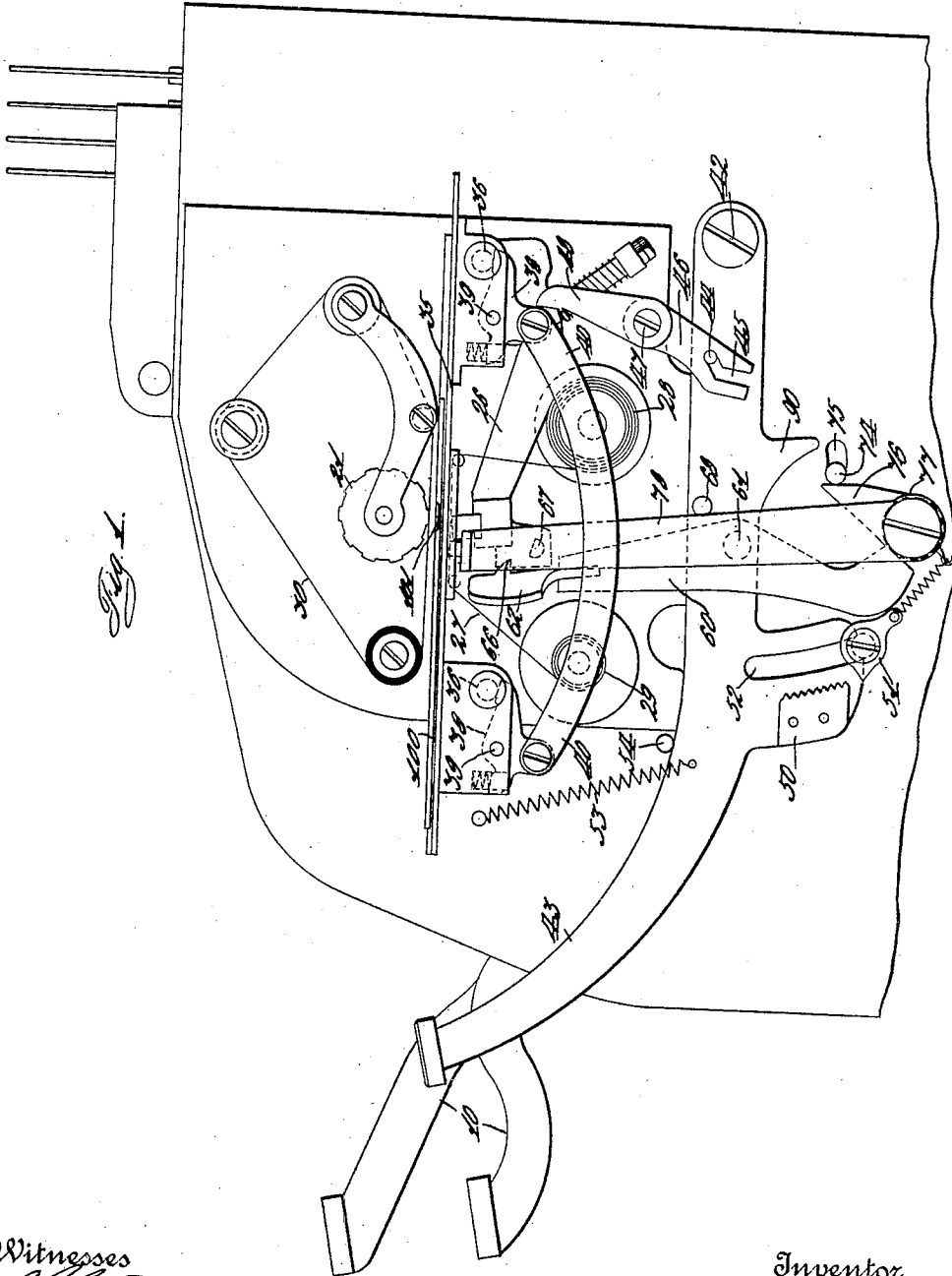


C. A. LUNDGREN.  
CASH REGISTER.  
APPLICATION FILED MAR. 17, 1906.

963,785.

Patented July 12, 1910.  
3 SHEETS—SHEET 1.



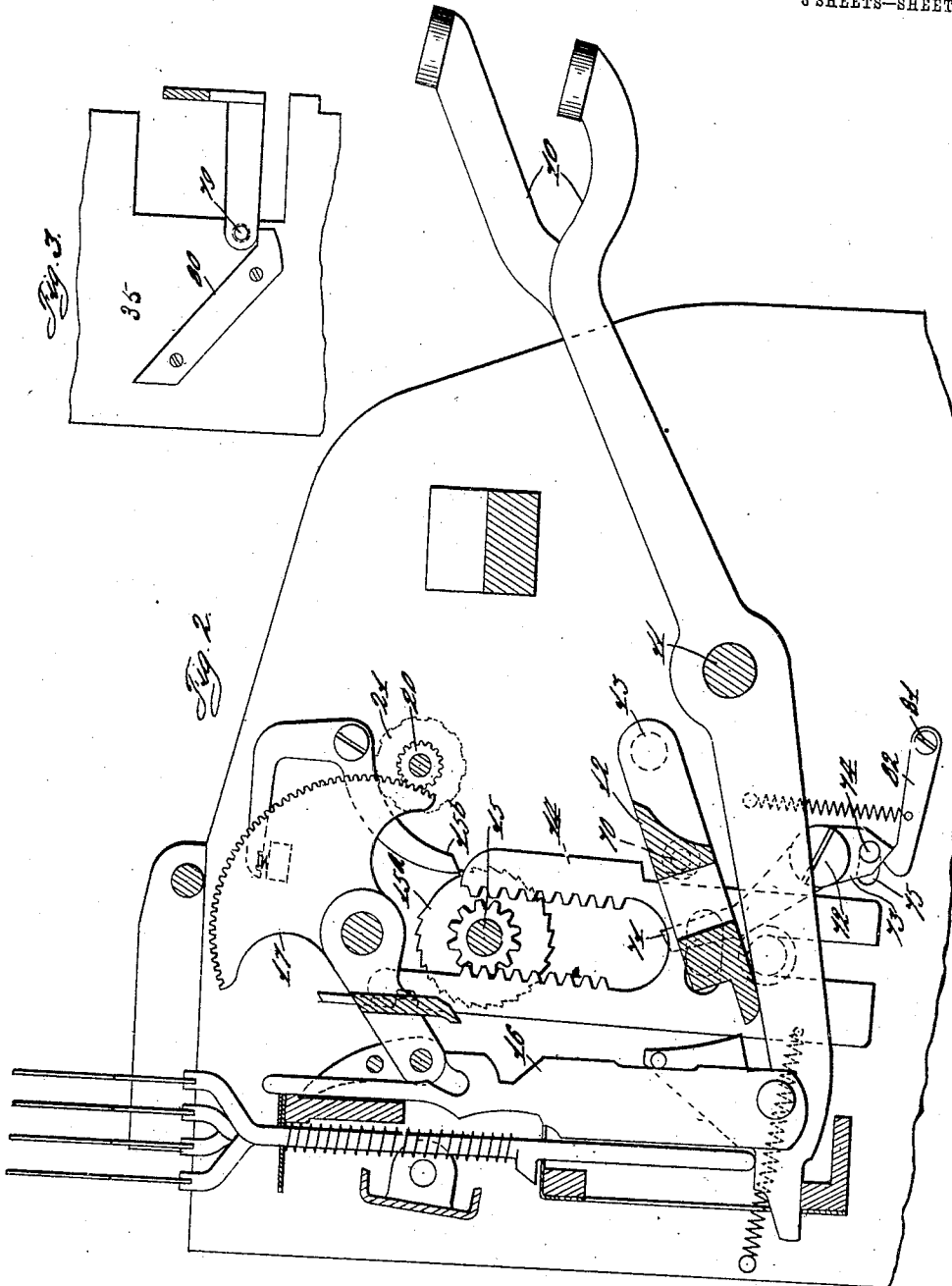
Witnesses  
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Witnesses

*Charles A. Lundgren*

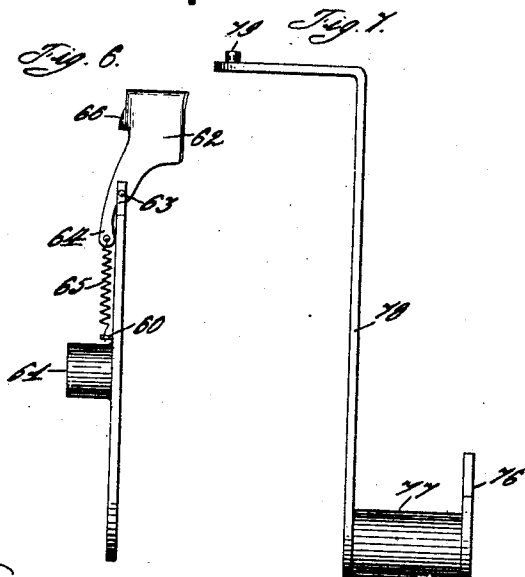
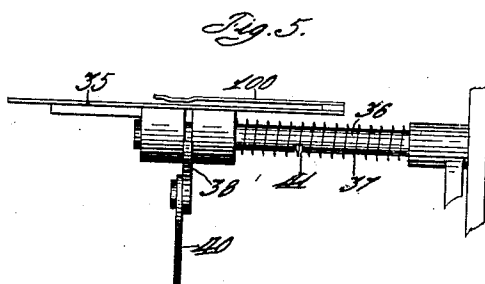
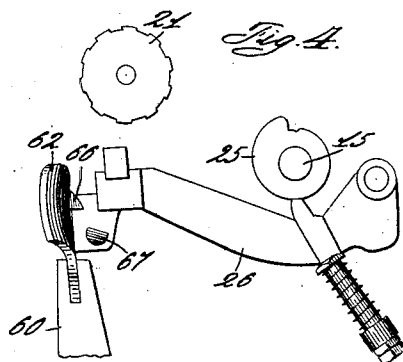
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# UNITED STATES PATENT OFFICE.

CHARLES A. LUNDGREN, OF DAYTON, OHIO, ASSIGNOR, BY MESNE ASSIGNMENTS, TO  
THE NATIONAL CASH REGISTER COMPANY, OF DAYTON, OHIO, A CORPORATION OF  
OHIO, (INCORPORATED IN 1906.)

## CASH-REGISTER.

963,785.

Specification of Letters Patent.

Patented July 12, 1910.

Application filed March 17, 1906. Serial No. 306,559.

*To all whom it may concern:*

Be it known that I, CHARLES A. LUNDGREN, a citizen of the United States, residing at Dayton, in the county of Montgomery and State of Ohio, 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 relates to cash registers, and has for its object to provide an accounting machine which will print a sales slip or not as may be desired, and which will also print on a detail strip.

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

Of said drawings: Figure 1 represents an end view of the register showing the check key and sliding check table. Fig. 2 represents a vertical sectional view of the register showing the printer setting elements. Fig. 3 is a bottom view of part of the sliding table and the lock operating lever showing the camming strip. Fig. 4 is a detailed view of the printing platen and its operating mechanism. Fig. 5 is a detail rear view of the sliding check table in its normal position. Fig. 6 is a detail view of the auxiliary platen tripping lever, and Fig. 7 is a side view of the lock operating lever.

It is to be understood that in some of these views it has been necessary to omit certain parts of the machine for the sake of clearness.

The type of machine to which these improvements are applied in its general form of construction is now well known in the art, being of the type shown and described in Letters Patent to Thomas Carney, No. 497,860, dated May 23, 1893 and No. 683,877, dated Oct. 1, 1901, to both of which patents reference may be had for a more detailed description.

For the purpose of a better understanding of the description to follow, it may be stated that the specific form of means adopted in the present instance for securing the general broad results above outlined, comprises a

key operated register having an automatic printing mechanism adapted to print the amounts of the different transactions upon a strip of paper which is automatically fed forward step by step at each operation of the machine and a sliding table upon which a sales slip or a check is placed adapted to be slid toward the machine so as to bring the check to a position between the printing wheels and the paper strip so that upon the operation of the machine the check will be printed upon instead of the paper strip. The sliding check table is held latched in position for the check to be printed and the amount keys when depressed are also latched. A check key is provided which first releases the sliding table (which is immediately returned to its normal position by suitable springs) and then operates the printing platen to print the amount upon the paper strip after which the depressed amount key is released and the drawer opened.

It will of course be understood that the machine is capable of being operated as described in the above mentioned patents if it is not desired to use the check printing device.

The same numerals of reference indicate identical parts in all of the figures.

Referring to Fig. 2 the amount keys are pivoted upon a transverse shaft 11 and when depressed raise a key coupler 12 carried upon a rock shaft 13, and the oscillatory movement of the key coupler reciprocates a double rack 14 to give a complete rotation to the main operating shaft 15 of the machine. On this shaft 15 is a full stroke rack 15<sup>a</sup> with which coöperates a pawl 15<sup>b</sup> in a well known manner. Attached to the rear end of the amount keys are lifting bars 16, said lifting bars operating registering segments 17 which operate the counters (not shown) and also mesh with pinions 20. These pinions 20 are in a well known manner connected by nested sleeves with the amount printing wheels 21 (see Figs. 1 and 2). The right hand end of the revolution shaft 15 is extended through to the printing mechanism as shown in Fig. 1 and carries a platen operating cam 25 (see Fig. 4) which depresses the platen 26 against suitable tension and allows the same to fly up to take an impression from the type wheels.

The paper upon which the various impressions are to be taken comprises a strip 27 which is fed from a supply roll 28 over two guide pins and to a storage roll 29.

5 The inking ribbon 30 is suitably carried by guiding and supporting rollers to extend between the paper strip and the type wheels. For a more detailed description of this much of the printing mechanism reference may be  
10 had to the above mentioned Letters Patent No. 683,877.

The check table 35 is mounted upon shafts 36 and is adapted to be slid upon said shafts toward the machine. Suitable springs 37  
15 are coiled about the shafts 36 to hold the table in its normal outer position against enlarged heads formed on the outer end of the shafts 36 to prevent the table from sliding off said shafts. The table is latched in  
20 its inner position by two spring pressed pawls 38 which are pivoted at 39 and are connected by a link 40. The noses of these pawls normally bear against the under side of the shaft 36 and are adapted to snap into  
25 notches 41 formed in said shafts, when the table is pushed in. It is evident that this will latch the table in its inner position until it is released by the mechanism which will now be described.

30 Pivoted at 42 is a check key 43 having a laterally extending pin 44 which engages a slot 45 formed in the lower end of a release lever 46 pivoted at 47. An upwardly extending arm 48 of the lever 46 is so arranged  
35 that when the check table is pushed in the link 40 is in the path of operation of said arm. If the check key is now operated the pin 44 engaging in the slot 45 will rock the lever 46 on its pivot thereby bringing the  
40 upper end of the arm 48 against the link 40 to trip the pawls 38 from their engaging notches 41 and release the table which will be returned to normal position by springs 37. To prevent the return of the check key  
45 after it has been partly operated and to compel a complete stroke of said key before it can be returned I provide a toothed plate 50 fastened to the side of a downward extension of the check key adapted to be engaged by a spring drawn pawl 51 in a manner well known in the art. The slot 52  
50 straddles the pivot of said pawl and serves as a guide for the check key. A spring 53 secured at one end to the front part of the check key and at the other end to the framework of the machine serves to return the  
55 check key to its normal position against a stop pin 54. The pressing down of the check key operates the printing platen a second time to print the amount set up by the  
60 printing wheels. The mechanism for accomplishing this consists of a lever 60 pivoted on the side of the check key at 61 and carrying at its upper end a swinging trip  
65 pawl 62 (see Fig. 6). This pawl is pivoted

at 63 and has a downwardly extending heel 64 to which is attached a spring 65 the other end of which is fastened to a pin on the lever 60. The heel 64 allows the pawl 62 to be moved in one direction freely but limits  
70 its movement in the opposite direction. The pawl 62 is also supplied with a tripping nose 66 which is adapted to engage a pin 67 having a beveled face and mounted in the front end of the printing platen 26 (see Fig. 75  
75 4). The tripping nose 66 is brought into engagement with the pin 67 by the engagement of the lower end of the lever 60 with the hub 77 of a lever 78. The lower end of the lever 60 is formed as shown so that during  
80 the first part of the downward movement of the check key it will be cammed toward the front of the machine thereby bringing the tripping nose 66 into engagement with the pin 67 of the printing platen. The  
85 continued downward movement of the check key will cause the printing platen to be drawn downward against the tension of its spring. Toward the end of the downward movement of the check key a pin 68 thereon  
90 will contact with the rearward side of the lever 60 and rock the tripping nose 66 away from the pin 67 and allow the printing platen 26 to fly up to take a second impression from the type wheels.  
95

To lock the amount keys 10 in their depressed position and to release them by the depression of the check key the following mechanism may be employed consisting in the present embodiment of means for latch-  
100 ing the key coupler 12 in its elevated position until the check key is depressed. The key coupler is supplied with a laterally extending pin 70 which is adapted to rest upon the upper end of a latching pawl 71 when the  
105 coupler is elevated. This pawl is pivoted to the side frame at 72 and has a downward projection 73 on which is mounted a pin 74. The pin 74 extends through a slot 75 in the side frame of the machine and is engaged by a short arm 76 which is fast to  
110 a hub 77 of a lever 78. (See Fig. 7.) The upper end of the lever 78 is bent to form a right angle with the main body of said lever and extends directly under the check  
115 table 35. Mounted in this lateral extension of the lever 78 is an anti-friction roller 79 which is engaged by a camming block 80 secured diagonally on the under side of the check table 35 (see Fig. 3). Pivoted at 81  
120 to the side frame of the machine is a spring drawn pawl 82 which serves to retain the pawl 71 under spring tension in either of its set positions. (See Fig. 2.) The operation of this part of the machine is as follows. I will assume that in this operation  
125 of the machine it is desired to issue a check. The check will be placed upon the table and the table pushed in. Pushing in the table brings the cam block 80 against the anti-  
130

friction roller 79 and cams the lever 78 rearward. This will force the short arm 76 rearward as it is secured to the hub 77 of said lever. The rearward movement of the arm 76 will cam the pin 74 rearward which pin being fast to the latching pawl 71 will cause the upper end of the pawl 71 to be swung against the pin 70 which is fast to the key coupler. The amount keys are then operated to raise the key coupler. When the key coupler has reached the extreme limit of its upward movement the latching pawl 71 will snap under the pin 70 and hold the coupler in its elevated position. The length of the slot 75 limits the movement of the pawl 71 in both directions. When the check key is depressed while the amount keys are locked by pawl 71 a camming projection 90 on the check key will strike the pin 74 and cam it forward thereby releasing the key coupler and returning the lever 78 to its normal position. The check table has been previously released so that the cam bar 80 offers no obstacle to the return of lever 78. For the purpose of keeping the check more firmly on the table I have provided the table with a guard plate 100 and on this plate and directly opposite the printing line I have formed a pointer 101 which will serve as a guide for the insertion of the check. A suitable opening in both the plate 100 and the table 35 is provided to allow the printing to be done.

The complete operation may be described as follows: The check is placed upon the table and slid under the guide plate 100. The table being now pushed in the pawls 38 will engage in the notches 41 and latch the table in its inner position. The pushing in of the table also sets the latching pawl 71 in a position to latch the key coupler in its elevated position when the amount key is operated as previously explained. The table being in, the amount keys are operated and latched in their depressed position by pawl 71. The cam 25 will cause an impression to be made upon the check. Although the platen strikes the paper strip 27 there is no impression taken thereon as the check has been inserted between said strip and the inking ribbon 30 thereby receiving the impression. Now the check key 43 is operated with the following results: The first part of the downward movement of the check key causes the arm 48 to trip the pawls 38 and release the table which will spring back to its normal position as before described. By this time the tripping nose 66 has come into engagement with the pin 67 and is forcing the platen 26 downward against its spring. As soon as the pin 68 strikes the rearward side of the lever 60 the continued movement of the check key causes the tripping nose 60 to be tripped from the pin 67 thereby allowing the platen to fly up and make an impression upon the paper strip. At the final downward movement of the check key 43 the camming projection 90 of said key will strike the pin 74 and cam it forward. This will trip the pawl 71 and allow the key coupler to return to its normal position. The check key is returned to its normal position by the spring 53 carrying the lever 60 with it. On the return of the lever 60 the tripping nose 66 of the pawl 62 will strike the beveled face of the pin 67 and will wipe idly by said pin.

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 intended to confine the invention to the one form of embodiment herein disclosed, for it is susceptible of embodiment in various forms all coming within the scope of the claims which follow. It is likewise to be understood that the invention is not limited to use in connection with a key operated machine of the class shown but may be used in connection with many other kinds of registering and accounting devices, and that the word "check" as used in the specification and claims is intended to include various types of disconnected pieces of record material, such, for example, as are ordinarily termed "sales slips" or the like.

What is claimed is as follows:

1. In a cash register, the combination with value keys, of type carriers controlled thereby, a check carrying table movable toward and from said carriers at will, a check key, and means controlled by said table for locking the value keys in depressed position until the check key is operated.
2. In a cash register, the combination with printing mechanism, of means for supporting a detail strip, a movable check carrying table, a latch for holding said table in a position such that an impression may be taken on the check, a platen and means for moving it to print on the check, a check key for releasing said latch and for moving the platen to print on the detail strip.
3. In a cash register, the combination with printing mechanism, of a check carrying table movable into two positions relative to said mechanism, means for latching said table in one position and a check key and connection for releasing said latch.
4. In a cash register, the combination with an operating mechanism, of type carriers controlled thereby, a sliding check carrying table, a detail strip carrier, means for latching the table in position to prevent an impression on the strip, a platen for making impressions on both said strip and check, and a check key and connections for releasing said latch and causing an impression to be taken by said platen.
5. In a cash register, the combination with a series of value keys of a member common

thereto and movable therewith, a movable check carrying table, a cam on said table, and a device operated by said cam for latching said common member in one position.

5 6. In a cash register, the combination with a shiftable table of a series of value keys, a special key, means controlled by the shifting of the table for latching said value keys, and means operated by said special key for re-  
10 leasing the latching means.

7. In a cash register, a printing device comprising a platen bar and a spring for moving it, a key, a bar carried by said key having means for engaging the platen bar  
15 and a pin on said key for tripping the bar.

8. In a cash register, a printing device comprising a check carrying table, rods on which the table may be shifted, a pawl on said table for latching it in shifted position  
20 and a key for disabling the latch pawl.

9. In a cash register, the combination of a slidable check carrying table, rods having notches on which said table slides, latching devices carried by said table and cooperating with the notches to latch the check table,  
25 a link connecting said latching devices and a key and connections to rock said latching devices and said link to release the check table.

30 10. In a cash register, the combination of a movable check carrying table, pawls mounted on said table for latching it in one position, a releasing lever for said latching pawls, said lever having a cam groove, and  
35 a pivoted special key having a pin engaging said groove.

11. In a cash register, the combination of a platen carrying bar having a beveled lug thereon, a special key lever having a pin  
40 mounted thereon, a lever mounted on said key lever for operating said platen bar and a pivoted wiping pawl carried by said operating lever and engaging said beveled lug.

45 12. In a cash register, the combination with a printing mechanism including type carriers and a platen therefor, of an operat-

ing mechanism connected to position said type carriers and to actuate said platen, a check carrying table movable into and out of a position wherein the check may be  
50 printed by said type carriers, devices for latching said table in such printing position, and a key, having connections for first releasing said latch and thereafter operating said platen.  
55

13. In a cash register, the combination with type carrying members, of keys for setting the type carrying members, a check carrying table movable into and out of operating relation with the type carrying  
60 member, a latch for said keys, means controlled by the check carrying table for setting the latch so that when the keys are depressed they will be latched in depressed position, and a special key for causing an im-  
65 pression to be made by the type carrying member and releasing the latch.

14. In a cash register, the combination with value keys, of type carriers controlled thereby, a check carrying table movable to-  
70 ward and from said carriers at will, a check key, means controlled by said table for locking the value keys in depressed position until the check key is operated, and means for compelling a full stroke of the check  
75 key.

15. In a cash register, the combination with an operating mechanism and printing devices positioned thereby, of a platen for taking impressions from said printing de-  
80 vices, a movable record carrying table, connections whereby the movement of said table latches said operating mechanism, and a special key having connections for releasing said latching connections and for actuating  
85 said platen.

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

CHARLES A. LUNDGREN.

Witnesses:

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CARL BEUST.