

(Model.)

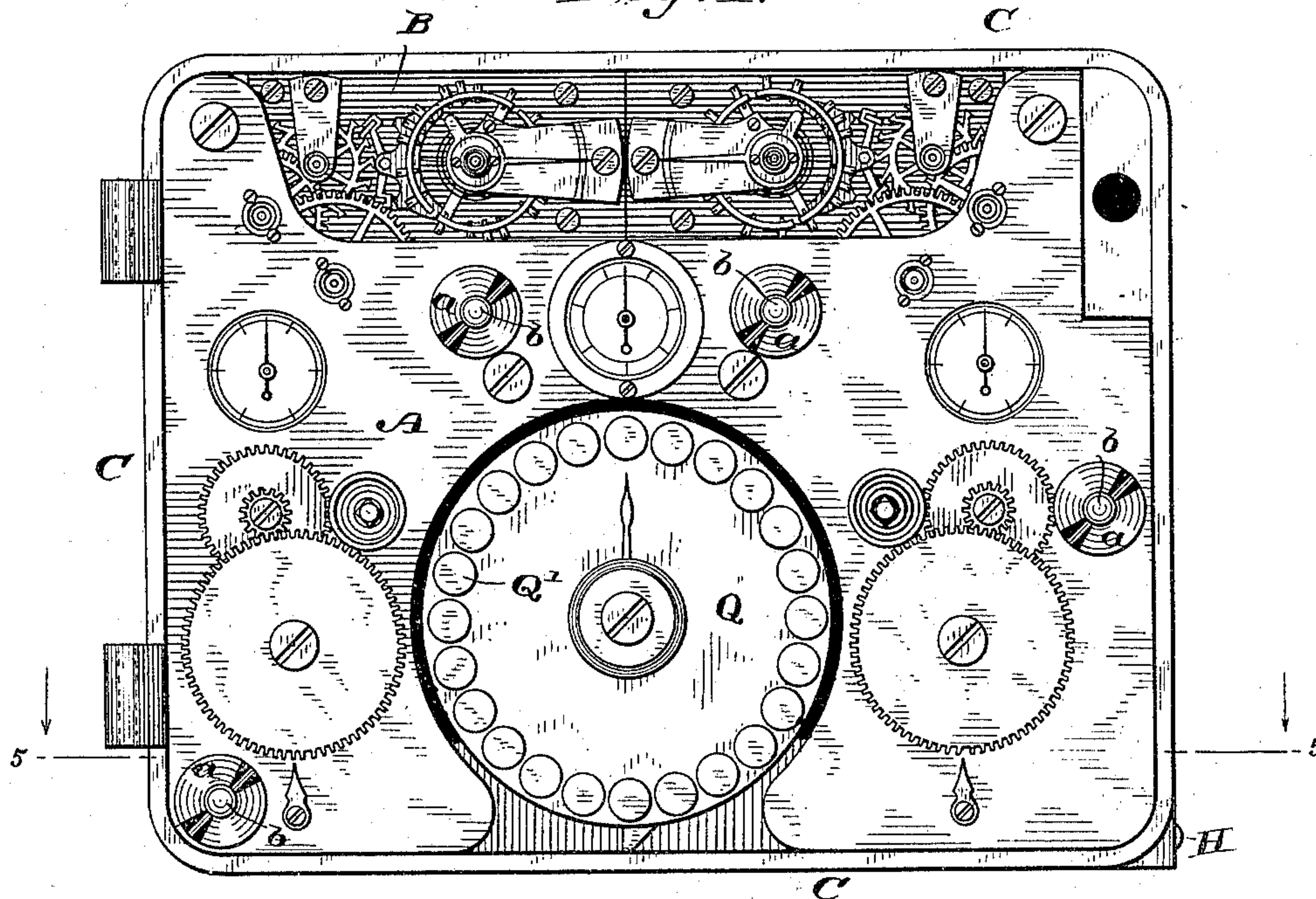
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E. STOCKWELL.  
TIME LOCK.

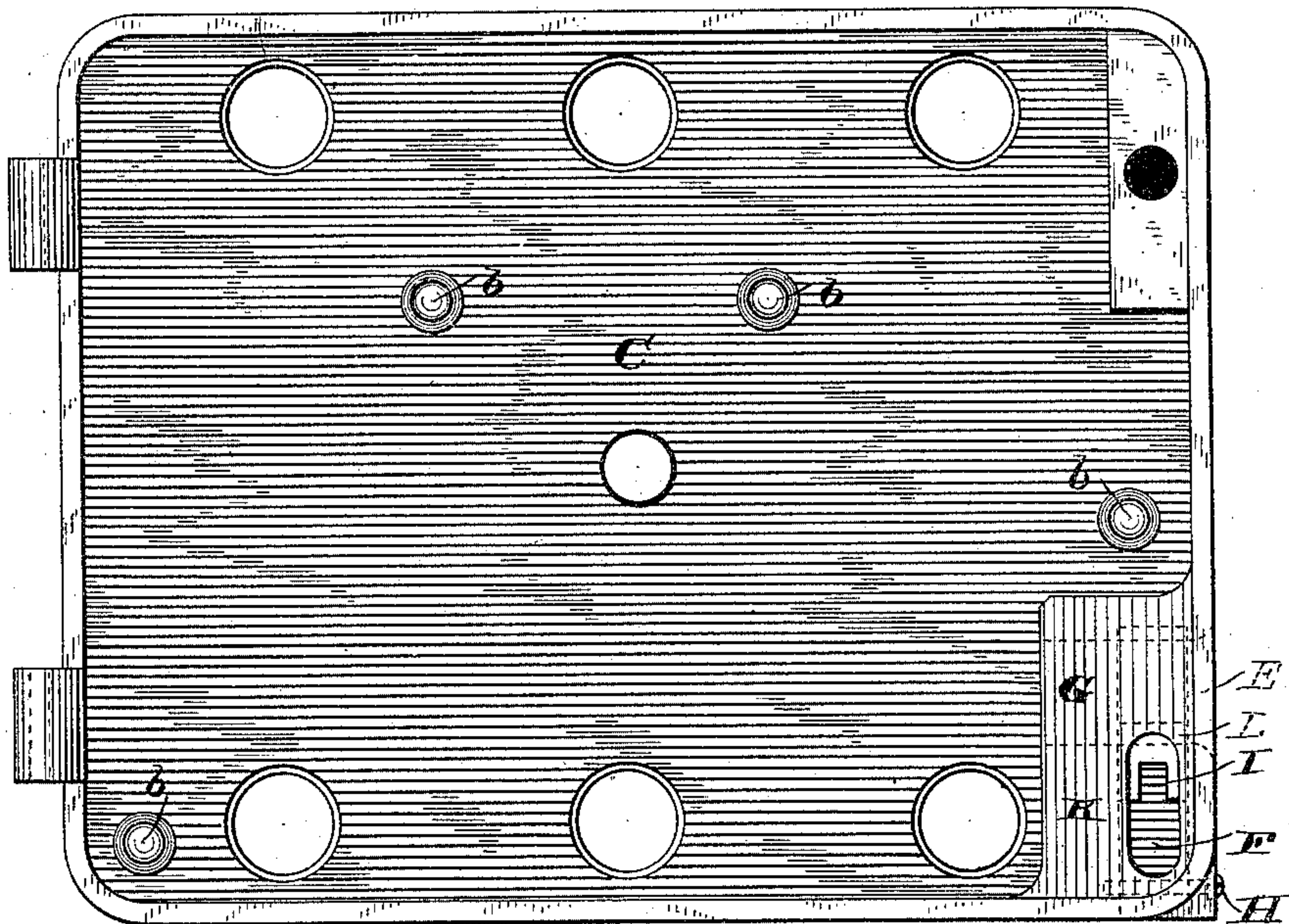
No. 312,925.

Patented Feb. 24, 1885.

*Fig. 1.*



*Fig. 2.*



WITNESSES

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INVENTOR

*Emory Stockwell,*

*By his Attorneys*

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(Model.)

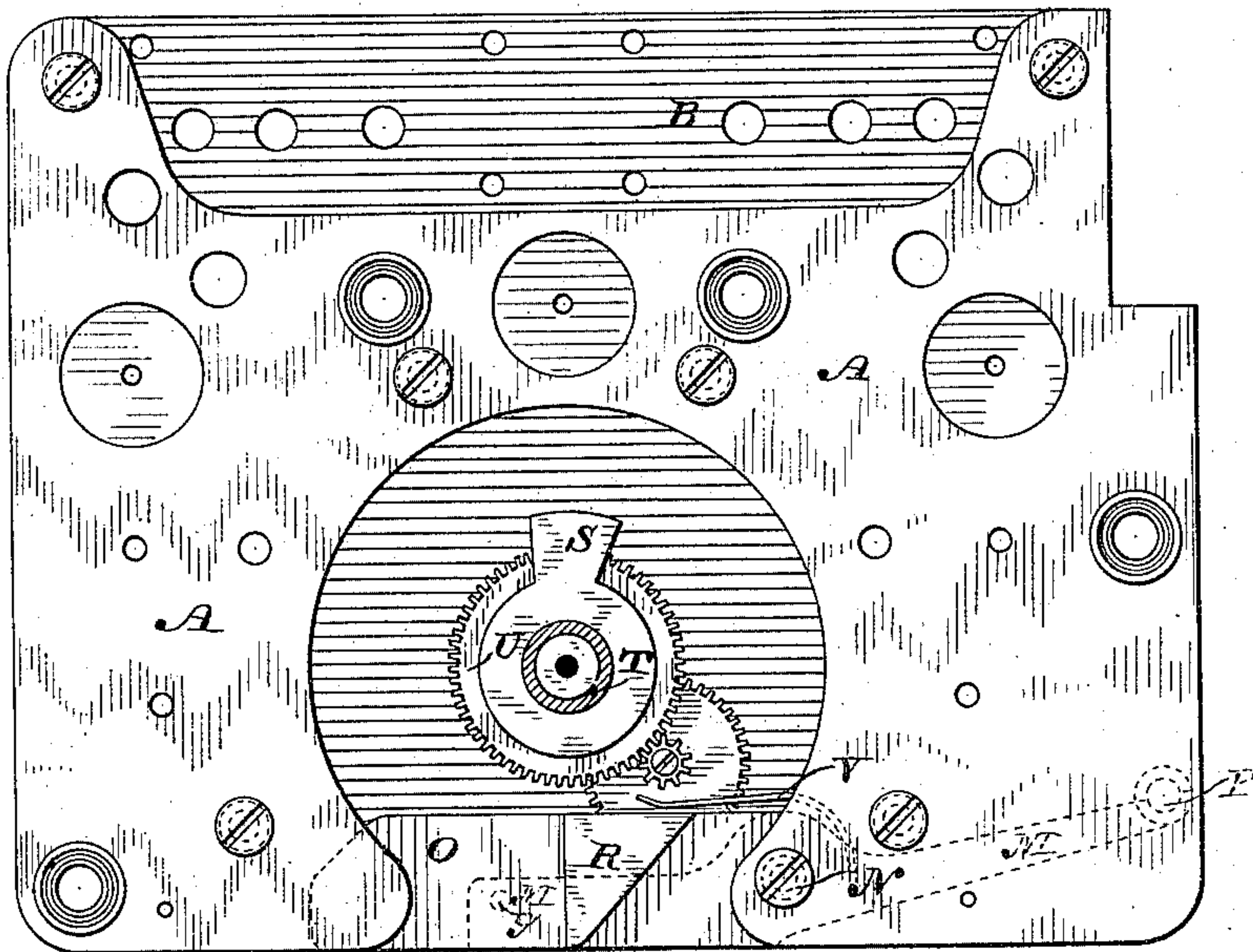
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TIME LOCK.

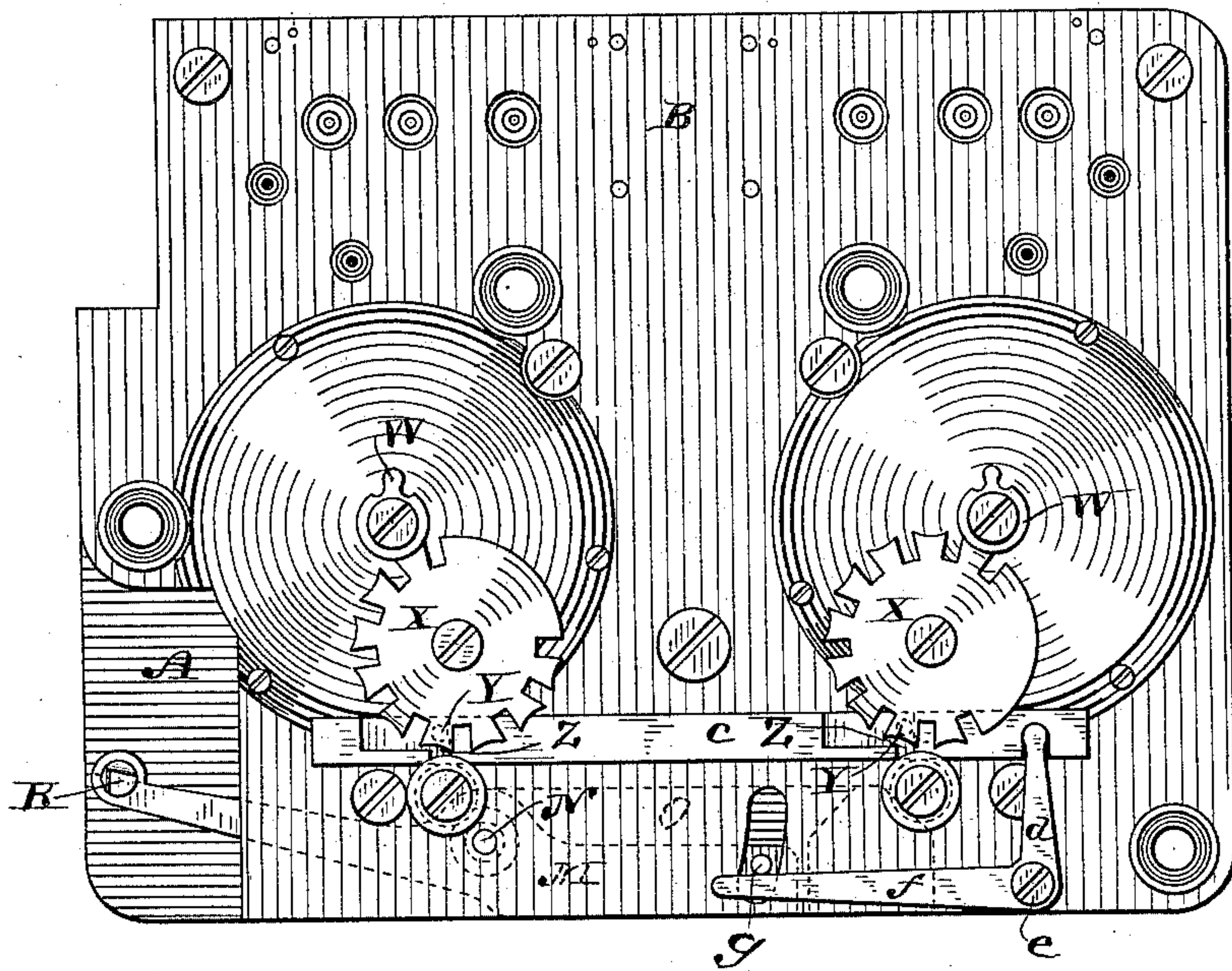
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*Fig. 3.*



*Fig. 4.*



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(Model.)

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E. STOCKWELL.  
TIME LOCK.

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Fig. 5.

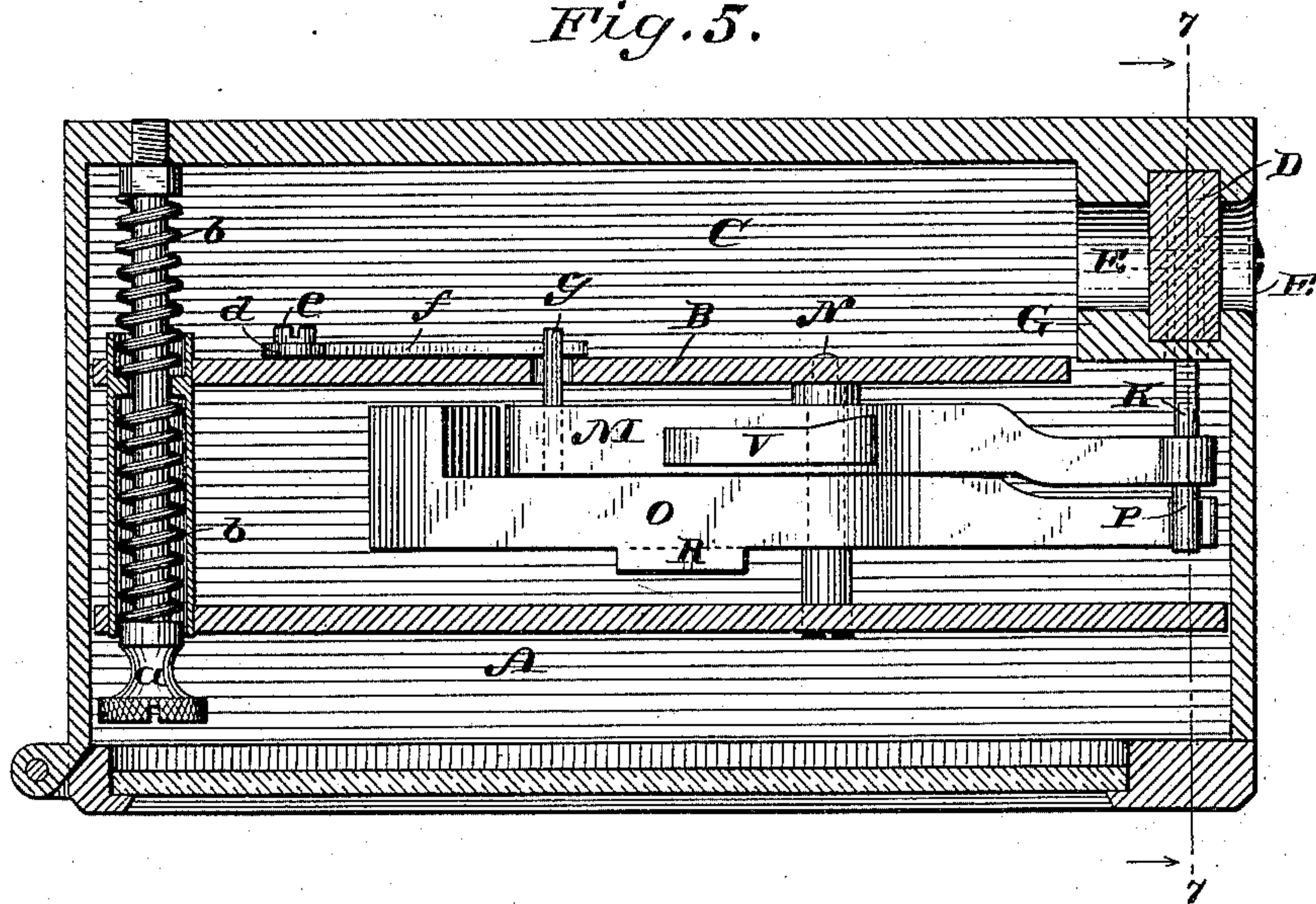


Fig. 6.

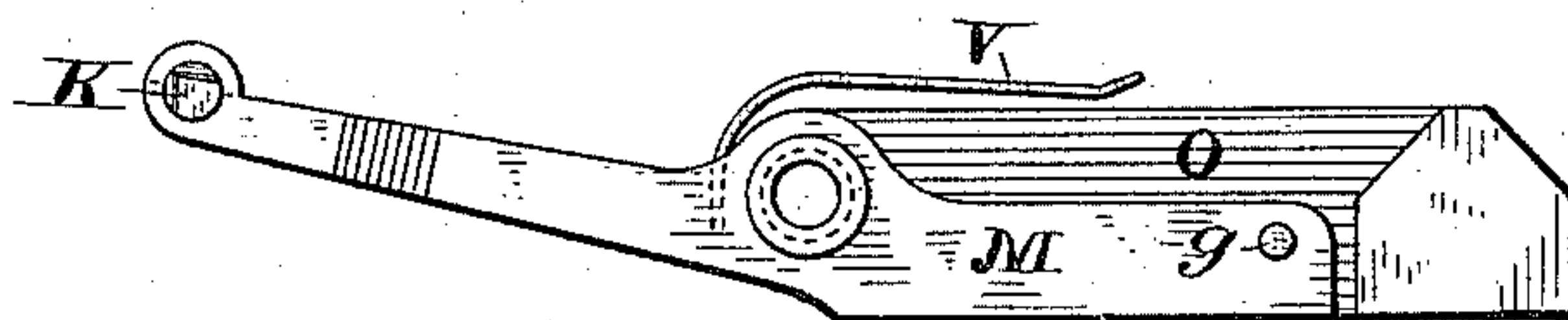
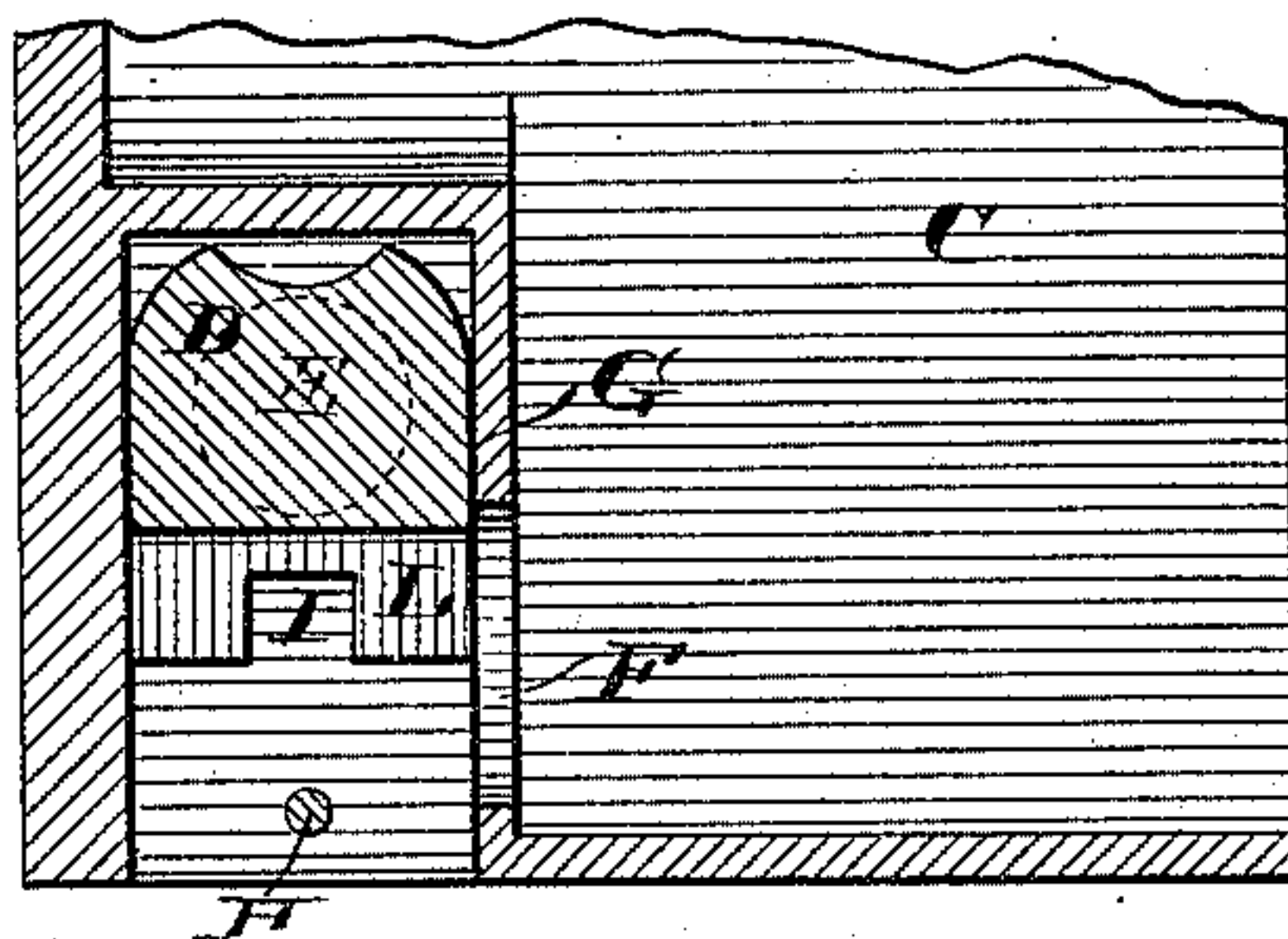


Fig. 7.



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(Model.)

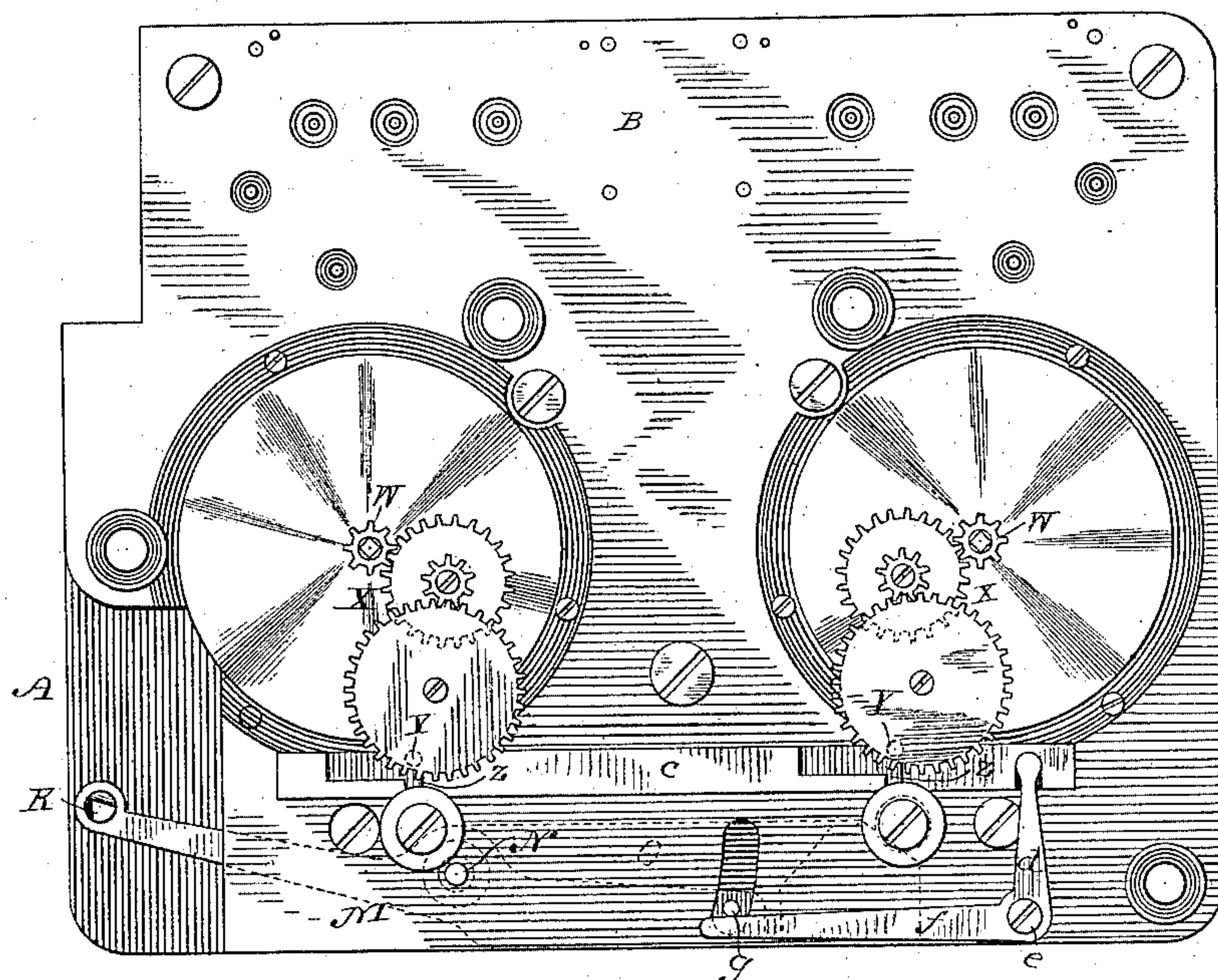
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E. STOCKWELL.  
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*Fig. 8.*



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# UNITED STATES PATENT OFFICE.

EMORY STOCKWELL, OF STAMFORD, CONNECTICUT, ASSIGNOR TO THE YALE  
& TOWNE MANUFACTURING COMPANY, OF SAME PLACE.

## TIME-LOCK.

SPECIFICATION forming part of Letters Patent No. 312,925, dated February 24, 1885.

Application filed August 15, 1884. (Model.)

*To all whom it may concern:*

Be it known that I, EMORY STOCKWELL, of Stamford, in the county of Fairfield and State of Connecticut, have invented certain new and  
5 useful Improvements in Time-Locks, of which the following is a specification, reference being had to the accompanying drawings, in which—

Figure 1 is a front elevation of the lock-case and lock mechanism with the hinged door re-  
10 moved. Fig. 2 is a front elevation of the lock-case with the time mechanism and operative parts removed. Fig. 3 is a front elevation, some of the parts being omitted, of the operative parts of the lock removed in a body from  
15 the case. Fig. 4 is a back view of the same. Fig. 5 is a section on the line 5 5 of Fig. 1. Fig. 6 is a view of the levers detached. Fig. 7 is a section on the line 7 7 of Fig. 5. Fig. 8 is a view of a train of gears adapted to move  
20 the supplemental unlocking mechanism; but I prefer the devices shown in Fig. 4 for that purpose.

My improvements are shown as applied to a time-lock of the kind heretofore invented by  
25 me and shown in several United States Patents, numbered, respectively, 168,062, 173,366, 186,177, 206,146, 290,609, 293,815, and 293,816.

The objects of my improvements are, first, to provide a simple novel construction by  
30 which a time-lock can be easily attached to a door of a safe or vault and with little or no liability to mistake or derangement of its parts; second, to provide an improved locking device and Sunday attachment; and, third,  
35 to provide an improved supplemental unlocking device.

Heretofore more or less trouble has arisen in the application of time-locks to depositories of valuables from the fact that they have  
40 been so constructed as to require the delicate and somewhat complicated operative mechanism of the locks connected with the time-movements to be more or less displaced or disturbed in applying the locks, and skilled  
45 workmen have been required in order to apply such locks to avoid the bungling and injury liable to occur otherwise. In order to overcome this difficulty and provide for the convenient attachment of a lock to the door of  
50 a safe or vault, I make the time-movements and locking mechanism all complete, and at-

tach them firmly to the plates A and B, so that the whole can be placed in or removed from the case C together in a body by simply manipulating four thumb-screws, *a*, which hold  
55 the works in place upon the four screw-studs *b* in the case. When the delicate works of the time-lock are thus removed in a body from the case, it will be left clear and ready to be bolted to a door of a safe by any ordinary mechanic,  
60 as no parts of the time mechanism or locking mechanism are displaced or unfastened in any way. In taking them thus bodily from the case, with the plates which support them, there is no danger of any unskillful work-  
65 man deranging the lock while attaching it to the door, and after the case is bolted in place the plates carrying all the said operative mechanism can be bodily placed back in the case and secured by the thumb-screws *a*. 70

Referring to my improved locking device and Sunday attachment, D indicates a sliding bolt or dog, which moves back and forth over and away from the bolt-opening E in one end of the lock-case. This dog works in a pocket  
75 or recess, F, cast within a metal block, G, formed integral with the case; and is slipped into this recess from the bottom of the case, and is prevented from coming out by a screw, H. This dog is provided with a longitudinal  
80 slot or opening, I, to receive an arm or projection, K, which serves to move it into the locked position or over the bolt-opening E, and then to permit it to fall by gravity at the  
85 proper time into the unlocked position or away from the bolt-opening E. The dog also has a transverse slot or opening, L, of less depth, to accommodate the screw or stop H. The longitudinal slot or opening I is preferably  
90 made larger than the arm K, so that the latter will fit loosely in it, in order that any strain applied to the bolt-work of the safe and communicated to the dog D will not be transmitted to the time-movements or to any of the  
95 delicate operating mechanism of the lock. Any such strain will be transmitted directly to the lock-case, as a whole, through the strong block G, substantially as has been done heretofore, however. This construction is an  
100 important protection to the time-lock mechanism, and furnishes a very reliable security for maintaining the bolt-work in the locked



position, because the whole strength of the case and its fastenings are utilized to resist the thrust of the bolts, and no possible pressure can come on the time-movements or other operative mechanism of the time-lock proper; but, as already indicated, I do not claim it to be new.

M indicates a balanced lever, pivoted at N, to which the dog-lifting arm K, already referred to, is securely fixed at one end, as shown. O indicates another lever, pivoted upon the same pivot, and weighted at its inner end. This weighted lever O bears at its outer end upon the under side of a projection, P, which is an inward continuation of the arm K. The result is that the weight upon the lever tends to keep the outer ends of both levers and the arm K elevated, so that normally the dog D will be lifted by the arm K into the locked position by the overbalancing force of gravity exerted upon the weighted end of the lever O. The tendency of the lock is therefore to always remain locked.

Without describing the time mechanism and the dial mechanism, which are old, it will be understood by those familiar with this art, and particularly by reference to my above-mentioned patents, that the dial Q is rotated by the time mechanism, and that its adjustable pins Q' are to be properly set so that they will make proper engagements by the rotation of the dial with the locking mechanism. A suitable number of these pins being supposed to be pushed in and another suitable number being supposed to be projecting out to their full extent from the face of the dial, the pins pushed in will engage, in the course of their revolution in my present improved lock, with an inclined projection, R, on the face of the lever O, and at the proper time will lift the weighted end of this lever, which takes away the support from the balanced lever M, and permits the dog D to fall into the unlocked position, away from the bolt-opening E, so that the bolt-work of a safe can be properly retracted to permit the opening of the door. This will occur at the proper time for which the adjustable pins in the dial are set—as, for example, at seven o'clock in the morning. The time-movements being wound daily, except Sundays, this action will occur six days in a week. It will also occur on Sunday so far as the lever O is concerned, because the time-movements employed will always run at least seventy-two hours, and every revolution of the dial will raise the lever O; but as it is not ordinarily desirable to have the time-lock operate to unlock on Sundays, I provide a seven-day cam, S, upon the dial-sleeve T, and connected with a gear-wheel, U, loose upon said sleeve, and geared with the time mechanism in such a manner that the cam will, once in seven days, be rotated into contact with a spring, V, secured to the lever M, and of sufficient strength to overcome the weight of the dog D, but not to stop the time-movements. The result is

that on every Sunday morning, for example, when the time-lock would be otherwise unlocked, as above described, by the working of both the levers M and O the cam S, impinging against the spring V, will prevent the lever M from being moved with the lever O by the operation of the dial; consequently the arm K will not be depressed, and the dog D will not fall into the unlocked position. As the time-movements proceed the spring will yield and allow the cam to pass beyond it. The cam can, as in my Patent No. 206,146, be set so as to operate to prevent the lock from unlocking on a holiday, or at any time when it may be desired to so operate.

The object of using a yielding spring, V, instead of a rigid piece is that in case the time-movements should happen to run down while the Sunday device is in operation, then the action of the supplementary unlocking device would overcome the force of the spring and unlock the lock.

The foregoing construction of dog mechanism, levers, &c., will permit the lock to be set so as to lock at any desired time subsequent to closing the door; or it may be instantly locked upon the closing of the door, as well as to remain locked over a Sunday or holiday; or, if all the adjustable dial-pins are pulled out, the lock may remain locked three days, or until the time mechanism runs down, and then it will be unlocked by the supplemental unlocking mechanism next to be described.

The general object of my improved supplemental unlocking mechanism is the same as of that heretofore patented by me in my Patent No. 186,177—viz., to cause the lock to be unlocked just before the time mechanism runs entirely down, so that if, by any failure to wind it regularly or for any other cause, it should run down before the ordinary or principal unlocking action had taken place, a lock-out would not occur.

The particular object of my improvements is to simplify and cheapen the construction and organization, as well as render more certain and reliable, the action of supplemental unlocking mechanism. Accordingly, I provide a cam, W, upon the back end of each winding-post of each time-movement, and each cam at each revolution of the post in winding engages in one of the notches of the wheels X. Thus the wheels are turned in winding intermittently part of a revolution a distance equal to one notch or tooth at each revolution of the winding-post. As the winding-post turns back in the opposite direction while the time-movements are running by force of their mainsprings, the notched wheels will be turned back the distance of one notch at each revolution of the post. Each of these wheels has a small stud, Y, on its face, which is so placed as to impinge against a shoulder, Z, (or it may be a stud,) formed by a recess in the side of a small bar, c, free to slide longitudinally to and fro a short distance and properly supported on ways as shown, or in any convenient way



for that purpose. The parts are so adjusted and timed that the stud Y will strike the shoulder of the bar *c* and move it along endwise just a little before the time-movements, or either of them, will run entirely down. The bar *c* engages loosely with a bell-crank lever, *d*, pivoted at *e*, and one arm, *f*, of this lever being under an arm or stud, *g*, projecting from the inner end of the lever M, that end of the lever will be raised, the arm K will be depressed, and the dog D will fall into the unlocked position. Thus, whenever the time-movements run down the lock will be certain to be unlocked, so that the door can be opened.

15 Instead of a cam, W, a gear-wheel might be employed to engage directly or indirectly with the wheel X, and that in turn might be made to engage in any ordinary way by means of suitable connections with the lever M, the object being to move a supplementary unlocking device at the right time.

Having thus described my improvements, what I claim, and desire to secure by Letters Patent of the United States, is—

25 1. In a time-lock, the combination, with the plates A and B, of the time mechanism and dog-operating mechanism, all attached complete to the plates, and the bolt or dog whereby the plates, time mechanism, and dog-operating mechanism may be removed from the lock-case in a body, and replaced without disturbance or disarrangement of the operating parts in their proper relation to the dog or bolt, substantially as set forth.

35 2. The combination, with a lock-case hav-

ing a bolt-recess, of a dog, D, provided with slots I and L, and a screw or stop, H, substantially as set forth.

3. In a time-lock, the combination, with a lock-case having a bolt-recess, F, of a slotted dog, D, having a screw-stop, H, and a lifting-lever, M, and arm K, substantially as set forth. 40

4. The combination of the lever M, the weighted lever O, the arm K, and the projection P with the dog D, substantially as set forth. 45

5. In a time-lock, the combination of the dial, the lever O, provided with inclined projection R, the lever M, the projection P, arm K, and dog D, substantially as set forth.

6. The combination of the time mechanism, the seventh-day cam S, the sleeve T, the spring V, and the lever M and arm K, substantially as set forth. 50

7. The combination, with the winding-post of a time mechanism, of a cam, W, the wheel X, adapted to engage therewith, a sliding bar, *c*, the bell crank lever *d*, adapted to engage therewith, and the lever M, all substantially as set forth. 55

8. A lock-case with a bolt-recess or pocket integral therewith, and adapted to receive a bolt from the outside of the case, substantially as set forth. 60

In testimony whereof I have hereunto subscribed my name.

EMORY STOCKWELL.

Witnesses:

SCHUYLER MERRITT,  
GEO. E. WHITE.