

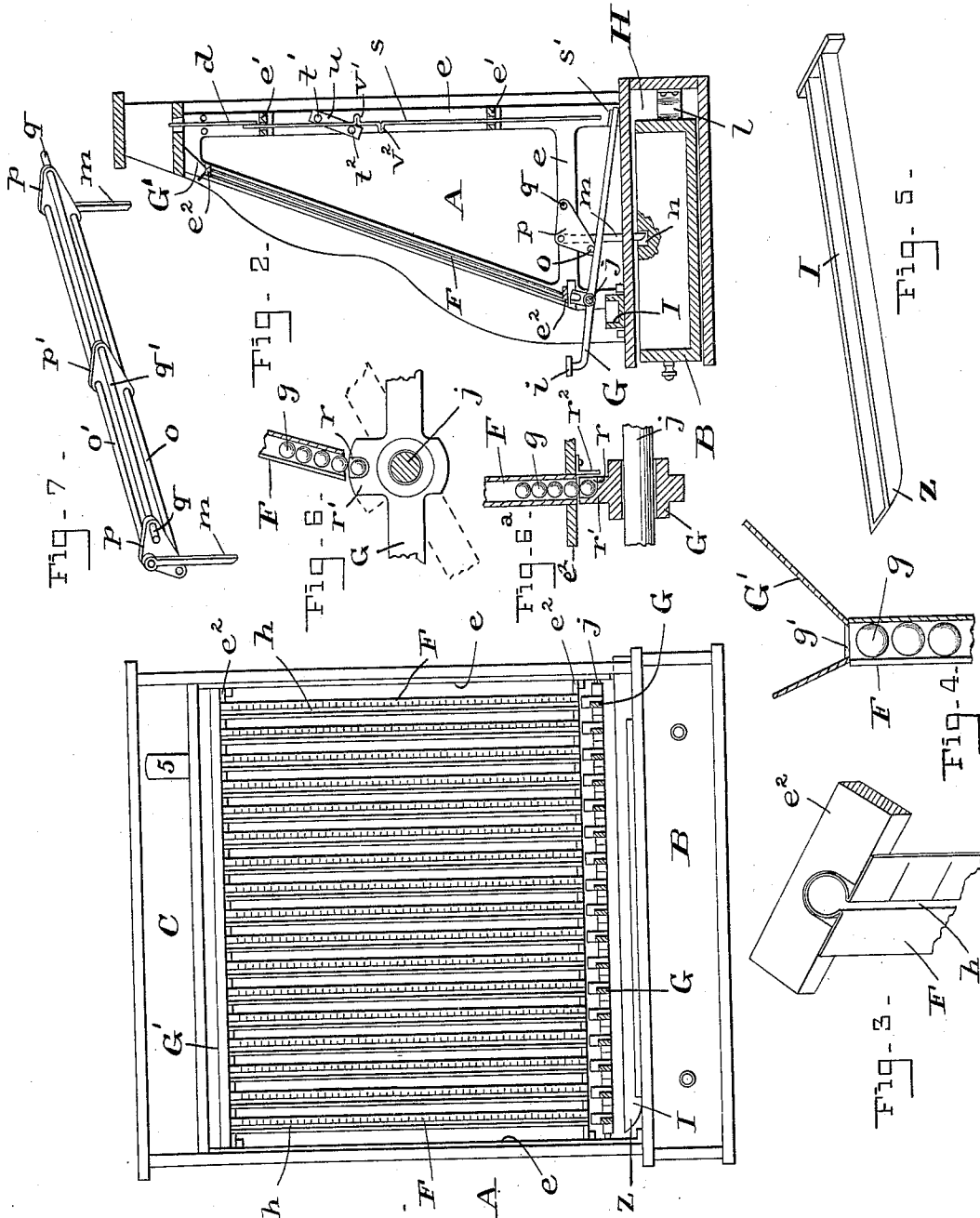
(No Model.)

2 Sheets—Sheet 1.

C. J. CARROLL.
CASH REGISTER.

No. 544,247.

Patented Aug. 6, 1895.



WITNESSES :-

L. L. Van Horn.
Charles B. Mann Jr.

INVENTOR :-

Charles J. Carroll
By Chas B. Mann

ATTORNEY.

UNITED STATES PATENT OFFICE.

CHARLES J. CARROLL, OF BALTIMORE, MARYLAND, ASSIGNOR OF TWO-THIRDS TO DAVID STEWART AND WILLIAM ASSHETON, OF SAME PLACE.

CASH-REGISTER.

SPECIFICATION forming part of Letters Patent No. 544,247, dated August 6, 1895.

Application filed August 2, 1894. Serial No. 519,228. (No model.)

To all whom it may concern:

Be it known that I, CHARLES J. CARROLL, a citizen of the United States, residing at Baltimore, in the State of Maryland, have invented certain new and useful Improvements in Cash-Registers, of which the following is a specification.

This invention relates to a cash-register of that class which employs spherical counters—such as balls, marbles, or shot—and is designed as an improvement on the cash-register shown in United States Letters Patent No. 522,823, granted me July 10, 1894.

The object of the invention is to provide a simple mechanism which will enable such counters to be used, and which at the same time will always give a correct reading of the total amount of sales of each denomination, thus enabling the aggregate of sales to be readily ascertained.

The invention is illustrated in the accompanying drawings, in which—

Fig. 1 is a front elevation of the machine. Fig. 2 is vertical cross-section of same. Fig. 3 is a perspective front view of a portion of one of the counter tubes or guideways. Fig. 4 is a vertical section of the upper end of one of the counter tubes or guideways and a cross-section of the funnel above said end. Fig. 5 is a view of the drawer which receives the counters. Fig. 6 is a view of an operating-lever and a counter tube or guideway. Fig. 6^a is a section view of the same. Fig. 7 is a view of the catch or detent device that holds the money-drawer closed. Fig. 8 is a rear elevation of the machine. Figs. 9, 10, 11, and 12 each show a view of two of the vertical indicator-rods, and these figures together illustrate their mode of operation. Fig. 13 is a front view, partly in section, of an improved form of counter-releasing device. Figs. 14 and 15 are side sectional views of the revolvable counter-releasing devices, and illustrate their position with respect to the two positions of the operating-levers—to wit, the normal counter-holding and counter-releasing position—and the relation these devices have with respect to the discharge end of the counter tubes or guideways. Fig. 16 is a view of the ratchet counter-releasing device and the pawl on the operating-lever.

The mechanism is inclosed in a suitable case A, having in its bottom a money-drawer B, and at its top a space C, into which the indicator-plates *d* are raised and exposed to view when the cash is received from a sale. An upright metal frame-piece *e* is secured within each end of the case, and at the rear are two horizontal bars *e'* and at the front two horizontal bars *e''*, all connected with said end frame-pieces. At the front are a series of upright counter tubes or guideways F, which contain the spherical counters *g*. (Shown in Figs. 4, 6, and 14.) These tubes or guideways have preferably an inclined position, as shown in Fig. 2. They are secured to and supported by the two front horizontal bars *e''*. A funnel-trough G' is employed to facilitate filling or charging the tubes or guideways with the counters. This funnel-trough extends horizontally across the machine above the upper ends of the series of tubes, and in its bottom has holes *g'*, each one of which communicates with one of the said tubes F. Each tube or guideway represents a particular denomination, as five cents, ten cents, fifteen cents, and so on.

Each counter tube or guideway has a longitudinal slot *h* extending its entire length and serving as an inspection-slot to view the spherical counters *g* within. By thus noting on the face of the tube the number of the highest counter in the tube the total sales made of the denomination which each tube represents may be easily read.

The operating-levers G carry at their front ends, as usual, finger-buttons *i*, each of which bears a number corresponding to the denomination of the tube with which it co-operates. The levers are all mounted or pivoted on a round rod *j* extending horizontally lengthwise of the machine. This rod is supported in the side frames *e* and by a number of hangers *k*, which depend from the lower front horizontal bar *e''*. The depression of any one of the levers G produces three effects, first, to release the catch or detent which confines the money-drawer; second, to remove the counter-releasing device and allow one spherical counter to drop from the tube, and, third, to raise an indicator-plate to a position where it will be in view.

The money-drawer B occupies a chamber H. A spring l serves to project the drawer and a detent m engages a notch n on the drawer and serves to hold it closed against the action of the spring. The device which holds the drawer closed is shown in Figs. 2 and 7, and comprises two detents m and a swinging bar o , extending entirely across from one side of the machine to the other immediately above all of the levers G. This bar o has its ends carried in suitable plates p having pivots q , by which the plates and said bar hang on the frame-pieces e , so that said bar may swing up and down. The construction here shown for this device is that of a frame having three bars o o' q' and three triangular-shaped plates, two of which p are at the ends of these bars and one p' at the center. The swinging bar o is at one end of the triangular plates and the pivot-bar q' is at the other end. The pivot is formed by the ends q of the bar q' projecting beyond the plates. These pivots fit in bearings on the frame-pieces e . It will thus be seen that the bar o , which extends across all the levers G, is capable of swinging up and down, and said bar o will be raised when either of the levers is depressed. The two detents m are pivoted or hang pendent at the ends of the frame—that is, each detent m hangs pendent from one of the triangular plates p . The lower end of each detent enters a notch n in each end of the drawer. When any of the levers G are depressed the bar o will be raised and the two detents m lifted out of the notches on the drawer, whereupon the spring l will force the drawer out.

One form of counter-releasing device is shown in Fig. 6. It consists of a suitable side notch or pocket r formed in an upwardly-projecting boss r' , having a curved top face. This boss is on the tilting-lever G, and normally in position below the lower end of the counter-tube F, and a small stationary plate r^2 , which confines one of the spherical counters g in said notch when the lever G is in its normal position, is attached to the lower bar e^2 . When the lever is depressed the boss r' will tilt forward, thus bringing the side notch r from under the end of the tube F, and also away from the stationary plate r^2 , whereupon the counter g will roll out of the notch or pocket r . As each counter g drops from a side notch it falls into a long narrow drawer I which extends longitudinally across the machine below all the counter-releasing devices.

The indicator-plates d are each mounted on the upper end of a vertical rod s , and all the rods play up and down through holes in the rear horizontal bars e' . The plates d , one at a time, are projected upward into the space C, where they may be viewed. The rear end of each lever G has a button or head s' which presses up against the lower end of the rod s , and thereby lifts the rod and the indicator-plate d .

I have provided a simple device to catch and sustain each rod s when it is lifted, and

to let it go or release it and allow it to drop when another rod is lifted. This device may be termed a "catch-and-let-go" device. It is shown in Figs. 2 and 8, and its operation in connection with the rods s is illustrated in Figs. 9 to 12. Two parallel horizontal bars t' t^2 have their ends connected by cross-heads u , and between the ends are cross-bars u' . The upper one t' of these bars has its ends projecting beyond the cross-heads u , and said ends form pivots t which take in the end frame-pieces e . Thus the lower bar t^2 hangs and is free to swing. All the vertical indicator-rods s pass upward between the two horizontal bars t' t^2 . In other words, one bar t' extends across at the rear of all the indicator-rods, and the other bar t^2 extends across at the front of all the rods. Each indicator-rod s has two projecting tangs or lugs. The upper one of these lugs v' projects toward the rear and the lower one v^2 projects toward the front. The normal position of all the lugs v' v^2 with relation to the two horizontal bars t' t^2 is shown in Fig. 9. The four views Figs. 9 to 12 illustrate the action of the said bars and lugs.

It will be seen that when a lever G is depressed the button s' on its rear end will lift a vertical indicator-rod s —for instance, say, the rod representing the denomination of five cents—and cause the lower front lug v^2 to take up under and against the lower bar t^2 , and thereby cause said bar to swing on the pivots t of the catch-and-let-go device. This horizontal bar will not swing out far before it becomes released from the said lower lug v^2 , and then the rear lug v' will take under and against the upper horizontal bar t' , and at the same instant the said lower bar t^2 will by its own gravity swing back and take below the said lower front lug v^2 , as shown in Fig. 10. It will be seen by said Fig. 10 that the lifted indicator 5, with its plate d exposed to view, is sustained by its lug v^2 , resting upon the lower bar t^2 . When either of the other levers is depressed—say, for instance, the lever of denomination ten—the lower front lug v^2 of said indicator-rod 10 will raise and engage the lower bar t^2 , as shown in Fig. 11, and said bar will swing out and release the front lug v^2 of the vertical indicator-rod 5, which latter being no longer sustained will drop, as shown in Fig. 12. At the same time the lower bar t^2 swings and releases the lug v^2 of the vertical indicator-rod 5 in Fig. 11, as just explained, the lower lug v^2 of the indicator-rod 10 in its upward lift will escape the said lower bar t^2 , and then this bar will immediately swing back by its own gravity and take below said lower lug of indicator-bar 10, as shown in Fig. 12, and said lifted indicator 10 will be sustained with its plate d in view.

The parts described in the foregoing specification constitute a complete mechanism for my cash-register; but I now desire to describe the improved form of counter-releasing device illustrated in Figs. 13, 14, 15, and 16. The form heretofore described is illustrated

in Figs. 6 and 6^a, and has a tilting motion to allow a spherical counter to be released from the side notch or pocket *r*. The form shown in Figs. 13 to 16 has a revoluble motion and is constructed so that one lever *G* will operate devices for releasing spherical counters from three counter tubes or guideways. By this construction and combination I am able to employ more than one counter-tube for those denominations which are most used in making small sales—as, for instance, the five and ten cent denominations. Thus, if three counter-tubes are employed for one denomination the advantage which results is that a capacity for spherical counters is obtained equal to three lengths of tube. My machine will thereby have an increased supply or a larger proportionate number of spherical counters for those denominations which are most used.

In Fig. 13 the revoluble counter-releasing device comprises three disks or circular heads *w*, united by a shank *w'* and all three integral, forming a triple head. These three revolve on the round rod *j* in coaction with three counter-tubes *F* of the same denomination, and each disk or head has three side notches or pockets *r* spaced apart equally distant, as seen in Figs. 14 and 15. The side notches on one disk are disposed or positioned with relation to those on the other two disks so that as the device turns on the rod *j* by an intermittent motion a partial turn, equal to one-ninth of one whole revolution, will release one spherical counter *g* from the first tube *F* and another partial turn will release a counter *g* from the second adjoining tube *F*, and another partial turn will release a counter *g* from the third tube *F*, and then the next or fourth partial turn will release a counter from the first tube again, and so on, the counters being released from these three tubes alternately or in succession. A small stationary plate *r*² is located, as in the case of Fig. 6^a, at the side of each disk or head *w* to confine the lowermost spherical counter *g* in the side notch *r* when the latter is at rest in normal position. Attached to each end of the revoluble triple head is a ratchet-wheel *w*² *w*³. The lever *G* is mounted loose on the rod *j* adjoining one end of the triple head, and said lever carries a pawl *x* which engages with one of said ratchet-wheels *w*². A spring *x'*, also on the lever, keeps the pawl in engagement with the ratchet-wheel. It will be seen that a depression of this lever *G* will give the triple head a partial turn equal to one-ninth of a revolution. When the lever rises from its depressed position the pawl *x* will click over the teeth of the ratchet *w*². The triple head is kept from turning back by a pawl *y* engaging the other ratchet-wheel *w*³. This pawl *y* is pivoted on the hanger *k*, and a spring *y'* also on the hanger presses the pawl into engagement with the said ratchet.

It will be seen that I may employ in the same machine both kinds of counter-releasing

devices—to wit: that shown in Figs. 6 and 6^a, and that shown in Figs. 13 to 16, inclusive.

When any of the counter-tubes *F* become empty the drawer *I* containing the spherical counters discharged from said tubes may be removed and by holding its curved end *z* into the funnel-trough *G'* and elevating the other end so as to incline the drawer the counters may be discharged from the drawer into the tubes and thereby the tubes be filled.

From the foregoing description the operation of the various devices will be fully understood.

I desire it to be understood that I may vary somewhat the construction of the catch-and-let-go device, and also the counter-releasing device. The revoluble form of the latter is shown as having three disks or heads. Obviously it may have two, or it may have more than three. My improvement relates to any plural number.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination of tubes to contain spherical counters; pivoted operating levers provided with a side notch or pocket immediately above the pivot—said side-notch being normally in position below the lower end of the counter tube; a stationary plate at the side of said side-notch when the lever is in normal position; and a receptacle below the levers to receive the spherical counters as they drop from the side-notch when the lever is depressed.

2. The combination of a spring-actuated money drawer; tubes to contain spherical counters; pivoted operating levers; a counter-releasing device provided with a side-notch which is normally in position below and coincident with the lower end of the counter tube; a stationary plate at the side of said side-notch when the releasing device is in normal position at rest; a horizontal bar supported so as to swing and extending cross-wise of all of said operating levers—said bar being moved by either one of said levers; and detents actuated by said swinging bar and engaging the money drawer.

3. The combination of pivoted operating levers; indicator plates having vertical rods each of which is provided with a rear-projecting lug and a front-projecting lug said rods being lifted by the levers; and a catch device to sustain each plate and rod when lifted and consisting of two parallel horizontal bars one above the other connected at their ends by cross-heads, *u*, and pivoted so that the lower bar is free to swing—and serve as a sustaining bar, while the upper bar serves as a stop bar—one of said bars extending across at the rear of said vertical rods and the other across at the front thereof.

4. The combination of tubes to contain spherical counters; pivoted operating levers; a counter-releasing device provided with a side-notch which is normally in position be-

low and coincident with the lower end of the counter tube; a stationary plate at the side of said side-notch when the releasing device is in normal position at rest; indicator plates
5 having vertical rods each of which is provided with a projecting lug; and a catch device to sustain each plate and rod when lifted—comprising a horizontal bar supported so as to swing—said bar extending crosswise of said
10 vertical rods and co-acting with the projecting lugs thereon.

5. The combination of tubes to contain spherical counters; pivoted operating levers; and a revoluble counter-releasing device com-
15 prising a plural number of disks or circular heads united and co-acting with an equal number of said tubes and one lever, whereby successive depressions of the same lever will

cause the release of counters from said tubes in succession—one after the other. 20

6. In a cash register, the combination of tubes to contain spherical counters; a series of pivoted operating levers all mounted on a horizontal shaft; and revoluble counter re-
25 leasing devices mounted on the same shaft as the operating levers and actuated by the movement of said levers and co-acting with the tubes to release therefrom one counter at a time.

In testimony whereof I affix my signature 30
in the presence of two witnesses.

CHARLES J. CARROLL.

Witnesses:

C. CALVERT HINES,
CHARLES B. MANN, JR.