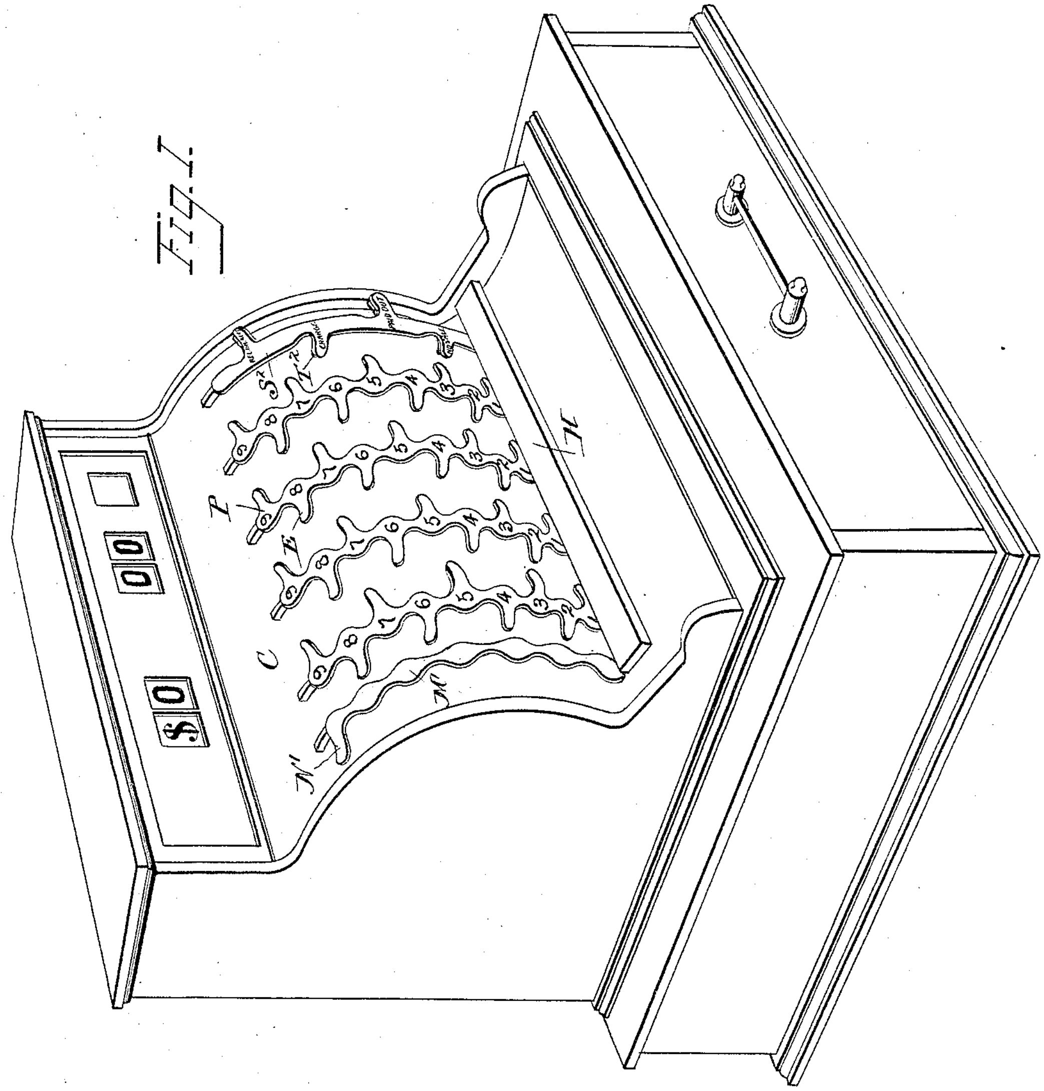
(No Model.) 7 Sheets—Sheet 1.

J. P. CLEAL.

CASH REGISTER AND INDICATOR.

No. 526,296. Patented Sept. 18, 1894.

Fig. 1.



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7 Sheets—Sheet 2.

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CASH REGISTER AND INDICATOR.

No. 526,296. Patented Sept. 18, 1894.

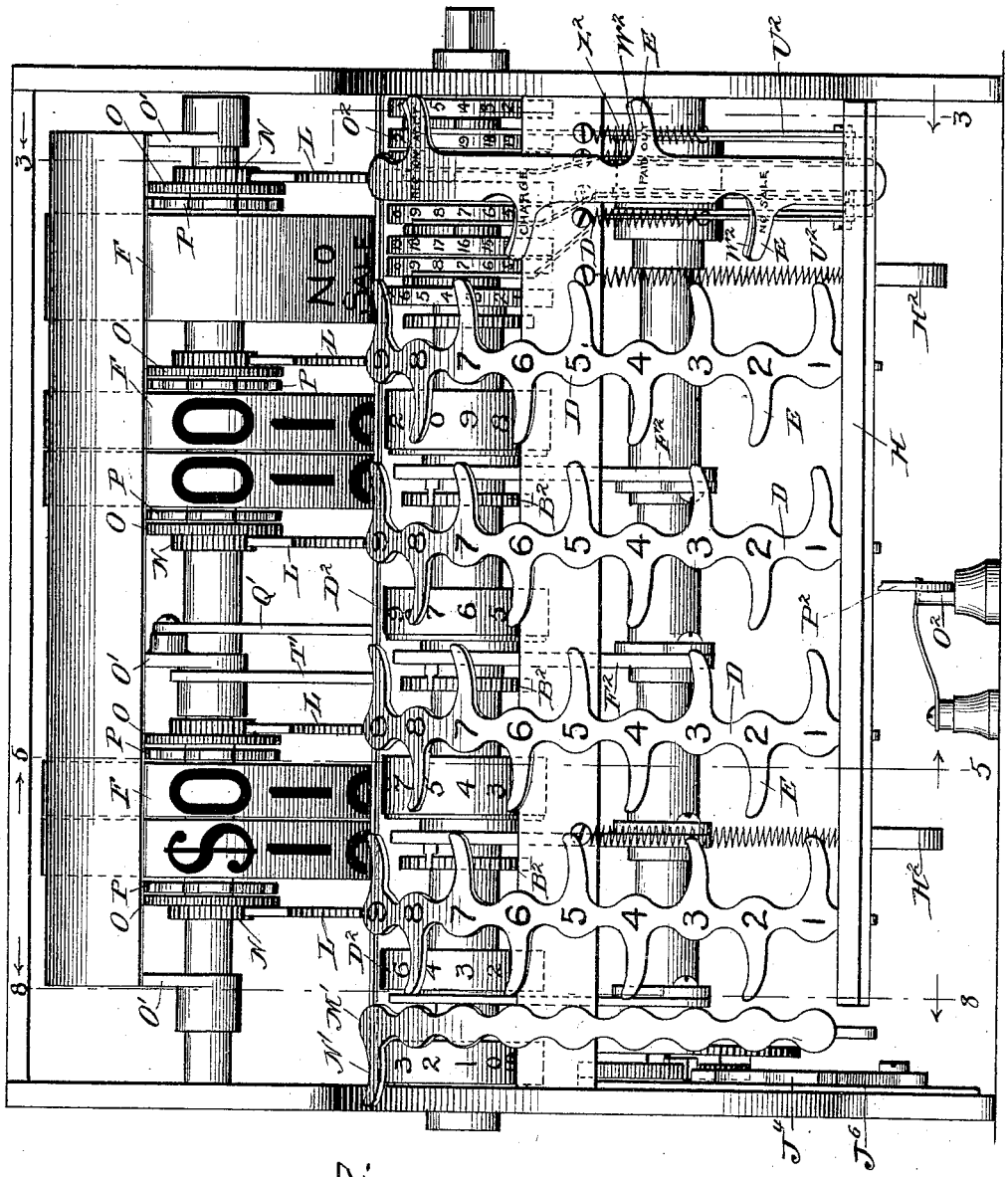

Fig. 2.

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No. 526,296. Patented Sept. 18, 1894.

Fig. 3a

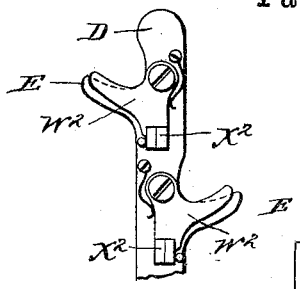


Fig. 3.

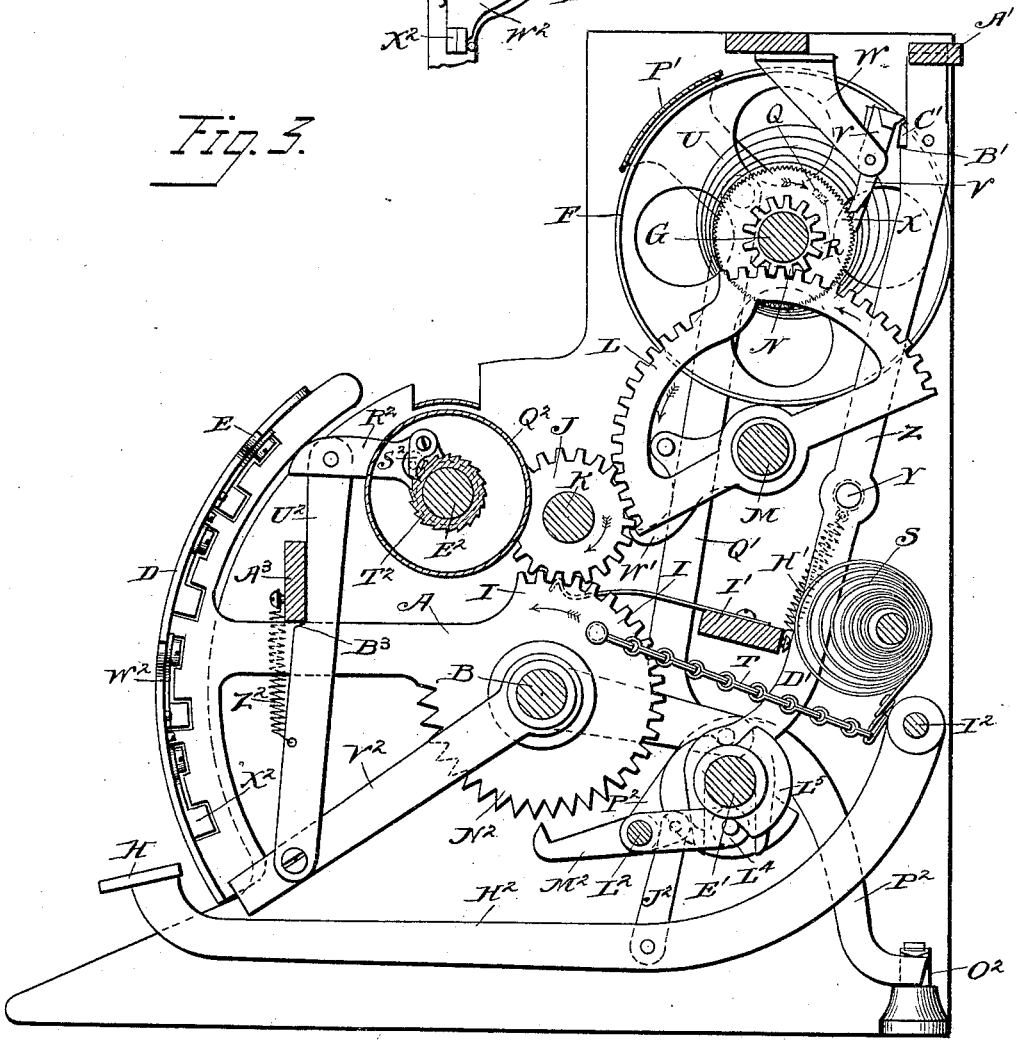
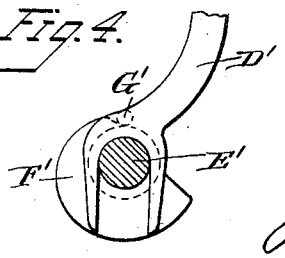


Fig. 4.



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(No Model.) 7 Sheets—Sheet 4.

J. P. CLEAL.

CASH REGISTER AND INDICATOR.

No. 526,296. Patented Sept. 18, 1894.

Fig. 5.

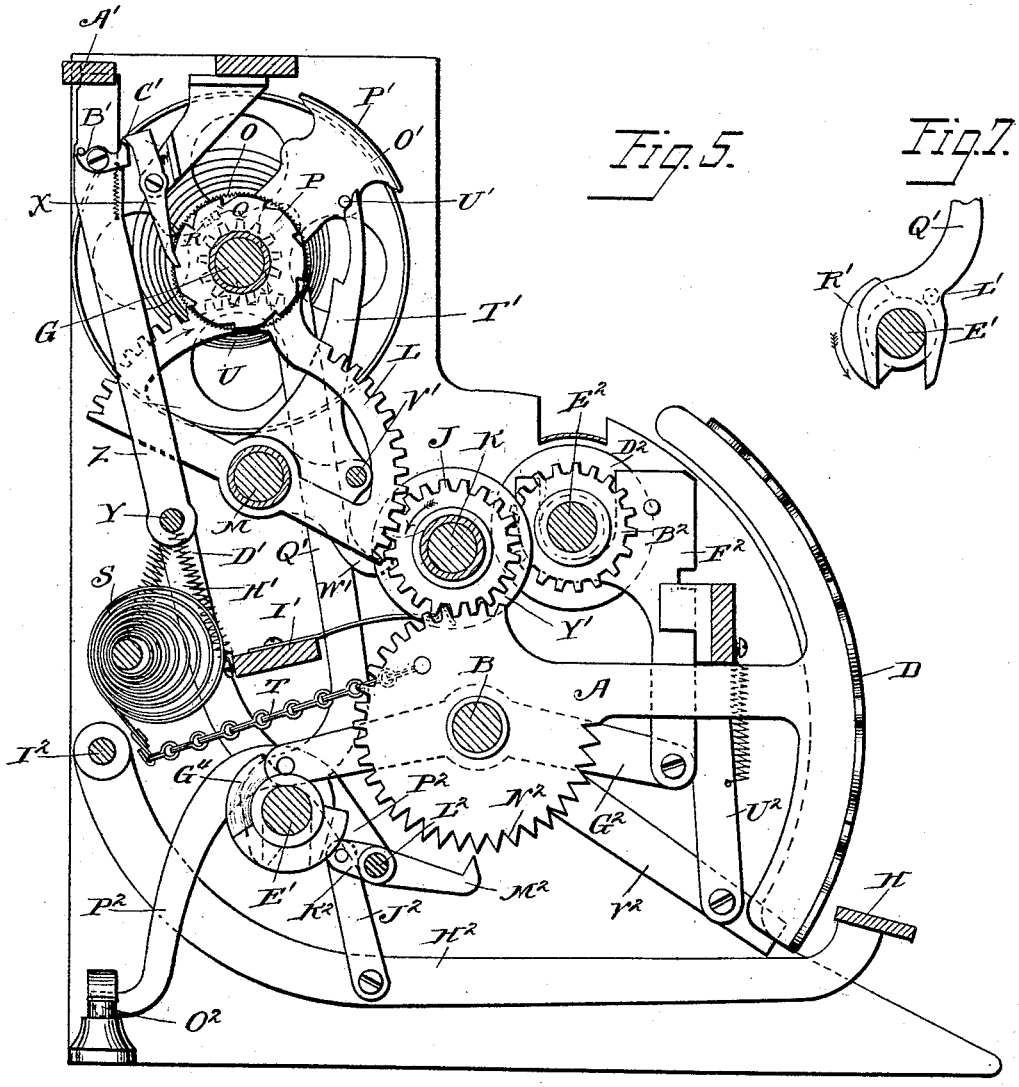
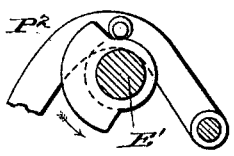


Fig. 7.

Fig. 6.



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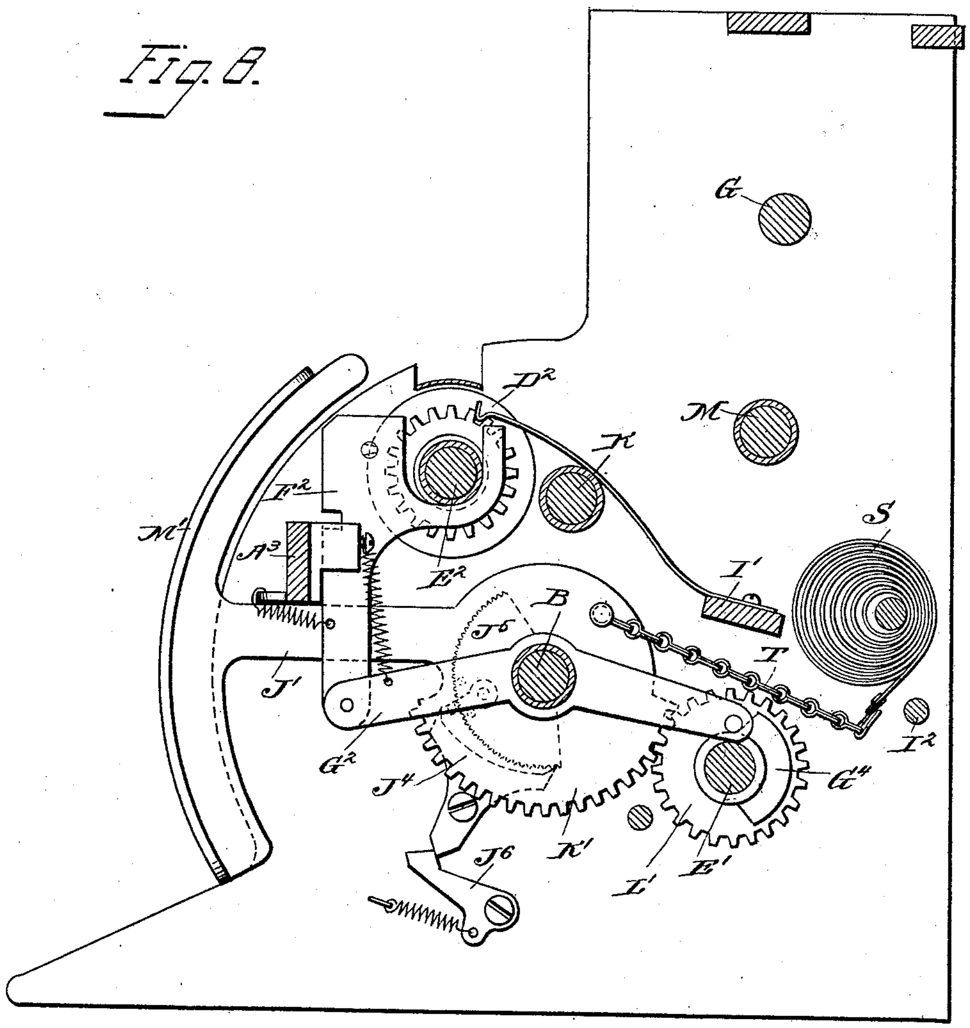
(No Model.) 7 Sheets—Sheet 5.

J. P. CLEAL.

CASH REGISTER AND INDICATOR.

No. 526,296. Patented Sept. 18, 1894.

Fig. 8.



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7 Sheets—Sheet 6.

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CASH REGISTER AND INDICATOR.

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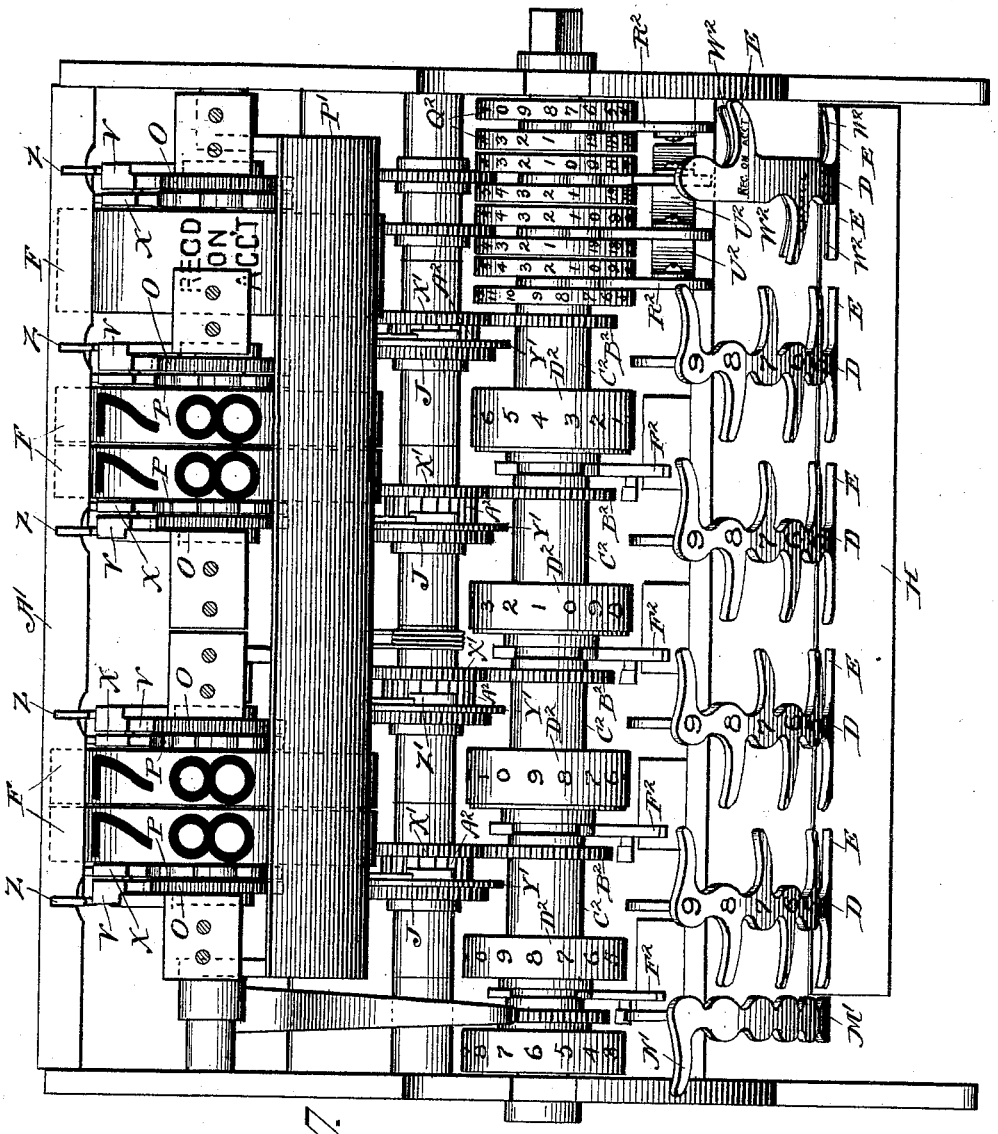

Fig. 11.

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CASH REGISTER AND INDICATOR.

No. 526,296. Patented Sept. 18, 1894.

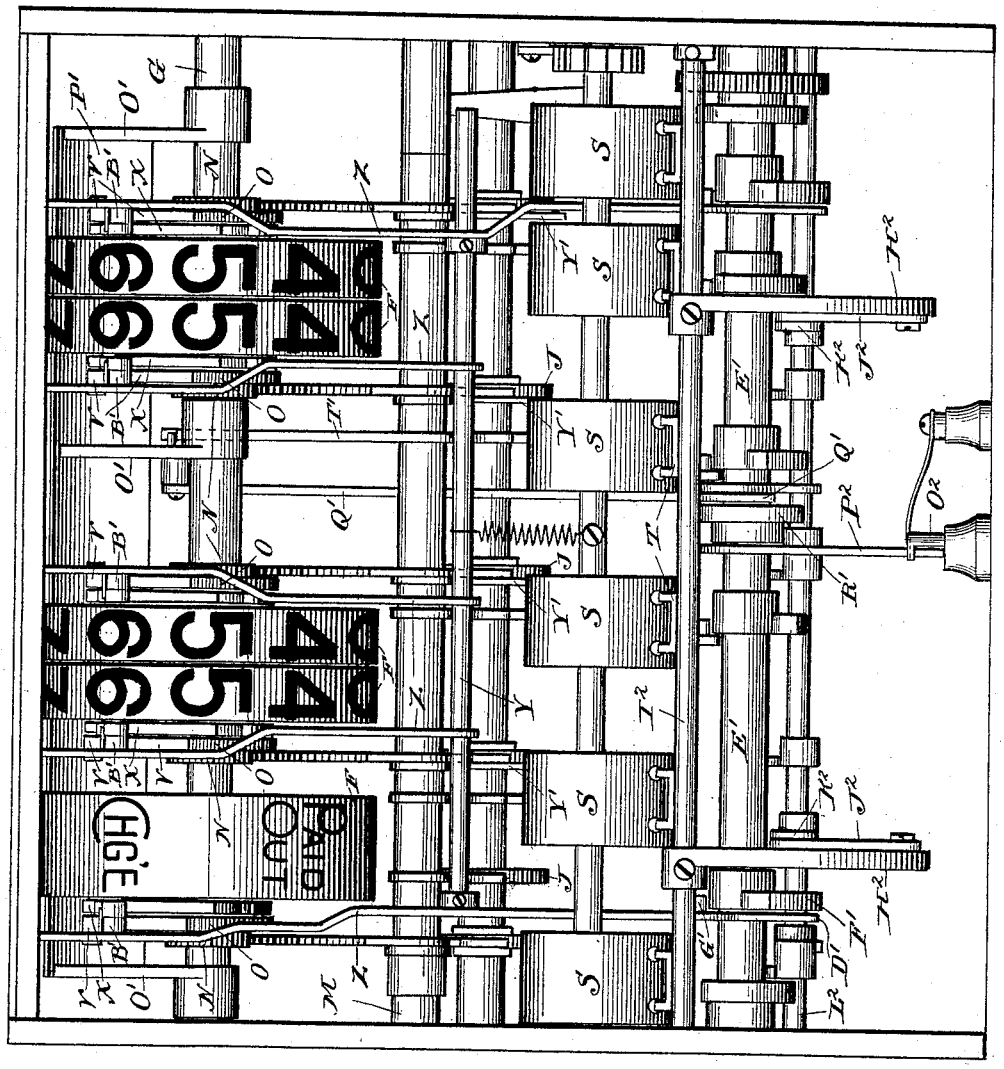

Fig. 9.

Witnesses
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UNITED STATES PATENT OFFICE.

JOSEPH P. CLEAL, OF DAYTON, OHIO, ASSIGNOR TO THE NATIONAL CASH REGISTER COMPANY, OF SAME PLACE.

CASH REGISTER AND INDICATOR.

SPECIFICATION forming part of Letters Patent No. 526,296, dated September 18, 1894.

Application filed May 11, 1894. Serial No. 510,921. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH P. CLEAL, 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 and Indicators, of which the following is a description, reference being had to the accompanying drawings, forming part of this specification.

My invention relates to a machine of the general construction of that shown in my pending application, Serial No. 501,385, filed February 24, 1894, and consists in certain improvements upon that machine by which its mode of operation is simplified and its utility and capability increased. It is not restricted, in its broader scope, to such machine, however, for some of its features are applicable to machines of widely differing characters.

The novelty of the invention consists in the new modes of operation and combinations and constructions of parts which will be hereinafter set forth and particularly pointed out in the claims.

In the accompanying drawings Figure 1 is a perspective view of the machine inclosed in its casing and resting upon a base containing the money-drawer; Fig. 2, a front elevation of the machine removed from its casing and base; Fig. 3, a vertical section just within the right hand side of the frame, looking toward the left; Fig. 3ª, a detail view of the under or rear side of the upper end of the operating lever of the special indicator; Fig. 4, a detail view showing one of the cams for actuating the releasing frame; Fig. 5, a vertical section approximately on the line 5—5 of Fig. 2, looking toward the right; Fig. 6, a detail view showing the cam for operating the drawer-latch; Fig. 7, a detail view showing the cam for actuating the screen-plate; Fig. 8, a vertical section approximately on the line 8—8 of Fig. 2, looking toward the left; Fig. 9, a rear elevation, and Fig. 10, a top plan view, of the machine.

The same letters of reference are used to indicate identical figures.

The operating devices of the machine consist of levers A fulcrumed on a horizontal rod B, projecting at their front ends through vertical slots in the curved front plate C of the casing and having secured to them, outside the casing, curved plates D provided with finger-pieces E projecting to the right and left thereof in alternate order. The rear ends of the levers A are operatively connected, in the manner hereinafter described, to indicator-wheels F loosely mounted upon a shaft G in the upper part of the machine and each bearing a series of indicating numbers, in this instance representing the nine digits and a cipher. The left hand one of the wheels has a dollar-mark in place of the cipher. The curved plates D upon the front ends of the operating levers are provided with numbers corresponding to those upon the indicators, one beside each finger E, and the adjustment of the parts is such that when the operator places his finger upon one of the fingers E and presses the front end of the lever downward until his finger contacts with the bar H at the lower end of the plates D the indicator connected to such lever will be turned until the number corresponding to said finger E is brought to the indicating point.

In the machine covered by my aforesaid prior application, and in all machines of this general construction heretofore made, the operating levers A have been positively geared to the indicator-wheels F so that the position of one was always determined by the position of the other, the result being that in order to leave the indication exposed at the end of an operation of the machine the levers which had been operated had to be left depressed, and before the machine could be operated to make a new indication the levers had to be released by the operation of an independent device and allowed to return, with the indicators, to initial position.

The first feature of my present invention consists in the combination of the operating levers with the indicators in such manner that after a lever has been depressed and its indicator turned forward to make the desired indication the lever may be released and returned to initial position while the indicator remains at the point to which it has been moved, with the proper indication exposed to view. To that end in my present machine each lever A, instead of being directly geared to its co-operating indicator F, is geared to an oscillatory actuating device

for such indicator, which device operates to turn the indicator with it in one direction but moves independently of the indicator in the other. As illustrated in the drawings this oscillatory actuating device consists of a ratchet or serrated disk O, Figs 2 and 3, geared to the lever A by means of a segment I upon the rear end of the latter, a gear-wheel J loose upon a shaft K, and a plate L loose upon a shaft M and provided with two gear-toothed segments, and a pinion N fast upon the side of the ratchet O. There is one of these ratchets O beside each indicator, and the latter has fast upon its hub a second ratchet or notched disk P, Figs. 2 and 5, by the side of the ratchet O. Interposed between the two ratchets are two lugs Q R, the former upon the ratchet O and the latter upon the ratchet P and the one standing in the path of the other. When the parts are in normal position and the indicators at zero the lugs Q upon the ratchets O abut against or rest immediately in front of the lugs R upon the ratchets P, so that if the front end of any operating lever be depressed and the ratchet O geared to it be thereby turned in the direction of the arrow, Fig. 3, the lug Q will engage the lug R and carry the corresponding indicator with the ratchet. In the present instance the ratchets O are provided with fine teeth or serrations, while each of the ratchets P is provided with ten notches, one for each number upon its indicator. Coiled springs S connected by chains T to the rear ends of the levers A yieldingly hold the latter and consequently the ratchets O in normal position, and they are moved from such position against the tension of such springs, while coiled springs U surrounding the indicator-shaft G one adjacent each indicator and secured at its inner end to the hub thereof and at its outer end to a fixed part of the framework, yieldingly hold the indicators in and return them to normal position. Co-operating with each of the ratchets O is a pawl V pivoted in a pendent bracket W secured to the top cross-bar of the framework, Fig. 3, and spring-pressed against the ratchet, while co-operating with the adjacent ratchet P is a second pawl X pivoted upon the same support and spring-pressed against said ratchet, Fig. 5. Whenever the two ratchets are turned forward from initial position by depressing the front end of their operating lever A these pawls will hold them in the position to which they are moved, and if the pawl V be disengaged from its ratchet O and the pawl X permitted to remain in engagement with its ratchet P the ratchet O and operating lever will be released and returned to initial position by their spring S, while the ratchet P and indicator will remain in the position to which they have been moved, until the pawl X is disengaged from the ratchet P. Now, by means hereinafter described, both pawls are disengaged from their ratchets at each operation of the machine, the pawl X being first disengaged from the indicator-ratchet and allowed to re-engage it, and the pawl V being then disengaged from its ratchet. It follows, therefore, that at each operation the indicator is released and its spring allowed to return it either entirely to initial position or so far toward such position as the position of the lug Q upon the ratchet O will permit. At each operation of the machine all of the pawls X are disengaged from their ratchets P and all of the indicators are turned by their springs toward or to initial position. If no one of the operating levers had been moved, and consequently all of the ratchets O with their lugs Q were standing in normal position, all of the indicators would be turned entirely to such position; but if any lever has been operated and its ratchet O turned forward its lug Q, standing in the path of the lug R upon the ratchet P of the adjacent indicator, will arrest such indicator when the lug R contacts with the lug Q and prevent its returning further toward initial position. Thus, if a given indicator has been turned to expose its number "9" to view and at the next operation of the machine its operating lever be depressed to indicate the number "5," the ratchet O geared to such lever will be turned until its lug Q is brought to position to arrest the indicator, when the latter is released and turned backward, at the proper point to expose its number "5" to view. As before stated, the pawls X are first disengaged from their ratchets P and then allowed to re-engage them before the pawls V are disengaged from the ratchets O. It results from this that whenever a given lever is operated and its ratchet O turned forward and its lug Q caused to carry the adjacent indicator with it, the engagement of the lug Q with the lug R of said indicator will hold the latter from return movement during the time the pawl X is disengaged from its ratchet P, so that all of the pawls X may be disengaged from their ratchets, to permit indicators corresponding to unoperated levers to return to initial position, without permitting the indicator corresponding to the operated lever to so return. Then when the pawls X are permitted to re-engage their ratchets the operated indicator will be held from backward movement by its pawl X while the pawl V is disengaged from the adjacent ratchet O and the operating lever which has set the indicator allowed to return to normal position. So, too, where an indicator is standing at a given number and its operating lever is moved to indicate a less number, the disengagement of the pawl X from the ratchet P of such indicator will permit the latter to turn backward until the lug R of its ratchet contacts with the lug Q upon the adjacent ratchet O. Then when the pawl X is permitted to re-engage the ratchet P the indicator will be held in this position while the pawl V is disengaged from the ratchet O and the latter and the operating lever permitted to return to initial position. In this manner at each operation of the machine all

of the indicators are first released and allowed to move so far toward initial position as the lugs Q upon the adjacent ratchets O will permit, and are then held from further movement by the pawls X while all of the operated levers are released and returned to normal position.

The means for disengaging the pawls from the ratchets in the manner above described consist of trips carried by what may be termed a releasing frame. This frame is composed of a vertically movable horizontal rod Y having secured to it a series of vertically extending plates or arms Z guided at their upper ends in slots in a cross-arm A′ at the upper rear corner of the frame-work. There is one of these vertically extending arms Z for each pair of pawls V X and each arm carries near its upper end two trips B′ C′ co-operating with the respective pawls V X of the pair. The trip B′ in the form shown in the drawings consists simply of a shoulder upon the forward edge of the arm Z, Fig. 3, while the trip C′ consists of a pivoted plate yieldingly held in normal position upon the arm, against a suitable stop, by means of a coiled spring connected to it in front of its pivot, Fig. 5. The position of this trip upon the arm is such relatively to the shoulder B′ that when the arm is lifted the nose of the trip will engage the upper end of the pawl and press it forward and disengage its lower end from the ratchet P, and then pass above the pawl and permit the latter to re-engage the ratchet P, before the shoulder B′ contacts with the pawl V and disengages the latter from the ratchet O. In the downward movement of the arm Z the trip C′ turns upon its pivot and flips over the end of the pawl X without moving the latter, while the withdrawal of the shoulder V permits the latter to re-engage the ratchet O. Fast upon and depending from the rod Y of this releasing frame are one or more arms D′ forked at their lower ends and embracing a horizontal rock-shaft E′. This shaft has fast upon it beside each arm D′ a cam F′ adapted to ride under a stud G′ projecting from the side of the arm D′, Fig. 4, and lift the latter, and consequently the entire releasing frame, to cause the trips to disengage the pawls from the ratchets. A spring H′ connected at its upper end to the rod Y and at its lower end to a cross-bar I′ of the framework yieldingly holds said releasing frame in and returns it to initial position.

The means for actuating the rock-shaft E′ consist of a lever J′, Fig. 8, similar to the levers A′ and fulcrumed on the same shaft B, said lever being geared by a segment K′ and gear L′ to the shaft E′. The front end of the lever projects through the front plate of the casing and has secured upon it a curved plate M′ similar to the plates D of the levers A and provided with a single finger-piece N′, Fig. 1, by which it may be depressed to actuate the shaft E′. A double-toothed pawl co-operating with a toothed segment J^5 fast upon the lever J′, and with a spring-latch J^6, compels a full stroke of the lever in each direction.

The mode of operation of the portion of the machine so far described therefore consists in depressing the proper levers A to indicate the desired amounts, and then depressing the lever J′ to release the levers A and permit them to return to normal position, leaving the proper numbers upon the indicators exposed to view.

Inasmuch as the only purpose of the ratchets O P is to prevent retrograde movement of the parts with which they turn it will be understood that the particular arrangement of them shown is not material to my invention, it being only essential that there be a ratchet turning with each indicator and another with each of the oscillatory actuating devices geared to the operating levers. The lug Q may therefore be placed upon any other part turning with the actuating device, and the lug R upon any part turning with the indicator, or any other suitable form of connection between the actuating device and indicator be substituted for said lugs.

Hung upon the shaft G by arms O′ is a screen-plate P′, adapted to alternately hide and expose the indicators. Pivoted to one of the arms O′ of this screen-plate is the upper end of a long bar Q′, Figs. 3 and 5, whose lower end is forked and embraces the rock-shaft E′ heretofore described, Fig. 7. A cam R′ fast upon said shaft is adapted to ride under a stud L′ upon the side of said bar at each operation of the lever J′ and lift the bar Q′ and screen-plate to the position shown in the drawings, whereupon a latch-plate T′ hung upon the shaft M, Fig. 5, will catch under a pin U′ upon one of the arms O′ of the screen-plate and maintain it in elevated position after the lever J′ and shaft E′ have returned to normal position. The latch-plate T′ has passing through it a rod V′ which has fast upon it a series of downwardly and forwardly curved arms W′, Figs. 3 and 5, whose front ends engage gears X′ loose upon the shaft K beside the gears J, Fig. 10. The gears J have fast upon their right hand sides disks Y′ which carry pawls Z′ engaging ratchets A^2 fast upon the left hand sides of the gears X′, the result being that the movements of the gears J in the direction of the arrow, Fig. 5, as the operating levers are depressed, are transmitted to the gears X′. As any one of the latter is turned the end of the latch-arm W′ which had been resting in one of its notches will be forced out of such notch, thereby rocking the latch T′ upon its pivotal support M and disengaging its upper end from the stud U′ on the screen-plate and permitting the latter to drop to horizontal position and hide the indicators at the sight-opening in the casing. In this manner at each operation of the lever J′ to release the operating levers and trip the pawls co-operating with the indicator-ratchets the screen-plate is lifted to expose the indicators, and at the

first movement of any one of the operating levers at the next operation of the machine the latch supporting the screen-plate is tripped and the latter permitted to drop to position to hide the indicators.

The gears X′ mesh with gears B^2 fast upon the right hand ends of the hubs C^2 of the registering wheels D^2 mounted upon the shaft E^2 in front of and parallel with the shaft K, Fig. 10. By means of the ratchet and pawl connection between the gears J and X′ the positive movements of the operating levers are transmitted to the registering wheels while the latter remain stationary during the return movements thereof. The transfers between the registering wheels are effected in substantially the same manner and by substantially the same means as in my aforesaid pending application, and will therefore not be here described in detail, the principal difference being that the reciprocating plates F^2 which carry the transfer pawls are actuated by levers G^2 fulcrumed on the shaft B, Figs. 5 and 8, and co-operating at their rear ends with cams G^4 upon the rock-shaft E′, instead of being actuated by the pressure-bar H heretofore referred to. This pressure-bar is carried by the front ends of two side arms H^2 fast at their rear ends upon a rock-shaft I^2. Links J^2 connect the arms H^2 with the rear ends of short arms K^2 fast upon a rock-shaft L^2, which latter shaft has fast upon it a series of locking dogs M^2 co-operating with locking ratchets N^2 upon the enlarged rear ends of the levers A. When the front end of one of said levers is depressed until the finger of the operator strikes and depresses the bar H the locking dogs M^2 will be thrown upward into engagement with the ratchets N^2, to arrest the levers and prevent excess of movement of them under their own momentum. The rock-shaft L^2 has fast upon its extreme right hand end, Fig. 3, an arm L^4 provided with a laterally projecting stud standing in the path of the cam L^5 fast upon the rock-shaft E′. Whenever said shaft is turned by the operation of the lever J′ the cam L^5 will, at the beginning of the movement of said lever and shaft, rock the shaft L^2 and throw the locking dogs M^2 into engagement with the ratchets N^2 of the operating levers, so that the latter are locked from movement during the time the lever J′ is being operated to actuate the trips, lift the screen-plate, and so forth. The drawer-bolt O^2 is lifted, to release the drawer, by the rear end of a curved lever P^2 hung at its front end upon the rock-shaft L^2 and provided with a laterally projecting stud standing in the path of a cam P^3 upon the rock-shaft E, Fig. 6, so that at each operation of the lever J′, to actuate the trips and lift the screen-plate in the manner above described, the drawer-bolt is lifted and the drawer released.

The next feature of my invention relates to a special indicator for indicating different classes of transactions, and a series of registers and a novel operating device combined with them. This special indicator is substantially the same in construction and mode of operation as the cash indicators, and in the present instance it is the right hand one of the series F, Figs. 2 and 10. It differs from the cash indicators simply in bearing a series of words or signs indicating different classes of transactions, instead of a series of numbers indicating amounts of cash, and it is operated by a lever A and connections, Fig. 3, substantially the same as the levers A and connections of the cash indicators. In the present instance the indicator is adapted to indicate four different classes of transactions, and bears the words, or abbreviations thereof, "Received on account," "Paid out on account," "Charge," and "No sale," and the spaces appropriated to these several signs are preferably painted in different colors. The curved front plate of the operating lever of this special indicator, instead of having nine finger-pieces and bearing nine numbers, has four finger-pieces, one for each class of transactions to be indicated, and has words indicating the transactions opposite or adjacent the respective finger-pieces. The adjustment of the parts is such that when the operator places his finger upon any one of the finger-pieces and presses the lever downward until his finger strikes the pressure-bar H the corresponding sign upon the indicator will be brought to the sight-opening, just as in the operation of the cash indicators. When the lever at the left hand end of the machine is operated the lever of this special indicator will be released and restored to normal position and the screen-plate thrown upward to expose the sign indicating the transaction. Combined with this special indicator and its operating lever are four sets of registering wheels, one set adapted to register the number of transactions of each class. By means hereinafter described the operating lever at each operation is caused to actuate the particular register corresponding to the transaction to be indicated. The registers consist of wheels Q^2 arranged in pairs upon the shaft E^2, each pair constituting one of the sets before mentioned. Loosely hung upon the shaft between the wheels of each pair is a forwardly extending pawl-carrying arm R^2, carrying a double-toothed pawl S^2 extending through an opening in the arm R^2 and co-operating upon opposite sides of the latter with ratchets T^2 fast upon the sides of the respective registering wheels of the pair. One tooth of this pawl is shorter than the other and the ratchet with which the long tooth co-operates has two diametrically opposite extra-deep notches, so that at each half revolution of such ratchet and its wheel the short tooth of the pawl will be permitted to engage the ratchet of the other wheel and advance the same one number to effect a transfer, in the usual well-known manner. The primary wheel of each pair bears two series of numbers each representing the nine digits and a cipher, while

the secondary wheel bears a single series of numbers representing units from 1 to 19, so that each pair of wheels is capable of registering one hundred and ninety-nine transactions. The front end of each pawl-carrying arm R^2 has pivoted to it the upper end of a link U^2 whose lower end is pivoted to an arm V^2 loosely hung upon the shaft B. The lower forward ends of these arms V^2 stand adjacent the path of the front end of the operating lever A, and the latter has pivoted to the under side of its curved front plate D four bell-crank plates W^2, one adjacent each finger-pieces E of the lever. The horizontal arms of these bell-cranks are shaped similarly to the finger-pieces E and lie behind the same, their upper edges, however, projecting slightly above the upper edges of the finger-pieces. It results from this that whenever the operator places his finger upon one of the finger-pieces, to depress the lever A, he will slightly rock the corresponding bell-crank and throw its lower end laterally out of normal position. The lower ends of the bell-cranks are provided with rearwardly projecting lugs X^2. When they are in normal position these lugs will clear the ends of the arms V^2 as the lever A is depressed, but when any bell-crank is rocked upon its pivot in the manner above explained the lug X^2 upon its lower end will contact with the corresponding arm V^2 when the lever A is depressed and actuate the register with which said arm is connected. Suitable springs Y^2 yieldingly hold the bell-cranks in and return them to normal position. The arms V^2 and connected parts are yieldingly held in and returned to normal position by coiled springs Z^2 connected at their lower ends to the links U^2 and at their upper ends to the front cross-bar A^3 of the framework, the links U^2 having shoulders B^3 abutting against said cross-bar. In this manner at each depression of the lever A the particular register corresponding to the finger-piece upon which the operator places his finger will be actuated and the indicator turned to indicate the class of transaction corresponding thereto.

Having thus fully described my invention, I claim—

1. In an indicating mechanism, the combination of a reciprocating indicator, a reciprocating actuating device co-operating therewith to move the indicator in one direction, pawls co-operating with the indicator and actuating device for preventing backward movement of them, and means for disengaging the pawl from the indicator and permitting it to re-engage it and then disengaging the pawl from the actuating device, substantially as and for the purpose described.

2. In an indicating mechanism, the combination of an oscillatory indicator, an oscillatory actuating device therefor operating to turn it in one direction, resetting springs for said parts, pawls co-operating with the actuating device and indicator to prevent backward movement of them under the influence of their springs, and trips for the pawls operating upon them in succession to first disengage the pawl from the indicator and permit it to re-engage it and then disengage the pawl from the actuating device, substantially as and for the purpose described.

3. In an indicating mechanism, the combination of an oscillatory indicator, an oscillatory actuating device co-operating therewith to turn it in one direction, an operating handle or lever and connections for turning the actuating device, resetting springs for the actuating device and indicator, pawls co-operating with such device and indicator to prevent backward movement of them under the influence of their springs, and trips for the pawls operating upon them in succession to first disengage the pawl from the indicator and permit it to re-engage it and then disengage the pawl from the actuating device, substantially as described.

4. In an indicating mechanism, the combination of an oscillatory indicator, an oscillatory actuating device therefor operating to turn it in one direction, an operating lever geared to the actuating device and provided with a series of numbers and finger-pieces to determine the movement of the lever, resetting springs for said parts, pawls co-operating with the indicator and actuating device to prevent backward movement of them under the influence of their springs, and trips for the pawls operating upon them in succession to first disengage the pawl from the indicator and permit it to re-engage it and then disengage the pawl from the actuating device, substantially as described.

5. In a cash indicator, the combination of a series of reciprocating indicators, a series of reciprocating actuating devices therefor operating to move them in one direction, pawls for preventing backward movement of the indicators and actuating devices, and trips for the pawls operating upon them in succession to first disengage the pawls from the indicators and permit re-engagement of them and then disengage the pawls from the actuating devices, substantially as and for the purpose described.

6. In a cash indicator, the combination of a series of oscillatory indicators, a series of oscillatory actuating devices therefor operating to turn them in one direction, resetting springs for said parts, holding pawls co-operating with the indicators and actuating devices to prevent backward movement of them under the influence of their springs, and means for first disengaging the pawls from the indicators and permitting re-engagement of them and then disengaging the pawls from the actuating devices, substantially as and for the purpose described.

7. In a cash indicator, the combination of a series of oscillatory indicators, a series of oscillatory actuating devices, a series of operating handles or levers geared to such actuat-

ing devices, resetting springs for said parts, pawls co-operating with the indicators and actuating devices to prevent backward movement of them, and trips for the pawls operating to first disengage the pawls from the indicators and permit re-engagement of them and then disengage the pawls from the actuating devices, substantially as and for the purpose described.

8. In a cash indicator, the combination of a series of oscillatory indicators, a series of oscillatory actuating devices therefor operating to turn them in one direction, a series of operating levers geared to said actuating devices and each provided with a series of numbers and finger-pieces to determine the movement of the lever, resetting springs for the parts, pawls for preventing backward movement of the indicators and actuating devices, a movable releasing frame, and trips for the pawls actuated by said frame to first disengage the pawls from the indicators and permit re-engagement of them and then disengage the pawls from the actuating devices, substantially as and for the purpose described.

9. In an indicating mechanism, the combination of an oscillatory indicator, an oscillatory actuating device therefor operating to turn it in one direction, resetting springs for said parts, pawls co-operating with the indicator and actuating device to prevent backward movement of them under the influence of their springs, trips for said pawls operating upon them in succession to first disengage the pawl from the indicator and allow it to re-engage it and then disengage the pawl from the actuating device, a movable screen-plate for alternately hiding and exposing the indicator, and means common to said screen-plate and to the trips for actuating the latter and moving the plate to expose the indicator, substantially as described.

10. In an indicating mechanism, the combination of an oscillatory indicator, an oscillatory actuating device therefor operating to turn it in one direction, an operating lever or handle geared to the actuating device, resetting springs for said parts, pawls co-operating with the indicator and actuating device to prevent backward movement of them, trips for the pawls operating to first disengage the pawl from the indicator and permit it to re-engage it and then disengage the pawl from the actuating device, a movable screen-plate for alternately hiding and exposing the indicator, and means common to said plate and to the trips for actuating the latter and moving the screen-plate to expose the indicator, substantially as described.

11. In an indicating mechanism, the combination of an oscillatory indicator, an oscillatory actuating device therefor operating to turn it in one direction, an operating lever or handle geared to the actuating device and provided with a series of numbers and finger-pieces to determine its movement, resetting springs for said parts, pawls for holding the indicator and actuating device from backward movement, trips for said pawls operating upon them in succession to first disengage the pawl from the indicator and permit it to re-engage it and then disengage the pawl from the actuating device, a movable screen-plate for alternately hiding and exposing the indicator, and a single operating lever or handle and connections for actuating the trips and moving the screen-plate to expose the indicator, substantially as described.

12. In an indicating mechanism, the combination of an oscillatory indicator, an oscillatory actuating device therefor operating to move it in one direction, resetting springs for said parts, pawls for holding them from backward movement, trips for the pawls operating in succession to first disengage the pawl from the indicator and permit it to re-engage it and then disengage the pawl from the actuating device, a movable screen-plate for alternately hiding and exposing the indicator, means common to said plate and to the trips for actuating the latter and moving the plate to expose the indicator, a latch for holding the plate in such moved position, and a trip for the latch actuated by movement of the indicator, substantially as described.

13. In an indicating mechanism, the combination of an oscillatory indicator, an oscillatory actuating device therefor operating to move it in one direction, an operating lever geared to said actuating device and provided with a series of numbers and finger-pieces to determine its movement, resetting springs for said parts, pawls for holding them from backward movement under the influence of the springs, trips for the pawls operating in succession to first disengage the pawl from the indicator and permit it to re-engage it and then disengage the pawl from the actuating device, a movable screen-plate for alternately hiding and exposing the indicator, a single operating handle and connections for actuating the trips and moving said plate to expose the indicator, a latch for holding the plate in such moved position, and a trip for the latch operated by movement of the indicator, substantially as described.

14. In a cash indicator, the combination of a series of oscillatory indicators, a series of oscillatory actuating devices therefor operating to move them in one direction, a series of operating levers or handles and connections for turning the actuating devices, resetting springs for said parts, holding pawls for preventing backward movement of the indicators and actuating devices, trips for said pawls operating to first disengage the pawls from the indicators and permit re-engagement of them and then disengage the pawls from the actuating devices, a movable screen-plate for alternately hiding and exposing the indicators, means common to said plate and to the indicators for actuating the latter and moving the plate to expose the indicators, a latch for holding the plate in such moved po-

sition, and means common to the indicators for tripping the latch at the movement of any one of the indicators, substantially as described.

15. In a cash indicator, the combination of a series of oscillatory indicators, a series of oscillatory actuating devices therefor operating to move them in one direction, a series of operating levers geared to said actuating devices and each provided with a series of numbers and finger-pieces to determine the movement of the lever, resetting springs for said parts, holding pawls for preventing backward movement of them, a movable releasing frame, trips carried by said frame and co-operating with the pawls in the manner specified, a movable screen-plate common to the indicators for alternately hiding and exposing them, means common to said plate and to the releasing frame for actuating the trip and moving the plate to expose the indicators, a latch for holding the plate in such moved position, and a trip for the latch common to all of the indicators and actuated by the movement of any one of them, substantially as described.

16. In a cash indicator, the combination of a series of oscillatory indicators, a series of operating levers and connections for turning them to different indicating positions, a movable screen plate common to the indicators for hiding and exposing them, means for moving the plate to position to expose the indicators, a latch for holding the plate in such moved position, and means for tripping said latch at the movement of any one of the indicators, to release the screen plate and permit it to move to position to hide the indicators, substantially as described.

17. In a cash indicator, the combination of a series of oscillatory indicators, a series of operating levers and connections for moving said indicators to different indicating positions, each of said levers being provided with a series of numbers and finger-pieces to determine its movement, a movable screen-plate common to the indicators for alternately hiding and exposing them, means for moving it to position to expose them, a latch for holding it in such moved position, and a trip for the latch common to the indicators and actuated by the movement of any one of them to release the screen-plate and permit it to move to position to hide the indicators, substantially as described.

18. In a cash indicator having a money-drawer and a lock for holding the same closed, the combination of an oscillatory indicator, an oscillatory actuating device therefor operating to turn it in one direction, resetting springs for said parts, pawls for preventing backward movement of them under the influence of the springs, trips for the pawls operating upon them in succession to first disengage the pawl from the indicator and permit it to re-engage it and then disengage the pawl from the actuating device, and means common to said trips and to the drawer-lock for actuating the trips and releasing the drawer at the same operation, substantially as described.

19. In a cash indicator having a money-drawer and a lock for holding the same closed, the combination of an oscillatory indicator, an oscillatory actuating device therefor operating to turn it in one direction, an operating lever or handle geared to said actuating device, resetting springs for said parts, pawls for preventing backward movement of them under the influence of the springs, trips for the pawls operating upon them in succession in the manner specified, and means common to the trips and to the drawer-lock for actuating the trips and releasing the drawer at the same operation, substantially as described.

20. In a cash indicator having a money-drawer and a lock for holding the same closed, the combination of a series of oscillatory indicators, a series of oscillatory actuating devices therefor operating to turn them in one direction, resetting springs for said parts, pawls for preventing backward movement of them under the influence of the springs, trips for the pawls operating to first disengage the pawls from the indicators and permit re-engagement of them and then disengage the pawls from the actuating devices, and means common to the trips and to the drawer-lock for actuating the trips and releasing the drawer at the same operation, substantially as described.

21. In a cash indicator having a money-drawer and a lock for holding the same closed, the combination of a series of oscillatory indicators, a series of oscillatory actuating devices therefor operating to turn them in one direction, a series of operating levers or handles geared to the actuating devices, resetting springs for the indicators and actuating devices, pawls for preventing backward movement of them under the influence of the springs, a movable releasing frame, trips for the pawls actuated thereby and operating to first disengage the pawls from the indicators and permit re-engagement of them and then disengage the pawls from the actuating devices, and a single handle or operating device common to said releasing frame and the drawer-lock for actuating the trips and releasing the frame at the same operation, substantially as described.

22. In a cash indicator having a money-drawer and a lock for holding the same closed, the combination of a series of oscillatory indicators, a series of oscillatory actuating devices therefor operating to turn them in one direction, a series of operating levers geared to the actuating devices and each provided with a series of numbers and finger-pieces for determining the movement of the lever, resetting springs for the parts, pawls for preventing backward movement of them under the influence of the springs, a movable releasing frame, trips for the pawls carried by said frame and operating upon the pawls in the manner specified, and a single handle or op-

erating device and connections for actuating said frame and releasing the drawer, substantially as described.

23. In a cash indicator having a money-drawer and a lock for holding the same closed, the combination of an oscillatory indicator, an oscillatory actuating device therefor operating to turn it in one direction, resetting springs for said parts, pawls for preventing backward movement of them under the influence of the springs, trips for the pawls operating in the order specified, a movable screen-plate for alternately hiding and exposing the indicator, and means common to the trips, screen-plate and drawer-lock for actuating the trips, exposing the indicator and releasing the drawer at the same operation, substantially as described.

24. In a cash indicator having a money-drawer and a lock therefor, the combination of a series of oscillatory indicators, a series of oscillatory actuating devices therefor operating to turn them in one direction, resetting springs for said parts, pawls for preventing backward movement of them under the influence of the springs, trips co-operating with the pawls in the manner specified, a movable screen-plate common to the indicators and operating to alternately hide and expose them, and means common to the trips, screen-plate and drawer-lock for actuating the trips, exposing the indicators and releasing the drawer at the same operation, substantially as described.

25. In a cash indicator having a money-drawer and a lock for holding the same closed, the combination of a series of oscillatory indicators, a series of oscillatory actuating devices therefor operating to turn them in one direction, a series of operating levers geared to the respective actuating devices and each provided with a series of numbers and finger-pieces for determining the movement of the lever, resetting springs for the parts, pawls for preventing backward movement of them under the influence of the springs, a movable releasing frame, trips for the pawls actuated by said frame and operating in the manner specified, and a single operating handle and connections for actuating the trips, moving the screen-plate to expose the indicators and releasing the money-drawer, substantially as described.

26. In a cash indicator having a money-drawer and a lock for holding the same closed, the combination of a series of oscillatory indicators, a series of operating levers and connections for turning the indicators to different indicating positions, each of said levers being provided with a series of numbers and finger-pieces to determine its movement, a movable screen-plate co-operating with the indicators to alternately hide and expose them, means common to said screen-plate and to the drawer-lock for releasing the drawer and moving the screen-plate to position to expose the indicators, a latch for holding the screen-plate in such moved position, and a trip for the latch common to and operated at the movement of any one of the indicators, substantially as described.

27. In a cash indicator having a money-drawer and a lock for holding the same closed, the combination of an oscillatory indicator, an oscillatory actuating device therefor operating to turn it in one direction, resetting springs for the parts, pawls for preventing backward movement of them under the influence of the springs, trips for the pawls operating in the order specified, a movable screen-plate co-operating with the indicator to alternately hide and expose the same, means common to the trips, screen-plate and drawer-lock for actuating the trips, moving the screen-plate to expose the indicator and releasing the drawer, at the same operation, a latch for holding the screen-plate in such moved position, and a trip for the latch operated by movement of the indicator, substantially as described.

28. In a cash indicator having a money-drawer and a lock for holding the same closed, the combination of a series of oscillatory indicators, a series of oscillatory actuating devices therefor operating to turn the indicators in one direction, a series of operating levers geared to the respective actuating devices and each provided with a series of numbers and finger-pieces for determining the movement of the lever, resetting springs for the parts, pawls for holding them from backward movement under the action of the springs, trips for the pawls operating in the order specified, a movable screen-plate common to the indicators for alternately hiding and exposing them, means common to the trips, screen-plate and drawer-lock for actuating the trips, exposing the indicators and releasing the drawer at the same operation, a latch for holding the screen-plate in position to expose the indicators, and a trip for the latch common to and actuated by the movement of any one of the indicators, substantially as described.

29. In an indicating mechanism, the combination of a pair of oscillatory ratchets, co-operating lugs upon the adjacent faces thereof to cause the first ratchet to turn the second ratchet with it in one direction but permit it to move independently of it in the other, resetting springs for the ratchets, pawls co-operating with the ratchets to prevent backward movement of them, and trips for the pawls operating to disengage the pawl from the second ratchet and permit it to re-engage it and then disengage the pawl from the first ratchet, substantially as and for the purpose described.

30. In a cash indicator, the combination of a pair of oscillatory ratchets, co-operating lugs upon the adjacent faces thereof to cause the first ratchet to turn the second with it in one direction but move independently of it in the other, an indicator turning with the second

ratchet, means for actuating the first ratchet, resetting springs for the ratchets, pawls for preventing backward movement of them under the influence of the springs, and trips for the pawls operating to first disengage the pawl from the second ratchet and permit it to re-engage it and then disengage the pawl from the first ratchet, substantially as and for the purpose described.

31. In an indicating mechanism, the combination of a pair of oscillatory ratchets, co-operating lugs upon the adjacent faces thereof for causing the first ratchet to turn the second with it in one direction and move independently of it in the other, resetting springs for the ratchets, an indicator turning with the second ratchet, an operating lever geared to the first ratchet and provided with a series of numbers and finger-pieces for determining its movement, pawls for preventing backward movement of the ratchets, and trips for the pawls operating to first disengage the pawl from the indicator and permit it to re-engage it and then disengage the pawl from the actuating device, substantially as described.

32. In an indicating mechanism, the combination of an oscillatory indicator, an oscillatory actuating device therefor, an operating lever geared to said actuating device, resetting springs for said parts, pawls for preventing backward movement of them under the influence of the springs, trips for the pawls operating upon them in succession to first disengage the pawl from the indicator and permit it to re-engage it and then disengage the pawl from the actuating device, and means for actuating the trips and locking the operating lever from movement, substantially as described.

33. In an indicating mechanism, the combination of an oscillatory indicator, an oscillatory actuating device therefor operating to move it in one direction, an operating lever geared to said actuating device and provided with a locking ratchet, a locking dog co-operating with said ratchet, resetting springs for the indicator and actuating device, pawls for preventing backward movement of them under the influence of their springs, trips for the pawls operating upon them in succession in the manner specified, and means for actuating the trips and throwing the locking dog into engagement with the ratchet of the operating lever, substantially as described.

34. In a cash indicator, the combination of a series of oscillatory indicators, a series of oscillatory actuating devices therefor operating to turn the indicators in one direction, a series of operating levers geared to said actuating devices, each having a locking ratchet and provided with a series of numbers and finger-pieces for determining the movement of the lever, a series of locking dogs co-operating with the ratchets of the operating levers, resetting springs for the indicators and actuating devices, pawls for preventing backward movement of them under the influence of the springs, trips for the pawls operating in the manner specified, and a single operating device and connections for actuating the trips and throwing the locking dogs into engagement with the ratchets of the operating levers, substantially as described.

35. In a cash indicator having a money-drawer and a lock therefor, the combination of a series of oscillatory indicators, a series of operating levers and connections for turning the same to different indicating positions, each of said levers being provided with a locking ratchet and with a series of numbers and finger-pieces for determining the movement of the lever, locking dogs co-operating with the ratchets, a movable screen-plate co-operating with the indicators to alternately hide and expose them, and a single operating device and connections for releasing the money-drawer, throwing the locking dogs into engagement with the ratchets of the operating levers, and moving the screen-plate to expose the indicators, substantially as described.

36. In a registering machine, the combination of a series of registers, a single operating handle or lever common thereto, and a series of actuating devices movable upon and with said lever and each adapted to actuate one of said registers when displaced from normal position upon and moved with the lever, substantially as described.

37. In a registering machine, the combination of a series of registers, a single operating handle or lever common thereto, a series of bell-cranks pivoted upon said lever, the horizontal arms of said bell-cranks constituting finger-pieces for operating the lever, and connections with the several registers actuated by the respective bell-cranks when the lever is operated, substantially as described.

38. In a registering machine, the combination of a series of registers, a single operating handle or lever common thereto, a series of bell-cranks pivoted upon said lever, the horizontal arms of said bell-cranks constituting finger-pieces for operating the lever, and a series of arms and connections with the registers, said arms standing out of the path of the bell-cranks when the latter are in normal position upon the operating lever but adapted to be struck and moved by the bell-cranks when the lever is operated by means of them, substantially as described.

39. In a registering machine, the combination of a series of registers, a single operating lever having laterally projecting finger pieces, a series of bell-cranks pivoted upon the lever with their horizontal arms projecting behind and partly above said finger-pieces, so that each bell-crank will be rocked upon its pivot when the lever is depressed by the adjacent finger-piece, and connections with the registers actuated by the respective bell-cranks, substantially as described.

40. In a cash register and indicator, the combination of a series of registers, a single indicator bearing a corresponding number of

indicating signs, an operating lever or handle common to all of the registers, connections between said handle and indicator for actuating the latter, and a series of actuating devices carried by and movable upon the operating lever and adapted to actuate the respective registers, substantially as described.

41. In a cash register and indicator, the combination of a series of registers, an indicator, a single operating handle or lever common to all of the registers, connections between the handle and indicator for actuating the latter, a series of bell-cranks pivoted upon said lever, their horizontal arms constituting finger-pieces for operating the lever, and connections with the several registers actuated by the respective bell-cranks when the lever is operated, substantially as described.

42. In a cash register and indicator, the combination of a series of registers, an indicator, a single operating lever common to all of the registers, and having a series of laterally projecting finger pieces, a series of bell-cranks pivoted upon the lever with their horizontal arms projecting behind and partly above said finger-pieces, so that each bell-crank will be rocked upon its pivot when the lever is depressed by the adjacent finger-piece, connections with the registers actuated by the respective bell-cranks, and connections between the operating lever and indicator for actuating the latter, substantially as described.

43. In a cash register and indicator, the combination of an indicator adapted to indicate different classes of transactions, a series of registers adapted to register the numbers of the different classes of transactions, a single operating lever common to said registers and provided with a series of laterally projecting finger-pieces, a series of bell-cranks pivoted upon said lever with their horizontal arms projecting behind and partly above said finger-pieces, a series of arms and connections with the registers for actuating the latter, said arms standing out of the path of the bell-cranks when the latter are in normal position upon the operating lever but adapted to be struck and moved by them when displaced from normal position in the operation of the lever, and connections between the lever and indicator for moving the same to indicate the class of transactions corresponding to the register actuated, substantially as described.

JOSEPH P. CLEAL.

Witnesses:
PEARL N. SIGLER,
JOHN M. BUCKLES.