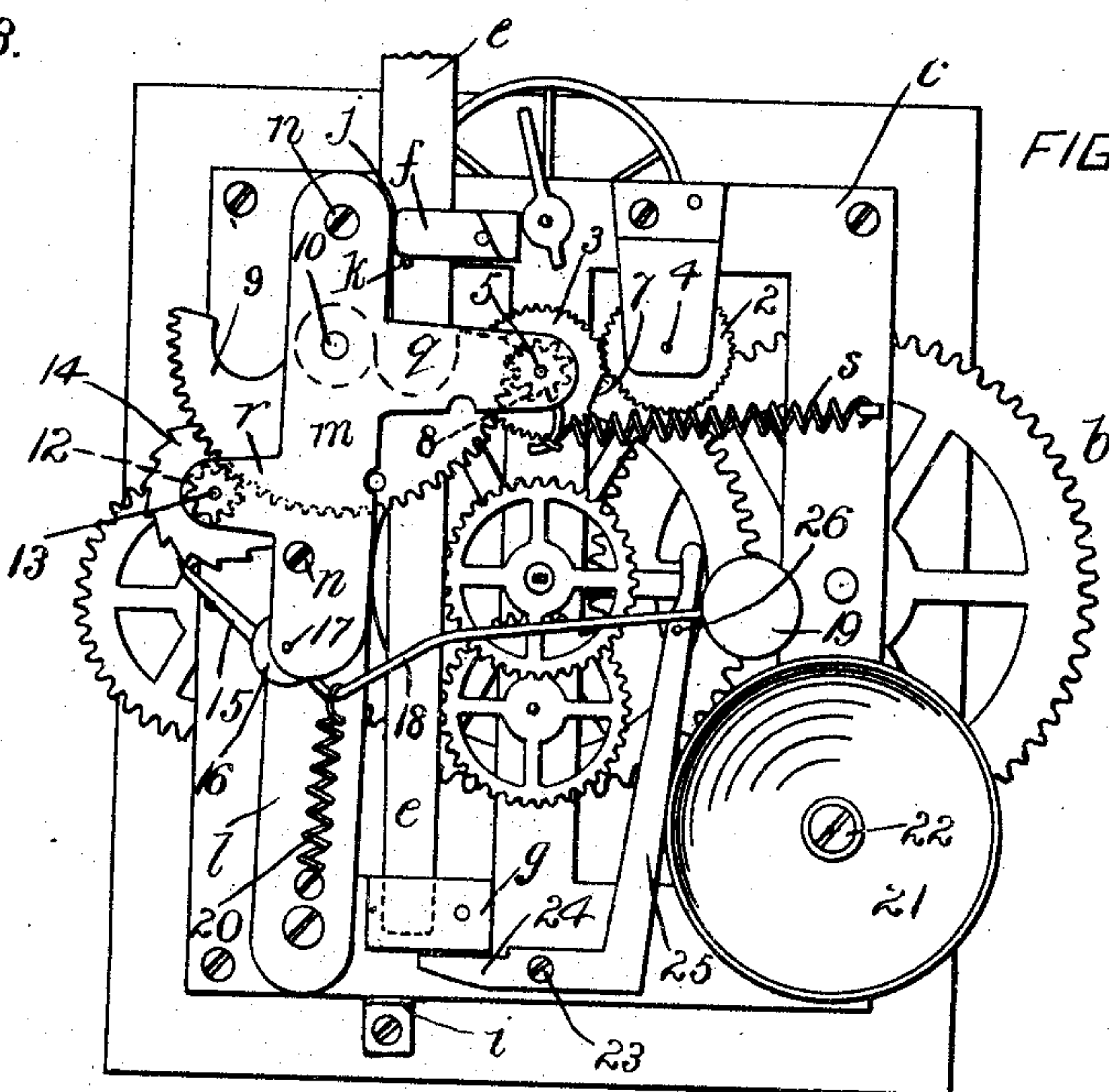
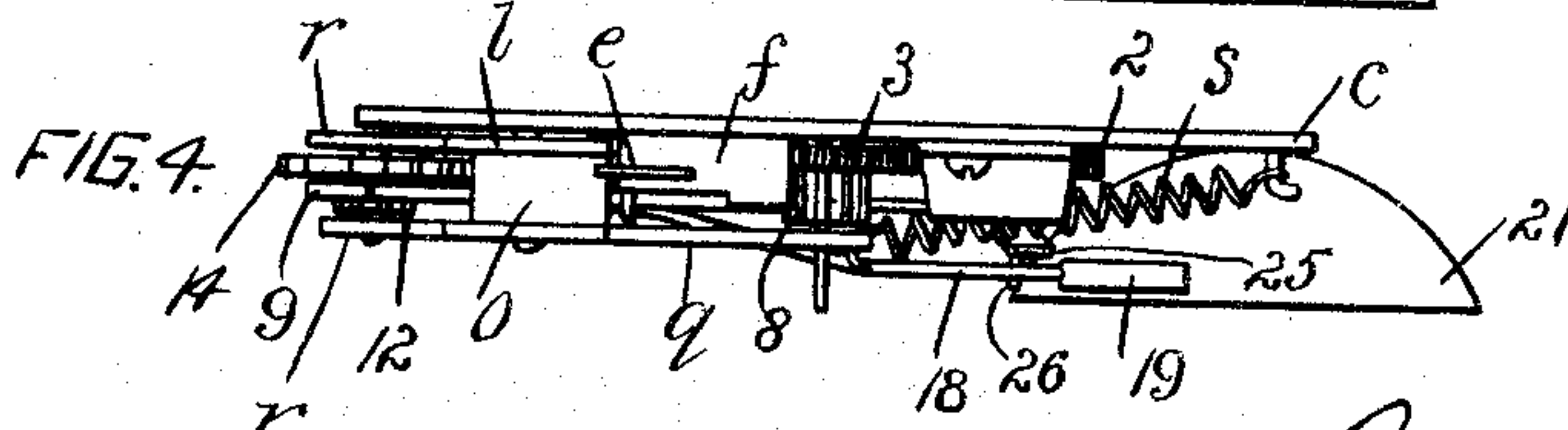


FIG. 4.



Witnesses

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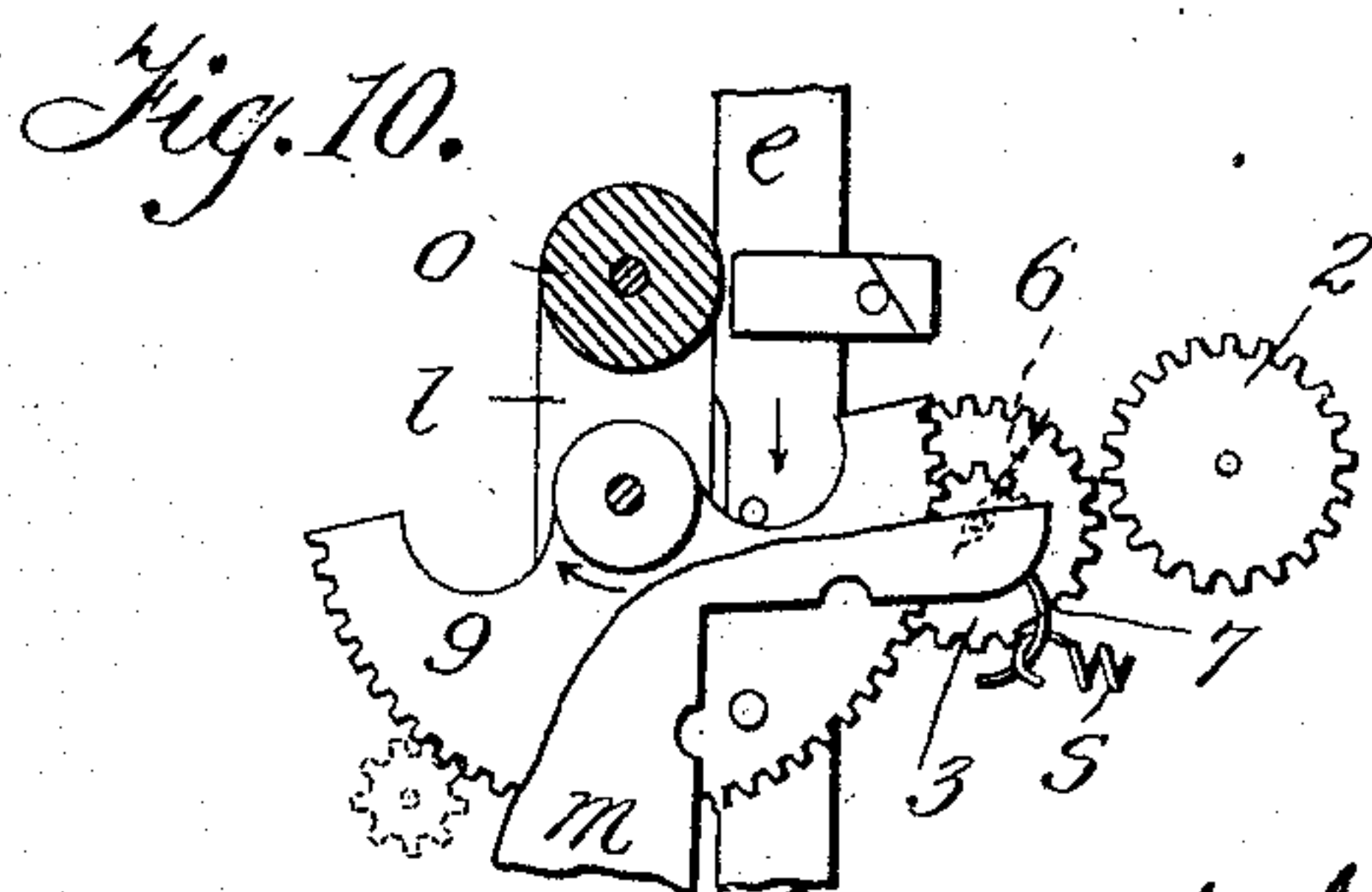
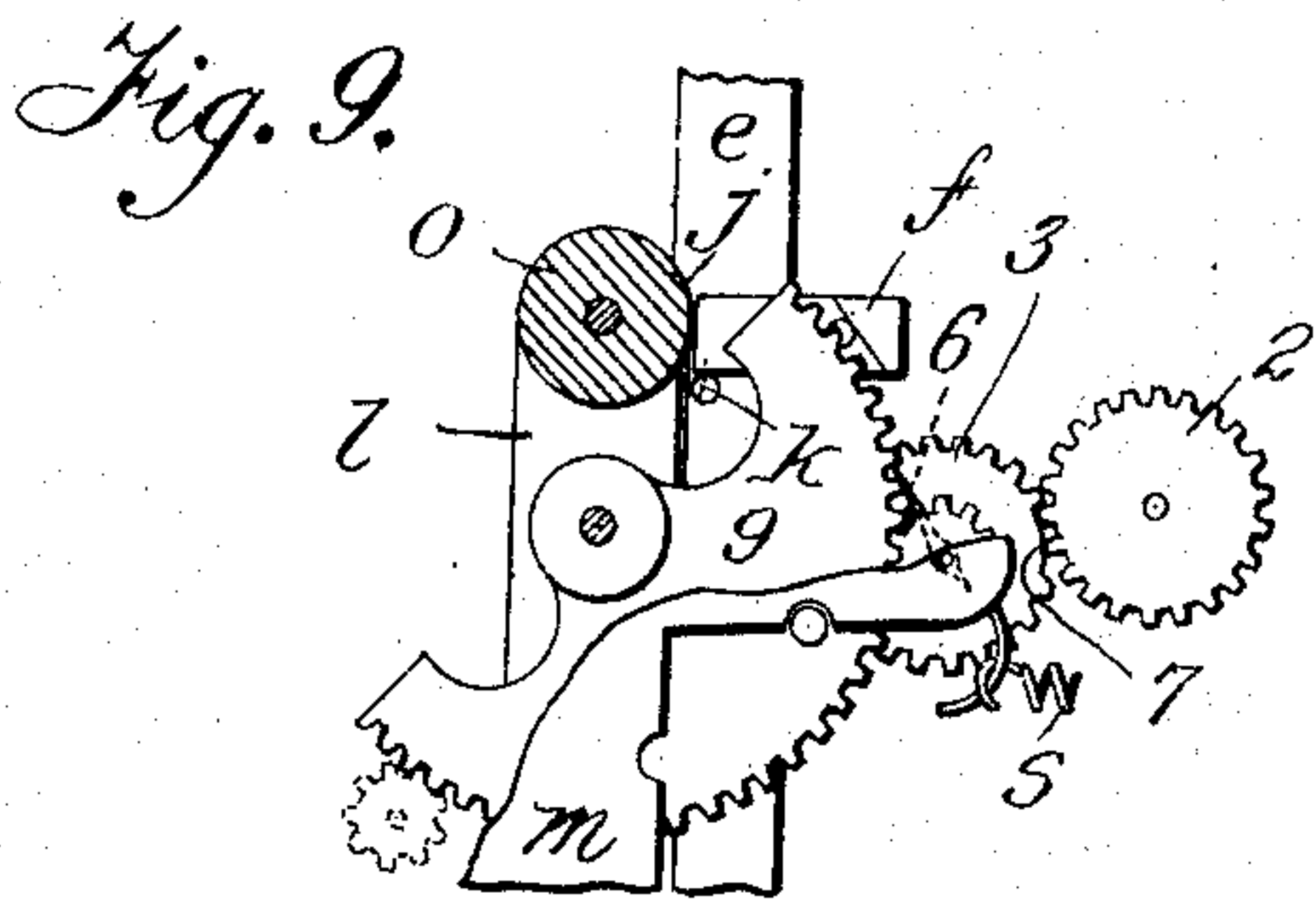
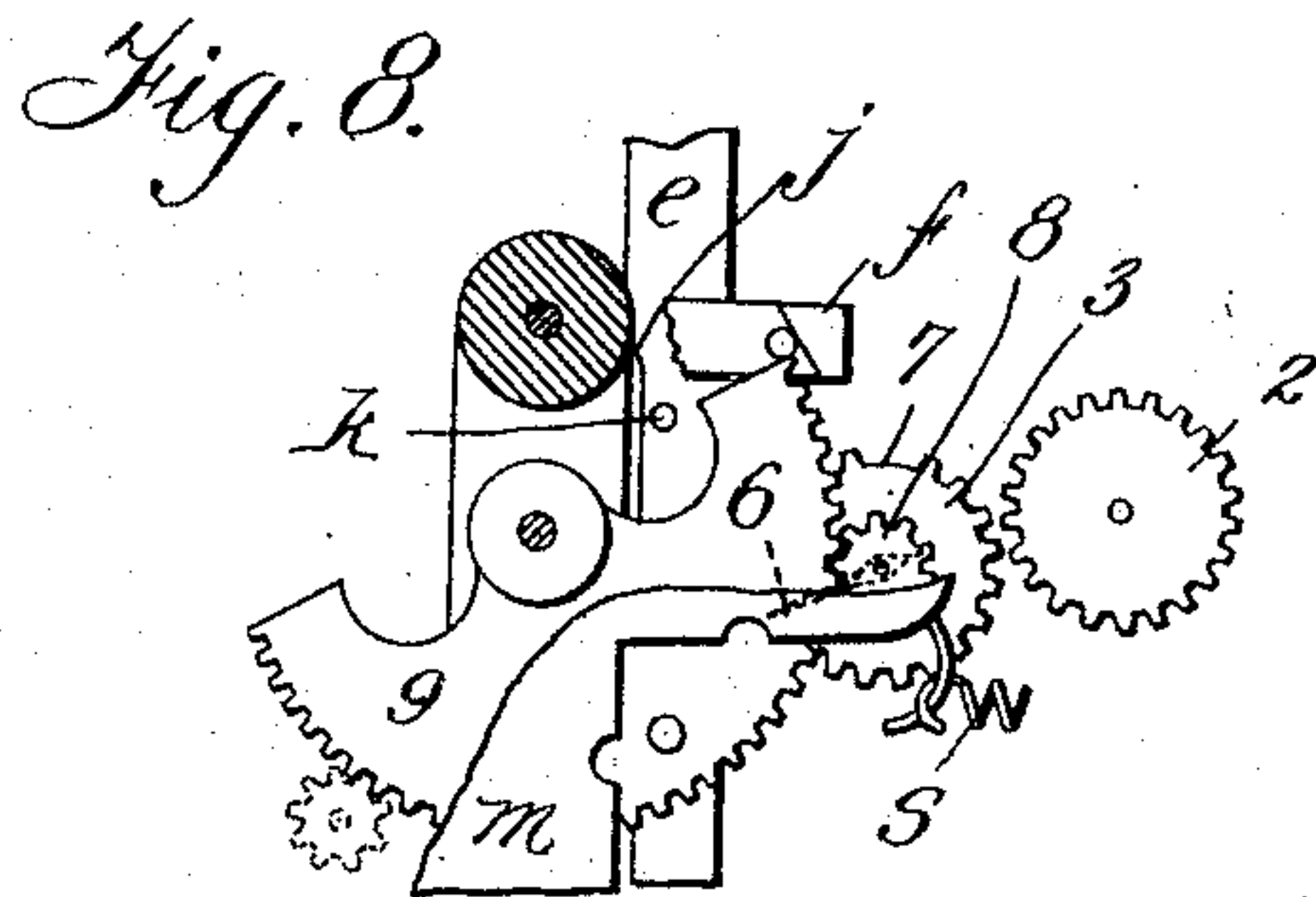
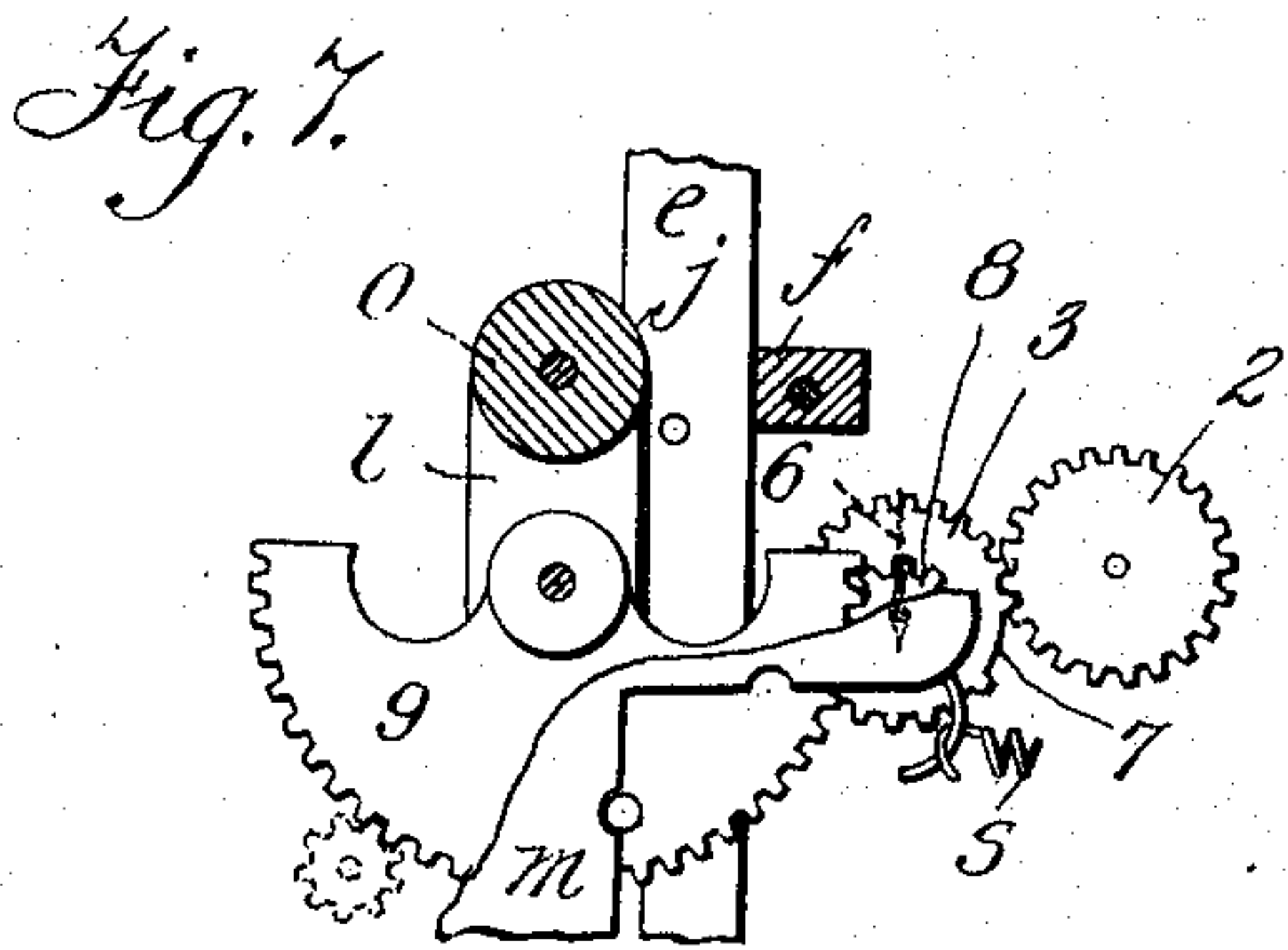
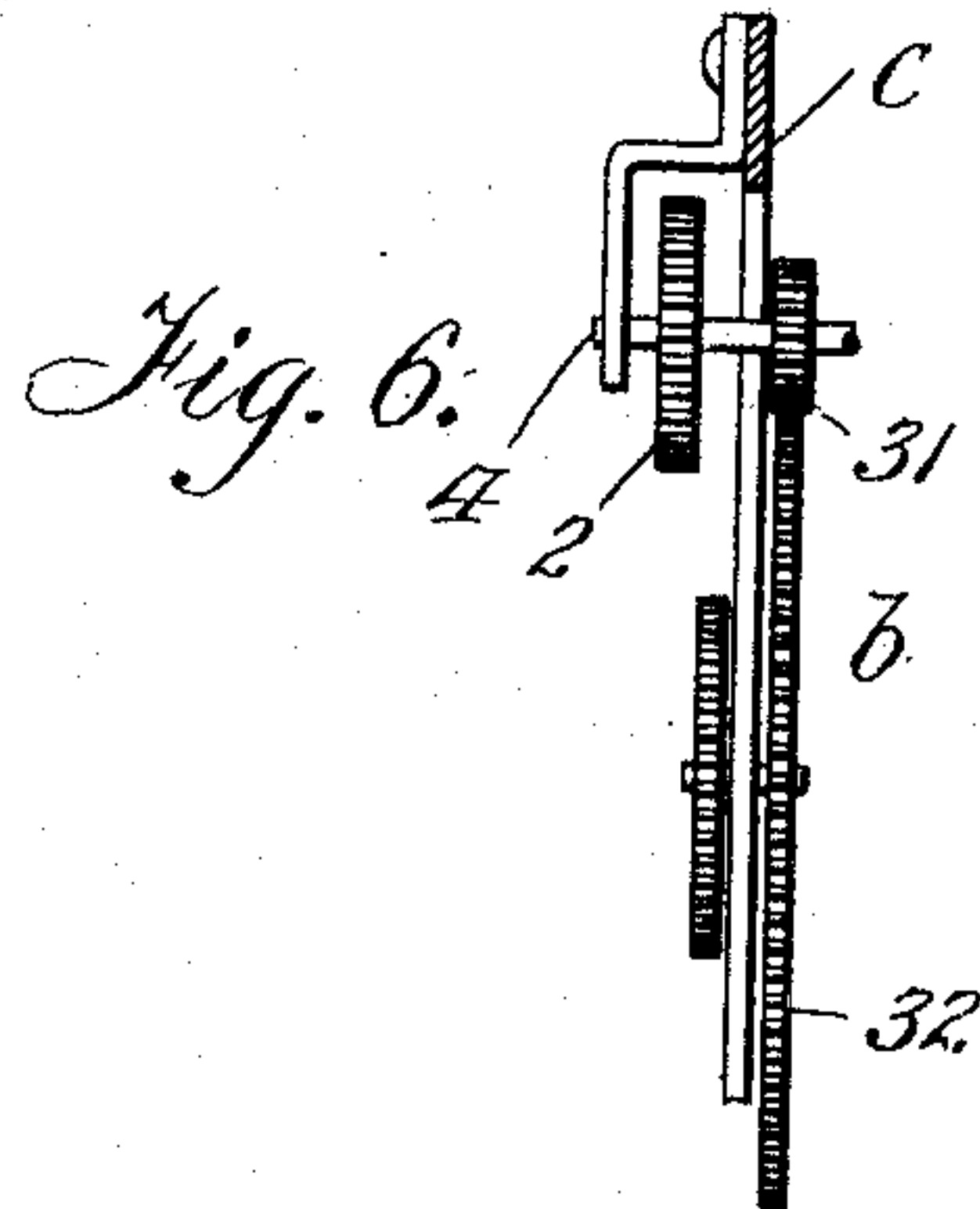
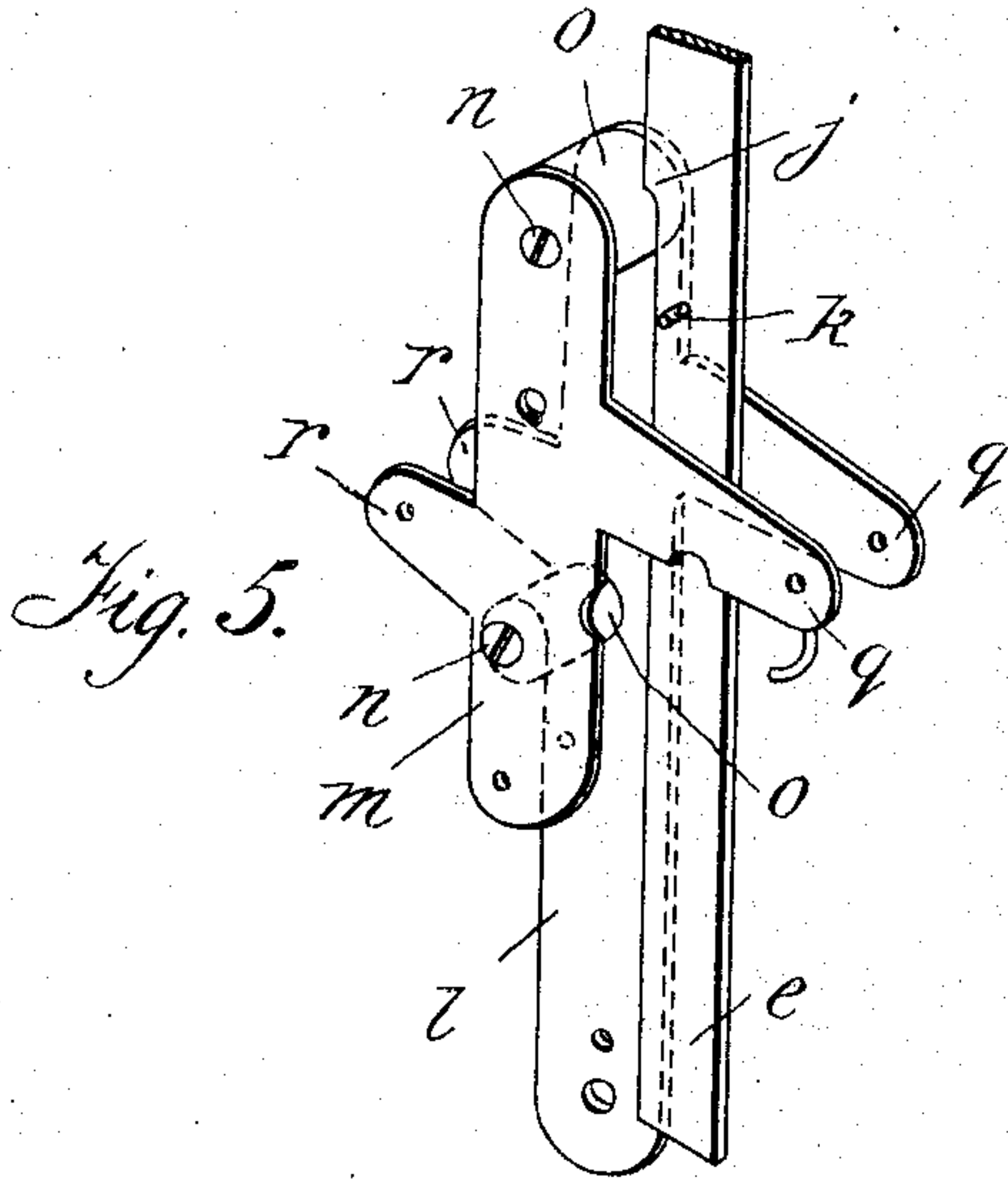
By Attorney  
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2 SHEETS—SHEET 2.



Witnesses

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# UNITED STATES PATENT OFFICE.

CONRAD EMIL GETZ, OF MONTREAL, QUEBEC, CANADA.

## TIME-INDICATING DEVICE.

No. 886,693.

Specification of Letters Patent.

Patented May 5, 1908.

Application filed November 20, 1902. Serial No. 132,162.

*To all whom it may concern:*

Be it known that I, CONRAD EMIL GETZ, of the city of Montreal, district of Montreal, Province of Quebec, Canada, have invented certain new and useful Improvements in Time-Indicating Devices; and I do hereby declare that the following is a full, clear, and exact description of the same.

My invention relates particularly to time indicating devices for use in long distance telephony and it has for its object to enable an operator at a small station to readily record the time consumed by a subscriber in conversation.

The invention may be said, briefly, to consist in means for recording minutes and seconds, adapted to be started and stopped by the operator, usually "central", or subscriber, upon the commencement and termination respectively, of the subscriber's conversation, also adapted to be stopped by the operator in the case of an interruption of the conversation and to be started again and the record continued from the point of interruption. For full comprehension, however, of my invention reference must be had to the accompanying drawings, forming a part of this specification in which similar reference characters indicate the same parts and wherein

Figure 1 is a view of a clock with my invention applied thereto; Fig. 2 is a face view with the dial removed; Fig. 3 is a side elevation of my improved mechanism with all but the outer frame of the clock movement broken away; Fig. 4 is a top view thereof; Fig. 5 is a perspective view illustrating particularly my improved tilting frame and vertical slide bar removed, and Fig. 6 is a detail elevation illustrating a portion of the clock work and the connection therebetween and the driving gear whereby the indicating hand is rotated. Figs. 7, 8, 9 and 10 illustrate in different working positions means for rotating the indicating hand, means by which said hand is stopped then is caused to continue its rotation from the point from which it was rotated, then again stopped and finally is returned.

The clock movement *b* together with its frame *c* and case *d*, may be of any preferred construction.

My improved mechanism comprises a vertical slide bar *e* guided in brackets *f* and *g* upon the frame *c* and the upper end whereof projects above the top of the case and is pro-

vided with a head *h*. This bar is of sufficient length to project, when depressed to its lowermost position, below the lower edge of the frame, and a flat spring *i* upon said lower edge is borne upon by the lower end of said bar and tends to raise same from its lowermost position, while the upper portion of said bar is provided with a cam *j* and pin projection *k*.

A carrier frame is pivoted to the frame *c* of the clock work, and consists of a long bar *l*, a short bar *m* secured by screws *n* to said long bar, with distance pieces *o* and *p* between them, each of said bars having a lateral arm *q* thereon and projecting one behind and the other in front of the vertical slide bar *e*, and lateral bearing lugs *r* project from the opposite edges of said bars *l* and *m*. The cam *j* acts upon the upper distance piece *o* when the bar is moved up or down and shifts the carrier frame which is held yieldingly against said bar by a retractile helical spring *s*.

The train of gears I prefer to use consists of a pair of fine toothed gears 2 and 3 mounted one upon one of the arbors, 4, of the clock movement, and the other upon an arbor, 5, carried in the ends of arms *g* and having an indicating hand 6 thereon, while several of the teeth of gear 3 are cut off to provide a plane portion 7.

2 is the driving gear and is operated by a spindle 4 upon which it is rigidly mounted, and upon which is also rigidly mounted a pinion 31 intermeshing with one of the gears 32 of the clock movement *b*.

The object of providing the plane portion 7 is to break the operative connection between gears 2 and 3, and thereby stop gear 2 and consequently the indicating hand whenever this plane portion 7 (owing to the absence of teeth thereon) is adjacent to gear 2 and in a line with the centers of gears 2 and 3.

The object of stopping gear 3 is to insure the automatic stopping of the clock movement and consequently the indicator hand, just before the latter completes a revolution, thereby preventing a subscriber, instead of stopping the hand at say, the point which will indicate 10 minutes conversation, accidentally, or designedly, allowing the hand to continue to rotate until it passes the maximum figure and then stopping it at say the point indicating only 3 minutes conversation.



A pinion 8 is rigidly upon the arbor 5 and it intermeshes with a toothed segment 9 loosely mounted upon an arbor 10 carried rigidly in the carrier frame.

5 The clock-movement *b* is as before mentioned of usual construction, and will not be described in detail, a portion thereof is however illustrated in Fig. 6.

As thus described my improved mechanism, when constructed and arranged substantially as shown, and used in conjunction with a dial such as indicated within the circle 11, will indicate slightly less than fifteen minutes as such a limit is rarely exceeded in small stations.

The operation of this indicating means is as follows: Normally the indicating hand rests as shown in Fig. 1. When the vertical slide bar *e* is raised to its uppermost position (see Figs. 2, 3, and 7) its cam *j* will be out of engagement with the carrier frame, and the latter will, consequently, be drawn by spring *s* to a position to cause the teeth of gears 2 and 3 to intermesh, thereby rotating the arbor 5 upon which the indicating hand is mounted. By depressing the bar a short distance (see Fig. 8) the cam thereon will force back the carrier frame and move the gear 3 out of engagement with gear 2 thereby stopping my improved indicating means and allowing the hand to remain in its position indicating upon the dial, the time consumed by the subscriber; and by further depressing said bar (see Fig. 10) the pin projection *k* will bear upon the segment and return it and, with it, the indicating hand, back to their normal positions. In case of an interruption before a conversation is completed the operator or subscriber should immediately depress the bar thereby temporarily stopping the hand (as just described), and when the conversation is again resumed the bar should be again raised (as above described) thereby causing the hand to continue to rotate from the point at which it was temporarily stopped. When the conversation is completed the bar should be again depressed thereby again stopping the hand, its position indicating upon the dial the actual time consumed by the subscriber in conversation. A further and full depression of the bar returns the hand to its original position. In order to cause an alarm to be sounded upon the termination of each minute, said segment also intermeshes with a small pinion 12 rigidly upon an arbor 13 mounted loosely in the bearing lugs *r* and having a ratchet wheel 14 also rigidly thereon. A pawl 15 is pivoted through its hub 16 upon a spindle 17 carried in the lower end of the carrier frame, and it is adapted, when the mechanism is running, to engage the teeth of the ratchet wheel, while a resilient arm 18 having a knocker 19 at its end, projects from the hub 16, and

a retractile helical spring 20 draws down upon said arm 18 and yieldingly retains the pawl in engagement with the ratchet wheel, and as it trips over the teeth of the wheel the spring 20 causes the knocker to strike a bell 21 secured by a screw 22 upon the frame of the clock work. A bell-crank lever is fulcrumed as at 23 to the frame of the clock work and one arm 24 extends to a position to be engaged by the lower end of the bar *e* when it is depressed, while its other arm 25 has a lateral pin projection 26 adapted to raise and support the knocker away from the bell when my improved indicating means is stopped by depressing the bar *e*. This ratchet wheel is formed with sufficient teeth to cause a stroke of the bell to be given upon the termination of each minute. If it is desired to indicate at the same time, the time consumed by two connections my improved mechanism can be duplicated, a similar frame, train of gears, &c., being located upon the opposite side of the driving gear 2 and adapted to be moved in a similar manner into and out of operative relation therewith, without departing from the spirit of my invention.

A depressible rod 49 having a knob *h* at its upper end, and is rigidly but removably connected to the shifting frame, the lower end thereof being diminished and fitting into the upper end of the slide bar *e* which is bent and forked, said lower end being formed with a cross piece 50, and having a distance sleeve 51 adapted to bear between the said bent forked end of the bar and the shoulder formed by the reduction of said lower end of the rod 49.

It is obvious that my invention can be used to advantage whenever it is required to take the time of duration of any occurrence the action of which is intermittent or liable to interruption.

What I claim is as follows:—

1. In a time indicating device, the combination with a dial, an indicating hand, and clock work for rotating said hand, of a gear rotated by said clock work, a frame, a second gear upon an arbor mounted in said frame said second gear being adapted to intermesh with said first mentioned gear and connected to said hand to rotate same, a pinion connected to and rotating with said second gear, a segmental gear pivoted in said frame and intermeshing with said pinion, and manually actuated means independent of said pinion whereby said segmental gear is rotated back to its normal position, substantially as described and for the purpose set forth.

2. In a time indicating device for use in connection with long-distance telephone service, the combination with a dial, an indicating hand, and clock work for rotating said hand, of a gear rotated by said clock-work, a frame, a second gear upon an arbor mounted in said frame said second gear being adapted



to intermesh with said first mentioned gear and having a rotative connection with said hand, a pinion connected to and rotating with said second gear, a segmental gear pivoted in said frame and intermeshing with said pinion, and a second pinion mounted in said frame and intermeshing with said segmental gear, a ratchet wheel connected to and rotatable with said last mentioned pinion, a spring pawl pivoted to said frame and engaging the teeth of said ratchet wheel, a signal device, and means actuated by said pawl and operating said signal device, substantially as described and for the purpose set forth.

3. In a time indicating device for use in connection with long-distance telephone service, the combination with a dial, an indicating hand, and clock work for rotating said hand, of a gear rotated by said clock-work, a pivoted frame, a second gear upon an arbor mounted in said frame said second gear being adapted to intermesh with said first mentioned gear and having a rotative connection with said hand, a pinion connected to and rotating with said second gear, a segmental gear, pivoted in said frame and intermeshing with said pinion, and a second pinion mounted in said frame and intermeshing with said segmental gear, a ratchet wheel connected to and rotatable with said last mentioned pinion, a spring pawl pivoted to said frame and engaging the teeth of said ratchet wheel, a signal device, means actuated by said pawl and operating said signal device, and means for adjusting said frame to and from said first mentioned gear, substantially as described and for the purpose set forth.

4. In a time indicating device, the combination with a dial, an indicating hand, and clock work for rotating said hand, of a gear rotated by said clock-work a pivoted frame, a second gear upon an arbor mounted in said frame said second gear being adapted to

intermesh with said first mentioned gear and having a rotative connection with said hand, a pinion connected to and rotating with said second gear, a segmental gear pivoted in said frame and intermeshing with said pinion, a ratchet wheel connected to and rotatable with said last mentioned pinion, a spring pawl pivoted to said frame and engaging the teeth of said ratchet wheel, a hammer mounted upon said pawl, and a bell in position to be struck by said hammer, substantially as described and for the purpose set forth.

5. In a time indicating device for use in connection with long-distance telephone service, the combination with a dial, an indicating hand and clock work for rotating said hand, of a gear rotated by said clock-work, a pivoted frame, a second gear upon an arbor mounted in said frame said second gear being adapted to intermesh with said first mentioned gear and having a rotative connection with said hand, a pinion connected to and rotating with said second gear, a segmental gear pivoted in said frame and intermeshing with said pinion, and a slide bar for successively moving said frame and rotating said segmental gear, a ratchet wheel connected to and rotatable with said last mentioned pinion, a spring pawl pivoted to said frame and engaging the teeth of said ratchet wheel, a hammer mounted upon said pawl, a bell in position to be struck by said hammer, and a bell-crank-lever actuated by said slide bar for retaining said hammer away from said bell, substantially as described and for the purpose set forth.

In testimony whereof, I have affixed my signature, in presence of two witnesses.

CONRAD EMIL GETZ.

Witnesses:

FRED J. SEARS,  
FRANK H. DENMAN.