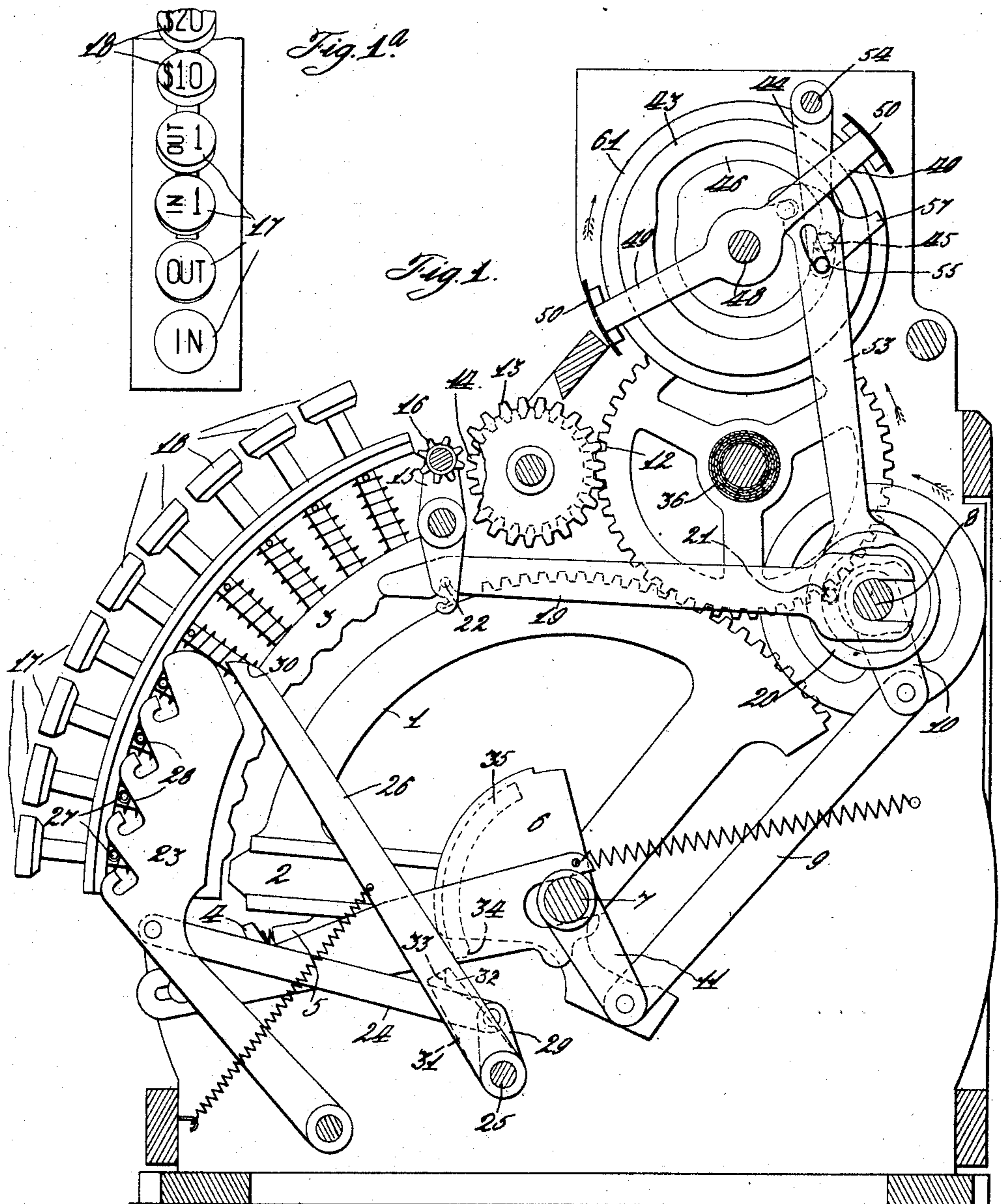


No. 885,550.

PATENTED APR. 21, 1908.

E. J. VON PEIN.  
CASH REGISTER.  
APPLICATION FILED NOV. 4, 1905.

2 SHEETS—SHEET 1.



Witnesses

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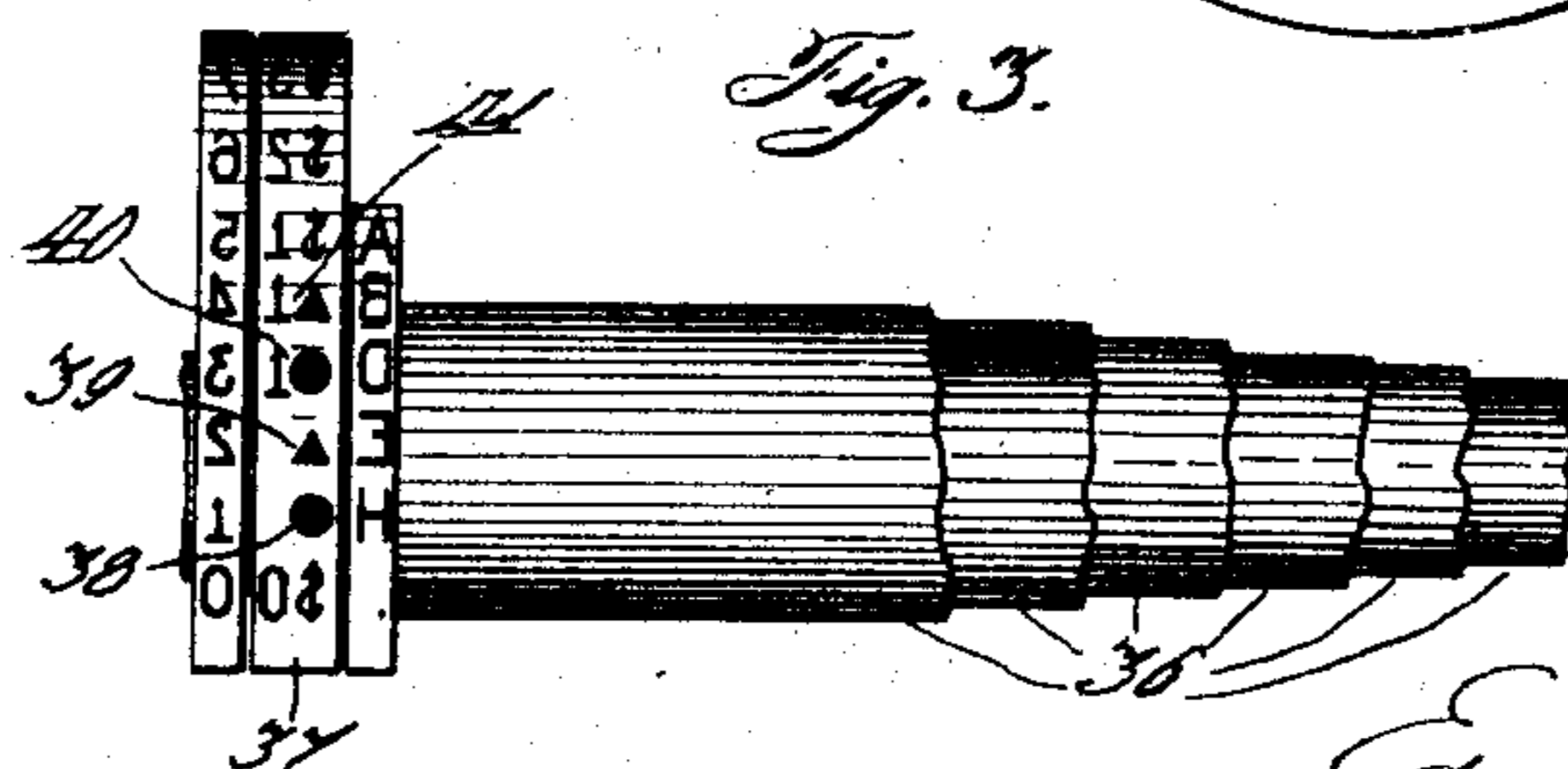
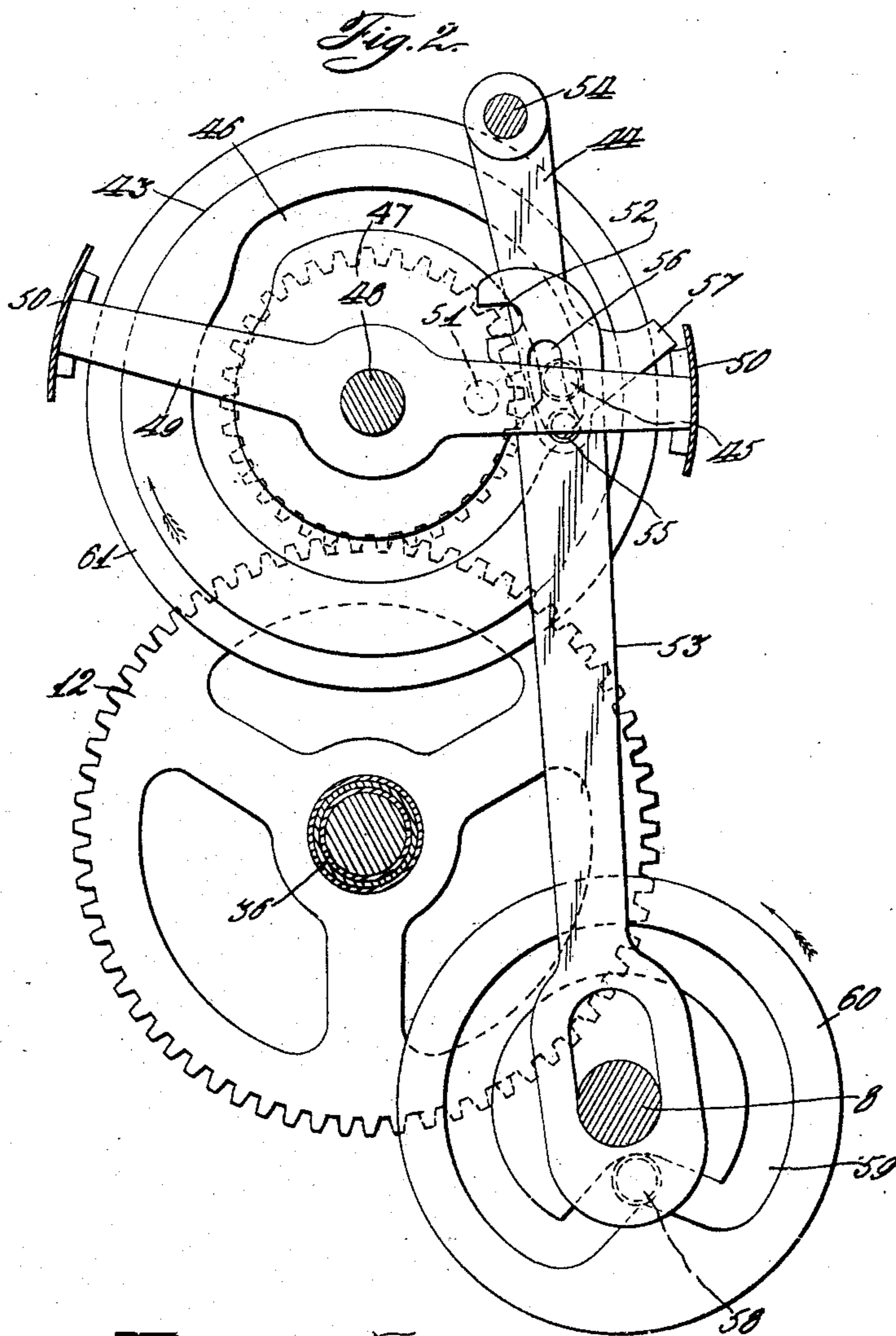
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2 SHEETS—SHEET 2.



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# UNITED STATES PATENT OFFICE.

EDWARD J. VON PEIN, 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.

No. 885,550.

Specification of Letters Patent.

Patented April 21, 1908.

Application filed November 4, 1905. Serial No. 285,803.

*To all whom it may concern:*

Be it known that I, EDWARD J. VON PEIN, 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 and is capable of use in any one of the numerous forms of cash registers now known in the art, and has among its objects to provide such mechanism as will permit the use of the ordinary amount keys of the cash register in connection with special manipulation devices representing the time of arrival and departure of clerks from the establishment in which the cash register is used, certain improvements in the flash or indicator concealing mechanism being utilized in connection therewith.

As a more specific description of the particular form of mechanism which has been adopted for the fulfilment of the broad scope of the invention, it may be stated that special keys are provided for causing the printing of special characters representing either the arrival or departure of the clerk, which keys throw out the counter from operation so that the ordinary amount keys of the machine may be used for printing numerals to represent the time of day of the arrival or departure; and as these entries on the machine do not require any indication to be displayed to a customer these special keys control the indicator flash mechanism so that the indicators are not revealed when these time entries are made.

Various forms of contrivances are well known in the art for effecting the concealment of indicators and for throwing counters out of operation under the control of manipulative means, and it is not intended that the invention in its broader aspects shall be limited to any particular form of such devices.

With these 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 a

vertical sectional view of the cash register to which these improvements are applied. Fig. 1<sup>a</sup> represents a partial front view of the tens of dollars bank showing the four special keys. Fig. 2 is an enlarged detail view of the indicator mechanism and flash retaining mechanism in displaced position. Fig. 3 is a detail view of the printing wheels.

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 Cleal & Reinhard No. 580,378, dated April 13, 1897, and the throwout counter mechanism is similar to that which is shown and described in Letters Patent to F. H. Bickford No. 690,554, dated January 7, 1902 to all of which patents, reference may be had for a more detailed description.

In general terms the machine to which this invention is applied may be described as being a crank operated machine in which a series of rack segments 1 for operating the indicators and counters are arranged to be operated or rocked to a greater or less degree according to the value of the keys operated. (See Fig. 1). The segment controlling device comprises in each case a slidable latch plate 2, suitably mounted on the segment 1 and arranged to be thrown into locking engagement with a stationary notched segment 3 by the lower end of the depressed key, with which a pawl 4, carried by a plate 5, pivoted on the segment 1, contacts. When the plate 2 is forced forward into engagement with a segment 3, the rack segment is arrested, but the actuating-disk 6 mounted rigidly on the main rock shaft 7, continues its full movement as the slide 2 is disengaged therefrom by the continued movement of said actuating-disk beyond the arrested position of the slide 2 as can be seen more clearly with reference to the above mentioned patent to Cleal & Reinhard. The rock shaft 7 receives its movement from the main revolution shaft 8 through the means of the link 9 and the arms 10 and 11 as can be readily seen with reference to Fig. 1. When the revolution shaft 8 is oscillated a rocking motion is transmitted to the rock shaft 7 so that upon a complete revolution of

said revolution shaft in the direction of the arrow (see Figs. 1 & 2) the actuating-disk 6 will be rocked downward and then up again.

Meshing with the rack-segment 1 is an intermediate gear 12 which drives a smaller intermediate gear 13 journaled upon the same shaft as the registering-wheels and the registering-gears (see previously mentioned patent to Cleal & Reinhard). To the left-hand side of the gear 13 is riveted or otherwise secured a third gear 14. A complete and detailed description of this part of the machine may be had by referring to the Cleal & Reinhard patent hereinbefore mentioned. It is sufficient for present purposes to say that loosely journaled on the same shaft and side by side with the gear 14 is one of the registering-wheels carrying an actuating gear of the same size as the gear 14.

Journalled upon the upper end of the vertical lever or frame 15 is an idle pinion 16 which is normally disengaged from the counter. When the machine is operated in connection with any one of the four special keys 17, the idle pinion 16 will be held in its disengaged position as will hereinafter be more clearly explained. When the machine is operated in connection with any one of the amount keys 18 to record a cash transaction, the idle pinions 16 will be thrown into mesh with both the gear 14 and the gear of the registering wheel, thereby connecting the two gears. This will cause the differential movement of the rack-segment to be transmitted to the counter as shown and described in said patent to Cleal & Reinhard.

A reciprocating link 19 is slotted at its rear end to straddle the revolution shaft 8, upon which is mounted a box-cam 20 in the cam-groove of which travels an anti-friction roller 21 which in turn is mounted on the link 19. In its lower edge and near its front end, the reciprocating link 19 has a vertical slot through which passes a pin 22 secured to the lower end of the pivoted lever or frame 15. It will be readily understood from this construction that the pinion 16 is rocked into engagement with the gear 14 and its companion registering gear (not shown) whenever the revolution shaft 8 is oscillated.

Coming now to the mechanism which is in direct relation to the present invention, it will be plainly seen, (see Fig. 1<sup>a</sup>) that the four lower keys of the tens of dollars bank are utilized as special keys. Hereafter these special keys will be referred to as being the first, second, third and fourth special keys, the bottom key in the bank being termed the first special key, the next key from the bottom being the second special key and so on. Upon their outer ends they are provided with the characters IN, OUT, IN 1, & OUT 1, in the order named, started with the first key. These keys are only to be used when a clerk wishes to make a record of the time of his ar-

rival or departure to or from his post of duty. It will be clearly seen that whenever one of these special keys 17 is pressed in that the pivoted latch plate 23 will be rocked rearward by one of the pins 27, which are fast to the shanks of their respective keys, coming into contact with the inclined edge 28 of said latch plate. The link 24 and arm 29 transmit the movement of the plate 23 to the shaft 25 upon which is secured a spring drawn lever 26 provided with a camming end 30.

The shaft 25 has fixed upon it an arm 31 (shown in dotted lines) having a laterally extending lug 32 which is provided with a bevel camming edge 33. Whenever the shaft 25 is rocked by the pressing in of a special key, the bevel camming edge 33 of the lug 32 will be brought into a position to be operated upon by a bevel edge 34 of a flange 35 which is mounted on the actuating-disk 6. It will be plainly seen that if the machine is now operated the flange 35 will cam the arm 31 rearward and will hold it in rearward position until the actuating-disk 6 has completed its downward movement after which it will snap off the top of the flange 35 and assume its normal position. From this construction it will be readily understood that as long as the flange 35 holds the arm 31 in rearward position the arm 26 will also be held in its rearward position and the camming end 30 of the lever 26 will come into contact with the end of the link 19 to disconnect it from the pin 22 thereby preventing the idle pinion 16 from being thrown into mesh with the counter gears and the counter from being operated. For a more complete description of this mechanism reference can be had to the aforesaid Bickford patent.

The previously mentioned gear 12 is connected to one of the nested sleeves 36 which has mounted on its further end, (on the left hand side of the machine) a printing segment 37. (See Fig. 3). This printing segment forms part of the printing mechanism of the machine, which is identical with that shown and described in said patent to Cleal & Reinhard. The character 38 which is in the form of a circle corresponds to the key marked IN, the character 39 which is in the form of a triangle corresponds to the second key which is marked OUT, the characters 40 to the third key marked IN 1, and the character 41 to the fourth marked OUT 1. These characters are set in printing position in the same manner in which the amounts are set, for printing both on a detail strip and on a check. The necessity for having the third and fourth keys (marked IN 1 and OUT 1) is that when one key in the bank is depressed it locks all the remaining keys in that bank by a detent (not shown) as referred to in the said Cleal & Reinhard patent. This being so it will be clearly seen that in recording an arrival at *e. g.* 12.35 o'clock, if the first spe-

cial key marked IN, were depressed then the ten dollar key could not be depressed in connection with the two dollar key of the units of dollars bank to record twelve since it has been locked from operation because another key in that bank is already depressed, as previously described. This makes it necessary to have the third and fourth special keys which in addition to printing the special characters for IN and OUT also print the figure 1 for the hours 10, 11 & 12.

The operation of the machine in connection with the special keys is as follows: If clerk B arrives at his post of duty at 7.45 o'clock he will press in the first special key, (marked IN) then the seven dollar key, the forty cent key and the five cent key together with his initial key B. The pressing in of the special key will disable the counter and set the special character 38 and the amount keys will set their respective printing segments to the number 7.45 all in printing alinement and making the record read B ● 7.45. When the machine is now operated it will print a record of the clerk's arrival on a detail strip which will be kept in the machine for the proprietor's private use and also on a check which will be kept by the clerk as a receipt for his time. If he now departs at 11.20 o'clock he will press in the fourth special key (marked OUT 1) together with the one dollar key, the twenty cent key and his initial key B. This time the pressing in of the special key will set up the character ▲ 1, (which includes both a figure 1 and a triangle representing a departure) then he presses in the one dollar key which will set up the other figure 1 of the figure 11 and then the twenty cent key will set up the figure 20 making the record read B ▲ 11.20. As the normal position of the amount printing segments is at zero, the recording of an arrival or departure at 10.00 o'clock necessitates only the pushing in of the third or fourth special key as the case may be. The use of these ordinary amount keys for recording time would ordinarily cause the actuation of the counter operating devices, but these amounts should not be registered upon the counter, and for this reason the counter is thrown out of operation as already described whenever any one of these special time keys is used in the operation of the machine.

The differential movement of the rack-segment 1 is transmitted to the indicator 61 through the gear 12 and the gear 47. The gear 47 is fast to the side of the indicator 61 so that in the oscillation of the rack-segment 1 the indicator will move with it.

It is desired that whenever a time recording operation is made that the indicators remain concealed from view. This is accomplished by the following mechanism. Loosely mounted on the indicator shaft 48 is an arm 49 at either end of which is fastened

a laterally extending flash plate 50 which, while the indicators are being set, conceal them from view. On the side of the arm 49 is a pin 51 which is engaged by a notch 52 formed in the upper end of a flash operating arm 53 which will be raised and lowered at each ordinary operation of the machine. Pivoted at 54 is a locking lever 44 provided on one side with an anti-friction roller 45 adapted to engage in a cam-groove 46 of a disk 43 fast to the indicator for the tens of dollars bank. On the side of the locking lever 44 opposite the anti-friction roller 45 is another anti-friction roller 55 which engages in an elongated slot 56 formed in the flash actuating arm 53. A locking projection 57 is formed on the rearward side of the lever 44 and is adapted at certain times to extend over the rear end of the flash arm 49, (as shown in Fig. 2.) The flash operating arm 53 has at its lower end an elongated slot through which projects the revolution shaft 8. It is also supplied with an anti-friction roller 58 which is operated upon by the cam-groove 59 formed in the disk 60. During the first part of the oscillation of the shaft 8, the flash operating arm 53 is drawn downward thereby drawing the flash arm 49 with it as the slot 52 normally engages the pin 51. (See Fig. 1.) After the flash is thus drawn downward the actuating-disk 6 is in its downward position and will engage the sliding latch plate 2 and operate the rack-segment 1 thereby rotating the indicators in the direction of the arrow (see Fig. 1.) This will also rotate the disk 43 to give the locking lever 44 a backward or forward final displacement according to the key depressed. That is, if one of the special keys 17 is depressed the indicator and the disk 43 will be set in such a position that the anti-friction roller 45 is at some point in that part of the cam-groove 46 which is furthest away from the shaft 48. This will cause the locking projection 57 of the arm 44 to extend over the rearward end of the flash arm 49 after the same has been drawn down thereby locking it in its lower and concealing position. The rearward movement of the arm 44 will through the roller 55 and the slot 56 draw the upper end of the arm 53 rearward thereby disengaging the slot 52 from the pin 51 so that the arm 53 can return to its normal upper position when the machine has completed its operation. (See Fig. 2.) In the ordinary operation of the machine when any one of the keys 18 is used, the indicator and the disk 43 will be rotated so far as to bring the anti-friction roller 45 into that part of the cam-groove which is nearest to the shaft 48 thereby leaving the lever in the position shown in Fig. 1 with the notch 52 of the arm 53 in engagement with the pin 51.

By this construction it will be readily un-

derstood that when the machine is operated in connection with the special keys 17 for the purpose of entering a time record the indicator flash will be lowered and held in its lowered position to conceal the indicators from view; but if the machine is operated to record the usual cash transactions, the indicator flash will be lowered at the beginning of the operation and raised at the end of the operation to disclose the indicators.

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.

Having thus described the invention, what is claimed as new and is desired to be secured by Letters Patent, is:

1. In a cash register, the combination with a series of amount keys, of a counter; means for controlling the operation of the counter by said amount keys; a special key bearing a designation denoting arrival or departure and also bearing a numeral "1" to represent an amount of ten hours; typecarriers controlled by said amount keys and said special key, the typecarrier for said special key having the numeral "1" thereon and also a designation corresponding to the designation on the special key; and means for throwing the counter out of operation when said special key is operated, substantially as and for the purpose described.

2. In a cash register, the combination with a series of amount keys, of a counter; means for controlling the operation of the counter by said amount keys; a series of special keys bearing designations representing arrival and departure; typecarriers controlled by said amount keys and said special keys, the typecarriers for said special keys having printing designations corresponding to the designations exposed on said special keys; means for throwing the counter out of operation when said special keys are utilized in conjunction with said amount keys; an indicator; and means controlled by said special keys for preventing the exposure of said indicator when said special keys are operated.

3. In a cash register, the combination with a series of amount keys, of a counter; means for controlling the operation of the counter by said amount keys; a special key bearing a designation denoting arrival or departure and also bearing a numeral "1" to represent an amount of ten hours; typecarriers controlled by said amount keys and said special key, the typecarrier for said special key having the numeral "1" thereon and also a designation corresponding to the designation on the special key; means for throwing the

counter out of operation when said special key is operated; an amount indicator controlled by said amount keys; and means for preventing the exposure of said indicator when said special key is operated.

4. In a cash register, the combination with a series of amount keys, of a counter; means for controlling the operation of the counter by said amount keys; a series of special keys bearing designations representing arrival and departure; typecarriers controlled by said amount keys and said special keys, the typecarriers for said special keys having printing designations corresponding to the designations exposed on said special keys; means for throwing the counter out of operation when said special keys are utilized in conjunction with said amount keys; an indicator controlled by said amount keys; a flash for concealing said indicators; and means for maintaining said flash in concealing position when any one of the said special keys is operated.

5. In a cash register, the combination with an indicator device, of means for operating the same; an operating mechanism; a flash for said indicator device; means connected with said operating mechanism for operating said flash to conceal the indicators while they are being set and expose the same after they have been set; a special key; and means controlled by said special key for affecting the retention of said flash in concealing position when the operating mechanism is operated.

6. In a cash register, the combination with a series of keys, of a differentially movable indicator controlled thereby; an indicator flash for concealing and exposing said indicator; and means for controlling the operation of said flash according to whichever of said keys is operated.

7. In a cash register, the combination with a series of keys, of a differentially movable indicator controlled thereby; an indicator flash for concealing and exposing said indicator; and means connected with said indicator for controlling the exposing or concealing operation of said flash according to the position of said indicator.

8. In a cash register, the combination with an indicator device, of means for operating the same; an operating mechanism; a flash for said indicator device; means connected with said operating mechanism for operating said flash to conceal and expose the indicator; a special manipulative device; and means controlled by said manipulative device for disabling the operative effectiveness of said operating mechanism upon said flash.

9. In a cash register, the combination with an indicator device, of means for operating the same; an operating mechanism; a flash for said indicator device; means connected with said operating mechanism for operating said flash to conceal and expose the indica-

tors; a special manipulative device; means controlled by said manipulative device for disconnecting said operating mechanism from said flash after the flash has been moved to concealing position; and means for latching said flash in such concealing position.

10. In a cash register, the combination with special manipulative means, of a differentially movable member controlled thereby; an operating mechanism; an indicator flash; means connected with the operating mechanism for operating said flash; and means connected with said differentially movable member for controlling the effectiveness of said operating mechanism upon said flash.

11. In a cash register, the combination with a series of keys, of a revoluble member whose movement is controlled differentially by said keys; an operating mechanism; an indicator flash; an arm connected with said operating mechanism for operating said flash; and means connected with and controlled by said revoluble member for enabling or disabling said indicator operating arm according to the position of said revoluble member.

12. In a cash register, the combination with special manipulative means, of a revoluble disk differentially controlled thereby and formed with a cam groove; an operating mechanism; an indicator flash; operating means connecting said operating mechanism and said flash; a controlling arm having a projection extending into said cam groove; and means connected with said arm for causing said flash operating means to be engaged with or disengaged from said flash according to the position of said disk.

13. In a cash register, the combination with special manipulative means, of a revoluble disk differentially controlled thereby and formed with a cam groove; an operating mechanism; an indicator flash; operating means connecting said operating mechanism and said flash; a controlling arm having a projection extending into said cam groove; means connected with said arm for causing said flash operating means to be engaged with or disengaged from said flash according to the position of said disk; and a latching extension connected with said arm for latching the flash in displaced position.

14. In a cash register, the combination with an operating mechanism, of means for exhibiting the characteristics of entries made in the register, manipulative devices controlling said exhibiting means, mechanism for concealing said exhibiting means during each operation of the operating mechanism, and means controlled by certain of the manipulative devices for retaining the concealing mechanism in concealing position after

the conclusion of the operation of the operating mechanism.

15. In a cash register, the combination with means for exhibiting characteristics of entries made in the register, manipulative devices controlling said exhibiting means, mechanism preventing the exhibiting means from being viewed during each operation of the register but arranged to allow such viewing normally between operations, and devices controlled by certain of said manipulative devices for preventing the exhibiting means from being viewed between operations.

16. In a cash register, the combination with means for exhibiting and printing the characteristics of entries made in the register, of manipulative devices controlling said means, mechanism for preventing the viewing of said exhibiting means during all operations of the machine but arranged to allow such viewing between operations when certain classes of entries are printed, and means preventing such viewing between operations when certain other classes of entries are printed.

17. In a cash register, the combination with a series of amount keys, of a counter, means for controlling the operation of said counter from said amount keys, a special key bearing a designation denoting arrival or departure and also a numeral "1" to represent an amount of ten hours, a single type carrier under control of the amount and special keys having a portion with the numeral "1" thereon corresponding to said special key, and means for throwing the counter out of operation when said special key is operated.

18. In a cash register, the combination with indicating devices, means for controlling the same, a flash for concealing said indicators, and a main operating mechanism and connections for operating said flash to conceal and expose said indicators at each operation of the register; of a special manipulative device for causing the retention of the flash in concealing position upon the regular operation of the operating mechanism.

19. In a cash register, the combination with means for retaining in the register an entry of transactions, of concealing means for same, an operating mechanism, means for determining the characteristics of the entry, and means regulated by said determining means for preventing the operation of said concealing means by the operating mechanism.

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

EDWARD J. VON PEIN.

Witnesses:

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