

May 3, 1932.

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1,856,971

DRAWER RELEASE MECHANISM

Filed May 13, 1926

3 Sheets-Sheet 1

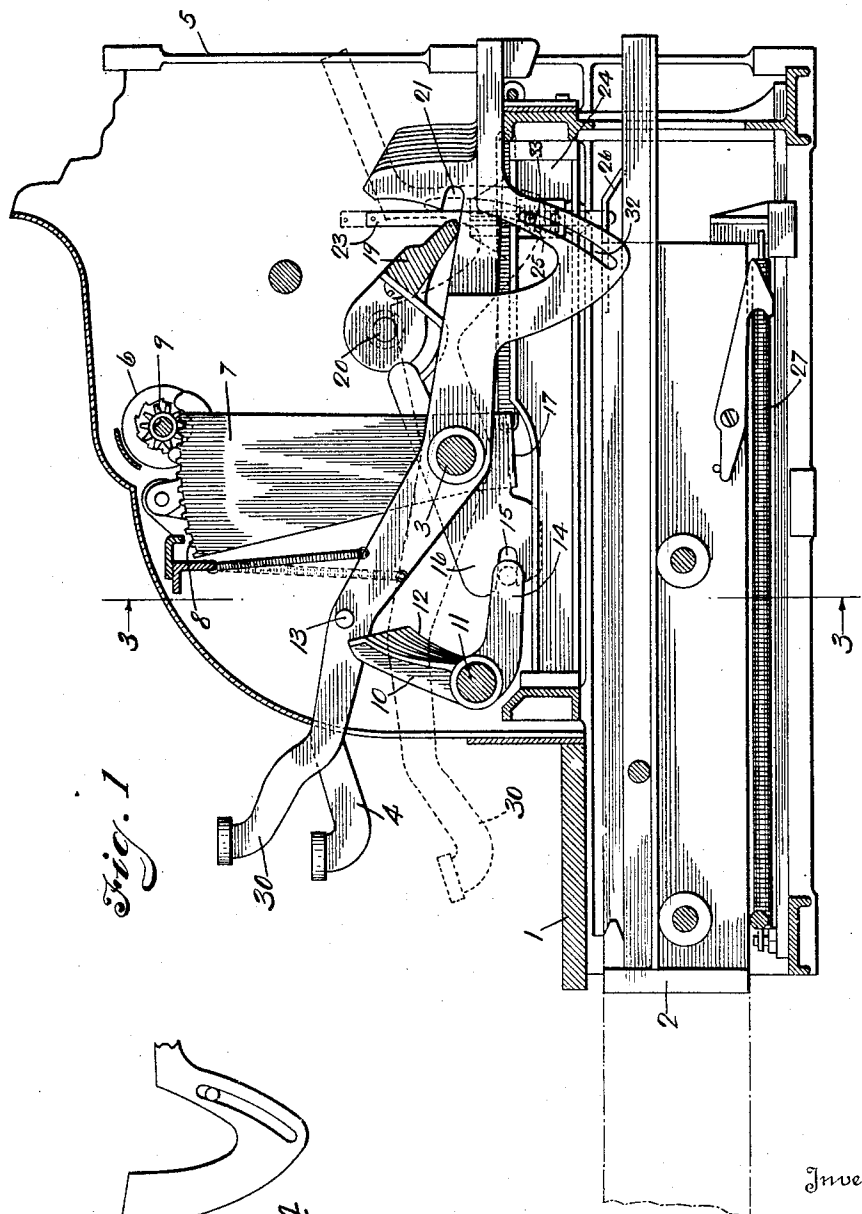


Fig. 1

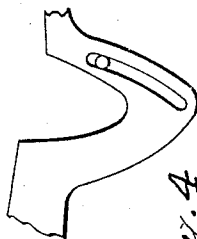


Fig. 4

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3 Sheets-Sheet 2

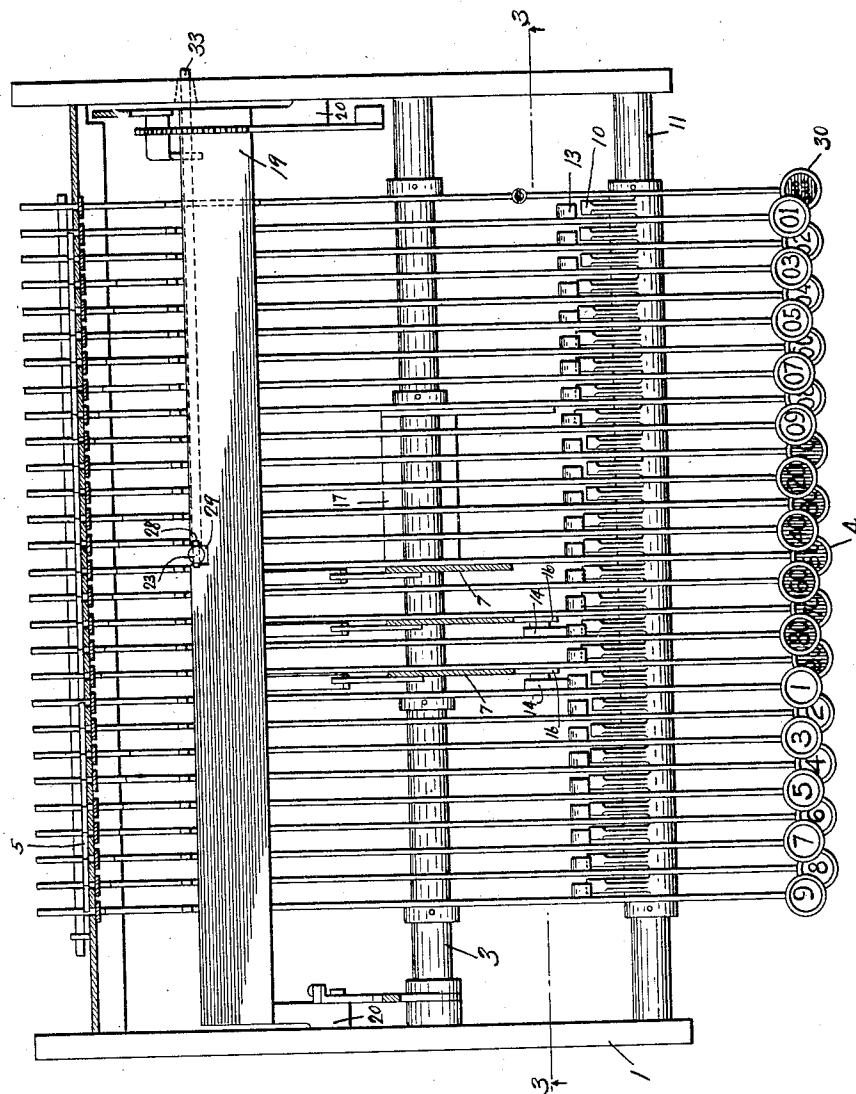


Fig. 2.

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3 Sheets-Sheet 3

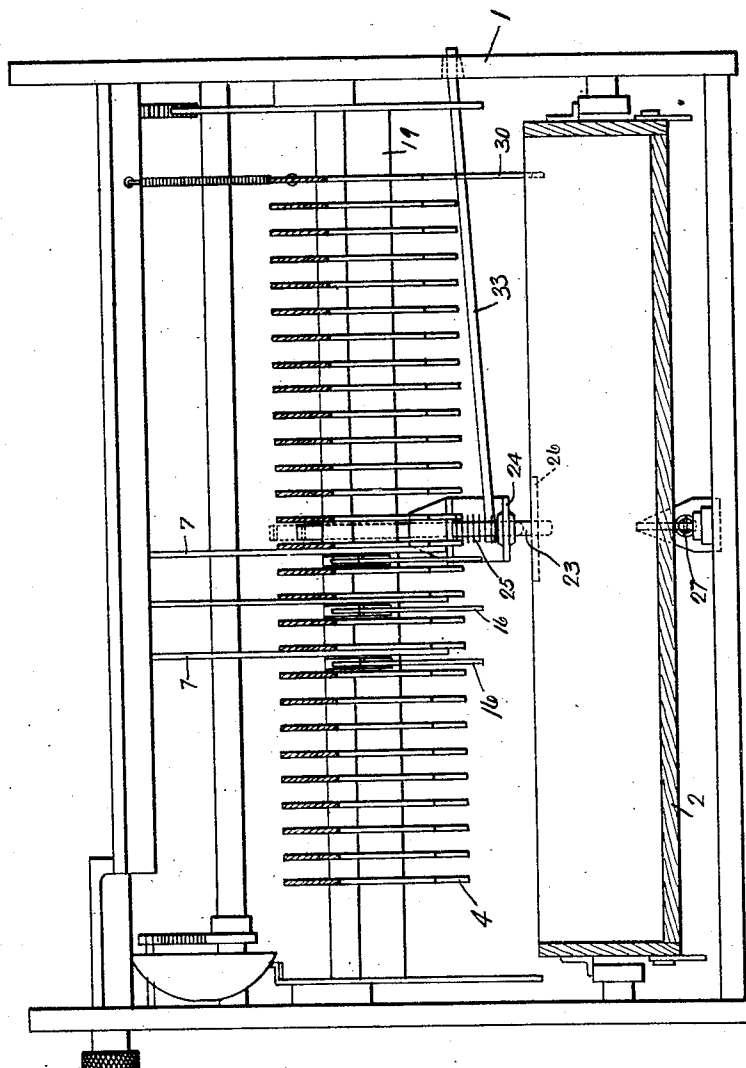


Fig. 3.

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DRAWER RELEASE MECHANISM

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This invention relates to cash registers and more particularly to means for releasing the normally locked cash drawer by means of a drawer release, or no sale key, without the necessity of actuating any of the mechanism controlled by the value keys or selective mechanism.

While it is quite customary to provide in a cash register or like mechanism, a no sale or cash drawer release key, which will disengage the drawer and locking detent without necessity of operating any one of the value keys or selection devices, the detent releasing means or actuator in such constructions is usually common to both the selective or value keys and the no sale or drawer release key. That is to say, as usually constructed, the value or selective key and the no sale or drawer release key, both operated through the same train of mechanism, or through the same intermediary devices in effecting the disengagement of the cash drawer detent. It sometimes happens, however, that the cash register mechanism becomes accidentally disarranged or out of order and inoperative. When such accident or disarrangement, rendering the mechanism inoperative occurs while the cash drawer is closed, the merchant has no way of access to the contents of the cash drawer. When such conditions have occurred, they have been a matter of great inconvenience and annoyance, and necessitate the services of an expert cash register mechanic to enable the removal of the money within the cash drawer.

rectly or indirectly controls the cash drawer detent. The present construction, while this mode of operation is followed so far as it pertains to the value or selective key, the no sale or drawer release key is arranged entirely independently of the key coupler bar, and a shift rod wholly independent of the key coupler bar or other parts of the register mechanism serves to connect the no sale key with the cash drawer detent. There is thus provided two entirely independent trains of control mechanism for the cash drawer detent, one of which passes from the value or selective keys through the register mechanism, and the other of which passes from the no sale or drawer release key to the detent wholly independent of the register mechanism.

The object of the invention is to simplify the structure, as well as the means and mode of operation, of cash drawer release mechanism, whereby such constructions will not only be cheapened in manufacture, but will be more efficient in operation, positive in action, easily operated and unlikely to get out of repair.

A further object of the invention is to provide an independent means for releasing the cash drawer in the event that the register mechanism should be accidentally or otherwise rendered inoperative.

A further object of the invention is to provide an improved form of cash drawer detent release controlled by a no sale or cash drawer release key.

With the above primary and other incidental objects in view as will more fully appear in the specification, the invention consists of the features of construction, the parts and combinations thereof, and the mode of operation or their equivalents as hereinafter described and set forth in the claims.

Referring to the accompanying drawings, wherein is shown the preferred, but obviously not necessarily the only form of em-

The present invention is intended to overcome this difficulty by making the cash drawer at all times accessible to the operation of the no sale or drawer release keys, independent of the release means controlled by the value key or selector mechanism. As ordinarily constructed, the key coupler bar of a cash register mechanism is common to both the no sale or drawer release key and the value key, and such coupler bar either di-

bodiment of the invention, Fig. 1 is a side elevation of a portion of a cash register assembly, illustrating the relative relation and operation of the detent release parts. Fig. 2 is a top plan view of a portion of an assembled cash register, showing the relation of the operating keys and the detent releasing devices. Fig. 3 is a transverse sectional view on line 3—3 of Figs. 1 and 2. Fig. 4 is a fragmentary detail view of a portion of the "no sale" key.

Like parts are indicated by similar characters of reference throughout the several views.

In the accompanying drawings, 1 indicates the cabinet or case of a conventional type of key lever computing machine.

Mounted upon a transversely arranged shaft 3 is a series of depressible oscillatory key levers 4. These key levers 4 extend rearwardly, and upon depression of their forward ends are adapted to elevate to view the corresponding indicators 5. In the upper portion of the apparatus are located counter wheels 6, actuated by oscillatory segments 7 mounted upon the main shaft 3. These oscillatory actuating segments 7 have on their peripheries, gear teeth 8, intermeshing with a corresponding gear pinion 9, operatively connected with the counter wheels 6. The series of keys 4—4 are divided into three groups pertaining to units, tens and hundreds, or cents, dimes and dollars, and those keys of each group are identified by numbers 1 to 9, corresponding to their monetary value, or denomination. An actuating segment 7 is provided for each group or series of keys. Likewise, there is provided for each group or series of keys, a separate key cam unit 10, mounted for oscillation about a transverse shaft 11. This cam unit is provided with a cam surface 12, for each of the operating keys 4 of the series. The cam fingers 12, are similarly shaped and arranged in steps or echelon relation. Each of the operating keys 4 carries a laterally extending stud or roller 13, having engagement with the corresponding cam face or finger 12 of the cam unit. The contour and relative position of the cam surfaces or fingers 12 of the unit, are such that upon depression of different keys of the series, the engagement of the corresponding studs or rollers 13 with the related cam surfaces or fingers 12 effect oscillation of the key cam units to different degree. Thus the operation of the nine key will oscillate the key cam unit to much greater extent than will the depression of a one, two or three key. Each key cam unit is provided with an inwardly extending rock arm 14, which has operative engagement in the bifurcation 15 of an arm or plate 16, either connected directly to one of the actuating segments 7 or mounted upon the main shaft 3 and connected to its actuating segment by a

yoke or tie 17. The construction is such that upon the depression of a selected key of the series, the key cam unit is oscillated proportionately to the value of the depressed key and through the interconnection of the rock arm 14, with the arm or plate 16, it effects a corresponding oscillation of the actuating segment 7, which being in intermeshing engagement with the gear pinion 9, serves to proportionately actuate the counter mechanism. The gear segments 7 oscillate rearwardly or toward the right in Fig. 1, during this operative movement under the influence of the depression of a key lever 4. Extending transversely of and common to all of the value keys 4—4, is a key coupler bar 19, pivoted at 20 eccentrically with the key shaft 3. This key coupler bar 19 rests upon the key bars 4—4, and is oscillated about its pivotal centers 20 by the operation of any one or more of the value keys. Its normal purpose is to engage in a notch or recess 21, in the operated keys to interconnect such keys, one with another, for unison movement. As thus far described, the construction is that of a conventional cash register mechanism, so far as is necessary for the disclosure of the relation and operation of the present invention.

The cash drawer 2 is mounted for reciprocal sliding movement in the main frame. It is normally locked in its retracted position by a detent plunger 23, vertically movable in suitable bearings in the frame bar 24 under the influence of a spring 25 into engagement with the detent plate or catch 26, carried upon the rear end of the drawer. Upon the disengagement of the plunger stem 23 from the catch plate 26, by being elevated against the tension of the spring 25, the drawer is actuated forwardly by the drawer spring 27. Provision is made for lifting the plunger 23 to release the drawer, by the operation of any one of the value keys. This may be effected by an operative connection with any suitable portion or moving part of the register mechanism, and has heretofore been accomplished in numerous ways. In the present instance, the upper end of the detent plunger 23 is shown provided with a laterally extending pin 28, which overhangs the coupler bar 19, and is engaged thereby as the key coupler approaches the upper limit of its stroke, under the influence of any one of the value keys. This engagement of the key coupler bar with the pin 28 lifts the detent plunger 27 and releases the cash drawer. In the drawings, the key coupling bar 19 has been shown provided medially with a notch 29, through which the detent plunger 23 projects.

In the usual cash register construction, there is provided a no sale key, or a special key, the operation of which serves to release the cash drawer, without however, op-

erating the registering or computing mechanism. This special key operates a counter, which determines the times the cash drawer is opened without manipulation of the register mechanism. Usually, such special or no sale key operates the cash drawer detent through the same train of mechanism or through the same intermediate element as the value key 4—4. That is to say, such special or no sale key would ordinarily be arranged to operate the key coupler bar 19 in the same manner as the value keys to effect the release of the drawer. In event, however, that the register mechanism becomes disabled or disarranged, in such manner that the key coupler bar 19 becomes inoperative or locked, in such construction, the special or no sale key would be rendered ineffectual to release the cash drawer. To overcome this difficulty means is provided for opening the cash drawer even though the register mechanism be rendered inoperative including the key coupler bar by which the detent plunger is raised. Provision is made for operating the detent plunger from the no sale or special key, through an entirely independent operative connection. In the drawings, the no sale or special key is shown at the right hand end of the series of value keys 4—4 as at 30. This no sale or special drawer release key is mounted upon the main shaft 3 concentric with the value keys 4, but unlike the value keys, it has no operative engagement with the key coupler bar 19. While the end of the key coupler bar which rests upon the key levers 4—4 extends above the inner or rear end of the special or no sale key 30, such key is extended downwardly in the form of a bight beneath the coupler bar 19 to such extent that the key 30 may be operated without coming in contact with the bar 19. At its rear end, beyond the key coupler bar 19, the special or no sale key 30 is provided with an elongated slot 32, substantially concentric with the axis of oscillation of the key lever 30 upon the shaft 3. The rod 33 extends through such slot 32 in the special key 30 and has one end of such rod engaged within a suitable recess or opening in the frame of the machine, while the other end of the rod is engaged with the detent plunger 23, preferably by extending loosely within a transverse hole in the plunger. The engagement of the end of the rod with the frame of the machine is also a loose engagement which permits a vertical movement of the rod in unison with the reciprocation of the detent plunger. The elongated slot 32 enables the special or no sale key 30 to be oscillated freely throughout the major portion of its stroke. However, as the special key 30 approaches the limit of its operative movement, the end of the slot 32 comes in engagement with the shift rod 33, and by continuous movement of the special key lever

30, this shift rod 33, is elevated to lift the plunger detent 23 out of engagement with the cash drawer catch 26, wholly independent of the operation of the key coupler bar 19, which remains at rest. Connected to the special key lever 30 is a link 34, which serves to operate a special counter upon which is registered the number of times the drawer is opened by the manipulation of this key. At its rear end the special key actuates the target or indicator 5. In fact this special or no sale key performs all of its usual functions in a cash register mechanism, the difference being that it is connected to the drawer detent wholly independent of the remaining register mechanism, so that the drawer may be released, although the selective and registering mechanism may be incapacitated.

From the above description it will be apparent that there is thus provided a device of the character described possessing the particular features of advantages before enumerated as desirable, but which obviously is susceptible of modification in its form, proportions, detail construction and arrangement of parts without departing from the principle involved or sacrificing any of its advantages.

While in order to comply with the statute the invention has been described in language more or less specific as to structural features, it is to be understood that the invention is not limited to the specific details shown, but that the means and construction herein disclosed comprises the preferred form of several modes of putting the invention into effect, and the invention is, therefore, claimed in any of its forms or modifications within the legitimate and valid scope of the appended claims.

Having thus described the invention, I claim:

1. In a cash register or the like wherein a cash drawer is provided with a detent operatively connected with a movable bar arranged transversely of a series of value key levers and actuated by any key lever of the series to disengage the detent from the drawer characterized by an additional key lever having therein a clearance recess in which the bar is received upon operation of the said additional key lever permitting the operation of the last mentioned key lever without operating said bar, and an operative connection between the last mentioned key lever and the drawer detent wholly independent of the operative connection between the detent and the value keys.

2. A cash register or the like, wherein a cash drawer is provided with a locking detent operatively connected with a key coupler bar common to a series of value keys, whereby the detent is disengaged by the operation of any key of such series, characterized by a "no sale" key lever having therein a dependent

bight affording clearance for the key coupler bar when the "no sale" key is operated, whereby the key coupler bar will be unaffected thereby, said "no sale" key having a slot
5 therein, an actuating rod having operative engagement with the drawer detent and extending through said slot, said key being operative independent of said rod within the limit of the slot, the end of the slot engaging
10 the rod as the key approaches the limit of its stroke, to actuate the rod and effect the disengagement of the detent from the drawer.

In testimony whereof, I have hereunto set my hand this 8th day of May, A. D. 1926.

15 JOHN Q. SHERMAN.

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