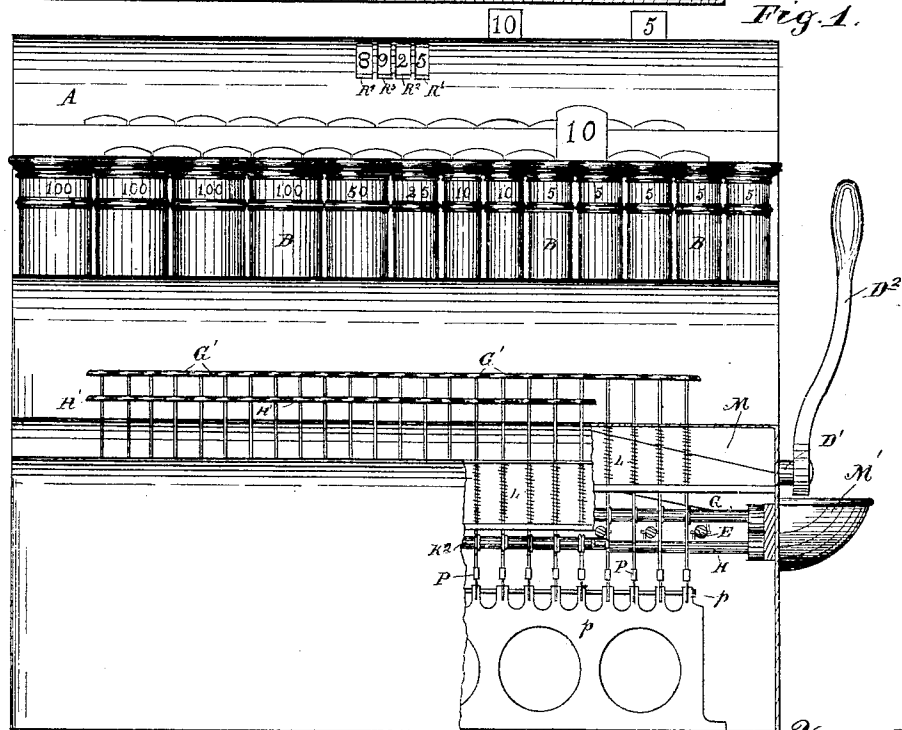
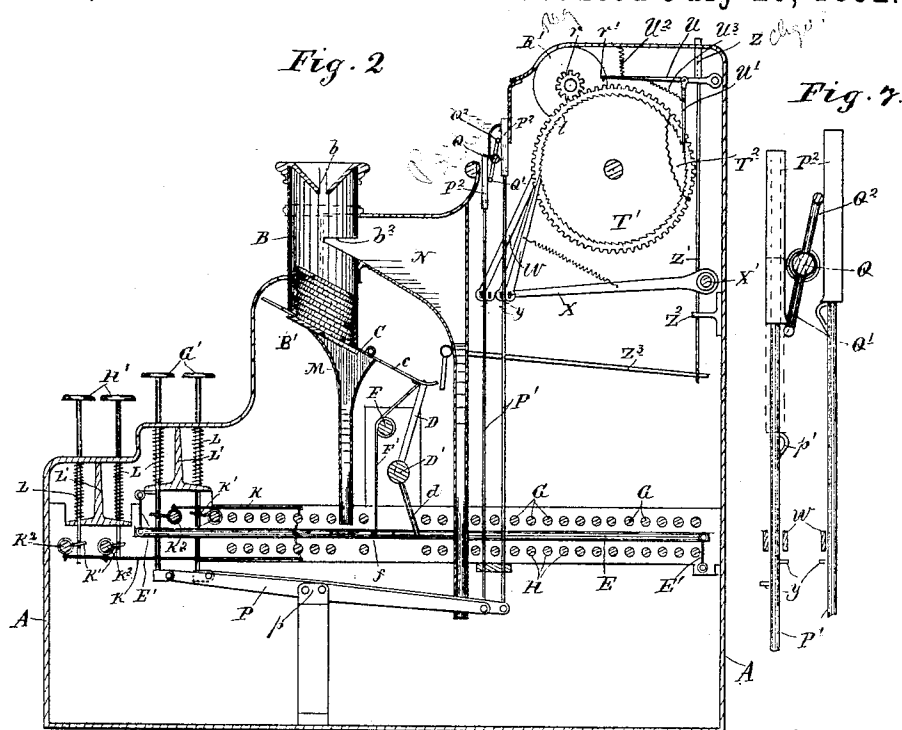


J. J. HOVE.

CASH REGISTER, INDICATOR, AND AUTOMATIC CHANGE MAKER.

No. 479,711.

Patented July 26, 1892.



Witnesses
Emma F. Elmore,
A. H. Opsahl.

Inventor.
John J. Hove
By ^{his} attorney.
Jas. F. Williamson

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CASH REGISTER, INDICATOR, AND AUTOMATIC CHANGE MAKER.

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Fig. 3.

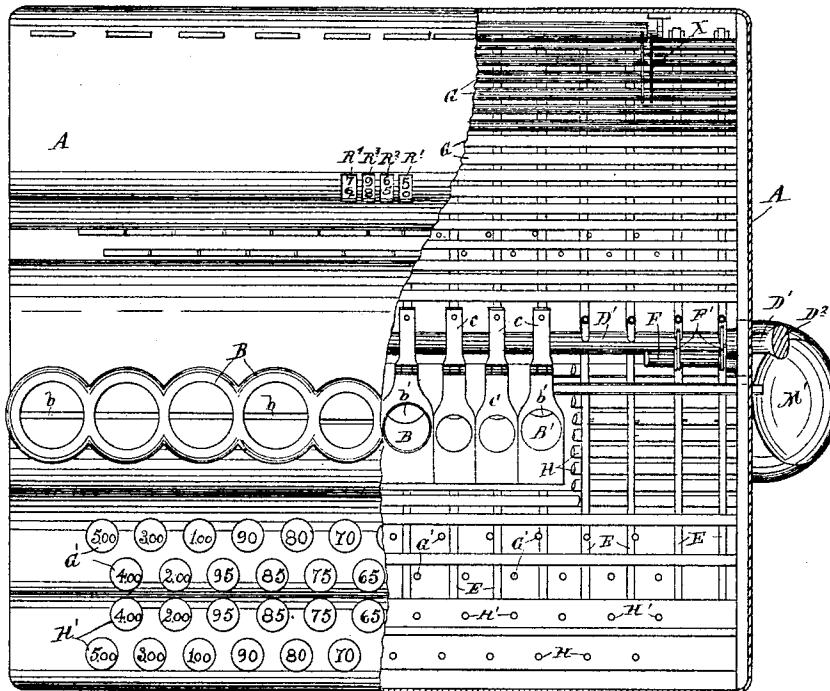


Fig. 4.

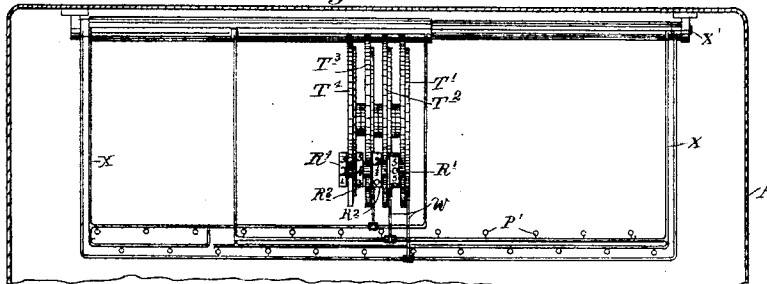
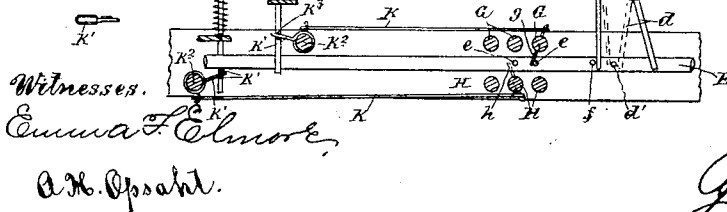


Fig. 5.

Fig. 8.



Witnesses.

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Fig. 6.

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(No Model.)

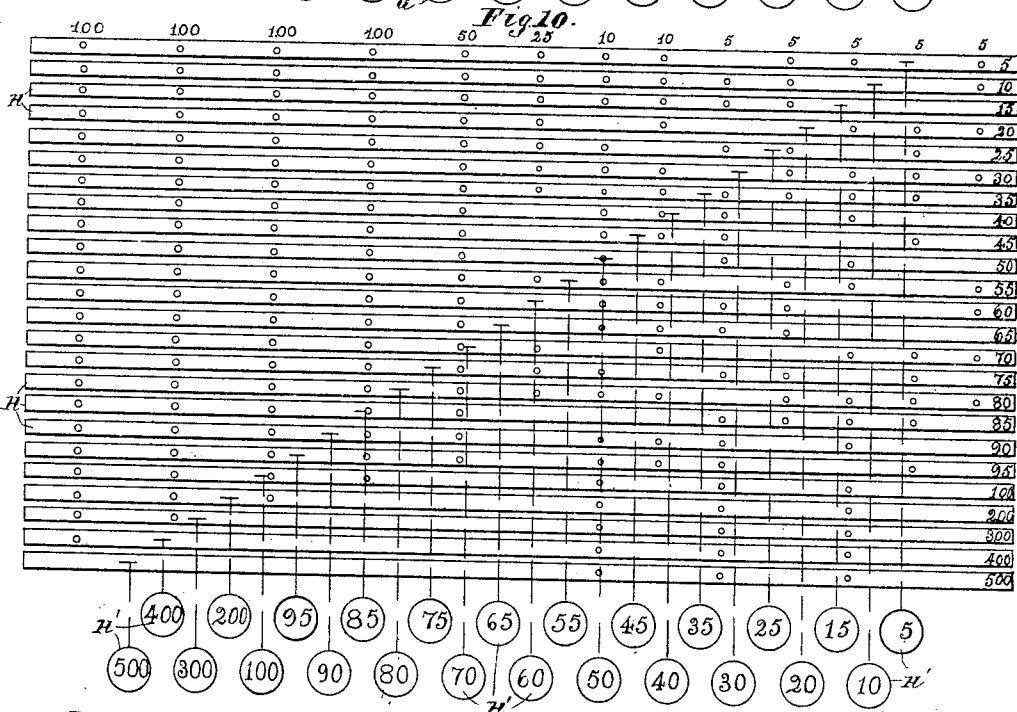
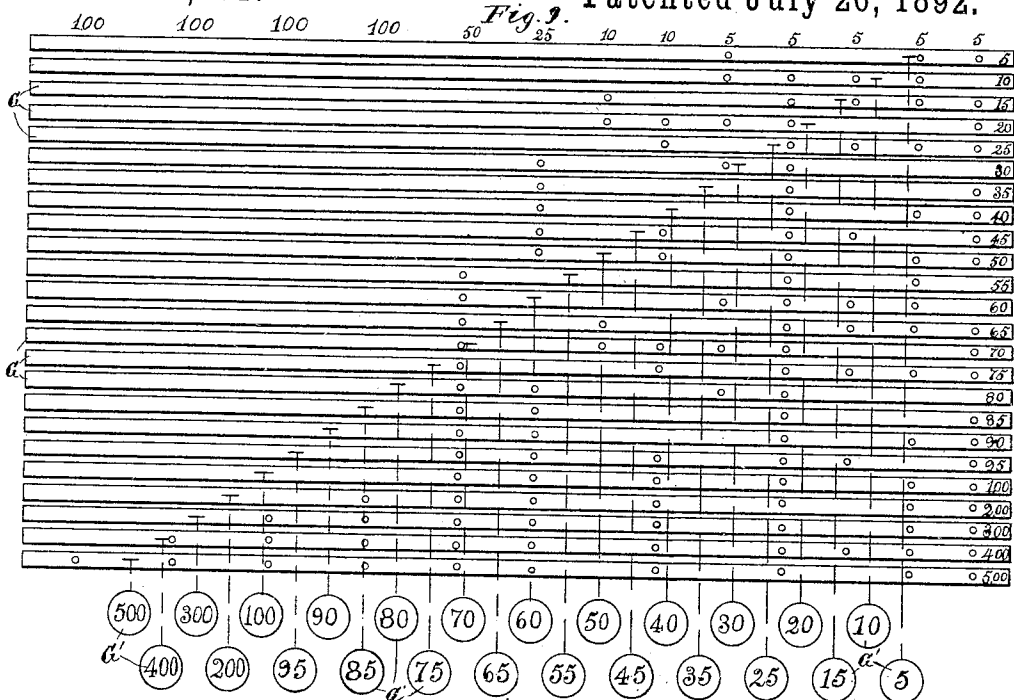
4 Sheets—Sheet 3.

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Jas. F. Williamson

(No Model.)

4 Sheets—Sheet 4.

J. J. HOVE.

CASH REGISTER, INDICATOR, AND AUTOMATIC CHANGE MAKER.

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Fig. 11.

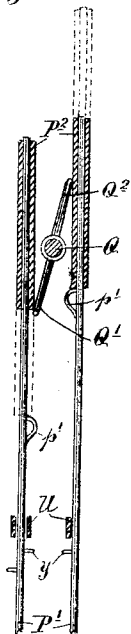


Fig. 12.

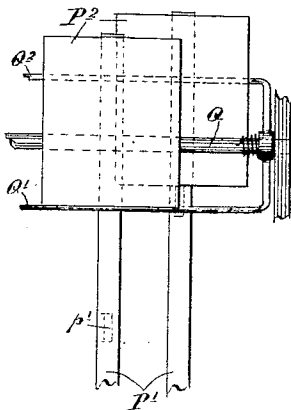


Fig. 13.

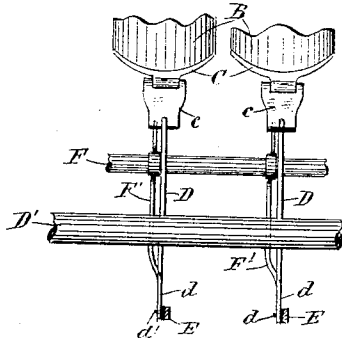


Fig. 14.

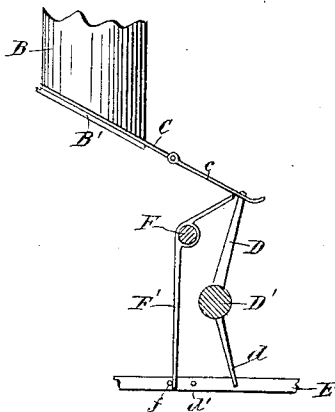
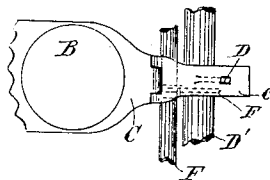


Fig. 15.



Witnesses.
Emma F. Elmer
A. H. Opsahl.

Inventor.
John J. Hove
By his Attorney.
Jas. F. Williamson

UNITED STATES PATENT OFFICE.

JOHN J. HOVE, OF MINNEAPOLIS, MINNESOTA, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, OF TWO-THIRDS, TO WILBER E. LAWRENCE, OF SAME PLACE.

CASH REGISTER, INDICATOR, AND AUTOMATIC CHANGE-MAKER.

SPECIFICATION forming part of Letters Patent No. 479,711, dated July 26, 1892.

Application filed August 25, 1891. Serial No. 403,649. (No model.)

To all whom it may concern:

Be it known that I, JOHN J. HOVE, a citizen of the United States, residing at Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain new and useful Improvements in Automatic Change-Makers; and I do hereby 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.

My invention relates to the class of machines known as "cash-registers," and has for its object to provide a machine which will not only indicate and register the purchase, but will also indicate and automatically effect the change.

My improvement or invention is especially directed to the mechanism for indicating and effecting the proper change. To this end I employ a series of coin-founts containing the different coins available for change, one or more for each denomination of coin employed, two distinct sets of devices for representing and independently indicating, respectively, the different amounts of purchase and different amounts of cash, and coin-releasing devices controllable by the said representing and indicating devices, the relative arrangement of the said parts being such that the indication of the purchase and the cash on the said representing devices will set the coin-releasing devices to effect the proper change. The purchase and cash representing devices must be distinct and capable of an independent use, either at the keys or in some intermediate connecting parts, and each of these distinct or representative parts must be arranged to render its action effective to release coins from one or more of said founts. To this end there must be a set of pieces corresponding to the coin-founts or representing the available elements of change, with one or more of which each of the cash and purchase representatives may be made to act in a manner predetermined for every possible combination of purchase and cash amounts represented. This predetermined action or connection between the change representatives and the cash and purchase representatives

is so calculated beforehand that the joint effect of the cash and purchase representative on the change representative will set the same to control the indication or the effecting of the proper change. Various forms of connecting devices may be employed to render the settings of the change representatives effective to release or deliver the proper coin. I employ for the purpose a dropper-shifter and a series of coin-droppers, one in each fount, which are releasably connected to the shifter. The change representative, under the control of the keys, is made to release all of the said coin-droppers from the said shifter, except only such as is necessary to deliver the proper change. On moving the shifter the coins making up the proper change will then be dropped from the founts. The change representatives, as set from the keys or cash and purchase representatives, necessarily indicate the change-pieces, and sight-pieces are also arranged to be operated by some of the moving parts controlled from the change representatives to exhibit the change-pieces to the eye. Registering mechanism is employed to record the purchases.

Other minor details of invention will appear in the following description, and will be pointed out in the claims.

A machine embodying my invention is illustrated in the accompanying drawings.

Therein, like letters referring to like parts throughout, Figure 1 is a front elevation of the machine, some parts being broken away. Fig. 2 is a vertical section of the same from the front to the rear. Fig. 3 is a plan with some of the parts removed and others broken away. Fig. 4 is a detail in plan showing part of the registering mechanism. Fig. 5 is a detail in sectional elevation showing the part of one fount and the connections to the keys on a larger scale. Fig. 6 is a detail in plan of part of the plate constituting the fount-bottom, and Fig. 7 is a detail in elevation showing the sight-pieces and their operating parts. Fig. 8 is a detail showing one of the key-cranks. Figs. 9 and 10 are diagrams illustrating the operation. Figs. 11 and 12 are respectively a vertical section and rear elevation of the telescoping-tablets constituting the sight-

pieces. Figs. 13, 14, and 15 are views in rear elevation, side elevation, and plan, respectively, illustrating the connections between the dropper-shifter and the coin-dropper.

5 A is the case or shell constituting the framework of the machine.

B are the coin-founts, placed in a vertical position in line with each other. Each fount has a hopper-like mouth at its top with a slot *b* 10 for the insertion of the coins. Directly under and constituting the bottom of all the coin-founts is fixed an inclined plate *B'*, provided on one edge with segmental openings *b'*. When in position, the parts of these openings within the founts are less than half a circle, having the diameter of the coin in the particular fount under which it stands. Working on this plate—one in each fount—is located a series of droppers or slides *C*, having openings or holes of a size each to receive a coin 20 from its corresponding fount and movable into registration with the opening *b'* in the fount bottom for discharging the coin. Each dropper is provided with a pivotally-connected tail-piece or connection *c*, having a slot, lug, or other device near its rear end for detach- 25 ably connecting the same with projecting arms *D* on a rock-shaft *D'*, which constitutes the dropper-shifter having a handle *D*².

30 E are a series of rods arranged, as shown, from front to rear of the machine and corresponding in number to the said coin-founts and constituting what has been called the "pieces representing the available elements of change." 35 Each of these rods or change representatives *E* is suspended at its opposite ends by pivoted hangers *E'*, so as to be capable of a limited backward-and-forward motion. Directly above the rock-shaft or dropper-shifter *D'* is located a cross-rod *F*, fixed to the frame and 40 having mounted thereon a series of bell-crank wires *F'*, one under each of said coin-droppers. The change representatives *E* are each provided with lateral studs or projections *f* 45 in position to strike the lower arm of the bell-crank pieces *F'* and rock the same on the rod. The upper arm of the bell-crank *F'* lies directly under the tail-piece *c* of the coin-dropper in position to lift the same and release 50 the dropper from the dropper-shifter. On account of their function these pieces *F'* may be called "dropper-lifters."

Located, respectively, above and below the change representatives or rods *E*, arranged 55 crosswise of the said rods and parallel with each other, are two distinct sets of pieces or rods *G* and *H*, corresponding, respectively, the former to the represented amounts of purchase and the latter to the represented amounts of 60 cash, there being one rod or piece for each amount represented. *G'* are the purchase-indicating keys, connected one to each of the said rods *G*, and *H'* are the cash-indicating keys, connected one to each of the correspond- 65 ing rods or cash representatives *H*. These connections are effected, as shown, by links *K*, attached to crank-arms *K'*, loosely mounted

on rods *K*², located one adjacent to each row of keys. The crank-arms are loop-shaped, encircling the stems of the keys between laterally-projecting studs *K*³, located thereon. 70 Hence the movement of any key will rock the corresponding crank *K'* and through the connection *K* the corresponding rod *G* or *H*. Springs *L* encircle the key-stems between the 75 frame and perforated brackets *L'*, through which the stems of the keys play as a guide for retracting or returning the keys to their normal position. It will be seen that the rods *G*, representing the purchase amounts, and 80 the rods *H*, representing the cash amounts, each cross all of the change rods or representatives *E*, and are therefore in position for connection with one or more of the said change-rods. For this purpose the said rods 85 *G* and *H* are provided with projecting pins *g* and *h* and the change rods or representatives *E* with corresponding lateral projections *e*. These connections are located according to 90 predetermined calculation for every possible combination of the purchase and cash amounts represented, so that the joint effect of striking the purchase-key and the cash-key will move such of said rods *E* or the change rep- 95 resentatives as is necessary to effect the desired result, which, so far as these parts are concerned, may either be the indication of the proper change, the effecting of the same, or the setting of other parts to indicate the 100 change or effect the same by some further movement. As shown, other parts are thereby set to control both the indication and the effecting of the change by a further movement. In other words, the movements of the 105 rods *E* effected from the keys will operate, as shown, the dropper-lifters *F'* and detach from the dropper-shifter all of the said droppers, except only such as correspond to the change-pieces required to make up the proper change. In other words, as shown, every rod *E* which 110 is moved from the keys will detach the corresponding dropper from the shifter; but some of the rods will be left unmoved and the corresponding droppers will remain connected to the shifter, so that when the shifter is oper- 115 ated the proper coins will be dropped or delivered to make up the change. What particular rods shall be left in this way unmoved for any possible combination of purchase and cash amounts is predetermined, as before 120 stated, and the connections made accordingly from the rods *G* and *H*.

M is a trough or chute located under all the founts for receiving the dropped coins therefrom and has an inclined bottom for di- 125 recting the same to a receiver *M'* outside the case. Each of the coin-founts is provided with an overflow opening or passage *b*² through one of its side walls, communicating with the chute or guide-trough *N*, arranged to conduct 130 the overflow-coins to the floor of the case or suitable receptacles located therein.

To the purchase-keys *G'* are connected levers *P*, fulcrumed on a bar *p*, fixed to the case.

and provided at their opposite ends with rods P' , having a telescoping connection at their upper ends with sight-pieces P^2 , carried thereby and representing on their faces the same amounts as the corresponding keys. These sight-pieces stand in two tiers or rows corresponding to the two tiers or rows of the purchase-keys and are spaced apart a short distance from each other.

Between the two tiers or rows of sight-pieces is located a fixed rod Q , having mounted thereon under spring-tension a pair of yielding bails Q' and Q^2 , which are formed integral with each other. These bails are held by the spring-tension normally against the faces of the rear set of sight-pieces and the backs of the front tier or set of sight-pieces in position to engage under the lower end of any sight-piece when raised to its uppermost limit, the sight-pieces being larger than the rods. The rods P' are provided below the sight-pieces each with a projection p' , shaped to strike the said bails and cam the same away from the sight-pieces when the rods are raised to their uppermost limit, and thereby release any sight-pieces which may have been upheld and engaged by the bails. On the downward movement of the rods P' the sight-pieces carried thereby will be engaged by the bail. Hence with this construction any set of sight-pieces thrown up for a given purpose will remain in view until the next set are thrown up, by which movement the first set will be released and be permitted to return by gravity to their normal positions on their respective rods.

R' , R^2 , R^3 , and R^4 are an ordinary set of decimal-scale wheels for recording the particular purchase and the totals of all the purchases to some definite time or number. Each scale-wheel is provided with a pinion r on its hub, with which engages the crown-teeth of a corresponding set of driving-wheels T' , T^2 , &c., each of which is provided on one face with an annular ratchet t . The scale-wheels are each, except the last or highest of the series, provided with a laterally-projecting stud r' , which engage, under corresponding escapement-levers U , carrying-pawls U' , which engage the ratchet on the face of the next higher driving-wheel of the series.

U^2 is the spring for throwing downward the escapement-lever when tripped by the stud r' , and U^3 is a spring for holding the pawl U' in its proper position. Hence whenever any scale-wheel is moved a complete revolution it will trip the escapement-lever and the escapement will move the next driver and scale-wheel one notch. The drivers are operated by pawls W , carried on the ends of bails X , mounted on a common rod or pivot X' , of which there are three in number, one for each of the first three of the drivers. The sight-piece-operating rods P' are each provided with one or more projections Y in position to operate on one or another of the said bails, the relative arrangement being such that one or more of the said bails will

be moved on the operation of any purchase-key, and the registering device be thereby operated to effect the proper record. As shown, the five-cent purchase-key and certain multiples of the same will operate the outermost bail and the right-hand driver T' , the ten-cent purchase-key and certain multiples of the same will operate on the intermediate bail and the second driver T^2 , while the dollar-key and its multiples will operate on the inside bail and the third driver T^3 . I have also arranged sight-pieces Z , for indicating the change-pieces or the amount of change. These sight-pieces Z are each carried on the upper end of rods Z' , which may work through suitable guides Z^2 and be operated by bell-cranks Z^3 , located in the path of the coin-droppers C , when retracted by the shifter to their rearmost position. It is evident that inasmuch as only such droppers will be retracted as correspond to the change-pieces, that the corresponding sight-pieces may thereby be thrown up into view, indicating the change. It is evident that a retaining device Q' might also be employed with these sight-pieces Z , as in the case of the purchase sight-pieces P^2 , for holding the same in view until the next set of change-pieces should be thrown up.

The operation of the particular pieces or parts has been stated in connection with the description of the same. Suppose all the parts to be in their normal position. When a purchase is made and cash is offered in payment of the same greater in amount than the exact amount of purchase, the cashier first strikes the corresponding purchase-key G' and then follows the same by striking the corresponding cash-key H' . The operation of the purchase-key through the parts P , P' , P^2 , and Q throws up the proper sight-tablet, indicating the purchase. The operation of the purchase-key, immediately followed by the operation of the cash-key, taken together, through the connections K^2 , K' and h , c , g operates corresponding pieces G and H , and through the studs e moves to the rear all of the change representatives or rods E , except such as correspond to the proper elements of change taken individually and to the proper amount of change taken collectively. By the movement of such of the rods E as are thrown to the rear the corresponding releasing connections F' are rocked, lifting up and releasing the tail-pieces c of the corresponding coin-dropper C from the upwardly-extended arms of the dropper-shifter. This would leave connected to the shifter only the proper droppers necessary to give the change. Hence on rocking the shifter D , D' through the handle D^2 the said droppers would be slid backward, dropping out the proper corresponding coins into the chute M , by which the coins would be directed outward to the delivery end of the chute at M' . The backward movement of such of the coin-droppers as remain connected to the shifter would, through the parts Z^3 , op-

erate the corresponding sight-pieces located at the rear of the case, exhibiting the change-amounts to the eye. On returning the shifter to its normal position by the handle D² the rods E will be returned to their normal position, through the arms d and the stud d', permitting the releasing connections F' to rock backward into their normal position and the tail-pieces of the released coin-droppers to drop back into engagement with the arms D of the shifter. Such of the droppers as remain connected to the shifter were also returned to their normal position under the corresponding founts. The operation of the purchase-key through the parts P P' y, bails X and pawls W operates the register-wheels to register the proper amount of purchase and exhibit the same to the eye. That the general operation or result of the mechanism is to indicate and deliver the proper amount of change may be verified from the diagrams, Figs. 9 and 10. Fig. 9 represents the purchase-keys and the purchase representatives or rods G in relation to the change representatives or available coins in the founts, while Fig. 10 is a similar representation of the cash-keys and the cash representatives or rods H in their relation to the change representatives or coins available in the founts. On these diagrams the dotted lines terminating in crosses represent the connections to the keys and the small circles represent the releases effected by moving any key and its corresponding representative. The pieces E, representing the available elements of change, are not shown on the diagrams Figs. 9 and 10, but would stand directly under the pieces G in Fig. 9 and over the pieces H, (shown in Fig. 10,) their positions coinciding with the straight lines from front to rear through the small circles. The dropper-shifters and the founts stand directly to the rear of the tables, and the denomination-marks at the rear of the tables may be taken to represent the positions of the same. By striking any particular purchase-key and then the corresponding cash-key and noting the releases it will be seen in every case that there remain connected to the shifter the proper coin-droppers to give the change. For example, suppose the purchase be ten cents and the cash received be twenty-five. On striking the ten-cent purchase-key it will be seen by tracing the ten-cent rod that all of the five-cent droppers, except the one at the extreme right, will be released. Then on striking the twenty-five-cent key it will be seen that everything above the first ten cents will be released and also certain of the five-cent droppers, but not the right-hand member. Hence there was left unreleased by the movement of the purchase-key and the cash-key one five-cent dropper and one ten-cent dropper, so that when the shifter is moved a five-cent coin and a ten-cent coin would be dropped. Suppose the purchase to be thirty-five cents and the cash offered in payment of the same to be

fifty cents. The cashier will first strike the thirty-five-cent purchase-key. (Shown on Fig. 9.) By tracing the releases, as indicated by the circles on the thirty-five-cent bar G—the seventh from the rear—it will be seen that the first and fourth five-cent dropper and the twenty-five-cent dropper will thereby be disconnected or released from the shifter. The cashier then strikes the fifty-cent key, as shown in Fig. 10. By tracing the fifty-cent bar H—the tenth from the rear in Fig. 10—and noting the releasing circles it will be seen that this movement would release the fifty-cent dropper and everything above the same, and also the third and fifth five-cent droppers and the second ten-cent dropper. Hence the joint effect of the two keys would be to leave still connected to the shifter the second five-cent dropper and the first ten-cent dropper, equaling together fifteen cents or the proper amount of change. Hence when the shifter was operated the five-cent coin and ten-cent coin would be delivered. Again, suppose the purchase be fifty cents and the cash two dollars. The operation of the fifty-cent purchase-key would release the first, second, and fourth five-cent droppers, the first ten-cent dropper, and the twenty-five-cent dropper. The operation of the two-dollar cash-key would release the second, third, and fourth dollar-droppers, the second ten-cent dropper, and the third and fifth five-cent droppers. The joint effect would be to still leave connected to the shifter the one-dollar dropper and the fifty-cent dropper, or, in other words, the proper droppers to give the proper amount of change when the shifter is operated. Again, suppose the purchase be one dollar and the cash offered in payment five dollars. On striking the one-dollar-purchase key there will be released the first, second, and fourth five-cent droppers, the first ten-cent dropper, the twenty-five-cent dropper, and the fifty-cent dropper. On striking the five-dollar cash-key the second ten-cent dropper and the third and fifth five-cent droppers will be released. Thus the joint effect of the two will be to leave the four one-dollar droppers still connected to the shifter, or, in other words, the proper droppers to give the proper amount of change. Additional examples would only be tedious without, as far as I can see, serving any useful end. If the diagram-sheets Figs. 9 and 10 accurately reproduce my calculated table of combinations, then the operation of the proper purchase-key, followed by the corresponding cash-key, will effect the proper releases in every possible case. To avoid any confusion, it should be noted that in some cases the cash-key would effect releases which had been already effected by the purchase-key. In other words, these releases are not exclusive the one of the other. All that is necessary is that the operation of the purchase-key should be followed by the operation of the cash-key, and the joint result will be the proper one. The like result may be demonstrated in every other possible case.

If, for example, the purchase and the cash be identical, as five cents, it may be seen at a glance that on striking the five-cent purchase-key and the five-cent cash-key all the droppers would be released from the shifter. Hence on operating the shifter no coins would be dropped. These connections or combinations were empirically calculated or determined by me. I am not aware that there is any mathematical rule or formula for determining the same. It should be noted that the dropper-shifter is given a complete outward and backward throw every time that the change is indicated or delivered or after every purchase. This outward and backward movement of the shifter or dropper-actuating device must be made after every purchase in order to return the change representatives to their normal positions and the droppers to their normal positions. For returning the change-pieces the dropper-shifter or rock-shaft D' has downwardly-projecting arms *d*, which engage with corresponding projecting studs *d'* on the change representatives or rods E. It is evident that with a dropper-shifter normally connected to the coin-droppers—for example, that the founts might be so located with reference to the change-rods E—the dropper-lifters F' might be dispensed with, and the disengagement of the droppers with the shifter be made by the change-rods direct. Again, the droppers might be normally disconnected from the shifter and the parts arranged to connect such as are required for any given change. The rods E might be stationary and constructed in the forms of magnets, of which the tail-pieces of the droppers might be the armatures, electric connections being substituted for the mechanical from the cash and purchase representatives. Again, as long as a distinct set of representatives for the purchase and the cash amounts are retained, as G and H, a single set of keys might be employed instead of the two distinct sets for indicating the purchase and the cash. In that event the single set of keys would have to be capable of independent use for the cash and purchase amounts, which might be readily effected by a releasing-bail or other similar device. It is of course evident that the cash and purchase representatives H and G might be formed integral with the keys or be themselves treated as the keys.

Having regard solely to the function of denoting change, it is evident that the purchase-representing pieces, the cash-representing pieces, and the available-change-representing pieces are sufficient. With the parts E, G, and H as shown, for example, it is evident that such of the pieces E as remain unmoved after any purchase and cash representative has been struck will represent or indicate the change-pieces.

What I claim, and desire to secure by Letters Patent of the United States, is as follows:

1. The combination, with two distinct sets

or series of pieces, as G and H, located approximately parallel with each other and representing, respectively, possible amounts of purchase and of cash, of a series or set of pieces, as E, located between and transversely to G and H and representing the available elements of change, the pieces G and H being arranged for direct action on one or more of said pieces E, as predetermined for every possible combination of purchase and cash amounts represented, whereby the action of the parts G and H on the parts E may be made to indicate or effect directly or indirectly the proper amount of change.

2. The combination, with two distinct sets or series of pieces, as G and H, arranged parallel with each other and corresponding sets of keys connected therewith marked, respectively, with possible amounts of purchase and of cash, of an intermediate set of pieces, as E, located between and transversely to the pieces G and H, representing available elements of change, the said parts G and H being arranged for action each on one or more of said parts E, as predetermined for every possible combination of cash and purchase amounts, whereby the indication of the purchase on the purchase-key, followed by the indication of the cash on the cash-key, will act on the parts E to indicate or effect directly or indirectly the proper change.

3. The combination, with two distinct sets or series of movable pieces, as G and H, located approximately parallel with each other and representing, respectively, possible amounts of purchase and of cash, of a series of movable pieces, as E, located between and transversely to the pieces G and H, and representing available elements of change, the said parts G and H being arranged for action on one or more of the said pieces E, as predetermined, for every possible combination of purchase and cash amounts represented, whereby the movement of any given purchase representative G, followed by the movement of any given cash representative H, will move all of the change representatives E, except such as, taken individually, represent the available elements for and, taken collectively, represent the amount of the proper change.

4. The combination, with a series of coin-founts, as B, containing the available elements of change, of a dropper shifter or operating device, a series of coin droppers, one for each of said founts, releasably connected to said shifter, two distinct sets or series of pieces, as G and H, representing possible amounts of purchase and of cash, parallel with each other, and a series of pieces, as E, located between and transversely to the pieces G and H, corresponding to the founts or available elements of change, the parts G and H being arranged for action on one or more of the parts E, as predetermined, for every possible combination of purchase and cash amounts to effect through the same the release from

the shifter of all the droppers except only such as are required to effect the change.

5 The combination, with the coin-founts, of a dropper shifter or operating device, coin-droppers, one for each fount, releasably connected to said shifter, the parallel sets of movable pieces G and H, representing possible amounts of purchase and cash, and the movable pieces E, located between and trans-
10 versely to the pieces G and H, corresponding to the founts or change elements, and movable by the said pieces G and H to release the said droppers, substantially as and for the purpose set forth.

15 6. The combination, with the coin-founts and the dropper shifter or operating device, of the coin-droppers having hinged tail-pieces releasably connected to the shifter, the releasing connections F', the series of movable
20 pieces E for operating said connections, and the movable pieces G and H on opposite sides of the rods E and arranged for action, each on one or more of the rods E, as may be required, and the sets of cash or purchase keys
25 G' and H', respectively, for operating the pieces G and H, substantially as and for the purpose set forth.

7. The combination, with the coin-founts containing the available elements of change, of
30 the dropper-shifter, the coin-droppers releasably connected to the shifter, and the change-indicating sight-pieces operated by such of

the droppers as are moved by the shifter, substantially as and for the purpose set forth.

8. The combination, with the sight-pieces 35 having a telescoping connection with their operating-rods for permitting the rods to return to normal position while the sight-pieces may be withheld in view, of a retaining device arranged to engage and hold in view any
40 given set of sight-pieces until another set are thrown into view, substantially as described.

9. In a cash-register, the combination, with the keys, of the sight-pieces having a telescoping connection with their operating-rods, and
45 the retaining device for upholding any given set of sight-pieces, arranged to be tripped by the next set of sight-pieces thrown up from the keys, substantially as described.

10. The combination, with the sight-pieces, 50 of their operating-rods having telescoping connection therewith and provided each with a projection, of the yielding bail adapted to engage under the sight-pieces when in their uppermost position and to be tripped from
55 under the same by the said projections on the rods, substantially as and for the purpose set forth.

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

JOHN J. HOVE.

Witnesses:

W. E. LAWRENCE,
JAS. F. WILLIAMSON.