

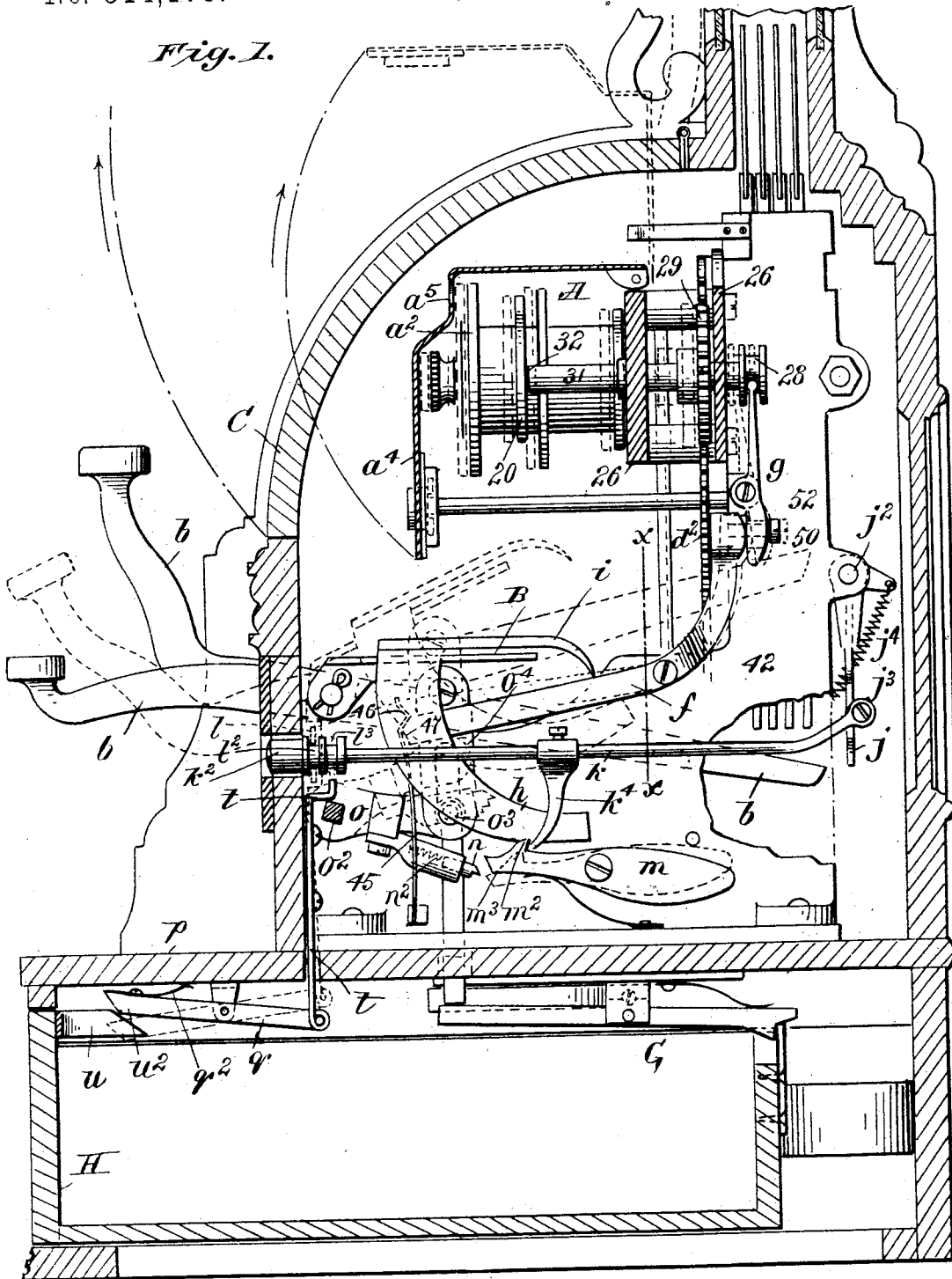
(No Model.)

3 Sheets—Sheet 1.

J. J. WEBSTER.
CASH REGISTERING MACHINE.

No. 514,175.

Patented Feb. 6, 1894.



Witnesses:

J. D. Goffey
H. J. Clemons

Inventor,

Jerome J. Webster,
per Chapin & Co. Attys.

(No Model.)

3 Sheets—Sheet 2.

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Fig. 2.

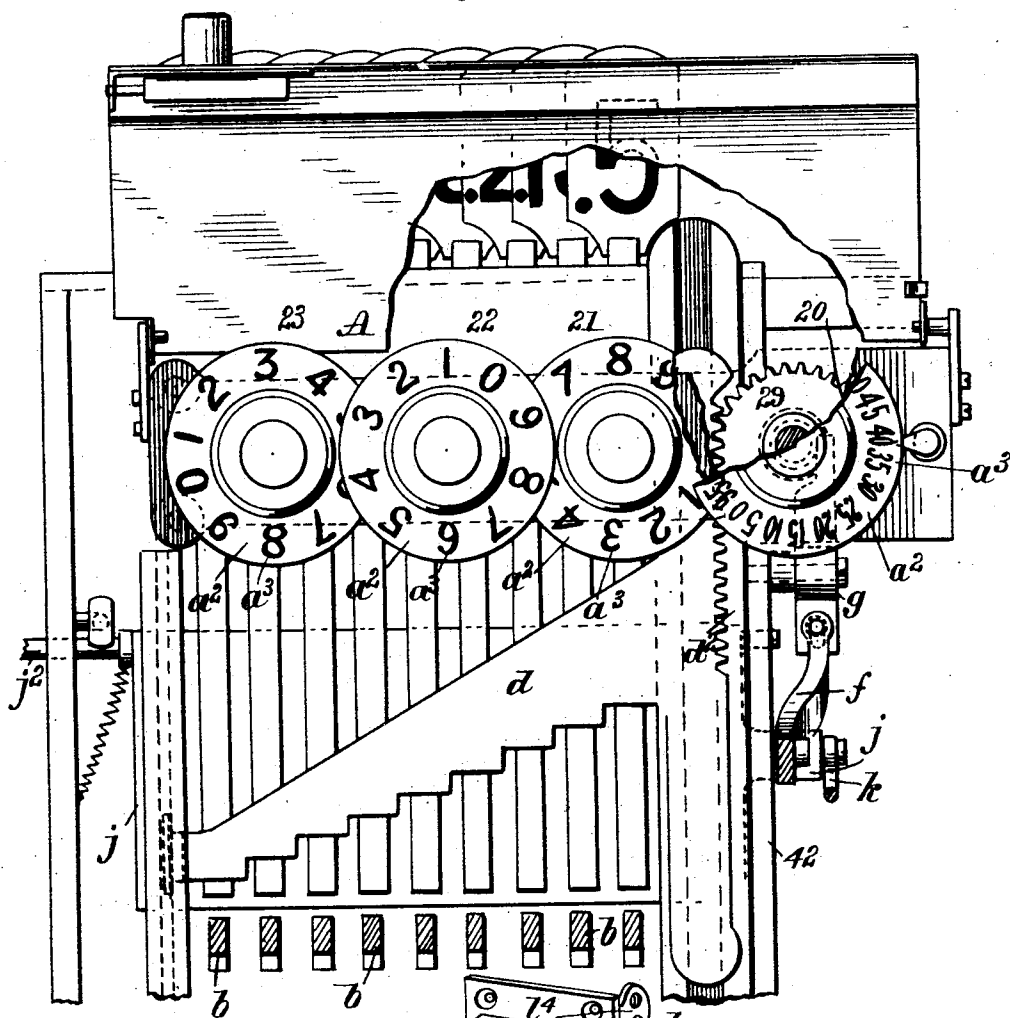
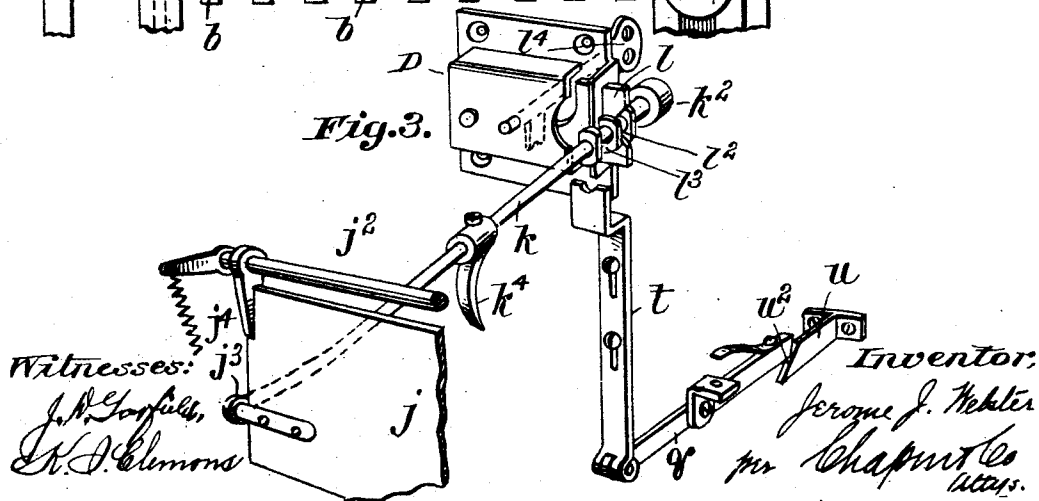


Fig. 3.



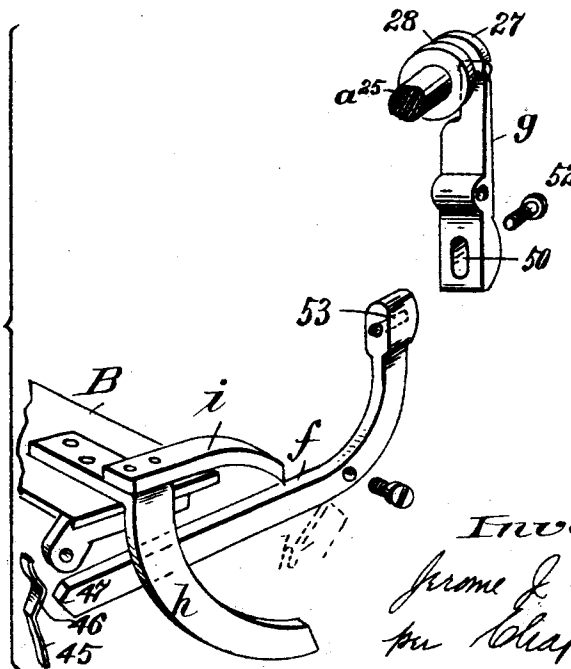
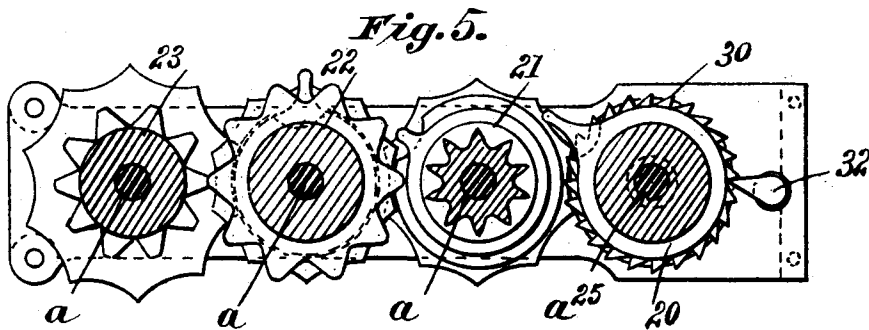
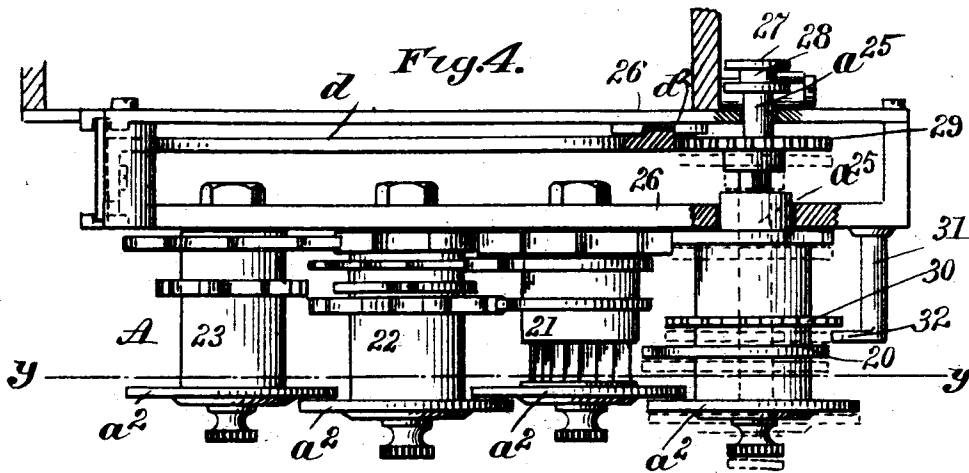
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3 Sheets—Sheet 3.

J. J. WEBSTER.
CASH REGISTERING MACHINE.

No. 514,175.

Patented Feb. 6, 1894.



Witnesses:

J. R. Gaffney
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UNITED STATES PATENT OFFICE.

JEROME J. WEBSTER, OF NORTHAMPTON, MASSACHUSETTS, ASSIGNOR TO THE
BOSTON CASH REGISTER COMPANY, OF SAME PLACE.

CASH-REGISTERING MACHINE.

SPECIFICATION forming part of Letters Patent No. 514,175, dated February 6, 1894.

Application filed May 25, 1893. Serial No. 475,525. (No model.)

To all whom it may concern:

Be it known that I, JEROME J. WEBSTER, a citizen of the United States, residing at Northampton, in the county of Hampshire and State of Massachusetts, have invented new and useful Improvements in Cash-Registering Machines, of which the following is a specification.

This invention relates, first, to an improved register actuating device which shall be so operative as to prevent over-registration; secondly, to an improved and simplified form of device for locking at will all of the key-levers whereby there can be, at the election of the proprietor or authorized person, no operation of the register, which device, however, is capable of manipulation so that the key-levers may be successively and continuously operated, or if desired, under certain circumstances as established by the proprietor or authorized person, so that any key-lever of the machine may be once operated, all of the key-levers of the bank then becoming locked and requiring for each successive operation thereof a special manipulation, and, thirdly, to an improved device involving the combination with a key-lever locking device, of an automatic mechanism controlled by the position of the drawer, all so that after a key has been operated, and the drawer opened, it is necessary to fully close the drawer before the aforementioned locking device for the key-levers may be moved to render the keys again operative.

To these ends, the invention consists in constructions and combinations of parts, all substantially as will hereinafter fully appear and be set forth in the claims.

Reference is to be had to the accompanying drawings, in which a cash-registering machine embodying the present improvements is illustrated.

Figure 1 is a sectional elevation taken from front to rear. Fig. 2 is a front face view of the register and the improved register operating device therefor with some parts in vertical section as taken on the plane indicated by the line $x-x$, Fig. 1, while some other parts to the rear of such plane are indicated as broken out for clearer illustration. Fig. 3

is a perspective view of the device which is operated by the drawer, and which, while the drawer remains open, automatically engages, and holds locked, the key-locking device. Fig. 4 is a plan view and horizontal sectional view of the register, and improved actuating devices therefor. Fig. 5 is a vertical section taken on line $y-y$, Fig. 4. Fig. 6 is a perspective view of parts of the register operating mechanism.

Similar characters of reference indicate corresponding parts in all of the views.

In the drawings, A represents, generally, the register, which comprises the initial wheel, 20, and the series of accumulating or transfer wheels, 21, 22, and 23, and each of these registering wheels is mounted upon a shaft or stud, as indicated at a^{25} , and a , a , a , and has a forwardly facing dial, a^2 , in circular arrangement on the face of which are the numbers or characters, a^3 , which are visible through the suitable apertures, a^5 , in the casing a^4 , which is indicated in vertical section in Fig. 1.

The initial wheel receives a rotational movement in an extent corresponding to the amount indicated by the key which operates it, (the novel operating devices between the key-levers and the initial register-wheel will be hereinafter fully set forth) and each complete rotation of the initial wheel insures a fractional rotation of the next wheel, 21, while each complete rotation of this wheel 21, imparts a fractional rotational movement to the next higher one, 22, and so on, the construction and organization of the register-wheels and their manner of operation being well known and fully illustrated and described in Letters Patent of the United States granted to me, September 9, 1890, No. 436,325, and to which reference may be had. The improved register-operating and register-locking devices are not, however, necessarily limited to this particular construction of register.

The initial register-wheel has its shaft or arbor, a^{25} , horizontally supported for rotation in the framing, 26, of the registering mechanism, and is axially movable forwardly and rearwardly in such support. This shaft or arbor, a^{25} , has formed on, or secured as one thereto, at its rear end, the enlargement, 27, 100

with the peripheral groove, 28; forwardly thereof the spur gear wheel, 29; and still farther forwardly thereof, the ratchet-wheel, 30.

b, b represent the key-levers intermediately fulcrumed, as usual, with their rear members lying under the stepped plate, *d*, which is vertically movable and suitably guided and which has at one edge thereof, the vertical rack-teeth *d*², with which the teeth of the spur-gear, 29, have shiftable engagements. The depressions of the various keys will impart longer or shorter vertical movements, positively, to the stepped plate,—according to whether the key indicates a larger or smaller amount,—and a consequent extent of rotation to the initial register-wheel. See Fig. 2. Under this invention when the key finishes its upward movement, at which instant the rotational movement of the initial register-wheel should absolutely cease, the register-wheel has imparted bodily thereto a forward axial movement so that the toothed wheel, 29, is carried clear out from engagement with the rack-teeth of the stepped plate, *d*, and by one of the teeth of the ratchet-wheel, 30, into engagement with a locking device; therefore any excessive movement, by momentum, which may be imparted to the stepped plate will be without effect to unduly rotate the initial register-wheel. This locking device, just referred to, consists of the stud, 31, which is extended forwardly from its place of support upon the register frame, parallel with the axis of the register-wheel arbor, *a*²⁵, and which stud is provided with the angularly extended pointed projection, 32. In Fig. 4, by dotted lines, is indicated the position of the initial register-wheel when bodily and axially moved to bring the teeth of the ratchet-wheel into engagement with the said locking projection, 32. The means for so forwardly shifting the register-wheel when the key-lever is fully depressed, and for rearwardly returning the register-wheel on the return of the key-lever will be now described.

f represents a lever which is intermediately pivotally hung on the framing, 42, to swing in a vertical plane; while, *g*, represents another lever which is also pivotally hung on the framing to swing in a vertical plane, one member thereof being engaged by the rear arm of the lever, *f*, while the upper arm of the said lever, *g*, has an engagement in the groove, 28, of the enlargement at the rear end of the arbor for the initial register-wheel.

h represents a depending and rearwardly extended arm, which is formed on, or connected to, the rocker-plate, *B*, to move as one therewith. This rocker-plate, as well known, is commonly employed in many descriptions of key-operated cash register machines in such relation to the series of key-levers that the swinging of any one thereof will secure the tilting of the rocker-plate; now, of course, as the rocker-plate is moved by, and in consonance with, the key-lever it will finally come to contact with the lever, *f*, to swing it,

just as the key and register-wheel are completing their movements, so that the lever, *g*, in swinging, will forwardly move the initial register-wheel carrying the toothed-wheel, 29, out from engagement with the teeth of the rack, *d*², and carrying the teeth of the wheel, 30, into engagement with the locking projection, 32.

45 represents a spring having the nose, 46, the purpose of which is to act as a detent for the levers, *f* and *g*, so that there may be no shifting of the position of the initial register-wheel, except as duly and positively insured in consequence of the operations of the key-levers; this spring has its position so that the nose, 46, is in proximity to the forward extremity of the lever, *f*, the end of which latter is angularly formed, as seen at 47. The swinging movement of the lever, *f*, is but slight so that the said end, 47, either lies next to the lower, or the upper, incline of the nose, 46, of the detent spring. The register-wheel having been forwardly shifted by the levers, as described, said levers remain in their positions which they assumed to so shift the register until the operated key has almost fully returned to its normal position, whereupon the arm, *i*, which is secured to, and rearwardly extended from, the rocker-plate, contacts with and downwardly forces the forward arm of the lever, *f*, restoring the latter, the lever, *g*, and the initial registering-wheel, all to their normal positions.

A desirable, although not necessary, form of engagement between the contiguous arms of the levers *f* and *g*, consists in slotting the lower arm of the lever, *g*, as seen at 50, and passing a screw, 52, through said slot and with a screw-engagement into the tapped-hole, 53, in the arm of the lever, *f*. There is over the series of key-levers, *b*, a common locking-bar, *j*, that is hung on a horizontal pivot or rock-shaft, *j*².

k represents a push-rod which has its rear end connected to the locking-bar, as indicated at *j*³; this rod has its forward end provided with a knob or button, *k*², which projects through an aperture in the front wall of the register cabinet or casing, *C*. The spring, *j*⁴, is applied to normally maintain the locking-bar, *j*, forwardly swung so that its lower edge engages the rear extremities of all of the keys, preventing any operation of the key-levers.

D indicates a lock which is understood as being mounted on the inner side of the front casing wall, the bolt, *l*, of which is formed bifurcated and adapted to be shot transversely of the axis of the push-rod, and to engage within either the groove, *l*², or the groove, *l*³, according as the push-rod is inwardly forced, as seen in Fig. 1 (thus maintaining the locking-bar in its key-disengaging position to permit the continuous operation of the machine) or maintaining the locking-bar forwardly swung and in its key-engaging position and there retained, preventing any operation of the keys until the push-rod engaging bolt is with-

drawn at the will of the proprietor. The lock, D, may be of any of the usual or approved constructions, the bolt being projected or withdrawn by the employment of a properly fitted key, which latter is indicated at k^4 , in Fig. 3.

In addition to the bolt for confining the locking-bar either in its key-engaging, or key-disengaging positions, there are devices provided which, when the bolt is out of engagement with the push-rod, secure temporarily the maintenance of the locking-bar out of the key-engaging position to permit the operation of any key of the series, the said devices, however, then immediately acting after one operation of a key-lever, to permit the resumption of the locking-bar in its key-engaging position, then preventing further operation of the key-levers until the conditions therefor are established by an intelligent manipulation of the push-rod, and, referring to the drawings, Fig. 1, it will be noted that there is a pawl, or trigger, m , which intermediately thereof is pivotally mounted for a swinging motion in a vertical plane. This pawl has its forward portion provided with the upwardly extended catch-tooth, m^2 , in advance of which is the nose, m^3 , having its forward end upwardly and forwardly inclined. The rear extremity of the pawl is of increased bulk, constituting a sufficient weight to maintain the tooth of the pawl normally in the position shown relative to the depending projection, k^4 , of the push-rod, k .

n represents a dog which is adapted to have a bodily swinging movement in unison with any of the key-levers, said dog being located, when the key-lever is in its normal position, with its rearward extremity adjacent and just under the nose, m^3 , of the pawl, m , and this dog has its rearward end formed with the downward and rearward incline so that as it upwardly swings it will have, in addition to its bodily swinging movement, an endwise sliding movement against its spring, n^2 , as its inclined end impinges against the nose of the pawl, to permit the passage of the dog above said nose. The said dog is mounted in a slide socket of a rocking carrier, o , which has its center of movement at its connection with the rock-bar, o^2 , and said carrier has an arm with a stud, o^3 , which engages the slotted link, o^4 , which is pivotally connected to the rocker-plate, B, or the carrying-frame thereof.

Explaining the operation of these parts, it being assumed that the locking-bar may be in engagement with the key-levers, the push-rod and its knob projected forwardly, and that the bolt, l , is withdrawn from engagement with the push-rod, and it is desired to operate the register just once by means of any one of the series of key-levers, b , the knob and push-rod are inwardly pressed and of course the projection, k^4 , will click rearwardly past the tooth, m^2 , of the pawl, m , and be there retained by said tooth holding the locking-bar, j , free and clear from all of the key-levers,—

and as represented in Fig. 1,—then swinging any one of the key-levers the carrier, o , and dog, n , are upwardly swung, the dog, n , clicking past the nose, m^3 , of the pawl. As the key-lever, rocking-plate, carrier, and dog, return to their normal positions the extremity of the dog engages the nose of the pawl in such a way as to cause the swinging of the latter free from its engagement with the projection, k^4 , which is as one with the push-rod, k ; whereupon the reaction of the spring, j^4 , will insure the swinging of the locking-bar, j , into the key-lever engaging position. Now, no key-lever may be again operated until the push-rod has been inwardly forced. Of course it is understood that where it will be desirable to permit the successive operations of the key-levers without the manipulations of the push-rod, the latter may be inwardly forced and held locked by the shooting of the bolt, l .

The cash-drawer, H, is provided to slide as usual in the housing therefor under the base or table, p , and at G is indicated a catch or lock device for the drawer which is termed a return-lock, that is, one which permits and insures the release of the drawer only after the key-lever has completed its working movement and is returning to its normal position. This description of lock is fully set forth in Letters Patent of the United States issued to me August 1, 1893, No. 502,645. Now it will be perceived that there is, furthermore, a lever, q , intermediately pivotally hung from and below the base or table, to the rear end of which is connected the lower end of a vertically movable locking-bar, t , the upper end of which is forked or otherwise suitably formed to engage the shoulder of the push-rod, k , when the push-rod is in its forward position and the locking-bar, j , in engagement with the rear members of the key-levers, b ,—an opening of the drawer for the establishment of this condition being necessary because it will be perceived that a part or fixture, as the projection, u , of the drawer which has the inclined surface, u^2 , impinges against the forward member of the lever, q , when the drawer is closed, to so swing said lever as to insure the drawing of the push-rod locking-bar downwardly out of its locking engagement. The spring, q^2 , is so applied to the lever, q , as to more effectually insure the swinging thereof to establish the locked relation between the locking-bar, t , and push-rod when the drawer is opened. In the operation of the machine involving the devices last referred to, a key will be fully depressed and be returning to its normal position before the drawer will open. Now, as soon as the key has fully returned to its normal position the locking-bar, j , will forwardly swing to the position for locking all of the keys; and the push-rod will correspondingly be forwardly projected and be automatically locked by the bar, t . Now, of course, it will be necessary, in order to render the key-levers again operative,—as insured by rearwardly forcing

the push-rod,—to fully close the drawer (whereupon the drawer will be locked) which closing, downwardly draws the bar, *t*, rendering it again possible to rearwardly force the push-rod.

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

1. In a cash registering machine, the combination with the registering wheel which is axially movable, having the toothed wheel, and the key-levers and rocker-plate, and a part movable in graded extents in conjunction with the keys having the rack-bar engaging said toothed wheel, and the fixed part adjacent the register-wheel, into engagement with which the teeth of the register-wheel may be brought, of a lever intermediately pivotally mounted and another lever engaged by said first and having an engagement with the register-wheel to shift it axially, and the arm, *h*, on the rocker-plate for striking the first-named lever on the completion of the working movement of the key, substantially as described.

2. In a cash registering machine, the combination with the registering-wheel which is axially movable, having the toothed wheel, and the key-levers, and rocker-plate and a part movable in graded extents in conjunction with the keys having the rack-bar engaging said toothed wheel, and the fixed part adjacent the register-wheel, into engagement with which the teeth of the register wheel may be brought, of a lever intermediately pivotally mounted and another lever engaged by said first and having an engagement with the register-wheel to shift it axially and the arm, *i*, on the rocker-plate for contacting with the first named lever on the completion of the return movement of the key, substantially as described.

3. In a cash registering machine, the combination with the registering wheel which is axially movable, having the toothed wheel, and the key-levers and rocker-plate, and a part movable in graded extents in conjunction with the keys, having the rack-bar engaging said toothed wheel, and the fixed part adjacent the register-wheel into engagement with which the teeth of the register-wheel may be brought, of a lever intermediately pivotally mounted and another lever engaged by said first and having an engagement with the register-wheel to shift it axially, and the arm, *h*, on the rocker-plate for striking the first named lever on the completion of the working movement of the key, and the arm, *i*, on the rocker-plate for contacting with the first named lever on the completion of the return of the key and rocker-plate, substantially as described.

4. In a cash registering machine, the combination with the axially movable register-wheel having teeth, and the key-levers, and rocker-plate with the arms, *h* and *i*, and the stepped plate, *d*, having the rack-teeth, *d*², of the lever, *g*, engaging the register-wheel, the lever, *f*, engaging said lever, *g*, and contacted with by

said arms, *h* and *i*, on the completion of the working and return movement of the key-levers and rocker-plate, and a detent spring for maintaining the lever, *f*, in either of the positions in which it is positively set by said arms *h* and *i*, substantially as and for the purpose set forth.

5. In a cash registering machine, the combination with the axially movable register-wheel having teeth, and the key-levers, and the rocker-plate with the arms, *h* and *i*, and the stepped plate, *d*, having the rack-teeth, *d*², of the lever, *g*, engaging the register-wheel, the lever, *f*, engaging said lever, *g*, and contacted with by said arms *h* and *i*, on the completion of the working and return movement of the key-levers and rocker-plate and having the inclined end, 47, and a detent spring, 45, with the double incline, 46, for maintaining the lever, *f*, in either of the positions in which it is positively set by said arms, *h* and *i*, substantially as and for the purpose set forth.

6. In a cash registering machine, the combination with the axially movable register-wheel having teeth and the groove, 28, upon its arbor and the key-levers and rocker-plate with the arms *h* and *i*, and the stepped plate, *d*, with the rack-teeth, of the lever, *g*, intermediately pivoted and engaging, by one arm, said grooved register-wheel-arbor and having its other arm slotted, the intermediately pivoted lever, *f*, having the rear arm thereof united to the slotted arm of the lever, *g*, by the headed screw or stud, 52,—the forward arm of said lever, *f*, being extended so as to be contacted with by said arms *h* and *i*, substantially as described.

7. In a cash-registering machine, the combination with a series of key-levers, of a movable locking-bar therefor, a reciprocating rod directly connected to the locking-bar and having a projection, a pawl or trigger for engaging said projection, and a device primarily actuated by a key-lever for tripping the pawl on the completion of the movement of the key-lever, substantially as and for the purpose set forth.

8. In a cash-registering machine, the combination with a series of key-levers, of a movable locking-bar therefor, a reciprocating rod directly connected to the locking-bar and having a projection, a pawl or trigger for engaging said projection, and a dog movable in conjunction with the key-levers for releasing said pawl, substantially as and for the purpose set forth.

9. In a cash-registering machine, the combination with a series of key-levers, the rocker-plate, *B*, the locking-bar, *j*, with the spring, *j*¹, and the push-rod, *k*, directly connected to the locking bar and having the depending projection, *k*¹, of the swinging dog-carrier, *o*, linked to the rocker-plate, the spring-pressed dog, and the pivoted pawl for engaging said depending projection and having its nose in proximity to said dog, all substantially as and for the purposes set forth.

10. In a cash-registering machine, the combination with a series of key-levers and a movable locking-bar therefor, and a reciprocating rod connected to the key-lever locking-bar, of a locking-bar movable to engage and disengage said rod and the cash-drawer having, when in its closed position an engagement with the locking-bar for the push-rod to move it into its disengaging position, substantially as set forth.

11. In a cash registering machine, the combination with a series of key-levers and a movable locking-bar therefor and a reciprocating rod connected to the key-lever locking-bar, of a locking-bar, *t*, movable to engage and disengage the rod, the lever, *q*, having the connection with the push-rod locking-bar and the cash drawer having a part which, as the drawer closes, impinges against said lever, substantially as and for the purpose set forth.

12. In a cash-registering machine, the combination with the series of key-levers and the inclosing cabinet having an aperture in its front, of the swinging locking-bar, *j*, with the spring, *j*⁴, and the push-rod having its knobbed forward end extended through said aperture and having the depending projection, *k*⁴, a lock, as D, for locking at pleasure the push-rod in its rearward position, a pawl or trigger for engaging said depending projection, a device primarily actuated by any of the key-levers for tripping the pawl on the completion of the movement of such key-lever, the locking-bar, *t*, for locking the push-rod in its forward position, the lever, *q*, connected to said bar, *t*, and the cash drawer operating in conjunction with the said lever, all substantially as and for the purposes set forth.

JEROME J. WEBSTER.

Witnesses:

WM. S. BELLOWS,

K. I. CLEMONS.