

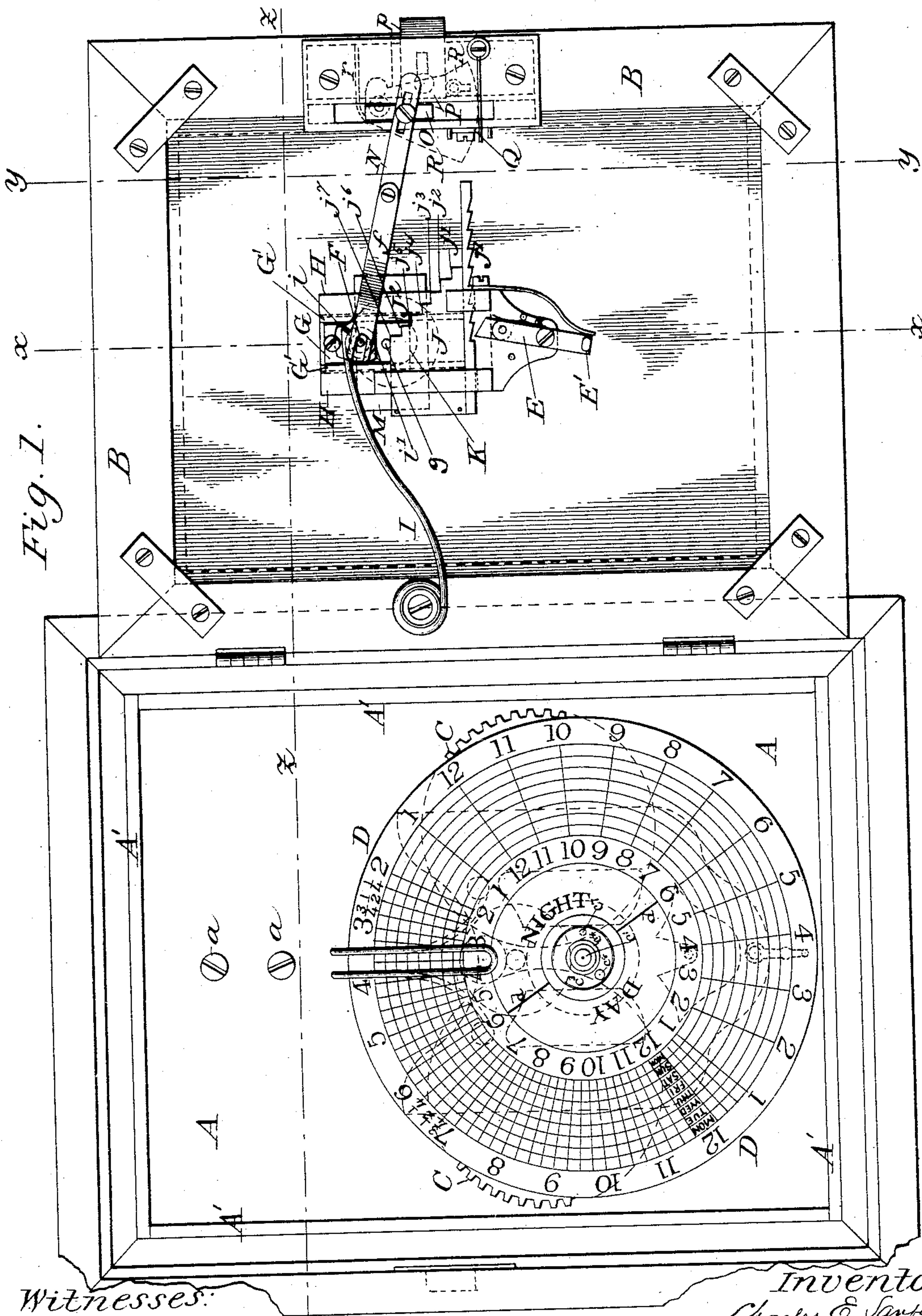
(Model.)

3 Sheets—Sheet 1.

C. E. SANFORD.  
WATCHMAN'S REGISTER.

No. 285,932.

Patented Oct. 2, 1883.



Witnesses:

R. C. Howes  
C. E. Watman

Inventor.

Charles E. Sanford  
Per Edw. E. Quincy  
Atty.

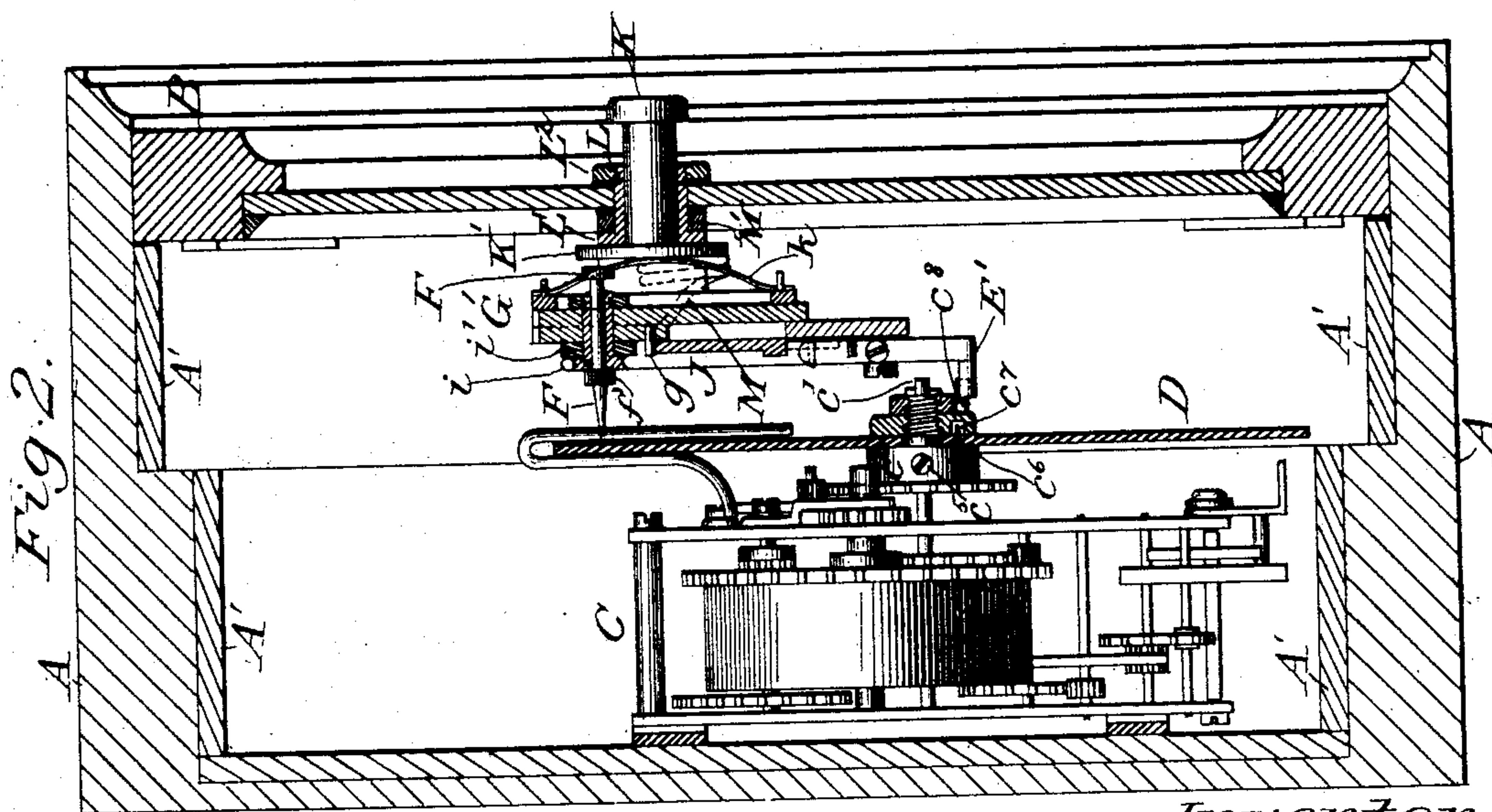
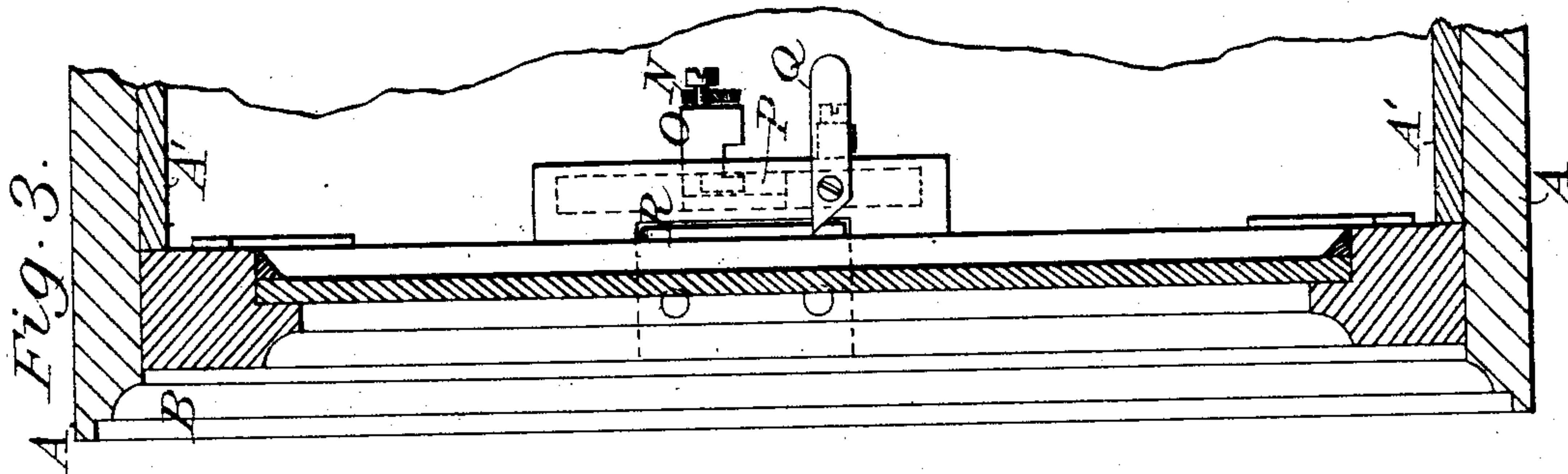
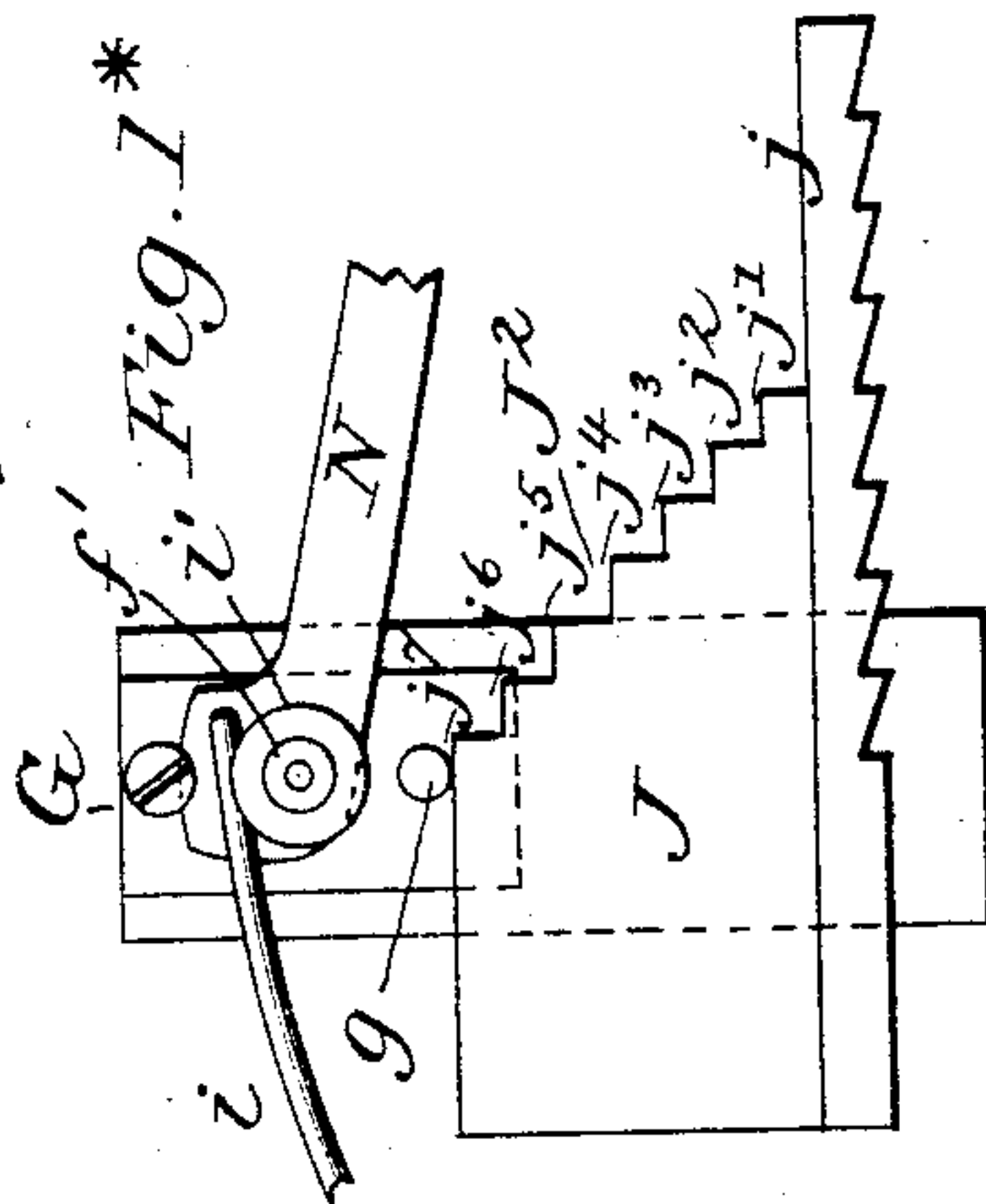
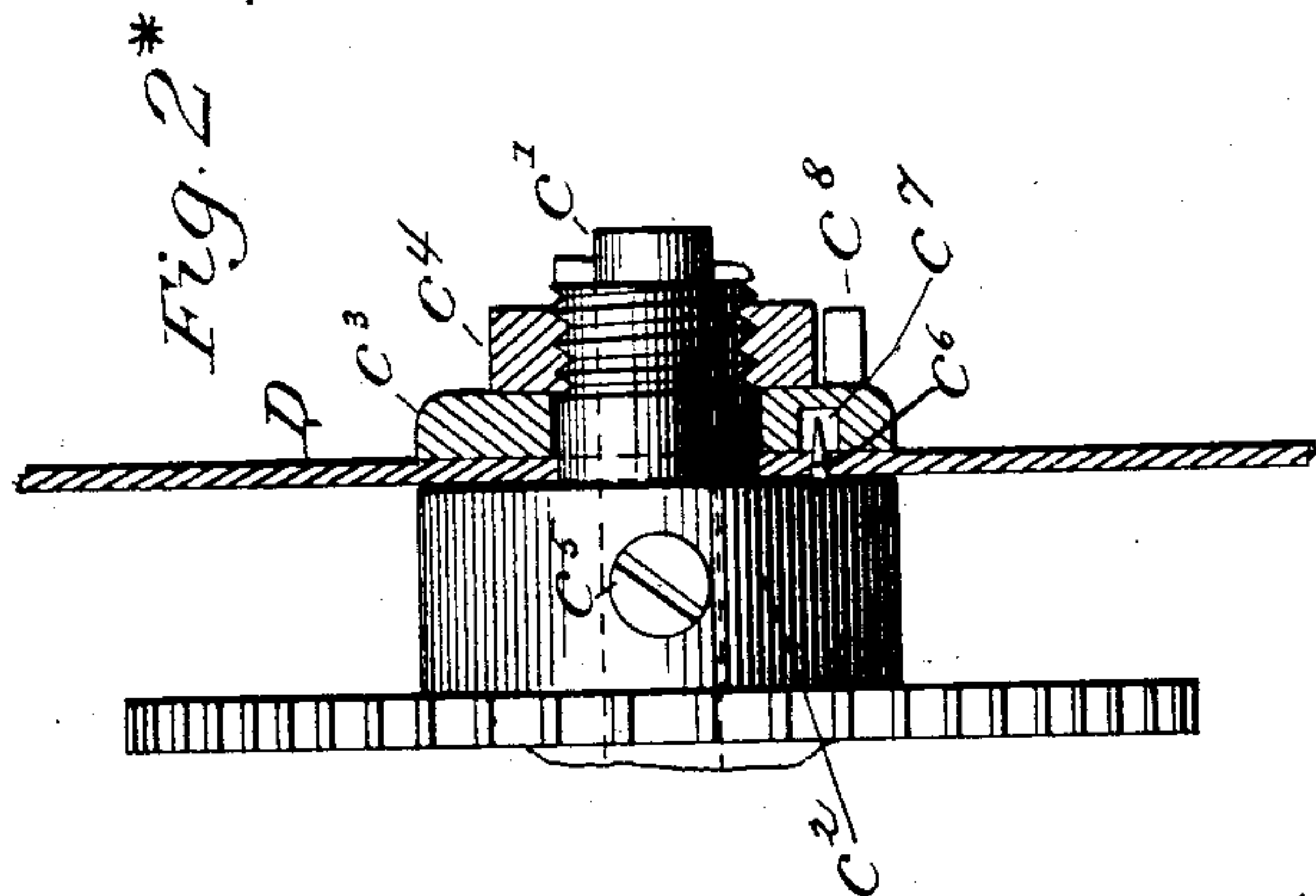
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3 Sheets—Sheet 2.

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Fig. 5.

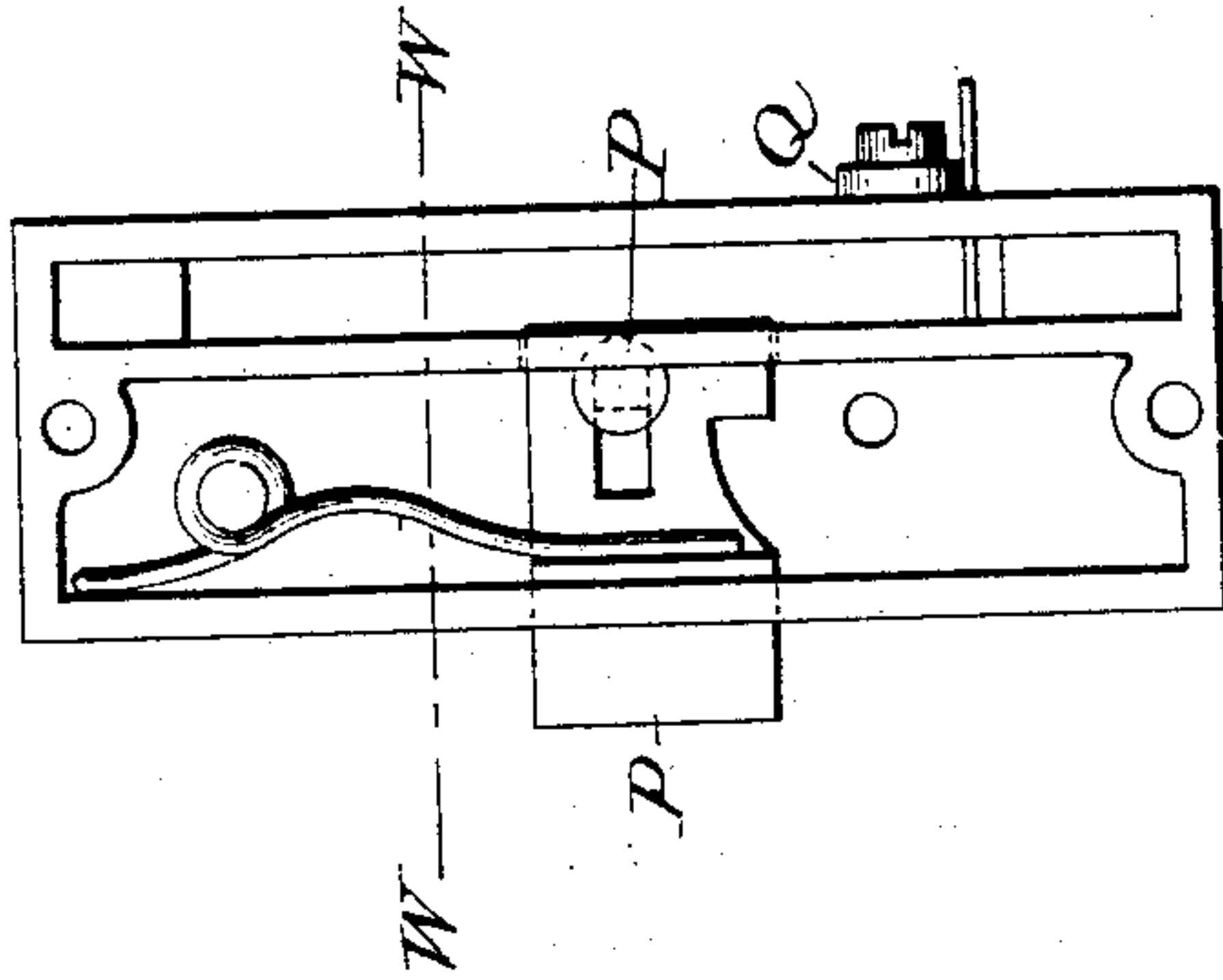


Fig. 6.

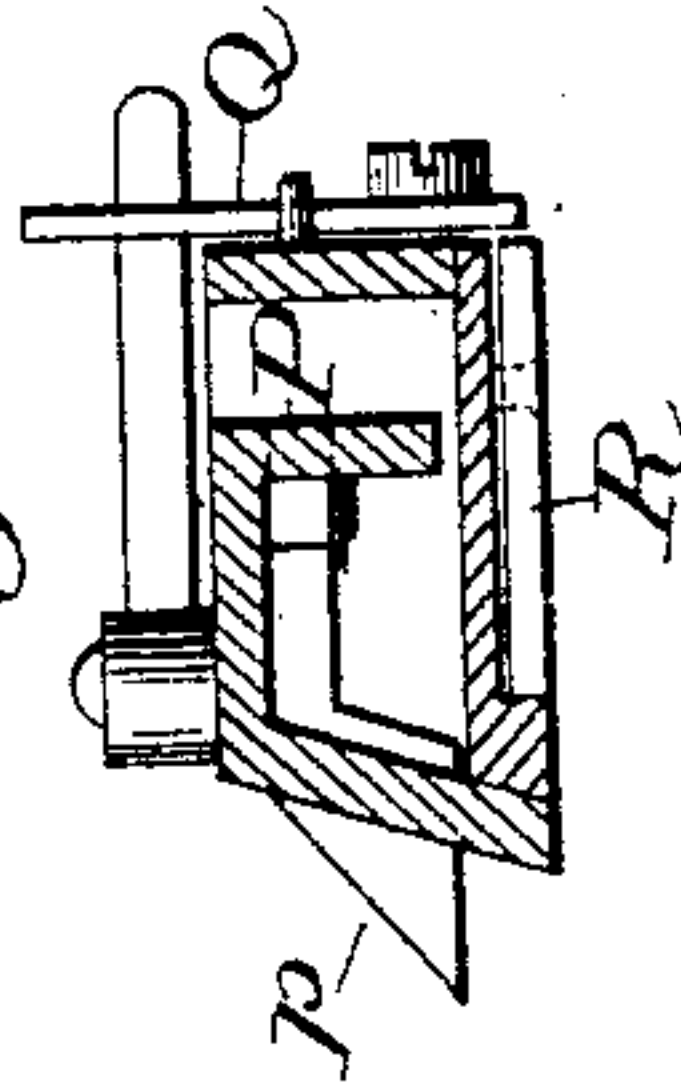
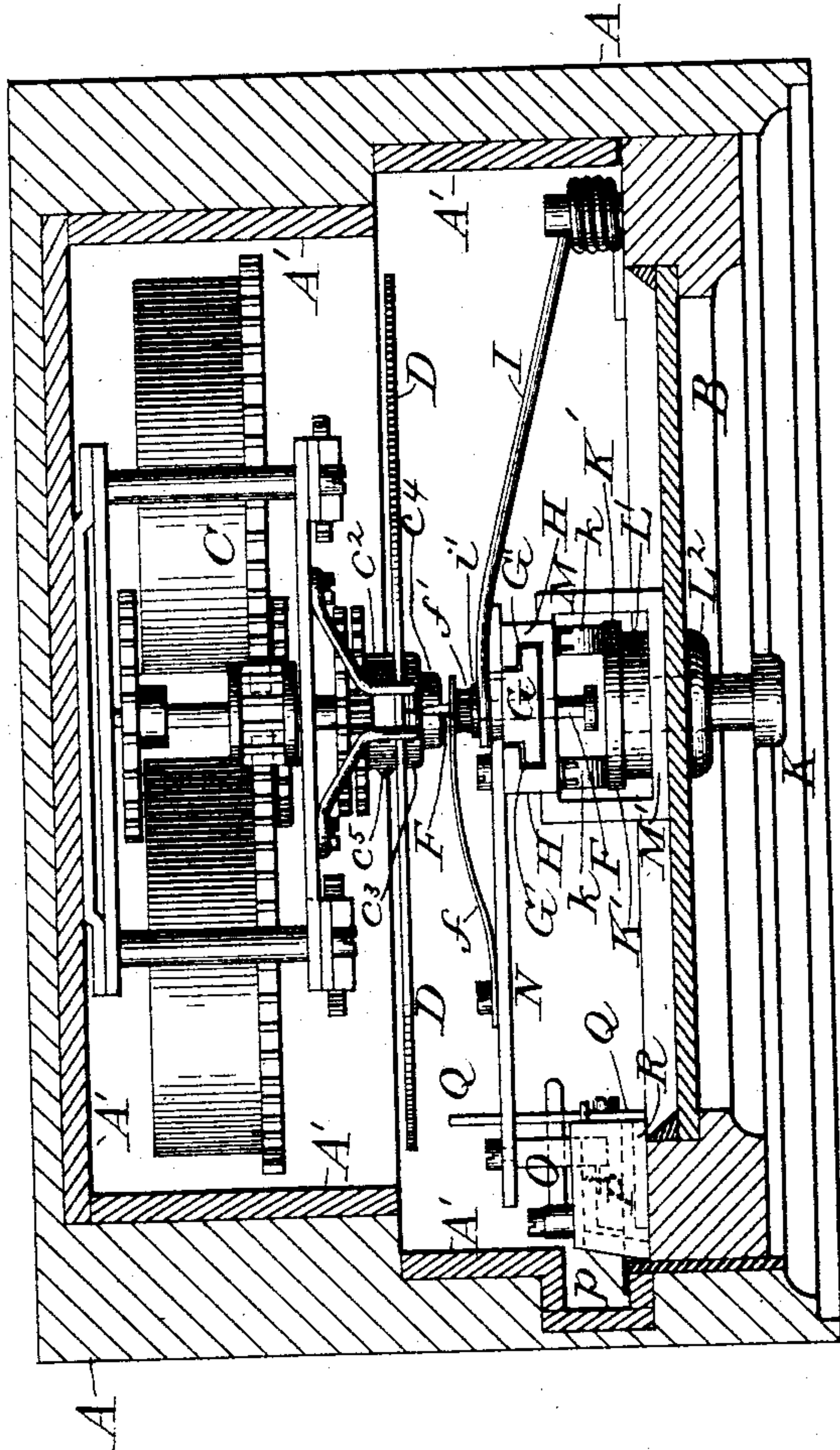


Fig. 4.



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# UNITED STATES PATENT OFFICE.

CHARLES E. SANFORD, OF BROOKLYN, NEW YORK.

## WATCHMAN'S REGISTER.

SPECIFICATION forming part of Letters Patent No. 285,952, dated October 2, 1883.

Application filed March 10, 1883. (Model.)

*To all whom it may concern:*

Be it known that I, CHARLES E. SANFORD, of Brooklyn, New York, have invented a certain Improvement in Watchmen's Registers, of which the following is a specification.

My invention relates to the class of watchmen's registers in which the clock mechanism which rotates the record-card automatically varies the position of the puncturing-pin at prescribed intervals of time, and also releases a shield which covers the key-hole of the lock upon the door of the case, and thus prevents the insertion of the key during a prescribed period of time after the apparatus has been adjusted and set into action, as more fully shown and described in Letters Patent of the United States No. 261,388, dated July 18, 1882, granted to me for an improvement in watchmen's registers.

My present invention consists, first, in the employment, in connection with the key-hole shield, of a spring-catch and an arm connected with the slide that carries the puncturing-pin, by the operation of which the key-hole shield is fastened over the key-hole; secondly, in the employment, in connection with the spring-latch of the lock upon the door of the apparatus, of a guard-stop, also operated by the arm projecting from the slide which carries the puncturing-pin, by which the unlocking of the door of the apparatus is prevented, except at the close of the period of time for which the apparatus is designed or adjusted to act.

The third feature of my invention consists in so arranging the vertical slide which carries the puncturing-pin with relation to the disk affixed to that portion of the shaft of the push-button which is within the door that when the slide is raised and the push-button is pushed in under the outer end of the puncturing-pin the slide will be held at such an elevation as to hold the guard-stop out of engagement with the latch or spring-bolt of the lock during the act of closing the door; fourthly, in the apparatus illustrating my invention (shown in the accompanying drawings) an eight-day clock is employed, and the disk is provided with eight circles for receiving, respectively, punctures on eight successive days—as, for example, from Monday to Monday, both inclusive.

The mechanism for automatically releasing and allowing access to the lock for the purpose of opening the door may be adjusted to act at the expiration of any part of a week after the door is closed. To guard against the possibility of any undiscovered tampering with the clock-movement or record-disk by the introduction of a slender pin through a small hole which might be drilled or bored in the shell of the case, I line the top, bottom, and sides of the interior of the case with plate-glass.

The drawings are as follows: Figure 1 is an elevation of the case which contains the apparatus with the door open, showing the disk, and showing the puncturing mechanism and lock in rear elevation. In this view the key-hole shield is represented as having been pushed across the key-hole, and its position, when thrown out by the spring which retracts it, is represented in dotted lines. Fig. 2 is a transverse vertical section of the apparatus with the door closed, the plane of section being through the axes of the puncturing-pin and push-button on the line *x x*, Fig. 1. Fig. 3 is a transverse vertical section through the line *y y* on Fig. 1, looking toward the inner side of the lock, showing the spring-latch, which holds the key-hole shield in the position which it occupies when the key-hole shield has been pushed in and stands across the key-hole. Fig. 4 is a horizontal section through the line *z z* on Fig. 1, showing the relation of the guard-stop to the spring-latch of the lock, and affording a top view of the puncturing mechanism. Fig. 5 is an elevation showing the inside of the lock, and Fig. 6 is a transverse section of the lock through the line *w w* on Fig. 5. Fig. 1\* is a detached section of a portion of the mechanism for varying the position of the puncturing-pin. Fig. 2\* is a side elevation of a portion of the arbor which carries the record-disk, showing the nut and washer by which the record-disk is secured to the arbor in section, and showing a portion of the record-disk in section.

The apparatus shown in the drawings is inclosed in a case, A, which is intended to be affixed to the wall by screws *a a*, inserted through the back of the case, to which access can only be had when the door B of the case



is open. The top, bottom, and sides of the interior of the case are lined with the plates of glass A' A' A' A'.

Affixed to the interior of the case is a clock-  
 5 movement, C, which is timed to rotate the arbor  $c'$  once in twenty-four hours. The record disk or dial D is made of paper, and is clamped against a collar,  $c^2$ , secured to the arbor  $c'$  by the washer  $c^3$  and clamping-nut  $c^4$ . The collar  
 10  $c^2$  is affixed upon the arbor by the set-screw  $c^5$ , and is provided with a key-pin,  $c^6$ , which projects outwardly from the disk and into a hole,  $c^7$ , formed in the washer  $c^3$ . By this means the record-disk and the washer  $c^3$  are made to  
 15 rotate with the arbor  $c'$ . A suitable portion of the disk is ruled with concentric lines to provide eight annular spaces, of equal width, to receive the punctures or other marks made in the course of the use of the apparatus during  
 20 eight successive days. One half of the disk, on one side of the diametrical line  $d$ , is tinted or marked to indicate night, while the other half is otherwise marked to indicate day. A tooth,  $c^8$ , projects from the face of the washer  
 25  $c^3$ , and serves, during one part of its revolution—that is, once in each day—to actuate a spring driving-pawl, E, which is pivoted in a frame supported upon the door, and which, by the closing of the door, is brought into suit-  
 30 able proximity to the disk, so that a pin,  $E'$ , projecting laterally from its lower end, projects into the path of movement of the tooth  $c^8$ . The object of having the crank-pin actuate the pawl E once a day is to lower the puncturing-  
 35 pin, so that its punctures during the ensuing day can be made in the circle next adjoining the circle containing the punctures of the preceding day. This is accomplished by mount-  
 40 ing the reciprocating puncturing-pin F in a vertical carriage, G, which slides freely up and down in the guideways H, but is under a constant downward pressure due to the tension of the coiled spring, I affixed to the side of the door, the free end  $i$  of which bears  
 45 upon the grooved side of the head of a hollow screw,  $i'$ , which is inserted in the inner face of the carriage G. The carriage G is provided with a laterally-projecting pin,  $g$ , which bears upon the upper edge of the sliding tumbler J.  
 50 The lower edge of the tumbler J is provided with the ratchet-teeth  $J'$ , with which the upper end of the actuating-pawl E engages. The upper edge of the tumbler J is formed into a series of shoulders,  $J^2$ , for affording bearings  
 55 for the pin  $g$  at different elevations, corresponding with the elevations required for the puncturing-pin. Each throw of the actuating-pawl E is sufficient to move the tumbler far enough to enable the pin  $g$  to drop from  
 60 one shoulder of the tumbler to the next lower shoulder. When the door is closed the puncturing-pin is made to puncture the record-disk by pressing inward the push-button K, the shank of which is contained in the hollow bolt  
 65 L, inserted through a suitable hole in the glass

panel of the door. A washer—preferably of thin india-rubber—is introduced between the glass panel and the head  $L'$  of the bolt L. A similar washer is introduced between the inner surface of the glass and the frame M, which  
 70 supports the guideways  $G'$ , and to the lower part of which the actuating-pawl E is pivoted. The inner portion of the hollow bolt L projects through a hole in the back plate,  $M'$ , of the frame M, and is provided with a screw-  
 75 thread to receive the clamping-nut  $L^2$ , by means of which the frame M is firmly fastened upon the inside of the glass panel. The inner end of the push-button is provided with the disk  $K'$ , which bears upon the convex sides  
 80 of the curved flat springs  $k k$ , supported, respectively, upon the inner sides of the guideways  $G'$ . These springs yield when the push-button is pressed inward, and by their recoil  
 85 force the push-button outward. When the push-button is pressed, the disk  $K'$  strikes against and drives inward the puncturing-pin F, which is retracted, when the push-button is relieved from pressure, by the retracting-  
 90 spring  $f$ , bearing upon the collar  $f'$  upon the inwardly-projecting part of the puncturing-pin F.

To operate the catch for the key-hole guard, and also to operate the guard-stop for the latch of the lock, I provide the laterally-projecting  
 95 arm N, which at one end is rigidly affixed to the carriage G, and at the other end carries the guard-stop O, which, as will be seen, during the greater part of its path of vertical motion, bears against the shoulder P, formed upon  
 100 the latch  $p$  of the lock affixed to the door of the apparatus, and thereby stops the latch from being retracted. When the door is open the carriage G may be raised sufficiently high  
 105 to carry the stop O above and out of engagement with the shoulder P, and in that position, if the push-button is thrust inward so that the outer end of the puncturing-pin rests upon the edge of the disk  $K'$ , the guard-stop O will be  
 110 held out of engagement with the shoulder P, so that the spring-latch  $p$  can be pushed into the lock by the act of closing the door. When the door has been closed the push-button is  
 115 relieved from pressure and springs outward, thus allowing the carriage to fall until the pin  $g$  is caught upon the upper edge of the tumbler. The latch  $p$  having sprung outward, or having been forced outward by the action of the key, if the lock is a dormant lock instead of being a spring-lock, the stop O falls  
 120 downward behind the shoulder P, and thereafter prevents the door from being unlocked until, by the repeated actuations of the pawl E, the tumbler J has been moved back so that the pin  $g$  rests upon the lowest shoulder,  $j$ , of the  
 125 tumbler. In that position the stop O is carried below the shoulder P, and in reaching that position the arm N strikes against and turns downward the inner end of the spring-catch Q, pivoted to the side wall of the lock,  
 130



thus raising the outer end of the spring-catch Q, and permitting the key-hole shield R, under the influence of its retracting-spring *r*, to spring backward into the position shown in 5 dotted lines in Fig. 1, thus allowing access to the key-hole for the insertion of the key to unlock the door.

In setting the apparatus for action, the carriage G is raised and the tumbler J is pushed 10 back until its highest shoulder, *j'*, is brought under the pin *g*. The key-hole shield R is then pushed in across the key-hole, thus compressing its retracting-spring *r*, and is held in that position by the springing behind it of 15 the outer end of the spring-catch Q under the influence of its retracting-spring *q*.

It will be seen that the number of shoulders, *j* and *j'* to *j''*, inclusive, for affording the bearings in which the carriage G is held at different 20 elevations corresponds to the number of circles upon the record-disk.

By adjusting the tumbler J so that the pin *g*, which supports the carriage, bears upon the highest shoulder, *j'*, of the tumbler, the 25 interior of the apparatus will be inaccessible for one week after the door is closed—that is, from the hour of closing the door upon one day to the same hour upon the eighth day thereafter—as, for example, from Monday to 30 Monday, both inclusive.

The outermost circle upon the record-disk is intended for the punctures made during the first twenty-four hours after the door is closed, and the next adjoining circle for the punctures 35 made during the next following twenty-four hours, and so on, until, at the end of the seventh day, the pin *g*, supporting the carriage G, drops upon the shoulder *j*, thus releasing the lock, so that the door can be opened and the 40 disk changed. If, however, the disk should not be changed, as may be the case if the day is a holiday, the record for that day will be made by punctures in the inner circle.

If access to the interior of the apparatus is 45 desired at shorter intervals—as, for example, every day—the necessary adjustment for affording such access consists merely in so arranging the tumbler that the pin *g*, which supports the carriage G, rests upon the shoulder 50 *j'*. If it be desired to have the door remain closed two days, the tumbler will be so adjusted as to have the pin *g* bear upon the shoulder *j''*. If the door is to remain closed three days, the tumbler will be so adjusted as 55 to have the pin *g* bear upon the shoulder *j'''*, and so on.

It will of course be understood that the apparatus may be arranged to act for a longer 60 period by increasing the number of circles upon the record-disk and correspondingly increasing the number of shoulders upon the tumbler J and the range of movement of the carriage G, and by substituting for the eight-day clock employed in the apparatus a clock 65 running for the longer period desired.

If desired, there may be substituted, in place of the spring-lock shown, either a dormant lock or a simple knob-latch, in either of which cases the key-hole shield will of course be dispensed with, and the guard-stop will alone be 70 employed to prevent the unlocking or unlatching of the door during the prescribed period of time for which the apparatus may be adjusted to operate.

The mechanism for controlling the guard- 75 stop may also, if desired, be embodied in that class of watchmen's registers in which, by means of electric circuits, the different circles upon the disk are respectively punctured by the actuation of push-buttons at different sta- 80 tions. In this case, and in all cases in which access to the interior of the apparatus is required every twenty-four hours, the mechanism for changing the position of the puncturing-pin with relation to the record-disk may 85 be dispensed with, and the tooth upon the arbor which rotates the record-disk may be made to act positively upon the slide or upon the pivoted lever carrying the guard-stop. 90 The preferable method of operating the guard-stop, however, is substantially that shown in the drawings, in respect of the particular that the rotating tooth is only required to actuate a pawl or trigger, which releases the instrumentality carrying the guard-stop to the ac- 95 tion of a spring tending to force it downward, and thus carry the guard-stop out of engagement with the latch or bolt of the lock.

I claim as my invention—

1. In a watchman's register, the mechanism 100 for varying at prescribed intervals of time the distance of the axial line of the puncturing-pin from the axis of the record-disk herein described, which consists of the sliding tumbler J, provided with a series of shoulders for af- 105 fording bearings to support the pin-carriage G at different elevations, and having a step-by-step movement imparted to it by the spring-pawl E, actuated by the clock-work which carries the record-disk once during each revolu- 110 tion of the disk.

2. The mechanism for preventing the un- locking of the door of the case containing the apparatus during the period of time for which the apparatus is set to act, the same consisting 115 of the described mechanism for letting down the carriage G step by step, the arm N, affixed to the carriage G, the guard-stop O, carried by the arm N, and the shoulder P upon the spring latch or bolt *p* of the lock, the carriage 120 having a sufficient range of downward movement to carry the guard-stop O below and out of engagement with the shoulder P when the carriage has reached its lowest position.

3. The puncturing-pin F, the pin-carriage 125 G, the arm N, and the guard-stop O, for engaging the shoulder P of the latch or bolt *p* of the lock, in combination with the disk K', upon the inner end of the shank of the push-button, so arranged that when the disk K' is 130



pushed inward under the puncturing-pin the guard-stop will be elevated out of engagement with the shoulder P.

4. The combination of the key-hole shield,  
5 means for removing the shield from the key-hole, the carriage G, the arm N, affixed thereto, and the spring-catch Q, pivoted to the side wall of the lock, and having its inner end pro-

jected across the path of movement of the arm N, and its outer end adapted to engage the key-hole shield, as and for the purposes set forth.

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Witnesses:

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