June 3, 1930. F. H. TYLER 1,761,547

CASH REGISTER

Filed June 15, 1928

FIG. 1

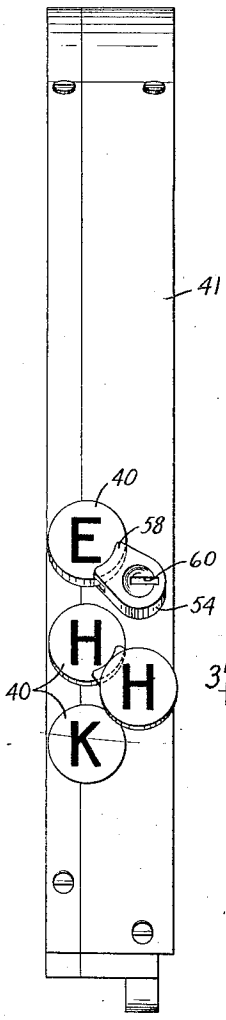


FIG. 2

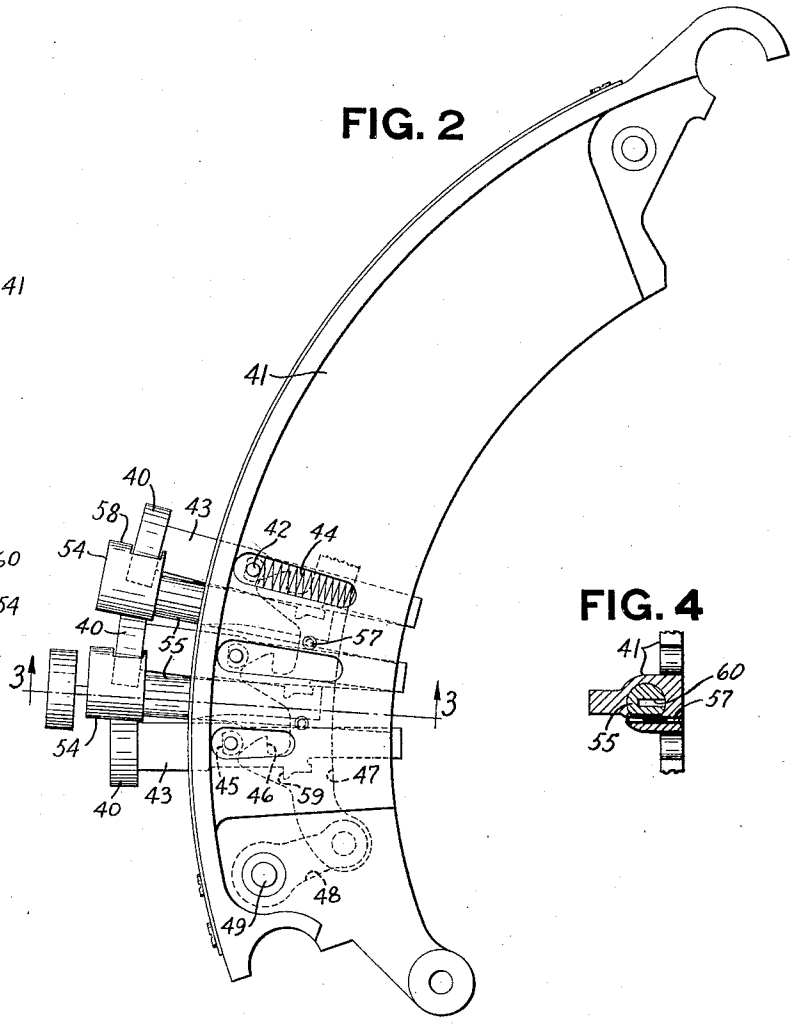
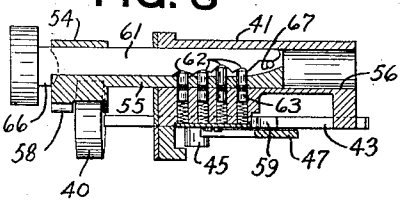


FIG. 4

FIG. 3



Inventor
Frederick H. Tyler

By Karl Benst
Ralph B. Warfield

His Attorneys.

Patented June 3, 1930 1,761,547

UNITED STATES PATENT OFFICE

FREDERICK H. TYLER, OF DAYTON, OHIO, ASSIGNOR TO THE NATIONAL CASH REGISTER COMPANY, OF DAYTON, OHIO, A CORPORATION OF MARYLAND

CASH REGISTER

Application filed June 15, 1928. Serial No. 285,532.

This invention relates to cash registers and like machines, and more particularly refers to improvements in key locking and unlocking mechanisms therefor.

The invention is herein shown applied to a key bank of the type disclosed in the patent to Fuller, No. 1,242,170, dated October 9, 1917.

One object of this invention is to provide means to lock the headed keys of the present cash register against depression except by those holding the keys appropriate to the individual locks.

Another object is the provision of a novel arrangement for locking one or more keys of a cash register or similar machine against depression, without mutilating the key, or altering its normal operation, whereby, after the release of the key lock, continued depression of the lock releasing means will depress the key.

With these and incidental objects in view, the invention consists of 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 drawings which accompany and form part of this specification.

In the accompanying drawings:

Fig. 1 is a view in front elevation of one of the key banks.

Fig. 2 is a view in side elevation of the same bank shown in Fig. 1.

Fig. 3 is a sectional view through the key banks taken on line 3—3, Fig. 2.

Fig. 4 is a fragmentary sectional view showing the manner in which the lock cylinder is prevented from rotating.

Heretofore, clerks' keys have been provided with individual locks in which it was necessary to insert a key, turn the key, thereby turning the lock tumbler, and then depress the clerk's key. This procedure was found to be entirely too slow during rush hours of business, especially in restaurant and dining room service. To overcome this objectionable delay, speed up the service, and, at the same time, to permit an individual clerk or waiter to lock his particular register key against depression by an unauthorized person, a lock, such as is illustrated herein, is applied to the regular clerk's key without changing such keys, a removable key being insertable into the lock to release the tumblers and, by a continued pressure of this key, effect depression of the clerk's key.

The insertable key terminates at the outer end in a transverse head bearing the initial or number corresponding to that of the clerk's register key with which it is associated. This insertable key may be entirely withdrawn from the lock and carried on the person of the waiter or clerk.

Only three clerks' register keys are shown for illustration, although the full complement of the key bank is nine keys and the invention may be applied to all of them. The key labeled "E" is shown locked in its undepressed position. Clerk's key "H" is shown in its undepressed position, but unlocked by its particular insertable key. No lock is shown in connection with clerk's key "K."

The clerks' keys 40, of a type well known in the art, are slidably mounted in a key frame 41, suitably mounted in a register, such as is disclosed in the above-mentioned patent to Fuller, and also in the patent to Shipley, No. 1,619,796, issued March 1, 1927.

The keys 40 are depressible in order that their inner ends may variously arrest the usual differential mechanism, not shown herein.

When one of the keys 40 is depressed, a stud 42 on the shank 43 thereof compresses a spring 44, and, at the same time, a flat stud 45 located on the opposite side of the key shank from the stud 42 is latched beneath a hook 46 on a locking detent bar 47. A link 48, pivoted on a stud 49 in the frame 41 pivotally supports the detent bar 47 at its lower end, and a similar link (not shown) supports the detent bar at its upper end.

Near the end of an operation of the machine, well known release mechanism (not shown) shifts the detent bar 47 downwardly to release the stud 45 of the depressed key, and thereby permit the spring 44 to restore the key to its normal outward position.

The foregoing structure is old and well

known, and constitutes a part of this invention only in so far as it co-acts therewith, to obtain the desired results.

The individual locks for the respective register keys may be arranged to the right and slightly below their respective clerks' keys 40. Each of the locks includes a cylinder 55 slidably mounted in a bore 56 in the key frame 41.

To prevent rotation of the cylinders 55 in their bores 56, the peripheries of the cylinders are each flattened longitudinally, as indicated in Figure 4, for a distance substantially equal to the longitudinal travel of the cylinders in their bores, a fixed pin 57 in the key frame being arranged to extend across the bore 56 in substantial contact with the flattened side of its locking cylinder. At its outer end, the cylinder 55 is provided with a head or enlargement 54 which is laterally extended, as at 58, towards its corresponding register key 40, and is slotted horizontally to embrace the head of its respective clerk's key 40. A shoulder 59 on the stem 43 of the key 40, by contact with the key frame 41 (Fig. 3), prevents removal of the clerk's key and hence prevents removal of the slidable locking cylinder 55.

A slot 60 extending throughout the length of the cylinder 55 accommodates a removable key 61, adapted to be inserted therein and removed therefrom, as shown in Fig. 3.

A series of aligning tumbler pins 62 located in seats extending through that wall of the locking cylinder 55 forming the closed edge of the longitudinal slot 60, normally lie in line with a series of spring-pressed locking pins 63 located in pockets formed in the body of the key frame 41, as shown in Fig. 3. The spring-pressed locking pins 63 drive the aligning pins 62 to the bottoms of their respective seats and enter the seats to hold the locking cylinder 55 and consequently the corresponding clerk's key 40 against longitudinal movement.

A pin 67 carried by the lock cylinder 55, projects into the longitudinal key slot 60 near the inner end thereof, and the inner end of the removable key 61 is reduced to slide between the pin 67 and the wall of the key frame 41 closing the open end of the key slot 60, so as to prevent the possibility of tilting the key when inserted in the slot to operate improper combinations of the lock tumblers. A shoulder 66 on the removable key 61 limits the extent of entry of the removable key into the lock cylinder.

The removable key 61 is so shaped that when it is inserted into the slot 60, it forces the aligning pins 62 outwardly until the outer ends of the pins are flush with the line of contact between the cylinder 55 and the bore 56. The aligning pins 62, in turn, force the locking pins 63 outwardly against the tension of their springs, until the ends of the locking pins lie flush with the periphery of the bore 56, and release the cylinder for longitudinal movement.

When the removable key 61 has been inserted in the slot 60, of its particular cylinder 55, to the position shown in Fig. 3, the shoulder 66 on the removable key contacts the outer end of the cylinder 55, and continued movement of the removable key 61 moves the cylinder inward axially in the bore 56. The cylinder, due to its connection 58, carries the particular clerk's key 40 inwardly therewith, whereupon the detent bar 47 latches the clerk's key 40 in its depressed position, as described above.

When the detent bar 47 is moved to release the key 40, as described, the spring 44 restores the key 40 and the cylinder 55 to their normal positions. The clerk may now withdraw his key 61, and as he does so, the spring-pressed locking pins 63 shift the aligning pins 62 towards the center of the cylinder 55, in which position the cylinder and the clerk's key 40 are locked against depression until the removable key 61 is again inserted.

Besides these convenient and time-saving elements of unlocking and depressing the key with one movement, the invention possesses the added feature of adaptability, that is, it may, with a minimum amount of work, be installed on any machine of the type to which it is shown applied.

Obviously, the aligning tumbler pins 62 bind the removable key 61 against withdrawal relatively to the cylinder 55 after the latter has been slid inwardly.

Also the usual detent bar 47 retains both the register key 40 and the lock cylinder 55 in depressed positions until the detent bar is released.

It is also to be noted that no additional restoring spring for the cylinder 55 is necessary, the usual key restoring spring 44 operating to return its register key 40 and its lock cylinder 55 to normal positions, as determined by the shoulder 59.

While the forms of mechanisms herein shown and described are admirably adapted to fulfill the objects primarily stated, it is to be understood that it is not intended to confine the invention to the forms or embodiment herein disclosed, for it is susceptible of embodiment in various forms all coming within the scope of the claims which follow.

What is claimed is:—

1. The combination with a depressible register key; of a non-rotatable sliding member, a projection thereon embracing the head of the depressible register key; means to lock the member in its normal position; and a detachable key insertable into the sliding member to actuate said means and unlock the sliding member, said member adapted to be moved by the detachable key to actuate the depressible key.

2. The combination with a depressible register key; of a sliding cylinder; a pin for preventing rotation of said cylinder; a lateral projection on said cylinder embracing the depressible register key; means to lock the cylinder in its normal position; and a detachable key insertable into said cylinder to actuate said means to unlock the cylinder and to slide the cylinder longitudinally to actuate the depressible key.

3. The combination with a depressible register key; of a sliding cylinder provided with lock-tumblers, said cylinder being flat on one side; a pin cooperating with said flat side to prevent rotation of said cylinder; a detachable key insertable into said cylinder to aline the tumblers and thereby release the cylinder to be slid upon continued longitudinal movement of the detachable key; and a rigid connection between the cylinder and the depressible register key to effect depression of the register key with the cylinder.

4. The combination of a register key slidably mounted in a frame; a lock cylinder slidably mounted in the frame adjacent the register key; means to prevent rotation of the lock cylinder; means to connect said cylinder and said register key; devices to lock the cylinder in normal position; a detachable key insertable into the cylinder to actuate the devices to unlock and slide said cylinder and register key longitudinally into the frame.

5. In a machine of the class described, the combination with a register key stem shiftable into and out of effective position; of a slotted lock cylinder arranged parallel with the key stem and slidable in the direction of its length; means to lock the cylinder in normal position; means to connect the key stem and cylinder; a removable key insertable into the slotted lock cylinder to release the locking means and shift the lock cylinder and key stem; and a guide member extending into the slot in the lock cylinder to hold the removable key in proper position when said key is fully inserted in the cylinder.

6. The combination of a headed register-key slidably mounted in a frame; a non-rotatable lock cylinder slidably mounted in the frame alongside the register key, said cylinder having a key-receiving slot in line with its direction of movement; means on said cylinder and extending at right angles to the direction of movement thereof, said means having a slot embracing the head of the register key to normally maintain said register key in its initial position; devices to hold the lock cylinder in its normal position; and a detachable key insertable into the slot in the lock cylinder to actuate said devices and unlock and slide the cylinder and register key into the frame.

In testimony whereof I affix my signature.

FREDERICK H. TYLER.