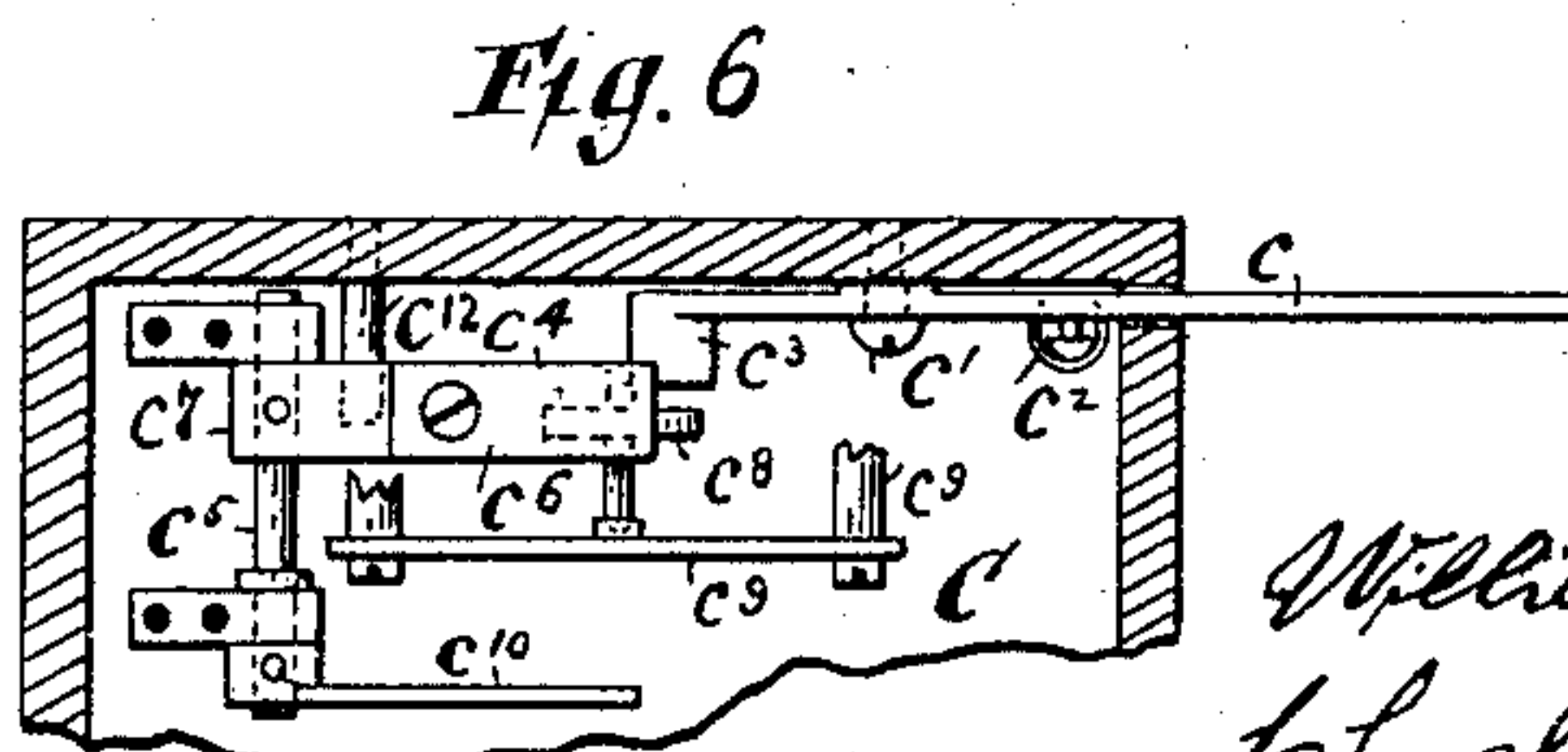
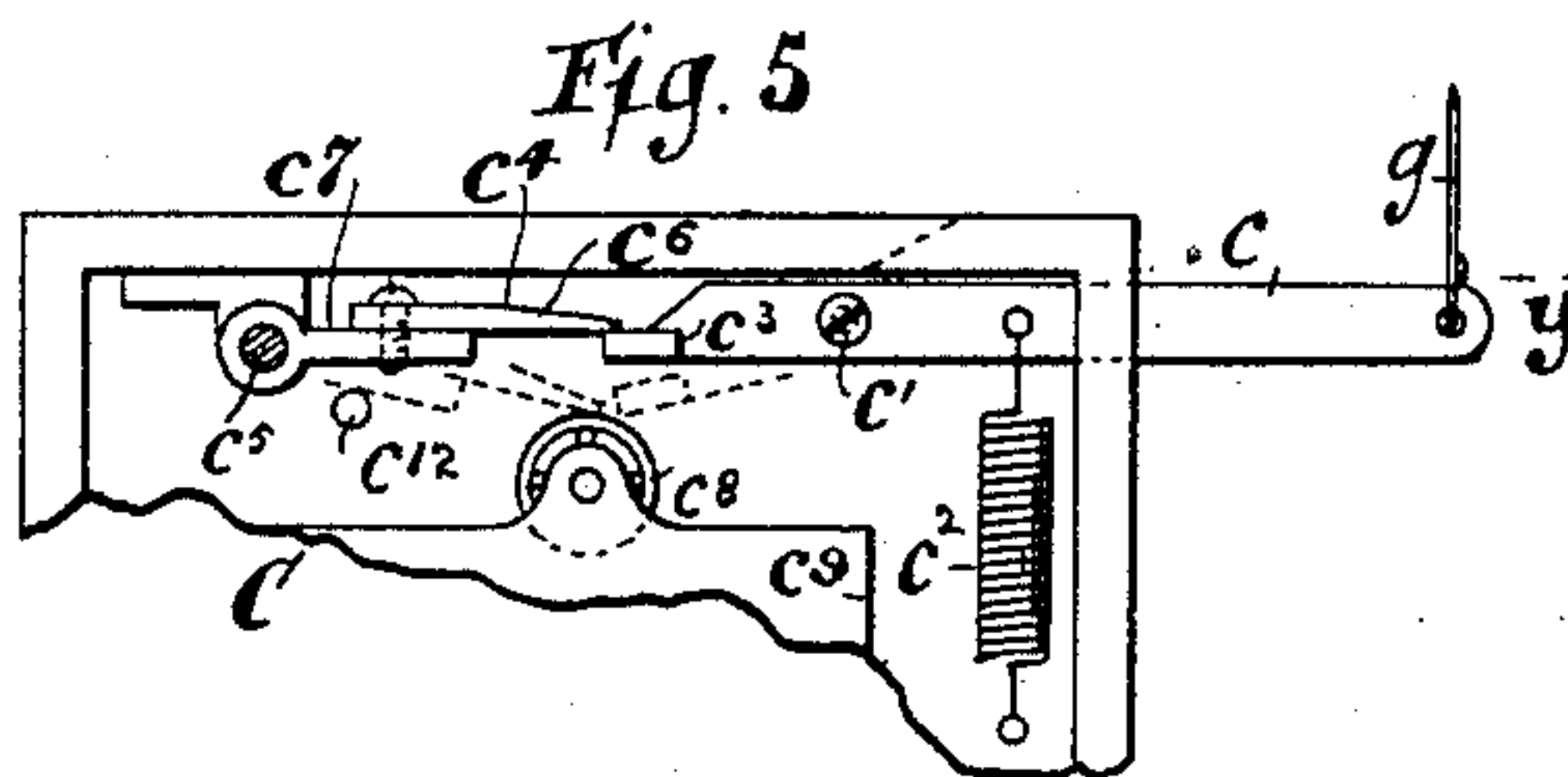
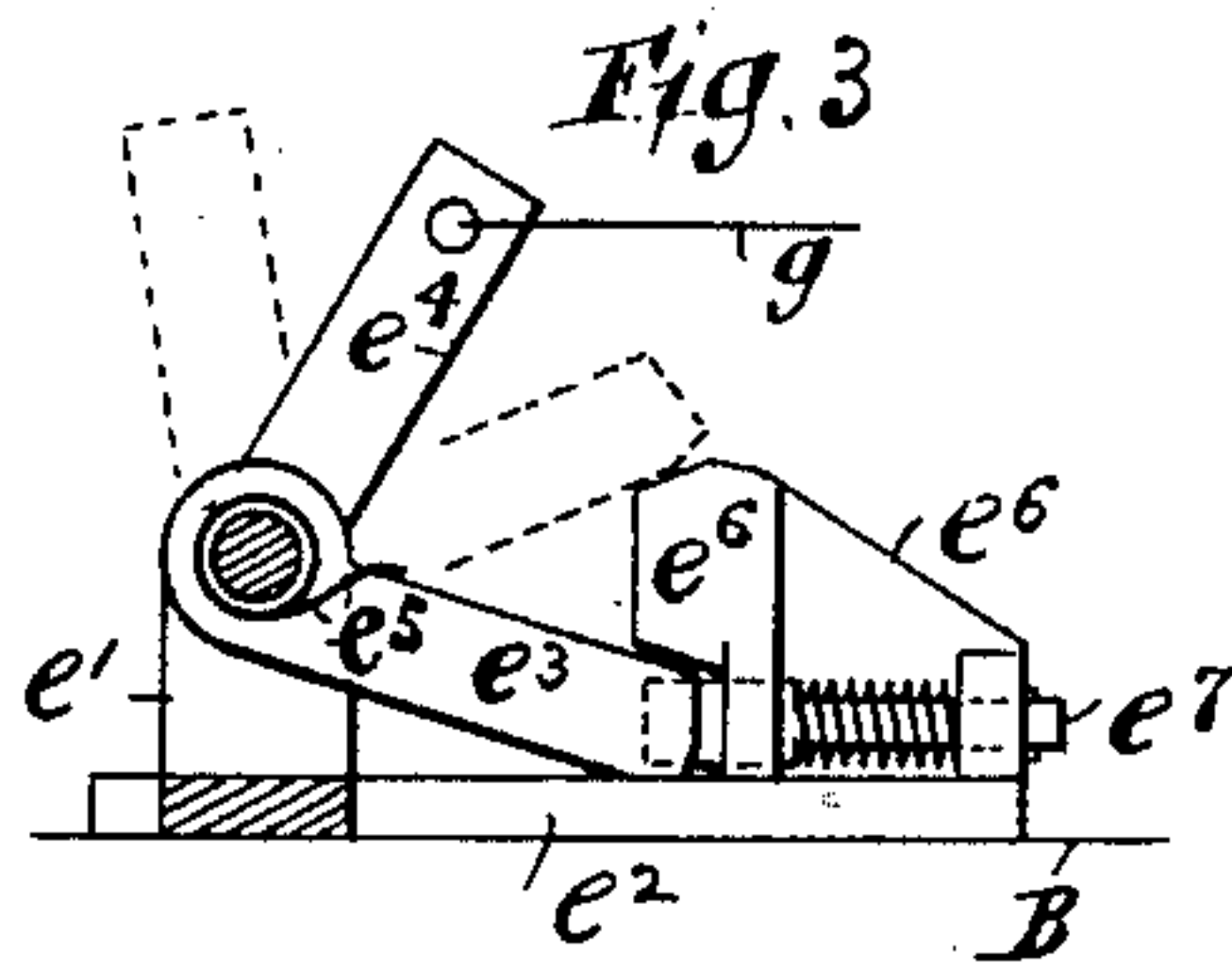
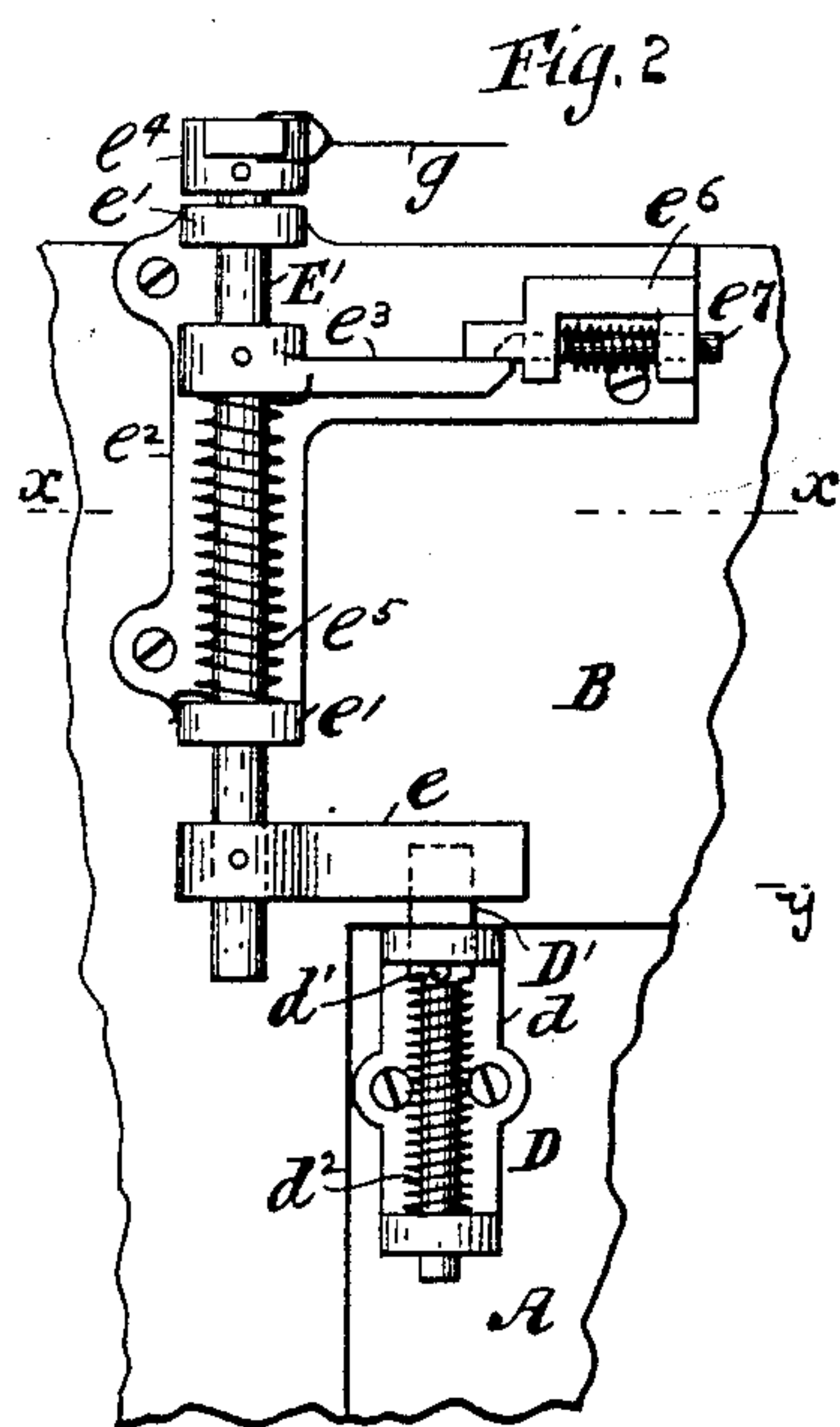
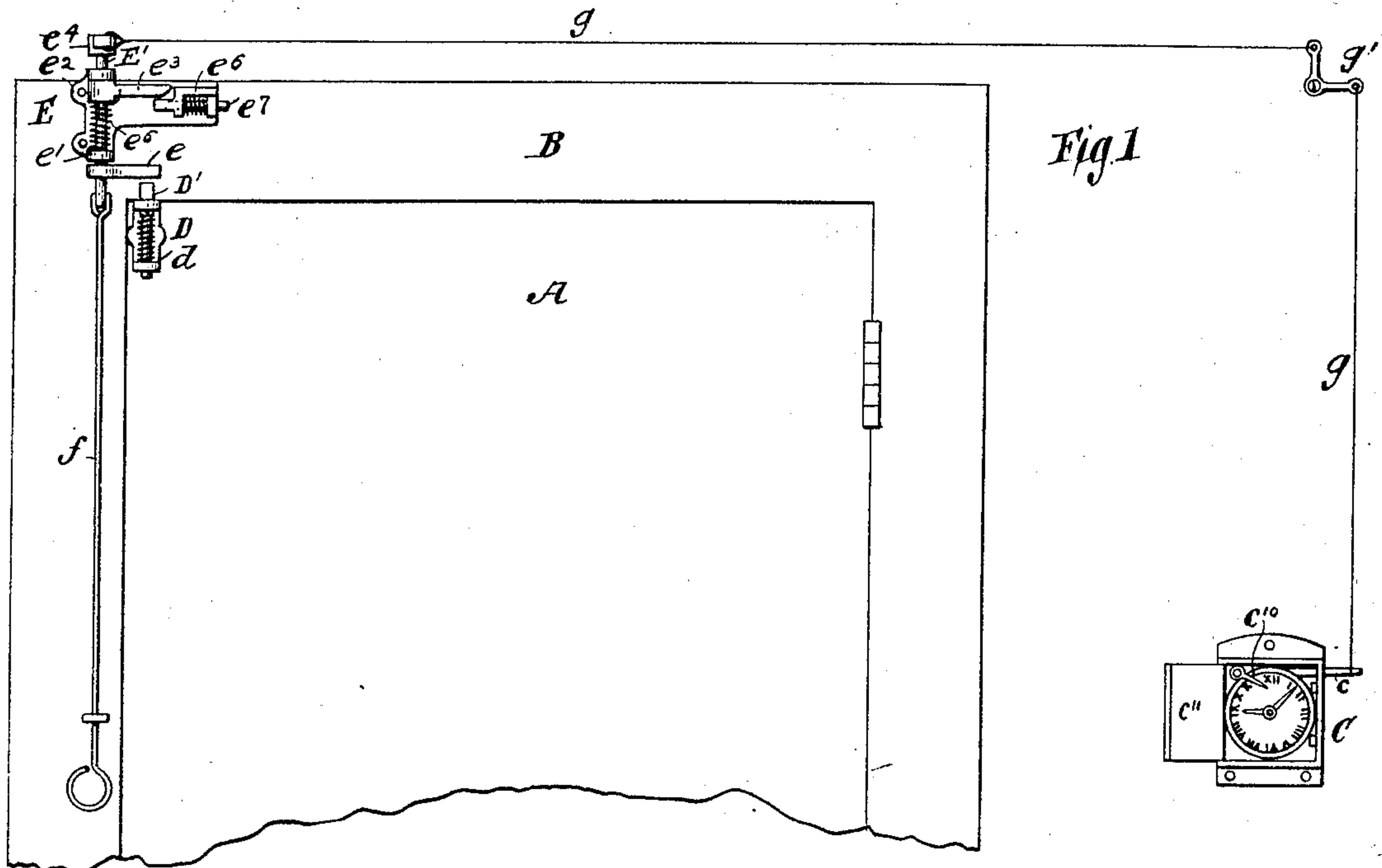


(No Model.)

W. LIDDELL & C. J. DILLON.
AUTOMATIC TIME DETECTOR.

No. 435,435.

Patented Sept. 2, 1890.



Witnesses
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UNITED STATES PATENT OFFICE.

WILLIAM LIDDELL AND CHARLES J. DILLON, OF BROOKLYN, NEW YORK.

AUTOMATIC TIME-DETECTOR.

SPECIFICATION forming part of Letters Patent No. 435,435, dated September 2, 1890.

Application filed December 19, 1889. Serial No. 334,333. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM LIDDELL and CHARLES J. DILLON, of the city of Brooklyn, county of Kings, and State of New York, have invented a new and useful Improvement in Automatic Time-Detectors, of which the following is a specification.

The object of our invention is to provide an automatic time-detector that will indicate whether and at what time an employé or other person having means of access may have entered a store or other building surreptitiously during the night or in the absence of the proprietor, and also indicate at what time an employé may have arrived for business during the morning.

In the drawings, Figure 1 is a front view of time-detecting mechanism embodying our improvement. Fig. 2 is an enlarged front view of mechanism shown in Fig. 1 and operated by the opening of a door. Fig. 3 is a section on the line $x x$, Fig. 2, and looking upward. Fig. 4 is a side view of the parts shown in Fig. 2. Fig. 5 is a front view of the upper portion of the clock-case and parts of a clock, and showing certain portions of our improvement applied thereto. Fig. 6 is a horizontal section on the line $y y$, Fig. 5.

Similar letters of reference refer to corresponding parts in the several figures.

A designates an ordinary door, and B is a door-frame.

C denotes an ordinary clock, containing mechanism for stopping the motion thereof, and which may be secured to the wall adjacent to the door, as shown in the drawings, or be arranged in a main office or other desirable location, and connected to the door mechanism D and E by means of wires g and bell-cranks g' .

D' is a bolt sliding freely in lugs extending from a plate d secured to the door. It is held normally in an upward position against a pin-stop d' by a coil-spring d^2 , and has its upper extremity beveled and adapted to be pushed downwardly on passing a corresponding beveled portion of an arm e when closing the door.

E' is a shaft mounted to slide and rock freely in lugs e' , extending from a plate e^2 , secured to the door-frame B. To this shaft is secured arms e , e^3 , and e^4 , the former of

which is adapted to engage with the bolt D' and be rotated on opening the door.

e^5 is a coil-spring having one of its ends resting on the arm e^3 and its other end resting against the side of the lug e' , and tends to impart vertical movement to the shaft, and also rotary movement thereto in a direction to cause the extremity of the arm e^3 to rest on the plate e^2 .

The arm e^4 is provided with an eye, and to which is connected a wire extending to the clock-stopping mechanism hereinafter described.

e^6 is a projection extending from the plate e^2 , and serves as a stop to the vertical movement of the shaft E' until rotated sufficiently by the door for the arm e^3 to clear the top of the same, as shown dotted in Fig. 3, when the shaft is impelled vertically by the spring and the arm e^2 caused to rotate until it again rests on the plate e^2 above the projection e^6 , during which movement the clock-stopping mechanism is operated and the arm e also moved up out of engagement with the bolt D', whereby the door can be opened thereafter without affecting the parts, as shown in Fig. 1. In order to restore these parts for operation we provide the stop projection e^6 with a notch or opening at its base sufficient to admit of the downward movement of the arm e^3 , and a spring-dog e^7 fitted to slide in and close the opening against the upward movement through it of the said arm. The extremity of the dog e^7 is beveled and adapted to be pushed rearwardly by a corresponding beveled portion of the arm e^3 during its downward movement.

f is a wire passing through a staple and connected to the shaft E', and is provided with a loop within suitable reach to set the parts for use.

c is a lever pivoted between its ends at c' to the rear side of the clock-casing and having its outer arm free to be rocked upwardly through a slot in the case. This end when released is drawn down and held normally against the bottom of the slot, which serves as a stop, by a spring c^2 . The inner arm of this lever is provided with a flat portion c^3 , upon which rests the free end of an arm c^4 , secured to a rock-shaft c^5 , working in bearings attached to the case. This arm c^4 is com-

posed of a flexible end portion c^6 —such as rubber—secured to a metal portion c^7 by screws or otherwise, and is adapted to rotate and rest on an escapement-wheel c^8 of the clock and stop its further motion.

c^9 is a portion of the ordinary frame-work of a clock, and secured to the case in the usual manner.

When that end of the lever c projecting outside the case is raised by the opening of a door acting on the foregoing-described mechanism D and E, the free end of the arm c^4 is allowed to descend and move out of contact with the support c^3 , thereafter falling and resting on the periphery of the escapement-wheel c^8 , where it remains unaffected by the upward return movement of the support c^3 , and thereby any tampering with the lever c to set the clock going will be futile.

The rock-shaft c^5 is provided with an arm c^{10} projecting in front of the clock-face conveniently for restoring the arm c^4 on its support c^3 , which arm by reason of its flexible extremity yields sufficiently, when forced, to pass from the lower to the upper side of said support and rest thereon until released in the manner described.

The door c^{11} of the clock-case is provided with a key or combination lock to prevent access thereto by unauthorized persons.

c^{12} is a stop-pin to limit the downward motion of the arm c^4 .

Having now described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. The combination, with the door A, frame B, clock-stopping mechanism and releasing device E, of the actuating device D, consisting of a bolt D' , fitted to slide in lugs on the base-plate d , secured to the door and held normally in an upward position against a stop-pin by a coil-spring, the upper end of the bolt being beveled to permit its passing under a corresponding beveled portion on an arm e of the releasing device E while the door is being closed, and to abut against and rotate the said arm on the door being opened, substantially as described.

2. The combination, with the door A, frame B, clock-stopping mechanism, and the actuating device D, of the releasing device E, consisting of the shaft E' , fitted to slide and ro-

tate in lugs on the base-plate e^2 , secured to the frame B and having an arm e secured thereto, arranged to be rotated by the bolt D' on opening the door, another arm e^3 , held normally against the base-plate and the stop projection e^6 thereof, when in use, by the spring e^5 , and adapted to be impelled vertically over the said projection and downwardly beyond the same by means of the said spring on being rotated in unison with the arm e , the shaft E' having also an arm e^4 , connected with the clock-stopping mechanism, and arranged to operate the same, substantially as described.

3. The combination, with the releasing device E, of the stop portion e^6 , having an opening at its base, and a spring-actuated dog fitted to slide therein and adapted to be moved rearwardly by the downward movement of the arm e^3 , and the shaft E' , having a wire connected thereto and extending within reach for adjusting the parts of said releasing device for use, substantially as described.

4. In automatic time-detecting mechanism, the combination, with the clock C, of the rock-shaft c^5 , mounted to turn loosely in bearings attached to the clock-case and having an arm c^4 secured thereto, provided with a rubber end portion arranged to descend and rest on the escapement-wheel of the clock and stop its further motion, and having another arm c^{10} projecting in front of the clock-face for raising the said arm on the support c^3 , substantially as described.

5. The combination, with the devices D and E, connections $g g'$, and clock C, of the lever c , pivoted between its ends to the clock-case, one end thereof projecting beyond the case and held normally against a stop by the spring c^2 , and its other end having the flexible extremity of the arm c^4 resting thereon and arranged to be rocked downwardly by means of the said door-operated device E to permit the arm c^4 to descend out of contact therewith and fall on and arrest the further motion of the escapement-wheel of the clock, substantially as described.

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Witnesses:

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