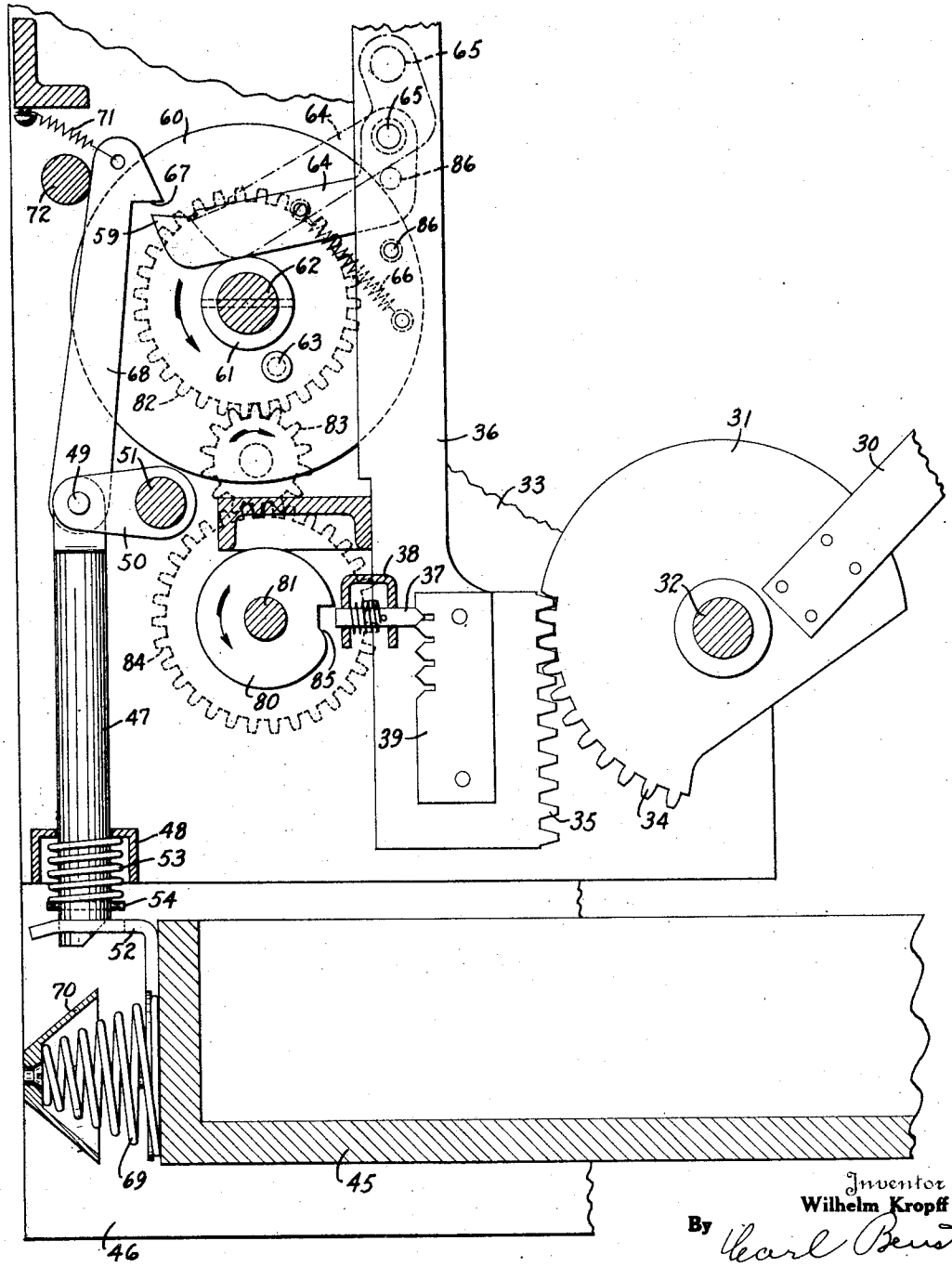
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CASH REGISTER

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CASH REGISTER

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This invention relates to cash registers and like machines, and is more particularly directed to improvements in releasing mechanisms for the cash drawers usually associated with such machines.

The invention is conveniently applied to a cash register of a well known type, such, for instance, as is disclosed in Letters Patent of the United States, Nos. 751,611, and 773,053, granted on February 9, 1904 and October 25, 1904, respectively, to Thomas Carroll, and No. 1,360,151, granted November 23, 1920 to B. M. Shipley.

In earlier machines of the type disclosed in the above mentioned patents, the normally locked spring-pressed cash drawer was released and propelled to an accessible position at each operation of the machine, regardless of the nature of the transaction. It has been found to be desirable, when certain transactions are registered in the machine, to retain the cash drawer in its locked or inaccessible position; for instance, on operations when a "charge" or any other transaction is entered which does not require that currency be removed from or placed in the cash drawer.

It is, therefore, an object of this invention to provide a cash register of the type disclosed in the patents referred to, with novel means to cause the cash drawer to be rendered accessible on certain operations of the machine and to be retained in its inaccessible position at certain other operations of said machine, such novel means being automatically controlled by a manipulative means, the adjustment of which determines the nature of the operation to be performed by the machine in accordance with the kind of transaction which is to be entered.

With this and incidental objects in view, the invention includes certain novel features of construction and combinations of parts, the essential elements of which are set forth in appended claims and a preferred form or embodiment of which is hereinafter described with reference to the drawing which accompanies and forms a part of this specification.

The drawing represents a detail vertical sectional view taken to the left of the transaction lever of a typical machine of the type disclosed in the Carroll and Shipley patents above referred to, and showing the invention applied thereto.

Machines of this type are generally provided with manually adjustable setting levers 30, one of which is shown broken away in the drawing. These levers are fastened to toothed segments 31, independently journaled on a rod or support 32 extending between the side frames 33 of the machine, one side frame only being shown. Adjustment of any of the levers 30 in clockwise direction from the zero position in which it is shown in the drawing, causes teeth 34 on the mutilated segment 31 in mesh with a rack 35 on a vertically disposed differentially adjustable slide 36, to raise said differentially adjustable slide a distance corresponding to the extent or arc of movement traversed by the lever 30. A spring-pressed aligning pawl 37 slidably mounted in a U-shaped tie bar 38, extending between the side frames 33 of the machine, coacts with the notched aligning plate 39, fast on the slide 36 to aline the slide and yieldingly maintain it in the postion to which it is adjusted.

The levers 30 are adjusted to set up amounts to be entered in the machine, control the indicators and type carriers to indicate and print such amounts, and to designate the kind of transaction effected by each operation of the machine.

The particular lever 30 shown in the drawing is for the transaction bank, that is, the lever may be manually adjusted to any one of a plurality of positions, each of which represents a transaction of a particular nature which it is desired to indicate and record. The adjustment of the lever 30 may set an indicator (not shown) to display the symbol of the transaction, or types to designate the transaction, as fully disclosed in the patents heretofore referred to.

Cash drawers are usually provided in connection with cash registers of this type, in which to deposit the money received or from which to take the money to be paid out incident to certain of the transactions or sales. In the type of cash register to which the invention is applied, the cash drawer was latched in closed position against the ten-

sion of a spring, and was heretofore unlatched automatically and slid outwardly to its accessible position at each operation of the machine whether or not money was to be deposited therein or removed therefrom.

It is now proposed to control the cash drawer so that the drawer will be released only on those transactions in which money is received by the clerk to be deposited in the cash drawer, or on those transactions in which money is to be removed from, or paid out of the cash drawer, the drawer remaining latched on other operations not involving the receipt or disbursement of money.

One convenient means to attain this result is as follows:

The cash drawer 45 is slidably mounted on rails (not shown) attached to the inside walls of the enclosing cabinet, a fragment 46 of which appears in the drawing. The lower end of a drawer latch bolt or plunger 47 slidable vertically in a channelled tie bar 48 extending between the machine side frames 33, projects into an opening in a keeper 52 secured to the rear end of the cash drawer 45, to normally hold the drawer in its locked or inaccessible position against the tension of a spring 69 secured to the rear end wall of the drawer between which and a cup 70 fastened to the back of the cabinet, the spring is compressed when the drawer is closed. A spring 53 coiled about the drawer latch bolt 47 and compressed between a stud 54 projecting laterally through the latch bolt 47 and the web of the channelled tie bar 48, normally holds the latch 47 in its lowermost position where it is effective to restrain the drawer 45. The upper end of the bolt, or latch 47, is pivoted to a stud 49 on a radius arm 50 journaled on a shaft 51 supported by and extending between the side frames 33.

The foregoing construction is old in the art and only forms a part of the present invention when combined with the new and novel elements now to be described.

As stated above, the principal object of the invention is to control the drawer latching mechanism to release the cash drawer on certain operations only and retain it latched on other operations, and as shown, this is accomplished in the present instance by controlling the drawer latching mechanism from the transaction slide 36. To release the drawer 45, a disk 60, the hub 61 of which is fast on a drive shaft 62 journaled in the machine side frames, carries an actuating stud 63 projecting laterally therefrom. The drive shaft 62 makes one counter-clockwise rotation at each operation of the machine.

A rearwardly extending release lever 64 is pivoted at its forward end to a stud 65 on the transaction slide 36, the lever resting near its rear end on the hub 61 of the disk 60 and terminating in a tooth 59 lying beneath, and in line with, a shoulder 67 formed on the upper end of a lifter link 68, the lower end of which is pivoted on the same stud 49 that connects the upper end of the bolt 47 with the radius arm 50.

A spring 66 extending between the release lever 64 and the slide 36 normally holds the free end of the release lever against the hub 61 of the disk 60.

A spring 71 presses the upper end of the lifter link 68 against a guide rod 72 extending between the machine frames 33 to retain the link in a constant path of travel as it rises and falls with the plunger bolt 47 in releasing and locking the cash drawer 45.

The actuating stud 63 is normally located apart from the release lever 64 a sufficient distance to afford time for the machine to complete its various functions before the drawer is released.

On operation of the machine with the parts in the positions shown in full lines, the driving disk 60, on its counter-clockwise travel, finally causes the actuating stud 63 to strike the lower edge of the release lever 64 and rock the release lever clockwise about its pivot 65 against the tension of the restoring spring 66. As the release lever travels clockwise, the free end thereof strikes the shoulder 67 on the lifter link 68 and lifts the link 68, thereby rocking the radius arm 50 clockwise to lift the latch bolt 47 out of engagement with the keeper 52, whereupon the spring 69 expands and propels the drawer 45 out of the cabinet 46 to its accessible position.

As soon as the actuating stud 63 has passed from beneath the release lever 64, the spring 66 restores the latter to its normal position resting on the hub 61, and at the same time, the spring 53 lowers the latch bolt or plunger 47 into its normally effective position, so that after the operation is completed and the operator closes the drawer, the keeper 52 on its backward movement will strike a beveled edge of the latch bolt 47 and cam the bolt upwardly until the opening in the keeper 52 registers with the end of the latch, whereupon the spring 53 forces the latch into the opening to thereby again restrain the cash drawer in its inaccessible position.

Before the actuating stud 63 acts to rock the release lever 64, against the tension of the springs 66 and 53, it is necessary to positively lock the differential slide 36 against vertical movement, in order to retain the pivot 65 of the release lever in its adjusted position, and the spring-pressed aligner pawl 87, which normally holds the differential slide 36 yieldingly in adjusted position, readily lends itself for use in preventing accidental displacement of the slide during the operation of the machine. The shaft 62 by a train of gears, gear 82 being fast on shaft 62, gear 83 journaled on a stud in one of the side frames 33, and gear 84 fast on a shaft 81, rotates the shaft 81 and with it, a locking disk

80, at each operation of the machine. The disk 80 is ararnged with its periphery in the same vertical plane with and adjacent to the rear end of the aligner pawl 37 projecting through its supporting tie bar 38, the aliner pawl coacting with the aligner plate 39 on the differential transaction slide 36.

A recess 85 in the periphery of the locking disk 80 normally occupies a position in line with the rear end of the aligner pawl 37 to permit free movement of said pawl toward the rear of the machine when the slide 36 is adjusted by the lever 30 and segment 31.

At the beginning of an operation of the machine, the drive gear 82 through its connected train of gearing rotates the shaft 81 and the locking disk 80 to shift the recess 85 of the disk out of line with the rear end of the aligner pawl 37 and present the unbroken surface of its periphery thereto, which, as reference to the drawing discloses, locks the aligner pawl 37 in the particular notch in the aligner plate 39 in which it rests, thus locking the slide 36 against vertical movement and fixing the position of the pivot 65.

The drive shaft 62 imparts a complete rotation to the locking disk 80, so that at the end of the operation of the machine, the recess 85 is brought into line with the aligner pawl 37 to enable the transaction lever to be adjusted to any of its positions preparatory to the next operation of the machine. For convenience, the number of the positions to which transaction lever 30 and its slide 36 may be moved, is limited to four, as shown in the drawing. The slide 36 is shown in full lines in its lowermost position with the transaction lever 30 in its uppermost position. When the operator manually rotates the transaction lever 30 clockwise four steps or positions, the segment 31 raises the slide 36 until the aligner pawl 37 engages the lowermost notch in the aligner plate 39. As the slide 36 moves upwardly, it draws the release lever 64 therewith, and as the spring 66 continues to hold the lower edge of the lever 64 in contact with the hub 61, the release lever 64 is caused to turn counter-clockwise on its pivot 65 while, at the same time, its lower edge, held in contact with the hub 61 by spring 66, slides on the hub 61 to withdraw the free end of the release lever 64 from beneath the shoulder 67 on the lifter link 68. When the slide 36 is lowered, of course, the movement of the release lever 64 is reversed. The release lever 64 is shown by dot and dash lines in the position it assumes when the slide 36 is moved to its uppermost position.

With the parts in the positions shown in dot and dash outline, operation of the machine will cause the stud 63 to rock the release lever idly clockwise, the free end of the lever escaping the shoulder 67 without raising the link 68 and latch bolt 47 to release the drawer 45, which remains locked and inaccessible, the spring 66 restoring the release lever 64 at the end of the operation to the dot and dash line position shown.

In that form of the invention herein disclosed, when the machine is operated with the slide 36 in either of its lower two positions, the free end of the release lever 64 will lie in position to operate the lifter link 68 and latch bolt 47 to release the drawer 45 to the action of its spring 69, but adjustment of the slide beyond its two lower positions will withdraw the release lever 64 to ineffective position.

It is possible to adjust the slide 36 to a point above its uppermost effective position. If this were done, the spring 66 would rock the release lever 64 counter-clockwise far enough so that, when the slide was lowered, the free end of the lever would either wholly escape or else abut against the hub 61, thereby locking the slide against returning to any of its regular adjusted positions. To prevent this, a stop stud 86 projects laterally from the slide 36 in such position that when the slide 36 is adjusted to its fourth position, the stud 86 lies in the path of and prevents further counter-clockwise movement of the release lever 64 by the spring 66.

What is claimed is:

1. In a machine of the class described; the combination with a cash drawer; means to normally lock the cash drawer in closed position; a differentially settable element; and means to adjust said settable element to any of its positions; of a link connected to the locking means; a release lever pivoted on the settable element and adjustable therewith relatively to said link to determine its effectiveness; and means to rock the lever to cause it to actuate the link to withdraw the latch and free the cash drawer, depending upon the adjustment of the differentially settable element.

2. In a machine of the class described; the combination with a cash drawer; means to normally lock the cash drawer in closed position; a differentially settable element; and means to adjust said settable element to any one of its positions; of a release lever pivotally connected to the settable element and differentially positioned thereby; a link pivoted to the drawer-locking means and having a shoulder thereon with which the release lever cooperates in certain of its adjusted positions; and means traversing a constant path to cause the release lever, when in such positions, to shift the link and release the locking means to free the cash drawer.

3. In a machine of the class described; the combination with a cash drawer; a latch to normally lock said cash drawer in closed position; a differentially settable slide; means to adjust said slide to any of its positions; and means to lock said slide against movement; of a shouldered link pivoted to the

latch; a rocker arm to which the latch and the link are both pivoted; a release lever pivoted to and differentially positioned by the settable slide relatively to the shoulder on the link, said lever being adapted to cooperate with the shouldered link in certain only of its positions; and a tappet to rock the lever and cause it to withdraw the latch to release the drawer.

4. In a machine of the class described, the combination with a cash drawer; and means to normally lock the drawer in its closed position; of means connected with the drawer locking means to release the same; a device having a shiftable pivot; and a movable support for the pivot, said support adapted to control the pivot so that the device is adapted to cooperate with and operate the drawer lock releasing means when the support is in one position, said device being rendered ineffective relative to the drawer lock releasing means when the support is in another position, the shifting movement of the pivot and the operating movement of the device being in the same plane.

5. In a machine of the class described, the combination with a cash drawer; and means to normally lock the drawer in its closed position; of a releasing element connected to the drawer locking means; a release member to operate the releasing element; a shiftable pivot for the release member to bodily shift the member into effective and ineffective positions relatively to the releasing element; a movable support for the pivot; and means to shift the support to determine the effectivity of the release member, the movements of the release member and the shiftable support being in the same plane.

6. In a machine of the class described, a cash drawer, a lock to normally hold the drawer in closed position, an element adapted to swing about a pivot adjustable to a plurality of positions, the path of adjustment of the pivot and the swinging movement of the element being in the same plane, the adjustment of the pivot being effective to determine whether the swinging movement of the element will be idle or will be effective to move the lock.

In testimony whereof I affix my signature.

WILHELM KROPFF.