

J. H. & J. F. SCHNARRENBURGER.

CASH REGISTER AND INDICATOR.

No. 422,040.

Patented Feb. 25, 1890.

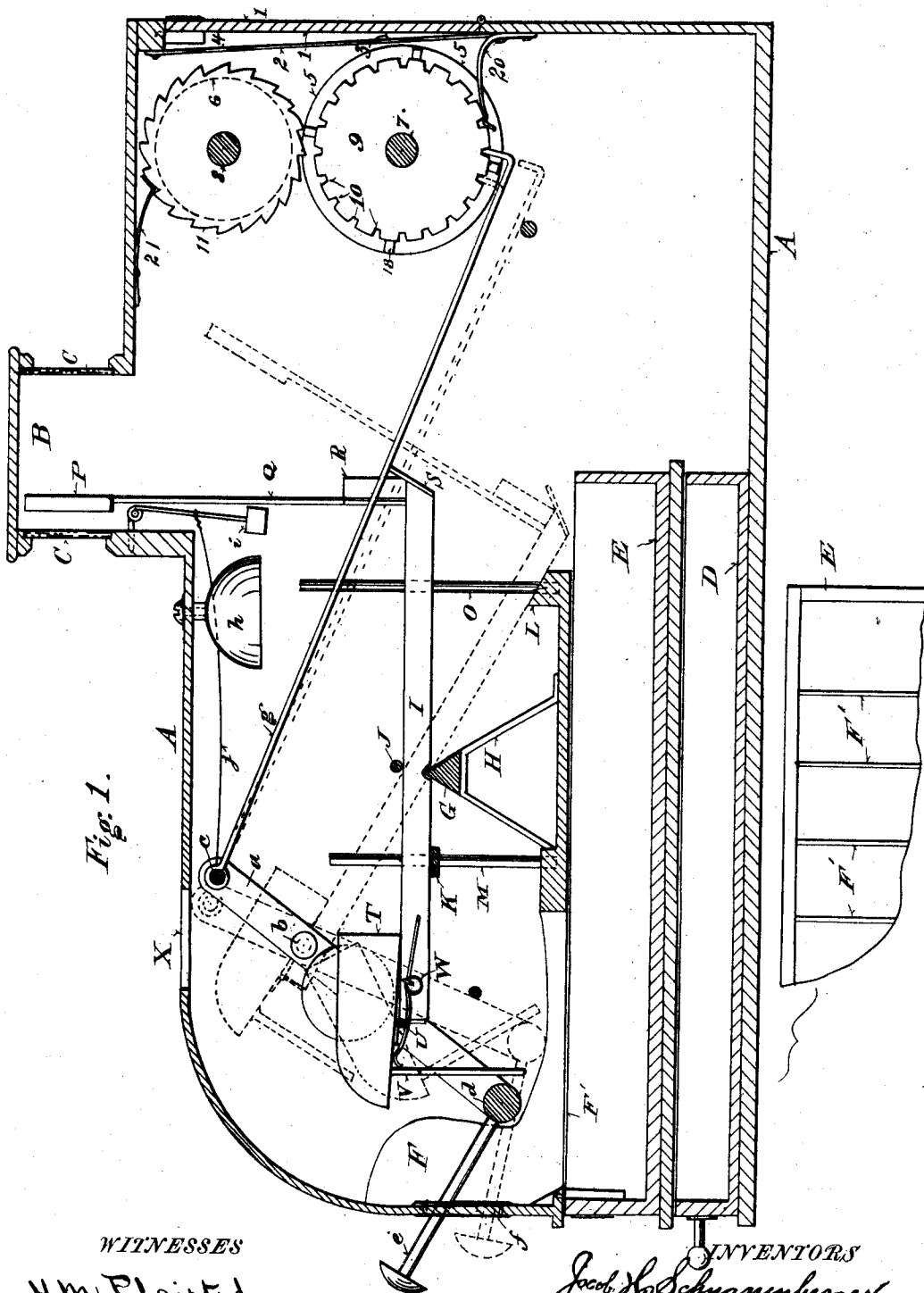


Fig. 1.

WITNESSES

H. M. Plaisted
Charles Hull.

INVENTORS

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(No Model.)

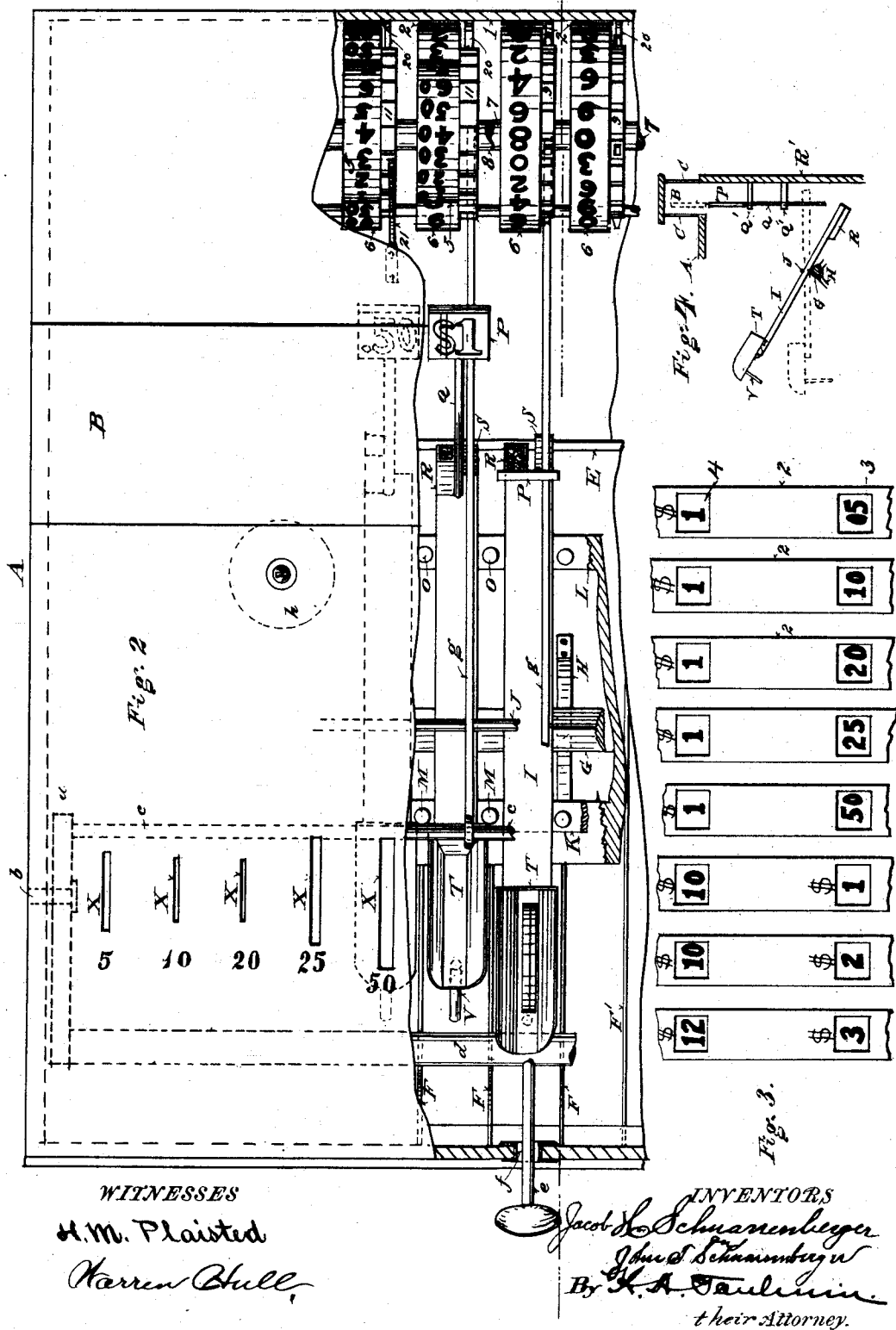
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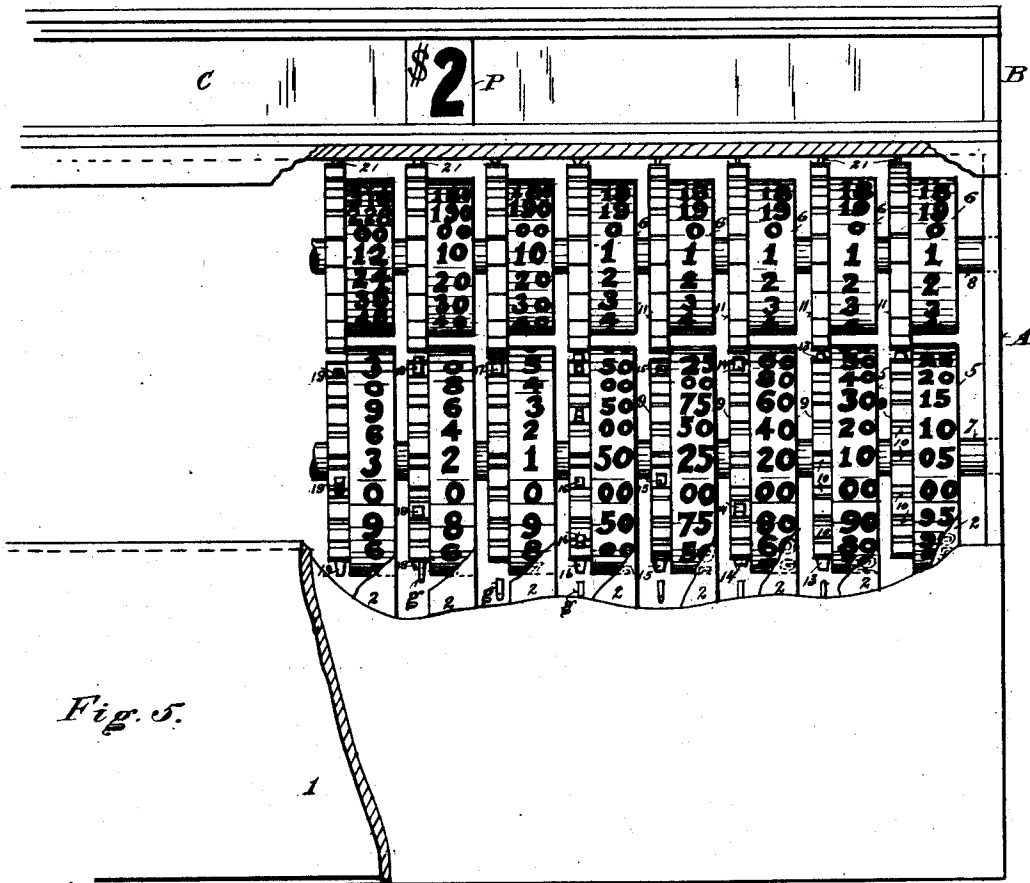
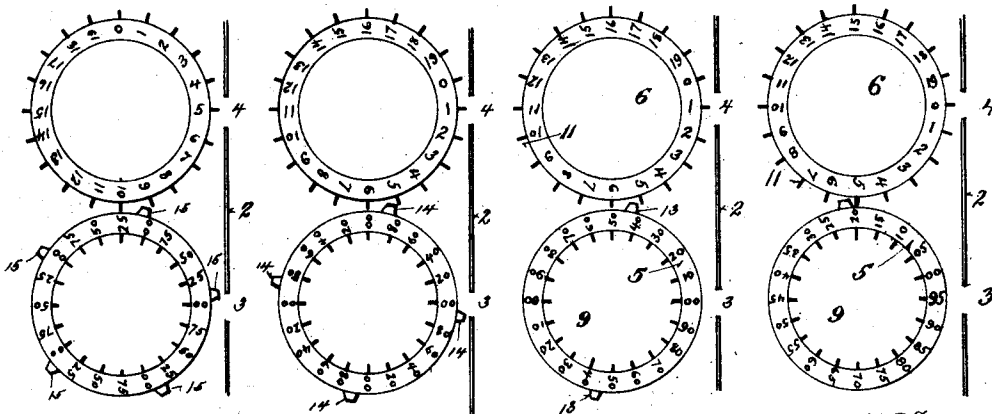


Fig. 5.



WITNESSES

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Fig. 6.

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UNITED STATES PATENT OFFICE.

JACOB H. SCHNARRENBERGER AND JOHN F. SCHNARRENBERGER, OF SPRINGFIELD, OHIO, ASSIGNORS OF ONE-THIRD TO CHRISTIAN C. FUNK, OF SAME PLACE.

CASH REGISTER AND INDICATOR.

SPECIFICATION forming part of Letters Patent No. 422,040, dated February 25, 1890.

Application filed November 4, 1889. Serial No. 329,206. (No model.)

To all whom it may concern:

Be it known that we, JACOB H. SCHNARRENBERGER and JOHN F. SCHNARRENBERGER, citizens of the United States, residing at Springfield, in the county of Clark and State of Ohio, have invented certain new and useful Improvements in Cash Indicating and Registering Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to certain new and useful improvements in cash indicating and registering machines.

The object of the invention is twofold—first, to provide a system of balancing devices so arranged as to be so actuated by dropping the coin into the machine, and thereby automatically present to view the amount of the purchase, and, secondly, to combine with this system of balancing devices a registering mechanism arranged to be actuated by the balancing devices and constructed to register or record the amount received at the time of such actuation.

In the accompanying drawings, forming a part of this specification, and in which like reference-letters indicate corresponding parts, Figure 1 represents a vertical sectional view of our improved cash indicating and registering machine with some of the parts in side elevation and a plan of a portion of the upper drawer; Fig. 2, a plan view thereof with a portion of the casing removed to exhibit some of the interior devices; Fig. 3, a rear elevation of the sight-strips; Fig. 4, a detail section and elevation of a modified arrangement of the tipping devices; Fig. 5, a rear elevation of the machine on an enlarged scale; and Fig. 6, a number of diagrams representing the five, ten, and twenty-five cent wheels and their respective associate wheels in side elevation, as also the sight-strips in elevation.

The letter A designates a casing, preferably of the form indicated, and constructed of wood, metal, or vulcanized rubber or other suitable material, and provided with an exhibiting part B, the walls C of which are preferably of glass, so as to admit of seeing the figures

which indicate the amount of the purchase, and which are presented behind the front glass when the coin is dropped into the machine. In the lower part of the casing we arrange a drawer D, in which sufficient cash is kept to make change, and above this we place a similar drawer E, which constitutes the cash-receptacle, and which is provided with any convenient form of lock and kept locked until opened by the proprietor or other person whose duty it is to compare the cash received with the amount registered by the registering mechanism. Above the receptacle E we provide a series of partitions F, which open into the receptacle, the latter being also provided with corresponding partitions F'. The coins of the respective denominations pass between certain of these partitions and fall into the several compartments of the receptacle E.

The balancing devices which constitute the indicating mechanism are arranged so that each set of these devices discharges the coin into the space between a certain two of the partitions F, each discharging into different places. We will now describe the preferred form of these balancing devices, though other forms may of course be substituted in lieu of these so long as the same mode of operation is preserved and the same results obtained. A fulcrum-bar G is supported upon the standards H and occupies a transverse position in the casing. Upon this arm we mount a series of levers I, preferably notched to prevent sliding. A transverse rod J prevents the levers from getting off of the bar G, while a transverse strip K serves as a stop for the levers when they are in a horizontal or indicating position, while they are arrested in their inclined or non-indicating position by a bar L. To keep the levers I properly separated and spaced, we erect a series of posts M and O at opposite sides of the fulcrum and which stand between the levers. The inner ends of these levers carry indicators P, consisting of blocks secured to the rods Q, whose lower ends are mounted upon the levers. Upon the blocks are inscribed the respective denominations of cash—as five cents, ten cents, twenty cents,

twenty-five cents, fifty cents, one dollar, and so on upward—increasing a dollar at a time, or on each lever. Each block is also provided with a pocket R to receive small weights, as shot, to effect a perfect balance of it after its several devices have been applied to it. Each lever is also fashioned with a suitable projection S to engage with a pawl by which the registering mechanism is actuated. The forward end of each lever carries a coin box or receptacle T, hinged thereto, as at U, and provided with an arm V, by which it is inclined, and a spring W, by which it is returned to normal position. The casing has a series of slots X, marked by the several denominations of coin, as seen in Fig. 2. The boxes T are arranged to stand beneath the slots, so that the coin dropped into the slots falls into the boxes, and by overbalancing the levers moves them from their inclined normal position to a horizontal or indicating position, as will more fully appear hereinafter.

At each side and within the casing we pivot a box-tipping and register-operating mechanism, the same consisting of levers *a*, pivotally supported on the studs *b* and transverse pieces *c* and *d*. To the latter is attached a push-rod *e*, which extends through a slot *f* in the casing, and by which this frame is operated to cause the piece *d* to engage with the arms V and tip the boxes T from the position shown in full lines to the lower position shown in dotted lines, whereby the coin is dumped out of the boxes and between two of the partitions F, whence it descends into the corresponding compartment of the receptacle E. The upper transverse piece *c* has strung on it as many pawls *g* as there are levers I. These pawls engage with the registering mechanism and operate it when the levers *a* are actuated to tip the cash-boxes, as just described. A bell *h* is struck by a swinging clapper *i*, connected to the cross-piece *c* by a cord *j*, the bell sounding as the cash is dumped out of a box T, which quickly follows the presentation of the indicating-figure behind the glass wall C. Thus it will be seen that the attention of the purchaser is directed to the machine by the bell at the time when the amount of his purchase is being exhibited, whereby the check is had upon the employé, resulting in putting him under the necessity of dropping into the machine the full amount which the purchaser knows he has spent and which he expects to see indicated by the machine.

The machine, so far as described in detail, leaving out the pawls *g*, constitutes the cash-indicator, and this much of the machine may be used without the registering mechanism. The latter, however, is a valuable co-operating adjunct, and will in most cases be used.

We will now describe this registering mechanism. The back of the machine is provided with a hinged door 1, and behind this door are placed a series of sight-strips 2, having sight-holes 3 and 4, and behind each of these

sight-strips, viewed from the back of the machine, are placed a lower registering-wheel 5 and an upper registering-wheel 6. These wheels are rotatably mounted upon transverse arbors 7 and 8. The lower series of wheels have each a gear-wheel 9, with twenty notches 10. It is with these notches that the pawls *g* engage, and when moved in the manner before stated act to rotate the wheels 5 a notch at a time. The peripheries of the wheels 5 bear figures, which, beginning with 00, increase by the amount represented by the slot which is above the lever I that is associated with the particular wheel. For example, the wheel 5 of the five-cent lever has its figures arranged thus: 00, 05, 10, 15, 20, 25, and so on, terminating with 95. Thus it will be seen that when the five-cent lever is tilted and its box T is actuated to dump the coin the five-cent wheel will be moved one notch, as from 00 to 05, from 05 to 10 and 10 to 15, these figures appearing in succession behind the sight-hole 3. When ninety-five cents have been deposited and that figure appears opposite the sight-hole 3, the deposit of another five-cent piece in the five-cent slot will move the 95 cents away from the slot and present 00, and thus cancel the registration, unless some other means be employed to put the ninety-five cents and the five cents together and register them. This is accomplished by the provision of the associated upper wheel 6, which is a dollar-wheel, increasing from 00 to \$19.00 by the ratio of one dollar at a time. In order to actuate the upper or dollar wheel 6 at the proper time, the gear 9 of the wheel 5 has a tooth which engages with the ratchet 11 of the wheel 6 and moves this wheel to present 1 instead of 0 through the sight-hole 4 just as the 95 on the lower wheel 5 moves away from the sight-hole 3 and 00 appears. Thus the upper wheel will register one dollar. In the present exemplification of our machine we have placed figures on the upper wheel 6 up to \$19.00 and arranged to rotate it once at every nineteen revolutions of the lower wheel 5. This lower wheel will also rotate the twentieth time and present 95 cents opposite the sight-hole 3 after the upper wheel 6 has rotated once and been made to register nineteen dollars. Thus the five-cent registering mechanism will count up to \$19.95, five cents at a time, and the wheel 6 will show the \$19.00, while the wheel 5 will show the 95 cents. In the ratchet 11 there are twenty teeth, corresponding with the number of notches in the gear 9.

It will be understood that the wheel 6 could be made to register more than nineteen dollars by increasing its diameter and the number of teeth in its ratchet as compared to the diameter of the lower wheel 5 and the number of teeth in its gear-wheel 9.

The lower ten-cent wheel has its figures arranged from 00 to 90 in one group, which occupies one-half of the wheel's periphery. Thus when this wheel has rotated one-half

a revolution one dollar has been registered, and when it has rotated once two dollars have been registered. The gear of this lower ten-cent wheel has two teeth 13, so that the upper associate wheel will be moved one notch—that is, from 00 to 1.00, so as to show one dollar when the lower wheel has been rotated ten notches, or one-half of a revolution, and so that the upper wheel will move another notch by the next half-revolution of the lower ten-cent wheel. The operation of all of these lower wheels and their associated upper wheels is the same as in the case of the five-cent and ten-cent wheels and their upper wheels. It will be observed that the twenty-cent wheel has four teeth 14 on its gear-wheel 9 and has four groups of figures on its periphery, being 00, 20, 40, 60, 80, between each two teeth 14. When this wheel rotates one-fourth of a revolution one dollar will be registered, and as 80 passes from the sight-slot one of the teeth 14 will engage the ratchet of the upper wheel and move it from 00 to 1, thus showing \$1.00 in the upper sight-hole and 00 in the lower. One-half a revolution of the twenty-cent wheel will register two dollars, and during this movement its upper associate wheel will move two notches, showing \$2.00. Again, a complete revolution of the twenty-cent wheel will register four dollars, and as 80 cents passes from the sight-hole and 00 appears \$4.00 will show on the upper wheel.

Referring now to the twenty-five-cent lower wheel, it will be seen that its figures increase twenty-five cents at a time, and that it has a group of figures between the teeth 15 of its gear-wheel, running 25, 50, 75, 00, and that there are five of these groups, so that five dollars will be registered by one revolution, and the upper associate wheel will be moved five notches by such revolution, so as to show \$5.00.

Referring to the fifty-cent wheel, it will be observed that its figures increase by fifty cents, and that each group is composed of 00 and 50, and that there are ten of these groups and also ten teeth 16 on the gear-wheel. A movement of one notch of this wheel, beginning with 00, will show 50 cents, and a second like movement will show 00 in the sight-hole 3. As this latter movement occurs, one of the teeth 16 will engage with the ratchet of the associate upper wheel and move it from 00 to 1, and thus one dollar will be registered. A movement of another notch of the lower wheel will show 50 cents. Thus one dollar and fifty cents will be registered. A fourth movement of this lower wheel will again present 00 in the sight-hole 3, and at the same time another tooth 16 will engage the ratchet of the upper wheel and present 2 opposite the sight-hole 4. Thus two dollars will be registered. This operation is continued until the limit of nineteen dollars is reached on the upper wheel and 50 cents exhibited on the lower wheel. What was said with reference to the upper

wheel associated with the five-cent wheel regarding enlarging it is applicable to the upper wheel associated with the fifty-cent lower wheel, and also applicable to all other upper wheels.

Regarding the lower dollar-wheel, it is to be observed that its figures increase one dollar at a time, and that it has two groups of figures from 00 to 9, inclusive, as also two teeth 17 on its gear-wheel 9, while its associate upper wheel has its figures increased ten dollars at a time. The operation is the same as that already described with reference to the figure on the upper wheel presenting itself to view, as 00 on the lower wheel passes from view, so that after the lower dollar-wheel has been turned one-half a revolution, and 9 is passing from and 00 is passing to the sight-hole 3, the upper wheel will move one notch and show 10 instead of 00. This operation is repeated as the lower dollar-wheel is rotated. The two-dollar lower wheel has its figures increased by two dollars at a time, so that there are four groups on it, being 0, 2, 4, 6, 8. This wheel therefore has four teeth 18 on its gear. The three-dollar wheel, being the last to the left as viewed in Fig. 5, has its figures increased by three dollars at a time. It has therefore five groups of figures, and consequently five teeth 19 on its gear. The upper associate wheel of the two-dollar wheel has its figures increased by ten dollars at a time. The upper associate wheel of the three-dollar wheel has its figures increased by twelve dollars at a time. Spring-detents 20 and 21 serve to prevent the wheels from rotating too far.

In Fig. 3 one dollar is shown registered on the upper wheel, which is associated with the five-cent wheel, and 5 cents is shown on the latter wheel, that wheel having been moved one notch after the registration of the one dollar. The same is true with the upper associate wheels of the ten, twenty, twenty-five, and fifty cent wheels, while the latter have been moved one notch after the registration of the one dollar on the upper wheels, thus indicating 10, 20, 30, 50 cents. The upper associate wheels of the one-dollar, two-dollar, and three-dollar wheels show \$10.00 on two of them and \$12.00 on the other, while the lower wheels have been moved each one notch farther, so as to show \$1.00, \$2.00, and \$3.00, respectively. This is simply an example of the parts viewed of the registering mechanism upon opening the door 1. In each case the receptacle beneath the five-cent wheel should contain one dollar and five cents; that beneath the ten-cent wheel one dollar and ten cents, and the remaining receptacles, respectively, one dollar and twenty cents, one dollar and twenty-five cents, one dollar and fifty cents, eleven dollars, twelve dollars, fifteen dollars.

The operator on receiving five cents, as before intimated, will drop it into the slot designated 5 cents. On receiving, say, twenty cents in ten-cent pieces, he will drop them into the twenty-cent slot. Should he receive, say,

fifty-five cents, he would drop fifty cents in the slot bearing that denomination and the extra five cents in the five-cent slot.

Referring to Fig. 4, it will be seen that the rod Q is detached from the lever I and is mounted in the guides Q', secured to a vertical part R'. This construction may be used instead of that shown in Fig. 1.

Having thus fully described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. The combination, with a casing having slots, of boxes located to receive cash from said slots, indicators corresponding in denomination with the slots, respectively, and intermediate devices between the boxes and the indicators, whereby the weight of the coin actuates the boxes and presents the indicators to view, and tipping devices to discharge the cash from the boxes.

2. The combination, with a casing having slots, of boxes to receive the cash from said slots, indicators corresponding in denomination with the said slots, respectively, and intermediate devices between the boxes and the indicators, whereby the weight of the coin actuates the boxes and presents the indicators to view, tipping devices to discharge the cash from the said boxes, registering mechanism, and means to actuate it in conjunction with discharging the cash.

3. The combination, with a casing having slots, of pivoted levers carrying cash-boxes near one end, indicators corresponding in denomination with the slots, respectively, and actuated by the other ends of said levers, and tipping devices to discharge the cash from the boxes.

4. The combination, with a casing having slots, of pivoted levers, cash-boxes carried by said levers near one end, indicators corresponding in denomination with the slots, respectively, and actuated by said levers, tipping devices to discharge the coin, and registering mechanism consisting of wheels bearing figures and intermediate devices between said wheels and the tipping mechanism.

5. The combination, with a casing having slots, pivoted levers, tipping cash-boxes carried thereby, indicators corresponding in denomination with the slots, respectively, and actuated by said levers, pivoted levers having a cross-piece and a push-button, the piece being adapted to engage with the arms extending from the boxes to tip the same, and a sounding device actuated by the push-button.

6. The combination, with a casing having slots, of pivoted levers, tipping-boxes carried thereby, indicators corresponding in denomination with the slots, respectively, and actuated by said levers, tipping devices consisting of pivoted levers and cross-pieces, a push-rod therefor, pitmen carried by one of the

cross-pieces, and registering mechanism consisting of lower and upper wheels, the former intermittently operating the latter and engaged by said pitmen.

7. The combination, with a casing, of pivoted levers carrying cash-boxes at one side of the fulcrum, indicators corresponding in denomination with the slots, respectively, and actuated by levers at the other side of the fulcrum, and tipping devices for discharging the cash from the boxes.

8. The combination, with a casing and a series of slots of different denominations, of a pivoted lever for each slot and stops to limit its movements, a tipping money-box carried by each lever, an indicator corresponding with the slots, respectively, for each lever and actuated thereby, and tipping devices to actuate the boxes, the descent of said boxes presenting the indicators to view.

9. The combination, with a casing having slots, partitions, and a divided money-receptacle, of a pivoted lever for each receptacle, a tipping money-box carried by each lever, an indicator operated by each lever, and tipping devices for the cash-boxes.

10. The combination, with a casing having in the lower part a divided money-receptacle and partitions agreeing with the divisions in the receptacle, of a fulcrumed bar, a series of levers having each at one end a spring-controlled tipping money-box and an indicator at the other end, the same being nearly balanced, and arms carried by the boxes, levers pivoted to the casing and having a cross-piece adapted to engage said arms, and a push-button therefor.

11. The combination, with a casing, of pivoted levers and a cross-piece and pawls connected thereto, and other pivoted levers which engage the pawls to throw them into operative position, and indicators and money-boxes carried by said latter levers, and registering mechanism consisting of a series of wheels bearing figures and having notches with which the pawls engage, and teeth, and other wheels with which said teeth engage at intervals in rotation.

12. The combination, with a casing, a series of nearly-balanced levers, a money-box, and an indicator for each lever, of means to discharge the coin from said boxes, registering mechanism consisting of a wheel for each lever bearing figures increasing by the denomination of said lever, and a corresponding series of wheels intermittently operated by the first series and bearing figures which increase.

In testimony whereof we affix our signatures in presence of two witnesses.

JACOB H. SCHNARRENBARGER.
JOHN F. SCHNARRENBARGER.

Witnesses:

WARREN HULL,
H. M. PLAISTED.