(No Model.) 3 Sheets—Sheet 1.

D. W. SHIEK.

CASH REGISTER AND INDICATOR.

No. 456,912. Patented July 28, 1891.

Fig 1

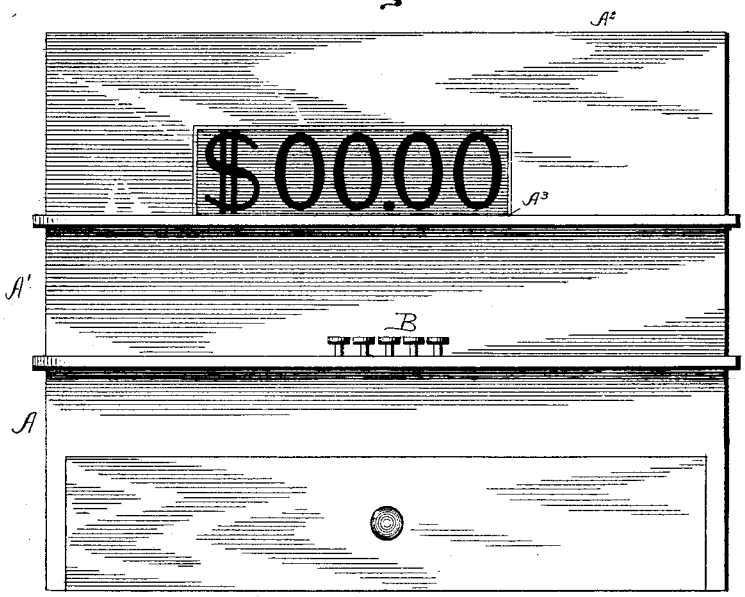


Fig 3

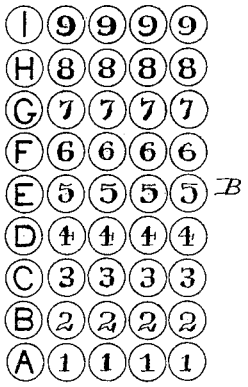
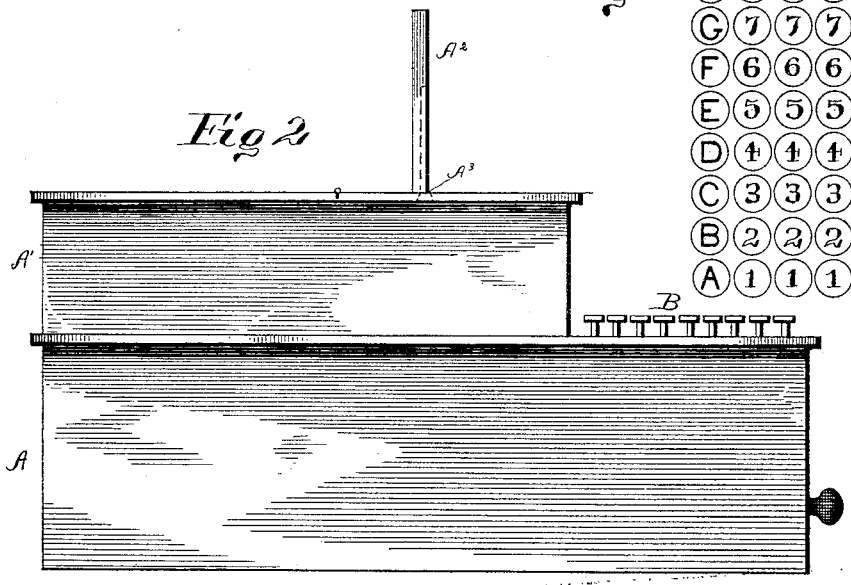


Fig 2



Witness
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D. D. Owens

Inventor
Daniel Webster Shiek
per John G. Manahan
Attorney

(No Model.) 3 Sheets—Sheet 2.

D. W. SHIEK.

CASH REGISTER AND INDICATOR.

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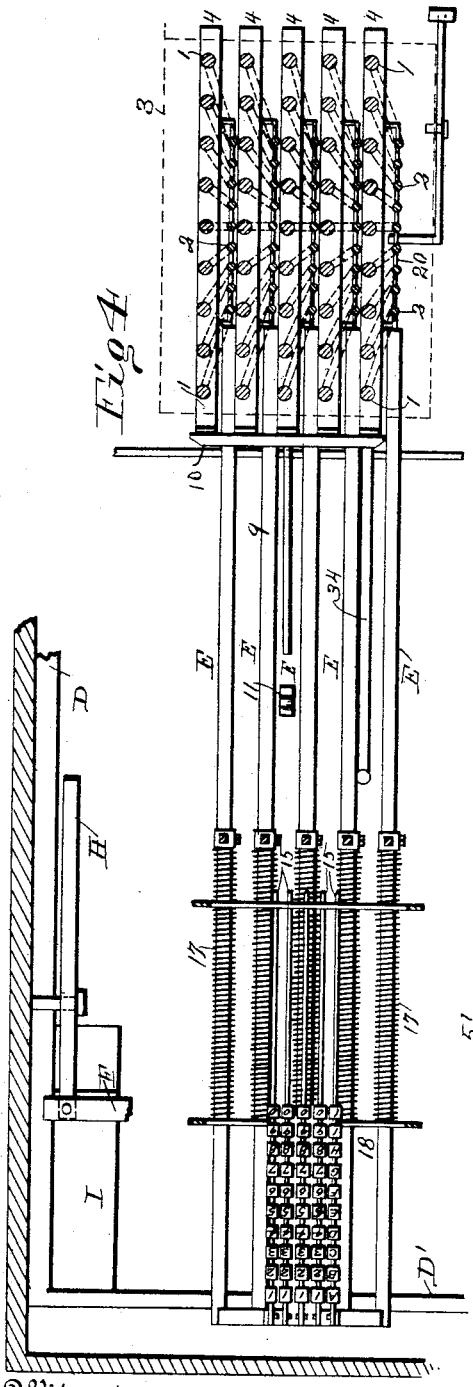

Fig 4

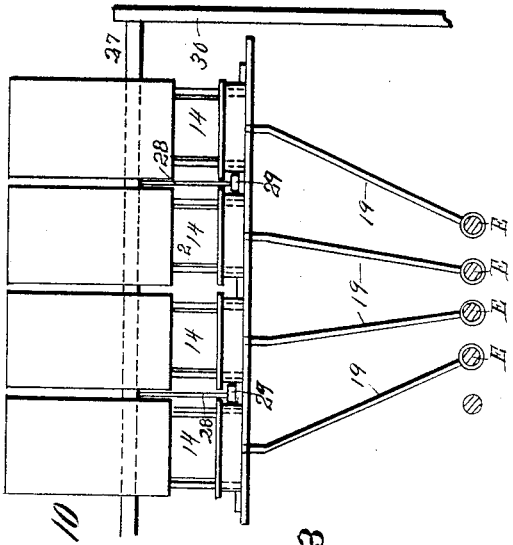

Fig 10

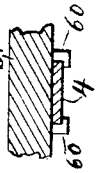

Fig 13

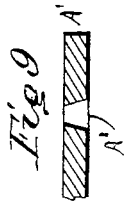

Fig 9

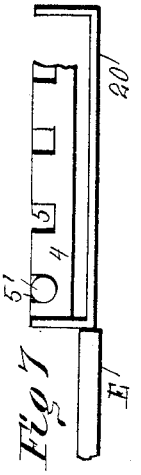

Fig 7

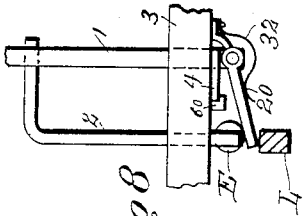

Fig 8

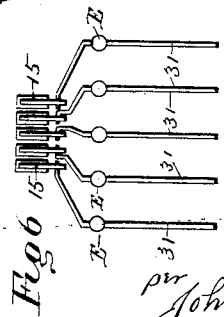

Fig 6

Witness
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(No Model.) 3 Sheets—Sheet 3.

D. W. SHIEK.

CASH REGISTER AND INDICATOR.

No. 456,912. Patented July 28, 1891.

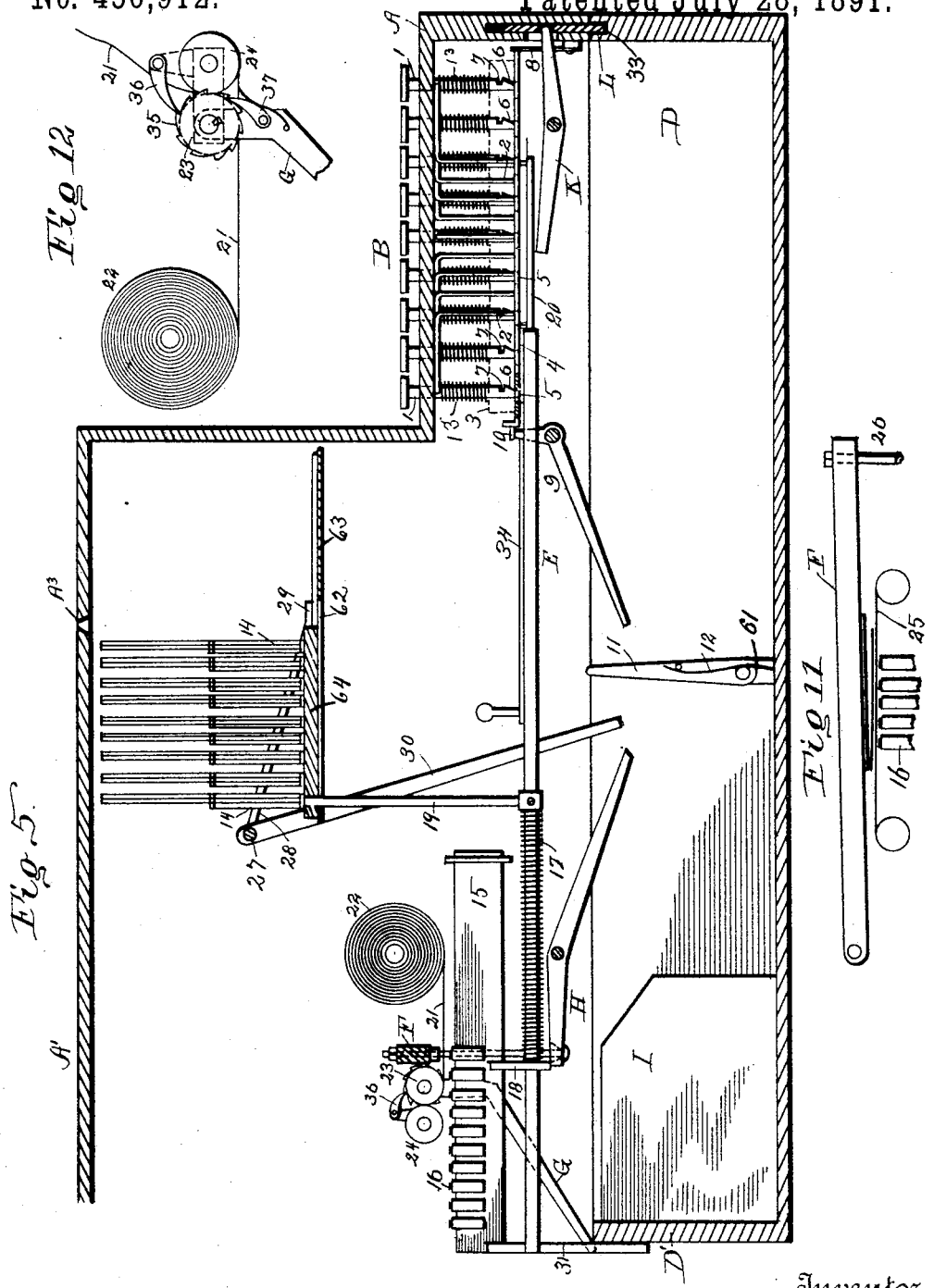

Fig 12

Fig 5

Fig 11

Witness
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C. C. Owens.

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Daniel Webster Shiek
per
John G. Manahan
Attorney

UNITED STATES PATENT OFFICE.

DANIEL W. SHIEK, OF STERLING, ILLINOIS, ASSIGNOR OF ONE-HALF TO JOHN H. CONLON, OF SAME PLACE.

CASH REGISTER AND INDICATOR.

SPECIFICATION forming part of Letters Patent No. 456,912, dated July 28, 1891.

Application filed December 29, 1890. Serial No. 376,084. (No model.)

To all whom it may concern:

Be it known that I, DANIEL WEBSTER SHIEK, a citizen of the United States, residing at Sterling, in the county of Whiteside and State of Illinois, have invented certain new and useful Improvements in Cash Indicating and Recording Machines; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

My invention relates to improvements in machines for temporarily indicating and coincidently permanently recording the several amounts of money put into the cash-drawer as they are severally placed therein, and in which, in conjunction with the indicating and recording mechanism, the drawer is unlocked only by previously connected and lettered keys; and the objects of my improvements are, first, to provide mechanism by which the amount deposited each separate time in the cash-drawer shall be indicated to the operator and shown to the customer in corresponding figures upon a card or cards projected upward into their sight coincidently with the opening of the drawer; second, to provide mechanism in conjunction with that above named which shall print upon a coiled paper in vertical columns adapted for adding the successive amounts deposited in said drawer, and thereby retain a consecutive and complete record of all moneys placed within said drawer during the day or other desired period; third, in conjunction with the aforesaid mechanism to provide further devices by which each person enabled and entitled to open said drawer shall print on said record opposite to the amount deposited by him his designating-letter, thus indicating who made the deposit; fourth, and co-operating with the aforesaid mechanism to provide further devices by which the said drawer shall be locked against opening by any person other than those previously designated, as aforesaid, and furnished with the necessary information or combination to enable him or her to open said drawer. I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a front elevation of the machine, in which the ciphers indicate the locality to which the aforesaid indicating cards are successively projected from below and withdrawn. Fig. 2 is a side elevation thereof. Fig. 3 is a plan of the key-board. Fig. 4 is a longitudinal horizontal section of the machine. Fig. 5 is a longitudinal vertical section thereof. Fig. 6 is an elevation of the rear end of the type-moving rods, the type being shown thereon in Fig. 4. Fig. 7 is a detail in plan of the rocking plate which locks and releases the type and indicating-card-moving rods. Fig. 8 is an end view of the part shown in Fig. 7, looking toward the rear of the machine, and showing the aforesaid locking-plate rocked downward by a key-shank and the aforesaid carrying-rod above said plate stopped against said shank. Fig. 9 is a detail of the opening through which the indicating-cards are projected, as aforesaid. Fig. 10 is a vertical cross-section at the front end of the indicating-card carrier. Fig. 11 is a detail in vertical cross-section of the locality where the printing is accomplished. Fig. 12 is a detail of the outer ends of the printing-rollers and actuating mechanism, and Fig. 13 is a vertical sectional view showing one way of supporting the reciprocating plate for locking the keys in their depressed position.

Similar letters refer to similar parts throughout the several views.

Referring to Figs. 1 and 2, A is the general frame of the machine, which is adapted to be placed upon a counter or desk or other suitable support. The upper portion A′ of the frame A is abbreviated at its forward end, and on the part A in front of part A′ are arranged the keys, as shown in Fig. 3. In the part A′ is afforded room for the movement of the indicator-card-carrying arms, each bearing one card, and other mechanism hereinafter described. A part of the cover of A′ is hinged, so as to afford ready means of access to the interior. A suitable strip A^2 is placed vertically transversely on the top of the forward portion of A′, and a slot A^3 is formed trans-

versely in the top of A′ directly in front of the projection A^2, through which slot the indicating-cards are projected from beneath, as hereinafter described, the ciphers being utilized in their permanent position on strip A^2.

B B are vertical keys loosely seated in that portion of the top of A which projects forward of A′. The keys B are arranged in a longitudinal series from 1 to 9, as shown in Fig. 3, except the left outer series, which is lettered.

Viewed from the front of the machine, the right-hand longitudinal series of keys B represent units of cents, the next series toward the left tens of cents, the next series toward the left units of dollars, and the fourth series toward the left tens of dollars. Each of the keys B is provided with two downwardly-projecting shanks, a vertical shank 1 directly under the key, and a shank 2, Fig. 5, which is connected with the shank 1 directly under the top of the frame A when the key B is at the limit of its upstroke, and which is projected in a substantially horizontal position from its point of attachment and obliquely out of the line of its series of keys and downwardly through a suitably supported base 3. A flat reciprocating plate 4 is suitably supported in ways 60 under the bottom 3 and furnished with openings 5, adapted to receive the lower ends of the vertical stems 1 of the keys B. There is one plate 4 to each longitudinal series of keys, and in the normal position all of the keys B have their extreme lower ends slightly projected into the openings 5 and resting against the forward wall of said openings, as shown in Fig. 5. The front side of the lower end of the keys B is given a bevel formation 6, so that in forcing any one or more of the keys B downward the bevel 6, pressing against the forward wall of the slotted opening 5, forces the plate 4 forward until the transverse recess 7 in the stem 1 is opposite to said front wall of the openings 5, when a vertical spring 8, bearing against the forward end of the plate 4, throws said plate inward and the front wall of the opening 5 into the recess 7 of the depressed key B and prevents the latter from rising. The key B is depressed before the drawer D in the frame A is opened, and in the case of the numeral keys that key is depressed bearing the figure desired to be indicated and recorded. The sole function of the plate 4 is to hold the depressed key down during the interval that the drawer D shall be withdrawn or open. A bell-crank lever 9 is suitably fulcrumed in the frame A above the drawer D, with its lower end extending down into the drawer D. The upper end of the lever 9 is provided with a transverse head 10, adapted to extend across and abut against the inner ends of all of the plates 4. Suitably supported in the drawer D is a trip 11, Fig. 5, which is normally held in an upright position by a spring 12, but which is adapted to fold inward when it strikes the lower end of the lever 9 in the withdrawal of the drawer; but when the drawer D is drawn open or forward the trip 11, after it passes lever 9, assumes the vertical position in front of the lever 9, and as trip 11 is so supported at its front side—as, for instance, by a shoulder 61—that it cannot fold outward as the drawer D is pushed in, the upper end of the trip 11 engages the lower side of the depending end of the lever 9 and raises such end, thereby pressing the plate 10 against the inner ends of the plates 4 and moving the latter plates outward sufficient to disengage any of the shanks 1 of the keys B which may be held by openings 5, when the coiled compressed springs 13, seated intermediately on the shanks 1, throw the disengaged key B upward and the recess 7 therein out of opposition to plate 4. When the drawer D is pushed entirely into the frame A, the trip 11 passes beyond the lever 9 and permits the latter to drop down into a loose position, and the spring 8 at the forward end of the released plate 4 throws the latter back into its normal position.

The description thus far has reference only to the mode of locking the keys down while the drawer D is opened and means for automatically releasing the depressed key or keys B by closing said drawer.

E E are five rods seated longitudinally in the machine and adapted to move, respectively, a series of indicating-card supports 14, arranged as to each rod E in longitudinal series of 1 to 9, corresponding to the aforesaid arrangement of the keys B. The rods E, respectively, also move longitudinally the type-bearing plates 15, each of which latter is suitably supported edgewise longitudinally in suitable ways and carries a series of ten type, the forward one of which is a cipher and the remaining nine corresponding in designation respectively with the indicating-cards and keys B in the same series. A compressed coiled spring 17 on each rod E, held at its rear end by a fixed cross-plate 18, through which the rods E loosely pass, and at its forward end by the upward arm 19, rigidly seated at its lower end on rod E and connected at its upper end to the indicating-card supports 14, serves to throw the rods E forward whenever the front ends of said rods are disengaged from the rocking plate 20, pivotally seated under the base 3 in position to rock laterally and normally held by a suitable spring 32 in front of the front end of the rod E when the latter is at the limit of its instroke, as shown in Figs. 7 and 5. When the rocking plate 20 is thus holding the rod E, its main portion is edgewise in a vertical plane, and said edge is in line with and directly under the lower end of one series of the secondary shanks 2 of the keys B. When any one or more of the keys B is depressed, said secondary shank 2 performs the double function of pushing the main body of the rocking plate 20 downward out of engagement with the adjacent end of the rod E, and said shank 2, when thus depressed, forms in itself at its own location a

secondary stop for the outward thrust of the rod E. The respective keys B, indicating-card bearers 14, and type 16 in the same longitudinal series all operate in connection with the same rod E, and are so correlated that when any key B is pressed downward, and the rocking bar 20 thereby pressed downward out of engagement with the outer end of the rod E of the same series, said rod is thrown outward by the spring 17 until its outer end abuts against and is stopped by the secondary shank 2 of said depressed key, and this forward movement of the rod E carries the card-support 14, which is connected therewith by the arm 19, forward until the indicating-card bearing the same designating figure or letter of the depressed key B is directly under the opening A^3, and at the same time and by the same movement carries the type 16, having the same designating letter or number, directly under the transverse lever F, Fig. 1, which prints such designating-letter on the strip of paper 21, fed for that purpose from the paper-roll 22, suitably journaled in said frame A. The paper 21 is drawn from the roller 22 and fed to the type under the lever F by being passed between the front transverse roller 23 and the rear opposing roller 24. On the outer face of the roller 23 is rigidly seated an ordinary ratchet 35, adapted to be held from retrogression by a suitable retaining-pawl 36. A lever G is suitably fulcrumed on the axis of the roller 23, Fig. 12, and provided at its upper end with a pawl 37, adapted to engage said ratchet, and thereby intermittently rotate said roller 23. The lever G is extended downwardly and behind the drawer D, so that when said drawer is pushed back it will oscillate said lever and rotate the feed-rollers 23 and 24 one degree, which equals the distance between the succeeding transverse lines of figures and letters on the paper 21. A suitable spring or gravity draws the lever G forward, when the drawer is drawn outward in position for said lever to be again moved backward in the next inward thrust of the drawer D. A suitable inking-ribbon 25 is placed in the ordinary way transversely over the type and directly under the lever F, Fig. 11. The lever F is pivoted at one end and at its opposite end connected, by means of a depending rod 26, to the inner end of a lever H, suitably fulcrumed above the drawer D, with its free end projected down within the latter forwardly in position to be engaged by a block I, seated longitudinally in the rear portion of the drawer D, in position to strike and raise the front end of lever H when the drawer D is drawn completely out, and thereby draw lever F down upon the type beneath it. A spring suitably seated under lever F raises the latter from contact with the paper 21 the instant the drawer starts on its inward movement.

As the card-bearers 14 are respectively brought under the opening A^3 by means of the arms 19, which move along the slots 62 of the support or floor 63 and carry the blocks 64, to which the bearers or supports 14 are connected, the cards loosely seated thereon are raised upwardly through said opening into the view of the operator, as follows: A slight distance inwardly from the opening A^3 is journaled a transverse shaft 27, Fig. 10, to which are attached forwardly-extending arms 28, normally in a horizontal position, and at their front ends (which are in the same transverse vertical plane of the opening A^3) provided with lateral flat extensions 29, adapted to project laterally slightly under the lower edge of such of the indicating-cards seated loosely on the card-bearers 14 as shall be brought directly under said opening A^3. To one end of the transverse shaft 27 is rigidly attached the upper end of an arm 30, which extends downwardly within the drawer D and when the latter is drawn completely out the lower end of the arm is moved slightly forward by coming in contact with the inner surface of the rear end D′ of the drawer D at the instant that the latter is at the limit of its outer movement. This has the effect of rocking the upper side of the shaft 27 backward and raising the forward ends of the arm 28 attached thereto upward, and thereby lifting the indicating-card, which may for that instant be directly under the opening A^3, up through the latter into view of the operator and customer. As the drawer D is closed, the weight of the arms 30 and 28 and that of the indicating-card thereon return the parts to their normal position and permit said card to drop down to its original place, to be carried back with the arms E.

To the extreme inner end of each rod E is rigidly attached a depending arm 31, which in the inward movement of the drawer D is engaged by the outer face of the back end D′ of said drawer, and thereby any one or more of said rods E which may have been thrown forward, and thereby utilized in the opening of the drawer, are carried back to the limit of their instroke in closing the drawer. As the arm 31 of each rod E extends down behind the drawer D, said rods can come forward only while said drawer is opening, and are thereby prevented from striking too percussively against the lower end of the arms 2. The spring 32, Fig. 8, returns the rocking frame 20 to its normal position.

The drawer D is locked against being opened, except by the use of the outer one or more of the lettered keys, by the following supplementary mechanism. A horizontal lever K is centrally pivoted longitudinally of the machine above the drawer D in such position as that its outer end shall project nearly as far as the front end of the drawer when the latter is closed and its inner end be under the rocking plate 20, which is beneath the series of lettered keys. A locking-pin L is loosely seated in the frame A in a vertical position to drop into a recess 33, formed in the upper edge of the front wall of the drawer D when the latter

is closed. The outer end of the lever K is projected loosely into the side of the locking-pin L about midway of the latter, and when the inner end of the lever K is pressed downward by the downward movement of the rocking plate 20 directly over said lever the opposite end of the latter lifts the pin L out of engagement with the drawer D and permits the opening of the drawer. A longitudinal plate 34 is suitably seated in ways in such position as to be moved outward under certain of the shanks 2 of the lettered or left-hand series of keys B, and thereby prevent such keys as are above said plate from being forced down sufficiently to actuate the rocking plate 20 and thereby release the locking-pin L. Of course the plate 34 can be utilized to lock only the inner ones of the lettered series of keys B, if any are to be left free. But one or more of the outer ones of said series of lettered keys can be left capable of unlocking the drawer D, and such operative keys may be used to designate, respectively, certain persons, but one having the right to use a certain key to unlock the drawer, and every time that key is thus used it will indicate the fact by printing its designating-letter on the paper 21. The rod E, which is adjunctive to the series of lettered keys, is intended to be used coincidently with the use of the other rod or rods E, which indicate and print the amount of money deposited at each opening of the drawer by the operator depressing the numeral-marked keys which indicate the amount deposited, and the coincidently-used letter will be reproduced on the paper 21 at the left of the amount printed thereon, thus indicating by whom each deposit was made, as well as the amount thereof.

The operation of my invention is as follows: Assuming the drawer D to be closed and locked and all of the keys B at the limit of their upstroke and all of the rods E at the limit of their instroke, the operator, whose designating-letter is assumed to be C and who desires to put fifty-five dollars and fifty-five cents in the drawer, would first push down the key C, which would turn down the rocking plate 20 from the outer end of the rod E adjunctive to the series of lettered keys, and thereby depress the inner end of the lever K, which in turn would raise the lock L and unlock the drawer D. He would then depress the four fives in the remaining series of keys, or one in each series, which, by the projection downward of the supplementary stems 2, would rock downward the several rocking plates 20 beneath the several series to which the fives aforesaid respectively belong, and thereby release the outer ends of the four remaining rods E, all the said keys being meanwhile held in depressed position by the engagement of plate 4 in the recesses 7 of said keys. The drawer is then drawn outward to the locality where the outer ends of rods E will be stopped by the then downwardly-projecting ends of the supplementary stems 2 of the key C and of the several fives aforesaid. The sudden action of the springs 17 will be moderated by the fact that the downwardly-projecting arm 31, attached to each rod E at the rear ends thereof, will be retarded by the rear of the drawer D; but when the outer ends of the several rods E shall have been stopped, as aforesaid, by the said stems 2 the four cards indicating in cross direction $55.55 will be directly under the transverse opening A^3, and the farther outward movement of the drawer D by the engagement of its rear wall with the lower end of lever 30, and thereby raising the arms 28, will raise the cards aforesaid through the opening A^3 and in front of the indicating-plate A^2 as follows: $55.55. On the latter plate there is permanently placed the four ciphers and the dollar-signature and decimal-mark, so that it is never necessary to use any cipher-card, but the permanent ciphers will be read in relation to such indicating-figures as may be projected, as aforesaid, in front of one or more of such ciphers. The same outer movement of the rods E which brought the proper indicating-cards to the opening A^3 would also move forward under the lever F the type C in the left-hand series and the figure 5 in each of the four numeral series, and the engagement of the rear wall D′ of the drawer D with the lower end of the lever H will bring the transverse lever F, and thereby the ink-ribbon 25 and paper 21, down upon said type, whereby the said paper will receive the imprint of C, 55.55. The cipher in each type-series is normally in position to be printed, so no cipher-key is needed. After the fifty-five dollars and fifty-five cents is deposited in the drawer, as the latter is closed the trip 11, by engaging and pressing upward the lever 9, moves all of plates 4 outward sufficiently to disengage the recesses 7 of the aforesaid keys from the openings 5 in said plate 4, when the springs 13 will throw said keys upward into their normal position. The lever 30, being disengaged from the rear wall D′ of drawer D, will drop of its own gravity, thereby permitting the indicating-cards on arms 28 to drop downwardly into the machine. The lever H, being disengaged from partition I, will permit the lever F to rise from paper 21. The arms 31 of rods E will be carried inward by the inner end of the drawer D, thereby withdrawing said rods E to the limit of their instroke, when the springs 32 will rock upward the plate 20 to serve as the stop against the outer end of said rods E, and the last portion of the inward thrust of the drawer D, by pressure against the power end of the lever G, will actuate the feed-rollers 23 and 24, and thereby draw the paper 21 from the roll 22 into position to receive the impress of the next succeeding transverse type-impressions. The upward rock of the plate 20 will also permit the locking-pin L to drop into recess 33 in the front wall of the drawer D and lock the latter. The withdrawal aforesaid of the rods E

to the limit of their instroke coincidently carries all of the type 16 and indicating-card bearers 14 to the limit of their inward movement, and the machine is now ready for a repetition of the operation just described.

The plate 34, which controls the drawer-lock, as aforesaid, and the printing mechanism will be located in chambers under lock and key, whereby the proprietor, or some one selected by him, will have exclusive access thereto.

The advantages of my invention are that it can be placed within convenient reach of the salesman and in such numbers as may be found desirable; that the indicating-cards will exhibit the amount of each cash deposit at the time thereof to the salesman, the customer, or any other person within view; that the printed roll will preserve in detail the amount of each deposit, and also the letter designating the depositor, and that at the close of each day's sales, or as much oftener as may be desired, the proprietor or manager can examine said printed record, compare the aggregates thereon with the amount of cash in the drawer, and if there be any discrepancy a comparison of said printed items with the sales book or books will afford its ready detection.

In addition to the foregoing, the printed record aforesaid being in the ordinary column for adding, such record becomes a convenient means of preserving the amount, dates, and sequence of the cash sales.

What I claim as my invention, and desire to secure by Letters Patent of the United States, is—

1. The combination of the keys B, provided with the stems 1 and 2 and the recess 7 in stem 1, the reciprocating plate 4, provided with openings 5, the actuating-lever 9, and the returning-spring 8, substantially as shown, and for the purpose described.

2. The combination of vertically-reciprocating keys B, provided with stems 1 and 2 and recess 7 in stem 1, the reciprocating plate 4, provided with openings 5, the spring 8, the actuating-lever 9, and a trip 11, suitably seated in the drawer D to actuate said lever upon the closing of said drawer, substantially as shown, and for the purpose described.

3. The combination of a series of actuating-keys B, provided with shanks 1 and 2, the latter of which are located obliquely out of the line of the series, rocking plate 20, and reciprocating rods E, provided with spring 17, substantially as shown, and for the purpose described.

4. In a cash-indicating machine, the combination of actuating-keys B in numbered series, reciprocating rods E, provided with spring 17, rocking plate 20, drawer D, frame A, provided with opening A^3, arms 14, bearing cards arranged in serial numbers corresponding to those of said keys B and adapted to be reciprocated by said rods E, and means, substantially as shown, for optionally limiting the outward movement of said rods E and card-arms 14, for the purpose described.

5. In a cash indicating and recording machine, the combination of the numbered series of keys B, the reciprocating rods E, provided with springs 17, the series of type 16, and indicating-card arms 14, said type and said card-arms being adapted to be moved longitudinally and coincidently with said rods E, mechanism, substantially as shown, for varying the outward thrust of said rods E, and means, substantially as shown, for returning said rods E to their normal position and locking them therein, for the purpose described.

6. The combination of the frame A, drawer D, card-lifting arms 28, rock-shaft 27, and lever 30, adapted to be actuated by the outward movement of said drawer, substantially as shown, and for the purpose described.

7. The combination of the lettered keys B, arranged in longitudinal series and provided with secondary stems 2, and the reciprocating plate 34, adapted to be projected under said stems and suspend the operation of certain of the keys B in the lettered series thereof, substantially as shown, and for the purpose described.

8. The combination of the lettered keys B, their correlative reciprocating rod E and series of lettered type 16, the mechanism for receiving the impress of said type, and a drawer-unlocking mechanism, substantially as shown, whereby there is recorded by which of said keys said drawer has been unlocked in any given instance.

9. In a cash indicating and recording machine, the combination of reciprocating rods E, adapted to automatically move outward, mechanism for holding said rods normally at the limit of their inward movement, designated keys adapted to release the said lock of said rods and permit their outward thrust to a predetermined locality, type 16, and card-bearers 14, carrying designated cards, said type and cards being adapted to be moved outward coincidently by said rods, and means, substantially as shown, for returning said rods E to their normal position, for the purpose described.

10. In a cash indicating and recording machine, the combination of reciprocating rods E, adapted to automatically move outward, mechanism for holding said rods normally at the limit of their inward movement, designated keys adapted to release the said lock of said rods and permit their outward thrust to a predetermined locality, type 16, and card-bearers 14, carrying designated cards, said type and cards being adapted to be moved outward coincidently by said rods, means, substantially as shown, for receiving and retaining the impress of said type respectively, and means, substantially as shown, for elevating one or more of said indicating-cards, for the purpose described.

11. In a cash indicating and recording machine, the designated keys B, arranged in series, substantially as shown, reciprocating rods E, provided with springs 17 and adapted to have their outward thrust arrested at previously-determined localities by said keys, respectively, card-carrying arms 14, bearing serially-numbered cards, and type 16, adapted to be moved by and to the same degree as said arms E, indicating-plate A^2, means, substantially as shown, for receiving the impress of certain of said type, and mechanism, substantially as shown, for lifting certain of said cards in front of said plate A^2, substantially as shown, and for the purpose described.

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

DANIEL W. SHIEK.

Witnesses:
JOHN G. MANAHAN,
ADDA E. WARD.