(No Model.)

3 Sheets—Sheet 1.

J. J. WEBSTER. & W. W. DREW.

CASH REGISTER AND INDICATOR.

No. 447,264. Patented Feb. 24, 1891.

Fig. 1.

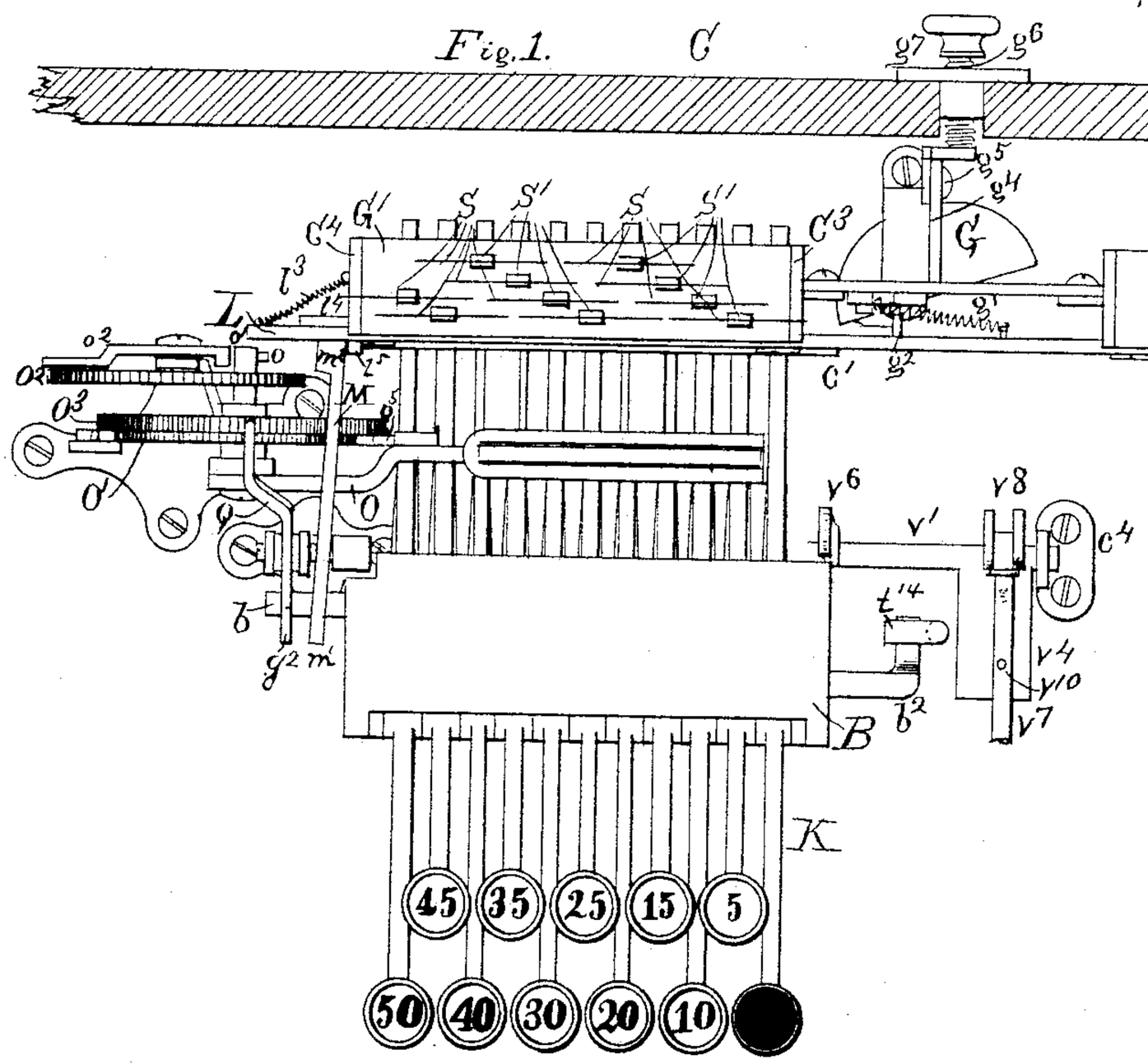
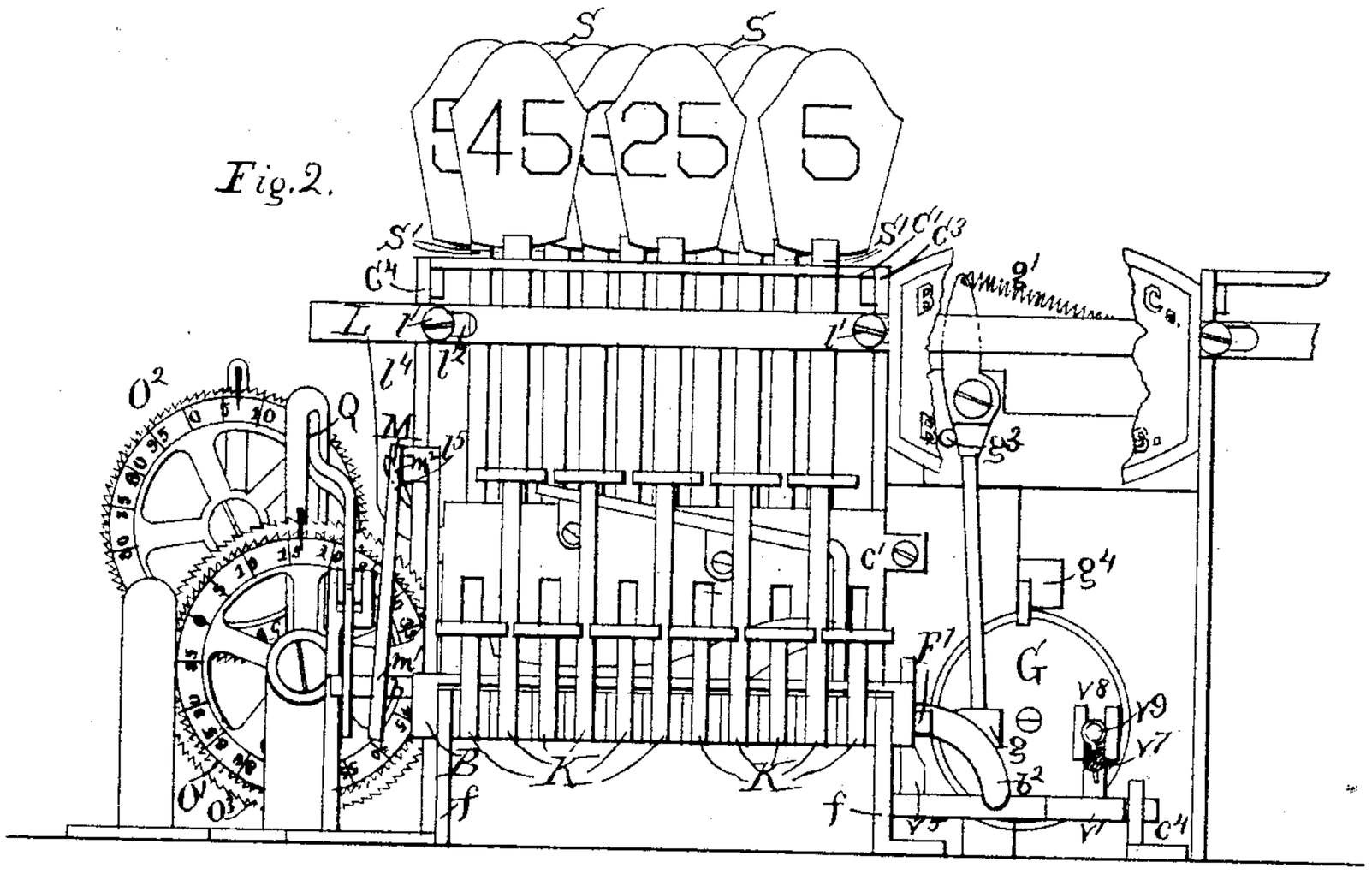


Fig. 2.



Witnesses.

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(No Model.) 3 Sheets—Sheet 2.

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Fig. 3.

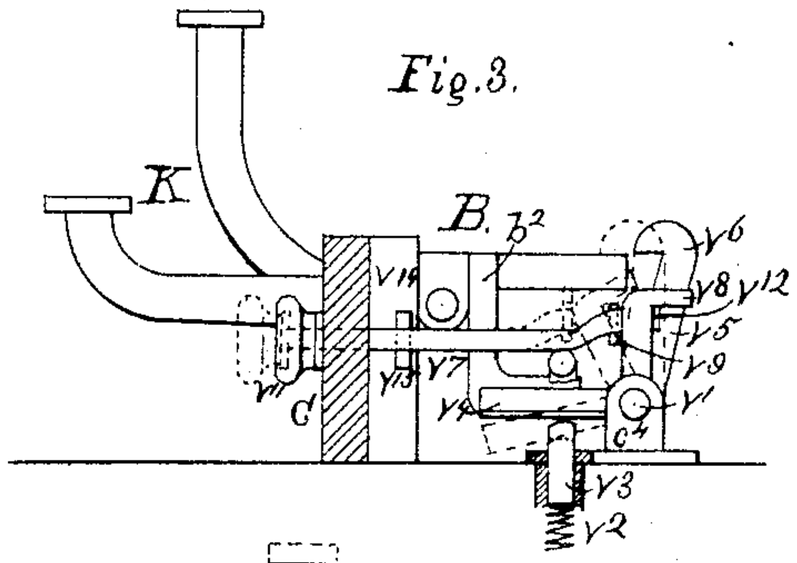
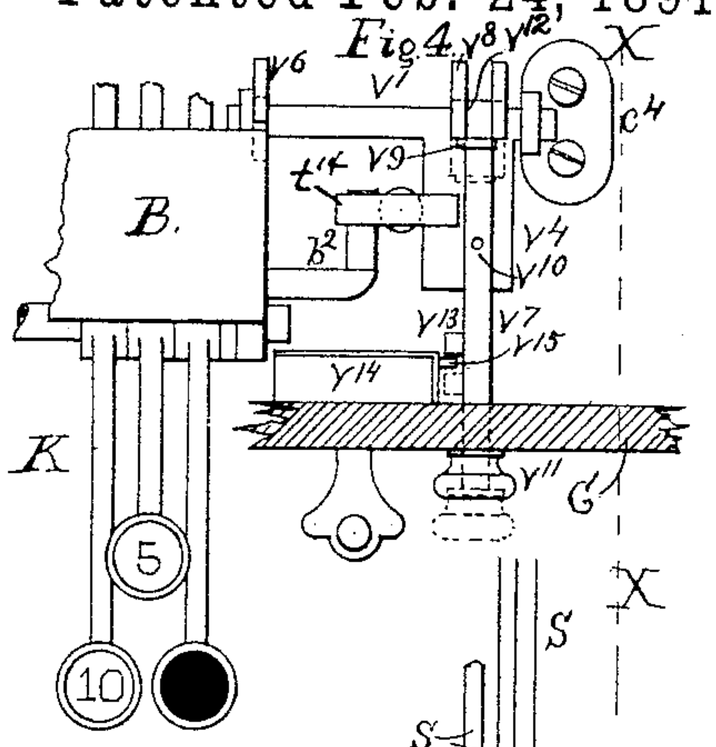


Fig. 4.



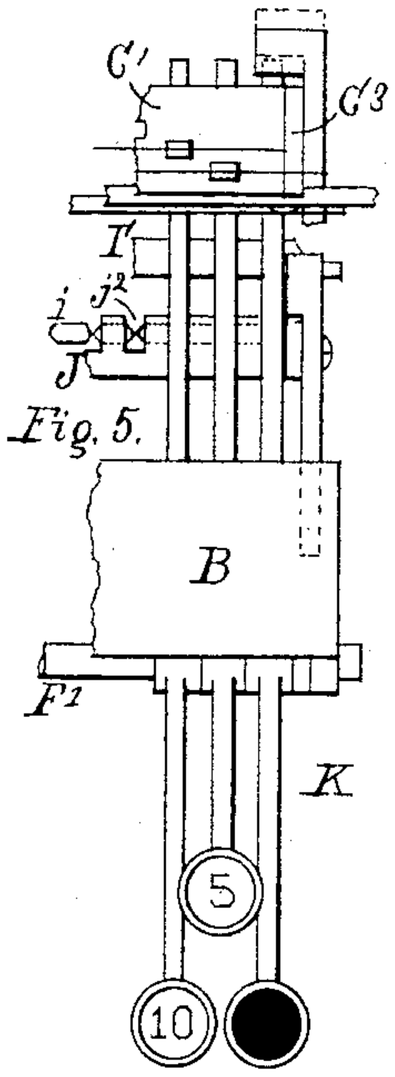
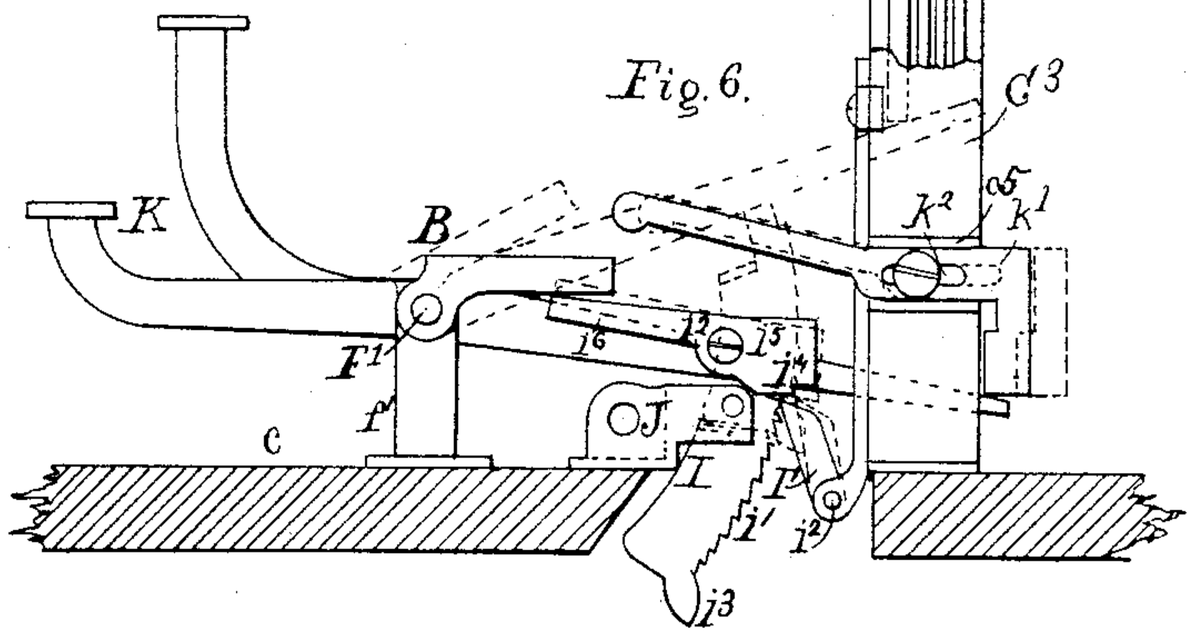


Fig. 5.

Fig. 6.



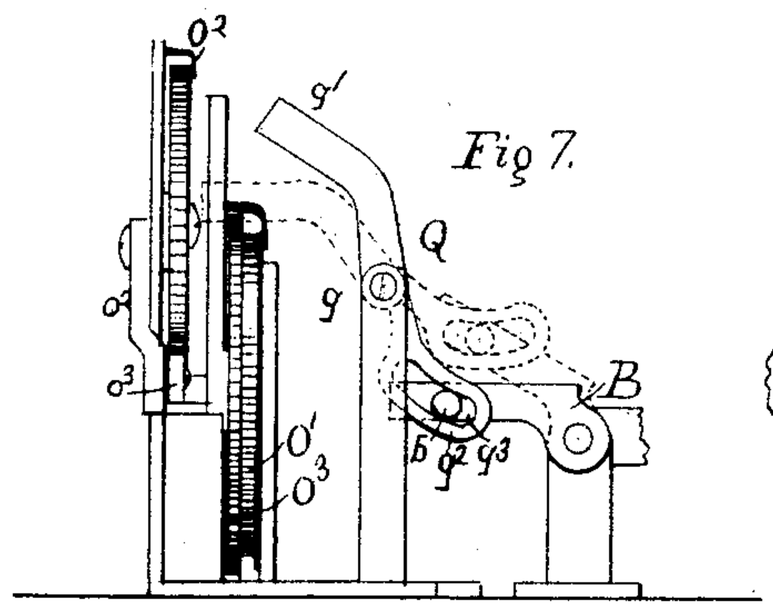
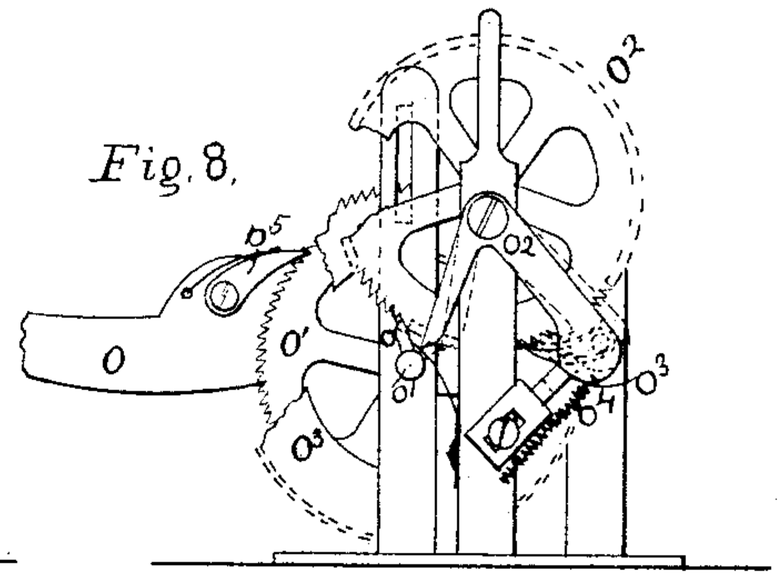


Fig. 7.

Fig. 8.



WITNESSES

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(No Model.) 3 Sheets—Sheet 3.

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CASH REGISTER AND INDICATOR.

No. 447,264. Patented Feb. 24, 1891.

Fig. 9

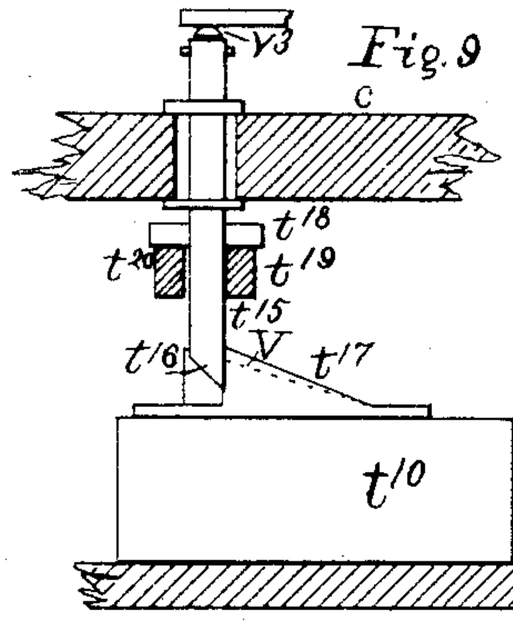


Fig. 10.

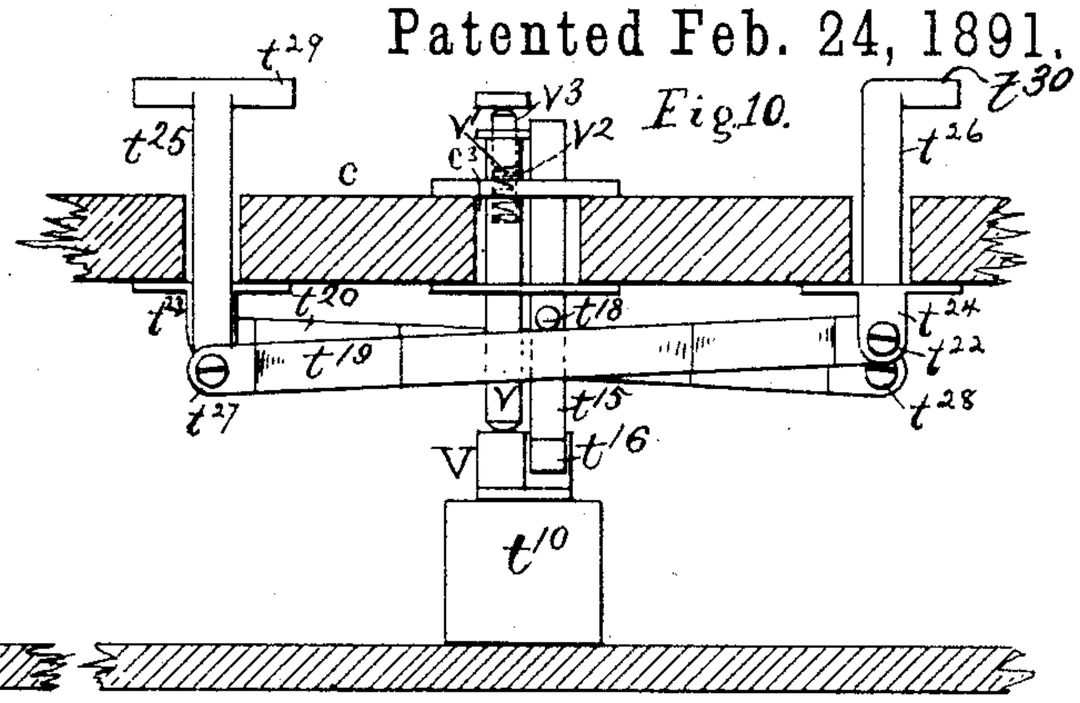


Fig. 11.

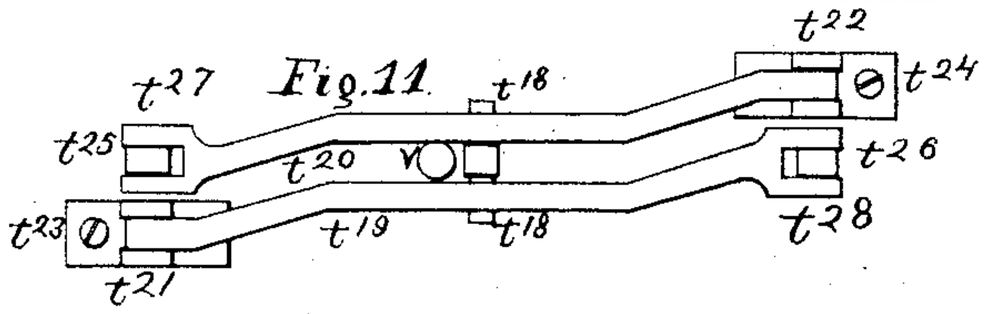


Fig. 12

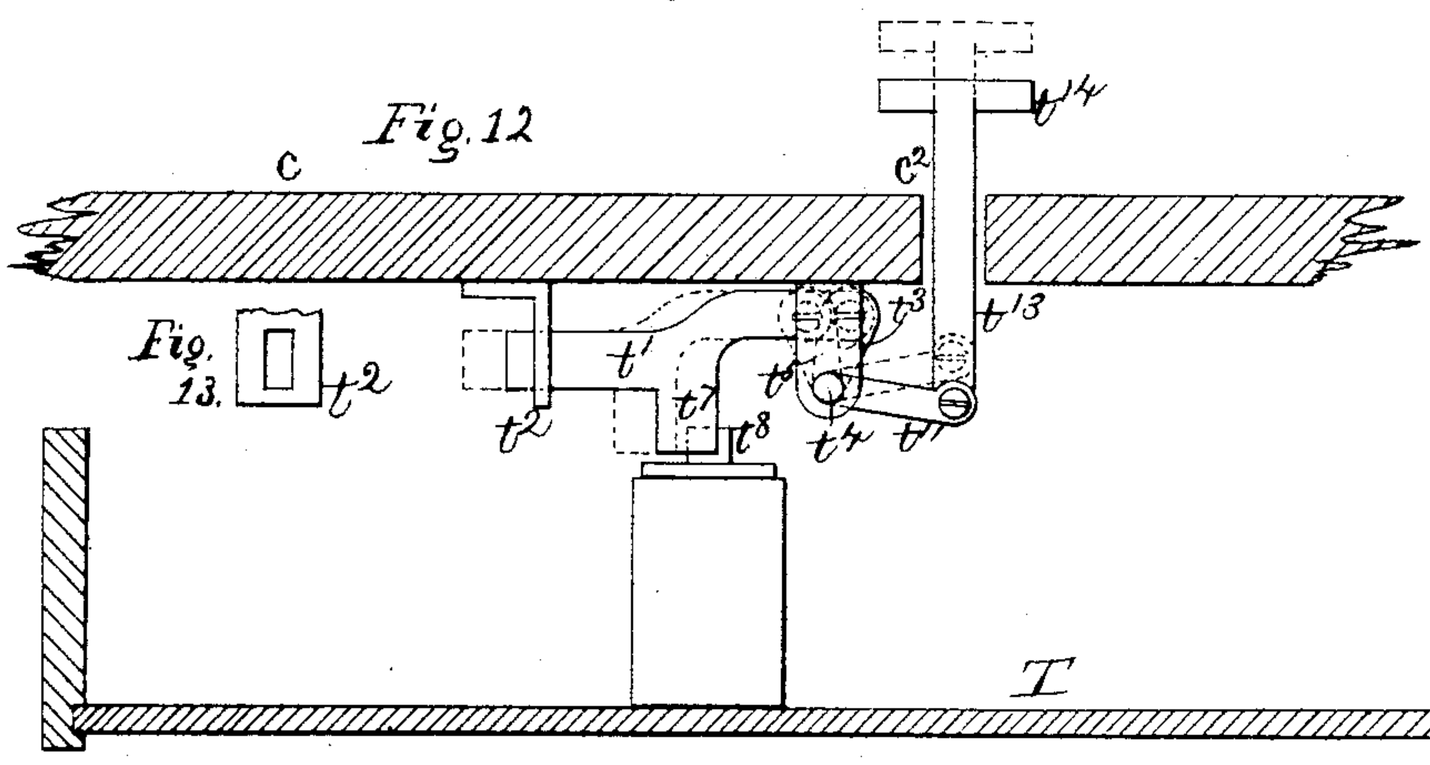
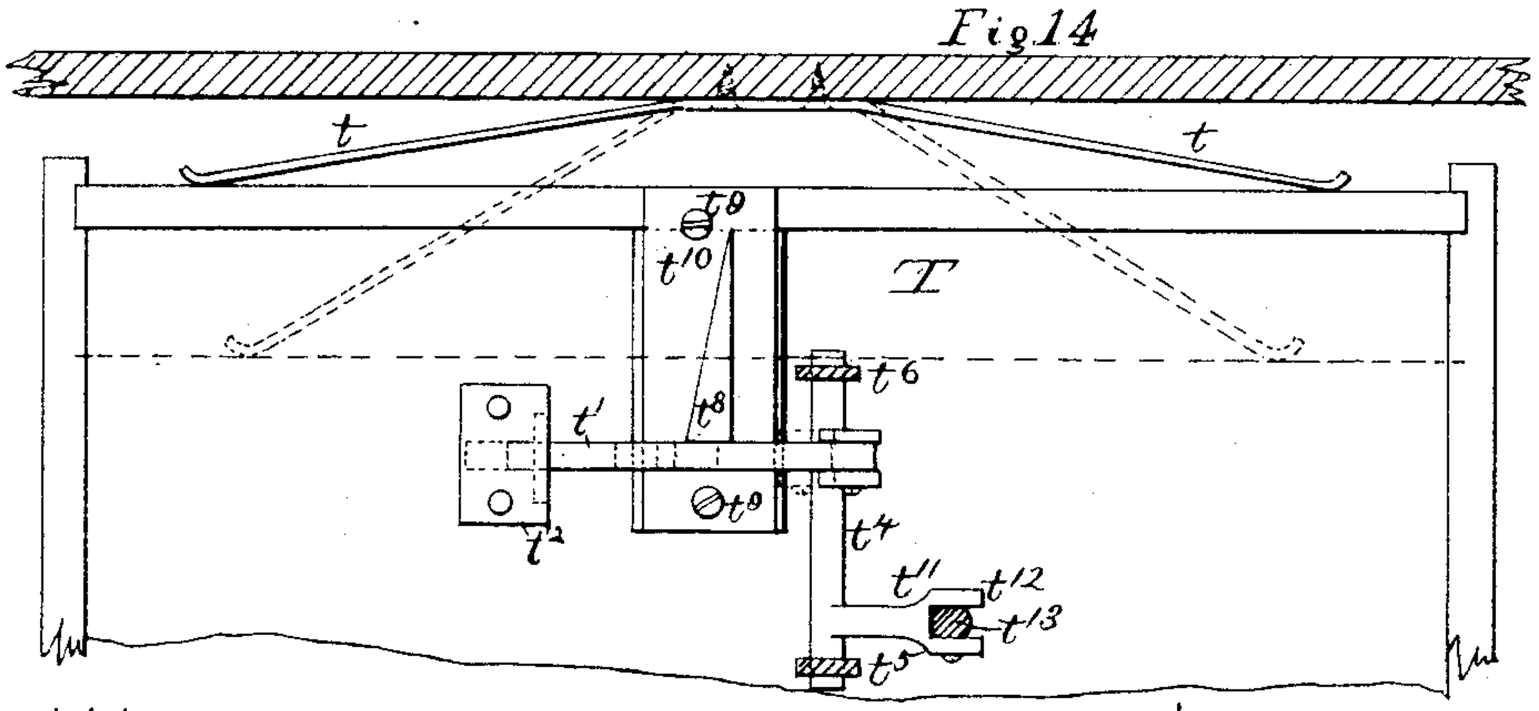


Fig. 13.

Fig. 14



WITNESSES

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UNITED STATES PATENT OFFICE.

JEROME J. WEBSTER AND WILLIAM W. DREW, OF SOMERVILLE, MASSACHUSETTS, ASSIGNORS TO THE BOSTON CASH INDICATOR AND RECORDER COMPANY, OF BANGOR, MAINE.

CASH REGISTER AND INDICATOR.

SPECIFICATION forming part of Letters Patent No. 447,264, dated February 24, 1891.

Application filed June 26, 1889. Serial No. 315,618. (No model.)

To all whom it may concern:

Be it known that we, JEROME J. WEBSTER, a subject of Victoria, Queen of the United Kingdom of Great Britain and Ireland, and WILLIAM W. DREW, a citizen of the United States, both residing at Somerville, in the county of Middlesex and Commonwealth of Massachusetts, have invented a certain new and useful Improvement in Cash Indicators and Registers, of which the following is a specification.

Our invention relates to cash indicators and registers, and it consists in the means hereinafter described and claimed of preventing the operation of the machine when the drawer is open, or, at will, of permitting such operation when said drawer is open; means of entirely preventing the operation of the machine when desired, as during the absence of the person in charge thereof; means of disengaging the pawl from the keys and of holding the pawl out of engagement with said keys; means whereby the drawer may be opened and the alarm sounded by the depression of a key reserved for that purpose without operating the indicating or registering devices, and means for locking said key on the inside of the case, if desired, to prevent the operation of the same; means of holding the drawer closed and of opening the same upon the depression of any key; means of preventing the drawer from being thrown entirely out of the case by the spring, and means of releasing the drawer to allow the same to be entirely removed from the case.

In the accompanying drawings, Figure 1 is a plan of the operative mechanism of a complete section of our improved indicator and register; Fig. 2, a front elevation of the same; Fig. 3, a section on the line $x\,x$ in Fig. 4, showing a side elevation of a part of some keys and of the rocking-plate lock, said lock being shown in full lines out of engagement with said rocking plate and in dotted lines in a position to prevent the movement of said rocking plate; Fig. 4, a plan of the parts shown in Fig. 3; Fig. 5, a plan of part of the rocking plate and fulcrum-rod, key-stops, part of the pawl which engages the racks of the keys, the pawl-holder, the blank-key lock, signals, and signal-rods: Fig. 6, a side elevation of the parts shown in Fig. 5, the dotted lines showing the rocking plate, the rear arm of one of the keys, the key-pawl, or pawl which holds up the keys, and the pawl-holder in the position it has when said key is fully depressed; Fig. 7, a left side elevation, and Fig. 8 a rear elevation, of the registering-wheels, showing the means which rotate one of said wheels a single tooth for each complete revolution of the other of said wheels, showing also parts of the locking-lever and registering-lever; Fig. 9, a right side elevation of the preferred form of the drawer-lock, a vertical section in the plane of the axis of said bolt, of the unbolting-levers, of a part of the drawer, and of a part of the case; Fig. 10, a front elevation of the drawer-lock shown in Fig. 9, the unbolting-levers, their supporting-brackets, and the rod which holds the hooks out of engagement with the rocking plate, and a vertical section of part of the case and of part of the drawer; Fig. 11, a plan of the bottom of said unbolting-levers, the bolt and the rod which holds the hooks out of engagement with the rocking plate; Fig. 12, a front elevation of a modified form of drawer-lock, a part of the case and the drawer being in vertical transverse section; Fig. 13, a side elevation showing the shape of the bolt and guide shown in Fig. 12; Fig. 14, a plan of the drawer and its lock and a horizontal section of the back of the case, the dotted lines showing the position of the spring and drawer when the drawer is open.

The case C, the fulcrum-rod F′, turning on brackets or stands $f\,f'$, secured on the top of the table c of said case, the keys K, except as hereinafter stated, the vertical guides c', the signals S, supported on vertical signal-rods S′, each resting upon the rear arm of a key K, near the end of said key, and guided in horizontal guides C′ C^2, secured to vertical standards C^3 C^4, said signals and keys bearing corresponding numbers, the registering-lever O, provided with a pawl o^5, the registering-ratchet O′, turning on the same center with said registering-lever and engaged by

said pawl and having numbered teeth, and the lever O, turning said ratchet O′ a number of teeth when any key is depressed corresponding to the number indicated on said key, the stop-wheel or stop-ratchet O^3, secured to said register-ratchet O′ concentrically therewith, the stop-lever Q, turning on a horizontal pivot q and having an upper arm q' thrown into engagement with the teeth of said stop-ratchet, when the rear edge of the rocking plate B is raised by the complete depression of any key to prevent the registering-ratchet from overregistration, said rocking plate B, the last-named plate, extending over all the keys of a group and having a pin b, which enters a slot q^3 in the lower arm q^2 of said stop-levers, are all of the construction and operation shown in Letters Patent No. 393,089, dated November 20, 1888.

The horizontally-sliding locking-rod L, having backward horizontal projections, (not shown,) horizontal slots l^2, through which screws l' are driven into the vertical standards C^3 C^4 and operated in one direction by a spring l^3, and having a downhanging arm l^4, provided with a forwardly-projecting cam-stud l^5, the sides of which are inclined downward from left to right, are substantially as shown in Patent No. 377,342, dated January 31, 1888, said projections on the locking-rod being adapted to pass under forwardly-projecting pins (not shown) secured to said signal-rods S′, and to hold said signal-rods in a raised position.

The locking-rod is operated in the other direction by an unlocking-lever M, the rear arm m of which is substantially like the rear arm of the corresponding lever in the patent last referred to, and is provided with an incline m^2, corresponding to the incline or cam-stud l^5, but the front arm m' of which is slotted through from side to side and receives a pin b, which projects laterally from said rocking plate B, so that raising the rear edge of said rocking plate throws the incline m^2 down past said cam-stud l^5 and throws the locking-rod to the left, the spring l^3 immediately throwing it back again, and said incline m^2 rising above said cam-stud when the rocking plate is restored to position.

The means for preventing the simultaneous depression of two keys of the same group are substantially the same as shown in the application of Knapp and Little, Serial No. 291,412, filed November 20, 1888, and now pending, the same consisting of a stop-case J, arranged at right angles to the keys and having in its back as many vertical slots j^2 as there are keys, each key having a downhanging stop-separator I, of uniform thickness, except at the top edge i, which is wedge-shaped to enter between the stops i and shove them aside upon the depression of any key, and the combined length of the stops and the inside length of the case being such as to allow only one stop-separator to rise at a time.

To secure a complete depression of the keys and a complete registration of the amount indicated, each key is provided with an arc-shaped rack i', concentric with the fulcrum-rod on which the key turns, substantially as shown in an application filed January 2, 1889, by the said Webster, Serial No. 295,137, (except that in this case the rack is below instead of above the body of the key, being cut on the back of the stop-separator I,) being engaged by a pawl I′, extending back of all said racks and pivoted at its lower edges at i^2, substantially as described in said last-named application.

The rear end of each key is provided with a finger i^3, which projects backward from the lower end of the stop-separator I, and when the key is fully depressed strikes the front face of the pawl I′ and throws said pawl backward past a notch or shoulder i^4 on the under side of the rear arm i^5 of a catch-lever I^2, said rear arm i^5 being heavier than the front arm i^6 of the same, and said front arm extending under the rocking plate B, so that when a key is fully depressed and the pawl I′ is thrown back the shoulder i^4 engages the upper edge of said pawl and prevents its swinging forward until the key is restored to position, and the rocking plate in descending strikes on the top of the front arm of said catch-lever and raises the rear arm of said catch-lever out of such engagement.

One of the keys K—the one with the black button at the right in Figs. 1, 4, and 5—is a blank key, which merely rocks the plate B, drops any signal which may be exposed, rings the alarm-bell hereinafter described, and opens the drawer, as hereinafter described, but does not cause any indication or registration. It is desirable that this key should not be operated, except by the proprietor or a trusted clerk, and therefore this key may be locked by a lock-slide k', Fig. 6, provided with a horizontal slot k^2, through which a screw-stud is driven into the vertical standard C^4, said slide being arranged between horizontal guides c^5 on said standard, and having a downwardly-extending arm, which, when said slide is drawn forward, stands over the rear end of said blank key and prevents the depression of the front end thereof.

The slide k' is provided with an upwardly-extending handle, by means of which it may be drawn forward to lock said blank key or pushed backward out of the path of said key. This slide of course cannot be operated except when the case (the key of which is carried by the proprietor or other person in charge of the business) is opened.

The registering-gear O^2 has, as shown, preferably one hundred teeth, and is rotated an angular distance, measured by one tooth thereof, at each complete rotation of the registering-ratchet O′, by means of a wiper o, Fig. 8, secured to the arbor or hub o' of said registering-ratchet, which wiper once in every revolution of said ratchet strikes and pushes aside the pawl-lever o^2 and causes a pawl o^3,

pivoted on said pawl-lever, to slide over one tooth of said registering-gear. When the wiper runs off from said pawl-lever o^2, the latter and the pawl o^3 are restored to position by the spring o^4, thereby rotating said gear O^2 one one-hundredth of a revolution. (See Figs. 1, 7, and 8.)

The gong or alarm-bell G and the striker or hammer g are supported in the usual manner upon the frame of the machine, the hammer being drawn in one direction by a spring g', connecting said striker above its pivot to the frame, and in the other direction away from the bell by a backwardly-extending stud g^2 on the locking-rod L, so that when said striker is released by said rod it is drawn by said spring nearly into contact with said bell, hits the stop-pin g^3, (on the frame of the machine near the pivot of said striker,) is carried by its momentum against said bell, the lower arm of said striker yielding slightly for that purpose.

It is sometimes desirable to muffle the sound of the bell. We therefore provide a muffler g^4, the same being a bent lever turning on a vertical pivot g^5 and operated by a screw g^6 turning in a stationary nut g^7, secured in the back of the case C, the front end of said lever g^4 being provided with a hook which, when the screw is turned in and the front end of said lever is moved to the left in Figs. 1 and 2, reaches over the edge of the bell and is in contact with the same and stops the vibration thereof. Turning the screw in the other direction moves the front end of the lever or muffler g^4 out of contact with the edge of the bell, said bell being preferably set at an angle with the back of the case, as shown in Fig. 1.

The drawer T is thrown outward by a leaf-spring t, (shown in Fig. 14,) secured to the inside of the back of the case and pressing against the back of the drawer T in the usual manner when the bolt t^{15} is raised, as hereinafter described.

It is thought desirable that the registering and indicating mechanisms should be capable of operation only when the drawer is closed. Means are therefore provided to prevent the depression of any key while the drawer is open, all the operations of the machine depending upon the depressions of the keys. An incline V, (see Figs. 9 and 11,) ascending from back to front and secured to the top of the partition or post t^{10} in the drawer, runs under a pin v, which slides vertically in a hole c^3 in the table c, said pin having a central orifice v' in the top thereof, containing a spring v^2, and another vertical pin v^3 resting upon said spring within said orifice. Another rock-shaft V′ turns in brackets c^4, supported upon the table c and is provided with a forwardly-extending arm V^4, which rests upon the top of the pin v^3, and is also provided with as many upwardly-extending arms v^5 as there are rocking plates, or, in other words, as there are groups of keys, each of said arms v^5 having at its upward end a forwardly-reaching hook v^6, which reaches over the rear edge of a rocking plate when the drawer is open and prevents the rocking plate from being rocked, and therefore prevents the depression of any key, the weight of the arm v^4 being sufficient to rock the shaft V′ and throw the hooks v^6 forward. When the drawer is pushed in or closed and the pin v is raised, as above described, the shaft V′ is pushed in the other direction to throw said hooks out of engagement with the rocking plate. When for any reason, as in a rush of business, to save time required to close the drawer it is desired to leave the drawer open, the hook v^6 may be held out of engagement with the rocking plate by a rod v^7, secured to the inside of the front of the case and projecting backward between the tines of the forked arm v^8, secured to the shaft V′, said rod v^7 having a vertical hole, through which a pin v^9 is placed just in front of said fork when the drawer is closed and the hooks v^6 are thrown back off from the rocking plate, said pin preventing a forward movement of said forked arm, and therefore preventing the hooks from swinging over said plate when the drawer is open. The rod may have another vertical hole v^{10}, merely to receive the pin v^9 when not in use for the purpose above stated, said hole last named being far enough in front of the forked arm v^8 to permit the full movement of the same. It is preferred, however, to have the rod v^7 slide in the case, as shown in Figs. 3 and 4, and to provide the same with a knob or handle v^{11} on the outside of the case, and with an enlargement v^{12} back of said fork, and to leave the pin v^9 in the position first above named against the front of the fork, so that said rod v^7 slides in and out as the shaft V′ rocks in one direction or the other. The rod v^7 is also provided with a lateral projection v^{13} inside the case, and a lock v^{14}, of any approved construction, is secured to the case in such a position that its bolt v^{15} may be shot in behind said projection v^{13} to hold the rod v^7 and the hooks v^6 in the position shown by dotted lines in Figs. 3 and 4, the hooks being in engagement with the rocking plate, and thus prevent the opening of the drawer or the operation of any part of the machine after the drawer is closed.

The object of making the pins v v^3 separate from each other and interposing the spring v^2 between them is to allow the drawer to be closed after the hooks have been locked in their forward position without breaking the rocking plate or said pins, said spring v^2 yielding sufficiently to allow this to be done, but being strong enough to raise the rocking plate at other times; or, if desired, the bolt v^{15} may be shot in front of said projection v^{13} to hold the hooks v^6 out of engagement with the rocking plate and allow the machine to operate when the drawer is open.

In Figs. 9 to 11 the bolt t^{15} moves vertically, having a beveled lower end t^{16}, and is raised

by an incline t^{17} similar to the incline V, but shorter, Fig. 9, and also secured to the top of the post or partition t^{10}. When the drawer is pushed in as far as it will go, the bolt t^{15} drops down in front of said incline t^{17} and locks the drawer. Said bolt is provided with pins t^{18} or ears, which rest upon levers t^{19} t^{20}, respectively, pivoted at t^{21} t^{22} in brackets t^{23} t^{24}, secured to the under side of the table or horizontal partition *c*. The levers t^{19} t^{20} are jointed at their free ends at t^{27} t^{28} to the lower ends of the vertical rods t^{25} t^{26}, which are provided with T-shaped or laterally-extending heads t^{29} t^{30}, which project over arms, as b^2, Figs. 1, 3, and 4, on the rocking plate B, so that rocking said rocking plate by the depression of any key raises said rods t^{25} t^{26}, lifts the bolt t^{15} high enough to be out of the way of the incline t^{17}, and allows the drawer to be thrown open by the spring, as above described. This construction allows a single drawer-locking bolt to be raised by rocking plates arranged at a considerable distance from each other and operated by different banks or groups of keys.

In the modified form of the drawer-locking apparatus shown in Figs. 12 to 14 the drawer T is locked by a bolt t', sliding in a bracket t^2, secured to the under side of the table *c* of the case near one end of said bolt. The other end of said bolt is pivoted to the upper end of a vertical arm t^3 of a rock-shaft t^4, turning in brackets t^5 t^6, also secured to the under side of said table *c*. The bolt t' has a downward projection t^7, adapted to be struck and pushed aside by the cam t^8, secured to the drawer T by screws t^9, which enter the above-named post or partition t^{10} in said drawer when the drawer is pushed inward. The rock-shaft t^4 has another arm t^{11}, the free end of which is provided with a fork t^{12} to receive the lower end of a rod t^{13}, the upper end of which rod is provided with a T-shaped head t^{14} above the table *c*, the shank of the rod passing through an opening c^2 in said table *c*. An arm b^2, projecting from the rocking plate B, reaches under the head t^{14}, (see Fig. 4,) and when said plate is rocked by the depression of a key lifts said rod t^{13}, rocks the shaft t^4, and pushes the bolt t' into the position shown by dotted lines in Fig. 9, moving the projection t^7 on said bolt from in front of the cam t^8 and allowing the drawer to be thrown open by the spring *t*. The weight of the arm t^{11} and rod t^{13} will generally be sufficient to restore them and the bolt to their normal positions; but their return motion may be assisted by a spring, if desired.

We do not herein claim as our invention the combination of an operating-key provided with a rack, a pawl arranged to engage said rack when the key is partially operated and to be disengaged therefrom when the key has been fully operated, a latch for holding the pawl and rack out of engagement while the key is being reset, and a trip for releasing said latch, as the same is not our joint invention, but the sole invention of said Webster; nor do we claim the combination, with an operating-key provided with a rack having a projection at one end, of a pawl arranged to engage said rack when the key is partially operated, and to be disengaged therefrom by the projection at the end of the rack when the key has been fully operated, a latch for holding the pawl and rack out of engagement while the key is being reset, and a trip for said latch, said combination not being our joint invention; but

What we do claim is—

1. The combination of a pivoted key provided with a rack and with a finger, a pawl engaging said rack to prevent the return of said key, said finger being adapted, when said key is fully depressed, to strike said pawl and to throw the same out of engagement with said rack, and a catch-lever having a weighted arm provided with a notch or shoulder to engage said pawl to hold the same out of engagement with said rack and to allow said key to return to position, as and for the purpose specified.

2. The combination of a pivoted key provided with a rack and with a finger, a pivoted rocking plate arranged above said key and raised by the depression of said key, a pawl normally engaging said rack to prevent the return of said key, said finger being adapted, when said key is fully depressed, to strike said pawl and to throw the same out of engagement with said rack, and a catch-lever having a weighted rear arm provided with a notch or shoulder to engage said pawl to hold the same out of engagement with said rack and to allow said key to return to position, the front arm of said catch-lever extending under said rocking plate and adapted to be struck and depressed by said rocking plate when said key returns to position, and to thereby raise said rear arm of said catch-lever out of engagement with said pawl and to allow said pawl to return to position, as and for the purpose specified.

3. The combination of a series of keys, each provided with a rack and with a finger, a series of stops adapted to prevent a depression of any key except when every other key of said series is in its normal position, and a pawl adapted to engage each of said racks to prevent the return of any depressed key until said key is fully depressed, the finger of said key being adapted, when said key is fully depressed, to strike said pawl and to throw the same out of engagement with said rack, as and for the purpose specified.

4. The combination of a series of keys, each provided with a rack and with a finger, a series of stops adapted to prevent a depression of any key except when every other key of said series is in its normal position, a pawl adapted to engage each of said racks to prevent the return of any depressed key until said key is fully depressed, the finger of said key being adapted, when said key is fully depressed, to strike said pawl and to throw the

same out of engagement with said rack, and a catch-lever having a weighted arm provided with a notch or shoulder to engage said pawl to hold the same out of engagement with said rack and to allow said key to return to position, as and for the purpose specified.

5. The combination of a series of keys, each provided with a rack and with a finger, a rocking plate arranged above said keys and raised by the depression of any of said keys, a series of stops arranged to prevent the depression of any of said keys except when every other key of said series is in its normal position, a pawl adapted to engage each of said racks to prevent the return of any depressed key until said key is fully depressed, the finger of said key being adapted, when said key is fully depressed, to strike said pawl and to throw the same out of engagement with said rack, and a catch-lever having a weighted arm provided with a notch or shoulder to engage said pawl to hold the same out of engagement with said rack and to allow said key to return to position, the front arm of said catch-lever extending under said rocking plate and adapted to be struck and depressed by said rocking plate when a depressed key returns to position, and thereby to raise said rear arm of said catch-lever out of engagement with said pawl and to allow said pawl to return to position, as and for the purpose specified.

6. In an indicating-machine, a series of numbered keys, indicating devices adapted to be operated by said keys to display numbers corresponding with the numbers on said keys and simultaneously to withdraw from view previously-indicated numbers, another key adapted to withdraw from view said previously-displayed numbers without displaying other numbers, and a slide adapted to be moved over the rear end of said last-named key to prevent the operation of said last-named key, as and for the purpose specified.

7. In an indicating and registering machine, a series of numbered keys, indicating devices adapted to be operated by said keys to display numbers corresponding with the numbers on said keys and to withdraw from view previously-indicated numbers, registering devices operated by said keys to register the total amount of the indicated numbers, alarm devices operated by said keys, another key adapted to withdraw from view said previously-displayed numbers without displaying other numbers and without operating said registering devices and said alarm devices, and a slide adapted to be engaged with the rear end of said last-named key to prevent the operation of said last-named key, as and for the purpose specified.

8. The combination of the case, the frame, a key, and a slide supported on said frame within said case and incapable of being moved when said case is closed, but adapted to be moved by the hand inserted in said case when the same is open over the rear end of said key and to prevent the front end of said key from being depressed, as and for the purpose specified.

9. The combination of the case, the drawer sliding in said case, a key arranged partly within said case, but extending outside of the same, a rocking plate arranged above said key and adapted to be raised by the depression of said key, a bolt normally locking said drawer when said drawer is closed and adapted to be drawn by the raising of said plate to allow said drawer to be opened, and means arranged within said case, substantially as described, of preventing the operation of said key, as and for the purpose specified.

10. The combination of the case, the frame, the drawer sliding in said case, a key, a rocking plate arranged above said key and adapted to be raised by the depression of said key, a bolt normally locking said drawer when said drawer is closed and adapted to be drawn by the raising of said plate to allow said drawer to be opened, and a slide supported on said frame within said case and adapted to be moved over the rear end of said key to prevent the front end of said key from being depressed, as and for the purpose specified.

11. The combination of the case, the drawer sliding in said case, the keys, the rocking plate actuated by any of said keys, a rocking bar provided with arms extending upward and having hooks, and with another arm weighted to throw said hooks over said rocking plate, said last-named arm being arranged above a pin which slides vertically in said case, said pin, an incline secured to said drawer and raising said pin when said drawer is closed to rock said bar and to throw said hooks from above said rocking plate to permit the operation of said keys and rocking plate, as and for the purpose specified.

12. The combination of the case, the drawer sliding in said case, the keys, the rocking plate actuated by any of said keys, the bolt normally locking said drawer, but adapted to be raised by the rocking of said plate to permit the opening of said drawer, a rocking bar provided with arms having hooks, and with another arm weighted to throw said hooks over said rocking plate, said last-named arm being arranged above a pin which slides vertically in said case, said pin, an incline secured to said drawer and raising said pin when said drawer is closed to rock said bar and to throw said hooks from above said rocking plate to permit the operation of said keys and rocking plate, as and for the purpose specified.

13. The combination of the case, the drawer sliding in said case, the keys, the rocking plate actuated by any of said keys, a rocking bar provided with arms extending upward, having hooks, and with an upwardly-extending fork, a rod sliding in a hole with which the case is provided in front of said rocking bar, and having a lateral projection, and a lock secured to said case and arranged to have its

bolt shot in behind said projection, the rear end of said rod being secured to said fork to hold said hooks over said rocking plate and to prevent the operation of said keys, as and for the purpose specified.

14. The combination of the case, the frame, the drawer sliding in said case, keys, a rocking plate arranged above said keys, a bolt sliding vertically in said case and normally locking said drawer when the same is closed, said bolt being provided with pins or ears, and levers pivoted in said case and reaching under said ears, the free ends of said levers being jointed to vertical rods having heads to engage with said rocking plate, as and for the purpose specified.

In witness whereof we have signed this specification, in the presence of two attesting witnesses, this 11th day of February, A. D. 1889.

JEROME J. WEBSTER.
WILLIAM W. DREW.

Witnesses:
GARDNER KNAPP,
CHARLES H. LITTLE.