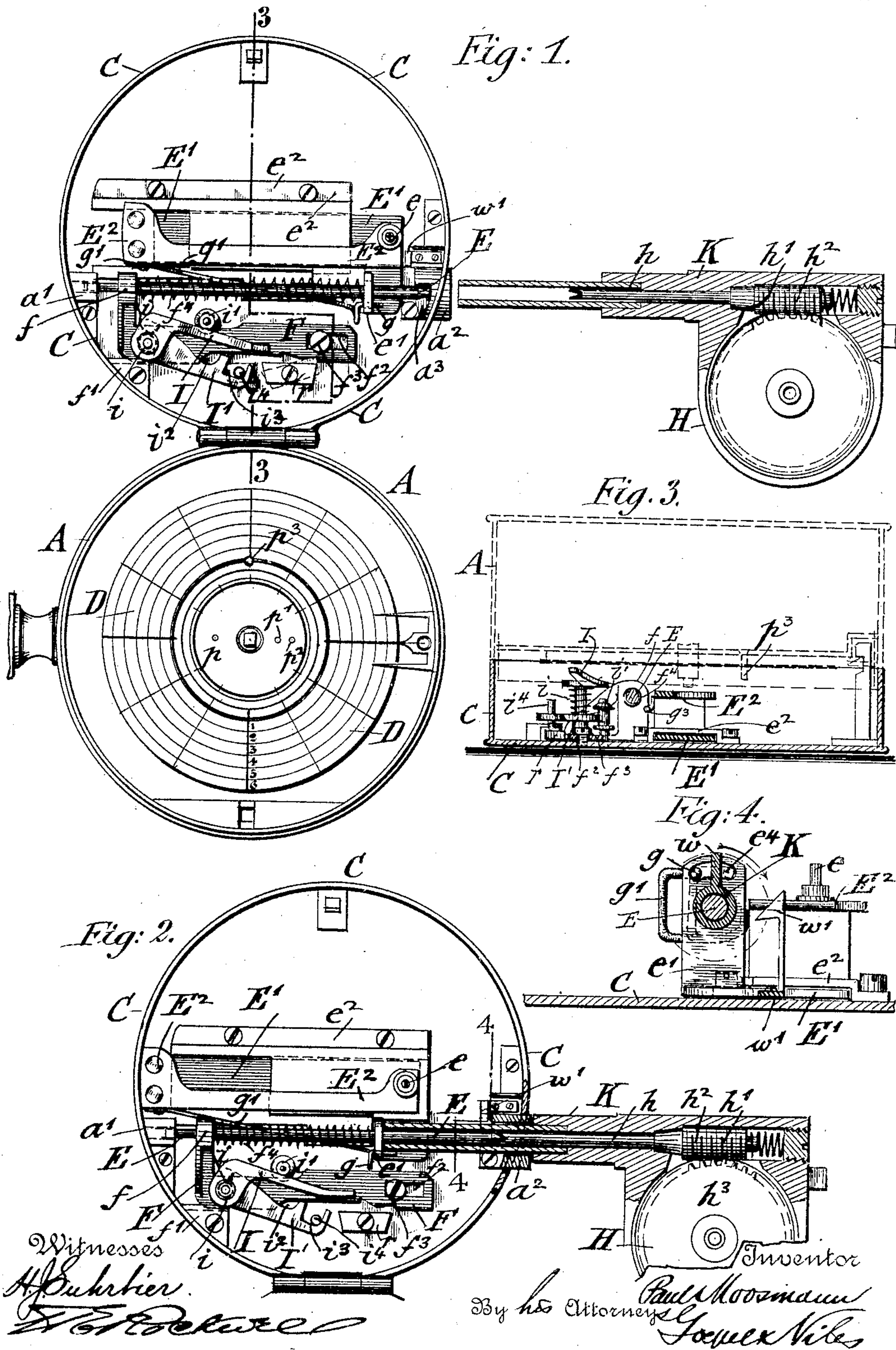


P. MOOSMANN.  
WATCHMAN'S TIME DETECTOR.  
APPLICATION FILED DEC. 6, 1904.

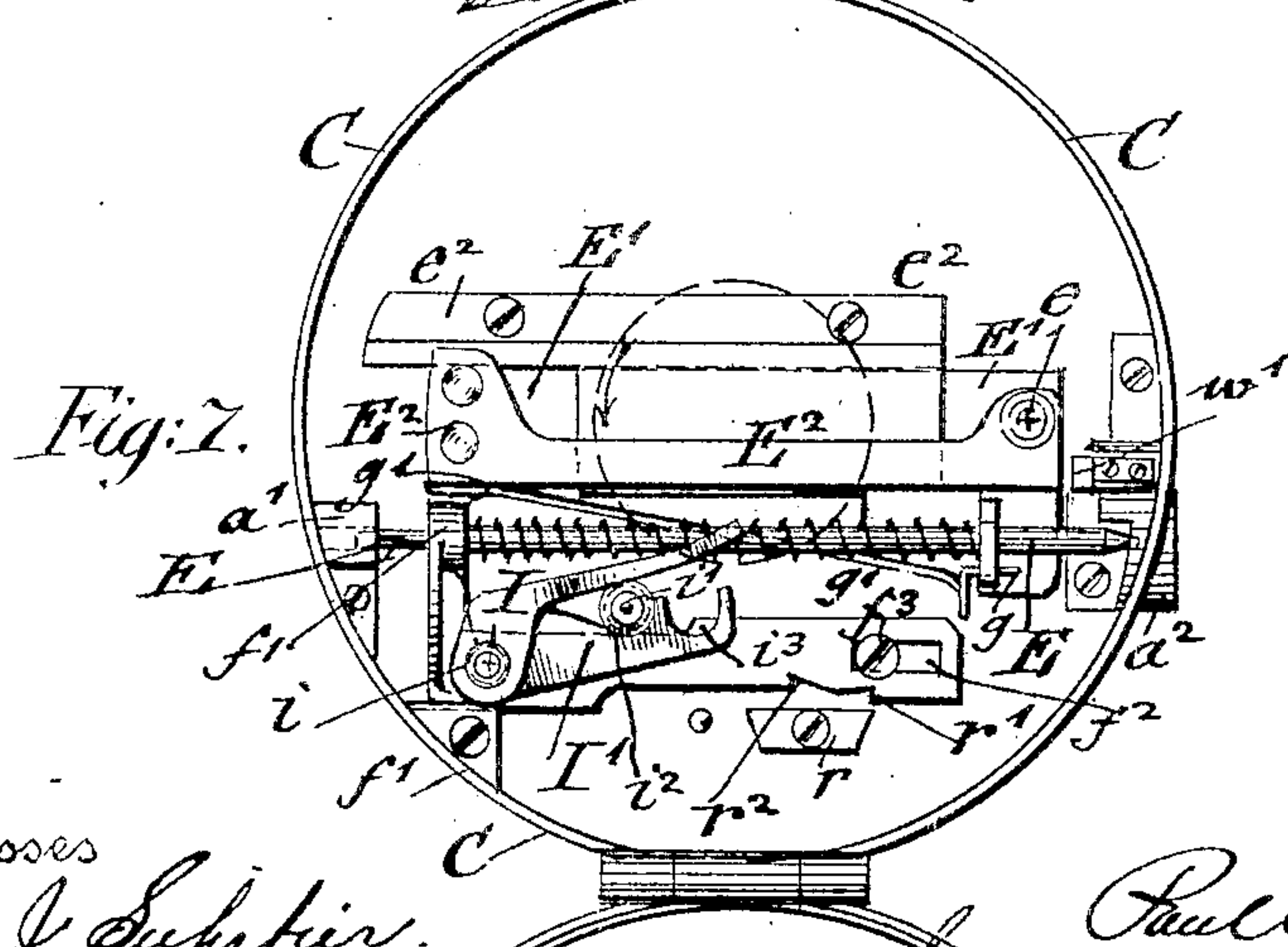
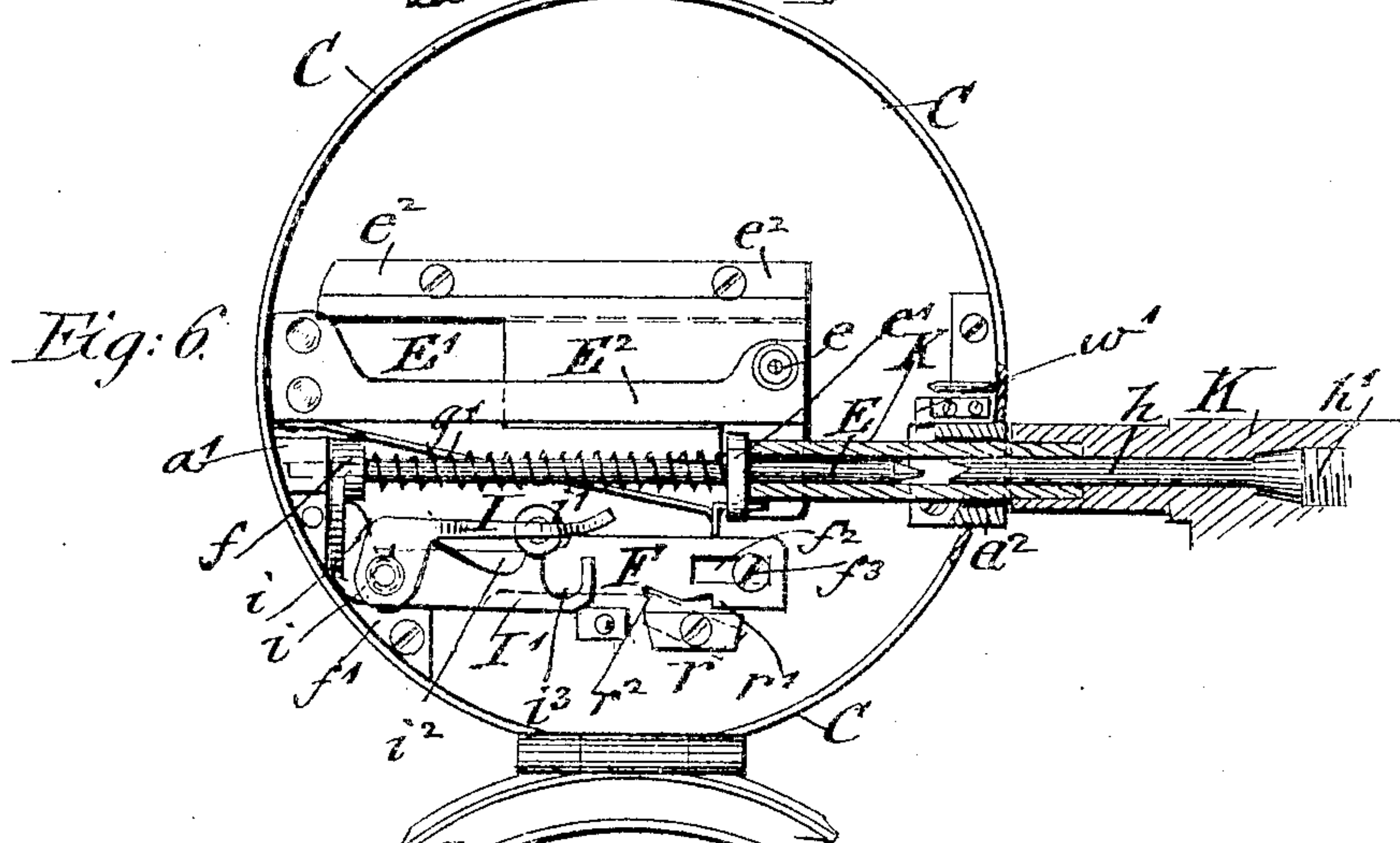
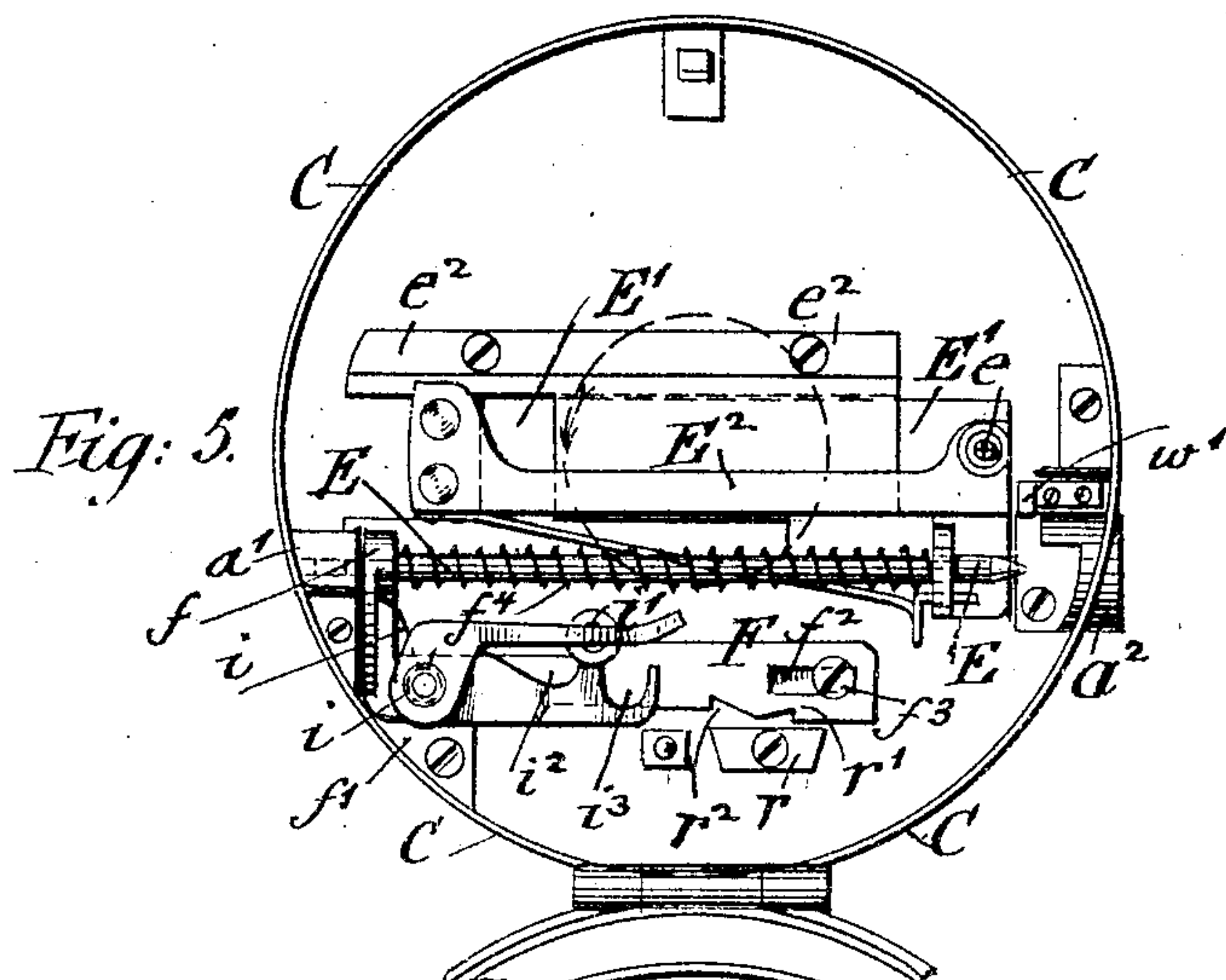
3 SHEETS—SHEET 1.



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3 SHEETS—SHEET 2.



Witnesses  
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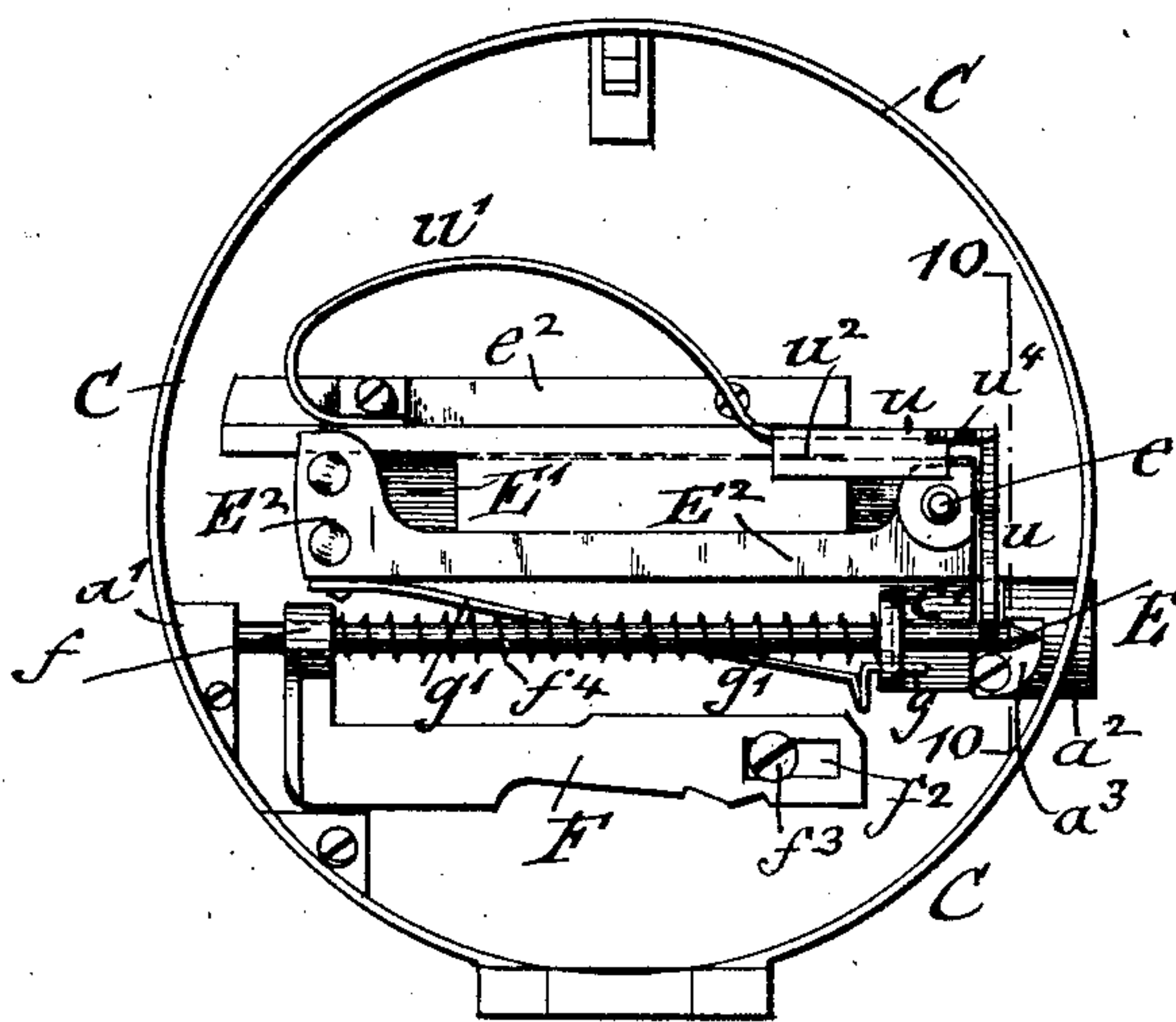


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WATCHMAN'S TIME DETECTOR.

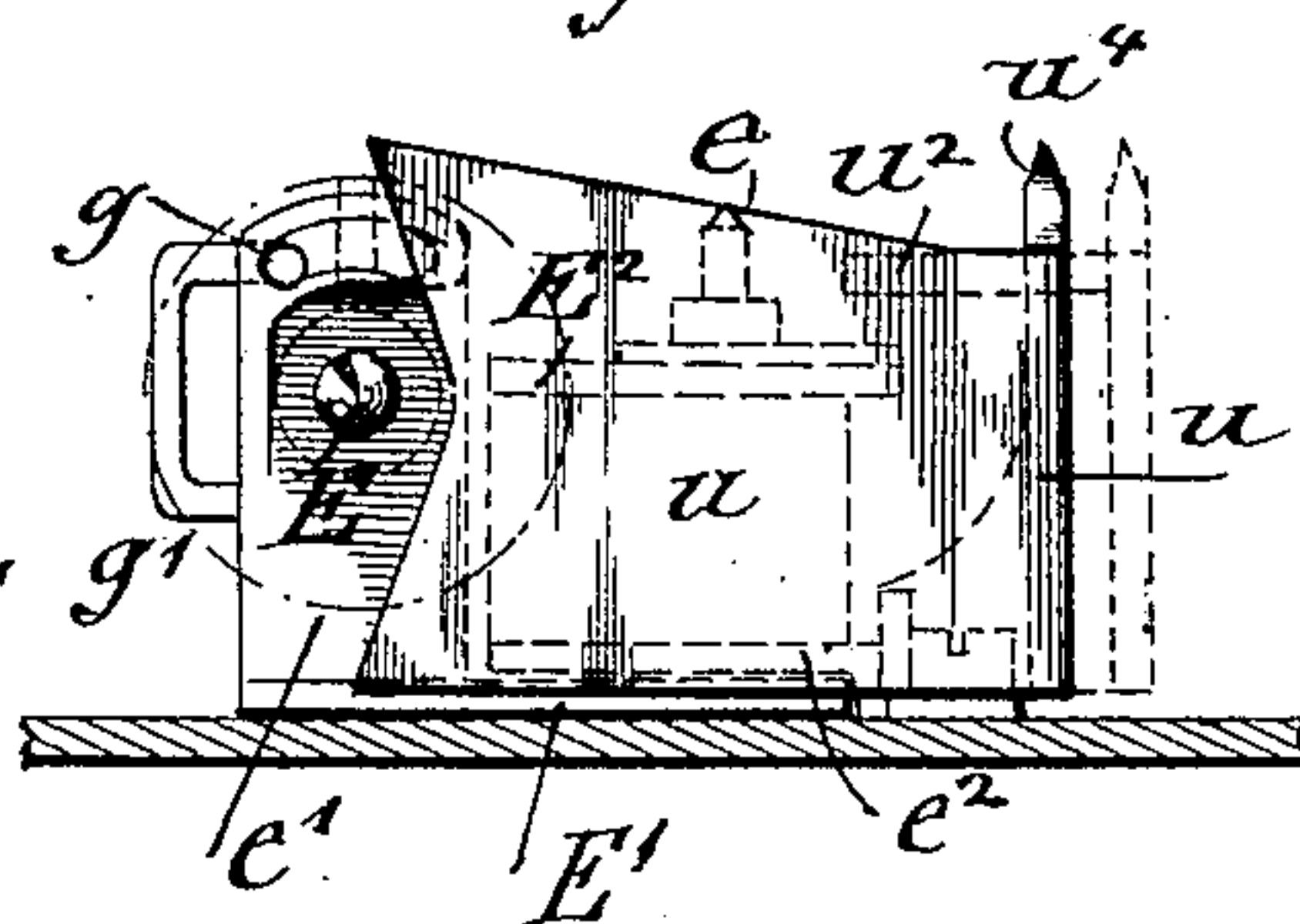
APPLICATION FILED DEC. 6, 1904.

3 SHEETS—SHEET 3.

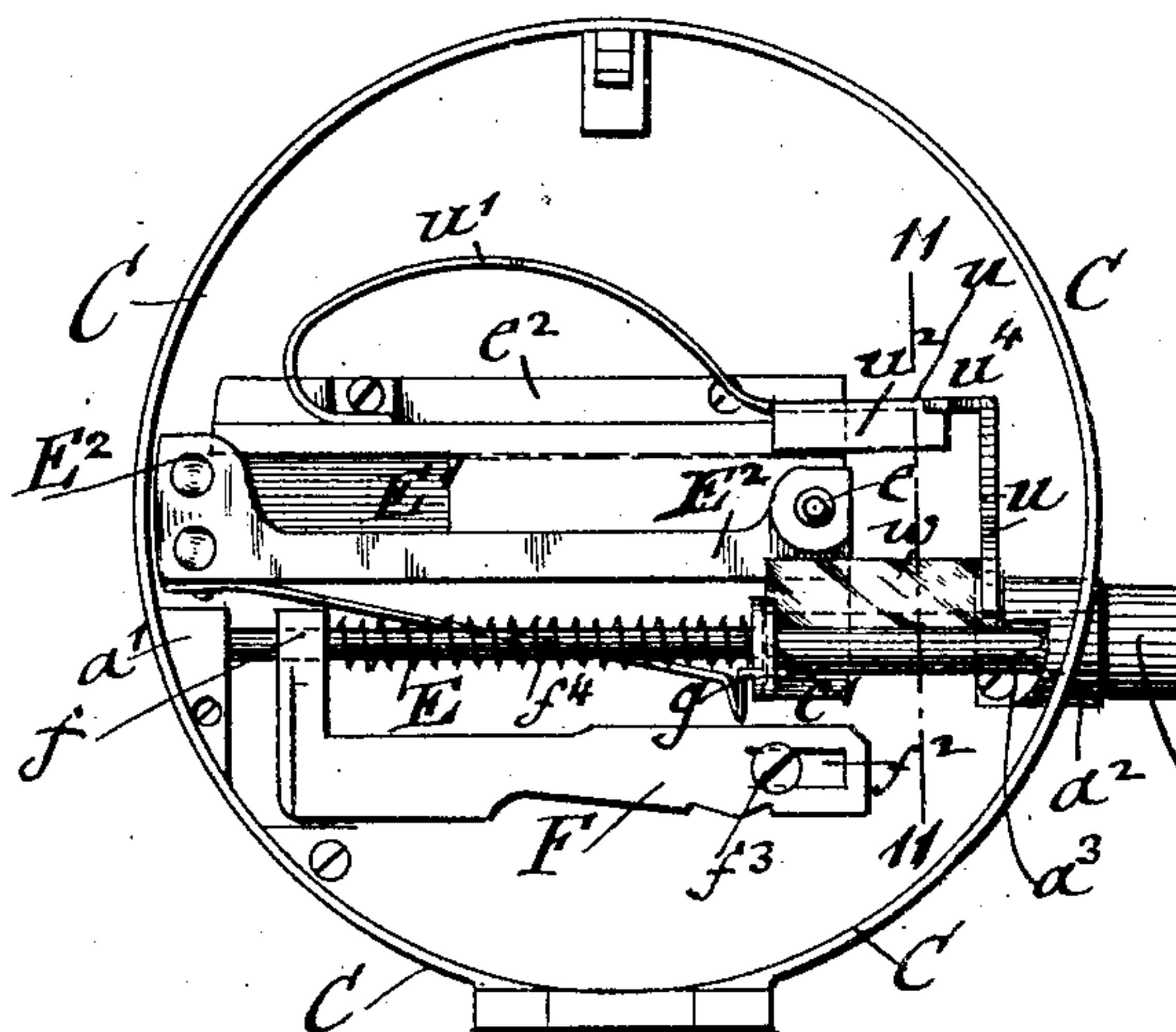
*Fig: 8.*



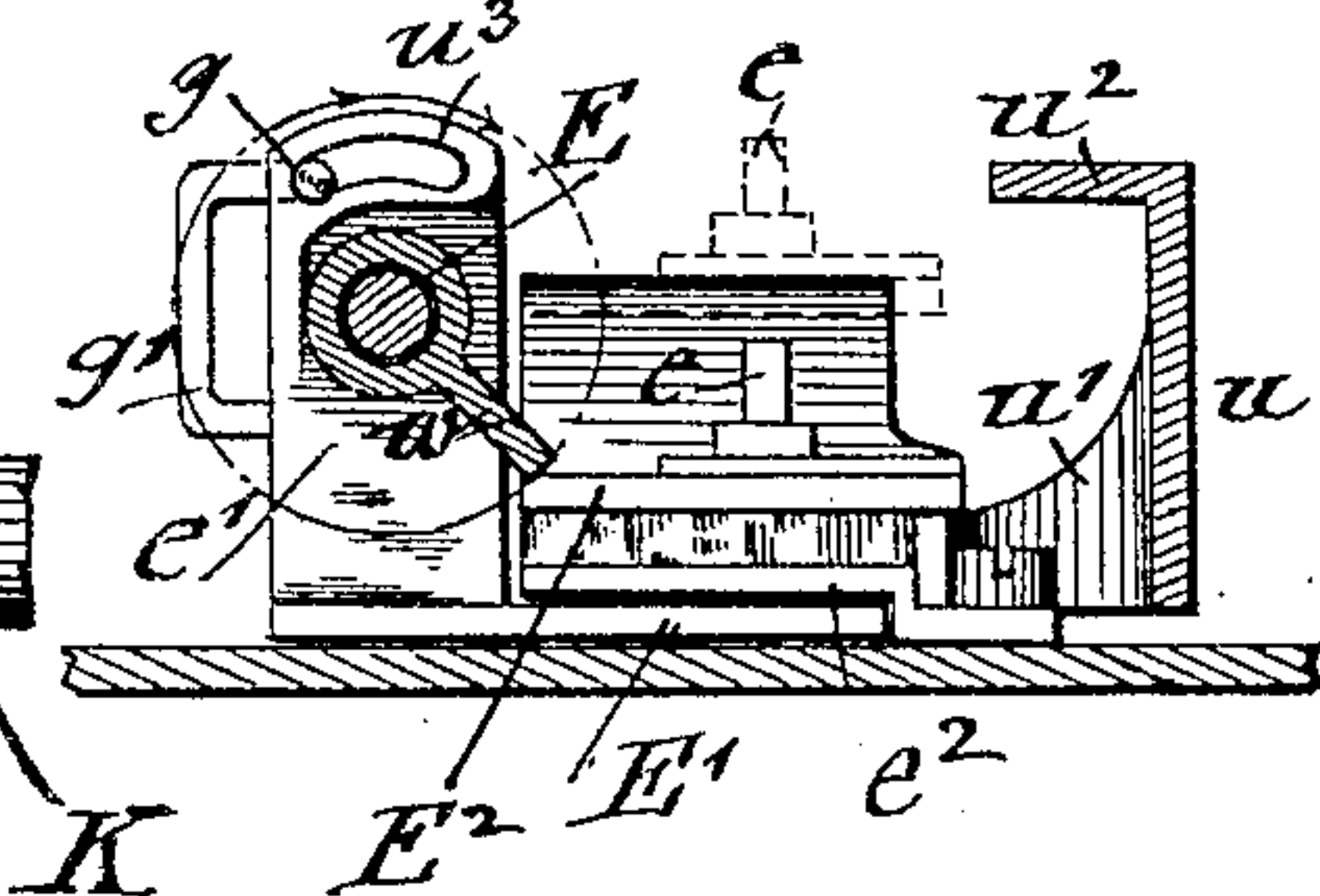
*Fig: 10.*



*Fig: 9.*



*Fig: 11.*



Witnesses  
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# UNITED STATES PATENT OFFICE.

PAUL MOOSMANN, OF NEW YORK, N. Y.

## WATCHMAN'S TIME-DETECTOR.

No. 806,166.

Specification of Letters Patent.

Patented Dec. 5, 1905.

Application filed December 6, 1904. Serial No. 235,768.

*To all whom it may concern:*

Be it known that I, PAUL MOOSMANN, a citizen of the Empire of Germany, residing in New York, borough of Brooklyn, in the State of New York, have invented certain new and useful Improvements in Watchmen's Time-Detectors, of which the following is a specification.

The objections to the well-known watchmen's time-detectors in which a clock-driven dial is used consist in the fact that in place of the keys for making the dial, which keys are suspended at the different stations which the watchman has to visit on his regular rounds, imitation tools or simulating keys can be used for marking the dial, whereby the real object of the time-detectors is foiled and the regular and reliable supervision of the factory or other building rendered nugatory.

The object of this invention is to furnish an improved watchman's time-detector in which, in connection with suitable keys suspended at the different stations, a very reliable control is obtained, inasmuch as the marking of the time-dial cannot be accomplished by other devices, but only by the keys suspended from the stations to be visited on the regular rounds of the watchman and in which an additional key control is provided which can be adjusted so as to operate the key-controllers or dispense with the operation of the same or produce an intermittent control of the same; and for this purpose the invention consists in a watchman's time-detector embodying the novel features and combinations of parts, which will be fully described hereinafter, and finally pointed out in the claims.

In the accompanying drawings, Figure 1 represents a plan view of my improved watchman's time-detector, showing the hinged cover of the same in open position, so as to show the marking mechanism applied to the same, the operating-key being shown in horizontal section. Fig. 2 is a similar top view of the open cover of the watchman's time-detector, showing the key inserted in the same and the marking-plate placed in the proper position for producing the marking corresponding to the key inserted. Fig. 3 is a vertical transverse section on line 3 3, Fig. 1. Fig. 4 is a detail vertical transverse section on line 4 4, Fig. 2. Figs. 5, 6, and 7 are different plan views of the cover and the marking mechanism on the

same, showing it in different positions, so as to produce the different functions of the parts. Figs. 8 and 9 are top views of the cover in open position, showing an auxiliary guard device for preventing tampering with the marking device by imitation keys in normal position and when actuated by the ward of a key; and Figs. 10 and 11 are vertical transverse sections, respectively, on lines 10 10, Fig. 8, and 11 11, Fig. 9.

Similar letters of reference indicate corresponding parts.

Referring to the drawings, A represents the body of a watchman's time-detector of the well-known type in which a graduated paper dial D is rotated by a clock-train mechanism located in the body A and marked from time to time by means of keys that are suspended from the different stations in the factory or other building. The paper dial D is applied to the movable top plate of the clock-train by the usual devices and the clock-train wound up before the clock or detector is handed to the watchman, a new time-disk being inserted from day to day in the usual manner.

The cover C is hinged to the main part of the time-detector and locked thereto in a suitable manner, the cover being shown in the different figures of the drawings, with the exception of Fig. 3, as being in an open position for the better description of the different operative parts arranged on the same. In Fig. 3 the cover is shown in closed position, while the main portion or body A is shown in dotted lines above the same. On the inner surface of the cover C is arranged a shiftable spindle E, which is guided at one end in a socket  $a'$ , that is attached to the cover at a point opposite to the key-opening  $a^2$  for the marking-keys. On the spindle E is guided a bracket  $e'$  of a slide-plate  $E'$ , which is guided in ways of a keeper  $e^2$ , attached to the under side of the cover C by suitable fastening-screws, as shown in Figs. 1, 3, and 4. To the opposite end of the slide-plate  $E'$  is riveted or otherwise attached a spring-plate  $E^2$ , which extends longitudinally over the slide-plate parallel with the spindle E, said spring-plate  $E^2$  carrying at its opposite end a steel marker  $e$ , which is located adjacent to and sidewise of the tapering end of the spindle E. To the opposite shouldered end of the spindle E is applied the perforated bracket  $f$  of a second



slide-plate F, which is guided adjacent to the bracket  $f$  along a grooved stud  $f'$ , located at the rim of the cover C, and at its opposite end by a slot  $f^2$  on a headed pin  $f^3$  on the cover C. Between the bracket  $e'$  on the slide-plate E' and the bracket  $f$  on the slide-plate F is interposed on the spindle E a helical spring  $f^4$ , which acts on both brackets and serves when set to tension by either one to return it, with its slide-plate, into its former or normal position. The slide-plate E' is moved inwardly against the tension of the spring  $f^4$  when one of the keys at the different stations is inserted through the key-opening of the cover C and returned by the spring  $f^4$  as soon as the key is withdrawn. The barrel of the key K is provided with a laterally-extending ward  $w$ , as shown clearly in Fig. 4, so as to permit the entry of the key-barrel and its ward into the correspondingly-shaped key-opening of the cover, which opening is surrounded by a bushing or key-box  $a^2$ , provided at its inner end with a recess  $a^3$  in line with the spindle E. The length of the key-barrel and its ward determines the inward motion of the slide-plate E' and marker-plate E<sup>2</sup>, each key having a barrel and ward of a predetermined length, which differs from the key-barrels and wards of the remaining keys, so that the indicating-mark made by the use of each key may be identified by its position on the dial. The bracket  $e'$  is provided in its upper part with an arc-shaped slot  $e^4$  for guiding the projecting shouldered end  $g$  of a guard-spring  $g'$ , the opposite end of which is attached to the edge of the spring-plate E<sup>2</sup>, as shown clearly in Figs. 1 and 2, said projecting end  $g$  forming a guard-pin that prevents the ward of the key K to be turned in one direction—that is to say, toward the left—and necessitates thereby the turning of the key in the opposite direction—that is to say, toward the right—so that the ward  $w$  engages the raised end of the marker-carrying spring-plate, depresses the same, and permits after clearing the same the release of the spring-plate, as indicated in Fig. 4, so that the marker is quickly moved by the action of its spring-plate back into its normal position and produces thereby by its sharp-pointed end the marking of the time-dial of the clock-train.

The projecting end or guard-pin  $g$  of the guard-spring  $g'$  is normally located at the left-hand end of the slot  $e^4$  and serves thereby as a guard for the proper turning of the key. When the key is turned on its axis for actuating the marker, the ward engages the projecting guard-pin, carries the same along until the key and its ward are again brought in line with the opening in the key-box, as shown in Fig. 4, in which position the projecting guard-pin arrests the ward and prevents a second turning motion of the key and the second actuation of the marker. As soon as the key is

again in line with its key-opening the tension of the helical spring  $f^4$  on the bracket  $e'$  of the slide-plate E' moves the key in outward direction, the parts returning from the position shown in Fig. 2 to their initial or normal position. (Shown in Fig. 1.) The end of the spindle E is made tapering, the tapering end being adapted to engage the correspondingly-recessed end of a spring-cushioned spindle  $h$  of a worm-shaft  $h'$ , that turns in suitable bearings in the casing of the key K, so that by the turning of the key in operating the marking device of the time-detector this spindle is held stationary by the spindle E, and thereby turned relatively to the key-casing, whereby motion is transmitted to a worm  $h^2$  connected therewith and thence to a suitable worm-gear  $h^3$ , by which the key-controlling mechanism H, located in the casing of the key, is operated, a record being made of each actuation of the marking device of the time-detector by the controlling mechanism of the key K.

The improved construction of the key and the key-controlling device and the casing of the same forms the subject-matter of a separate application for Letters Patent filed herewith.

Sidewise of the inner end of the key-box, near the rim of the cover C, is arranged a stationary stop-hook  $w'$ , having an inclined face, so that when the ward  $w$  of the key K is inserted into the cover and turned so as to depress the spring marking-plate E<sup>2</sup> the ward passes below the hook and is prevented from turning back toward the left, as shown in dotted lines in Fig. 4, but has to be moved onward toward the right until it clears the spring-plate E<sup>2</sup> and produces the marking of the dial, while the end of the key engages the bracket  $e'$  and moves the slide-plate E' in backward direction against the tension of its helical spring  $f^4$ , as described. The ward  $w$  of the key K, not being able to be returned toward the left owing to its engagement by the stop-hook  $w'$ , has to be turned toward the right until the key has completed its rotation and is moved by the action of the helical spring  $f^4$  in outward direction in the key-box, the edge of the ward moving along the inclined face of the recess  $a^3$  in the key-box  $a^2$  until the ward is in line with the keyhole, when the spring-actuated bracket  $e'$  will move the key in outward direction for its final withdrawal by the watchman.

To the slide-plate F is pivoted a lever I, to the pivot of which is applied a torsion-spring  $i$ , which tends to move the lever I toward and along an antifriction-roller  $i'$ , that is applied to a stationary pin on the cover C. To the pivot of the lever I is attached below the lever, but above the slide-plate F, a second lever-arm I', which moves with the lever I and is provided with two recesses  $i^2$   $i^3$  on the side facing the antifriction-roller, one for en-



gaging a stationary pin  $i^4$  and the other for engaging the antifriction-roller  $i'$ , as shown in Figs. 1 and 7. When the lower lever-arm  $I'$  is not locked to the pin  $i^4$  or to the roller  $i'$ , it is moved freely with the slide-plate  $F$  forward and backward toward the left, as shown in Figs. 2 and 5, so that the end of the spindle  $E$  is withdrawn into its guide-socket  $a'$ . The tapering end of the spindle  $E$  is thereby prevented from engaging with the spindle at the interior of the key-barrel, and consequently unable to actuate the supplemental controlling device of the key, as shown clearly in Fig. 6, for the reason that the spindle does not project far enough into the barrel of the key for engaging the end of the spindle of the controlling mechanism.

The improved key-controlling device can be automatically thrown out of action, when it is desired to do so, after a certain predetermined period of time. For this purpose the lower lever  $I'$  is placed with its recess  $i^2$  against the roller  $i'$ , as shown in Fig. 7, so that the upper lever  $I$  extends inwardly over the spindle  $E$  and into the path of a pin  $p$ , projecting from the top plate of the clock-train and passing through the time-dial, as shown in Fig. 1. This pin moves with the time-dial and engages at the proper time the end of the lever  $I$  and moves the same sufficiently so that the recessed lower-lever arm  $I'$  clears the roller  $i'$  and permits the return movement of the spindle  $E$  under the influence of its helical spring into its socket  $a'$  and the motion of the slide-plate  $F$  into the position shown in Fig. 5, while the levers  $I$  and  $I'$  are moved by the torsion-spring  $i$  into the position shown in Figs. 5 and 6. In this position the spindle  $E$  is withdrawn, and will consequently not act on the controlling devices in the key until reset again. By the three positions of the lever mechanism described the spindle  $E$  may be placed in position so as to actuate the controlling devices in the keys, or the spindle  $E$  may be moved out of action, so as not to actuate the key-controlling devices, or it may be placed in such position as to be automatically released after a certain period of time. When it is desired to lock the slide-plate  $F$  permanently, so as to set the spindle-supporting bracket  $f$  and the spindle  $E$  in or out of operation, a pivoted stop-piece  $r$ , capable of moving in one or the opposite direction, is placed into engagement with one or the other side recess  $r'$  or  $r^2$  in the slide-plate  $F$ , as shown in dotted lines in Figs. 1 and 6. The slide-plate  $F$  is thereby held in one case permanently in position for the actuation of the key-controlling devices, while in the other case it is held in position with the spindle  $E$  permanently out of engagement with the key-controlling devices.

On the face of the disk operated by the clock-

train beside the pin  $p$ , by which the release of the spindle is produced, are arranged two additional holding-pins  $p'$  and  $p^2$  at right angles to the pin  $p$ , which pins, together with the pin  $p$ , pierce the paper disk and hold the same on the dial of the clock-train. In addition to said holding-pins is arranged a third pin  $p^3$ , which serves to indicate the time at which the releasing mechanism was thrown out of action by the pin. This third pin makes a hole in the time-dial and produces thereby a record on the same of the time when the releasing mechanism was automatically thrown out of action.

In Figs. 8 to 11 is shown an additional guard device which is to be used in connection with the spring-actuated bracket  $e'$  on the spindle  $E$ , said guard device being intended to prevent the marking of the time-disk by the marking-point in case a spurious or imitation key is used. This guard device consists of an angular guard-plate  $u$ , which is attached to the free end of a curved spring  $u'$ , the opposite end of which is attached to the end of the guideway  $e^2$  of the spring-plate  $E^2$  carrying the marking-point  $e$ , said guard-plate extending around the marking-point, as shown in Fig. 8. The rear portion of the angular guard-plate  $u$  is provided at its upper edge with a horizontal flange  $u^2$ , that projects over the spring-plate  $E^2$ , as shown in Figs. 8 and 10, while the face of the side portion of the guard-plate  $u$  is obtusely recessed adjacent to the spindle  $E$ , said face being sufficiently close to the spindle to be in the path of the ward of the key when the same is inserted and turned in the key-box, as shown in dotted lines in Fig. 10. When the key is inserted in the time-detector, it forces the bracket  $e'$  backward against its tension-spring  $f^4$ , as shown in Fig. 9, its ward on the turning of the key catching beneath the raised upper portion  $u^3$  of the bracket  $e'$ , so as to be locked against return movement. Upon the further forward movement of the key the ward thereof in engaging the obtusely-angular recess in the guard-plate  $u$  forces the same away from the spindle, and with it the flange  $u^2$ , so that the latter uncovers the marker-plate, which is simultaneously depressed by the ward of the key, as shown in Fig. 11. The guard-plate  $u$  is moved back sufficiently that its flange  $u^2$  clears the marking-point  $e$ , as shown in Fig. 11, and permits thereby on the release of the spring-plate the actuation of the same and the marking of the time-disk on the clock-train by the marking-point. The raise  $u^3$  on the bracket  $e'$  prevents the key from being turned in opposite direction when once properly inserted, and forms thereby in the same manner as the stop  $w$  a means for preventing the turning of the key in the opposite direction. Whenever an imitation key, which is usually provided with a short



ward, is inserted and pushed inwardly, so as to force the spring-actuated bracket  $e'$  in backward direction, the ward will engage the spring-plate of the marking-point in the same manner as the genuine keys at the different stations, but it will not engage the spring-actuated guard-plate  $u$  and push its flange clear of the marking-point, so that when the spring-plate is actuated it is held back by the guard-flange  $u^2$  and prevented from being raised sufficiently so that the marking-point cannot mark the time-disk. The momentum of the spring-plate  $E^2$  causes the latter to produce the lifting of the flange  $u^2$  of the guard-plate  $u$ , so that a point  $u^4$ , located at the upper edge of the rear portion of the same, produces a slight pricking mark on the circumference of the time-disk, indicating thereby on the inspection of the time-disk that an attempt has been made to tamper with the marking of the time-detector by an imitation key. The angular spring-actuated guard-plate forms thus a device for preventing the marking of the time-disk by the marking-point when an attempt is made to operate the time-detector by an imitation key and also indicates that an attempt was made of tampering with the time-detector by the pricking mark caused by the point  $u^4$  on the guard-plate on the time-disk by the momentum imparted by the guard-plate  $u$  by the spring-plate  $E^2$ .

By the improvements described watchmen's time-detectors of the class referred to are rendered more accurate and reliable, mainly for the reason that the tampering with the detector by spurious or imitation keys is absolutely prevented, as the key when once inserted into the cover of the time-detector is fully controlled throughout its motion in the same and ejected from the time-detector when the full rotation required for the actuation of the marking-point is completed. The different guard and safety devices described overcome thereby some of the well-founded objections to this class of time-detectors, render them more reliable, and permit them to be adjusted so as to operate the auxiliary key-controllers or discontinue the operation of the same or operate the same for a predetermined period of time and discontinue them automatically by the action of the clock-train at the will of the owner of the buildings to be watched.

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

1. In a watchman's time-detector, the combination of a guided and spring-actuated slide-plate located on the cover of the detector and provided with a perforated bracket, a spindle guided in said bracket, a key-box provided with a keyhole in line with the spindle and a recess for the end of the same, a key provided with a tubular barrel and a ward on

said barrel for actuating the slide-plate, a spring-plate attached to the reciprocating slide-plate and provided at its free end with a marker, and a spring-actuated guard device projecting through the spindle-bracket for directing the key for actuating the spring-plate and permitting its return into position for withdrawing from the key-box.

2. In a watchman's time-detector, the combination, with a spindle located on the cover of the detector, of a guided and spring-actuated slide-plate provided with a perforated bracket for said spindle, a key-box provided with a keyhole in line with the spindle and a recess for the end of said spindle, a key provided with a tubular barrel and a ward on said barrel for actuating the slide-plate, a spring-plate attached at one end to the reciprocating slide-plate and provided at the opposite end with a marker, and a spring-actuated guard device projecting through an arc-shaped slot in the spindle-bracket into the path of the ward of the key for directing the key for actuating the marking-plate and permitting its return into position for withdrawing it from the key-box.

3. In a watchman's time-detector, the combination, with a spindle located on the cover of the casing and provided with a tapering end, of a spring-actuated slide-plate provided with a perforated bracket for guiding the spindle, means for guiding the reciprocating slide-plate on the inner surface of the cover, a key-box provided with a keyhole for the key and an interior recess for the end of the spindle, a spring-actuated guard extending through the spindle-bracket of the slide-plate, a spring-plate attached at one end to the slide-plate and provided at its opposite free end adjacent to the key-box with a pointed marker, and a key provided with a tubular barrel for moving over the spindle and an interior controlling mechanism adapted to be actuated by the tapering end of the spindle.

4. In a watchman's time-detector, the combination, with a spindle guided at one end in a socket of the cover of the detector, of a slide-plate provided with a perforated bracket for guiding the opposite end of the spindle, means for guiding the slide-plate on the cover, a spring-plate attached at one end to the slide-plate and provided at its free end with a marking device, a second slide-plate provided with a perforated bracket near the guide-socket of the spindle, a helical spring interposed between the guide-bracket on the first slide-plate and the guide-bracket of the second slide-plate, locking mechanism for permitting the locking or releasing of the second slide-plate and spindle in stationary position, and a key provided with a tubular barrel and an interior controlling device adapted to be actuated by the spindle, said controlling device being placed out of engagement with the spin-



dle when the locking mechanism of the second slide-plate is released.

5. In a watchman's time-detector, the combination, with a spindle one end of which is supported in a guide-socket of the cover, of a slide-plate provided with a perforated bracket for guiding the opposite end of the spindle, a second slide-plate, means for guiding the same on the cover, said second slide-plate being provided with a perforated guide-bracket for guiding the spindle adjacent to its guide-socket, a locking-lever pivoted to the second slide-plate, a spring for actuating said locking-lever, said locking-lever being provided with a recess at its outer end, a stationary pin on the cover adapted to be engaged by the recess of the locking-lever, a helical spring on the spindle between the guide-brackets on the first and second slide-plates, and a key provided with a barrel and an auxiliary controlling device, said locking-lever locking the spindle in position for engaging and actuating the controlling device of the key.

6. In a watchman's time-detector, the combination, with a spindle one end of which is guided in a socket of the cover, of a slide-plate provided with a perforated bracket for guiding the opposite end of the spindle, a spring-plate attached at one end to the slide-plate and provided with a marking device at its free end, a guard device projecting in front of the spindle-bracket for directing the key toward the spring-plate, a second slide-plate guided on the cover and provided with a perforated bracket for guiding the spindle adjacent to its guide-socket, a helical spring placed on the spindle between the brackets of the two slide-plates, a pivoted and spring-actuated locking-lever, a lever-arm on the pivot of the locking-lever, a roller on the cover on one side of the second slide-plate, a pin on the cover on the opposite side of the said slide-plate, said roller and pin being adapted to be engaged by the locking-lever, and a pin on the face of the dial of the clock-train adapted to engage said lever-arm so as to throw the locking-lever automatically out of engagement with the pin and into engagement with the roller.

7. In a watchman's time-detector, the combination, with a spindle one end of which is guided in a socket of the cover, of a slide-plate provided with a perforated bracket for guiding the opposite end of the spindle, a second slide-plate provided with a perforated guide-bracket for guiding the spindle adjacent to its guide-socket, a locking-lever pivoted to the second slide-plate, a spring for actuating said locking-lever, said locking-lever being recessed at its outer end, a stationary pin on the cover adapted to be engaged by the recessed locking-lever, a helical spring placed on the spindle between the guide-brackets of the first and second slide-plates, and a pivoted stop device adapted to engage recesses in the edge

of the second slide-plate so as to lock it in position for holding the spindle in forward or backward position.

8. In a watchman's time-detector, the combination, with a spindle guided at one end in a guide-socket of the cover, of a primary slide-plate provided with a perforated bracket for guiding the opposite end of the spindle, means for guiding said primary slide-plate on the cover, a second slide-plate provided with a perforated bracket for guiding the spindle adjacent to its guide-socket, means for guiding said second slide-plate on the cover, a spring-actuated locking-lever provided with two recesses at its end, a stationary pin adapted to be engaged by the outer one of said recesses, a roller on the cover adapted to be engaged by the inner one of said recesses, a lever-arm attached to the pivot of the locking-lever, and a pin on the dial of the clock-train arranged in the path of the upper lever so as to release the locking-lever automatically by the action of the clock-train when the locking-lever is to be released from its engagement with the pin on the cover.

9. In a watchman's time-detector, the combination, with a spindle guided on the cover of the detector, of a spring-actuated slide-plate guided on the cover and provided with a perforated bracket for the end of the spindle, a key-box on the cover having a keyhole in line with the spindle, a stationary guard-hook adjacent to the inner end of the key-box, a spring-plate attached at one end to the slide-plate and provided with a marker at its free end, and a key provided with a ward adapted to be engaged by said guard-hook for being prevented from being turned in opposite direction after actuating the spring-plate.

10. In a watchman's time-detector, the combination, with a spindle guided on the cover of the detector, of a spring-actuated slide-plate guided on said cover and provided with a perforated bracket for the spindle, a key-box having a keyhole in line with the spindle, a spring-plate attached at one end to the slide-plate and provided with a marker at its free end, a spring-actuated angular guard-plate extending around the marker adjacent to the key-box, and a flange at the rear portion of the angular guard-plate extending over the spring-plate, and a key having a ward engaging the spring-plate and guard-plate and producing the proper actuating of the marker.

11. In a watchman's time-detector, the combination, with a spindle guided on the cover of the detector, of a spring-actuated slide-plate also guided on said cover and provided with a perforated bracket for said spindle and a raised face portion at its upper part, a spring-plate attached at one end to the slide-plate and provided at its free end with a marker, a key-box having a keyhole in line with the spindle, a spring-actuated guard-



plate extending around the marker and toward  
the key-box, said guard-plate being provided  
with a flange extending over the spring-plate  
and a marking-pin on its rear portion, and a  
5 key having a ward adapted to engage the  
spring-plate and guard-plate and produce the  
clearance of the marker by the guard-plate  
by the key but the non-marking of the time-  
disk by the marker and the marking of the

same by the marking-pin on the guard-plate is  
when an imitation key is inserted.

In testimony that I claim the foregoing as  
my invention I have signed my name in pres-  
ence of two subscribing witnesses.

PAUL MOOSMANN.

Witnesses:

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HENRY J. SUHRBIER.