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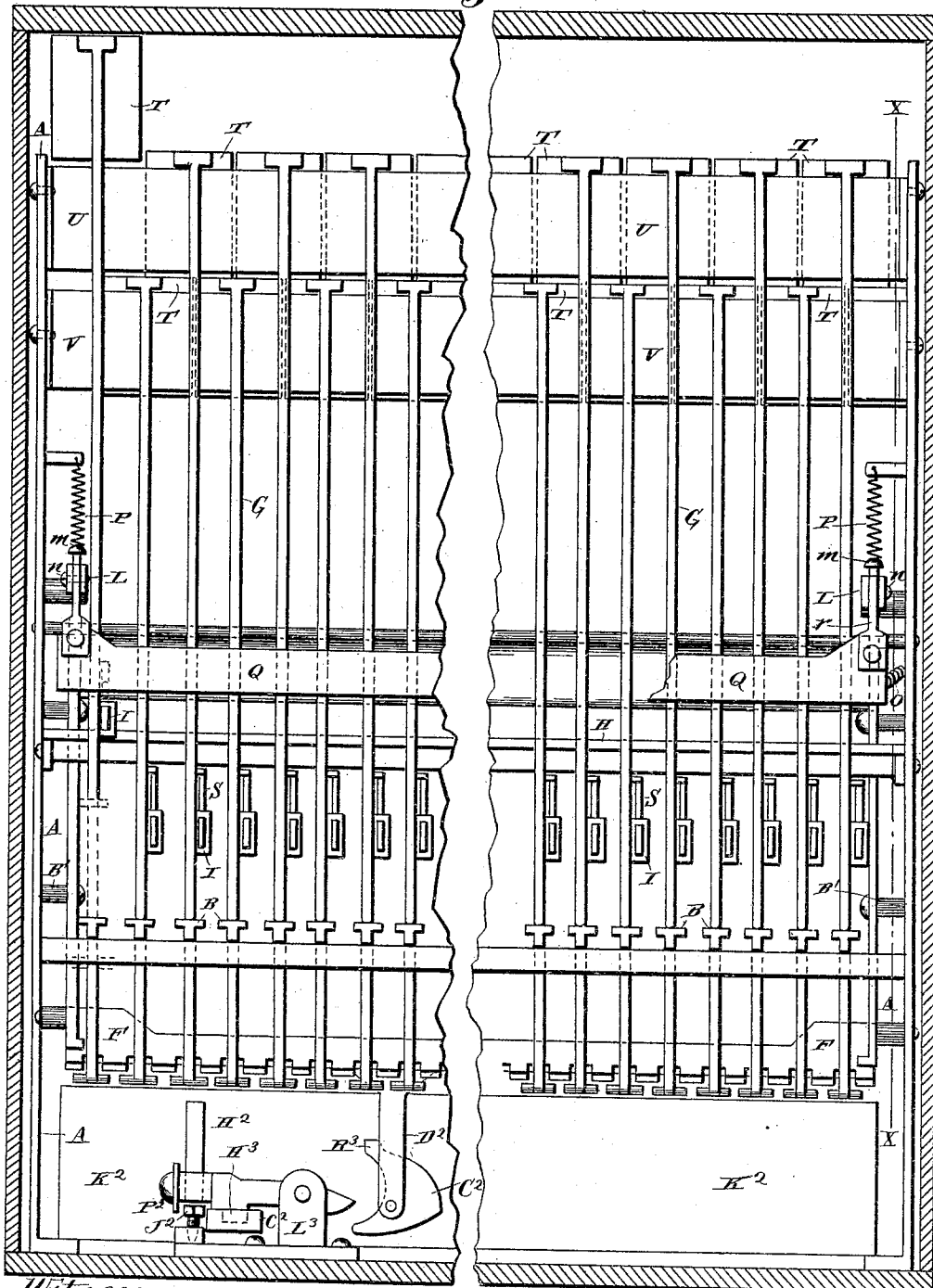
4 Sheets—Sheet 1.

H. A. HERR.
CASH REGISTER.

No. 487,903.

Patented Dec. 13, 1892.

Fig. 1.



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Inventor:
Homer A. Herr

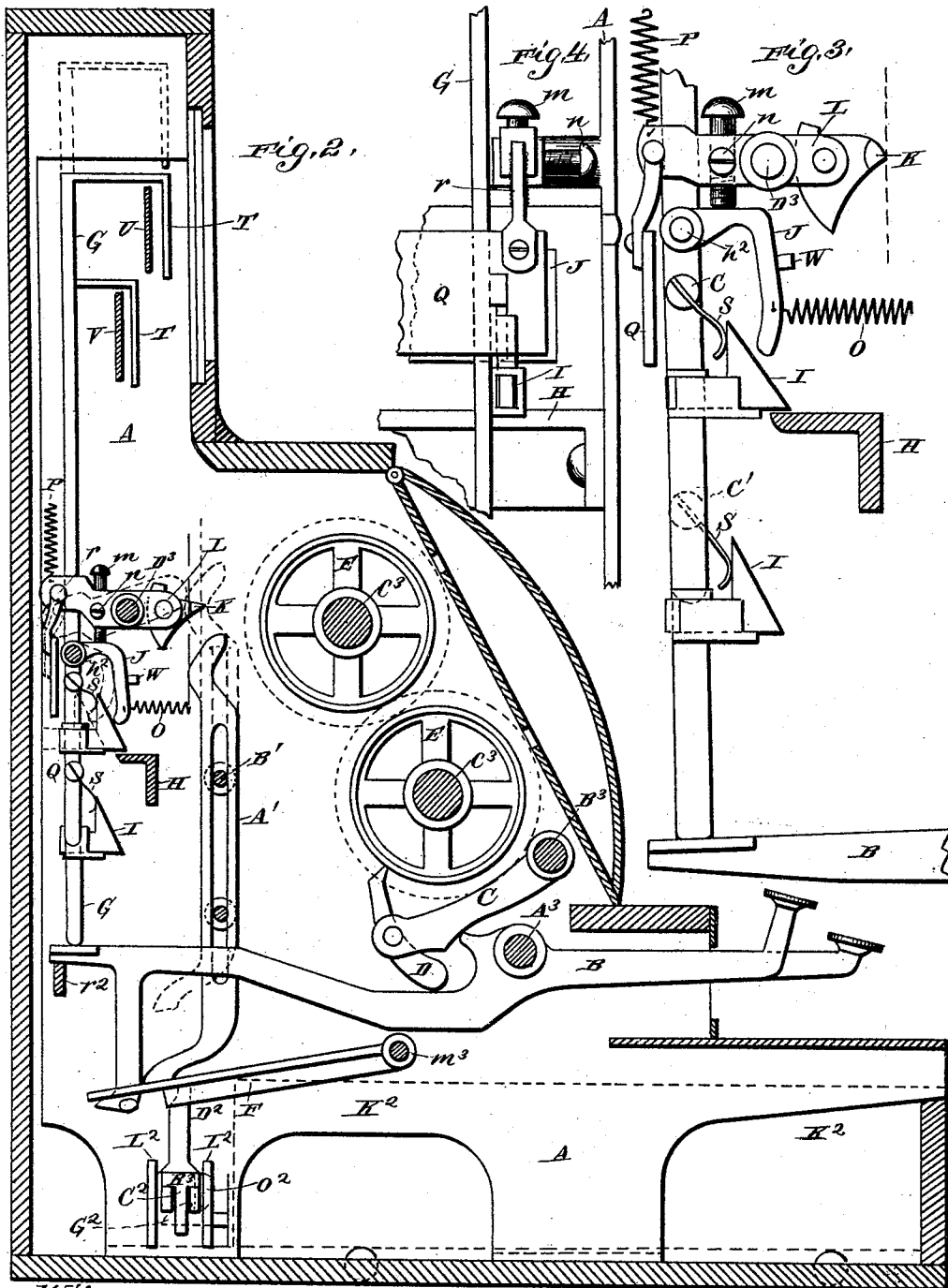
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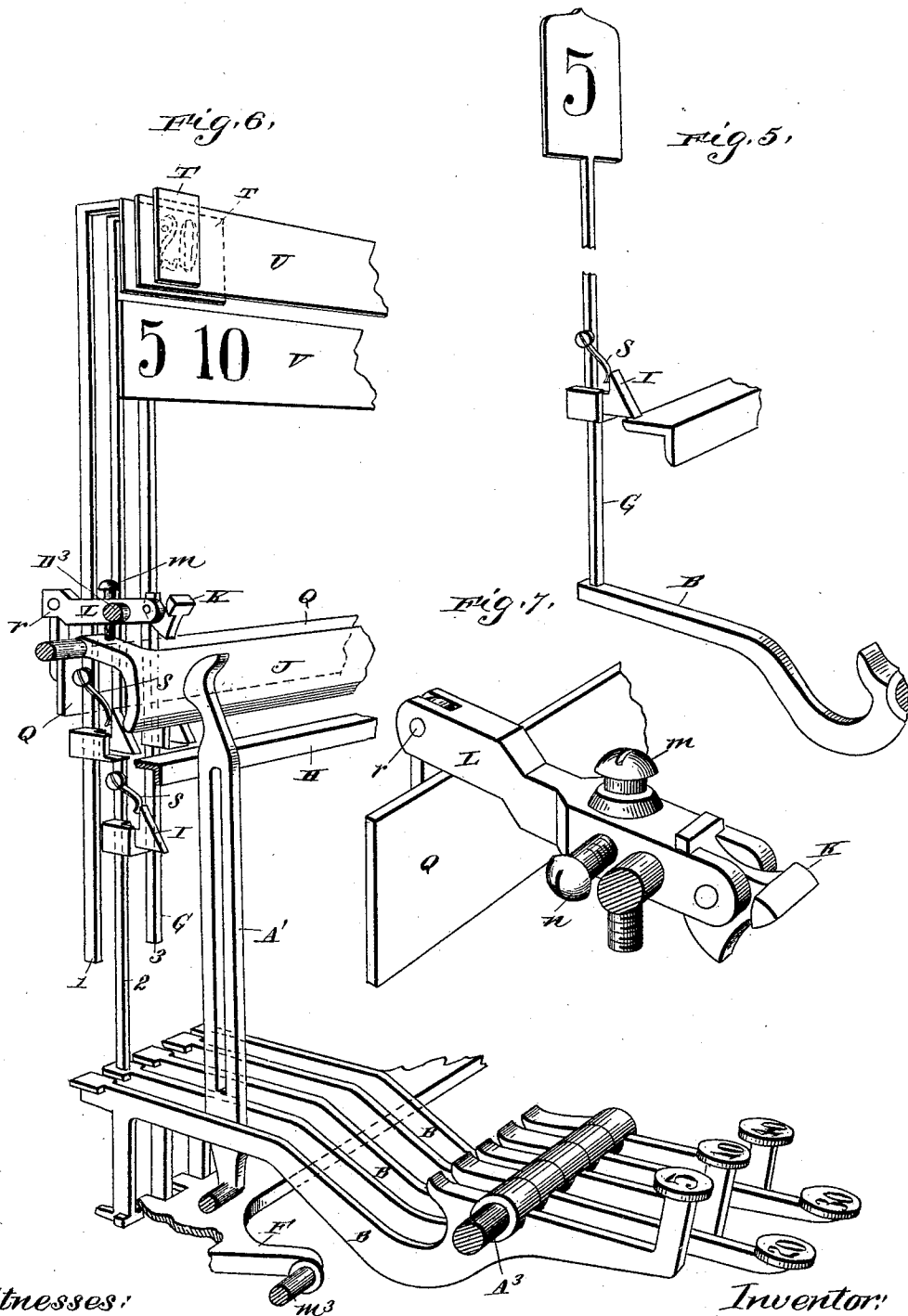
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H. A. HERR.
CASH REGISTER.

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Patented Dec. 13, 1892.



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4 Sheets—Sheet 4.

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CASH REGISTER.

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Fig. 9.

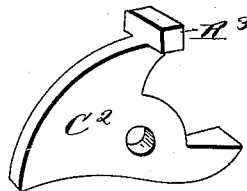
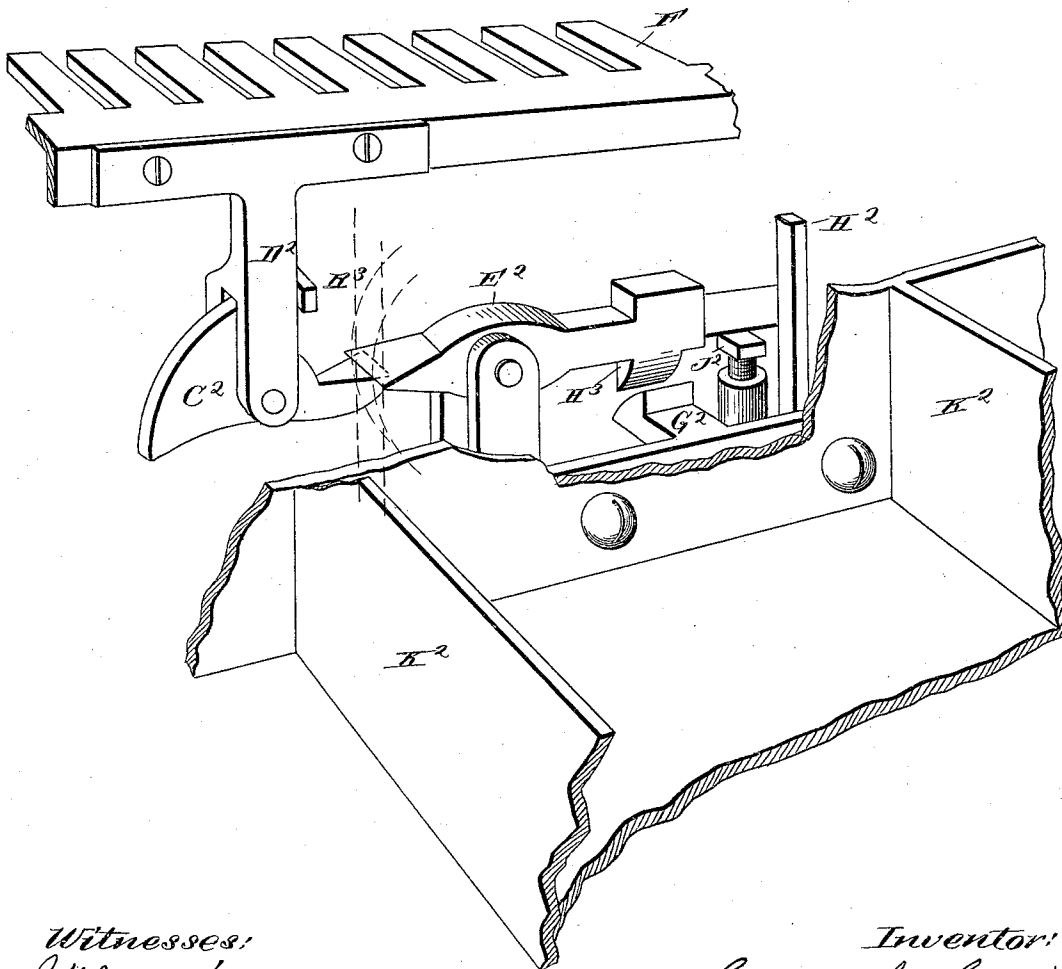


Fig. 8.



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UNITED STATES PATENT OFFICE.

HOMER A. HERR, OF PHILADELPHIA, PENNSYLVANIA.

CASH-REGISTER.

SPECIFICATION forming part of Letters Patent No. 487,903, dated December 13, 1892.

Application filed August 28, 1890. Serial No. 363,293. (No model.)

To all whom it may concern:

Be it known that I, HOMER A. HERR, of the city and county of Philadelphia, State of Pennsylvania, have invented new and useful Improvements in Cash Registers and Indicators; and the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, which form part of this specification.

In my application, Serial No. 319,660, filed August 3, 1889, I show an indicating mechanism whereby an oscillating lock supports a shield-rod, thereby uncovering the tablet indicating the value of the key operated. This invention has for its object an improvement on that device. I do not claim the stationary tablets and movable shields in this application further than their combination with the different elements necessary to make this device operative. While in the drawings I show this device as applied to a cash-register with movable shields secured to vertically-moving rods, I desire it understood I do not limit myself to its employment in a machine of this description; but it could be used in a machine having moving indicators without in the least departing from my invention—in such a machine, for instance, as is shown in Patent No. 271,363, January 30, 1883, to J. Ritty and J. Birch. In my device each rod carries its individual and movable lock, and a stationary bar is secured to the main standards of the machine, to which these locks become engaged when supporting the screens, as shown in this application, or the tablets, if employed on a machine having indicating mechanism, as shown in the above-named patent. Combined with the stationary frame is a moving frame or part, which disengages the locks of all the screen-rods raised by the operation of any key, and at the same time they are forced down by positive means. By this mechanism I dispense with the use of springs and do not rely upon gravity. By the use of the former the tendency to crystallization makes them unreliable, and by relying upon gravity the weight of the parts necessarily have to be so heavy as to make machines unwieldy. Machines with my device cannot possibly get out of order so readily as those formerly made.

In the drawings letters and figures of like

name and kind refer to like parts in each of the figures.

In the drawings, Figure 1 is a rear view of a machine with my improvement, showing the locks on the rods, the movable and stationary frames, and drawer-releasing device. Fig. 2 is a section on line *xx* of Fig. 1. Fig. 3 is an enlarged detail side view of that portion of a machine embodying my improvement. Fig. 4 is a back view of the parts shown in Fig. 3, likewise enlarged. Fig. 5 shows my improved lock applied to a raising indicating-tablet. Fig. 6 is a perspective view of one end of a machine embodying my improvement. Fig. 7 is an enlarged detail perspective view of one of the cross-bar levers with its appendages. Fig. 8 is a perspective view of the drawer-releasing mechanism, showing the drawer opener, rear attachment to the drawer, and the swinging pawl. Fig. 9 is a perspective view of the pawl *C*², showing locking-lug *R*³.

The registering mechanism forms no part of my invention, as any one of the well-known means for registering values may be used without in the least affecting my invention.

A A are the main standards of the machine.

B B are the operating-keys.

F is a frame common to all the keys or levers and is a common actuator for different portions of the machine. This frame is the same as shown in my application, Serial No. 319,660, filed August 3, 1889, and application, Serial No. 353,496, filed May 28, 1890, and is not claimed in this application further than in combination with other parts with which it is operatively connected for the purpose of accomplishing the objects of my improvements.

A' is a slotted frame sliding vertically. It slides on two bosses or lugs *B'*, which are cast on to the main standards of the machine. There are two of these arms, one on either side of the machine, and they work in unison. These vertically-sliding arms rest on the frame *F*. On the operation of any key the frame *F* is raised. The sliding arms *A' A'* move freely with it on their guides *B'* until the operating-key shall have had its full limit of play, after which, on release of the key, the frame *F* returns to its normal position by its own weight and that of the frame *A'*. It is evident, however, a spring may be employed to reseal the

frame F if for any reason it is found necessary. Fig. 1 shows the position of the two frames A'.

L is a lever secured, also, to a lug or projection on the main standards of the machine. There are two of these levers, one on either side of the machine, as shown in Fig. 1. A pawl is secured to the forward side of the lever L, which when moved or pressed from the underneath side by two projecting lugs on the top engaging with the lever L, locks the pawl K to it and moves this lever. This is shown clearly in Figs. 2 and 7.

The sliding arm A', previously described, on being raised by the frame F engages with the pawl K, moving thereby the lever L. Secured to this lever L is a set-screw *m* and a lock-screw *n* for said set-screw. The purpose of these will be presently explained; but I desire it understood, while I show a set-screw, I do not limit myself to the employment of a set-screw for the performance of its functions. A mere lug on the lever K would answer a similar purpose, or an adjustable set-screw could be placed on the frame J. These specific details are immaterial to my invention.

J is an oscillating frame, on one portion of which the screw M rests. This frame J is also pivoted into the main standards of the machine, and on moving the lever L this frame J is oscillated against the rod-locks I. These locks are secured to the rods G in any convenient way, so they are movable. I prefer to have them move in cases, as shown in Figs. 1, 2, and 6, although they could be pivoted. These cases consist of a hollow angular casing stamped from brass or any ductile metal. They are firmly secured to their rods either by rivets or soldering. The locks have a rectilinear movement in these cases and are held in place by a cap formed by the stamped brass and bent over after the lock is in its case. The frame J moves the locks of all raised screens on the movement of any key, and the frame Q presses on the rear end of all raised locks when moved rearward by said frame J and forces down the rod to which its case is attached. The spring S, secured to the rod, holds the locks firmly extended to their full limit and resting normally against the oscillating frame J. W is a lug against which the frame J rests, and O is a spring to hold the frame against this lug W.

Q is a vertically-moving frame secured to the levers L by a link or any other suitable means.

P is a spring secured to the lever L, Fig. 1, to return this lever L to its normal position. This spring P could also be secured to the frame Q, which would answer just as well.

T T are the shields or screens, G are the rods which support them, and U U, Figs. 1, 2, and 6, are the tablet-supporting frames. In Fig. 6 the rods marked 1 and 3 show them as raised and their locks in engagement with the stationary frame H. This frame H is shown in section in Fig. 2, and as each rod carries its

individual lock on the operation of any key the locks I strike the edge of the frame H, are forced by it, and the moment they have passed it the spring S of the particular rod operated snaps the sliding lock I over the top of the frame H and locks the rod.

The oscillating bar J, it will be clearly seen, extends across the machine and is common to all the rod-locks, as shown in Figs. 1 and 6. The vertically-moving frame Q extends the width of the machine, also, and is common to all the rod-locks. Its functions are as follows: When the frame J is operated by the lever L, it will be readily seen that all rod-locks resting on the frame H are moved by this frame J until they have taken the position indicated by the dotted lines. Simultaneously with this the vertically-moving frame Q will have come in contact with the rear ends of the locks I, and on further movement force the locks downward.

On examining Fig. 2 it will be seen from the position indicated by the dotted lines that the sliding frame A' has not reached its full limit of play until it has moved sufficiently far to allow the lever L to swing sufficiently on its pivot D³ that the frame A' shall have passed beyond the intersecting point, as shown in the dotted lines. This extra movement beyond the position indicated in the dotted lines forces all the locks not only off the frame H, but by contact with the frame Q on their rear drives them down by positive means. The parts are so adjusted that the sliding bar A' has performed its full functions with respect to its moving the lever L before the operating-key has performed its full limit of play. By this means the spring P will have drawn the lever L and the frame Q back to their normal position before the locks of the rod on the operating-key will have reached the limit of downward movement given to the frame Q. The spring O will also have returned the oscillating frame J against the lug W before the lock on the rod of the operating-key shall be sufficiently raised to come in contact therewith.

It may be well to explain that while the pawl *k*, Figs. 2, 3, 6, and 8, becomes locked to the lever L immediately on upward pressure without any lost motion, when the frame A' drops, this pawl *k* swings entirely out of place, so as to allow a free and unobstructed return of this sliding frame A' without movement to the lever L.

The second feature of my improvement relates to an improved drawer-releasing mechanism. In my application, Serial No. 353,496, filed May 28, 1890, I show a drawer-releasing mechanism operative only after the key has performed all its functions and operated by the frame hereinbefore referred to. In the application above referred to I claim the device broadly. This is a specific improvement on the broad principle there shown and claimed. This improvement consists in dispensing with the horizontally-swinging lever and the swing-

ing pawl secured to that lever. Their use was open to the objection of requiring an exceedingly-strong spring attached to the operating-frame. This spring in practice was so strong as to make the operation of the machine laborious. The reason this heavy spring was required for actuating the horizontal drawer-holding lever was the great amount of friction caused by the weighted frame making a torsional strain on the pivot of the horizontally-operating drawer-opener. This frame expended its force on a line parallel with the supporting-pivot of the drawer-holding lever, making inevitably a great deal of friction. In addition to this friction, the use of a spring was found necessary to hold this horizontally-operating drawer-opener in engagement with the drawer, as shown in the application previously referred to. These causes made the operation of the drawer-opener, as shown in application, Serial No. 353,496, filed May 28, 1890, unreliable, unless, as stated, an exceedingly-heavy spring was used, in which case the amount of exertion required to operate the machine was objectionable. My improvement entirely overcomes these difficulties, and its operation is as follows:

On the operation of any key the common frame F is raised. The pawl C², secured to the arm D² of this frame, is also raised. By reference to the drawings, Fig. 8, it will be seen this pawl has a lug R³, which on the upward movement prevents the pawl from having any influence on the drawer-holder, said pawl being free to move on its pivot until the point which engages with the under side of the drawer-holder has been raised by the frame high enough to allow it to pass over the top of the vertically-swinging drawer-holding lever E². J² is an adjustable set-screw, whereby the point of this vertically-swinging drawer-holder can be raised or lowered at pleasure, and it is so adjusted that it is necessary for the operating-key to have moved its full limit of play before the pawl C² will have passed the drawer-opener on the upward movement of the frame. Immediately thereafter the weight of the pawl will restore it to its normal position. The weight of the frame F on its return movement, to which the pawl C² is indirectly secured, will then lift the vertically-swinging drawer-holder E² and release the drawer. The lug R³ of the pawl C² will prevent said pawl from having any lost motion on a downward movement after it has struck the drawer-holder, and it will not be released from engagement therewith until the drawer-holder has been raised sufficiently far that its point will have passed the point of contact with the pawl C²—that is, at the tangent described by the downward movement of the pawl C², intersecting an arc described by the vertically-swinging drawer-holder.

When it is desirous of closing the drawer, the beveled lug secured to the rear of the drawer engages with the beveled lug H³ of the drawer-holder and the weight of the

drawer-holder snaps it down, engaging with the lug and locks the drawer. I do not limit myself to the mere details of construction, as it is evident they may be modified in various ways without departing from the spirit of my invention.

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

1. In a cash register and indicator, the combination of a series of keys, a series of stationary tablets, a series of screens or covers provided with supporting-rods, a series of spring-actuated pawls or locks, one on each rod, a supporting-bar with which said locks engage, and connecting mechanism whereby on the operation of any key or keys the locks of all previously-raised rods are automatically moved and positively forced downward and the locks of all rods corresponding to the keys moved are forced upward in engagement with said bar.

2. In a cash register and indicator, the combination of a series of keys, a series of stationary tablets, a series of screens or covers provided with supporting-rods, a series of spring-actuated pawls or locks, one on each rod, a supporting-bar with which said lock engages, and a movable frame, whereby on the operation of any key the shield covering its tablet is raised until its lock engages with the supporting-bar and all previously-raised screen-rods are forced down by positive means.

3. In a cash-register, the combination of a series of stationary tablets, a series of movable shields or covers, and a series of individual locks, one for each shield, whereby on the operation of any key its corresponding shield is raised and held in position until some other key of the series is operated.

4. The combination, in a cash register and indicator, of a series of keys, a series of operative indicating parts, each of which has its individual lock, a fixed frame, a movable frame or part common to all the keys and moved by the operation of any one of them by connecting mechanism, whereby on operating any key said movable frame or part engages all the locks of the indicating parts supported by the fixed frame and allows them to return to their normal position, concealing the indicators.

5. The combination, in a cash register and indicator, of a series of keys, a series of rods operating indicating mechanism, each rod of which is provided with a lock, a common fixed frame or bar, and a movable frame or part, with connecting mechanism whereby on operating any key it engages the lock of its indicating part with the fixed frame and the locks of all previously-raised rods are positively forced from their engagement with said fixed frame and allowed to drop, concealing their indicators.

6. The combination, in a cash register and indicator, of a series of keys, a series of rods operating indicating mechanism, each rod of

which is provided with a lock, a fixed frame or bar, an oscillating frame or part, and a vertically-moving frame, whereby on operating any key it engages the lock of its indicating part with the fixed frame and the locks of all previously-raised rods are forced from their engagement with said fixed frame and forced down by positive means.

7. The combination, in a cash register and indicator, of a series of keys combined with a drawer, a frame common to all the keys and operated by any one of them, a pawl secured to said frame and a vertically-swinging drawer-holder, whereby on operating any key said pawl is free to be moved around or pass said drawer-holder, but on release of the key said pawl engages with said drawer-holder, swinging it vertically and releasing the drawer.

8. The combination, in a cash-register, of a series of keys, an oscillating frame common to all the keys and moved by the operation of any one of them, and a vertically-swinging drawer-holder whereby on operating any key the frame is raised without any effect on the drawer-holder, but on the release of the key said frame operates the drawer-holder, releasing the drawer.

9. In a cash register and indicator, the combination of a series of keys, a drawer, an oscillating frame common to all the keys and moved by the operation of any one of them, a vertically-swinging drawer-holder whereby on operating any key the frame is raised, but without any effect on the drawer-holder, but on the release of the key the drawer-holder is operated by the frame and the drawer released.

10. The combination, in a cash register and indicator, of a series of keys, combined with a drawer, a frame common to all the keys and operated by any one of them, a pawl secured to said frame and a vertically-swinging drawer-holder, and an adjustable part or screw, whereby the drawer-holder can be adjusted to trip the said pawl at any desired time.

11. The combination, in a cash register and indicator, of a series of keys, a drawer, a drawer-holder, a frame common to all the keys and moved by the operation of any one of them, a movable part secured to said frame,

whereby one cannot open the drawer until the key has had its full limit of play and all its functions are performed and it is released to return to its normal position.

12. The combination, in a cash register and indicator, of a series of keys, a pivoted vertically-moving drawer-holder, and a drawer with connecting mechanism, whereby the direct operation of the key has no influence on the drawer-holder, but on release of the key after it has performed all its functions the said drawer-opener is operated and the drawer released.

13. In a cash register and indicator, the combination of a series of keys, each provided with a figure or mark to indicate its value, a series of indicating tablets, marks, or figures corresponding in number and value to the keys, a series of movable rods, one for each figure, a series of locks or pawls, one on each rod, a supporting-bar with which said locks engage, and connecting mechanism, whereby on the operation of any key or keys the locks of all previously-raised rods are automatically moved and positively forced downward and the locks of all rods corresponding to the keys moved are forced upward in engagement with said bar.

14. In a cash register and indicator, the combination of a series of keys, a series of rods, each provided with a rectilinear-moving lock, a fixed bar with which said locks engage, a moving frame with connecting mechanism, whereby on operating any key all previously-raised rod-locks are forced off said fixed frame and the rod-locks corresponding to the actuating-key are forced on said fixed frame.

15. In a cash register and indicator, the combination of a series of keys, a series of rods, each provided with a spring-actuated rectilinear-moving lock, a fixed bar with which said locks engage, and a moving part or frame, whereby on operating any key all previously-raised rod-locks are forced off said fixed frame and the rod-locks corresponding to actuating-key are forced on said fixed frame.

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