

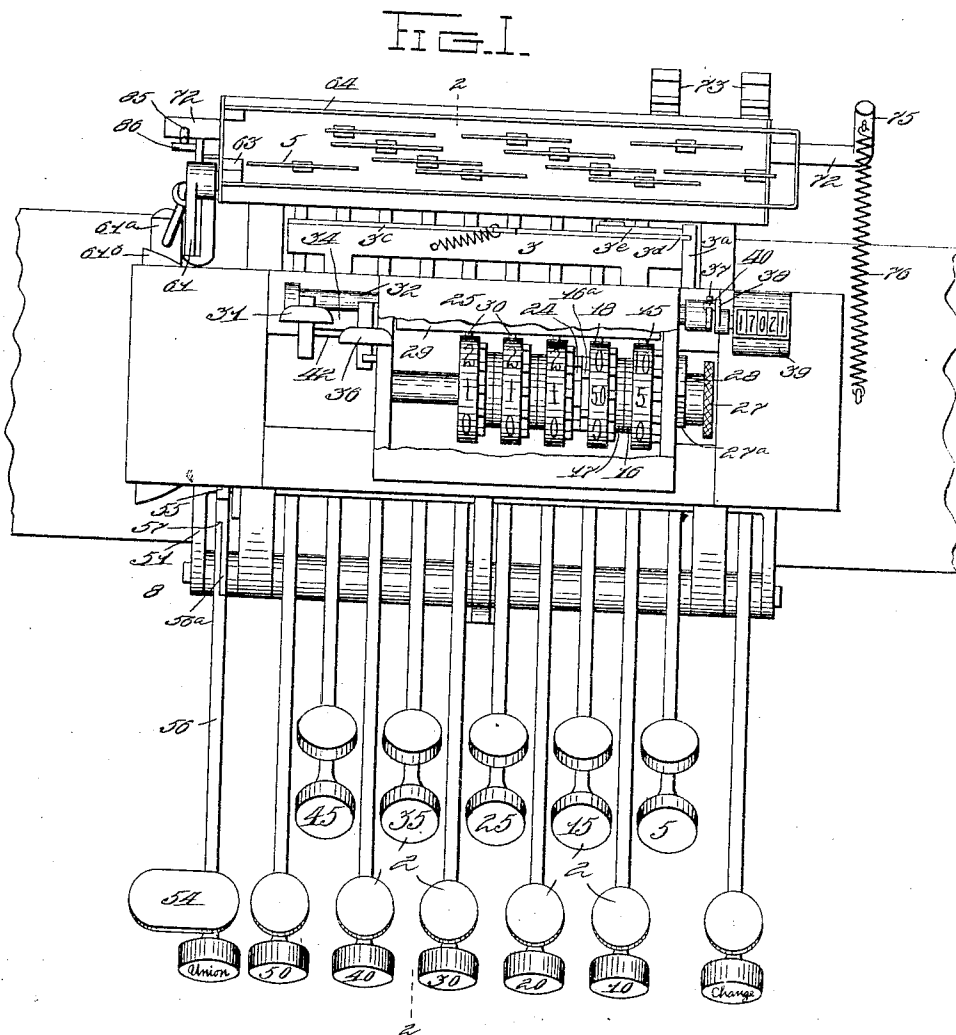
No. 823,511.

PATENTED JUNE 19, 1906

L. COONEY, JR.
CASH REGISTER.

APPLICATION FILED JUNE 4, 1903.

5 SHEETS—SHEET 1.



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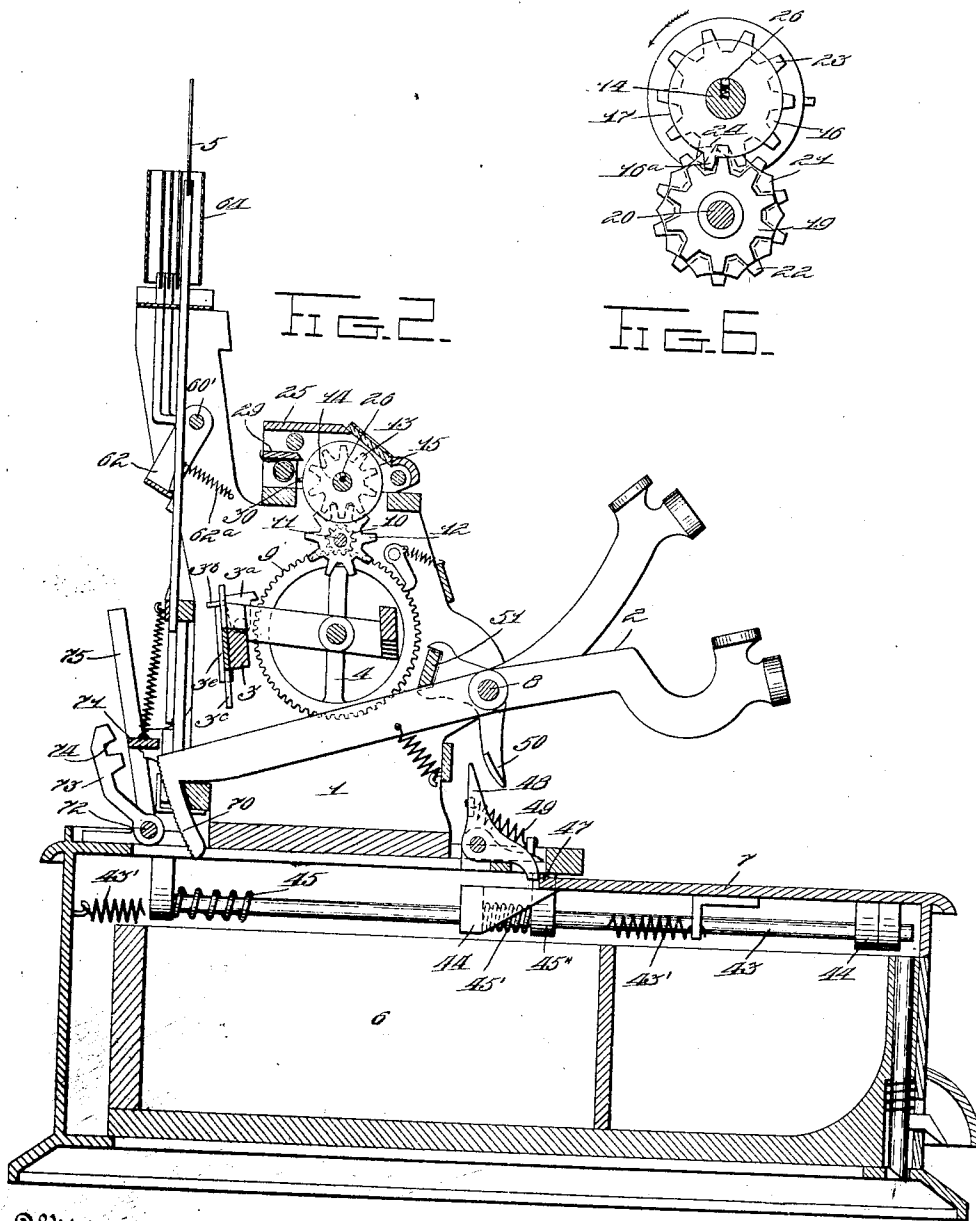
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5 SHEETS—SHEET 2.



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5 SHEETS—SHEET 3.

FIG. 7

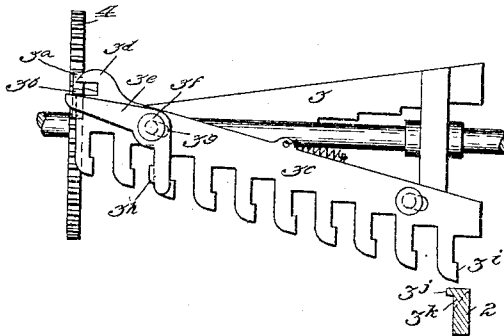


FIG. 3.

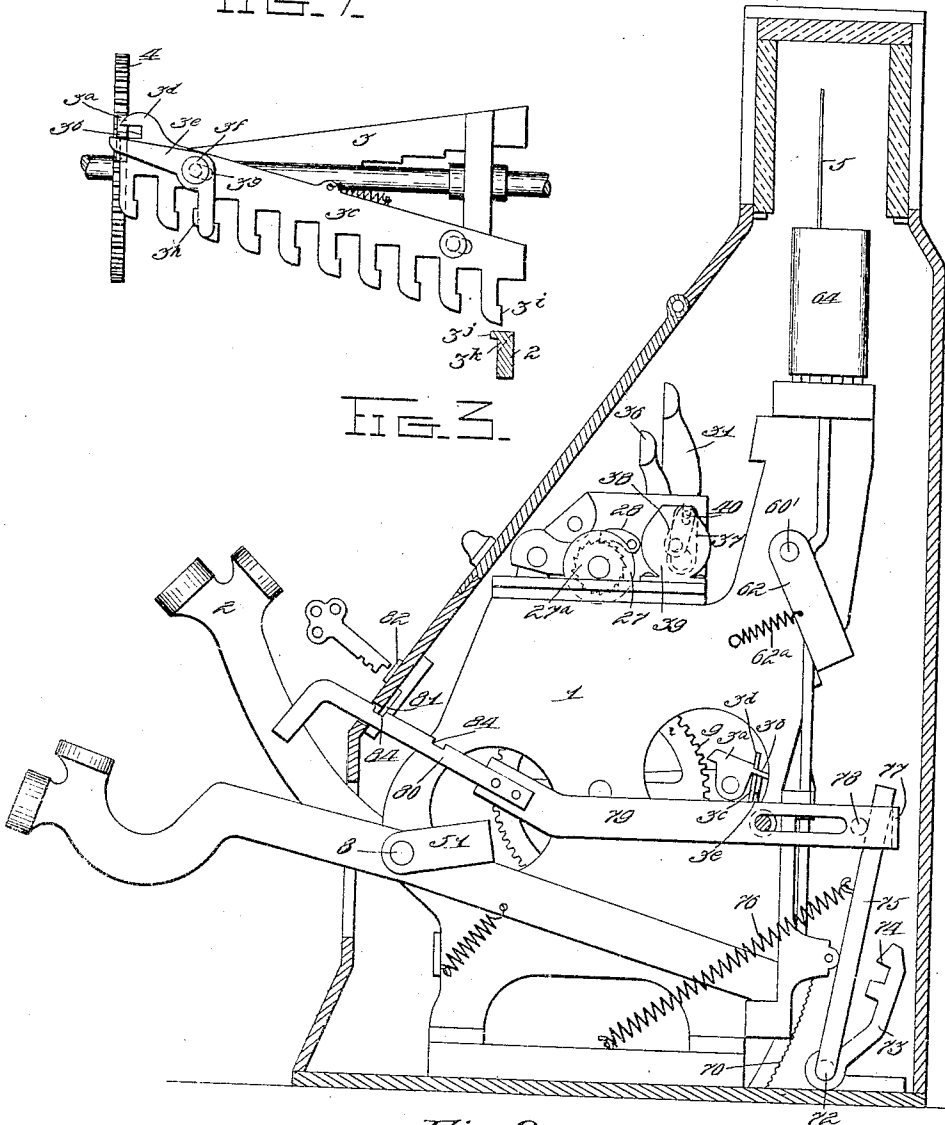
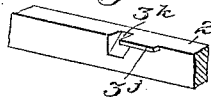


Fig. 8.



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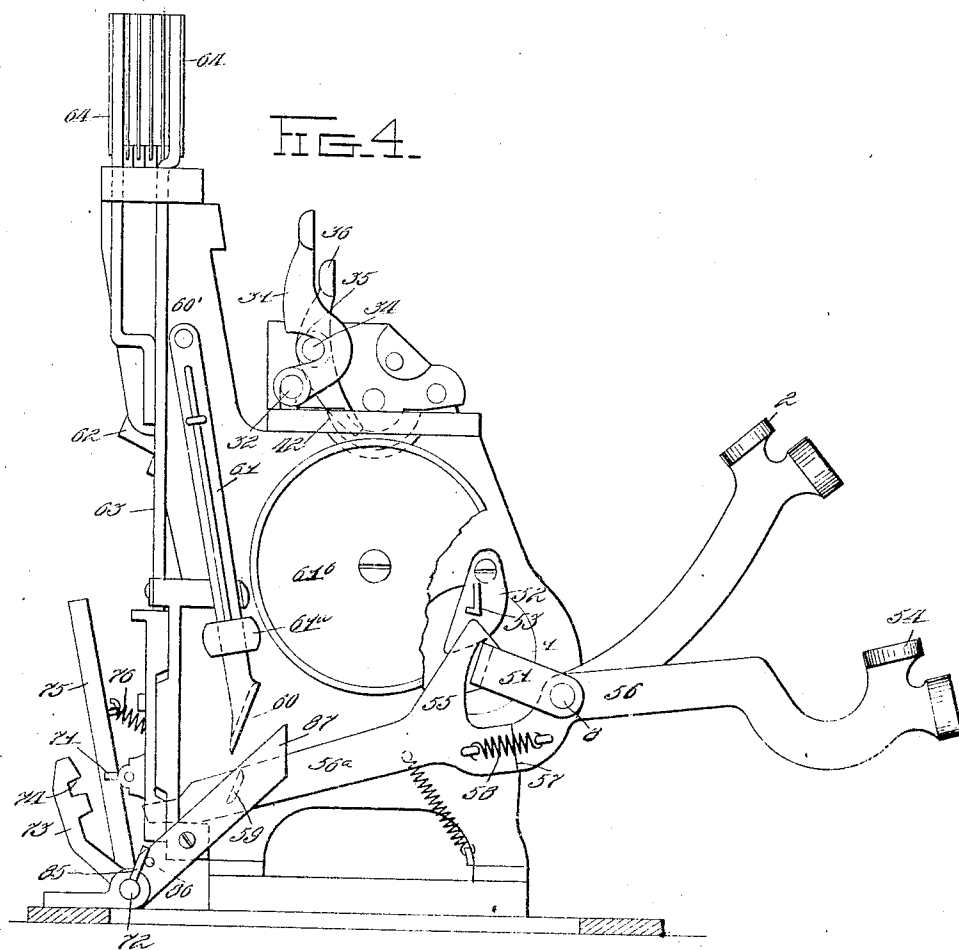
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5 SHEETS—SHEET 4.



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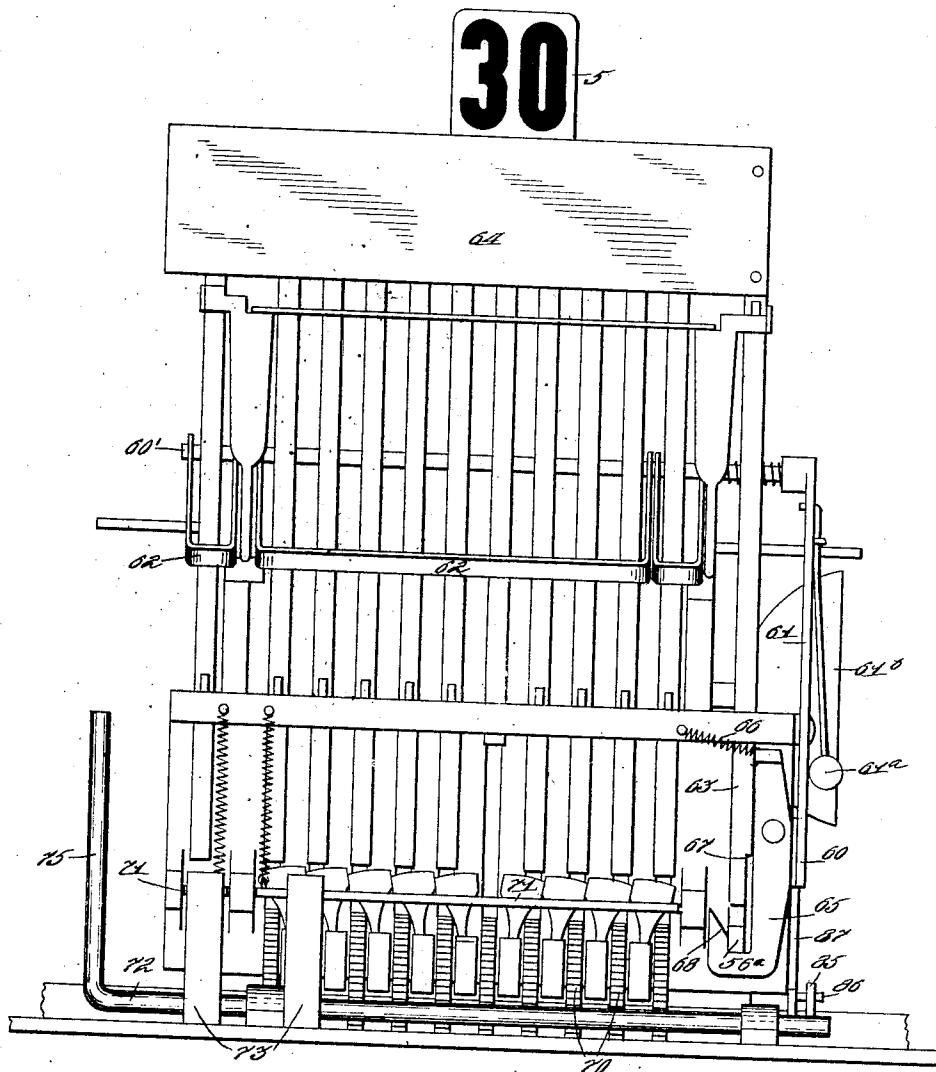
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5 SHEETS—SHEET 5.

FIG. 5.



Witnesses

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UNITED STATES PATENT OFFICE.

LUKE COONEY, JR., OF CHICAGO, ILLINOIS, ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE NATIONAL CASH REGISTER COMPANY, OF DAYTON, OHIO, A CORPORATION OF OHIO, (INCORPORATED IN 1906.)

CASH-REGISTER.

No. 823,511.

Specification of Letters Patent.

Patented June 19, 1906.

Application filed June 4, 1903. Serial No. 160,033.

To all whom it may concern:

Be it known that I, LUKE COONEY, JR., a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Cash-Registers, of which I declare the following to be a full, clear, and exact description.

This invention concerns more particularly improvements in cash-registers of the key-operated type, and in the present case, simply as an illustration of one application of the invention, the same is shown applied to the type of machine set forth in Letters Patent issued to me January 19, 1897, and numbered 575,331, although it will be apparent to those skilled in the art that the present improvements can equally well be applied to many other types of machines now at present well known on the market.

As above stated, this invention relates to the key-operated type of cash-register; and, more specifically stated, it relates to one in which a row of key-levers pivoted on a common center operate upon a rocking frame pivoted on a different center and having an inclined bar so that different keys move the frame different distances. It is intended to employ a limited number of keys for a great variety of amounts, and to do this it is necessary to arrange for the use of more than one key for a single transaction. Each key operates a tablet for indicating the amount represented by the key, and in an operation of the machine calling for the use of but one amount-key the single corresponding tablet is caught and held in indicating position. It is desirable to employ a screen to hide the indicator until the machine has completed its cycle of operation, and in the case of more than one key being required to indicate and register a single transaction the screen must remain in obscuring position while the second tablet is lifted and caught.

The present invention provides what is termed a "union-key," and this key controls the screen or flash. When any amount-key is depressed, this special or union key is likewise operated and then by holding the union-key down and letting the amount-key go back another amount-key can be operated, while the screen stays up, the arrangement

being such that the screen cannot drop until the special or union key is restored to its normal position. There is also combined with the union-key means for tripping previously-elevated tablets, so that in any operation of the machine the tablets indicating the previous transaction will first be tripped and drop out of sight.

The invention provides against any misuse of the machine by fraudulent manipulation of the special or union key, as by holding the same back when an amount-key is operated by resorting to the expedient of a jointed special-key lever, the inner section of which performs the functions above mentioned. It may be remarked in this connection that this inner section is normally locked, and it requires depression of one of the amount-keys to unlock it.

In the accompanying drawings, forming part of this specification, Figure 1 represents a top plan view, partly broken away, of a machine of the type mentioned with the improvements applied thereto, the cabinet and the cash-drawer being omitted. Fig. 2 represents a transverse vertical section through the machine on the line 2 2 of Fig. 1, also showing the cash-drawer. Fig. 3 represents an end elevation taken from the right of the machine, the cabinet being shown in section and the cash-drawer omitted. Fig. 4 represents an end elevation, partly broken away, taken from the left-hand end of the machine, the cabinet and the cash-drawer being omitted. Fig. 5 represents a rear elevation of the devices shown in Fig. 4. Fig. 6 represents a detail vertical section through the counter and counter-actuating devices. Fig. 7 represents an enlarged detail rear elevation of one of the registering-frames, its register-operating wheel and the connecting parts, and one of the key-levers in cross-section; and Fig. 8 represents a fragmentary perspective view of a key-lever.

In the drawings, 1 represents the frame of the machine; 2, the amount-keys; 3, the registering-frame; 4, the register-operating wheel; 5, the indicators; 6, the cash-drawer or till, and 7 the sliding cover. The keys 2 are pivoted upon a transverse shaft 8 in such manner that their rear ends cooperate with and become coupled to the stepped registering-

frame 3. This frame carries a pivoted pawl 3^a, which engages the register - operating wheel 4, and is provided with a tailpiece 3^b, whereby it is locked in engagement with the register-operating wheel. This locking is accomplished by the longitudinal slide 3^c, which locks the keys to the registering-frame by the engagement of its projections 3ⁱ under lugs 3^j on the keys, the latter having inclined recesses 3^k, the walls of which act against the projections 3ⁱ in rising and push the slide 3^c to one side. The relative displacement of the key-levers and register-frame by reason of their being on different centers then causes the projection on the key-lever to pass over the projection on the slide. An arm or hook 3^d of the slide projects over the tail 3^b of the pawl when the plate 3^c is moved longitudinally by the keys. A pivoted bell-crank pawl 3^e is mounted on the registering-frame by a pin 3^f, which projects through an elongated slot 3^g, formed in the slide 3^c. A lug 3^h projects from the bell-crank pawl 3^e into the path of one of the fingers of the plate 3^c, so that when the latter is moved longitudinally the pawl 3^e will be turned upon its pivot and will engage the under side of the tailpiece 3^b to lock the pawl 3^a firmly to the register - operating wheel. It will be observed that the locking engagement between the pawl 3^e and the pawl 3^a is a direct pressure and will result in very little wear taking place at these points.

The register or counter operating wheel 4 is formed upon its periphery with gear-teeth 9, which mesh with a pinion 10, mounted fast upon a short shaft 11, which is journaled in the main frame. This shaft 11 carries a toothed wheel 12, which meshes with a similarly-toothed wheel 13, journaled on the counter-shaft 14. (See Fig. 2.) This wheel 13 carries a registering or counting wheel 15, a transfer-disk 16, and a locking-disk 17, as more clearly shown in Fig. 1. The registering-wheel 15 is numbered from "5" to "50" in multiples of five. Therefore after it has made one complete revolution it must register fifty cents on the succeeding register-wheel 18, also journaled on the shaft 14. To accomplish this result, the transfer-disk 16 is provided with a single tooth 16^a, which when the wheel 15 has made a complete revolution engages a toothed wheel 19, journaled on a shaft 20, which is mounted in the main frame and turns said wheel one tooth. The wheel 19 carries a scalloped locking-disk 21 and a toothed wheel 22. (See Fig. 6.) The scalloped disk cooperates with the locking-disk 17, while the toothed wheel 22 engages the teeth of a driving-wheel 23, fast to the registering-wheel 18. The locking-disk 17, however, is formed in proximity to the tooth 16^a, with a recess 24 for the accommodation of one of the teeth of the scalloped wheel 21 during the transferring operation, which con-

struction of locking and transferring teeth and disks is old and well known in the art.

The above description suffices for all the succeeding transfers which are identical, excepting the transfer of the wheel 18, which alternately registers zero and fifty, and must be thus provided with a corresponding number of transfer-teeth 16 and recesses 24 in its locking-disk. As before stated, the shaft 20 is mounted in the main frame; but the shaft 14 of the counter-wheels is mounted in a pivoted or hinged frame 25, which is in turn mounted on the main frame, so that it may be rocked to disengage the driving-pinions of the counter-wheels from the transfer-pinions and the primary driving-wheel 12. This disengagement becomes necessary when it is desired to rotate the shaft 14 to turn the counter-wheels to their zero positions. The shaft 14 is provided with a series of small spring-pressed plungers 26, which engage their respective counter - wheels with a frictional contact, so that while said wheels are free to turn independently they will be picked up by the shaft and returned to a zero position when said shaft is rotated. This rotation of the shaft is accomplished by a milled thumb-nut 27, fast to the protruding end of the shaft. A ratchet-wheel 27^a, (see Fig. 3,) mounted on the shaft, is engaged by a gravity-pawl 28, mounted on the counter-frame. This pawl prevents retrograde movement of the shaft 14 and compels the operator to turn the counter-wheels to zero in the proper direction. In order to arrest the wheels at the zero position when the shaft is rotated, the main frame is provided with a cross-bar 29, which normally lies out of the path of stop-pins 30, mounted on the respective counter-wheels. When the frame 25 is rocked back to disengage the counter-pinions from the transfer-pinions and the main driving-pinion, the counter-wheels are moved to such a position that the bar 29 will be engaged by the pin 30 and arrest the counter-wheels at the zero position.

The counter-frame 25 is normally locked in its lowered position by a notched lever 31, mounted upon a rock-shaft 32, which is mounted in the main frame. (See Fig. 4.) A pin 34, mounted on the counter-frame, normally projects into the notch 35 of the lever 31. When it is desired to elevate the counter-frame to disengage the pinions, the lever 31 is drawn forward, which action moves the walls of the notch 35 out of engagement with the pin 34, which can then be elevated with the counter-frame. This elevation of the counter-frame is accomplished by a short finger-lever 36, journaled on the pin 34 so that its lower end will engage the main frame. After the pin 34 has been released, as above described, the lever 36 is drawn upward and forward, which causes the counter-frame to move upward and forward, the lower end of

the lever 36 passing over the bar 42 of the main frame and holding the counter in this position.

As it is desirable to keep an account of the number of times the counter-frame is so elevated to turn the counter-wheels to zero, the shaft 32 is provided with a crank-arm 37, which is connected to a similar crank-arm 38 of any suitable form of counting device 39 by a pin 40. This counting device 39 is a sealed counter and is arranged to count one upon each operation in a manner well known in the art. It will be observed from the above description that the counter-wheels are locked against being turned to zero when the counter-frame is in its lower position and that said frame cannot be moved to its upper or disengaging position until the lever 31 has first been operated, which operation results in the operation of the counter 39.

The cash-drawer 6 is mounted in the casing or cabinet so as to be capable of sliding substantially as described in the aforesaid patent. The slide lid or till-cover 7, however, is slidably mounted upon suitable guide-bars 43, secured to the cabinet and passing through apertured eyes 44, fast to the sides of the till-cover. Coil-springs 45 surround the respective rods 43 and are so located thereon as to be engaged by the lugs 44 to cushion the opening movement of the slide. Cushion-springs 45' are also mounted upon the rods 43 and engage stationary lugs 45'' and the lugs 44. These springs cushion the closing movement of the till-lid and also assist its opening movement. As the till-lid is formed with a plurality of apertured lugs 44, it is guided in perfect alinement over the cash-drawer and cannot bind against any part of the casing or cabinet. A coil-spring 43' connects the till-lid 7 with the main frame to effect the opening of the lid when released. This till-cover 7 is secured in position by a pivoted latch mounted on the main frame and engaging the rear wall 47 of the lid. The upwardly-projecting arm 48 of the latch is normally drawn forward to hold the latch in its normal position by a coil-spring 49, which connects said arm to the main frame. This upwardly-projecting arm 48 is operated by a pendent foot 50, mounted fast on a pivoted yoke 51, which is journaled upon the key-shaft 8. As this yoke projects over all of the key-levers, the operation of any one of the keys will oscillate the said yoke and cause the foot 50 to engage the arm 48 and rock the latch 46 out of engagement with the till-cover to permit the latter to be drawn rearward by its springs.

As the yoke is elevated it engages a pivoted tumbler 52, mounted on the main frame, (see Fig. 4,) and forces said tumbler rearward and moves a lug 53 thereon out of the path of the union-key 54, which is pivoted on the key-shaft and is provided with an arm 55,

which projects over said yoke 51. The forward part 56 of the union-key is pivoted upon the key-shaft 8 and engages a shoulder 57 on the rear portion 56^a of the key, which is also pivoted upon the shaft. The two parts of the key are normally held in contact by a coil-spring 58, which connects the same. By this peculiar construction the depression of the forward half of the key will result in the elevation of the rear half of the same; but should it be attempted to hold back the forward half of the key while the rear half continues to rise in order to fraudulently manipulate the machine the two parts of the key will move independently against the tension of the spring 53 and the yoke 51 thus be relieved of all stress which might result in its being twisted or sprung out of proper alinement. The arm 55 is of sufficient length to permit the yoke 51 to return to its normal position after being elevated without drawing the union-key back with it, which construction is necessary, because the union-key by being held depressed admits of a second operation of the machine without releasing the indicator previously elevated. By the peculiar construction of the pivoted tumbler 52 any independent operation of the union-key is prevented, as this key is absolutely locked in its normal position by said tumbler until some one of the amount-keys or the change-key is operated. The rear portion of the union-key is provided with an inclined lug 59, which when the key is elevated engages the lower inclined surface of an inclined flange 60, formed on a pivoted lever 61, which is connected at its upper end to a shaft 60', carrying the indicator-supporting frames 62. These frames cooperate with the indicators and are released by the rearward rocking of the lever 61. When the rear end of the union-key is elevated, the lower end of the lever 61 is rocked rearwardly by the lug 59 engaging the under side of the flange 60. This movement rocks all of the frames 62 and permits the indicators to descend. After the lug 59 passes above the flange 60 the lever 61 springs forward slightly, so that when the union-key is returning to its normal position the lug will ride over the upper surface of the flange, and thus force the lever 61 slightly forward, which operation will have no effect on the indicator-frames 62, which have been returned to supporting positions by springs 62^a, which connect said frames to the main frame.

A spring bell-clapper 61^a is secured to the lever 61 in such manner that when this lever springs forward upon being released by the lug 59 the clapper will engage and sound the bell 61^b, which is secured to the main frame.

The rear end of the union-key engages and elevates a stem or rod 63, which carries a double flash 64 at its upper end. This flash is arranged to conceal the indicators as long

as the rod 63 remains elevated. The flash is held in its elevated position by a pivoted latch-lever 65, mounted on the main frame and so located that its upper end will be normally drawn against the bar 63 by a coil-spring 66, which connects said lever to the main frame. The upper end of this lever snaps under a shoulder 67 when the rod 63 is elevated, and the flash thus remains over the indicators until the lever 65 is operated to disengage it from the shoulder 67. This operation does not take place until the rear part of the union-key has almost reached its normal position, when it engages a beveled arm 68, formed on the lever 65, and forces the same to one side. The upper end of the lever 65 is thus normally held out of the path of the shoulder 67. When the union-key is elevated, however, it disengages from the arm 68, and the spring 66 immediately draws the upper end of the lever 65 against the side of the bar 63, which action brings the upper cam edge of the arm 68 under the union-key, so that it will be subsequently operated thereby upon the descent of the key.

By the above-described construction the flash is elevated by the union-key and latched in its elevated position until the union-key has returned again to its normal position. Each of the key-levers is provided at its rear end with a segmental rack 70, these racks co-operating with reversible detent-plates 71 to compel full strokes of the key-levers. As it becomes desirable at times to lock all the keys of the machine against operation, means are provided for locking the detents 71 in their horizontal positions. This means comprises a rock-shaft 72, bearing arms 75, which are notched, as at 74, so that when the shaft is rocked the arms will be forced over the detents and prevent movement of the same in either direction, and thus lock the keys. One end of the shaft 72 is provided with a lever-arm 75, which is normally drawn forward by a coil-spring 76, which connects it to the main frame. The arm 75 projects between a lug 77 and a pin 78, projecting from a slide 79, which is guided on the main frame and is connected at its forward end to a rod 80, which passes through a suitable aperture in the cabinet, so that its front end may be grasped and operated. The bolt 81 of a key-lock 82 co-operates with notches 84 in the rod 80 to lock the same in its inner or outer positions, as desired. The machine may be so operated at times in an endeavor to manipulate it that the plates 71 do not properly reverse, and thus engage the racks 70 in the wrong direction and tie up the machine against any operation. If this should occur, the devices above described are operated by hand, so that the arms 73 are brought against the inclined plates 71 and force them into a vertical position and out of engagement with the racks 70.

As it is sometimes desirable to release the indicators without operating the machine because of some accident which may happen to the internal mechanism, the end of the shaft 72 is provided with a pin 85. This pin engages a pin 86, which projects laterally from a lever 87, pivoted on the main frame, so that its upper end will engage the lower end of the lever 61. When the shaft 72 is rocked, the lever 87 will be correspondingly rocked and engaging the lever 61 will operate the same and rock the detent-frames 62 to release any set indicators.

While the form of mechanism here shown and described is admirably adapted to fulfill the objects primarily stated, it is to be understood that it is not desired to confine the invention to the one form of embodiment here disclosed, for it is susceptible of embodiment in various forms all coming within the scope of the claims which follow.

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

1. In a cash-register, the combination with a series of keys, of a series of indicators, a latch for supporting said indicators, a special key formed in two sections, means intermediate the rear section and the indicator-latch, and means for operating said rear section upon each operation of the keys; the construction being such that the rear section of the key may be held in its operated position irrespective of the movements of the amount-keys.

2. In a cash-register, the combination with a series of amount-keys, of a series of indicators, latches for the indicators, a special key formed in two sections and controlling the indicator-latches, and means connecting the amount-keys to one of said sections with provisions for holding this section while the amount-keys are operated independently.

3. In a cash-register, the combination with a series of keys, indicators for the same, an indicator-support, a special key controlling said support and comprising two sections which are independently movable.

4. In a cash-register, the combination with an operating mechanism, of a key comprising two sections constructed so that they are free to move independently in one direction but will move together in the opposite direction, and means for yieldingly holding the two sections of the key together in normal position.

5. In a cash-register, the combination with an operating mechanism, of a key comprising two sections pivoted upon the same shaft and having abutting shoulders to cause simultaneous movement of the sections in one direction only, and spring means for normally holding the sections together.

6. In a cash-register, the combination with a series of amount-keys, of a frame common

16 said keys, and a special key formed in two sections one of which is engaged by said frame and thereby operated upon each operation of the amount-keys; the construction being such that when the forward section of the special key is depressed the rear section of the key is held elevated irrespective of the return of the common frame.

10 7. In a cash-register, the combination with an operating mechanism, of a key, a series of indicators, a flash for concealing the indicators, means controlled by the key for moving the flash into its concealing position while permitting independent movement of the key, and means for effecting retraction of the flash upon the final increment of movement of the key back to normal position.

15 8. In a cash-register, the combination with an operating mechanism, of a key, a series of indicators, a flash for said indicators, a latch

for securing the flash in its elevated position, means controlled by the key for raising the flash, and means controlled by the key for tripping the latch at the end of the return stroke of the key.

25 9. In a cash-register, the combination with a series of keys, of a series of indicators, supports for the indicators, a special key for tripping said supports, a flash for the indicators operated by the special key, and means for preventing the return of the flash until the special key has been returned to its normal position.

30 In testimony whereof I affix my signature in the presence of two witnesses.

LUKE COONEY, JR.

Witnesses:

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LOUIS B. ERWIN.