

(No Model.)

3 Sheets—Sheet 1.

I. A. HERMANN.
TIME DETECTOR.

No. 574,802.

Patented Jan. 5, 1897.

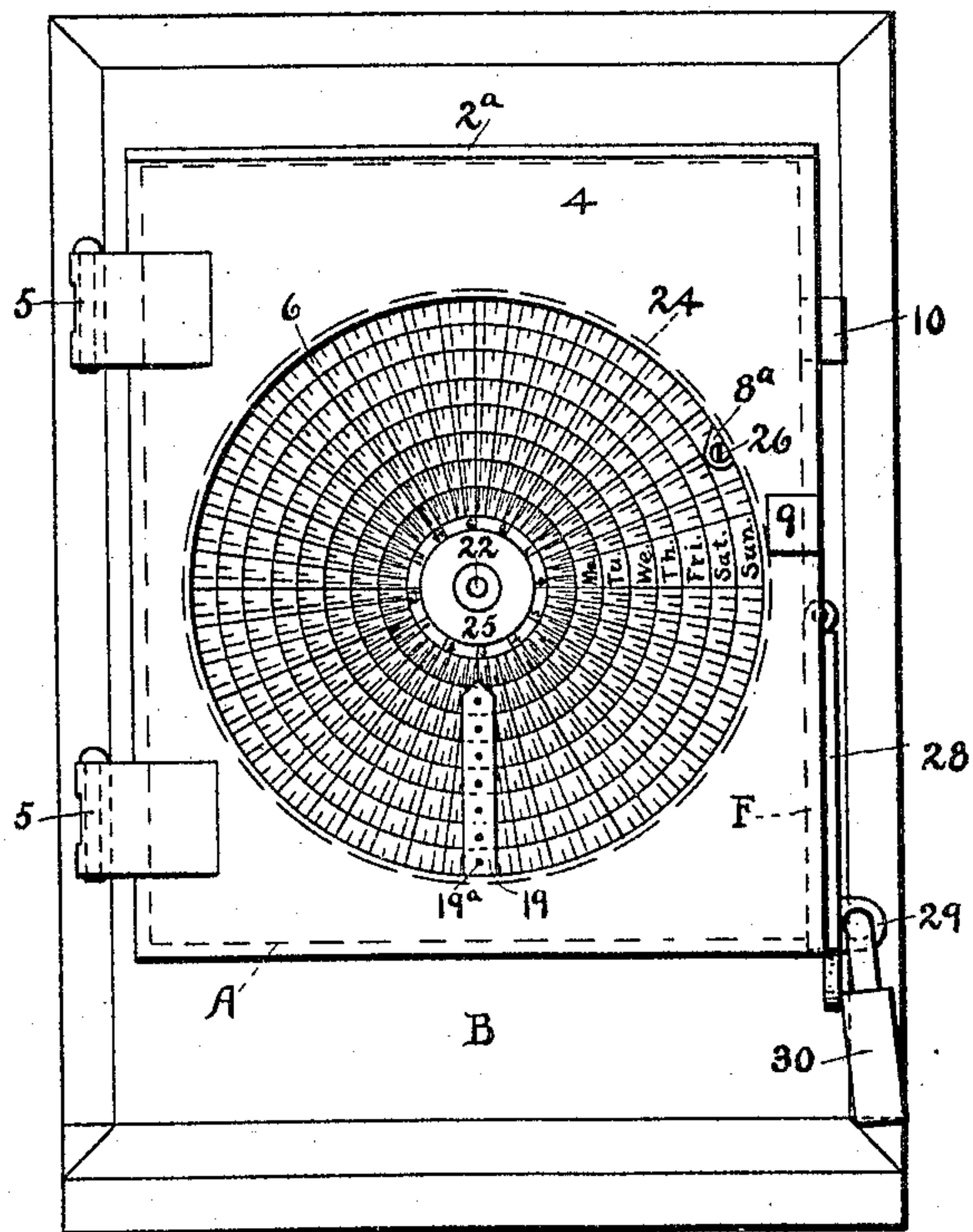


FIG. 1.

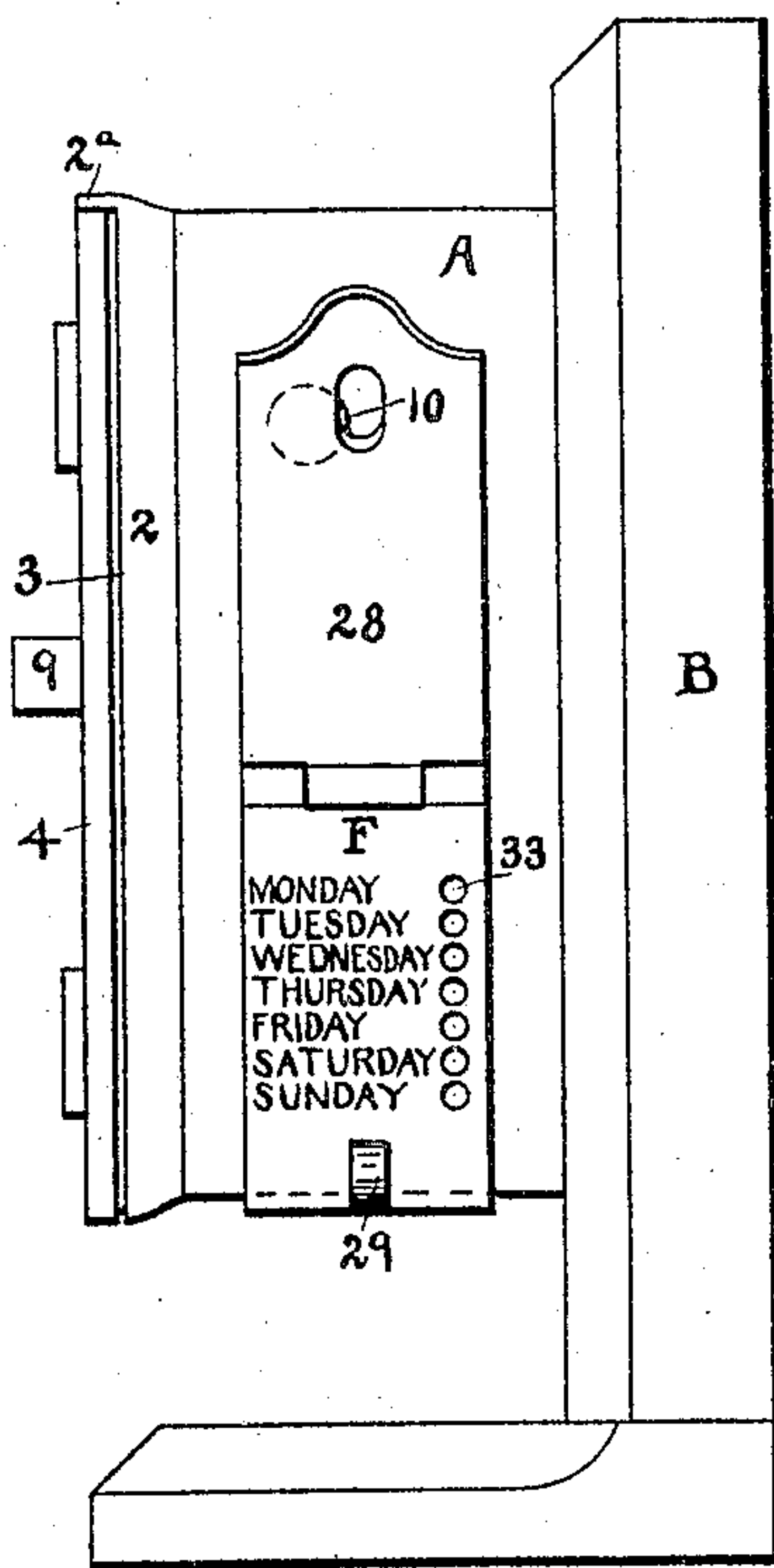


FIG. 2.

WITNESSES:

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(No. Model.)

3 Sheets—Sheet 2.

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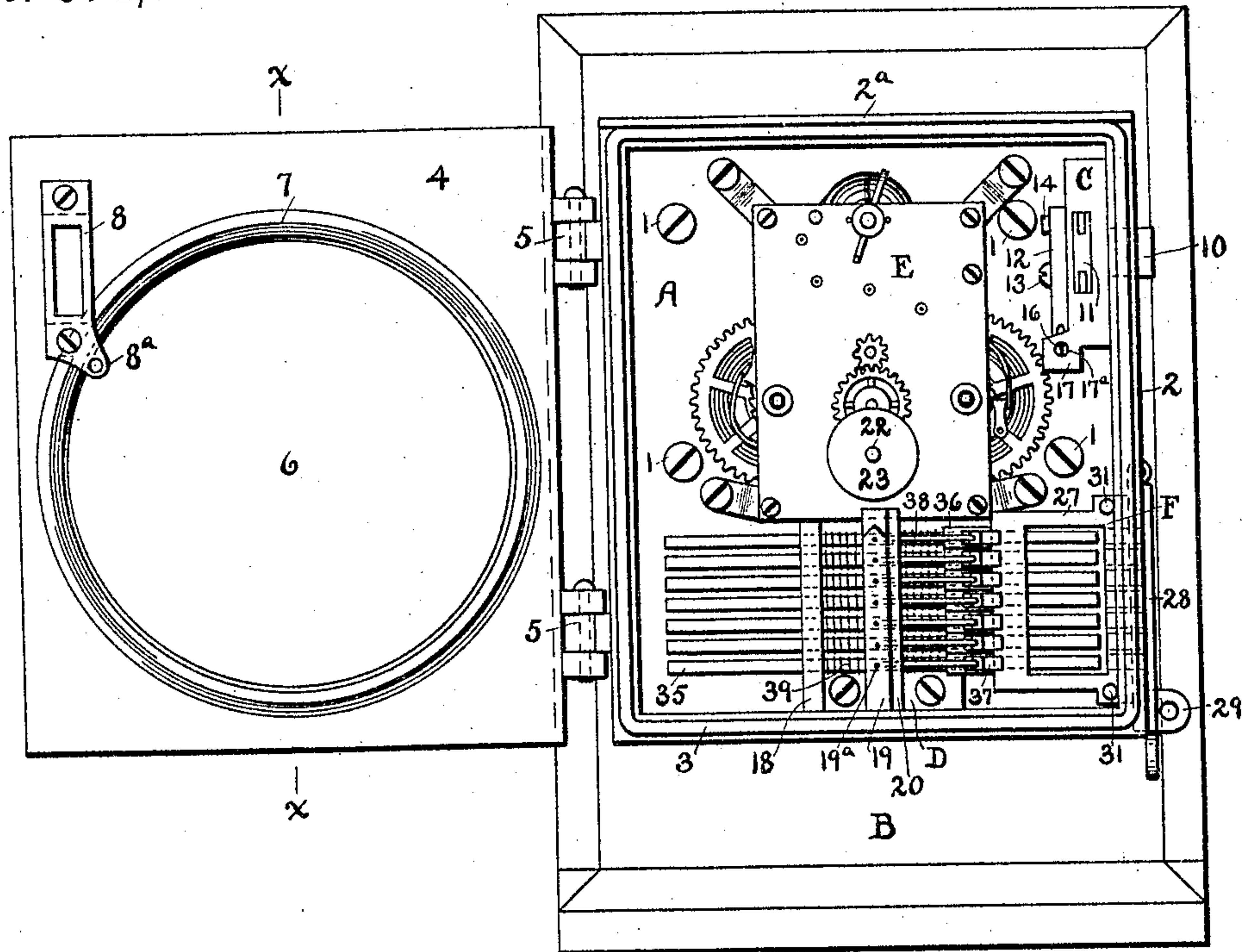


FIG. 3.

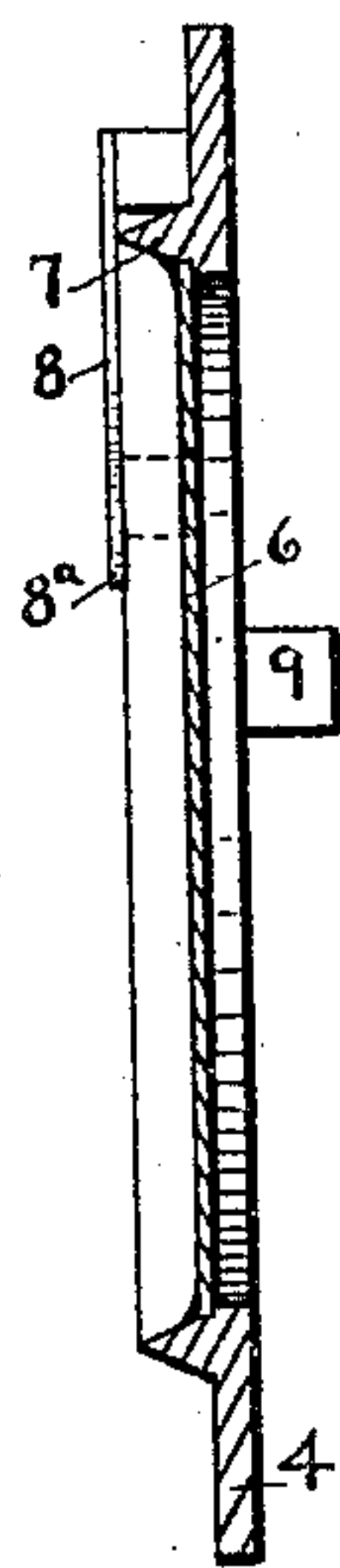


FIG. 4.

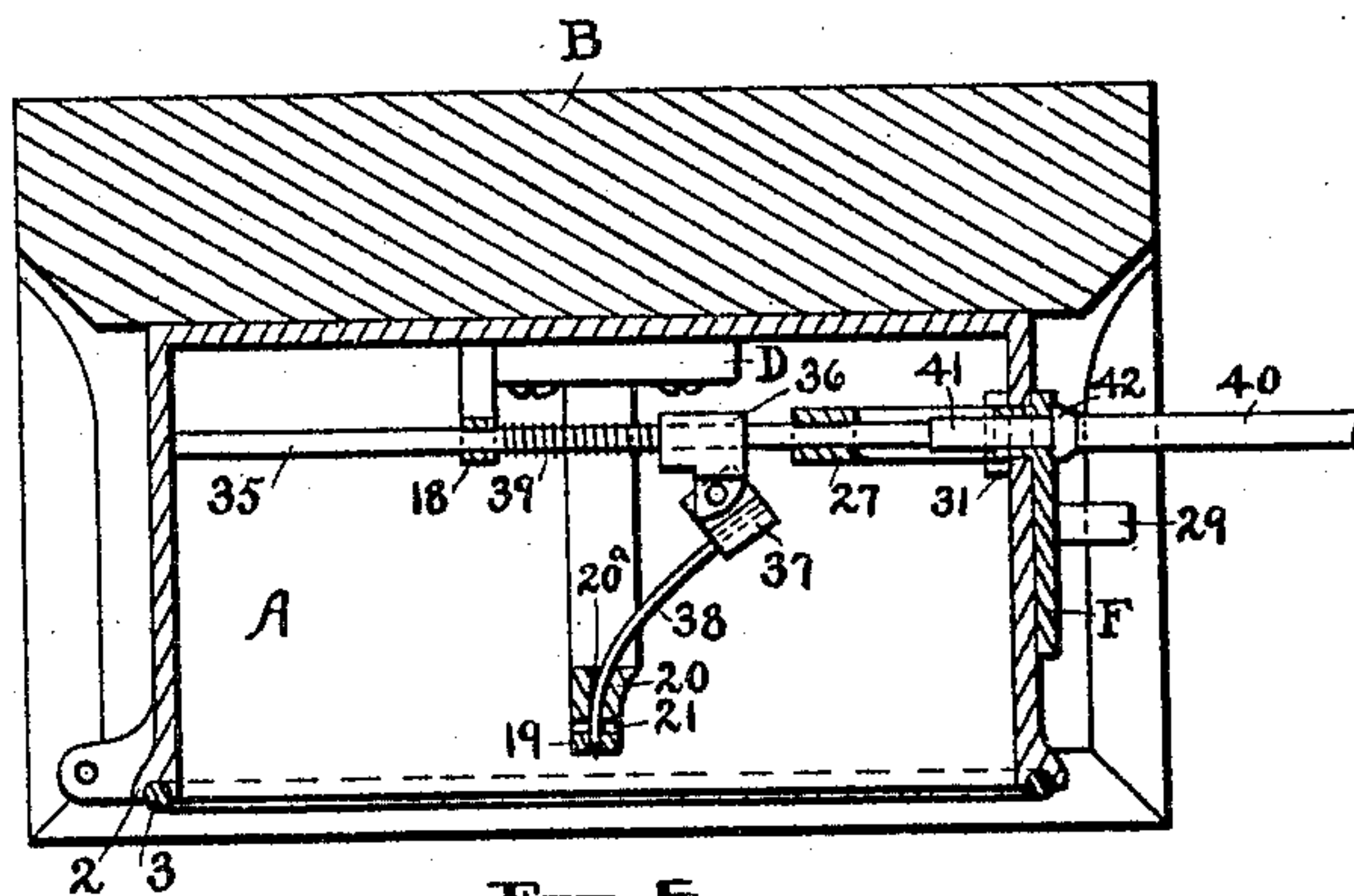


FIG. 5.

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(No Model.)

3 Sheets—Sheet 3.

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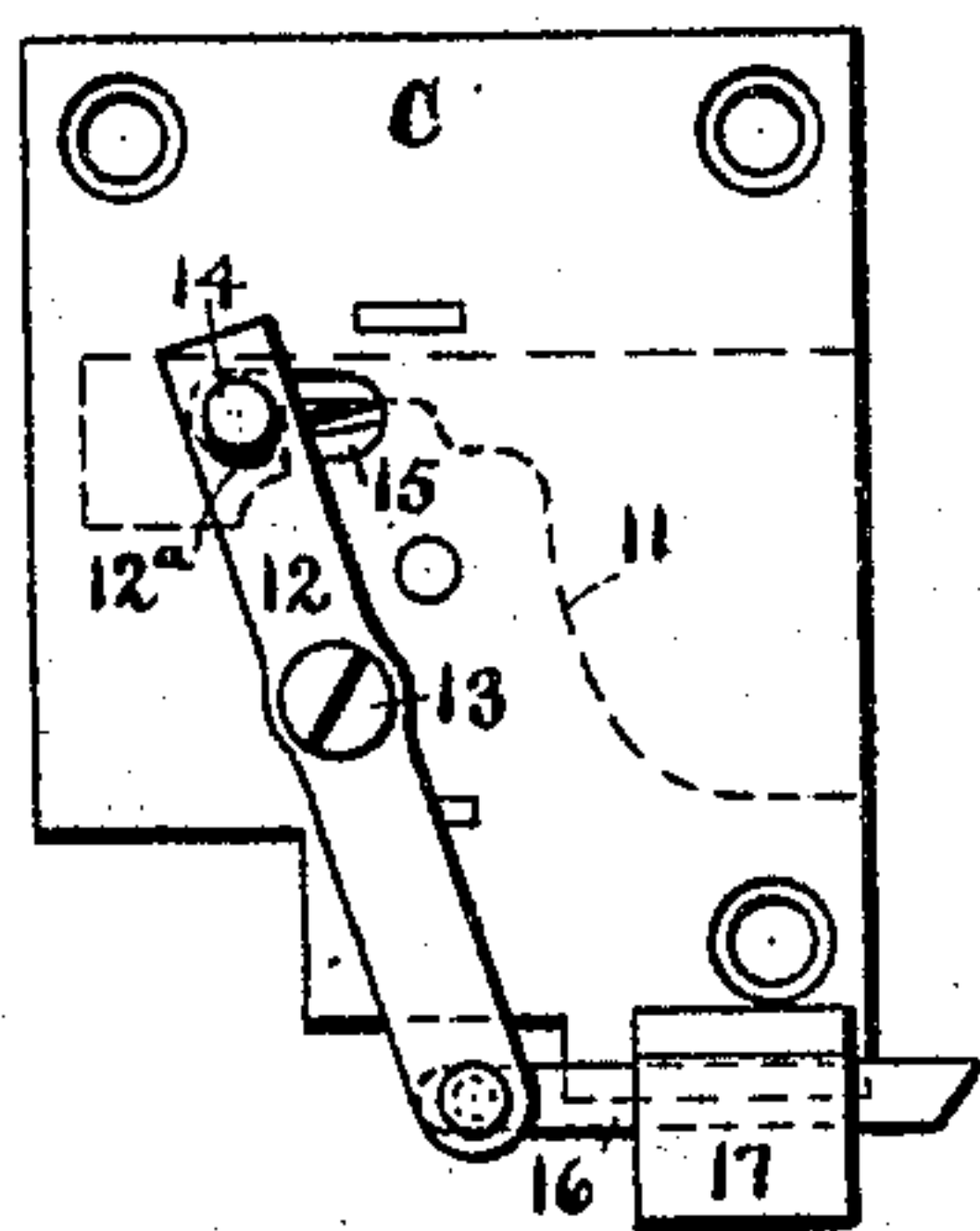


FIG. 6

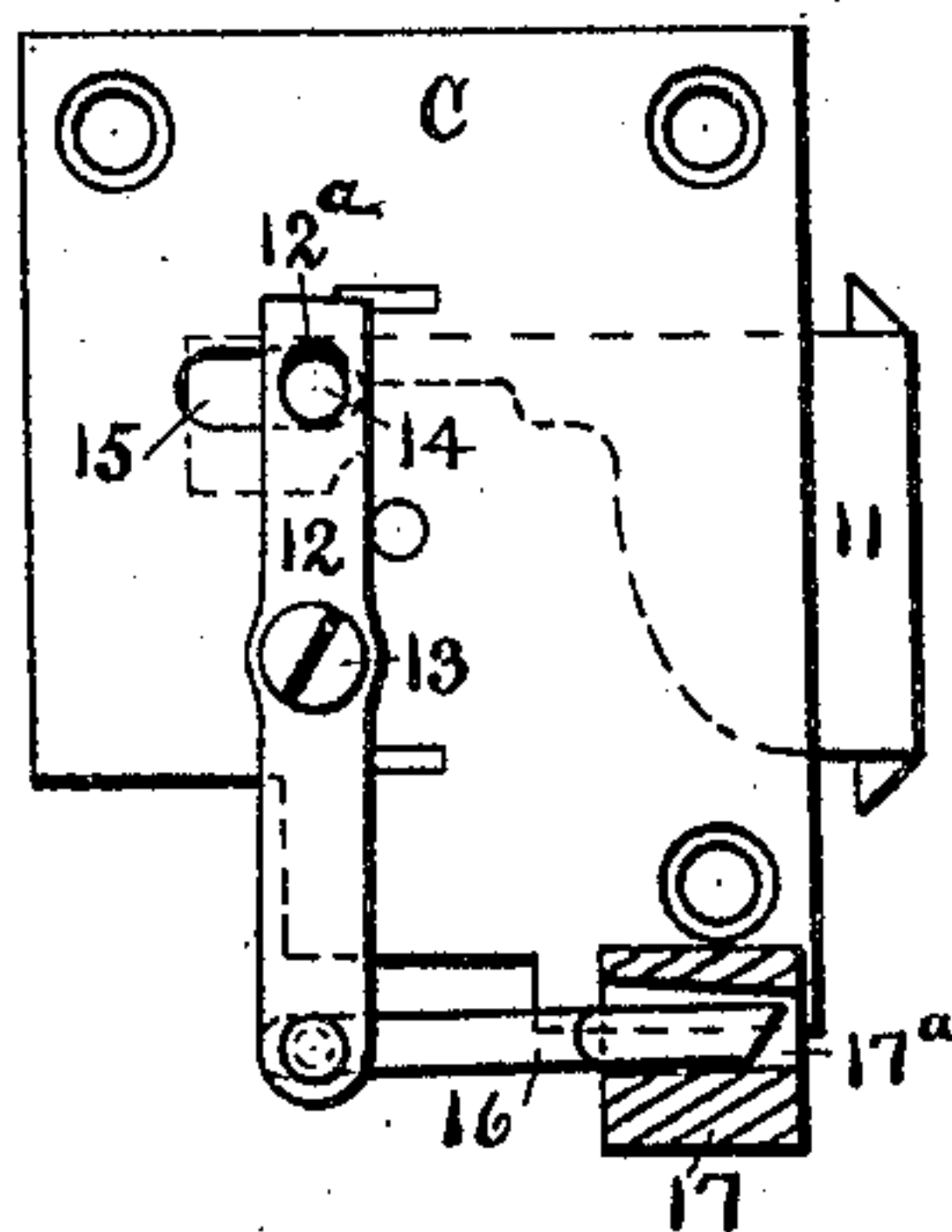


FIG. 7

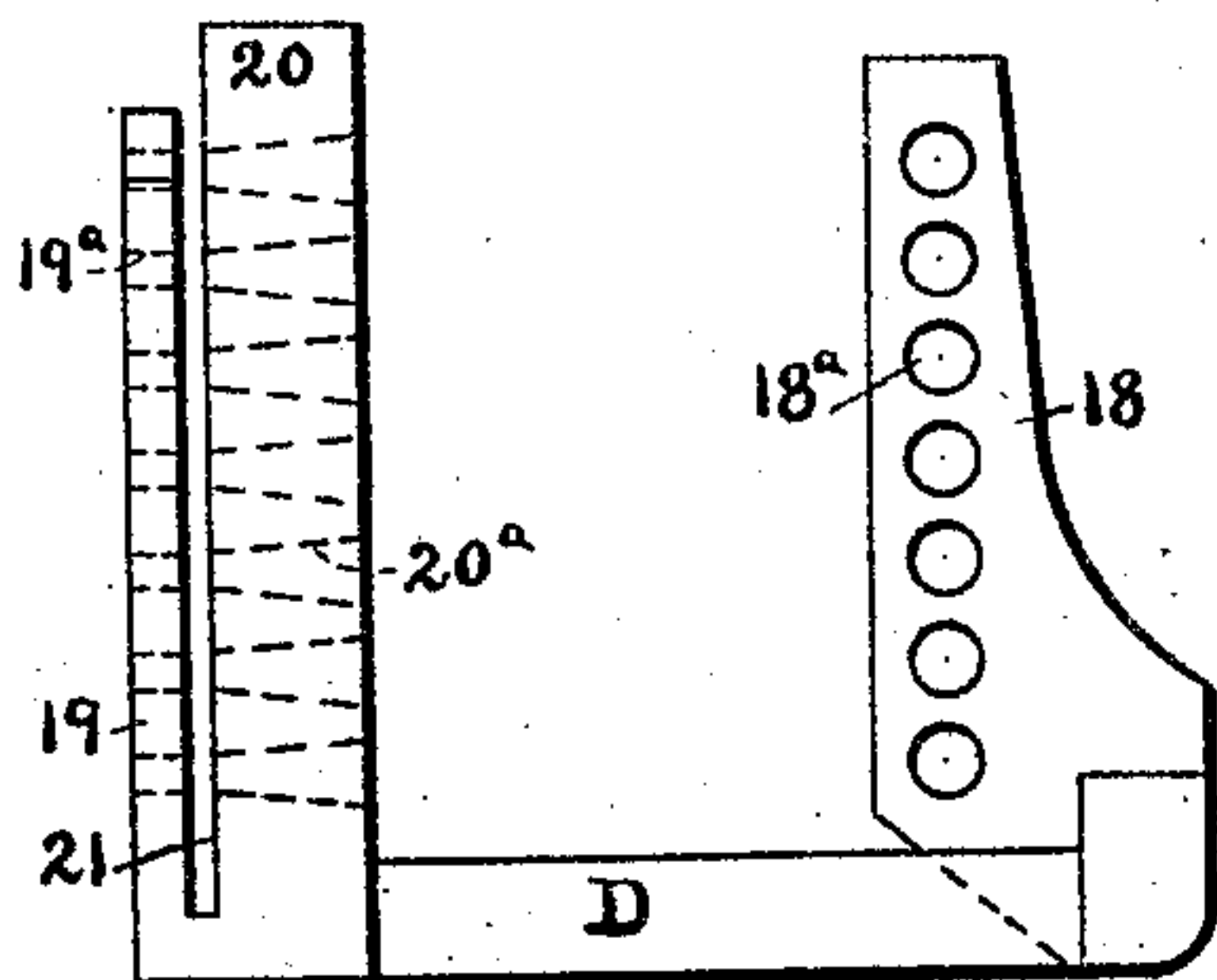


FIG. 8

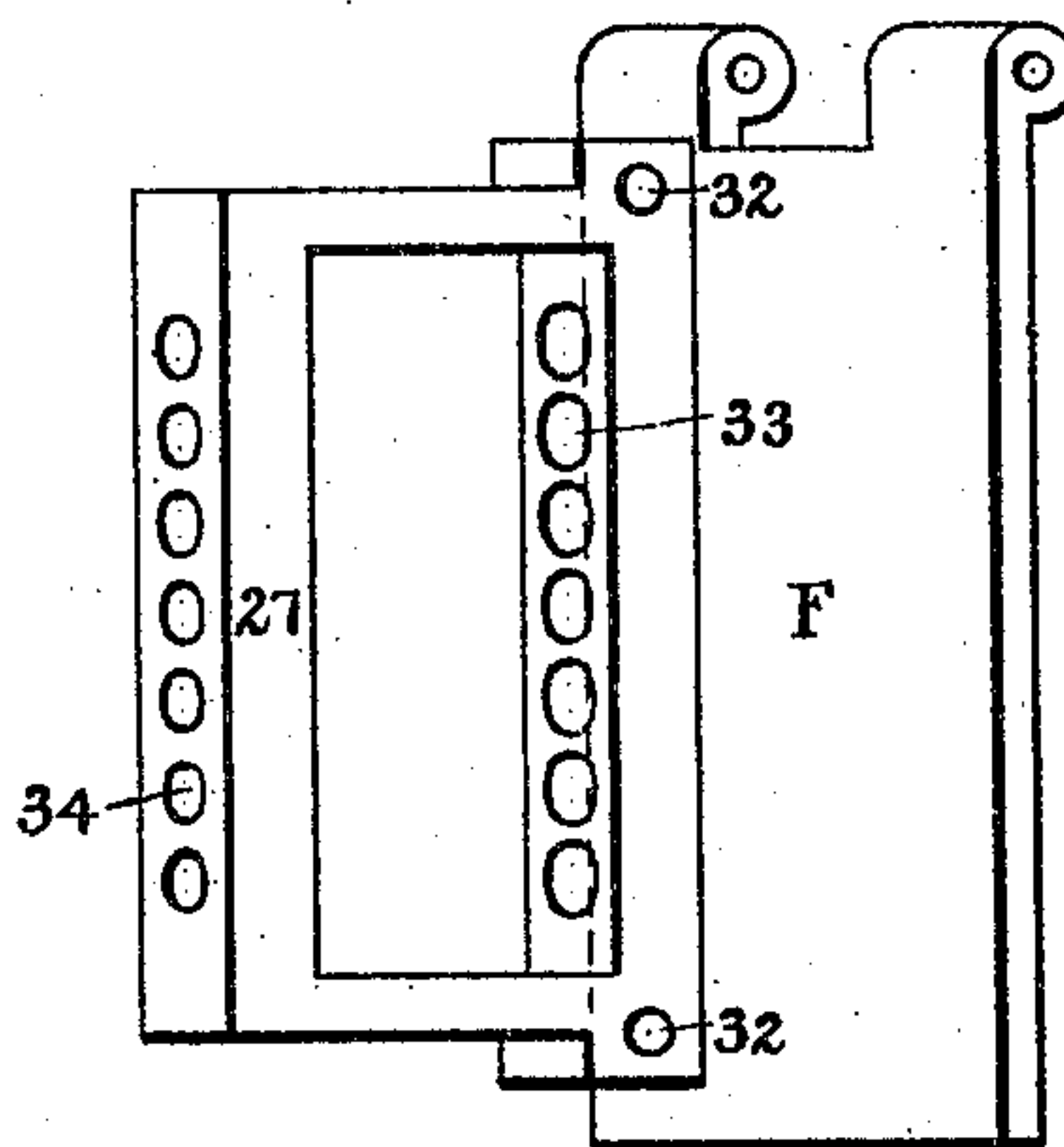


FIG. 9

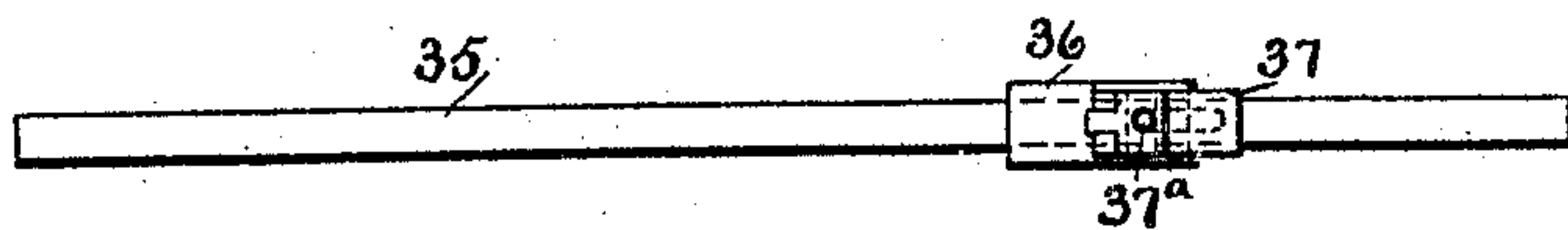


FIG. 10

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UNITED STATES PATENT OFFICE.

ISAAC A. HERMANN, OF CLEVELAND, OHIO.

TIME-DETECTOR.

SPECIFICATION forming part of Letters Patent No. 574,802, dated January 5, 1897.

Application filed March 11, 1896. Serial No. 582,714. (No model.)

To all whom it may concern:

Be it known that I, ISAAC A. HERMANN, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Time-Detectors, of which the following is a full, clear, and exact description.

My invention relates to time-detectors for use in shops, stores, yards, and various other places where watchmen are employed to patrol the works during the day or night; and it consists of the several parts and combinations of parts hereinafter fully set forth and especially claimed.

The object of my improvement is to provide a detector of the class designated above which is economical in construction, simple, accurate, and reliable in operation, and practically incapable of being tampered with by a dishonest watchman or other person. The liability of getting out of order common to many of the detectors now in use is obviated in my device, which is exceedingly strong and durable.

That my invention may be seen and fully understood by those skilled in the art reference will be had to the following specification and annexed drawings, forming a part thereof, in which—

Figure 1 is a front view of my device complete; Fig. 2, a side view of the same; Fig. 3, a front view with the door open and the dial removed; Fig. 4, a vertical section through the door on lines *xx*, Fig. 3, looking toward the lock and lance plate; Fig. 5, a horizontal section through the lower part of the device, showing one of the needles forced forward by the key; Fig. 6, an enlarged side view of the lock, showing the lance driven forward; Fig. 7, a similar view with said lance thrown back; Fig. 8, an enlarged side view of the needle and plunger bracket; Fig. 9, an enlarged perspective view of the escutcheon, and Fig. 10 an enlarged front view of one of the plungers.

Similar letters and figures of reference designate like parts in the drawings and specification.

The iron box A is secured by the screws 1 to the wooden bracket B, the heads of said screws being inside of said box and their

shanks passing through the back into the vertical part of said bracket. The box A is open in front and has the flange 2 surrounding the opening. The flange 2 is grooved to receive the bead 3, which is made, preferably, of rubber and projects a little beyond the face of said flange. The door 4, of the same size as the flanged face of the box A, is attached to one side of said box by the hinges 5 5. When the door 4 is closed and locked, it bears against the bead 3 and thereby keeps the interior of the box A free from moisture, as well as otherwise securely protecting the mechanism therein. A large annular opening is formed in the door 4, which is covered by the glass plate 6 and surrounded on the inside by the flange 7. On the inside of the door 4, in the upper left-hand corner when said door is open, is the lock-plate 8, secured to suitable lugs cast on the door. At the base of the plate 8 is the perforated extension 8^a, for the purpose hereinafter described. The flange 2 is provided at the top with the lip 2^a, extending over the top of the door 4 when closed, to still further protect the interior of the box A from the elements. The lug 9 on the door 4 serves as a handle with which to open said door.

The lock C is screwed on the inside of the box A in the upper right-hand corner, with the barrel 10 projecting through an opening in the side of said box. When the door 4 is closed and the lock-bolt 11 thrown forward, said bolt engages the plate 8 and holds said door tightly against the bead 3. The lock C may be of any suitable construction. On the inside face of the lock C is the lever 12, pivoted thereto by the screw 13. The pin 14 projects from the rear of the bolt 11 through the slot 15 in the lock C into the slot 12^a in the top of the lever 12. The lance 16 is pivoted at the rear to the lever 12, and its front end operates in the guide 17 on the lock C, said guide having the tapering opening 17^a to receive said lance. It will now be seen that when the bolt 11 is forced backward the lance 16 must be driven forward, and when said bolt is forced forward said lance is driven backward. The sharp end of the lance 16, when forward, enters the perforation in the plate extension 8^a, if the door 4 be closed,

since said extension is then adjacent to the lock C, the distance between the two being less than the length of said lance.

The needle and plunger bracket D is secured to the back of the box A and rests upon the floor thereof. The bracket D is provided with the posts 18, 19, and 20. The post 18 is on the rear of the bracket D and has the seven holes 18^a therein. The posts 19 and 20 are on the front of the bracket D and the former has the seven small holes 19^a, while the latter has the same number of tapering holes 20^a therein. The posts 19 and 20 are sufficiently remote from each other to leave the vertical opening or slot 21.

The clock E is attached by screws to the back of the box A, and the stud 22, which ordinarily carries the hour-hand, is here threaded and provided with the disk 23. The printed paper dial 24 is held between the disk 23 and the detachable disk 25, which screws onto the end of the stud 22, said dial turning with said stud in lieu of an hour-hand. The clock E is preferably an eight-day movement. The stud 22 is directly over the slot 21, and the dial 24 operates through said slot.

The dial 24 is divided by concentric lines into seven equal parts, representing the days of the week. The annular daily divisions on the dial 24 are divided by radii into twelve equal spaces, representing hours. Said hour-spaces are divided into quarters, and the latter into five-minute spaces. The post-holes 19^a are adjacent to the centers of the annular divisions on the dial 24, just described. An eighth annular division is provided inside of the others on the dial 24 and spaced to represent hours, quarters, and twelfths to serve as a guide for properly setting said dial by the pointed end of the post 19. The figures "1" to "12," inclusive, appear inside of the inner concentric line, indicating the hours, and the radiating lines are omitted from two of the quarter-spaces to permit abbreviations of the days of the week to be printed therein. The dial 24 in Fig. 1 stands at three o'clock.

The dial 24 is first placed on the stud 22, a central hole being provided in said dial to receive the end of said stud, and turned until the end of the post 19 points to the proper hour or fractional part thereof, when the disk 25 is screwed tightly over said dial against the disk 23. The door 4 is now closed and locked, but in closing said door the extension 8^a permits the lance 16 to cut the slit 26 in the dial 24 before said lance is withdrawn by the process of locking. The dial 24 is rotated by the movement of the clock E, and when the door 4 is again unlocked a new slit is cut in said dial by the lance 16, thus exposing any attempt of the watchman to open said door. The watchman is not supposed to have a key to the lock C or to open the door 4 for any purpose whatever, and any lance-cuts in the dial 24 not made by the proper person while placing said dial in position or removing the same must indicate

that an unauthorized person has opened said door.

The escutcheon F has the frame 27, extending through the side of the box A, the shutter 28, hinged to the top of said escutcheon, and the staple 29. The shutter 28 is perforated at the bottom to receive the staple 29, and the padlock 30, pendent from said staple, secures said shutter in a closed position over the face of the escutcheon F. The escutcheon F is made fast to the box A by means of the pins 31 31, passing through the holes 32 32 in the frame 27. The seven large holes 33 appear in the escutcheon F, corresponding in number to the days of the week, and the seven small holes 34 in the inner vertical part of the frame 27, the latter being of the same size as the holes in the post 18. The centers of the corresponding holes in the posts 18, 19, and 20 and the escutcheon F and frame 27 are substantially in the same horizontal plane. The watchman has a key to the padlock 30. The names of the days of the week are stamped on the face of the escutcheon F.

The seven plungers 35 rest loosely in the post-holes 18^a and the frame-holes 34. Each plunger 35 has the sleeve 36 rigidly secured thereto, to the front of which is pivoted the block 37. Each block 37 has the hole 37^a therein to receive the base of the curved needle 38, said needle being fast to said block at one end and having its opposite or pointed end normally resting in the corresponding post-hole 20^a. The plungers 35 are normally held with the sleeves 36 against the frame 27 by means of the spiral springs 39, encircling said plungers between said sleeves and the bracket-post 18. The left-hand ends of the plungers 35 are somewhat remote from the corresponding side of the box A, and the pointed ends of the needles 38 rest only in the holes 20^a, as before stated, when not under the influence of the key 40. The dial 24 is punctured at the proper hour or fractional part thereof by the watchman, who unlocks and removes the padlock 30, lifts the shutter 28, and inserts the key 40 into one of the holes 33.

The key 40 (shown broken off in Fig. 5) is employed to actuate any given plunger 35 against the resiliency of its spring 39 and cause the needle 38 to be forced forward until the point enters the post-hole 19^a, thereby puncturing the dial 24 at the point in the slot 21 between the holes 19^a and 20^a through which said needle is operating. The key 40 has the shank 41, which enters any given hole 33 to engage the end of the corresponding plunger 35, and shoulder 42 to limit the entrance of said shank by coming in contact with the face of the escutcheon F. The movement of the plungers 35 is directly limited by the side of the box A.

By inserting the key-shank 41 into the escutcheon-hole 33 corresponding to the right day of the week, at the proper hour or fractional part thereof, and actuating the abut-

ting plunger 35 with coacting parts, it will be readily understood from the foregoing explanation that the exact time of the operation is recorded on the dial 24, the spring 39 on 5 said plunger returning the same to its normal position when the key is withdrawn. The glass 6 in the door 4 causes the dial 24 to be exposed at all times, so that the watchman cannot puncture said dial, except on the 10 proper day of the week, without being detected. The flange 7 on the door 4 not only serves to stiffen said door, but prevents any thin instrument which might be inserted between the edge of the box A and the door 15 from reaching the dial 24 to protect it from the lance 16.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In combination with a time-detector, a 20 door-lock, the lever 12 pivoted thereto and having the slot 12^a, the pin 14 projecting from the lock-bolt into said slot, the lance 16 pivoted at the rear to said lever, and the perforated guide 17 depending from said lock to 25 receive the free terminal of said lance, substantially as and for the purpose set forth.

2. The combination in a time-detector, of a box, a door-lock therein, a door hinged to said box, the lock-plate 8 and perforated ex- 30 tension 8^a secured to said door adjacent to said lock when said door is closed, the lever 12 pivoted to said lock and having the slot 12^a, the pin 14 projecting from the lock-bolt into said slot, the lance 16 pivoted at the rear 35 to said lever, and the perforated guide 17 depending from said lock to receive the free terminal of said lance, substantially as and for the purpose set forth.

3. The combination in a time-detector, of 40 a box, a door-lock therein, a door hinged to said box, the lock-plate 8 and perforated extension 8^a secured to said door adjacent to said lock when said door is closed, a rotary dial in said box between said lock and exten- 45 sion, the lever 12 pivoted to said lock and having the slot 12^a, the pin 14 projecting from the lock-bolt into said slot, the lance 16 pivoted at the rear to said lever, and the perforated guide 17 depending from said lock to 50 receive the free terminal of said lance, the latter adapted to pierce said dial during the operation of closing said door or unlocking

the same, substantially as and for the purpose set forth.

4. The combination in a time-detector, of 55 a box, a lock therein, a lance operated by the lock-bolt, a door hinged to said box having a glass-covered opening surrounded by an inside flange, and a lock-plate and perforated extension on said door to receive said bolt 60 and lance, substantially as and for the purpose set forth.

5. The combination in a time-detector, of a box, a perforated escutcheon on one side thereof having a perforated frame extending 65 into said box, a bracket secured within said box provided with one rear and two front perforated posts, having a narrow space or slot between the latter, having perforations in said escutcheon, frame and posts correspond- 70 ing in number to the days of the week, a series of spring and key actuated plungers operating in the perforations in said rear post and said frame, sleeves fast on said plungers, blocks pivotally connected to said sleeves, 75 and needles carried by said blocks with their pointed ends operating in the perforations in said front posts, substantially as and for the purpose set forth.

6. The combination in a time-detector, of 80 a box, a perforated escutcheon on one side thereof having a perforated frame extending into said box, a bracket secured within said box provided with one rear and two front per- 85 forated posts, having a narrow space or slot between the latter, having perforations in said escutcheon, frame and posts corresponding in number to the days of the week, a series of spring and key actuated plungers op- 90 erating in the perforations in said rear post and said frame, needles coacting with said plungers, the pointed ends of said needles operating in the perforations in said front posts, a clock-movement in said box, and a 95 dial attached to said movement and rotating through said slot, substantially as and for the purpose set forth.

In testimony whereof I affix my signature in presence of two witnesses.

ISAAC A. HERMANN.

Witnesses:

F. A. CUTTER,
H. S. SPRAGUE.