

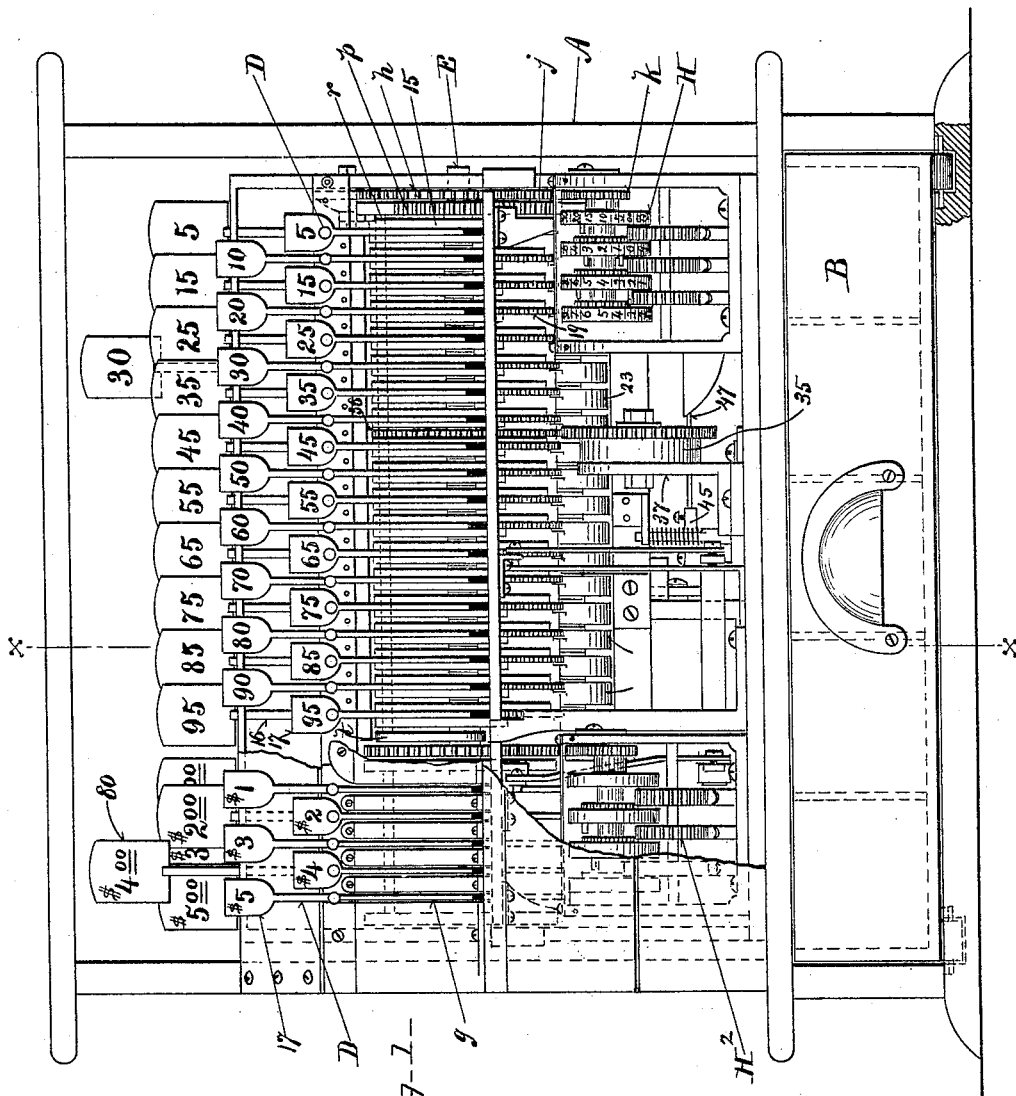
(No Model.)

4 Sheets—Sheet 1.

H. A. & W. C. MILES.
CASH REGISTER.

No. 523,439.

Patented July 24, 1894.



WITNESSES:
Wm. A. Miles
W. C. Miles

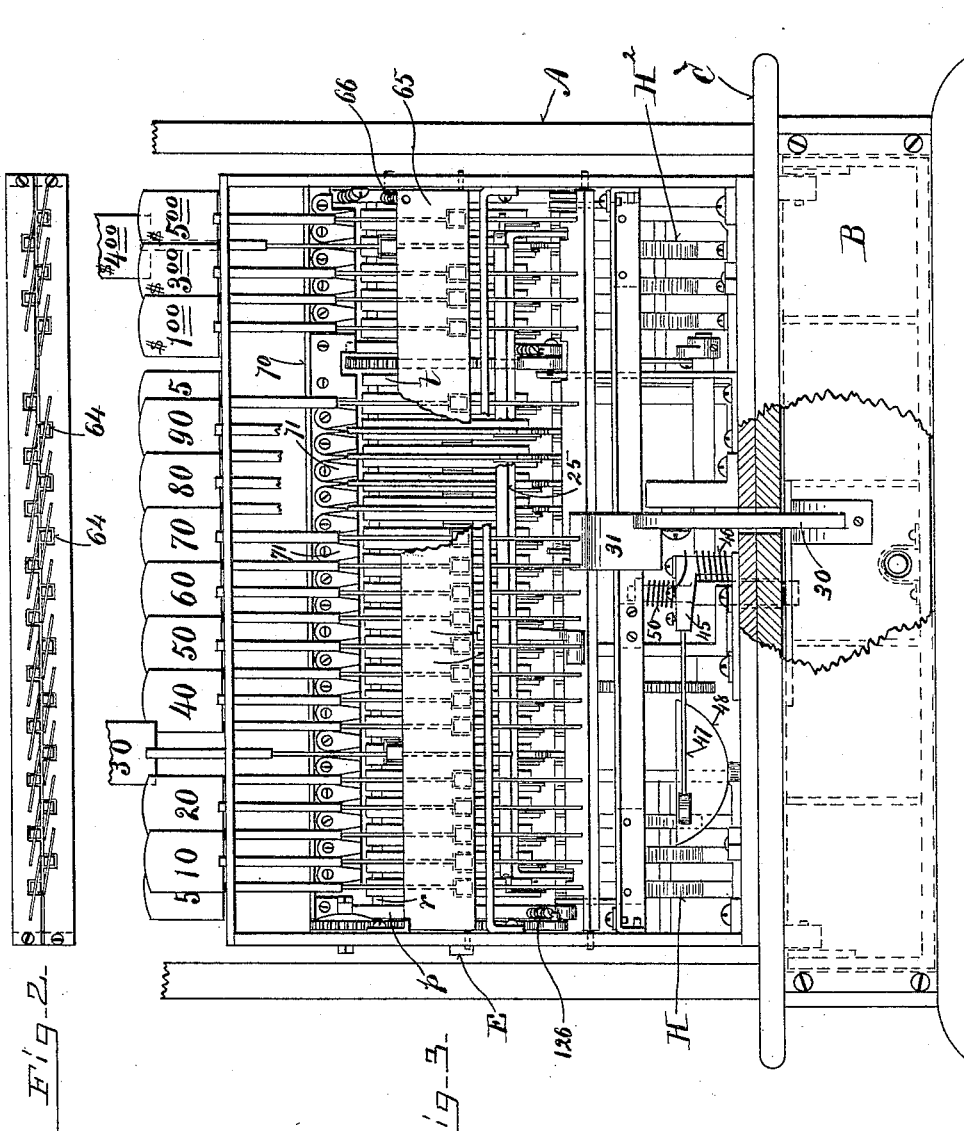
Fig. 1

INVENTORS
Harmon A. Miles and
William C. Miles
By C. A. Shaw
ATTY-S.

4 Sheets—Sheet 2.

No. 523,439.

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WITNESSES=
Amos
K. Durfee

INVENTORS
Harmon A. Miles and
William C. Miles
By C. A. Shaw, Atty.
ATTYS-

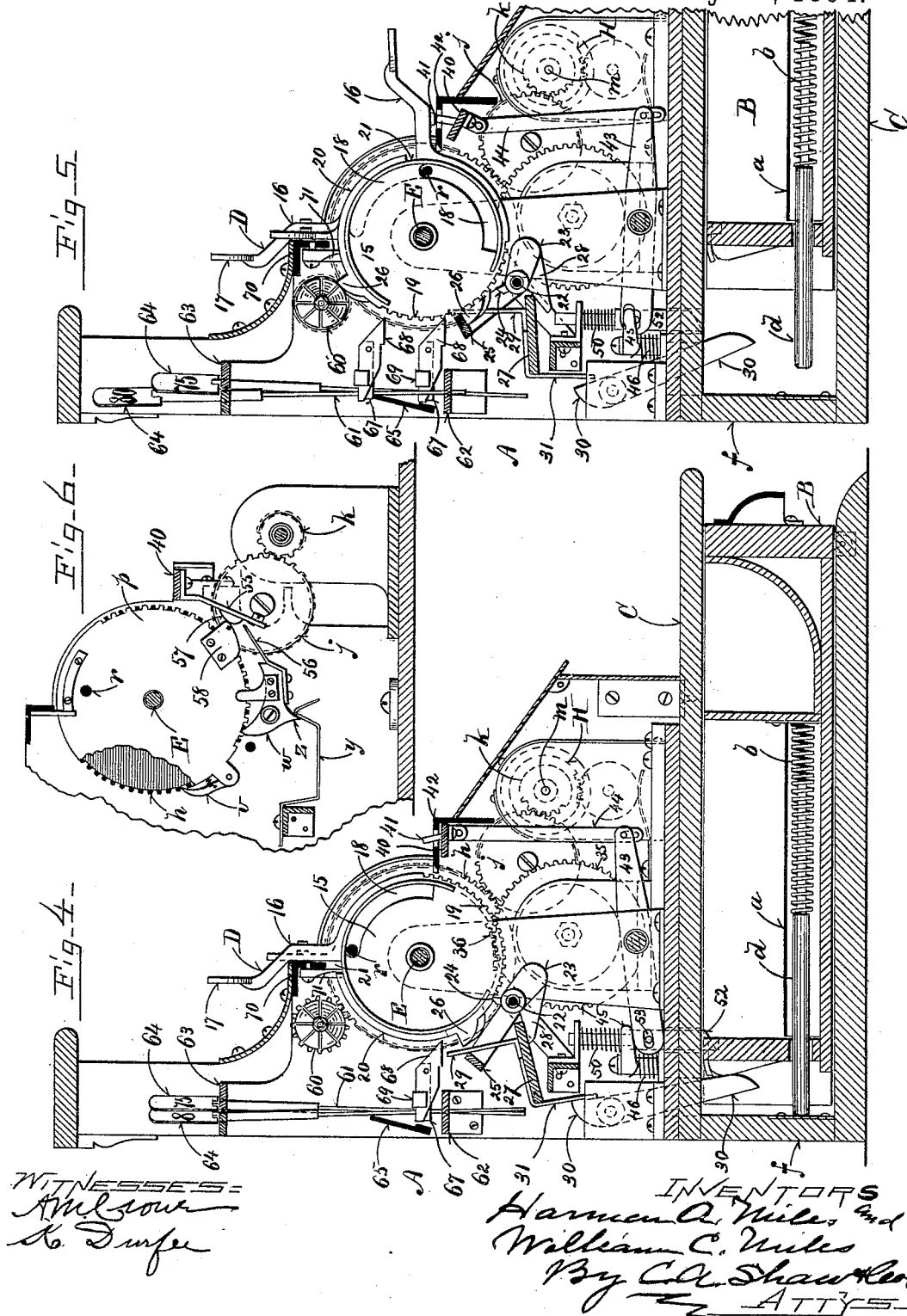
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H. A. & W. C. MILES.
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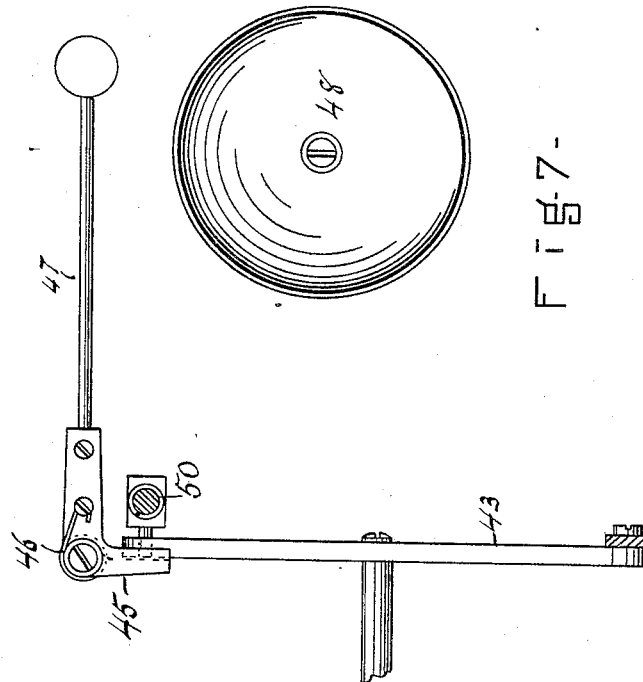


FIG. 7.

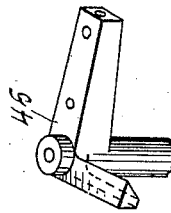


FIG. 8.

WITNESSES.

Matthieu M. Blunt
E. L. Whitney

INVENTORS

Harmon A. Miles
and William C. Miles,

By C. A. Shaw, Jr.,
Attys

UNITED STATES PATENT OFFICE.

HARMON A. MILES AND WILLIAM C. MILES, OF MEDFORD, MASSACHUSETTS.

CASH-REGISTER.

SPECIFICATION forming part of Letters Patent No. 523,439, dated July 24, 1894.

Application filed January 4, 1894. Serial No. 495,630. (No model.)

To all whom it may concern:

Be it known that we, HARMON A. MILES and WILLIAM C. MILES, of Medford, in the county of Middlesex, State of Massachusetts, have invented certain new and useful Improvements in Cash-Registers, of which the following is a description sufficiently full, clear, and exact to enable any person skilled in the art or science to which said invention appertains to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a front elevation of our improved cash-register the case being broken away to show the registering mechanism; Fig. 2 a top plan view of the same showing the indicators; Fig. 3 a rear elevation with the case broken away; Fig. 4 a vertical transverse section taken on line *x, x*, in Fig. 1, the drawer being represented as closed; Fig. 5 a like view showing the position of the parts when the drawer is open; Fig. 6 a sectional elevation illustrating details; Fig. 7 a plan view showing the bell striking lever and its operative mechanism; and Fig. 8 a perspective view of said lever.

Like letters and figures of reference indicate corresponding parts in the different figures of the drawings.

Our invention relates especially to a cash registering mechanism for registering and indicating the amount of sales; and it consists in certain novel features hereinafter fully set forth and claimed, the object being to produce a simple, cheap and effective device of this character.

The nature and operation of the improvement will be readily understood by all conversant with such matters from the following explanation:

In the drawings, A represents the case which may be of any suitable form and construction, that shown comprising a horizontal drawer-chamber, C, in which the money drawer, B, is fitted to slide in the usual manner. In a chamber, *a*, (see Figs. 4 and 5) within the drawer a push-spring, *b*, is disposed, and a plunger, *d*, is fitted to slide through the rear wall of the said drawer so that when the drawer is closed the plunger engages the rear wall, *f*, of the case compressing the spring. A locking device hereinafter described holds the drawer against the pressure of the spring which when said

drawer is released will throw it outward in the usual manner of registers of this class.

The front of the case is provided with parallel slots, *g*, (see Fig. 1) in which the shanks of keys, D, work. A horizontally arranged shaft, E, runs longitudinally of the case and is mounted in suitable standards. On the outer end of this shaft a gear, *h*, provided with a determined number of teeth or spurs is secured, said gear being connected by an intermediate gear, *j*, with a pinion, *k*, on a shaft, *m*, of an adding device, H. This adding device is of the ordinary well known construction comprising wheels numbered peripherally and moved intermittently by the rotation of the shaft.

A lever, *t*, (see Fig. 1) is loose on the inner end of the shaft, E. A gear-wheel, *p*, is fast to the outer end of said shaft. A rod, *r*, connects said arm, *t*, with the gear-wheel, *p*, forming a gate. The wheel, *p*, (see Fig. 6) bears a spring-pulled actuating pawl, *v*, which engages the gear, *h*. A dog, *w*, (see Fig. 6) engages the gear, *p*, normally preventing its moving in but one direction. Said dog is held by a spring, *y*, fast to the case engaging a projection, *z*, on said dog.

Each key, D, comprises a disk, 15, mounted loosely on the shaft, E, and from each disk an arm, 16, projects through the slots and bears a head or finger piece, 17, on its outer end. These heads are imprinted with the amounts varying in the present example from five cents to ninety-five cents. Each key-disk, 15, is provided with a segmental slot, 18, shown in Figs. 4 and 5, through which the gate-bar or rod, *r*, passes. These slots vary in length in proportion to the amount indicated by the corresponding plates, 17, determining thereby the distance which the gate shall be thrown to move the gear, *h*, said distance being sufficient to indicate the amount in the adding mechanism. Opposite the slots, 18, each disk is toothed at, 19. These segmental slots decrease in length from substantially a full semi-circle on the disk of the five cent key to the shortest slot on the ninety-five cent key. A peripheral flange, 20, continues the tooth line to a point adjacent each key arm, 16, leaving a space, 21, for the purpose hereinafter described.

A series of counter-balanced levers, 23, is loose on a rod, 22, in the case and each is provided with a dog, 24, which respectively en-

gage the geared portions of the disk preventing the keys from being returned after having been partially moved to indicate a sale. A bar, 25, is mounted on the shaft, 22, and is spring-pulled by a spring, 126, which connects a wall of the case with a crank arm on the shaft, 22, as shown at the left of Fig. 3, so that when the drawer is open it will pass over and engage the radial projections, 26, on each of the key disks preventing the movement of any key other than that which has already been actuated as shown in Fig. 5.

A rocking bar, 27, is mounted in the case and engages the short arm, 28, of the locking pawl levers, 23. An arm, 29, projecting vertically from said rocking bar engages the bar, 25, to disconnect it from contact with the lugs, 26, on the key disk as in Fig. 4.

A lever, 30, projects into the drawer case, one arm thereof engaging an arm, 31, pendent from the rock-bar, 27, its opposite arm being engaged by a boss, as shown in Fig. 4, on the rear wall of the drawer. When the drawer is housed the bar is thrown upward disengaging the bar, 25, from the projections, 26, on the disks, as shown in Fig. 4. When the drawer is released as in Fig. 5, the rock-bar, 27, drops engaging the arms, 28, of the locking pawl levers, 23, freeing the disks from said pawls.

A barrel-gear, 35, containing a helically wound spring engages a gear, 36, (see Fig. 1) on the shaft, E, and through which the gate rod, *r*, passes. Said gear, 35, is journaled on a standard, 37, in the bottom of the case and is employed to return the gate and with it the depressed keys after having been released.

In the front of the case a rocking pin-plate, 40, is pivoted from which pins, 41, project on a vertical incline in the path of each key-arm, 16. Said pin-plate is covered by a finish plate, 42, slotted to allow the pins, 41, to protrude. A vertically swinging lever, 43, is pivoted in the bottom of the case and one arm thereof is connected by a pivoted lever, 44, with the pin-plate, 40. On a stud within the case a horizontally swinging bell crank lever, 45, is pivoted and has one arm beveled and engaged by the opposite arm of the lever, 43, a torsion spring, 46, returning said bell-crank. The opposite arm of said bell-crank bears a hammer, 47, in position to engage a gong, 48. A push-spring, 50, returns the lever, 43. When a key, D, is actuated its arm, 16, engages the corresponding pin, 41, drawing the outer arm of the lever, 43, upward actuating the bell-crank and sounding the gong. At the same time a vertically arranged locking pawl, 52, which slides through the top of the drawer-case and normally locks the drawer when closed against the pressure of the spring, *b*, is elevated by a pin, 53, connecting with the inner arm of the lever, 43, releasing the drawer which is thrown outward by said spring, *b*. When the pin-plate, 40, is tilted by contact with the key arm an arm, 55, thereon (see Fig. 6) is thrown into engagement with a pro-

jection, 56, on one arm of the pawl, *w*, releasing the wheel, *p*, from said pawl so that it may be returned by the spring-gear, 35, conjointly with the keys. On the arm, 55, there is a boss, 57, which normally engages a projection, 58, on the gear, *p*, preventing the rocking of the pin-bar until engaged by the key. This projection, 58, is moved out of the path of the boss, 57, on the arm, 55, of the rocking pin-bar as soon as the key is moved actuating the gate. This device prevents depression of the pins, 41, by means of the hand or other implement without moving the key. The gear, *h*, is retarded by a spring-held gear, 60, so that it will not be thrown too far by the gate gear, *p*.

Tablet-rods, 61, are fitted to slide vertically in a plate, 62, extending longitudinally at the rear of the case and a similar plate, 63, at the top of the case above which said tablets bear heads, 64, imprinted with numerals corresponding respectively with the key-heads, 17. A spring-pulled plate, 65, connected by springs, 66, with the case has its free edge normally in engagement with the tablet rods, 61. Each tablet-rod has an arm, 67, projecting toward the corresponding disk, 15, and on each of said rods there is a pivoted finger, 68, projecting into the path of the radial lug, 26, on the disk so that when said disk is rotated to indicate a sale this lug will engage said finger which is held by a strap, 69, and force the corresponding tablet upward above the retaining bar, 65, as shown in Fig. 5. A bar, 70, is arranged longitudinally above the disk and is provided with a series of laterally swinging pivoted pawl plates, 71 having beveled edges as best indicated in Fig. 3. One of said pawls is interposed between each two of said disks and sufficient room only is afforded by said pawl for the movement of one disk flange, 20, between them. This movement spreads the adjacent pawls so that the edges of all pawls are forced together into the spaces, 21, at the ends of the flanges of the other disks which locks all of the remaining keys against movement. The mechanism described indicates as specified from five cents to ninety-five cents.

At the left of the case as viewed in front elevation a second mechanism is disposed the tablets, 80, and keys, D, of which are imprinted with dollars. A similar gate and shaft are employed to actuate this mechanism while the drawer opening device is the same. This dollar department has a separate adding mechanism, H², which is of the same construction as the mechanism, H. This separate device for indicating dollars is employed solely for convenience. It will be understood also, that the tablets and keys may be imprinted with smaller fractional parts of a dollar if desired.

In the use of our improvement, when a sale is made, as for example, of twenty-five cents the key, D, representing such amount is drawn downward into the position shown in

Fig. 5, and its shank, 16, depressed, until it engages one of the rigid pins, 41, on the pin-bar, 40. This rocks said bar outwardly as viewed in Fig. 5, throwing the lever-arm, 43, downward, elevating the drawer pawl, said drawer immediately being thrown outward by its spring. At the same time the bell is rung by the action of the bell-crank lever, 45, and the rock-bar, 27, drops freeing all the disks from the pawls and simultaneously throwing the bar, 25, over the projections, 26, on the remaining disks. The like projection on the disk which has been moved has passed said bar, 25, which on its forward movement locks all the other disks so that no key can be actuated to register until a complete operation is finished by one key. Should the key be released before its complete downward movement into engagement with the pin, 41, it cannot be returned without completing said downward movement as the pawls, 24, prevent this and are not thrown out of engagement until the money drawer is released which cannot happen until the pin-rock bar has been actuated by the key. As the key disk is rotated on the shaft, E, the gate-bar, 7, engaging in the end of the slot, 18, is carried forward by the disk a distance corresponding in the present example to five teeth on the gear, *h*. The gear, *p*, forming part of this gate drives by means of the pawl, *v*, the gear, *h*, and actuates the adding mechanism in a manner which will be readily understood by those conversant with such matters without a more explicit description.

The use of each succeeding wheel in the five cent bank of keys throws the gate-rod a correspondingly increased distance. As the key disk starts on its rotation its flange, 20, passes between the locking pawls, 71, crowding said pawls so that no other key can be started until the full movement of the key in use has been completed, the drawer released and the bar, 25, thrown over the projections, 26, on the remaining disks. The tablet-rod having been elevated as described by the engagement of the projection, 26, on the disk with the pivoted finger, 68, remains held elevated by the rock-plate, 65, until another key is manipulated forcing up the corresponding tablet, the arm, 67, of which in its upward passage forces back said plate, 65, and permits the preceding elevated tablet to drop.

As described, the movement of the gate starting the wheel, *p*, takes its projection, 58, out of engagement with the boss, 57, on the arm, 55, of the pin rock-bar and as said bar is rocked from contact with the key said arm, 55, engaging the click, *w*, releases the gear, *p*, therefrom permitting the return of the gate by the spring-gear, 35, when the key is released. When the money drawer is closed after this operation it engages the lever, 30, which actuating the rock-bar, 27, drives the bar, 25, outward from contact with the disk projections, 26, freeing all the disks so that they can be again rotated and engaging the

pawls, 24, therewith so that they cannot be returned.

Having thus explained our invention, what we claim is—

1. In a cash register, the rocking key provided with gear teeth and a radial projection in combination with a locking-pawl engaging said teeth, a money drawer and mechanism actuated by the opening of said drawer for disengaging said pawl and engaging said radial projection, substantially as and for the purpose set forth.

2. In a cash register, the segmentally slotted rocking key-disk in combination with the gate; a gear rotated thereby; and the spring-actuated gear meshing with said first gear for returning the gate.

3. In a cash register, the rocking disk, 15, in combination with the pawl, 24; the rock-plate, 27, for releasing said pawl, and the lever, 30, for operating said plate, said lever projecting into the path of the money-drawer substantially as and for the purpose set forth.

4. In a cash register, the rocking key disk, 15, having a projection, 26, in combination with the bar, 25, for engaging said projection; the rock-bar, 27, having an arm for disengaging the bar, 25; the lever, 30, for operating said rock-bar and projecting into the path of the money-drawer.

5. In a cash register, the rocking keys, and the gate carried thereby in combination with a spring-pushed pawl for locking said gate; a rocking bar engaged by said keys and operating the drawer-releasing mechanism and mechanism actuated by said bar for releasing said pawl.

6. In a cash register, the tablet rods provided with the arms, 67, and pivoted fingers in combination with the rocking keys having projections for engaging said fingers, and devices for sustaining said tablets when elevated by the keys.

7. In a cash register, the rocking keys, D, slotted as described, in combination with the gate having a bar passing through said slots; the shaft supporting said keys and gate; the gear, 36, on said shaft, and secured to said gate and the spring-actuated returning gear, 35, meshing with the gear, 36.

8. In a cash register, the rocking pin-plate, 40, in combination with the rocking keys; the gate actuated thereby; a projection on said gate engaging said plate and disengaged when the gate is moved by the action of a key.

9. In a cash register, a spring-pushed money drawer, a releasing mechanism therefor; the rocking pin-plate for operating said mechanism; the rocking keys for actuating said plate and devices for locking the plate until engaged by a key substantially as described.

HARMON A. MILES.
WILLIAM C. MILES.

Witnesses:

O. M. SHAW,
K. DURFEE.