

(No Model.)

4 Sheets—Sheet 1.

J. W. REHILL.
CASH REGISTER.

No. 581,771.

Patented May 4, 1897.

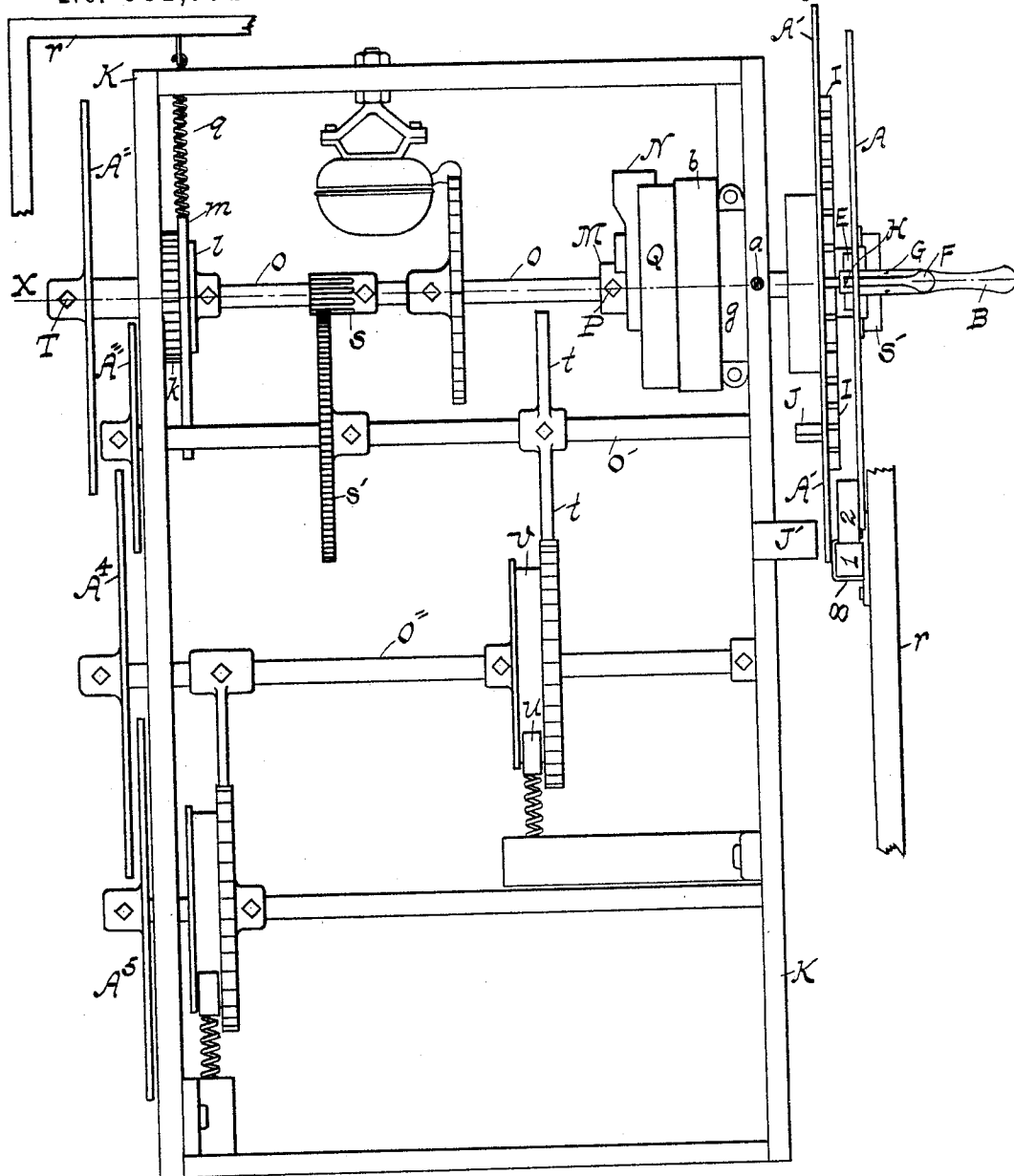


Fig. 1.

Witnesses

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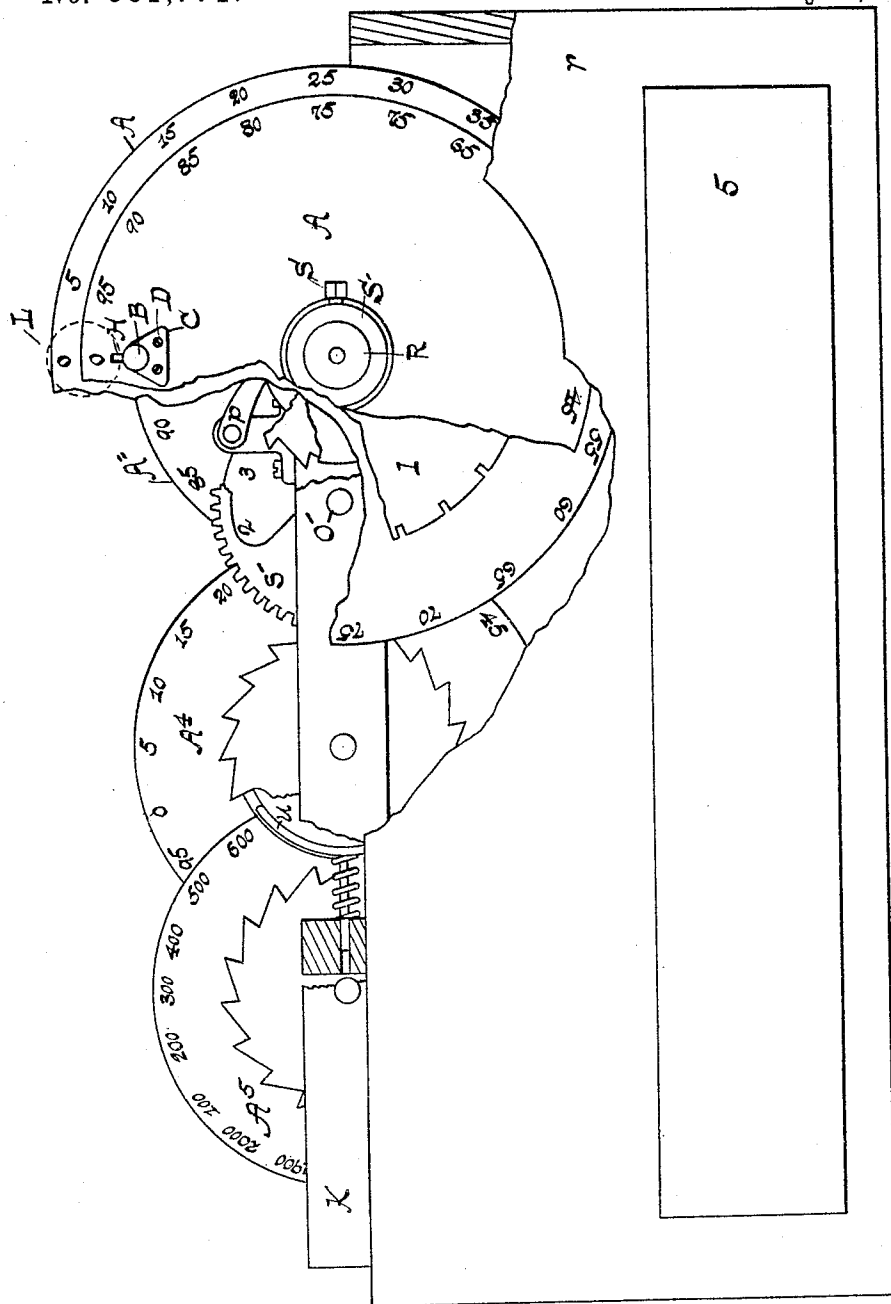


Fig. 2.

Witnesses

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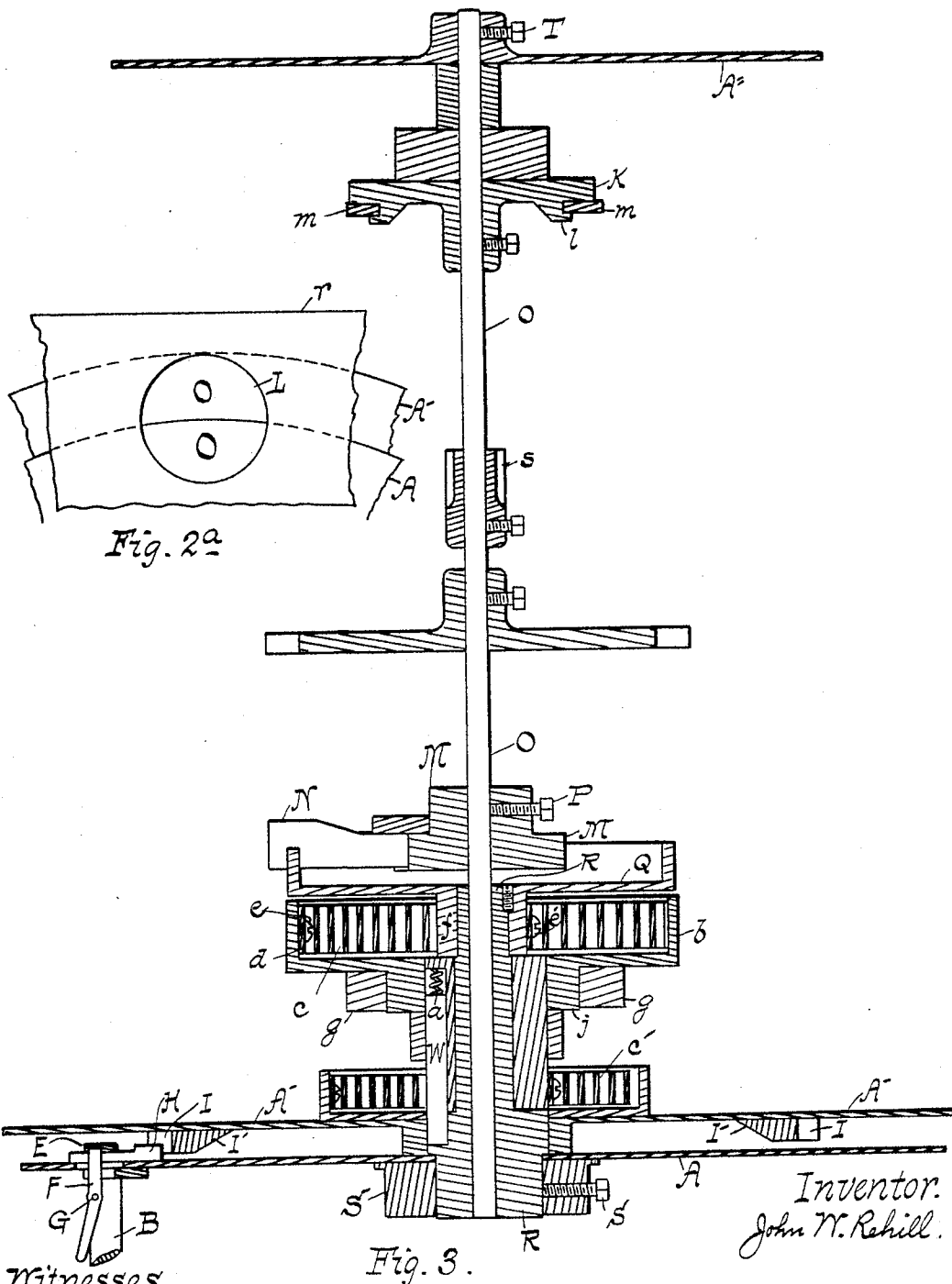
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Fig. 3.

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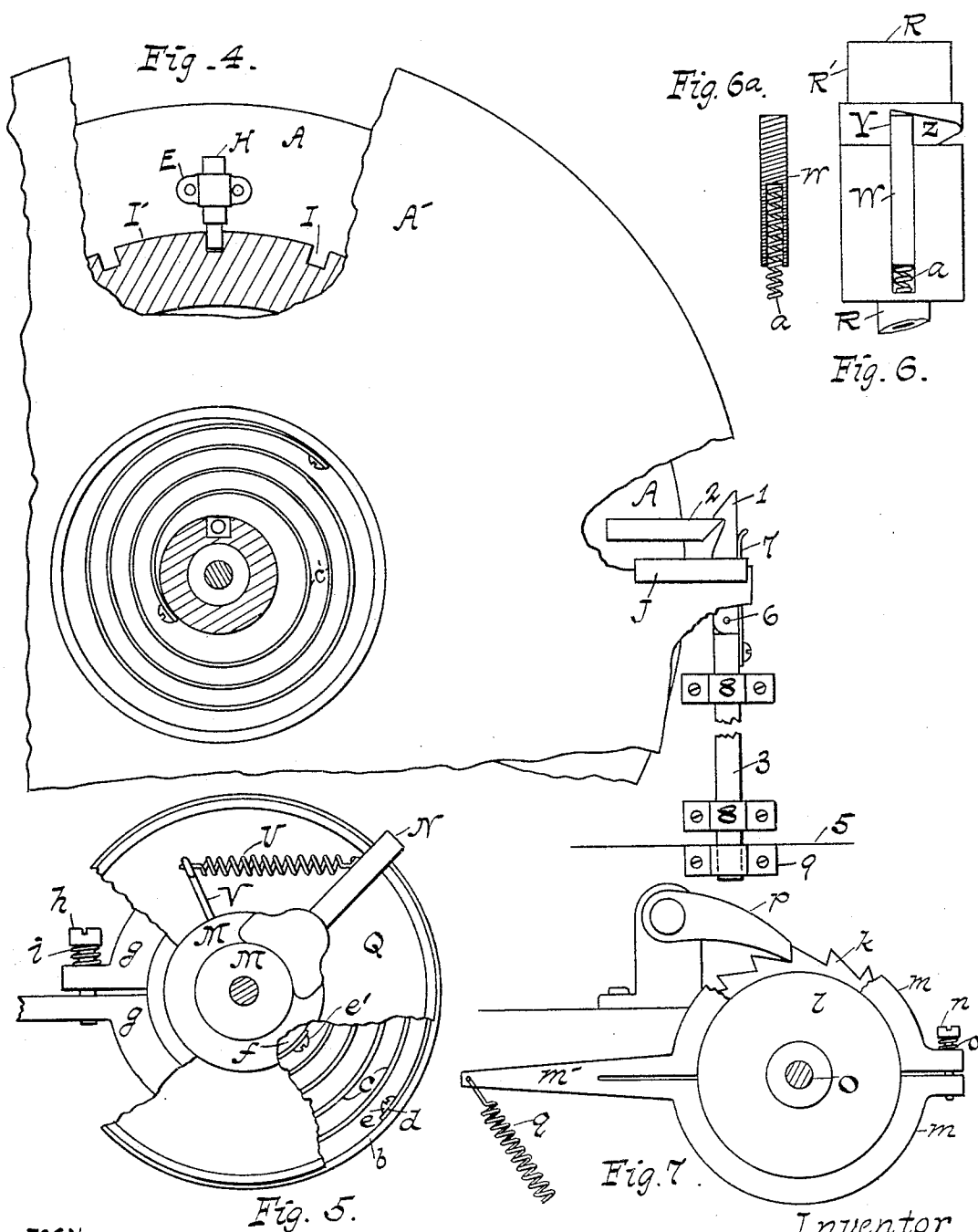
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UNITED STATES PATENT OFFICE.

JOHN W. REHILL, OF SOMERVILLE, NEW JERSEY.

CASH-REGISTER.

SPECIFICATION forming part of Letters Patent No. 581,771, dated May 4, 1897.

Application filed September 12, 1896. Serial No. 605,652. (No model.)

To all whom it may concern:

Be it known that I, JOHN W. REHILL, a citizen of the United States, and a resident of Somerville, county of Somerset, and State of New Jersey, have invented new and useful Improvements in Cash-Registers, of which the following is a specification.

In my former application, Serial No. 569,393, dated November 19, 1895, entitled "Cash-register," and allowed April 18, 1896, for a United States patent, I have shown, described, and claimed certain mechanical constructions, and in this application I have embodied certain improvements over and above my former invention.

The object I have in view is to register the amount of money which has been deposited in the device.

In order to simplify the description, I have omitted such parts of the device as do not belong to the invention. For example, I have omitted my arrangement for counting up individual cents or two-cent pieces, while the device described herein sets forth in detail the mechanism for counting amounts from five cents up to several hundred dollars; but the equipment is not provided for counting anything less than five cents at a time.

As the invention relates, primarily, to the details of the mechanical construction, I will pass right on to the description of the whole device by reference to the drawings.

Figure 1 is a plan of the complete device in which the containing-box is omitted, except a small portion. The cylindrical parts are not shaded. Fig. 2 is a side elevation of the device with a portion of the box broken away. Besides this, some of the wheels, dials, and other portions of the mechanism are broken away in order to bring out some of the construction which would otherwise be hidden. Fig. 2^a represents a hole in the containing-box, through which may be seen the readings upon certain dials. Fig. 3 is a view practically all in vertical section at the line X in Fig. 1, the containing-box being omitted. Fig. 4 is a side elevation of a portion of the device, showing especially that which is omitted in Fig. 2, as well as certain portions which are hidden in Fig. 2; but it must be noticed that the view is from a point within the device. The view is a section through the main

driving-axle of the machine. Fig. 5 is a view from the inside of the machine, looking toward the front, the same as in Fig. 4, but showing a different portion—namely, the friction-clutch and a retractile spring, all located in the interior of the device. The view is a section through the main driving-axle of the machine. Fig. 6 is a plan of a small portion of the whole device, illustrating a detail construction; and Fig. 6^a is a section of one of the details of that shown in Fig. 6. Fig. 7 is a section through the main driving-axle as viewed from a point in front of the machine and showing one of the details of construction in the rear, one or two parts being broken away in order to show otherwise hidden parts of the machine and all the front of the machine being removed.

A is a rotating dial, to which is securely attached a handle B, fastened to a plate C, which is screwed by screws D to a brass plate E upon the opposite side of the dial A. By means of this handle the dial A may be turned to the right to any distance and through any number of revolutions in view of the nature of the mechanical construction hereinafter set forth. In the normal condition of the machine the handle B, and therefore the dial A, cannot be moved in either direction, because it is locked by means of the following-described device, which consists of a thumb-lever F, fulcrumed to the handle B at the pin G, so that by means of the thumb or finger it can be swung back and forth on said pin. The thumb-lever F enters a little bolt H, in view of which the bolt may be withdrawn from or returned to notches I, provided upon the rim I', carried on one side of the dial A'. The projecting rim I' is much smaller in diameter than the dial A', which is much larger in diameter than the dial A, and both dials are divided into twenty spaces and numbered in opposite directions "0," "5," "10," "15," "20," &c., so that the last number just before the zero is "95." Thus the zero must be considered as "100" when the handle B has made one complete revolution.

The above description discloses the manner in which the dial A is locked to the dial A', but it does not show how the dial A' itself is locked. It is not locked as to its movements in both directions, for it may turn to the left;

but it is prevented from turning beyond the zero-point to the right by means of the stop J, (shown in an abnormal position in Fig. 1 and in a normal position in Fig. 4,) adapted to strike the projection J', which is fastened to the frame K.

It is one of the objects of my invention to turn the dial A to the right without at the same time turning the dial A' to the right. This is accomplished by pressing upon the thumb-lever F to release the bolt H from the notch I and while holding the lever down turning the dial A to the right until there appears at the window L that number on the dial A which represents the total amount which has been deposited. This figure would be "5," "10," "15," "20," or any other number of this series up to zero, which might come around again and would represent one dollar. By turning it farther than one revolution would be one dollar plus the number of cents indicated by the window L. When the correct number appears at the window, the handle B should be let go. In consequence the bolt H will enter the notch I and the spring will carry the dial A back to its original position and will carry the dial A', which has not been moved, to the left, so that the whole amount of cash deposited will appear at the window L upon the dial A'. The amount will be permanently registered upon the interior dial A'. Thus may be seen after the operation the amount which it is intended shall be registered upon deposit. Next, or else when another amount is deposited, the thumb-lever F is pressed and a spring c' returns the dial A' to the normal position, where it rests, because the stop J strikes the projection J'.

The above description serves to show rather the final results of the machine than the detail construction and operation of all its parts, but the same will be understood after describing the remaining details, as will now be done.

It is important to know why the dial A' will not move backward after it has once been moved forward. I accomplish this by combining with the machine a friction-clutch which has the boss M, provided with a brake N, secured to the main driving-axle O by the set-screw P, while the frictional disk Q of the clutch is securely and permanently attached to the dial A through the medium of the collar R, through which the axle O passes. The fastening is accomplished by the said screw P. It remains to be stated that the dial A' is secured to the axle O, which may be done by a set-screw P. The brake N has a notch which fits loosely upon the projecting edge of the disk Q, and loosely as to its other end, in a notch in the boss M, and is held in the proper position by a spring U, whose one end is attached to the brake N and the other end to the wire V, projecting radially from the boss M. It may now be apparent that when the dial A is turned to the right the brake N will be applied to the disk Q, so that the

dials A and A' will move together through the same circular distance, but when the dial A returns the brake N will be automatically released, causing the axle O, and therefore the dial A', to remain in the forward position.

It has not yet been shown why the dial A, when returning to its normal position, is prevented from passing beyond that point. This is accomplished by means of a pin W. (See particularly Figs. 6 and 6', which are identified with the other figures by the letter R, representing the collar upon the axle O, joining the dial A to the friction-disk Q.) The surface R' is that one upon which rests the hub S' of the dial A, and therefore it will be noticed that Fig. 6 is drawn in the reverse manner from that carried out in Fig. 3. In the normal condition the pin W rests against the shoulder Y at the end of the spiral groove Z. A spring a maintains the pin W against the surface of the groove and is held in the proper place by extending into the pin W, which is hollow through a part of its length. The outer ends rest against the end of the slot, in which is located the pin W. When the dial A is turned, the collar R also turns, and because of the spiral groove the pin W is pushed out of the way, so that the dial may continue to rotate to the right, but just as soon as the dial A has turned to its starting position the pin W has, in view of the spring a, reached the shoulder Y, and therefore the dial A stops. Even if the dial A is turned around several times, yet there is nothing to prevent its being turned as long as the direction is right handed, but as soon as an attempt is made to turn it backward past the starting position the spring a thrusts the pin W into the groove Z, ready for the impact of the shoulder Y. At the same time means are provided whereby the retractile spring is always put under tension, and yet not too great a tension, for the purpose of returning the dial A to the starting position. I have arranged the construction so that this spring will thus act, no matter how many times the dial A is turned to the right. Within the cup b is a spiral spring c, one end d of which is secured by a screw e to the outer rim of the cup b and the inner end of which is secured by the screw e' to the hub f of the friction-disk Q. There must be a resistance offered to the movement of the cup b, and therefore I provide an adjustable one, consisting of two brakes g, adapted to be compressed by screws h and springs i, upon the hub j of the cup b thus permitting the spring c to be wound up until its power is sufficient to overcome the power of the friction between the brakes g and the hub j. Then the tension of the spring does not become increased any further, but the whole cup b rotates in conjunction with the friction-disk Q.

Because of the use of the friction-clutch the dial A' may gain on the dial A and make a false register of about five cents per dollar or thereabout. I have overcome this diffi-

culty by the arrangement shown particularly in Fig. 7, but the construction is visible also in some of the other figures. Upon the axle O, I have provided a ratchet-wheel *k* and a friction-wheel *l*, having two brakes *m*, adjustable by the screw *n* and the spring *o*, the two wheels *k* and *l* being built in one piece, which is fastened rigidly upon the axle O. The ratchet-wheel teeth are of the same number as the spacings upon the dial, and it is desired that the pawl *p* shall fall in between the teeth and stop the dial A'' at the right place, and in order to secure this action the brake-arm *m'* is connected by a spring *q* to the containing-box *r*. The tendency of the spring *q*, in combination with the brakes *m'*, is to pull the wheel *l* continually around to the left, but the pawl *p* prevents this action and also continually maintains the pawl always against one of the teeth of the ratchet-wheel *k*, so that when the dial A is turned to the right and let go, although the pawl *p* falls loosely between the teeth, yet the spring and brake quickly press the ratchet-wheel against the pawl *p* and bring the numbers on the dial A'', so that the same numbers always occupy the same position in reference to a vertical one.

There is not much else of importance to be described, because the rest of the machine consists of old elements for counting higher denominations, consisting of gear-wheels, dials, and fingers. The figures "0," "1," "2," "3," "4," "0," "1," "2," "3," "4" indicate dollars on the dial A'''. This dial is rotated by the pinion *s* and the gear-wheel *s'*, attached to the next axle O'. The teeth on the wheels *s* and *s'* are proportioned in the well-known manner, so that one complete turn of the axle O will indicate one complete dollar on the dial A'''—that is, the last-named dial will move through the distance from "1" to "2," "2" to "3," "3" to "4," and so on all the way around. To this end the pinion *s* may have twelve teeth and the wheel *s'* one hundred and twenty teeth. The dial A⁴ is secured upon the next axle O'' and is provided with the numbers "0," "5," "10," "15," "20," "25," &c., up to one hundred (\$100.00) dollars. The dial is turned through one of the spaces which indicate five (\$5.00) dollars by means of one of the fingers *t* every time that the dial A''' makes one-half a rotation. The spring-brake *u* presses against the cylinder *v* upon the axle O' to cause the axle O'' to remain where it stops on the forward motion. The next dial A⁵ has a similar equipment, as easily understood from the drawings, and is for the purpose of counting one hundred (\$100.00) dollars at each movement.

The catch 1, engaging with the tooth 2 upon the dial A, is at one end of a bolt 3 for locking the cash-drawer 5. As soon as the dial A is turned with sufficient force, in the manner hereinbefore described, the catch 1 slides off from the tooth 2 as soon as raised to a sufficient distance, it being noticeable that the

catch is pivoted to the bolt 3 at the pin 6 and is adapted to yield backward in view of the spring 7, fastened to the bolt 3 and pressing against the catch toward the tooth 2. The guides for the bolt are 8, located on the containing-box *r*, and the guide 9 on the cash-drawer 5.

I claim as my invention—

1. A cash-register consisting of the combination of a main arbor O, having a counting-dial A'', and engaging with a given train of other counting-dials A''', A⁴, and A⁵, an indicating-dial A, having a handle B and rotary with the collar R, upon the said arbor, and secured to a friction-disk Q, so as to always be rotary therewith, a clutch whose brake-arm is N, acting upon the disk Q, to permit the latter to rotate to the right, and secure to said arbor O, an indicating-dial A', rotary loosely upon the hub-collar R of the dial A, a bolt H governed from the handle B, and adapted to lock the dials A and A' together at predetermined intervals of space, by entering one of the notches I, provided on the dial A', means for preventing the dial A' from moving to the right, beyond its normal position, a retractile spring *c'* for the dial A' to bring it back to its normal position, a device for stopping the dial A' at its normal position and a retractile spring *c* for bringing the dial A to its normal position, and having one end accordingly fastened to the hub *j'*, of the friction-disk Q, and the other end to the drum *b*, which is loose upon the collar R, but turns with it as soon as the spring *c* is under sufficient tension, by the long-continued turning of the dial A to the right.

2. A cash-register consisting of the combination of a dial A adapted to be turned only to the right, through any number of continuous rotations, and to return automatically to its normal position, through the agency of a spring, one end of which is in connection with a hub *j*, and the other end of which is connected to that part of a friction-clutch which is loose upon said arbor, the other part of the friction-clutch being fast upon said arbor, a second dial A' adapted to turn only to the left through only one rotation, and to return to its normal position through an independent spring from that above named, and a locking device for locking the two dials together upon the return of the first dial A and for bringing the second dial A' to the left, through that same arc of a circle through which the first dial has been moved, the said locking device being adapted to release the second dial A' at the normal position of the two dials.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of two witnesses, this 10th day of September, 1896.

JOHN W. REHILL.

Witnesses:

MELVILLE B. MENDELL,
KATHARINE W. EDWARDS.