

(No Model.)

4 Sheets—Sheet 1.

T. ROGERS.
CASH REGISTER.

No. 473,887.

Patented Apr. 26, 1892.

Fig. 1.

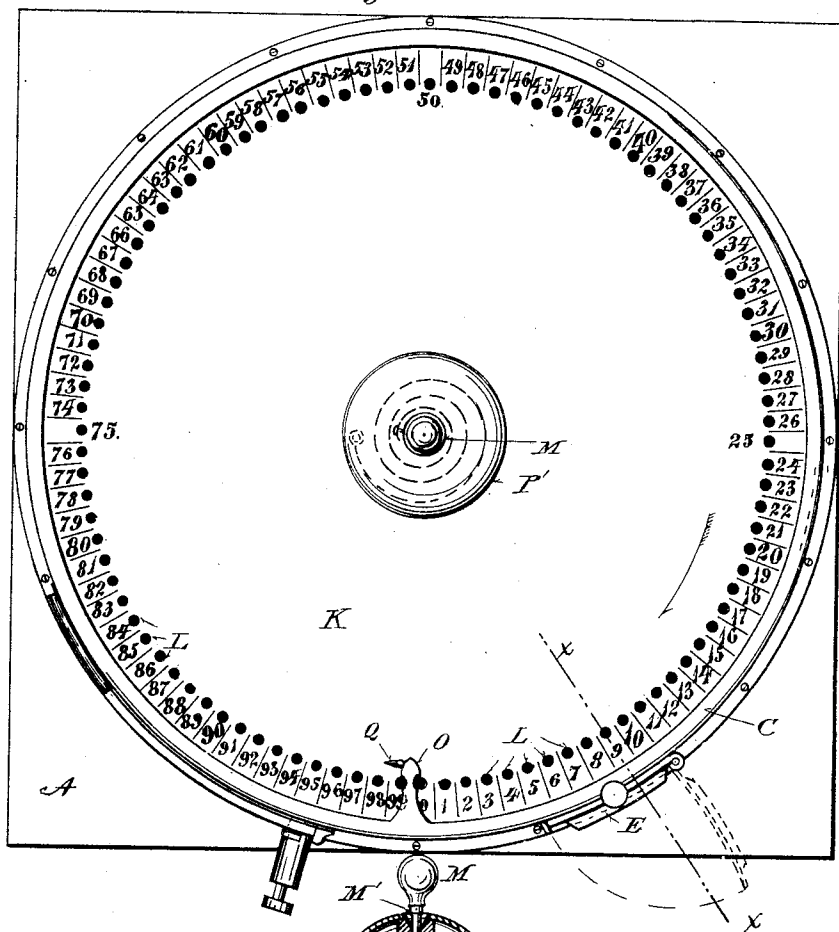
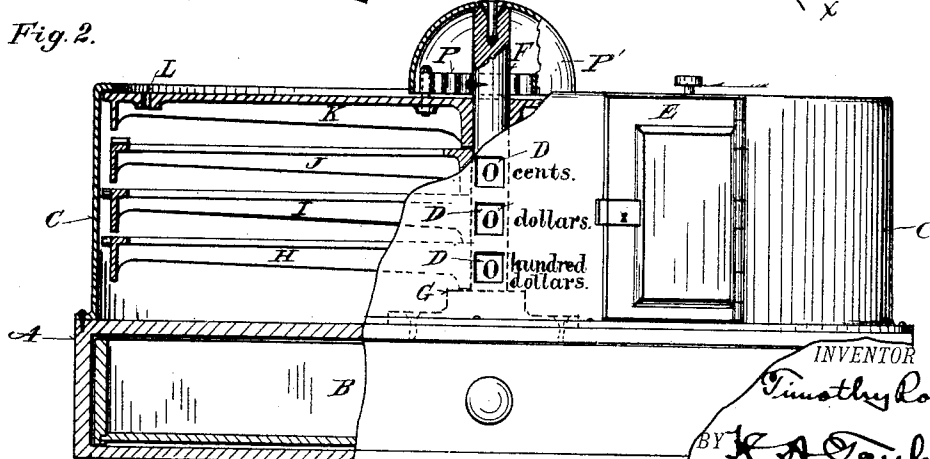


Fig. 2.



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(No Model.)

4 Sheets—Sheet 2.

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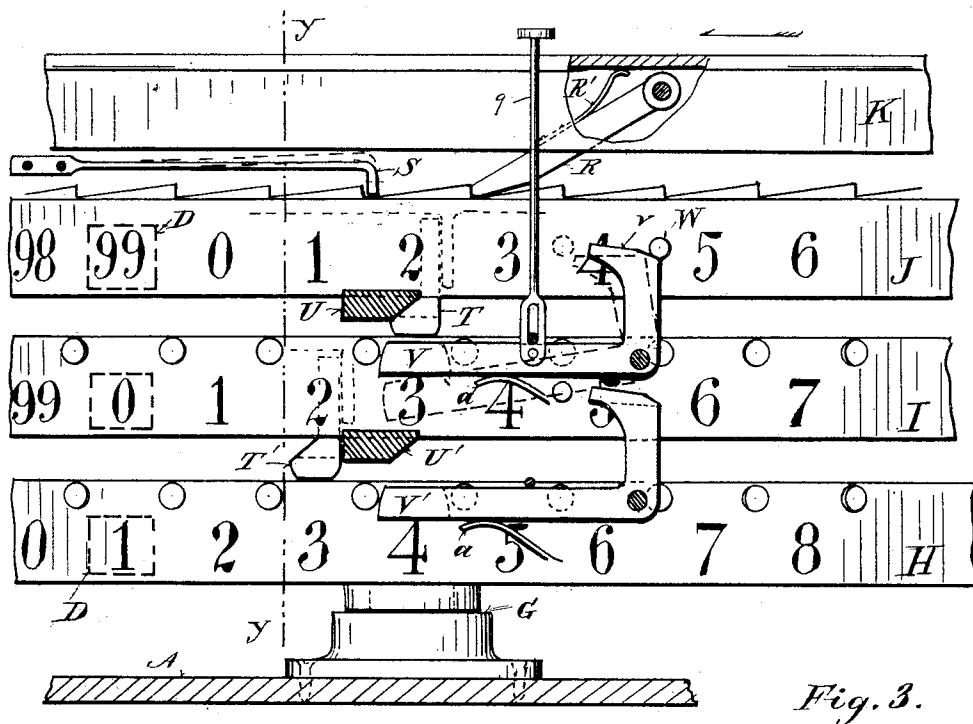


Fig. 3.

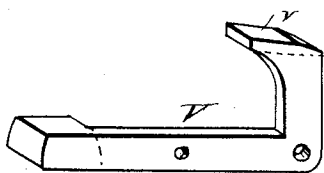


Fig. 4.

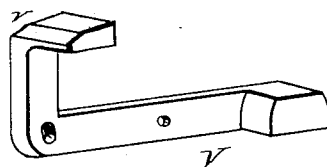


Fig. 5.

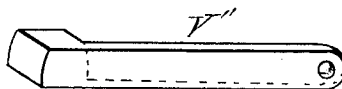


Fig. 5a.

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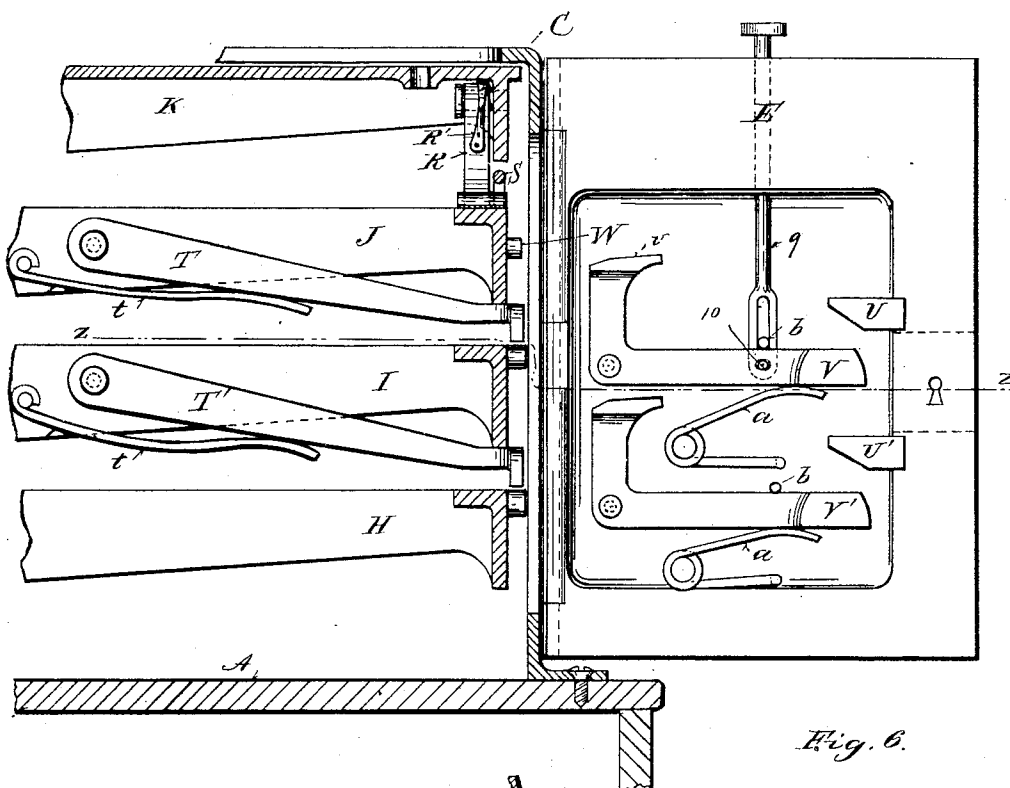


Fig. 6.

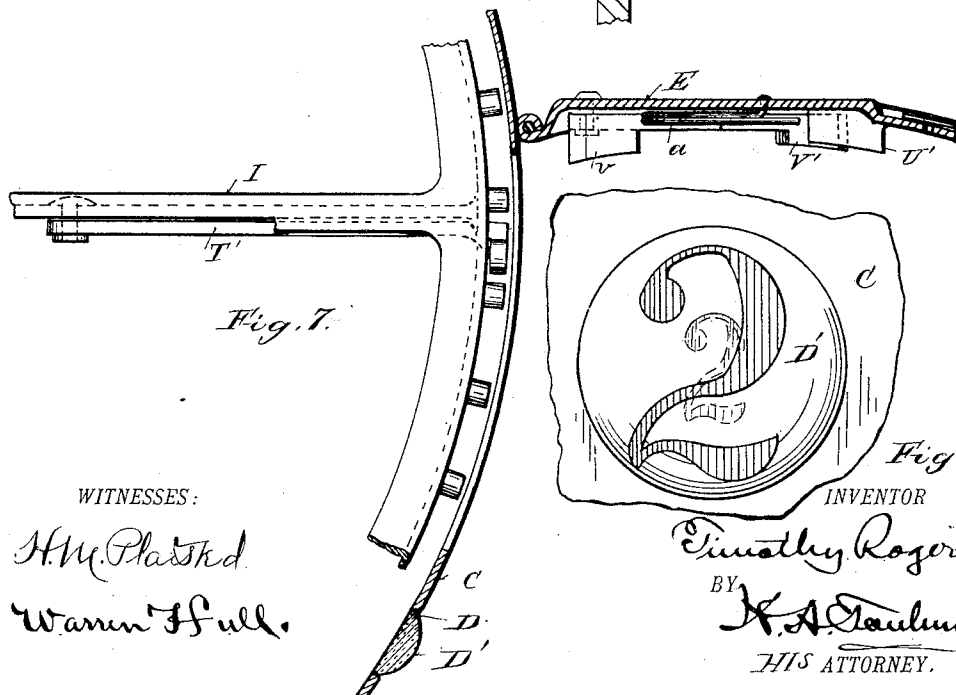


Fig. 8.

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Fig. 9.

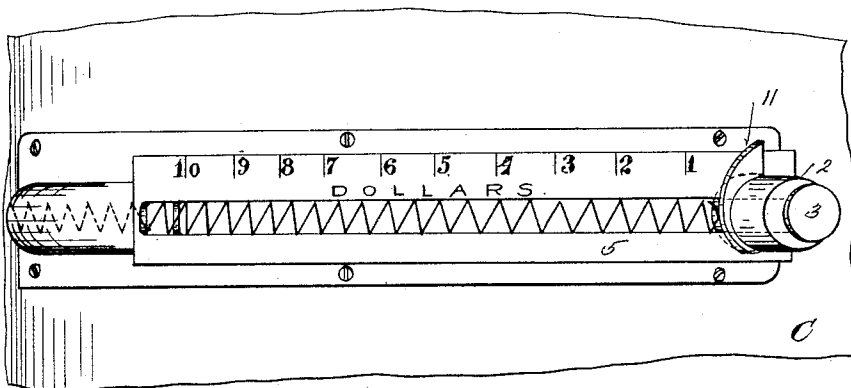
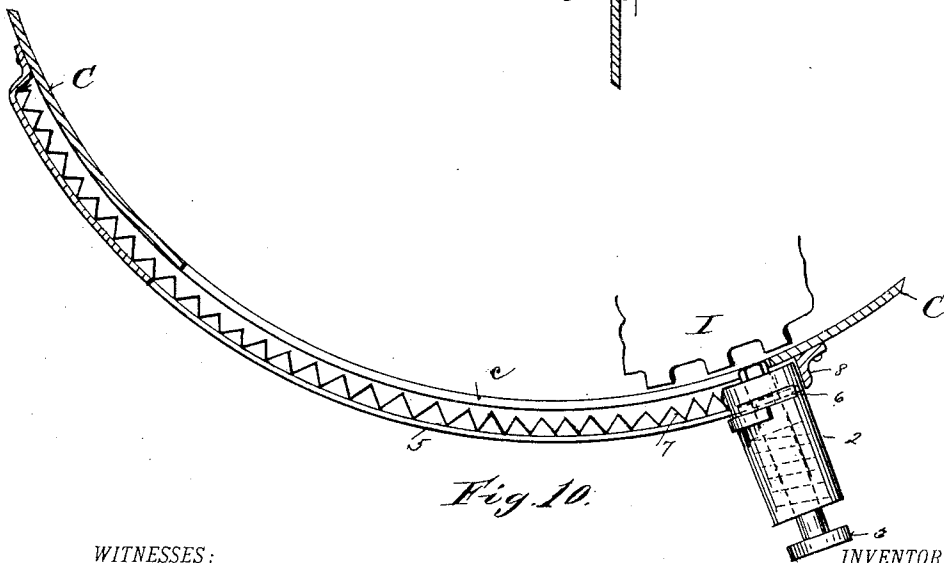
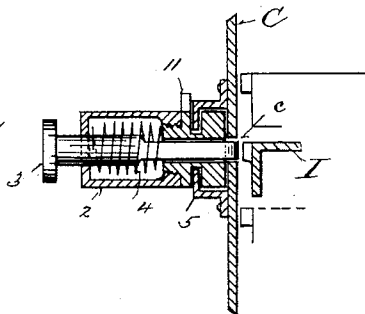


Fig. 11.



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UNITED STATES PATENT OFFICE.

TIMOTHY ROGERS, OF SPRINGFIELD, OHIO.

CASH-REGISTER.

SPECIFICATION forming part of Letters Patent No. 473,887, dated April 26, 1892.

Application filed July 3, 1891. Serial No. 398,358. (No model.)

To all whom it may concern:

Be it known that I, TIMOTHY ROGERS, a citizen 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-Registers, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to certain new and useful improvements in adding or registering mechanism for a cash-drawer.

My improvements have reference to an actuating-disk, the automatic return of said disk, and the arrangement of the numbers thereon, and have reference to sight wheels or drums operated by the actuating-disk, have reference to a pawl or moving catch adapted to operatively connect the two adjacent sight-wheels and one means of effecting said engagement, and have reference to a locking-detent adapted to normally lock its corresponding sight-wheel and unlock it preparatory to the engagement of the said pawl with said sight-wheel, have reference to effecting said operative engagement of the connecting-pawl simultaneously with the disengagement of the locking-detent, have reference to unlocking said sight-wheels by withdrawing said locking-detents bodily from their engagement therewith to allow the free rotation of the sight-wheels in bringing the register to zero, and have reference to other points of detail hereinafter described and claimed.

In the accompanying drawings, forming a part of this specification, and on which like reference letters and figures indicate corresponding parts, Figure 1 represents a plan view of my register mounted on its base or cash-drawer case; Fig. 2, a partial elevation and section of the same; Fig. 3, an enlarged side view of a portion of each sight-wheel and the operating-disk with the locking-detents and operative lugs in their working position, the door and other casing being removed; Fig. 4, a detached perspective view of a locking-detent; Fig. 5, a similar view of the same, showing the opposite side; Fig. 5^A, another form of locking-detent; Fig. 6, an enlarged vertical section on the line *x x* of Fig. 1, the door being viewed in its dotted position to show the inside thereof; Fig. 7, a plan view and section on the line *z z* of Fig. 6; Fig. 8, an enlarged

view of a sight-slot and a magnifying-glass mounted thereon; Figs. 9, 10, and 11, details of an independent means for operating the dollar-wheel.

The letter A designates a base or support for the register proper, preferably having a cash-drawer B mounted therein. Upon this base is secured by screws or otherwise a shell or case C, open at the top and provided with sight-openings D and a door E to give access to the interior of the register and allow of quickly adjusting the parts to zero, as will hereinafter be described. Within this shell C is secured a center post or stud F, screwed to the base or otherwise centrally mounted within the same and provided with a shoulder G. This center post forms a bearing for a number of sight wheels or drums H I J and the actuating-disk K, all loosely and revolvably mounted thereon within the same shell. The disk K is provided with a number of openings L near the circumference thereof, each opening having a designating-figure, as shown in Fig. 1. An operative pin M is adapted to fit into the openings, whereby the actuating-disk may be rotated by hand till the pin or projection meets a stop or projection O on the rim of said shell C. This pin M when not in use is inserted in an opening M' in the top of the said center post F. A central or volute spring P is secured to said post F at one end and to a stud in said disk at the other end, as shown in Figs. 1 and 2, whereby the return of said disk after the rotation by hand is effected automatically. A stop-pin or projection Q prevents the return of the disk past the zero-opening by impinging on the opposite side of the said stop O. The number of openings in said disk is preferably one hundred, and they run from "0" to "99," inclusive, as shown in Fig. 1. By inserting the pin M in any one of said openings and bringing it down to the stop O the number corresponding with said opening will be registered, as hereinafter described, while the disk will be rotated to its zero position on removing the said pin by means of the volute spring P. A shell or cover P' is adapted to cover the volute spring P and be supported on the center post F.

I will now describe the connection between the actuating-disk and the sight-wheels located beneath the same, whereby the rotation

of the said disk will cause the proper numerals to appear in the sight-slots D and register the successive amounts of the purchases. A ratchet R is pivoted to the said disk K and engages with a ratchet-toothed rack mounted on or otherwise secured to the face of said wheel, as shown in Fig. 3, and a spring R' is adapted to preserve its engagement therewith. The rotation of the disk in the direction of the arrow will thus cause the first sight-wheel to rotate therewith. Each sight-wheel has an edge face or rim carrying numbers adapted to be shown successively in the corresponding sight-slot. These numbers run from "0" to "99," inclusive, agreeing with the numbered openings on the actuating-disk. The sight-wheels preferably have radiating arms, webbed to give lightness and stiffness. By means of the ratchet connection the first sight-wheel will be rotated in one direction when the actuating-disk is operated by hand, and thus bring the number to the first sight-slot corresponding with the number on the disk which has been rotated to the stop O by the pin M. The volute spring P will return the disk K and leave the first sight-wheel in its rotated position. A detent S is adapted to also engage with the said ratchet-teeth and prevent the return of the first sight-wheel after its rotation by the ratchet R. This detent S may be in the form of a spring-wire secured to the shell C or of other convenient shape. The figures of the first sight-wheel designate cents, as they are shown from the first sight-slot. The second sight-wheel is numbered corresponding to the first one, and is used to designate dollars, as the numerals show successively from the second sight-slot, while the third sight-wheel, similarly numbered, designates hundreds of dollars, according to the number shown from its corresponding sight-slot. The object is to form a series of connected wheels from a lower to a higher order and with any convenient number in the series.

I will now describe the connecting mechanism whereby the result above mentioned is attained. A pawl T is pivoted to the first sight-disk J and is adapted to engage with the teeth carried by or formed integrally with the second sight-wheel I. This pawl is normally kept out of engagement with said teeth by a spring *t*, Fig. 6, or otherwise. It is brought into engagement with the second sight-wheel and moves the wheel forward one notch at each revolution of the wheel J, to which it is secured. This engagement is effected by an operative lug U, mounted on the door or other portion of the shell or case C and adapted to press the said pawl downward by an inclined cam-surface and preserve the engagement with the second sight-wheel I and cause them to rotate together for one notch or tooth. A locking-detent V is pivoted to the said door or otherwise mounted and adapted to engage with the teeth on the said wheel I and prevent the rotation of the

said wheel except when thrown out of engagement with said teeth by means of a pin W, carried by the wheel J, which impinges on the cam-surface *v* of said locking-detent and forces it downward to the dotted position shown in Fig. 3 at the same time that the pawl T is brought into engagement with the wheel I by the said cam U. The locking-detent V is kept in its normal engagement with the teeth of the wheel I by a spring *a*, which presses it upward against the stop *b* adjacent thereto.

As seen in Fig. 3, the pawl T comes into engagement with the teeth of the second sight-wheel I at the same time that the locking-detent is thrown out of engagement therewith. The said wheel I is therefore prevented from rotating except when the moving pawl T is thrown into engagement with it in order to rotate it one tooth or number. A similar connection is used between the second and third sight-wheels I and H, respectively, and as shown in Fig. 3, the moving pawl T' has passed under the operative lug U' and has rotated the wheel H to show the next figure at the sight-slot, while the locking-detent V' is again in its locking engagement with the wheel H.

The cam of the locking-detent projects out from the face thereof to its engagement with the pin W, the detent being preferably set into a recess in the door E to prevent its obstructing the rotation of the corresponding sight-wheel and to allow of said wheel being placed in immediate proximity to the shell C, whereby the numbers thereon may be readily seen through the sight-slots D. If desired, all of the sight-wheels may have the same style of teeth, either ratchet or otherwise.

The engagement of the moving pawl T with its sight-wheel is preferably directly above the locking-detent V. If desired, the locking-detent may be thrown out of engagement with the sight-wheel by the pawl T impinging thereon and unlocking the wheel at the same time it comes into engagement therewith. In this way the pin W and the cam-surface *v* will be dispensed with and the engagement of the pawl T and the disengagement of the locking-detent V may both be effected by the operative lug U. The smoothness of action also is increased by the arrangement before described.

I do not wish to limit myself to the exact form of locking-detent V herein shown and described, since any convenient form of detent may be used.

The form of detent shown in Fig. 5^A may be used when the pin W and the cam-surface *v* are dispensed with, as before mentioned. In the latter case the detent may be pushed out of its locking engagement by the impingement of the pawl T, which immediately takes the place of the detent and rotates the wheel one tooth. The detent will come into locking engagement with its respective sight-wheel immediately after said depressing action of the

pawl T, after the said wheel is moved forward one notch or tooth, as indicated by the position of the wheel H in Fig. 3.

In Fig. 6 the locking-defents are shown mounted on the recessed door E, swung outward from their engagement with the corresponding sight-wheels. The door being thus opened and the sight-wheels unlocked, the latter may be readily adjusted by hand to bring them all to a zero position, as seen through the sight-slots, as shown in Fig. 2. This door E is preferably provided with a lock to prevent tampering with the sight-wheels. Thus it will be seen that the actuating-disk may be rotated to show the number of cents on the first sight-wheel up to "99" at the first sight-slot. A further rotation of it one tooth will cause "0" to appear in the first sight-slot, while the connecting mechanism above described will cause the next higher figure to appear in the second sight-slot, designating dollars. When "\$99.00" have been registered, a further rotation of the actuating-disk one tooth will cause "0" to appear at the second sight-slot and the next higher figure at the third sight-slot, whereby the number of hundreds of dollars will be registered. The capacity of the register, as above described, is "\$9,999.99."

While I have shown each sight-wheel and the actuating-disk provided with one hundred numbers, they may be otherwise numbered and the connecting mechanism duplicated to operate two or more times on each revolution of the respective wheel by the herein-described mechanism being placed at corresponding intervals about said wheels. The above case, however, presents a register in a compact form and moderate size adapted to occupy but small space, is simple in its construction, not liable to get out of order, and readily adjustable to its zero position. The position of the sight-slots D may be at any convenient part of the shell C, preferably so as to allow the purchaser to read the numbers shown thereat.

It will be observed from Fig. 1 that the numbers on the actuating-disk are all adapted to be read from one position, since the bottom of each wheel is toward the operator when the disk is in its zero position, thereby facilitating the finding of the proper opening L by the operator.

Referring to Fig. 8, in which the sight-slot D is closed by a magnifying-glass D', it will be observed that the size of the figures on the corresponding sight-wheel is magnified by said glass to facilitate reading the same. Thus comparatively small figures may be placed on the sight-wheel, which are magnified by the said glass to a convenient size, as indicated in Fig. 8. This glass may be either round, as seen in this figure, or square to fit the openings shown in Fig. 2. When the register is to be operated to register the new purchase and to show the total purchase, the operator inserts the pin M in the proper opening L and brings it around to the stop O, thus

rotating the sight wheel or wheels. He may then make the change, if necessary, from the money in the cash-drawer, the amount of the purchase being registered on the machine, as hereinbefore described.

Referring to Figs. 9, 10, and 11, I will now describe means whereby the dollar-wheel or sight-disk may be actuated independently of the other wheels instead of through the first wheel K. The advantage of this is that in registering sums larger than one dollar the dollar-wheel may be moved but once instead of actuating it by rotating the disk K a sufficient number of times to make up the sum of the purchase. This is accomplished by means of a slidingly-mounted spring-catch consisting of a carrier or shell 2, within which is mounted a sliding piece 3, normally pushed outward by means of a spring 4, but adapted to be pushed inward by the finger to engage its inner end with the notches of the dollar-wheel I adjacent thereto, as shown in Figs. 10 and 11. A slot *c* in the shell or drum C extends a suitable distance parallel to the edge of the wheel I to allow the piece or catch 3 remaining in engagement with said wheel through a more or less part of its rotation. The carrier 2 is adapted to ride in a slotted guide 5, the edges of which engage with flat portions or notches 6 on said carrier, and is provided with a spring 7, supported in a suitable socket and adapted to return the carriage and its catch to its normal position against the stop 8 after being slid along by hand in said guide. The rotation of the dollar-wheel, however, cannot be accomplished until it is unlocked, and this is done by operating a push-rod 9, slidingly mounted in the door E and engaging by a connection 10 with the locking-pawl V. A slot in said rod inclosing the stop-pin *b* conveniently guides the lower end of the rod, and by pushing down on the rod 9 the wheel I is unlocked and free to rotate when engaged with the catch 3, and thus register directly by the dollar-wheel without actuating any adjacent wheels.

On the face of the guide 5 is a series of numbers—"1" to "10," for instance—corresponding with the notches of the dollar-wheel and serving to mark the number of notches said wheel is rotated by bringing a marker 11 on the sliding carriage opposite the desired number on the guide. The spring-catch 3 is kept pressed inward till said number is reached, when it is left free to be thrown outward by the spring 4, and the carriage is returned by the spring 7.

To illustrate, if four dollars and twenty-five cents be the amount of the purchase the dollars are first counted on the dollar-wheel by pressing down the rod 9 and rotating the dollar-wheel through the sliding catch 3, engaged therewith, and on the return of the carriage to its normal position the "\$.25" are registered by rotating the disk K the proper distance. It is to be observed, however, that a purchase may also be registered by rotating the disk K four times for the dollars and the

additional distance for the "\$.25" in the manner hereinbefore described.

The sliding catch just described may be used with other than the dollar-wheel if the arrangement of the machine makes it desirable. It is simply a short cut to registering the higher amounts independently of the other disks or wheels, and I do not wish to limit myself to the exact means and construction herein illustrated.

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

1. In a registering mechanism, the combination, with a wheel of a lower order and a wheel of a higher order having teeth and a journal-bearing and casing for said wheels, of a spring-actuated pawl on the former wheel, kept normally out of engagement with said teeth on the latter wheel, a cam on said casing adapted to effect the engagement of said pawl and teeth, a locking-detent mounted on said casing and having a cam-surface and adapted to normally engage with said teeth, and a pin or projection on the wheel of the lower order adapted to throw said detent out of its locking position by the rotation of the latter wheel.

2. In a registering mechanism, the combination, with a frame or casing, two wheels therein of lower and higher order, respectively, and having teeth, intermediate mechanism operatively connecting said wheels, and means to actuate said mechanism intermittently, of a locking-detent having an arm-extension provided with a cam-surface and pivoted to said frame and adapted to normally engage with the latter wheel and a pin or projection on the former wheel to engage and hold said detent during the rotation of one tooth by the impingement of the pin or projection upon the said cam-surface.

3. In a registering mechanism, the combination, with a case having sight-slots and a door normally closed, of a series of wheels mounted within said case and having num-

bers or characters adapted to be shown through said sight-slots, pawls mounted between said wheels and adapted to operatively connect the adjacent wheels, but normally out of action, locking-detents mounted on said door and normally engaged with said teeth, and cams for effecting the engagement of said pawls and also carried by said door, whereby on opening the door the wheels will be unlocked and may be freely rotated.

4. In a registering mechanism, the combination, with adding-disks and a casing therefor provided with a movable door portion, of pawls forming the operating connections between said disks and actuating-cams for said pawls carried by said door portion of the casing, adapted to be engaged with said pawls or thrown out of the path thereof, according to the position of the said door portion near to or away from said disks.

5. In a cash-register, the combination, with a rotatable wheel having teeth and a pivot therefor, of a casing for said wheel having a circumferential slot opposite said teeth and forming guides, a carrier piece or support mounted in said guiding-slot, a spring acting to keep said carrier at one end of the slot, a sliding piece mounted in said carrier adapted to be pushed into engagement with said teeth, but normally out of engagement therewith, and a spring to effect said normal disengagement of the sliding piece, whereby the said sliding piece may be pushed into engagement with said teeth, maintain said engagement while its carrier is slid along the said guides to rotate said wheel, and disengage itself therefrom and return to its position at one end of the slot when freed from the action of the operator.

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

TIMOTHY ROGERS.

Witnesses:

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