

No. 690,561

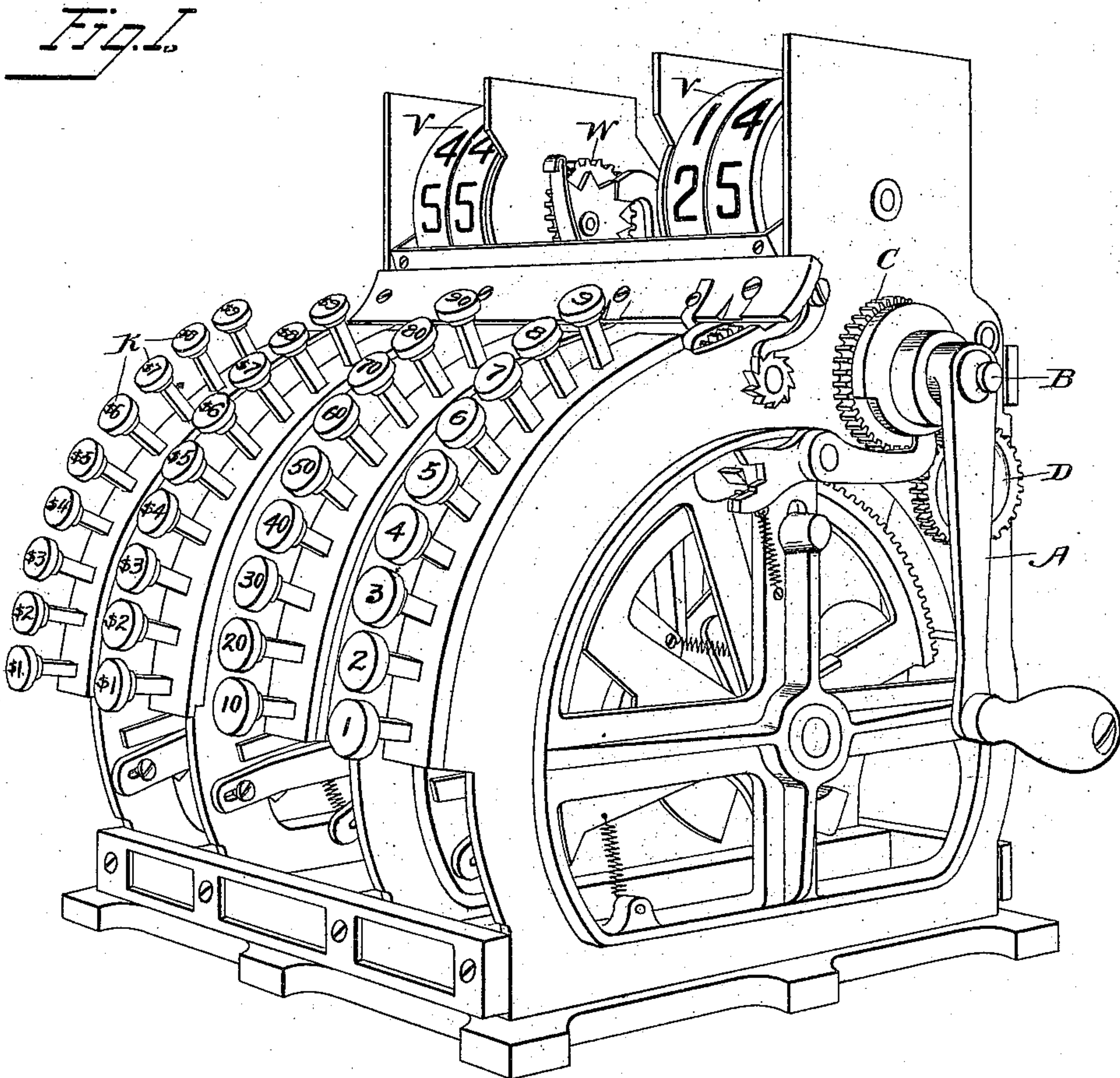
Patented Jan. 7, 1902.

J. P. CLEAL.
CASH REGISTER.

(Application filed Aug. 20, 1894.)

(No Model.)

5 Sheets—Sheet 1.



Witnesses
Martin A. Olsen.
Max Messner

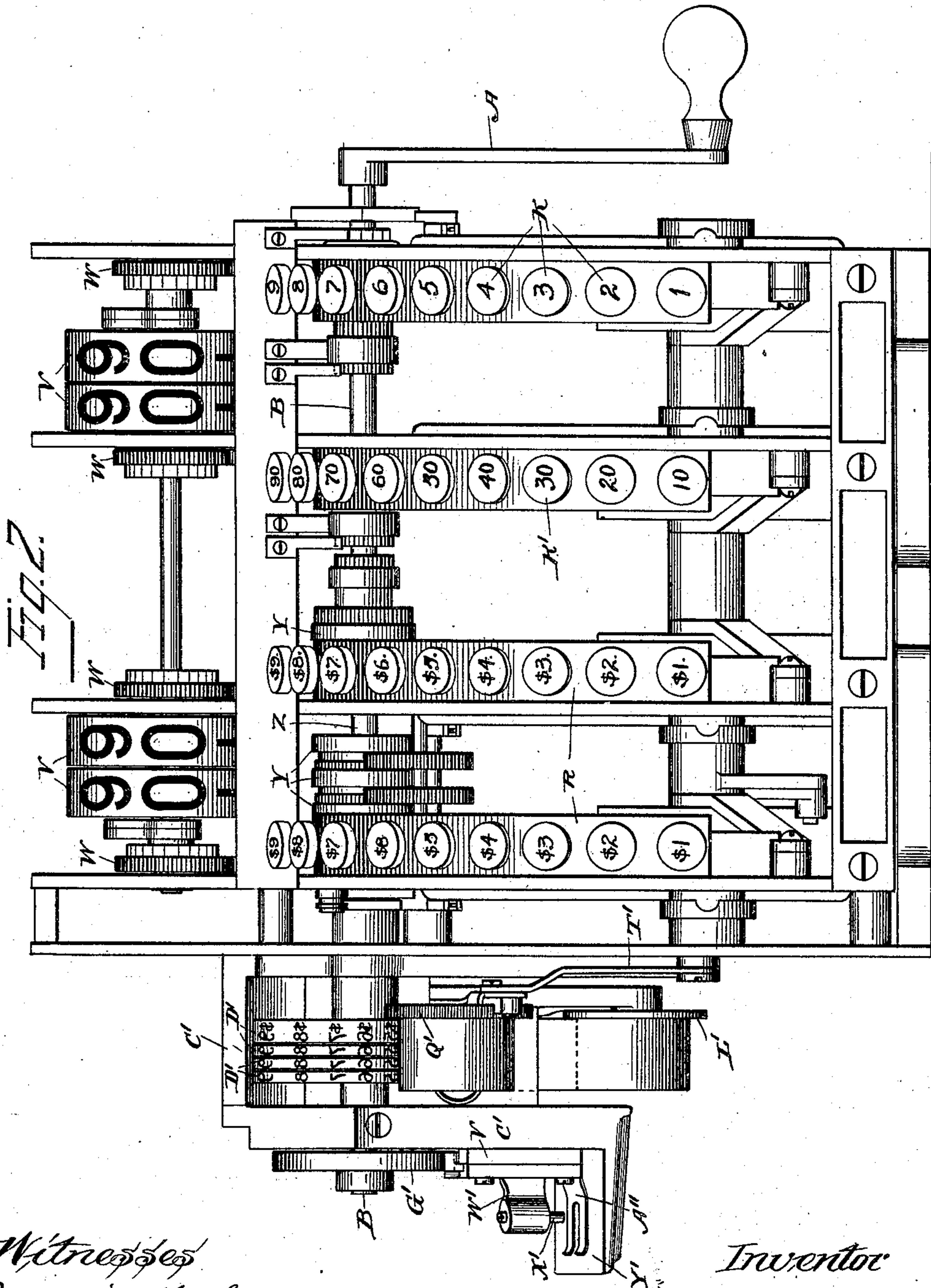
Inventor
Joseph P. Cleal
by Edward Rector
his atty.

J. P. CLEAL.
CASH REGISTER.

(Application filed Aug. 20, 1894.)

(No Model.)

5 Sheets—Sheet 2.



Witnesses
Martin H. Olsen.
Max Messner

Inventor
Joseph P. Cleal
by Edward Reeder
his attorney

No. 690,561.

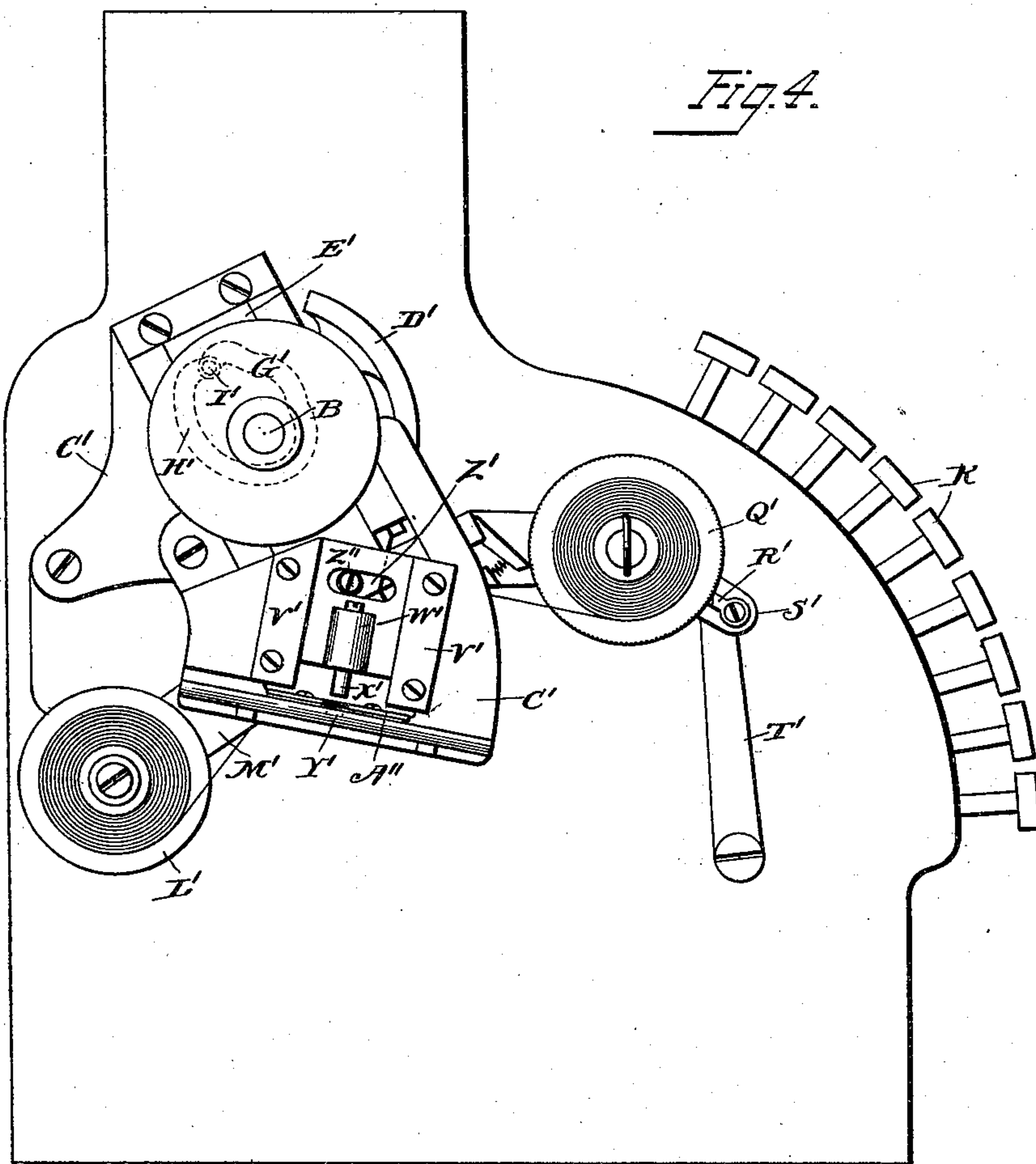
Patented Jan. 7, 1902.

J. P. CLEAL.
CASH REGISTER.

(Application filed Aug. 20, 1894.)

(No Model.)

5 Sheets—Sheet 4.



Witnesses
Martin H. Olsen.
Max Messner

Inventor
Joseph P. Cleal.
by Edward Rector
Attorney

J. P. CLEAL.
CASH REGISTER.

(Application filed Aug. 20, 1894.)

(No Model.)

5 Sheets—Sheet 5.

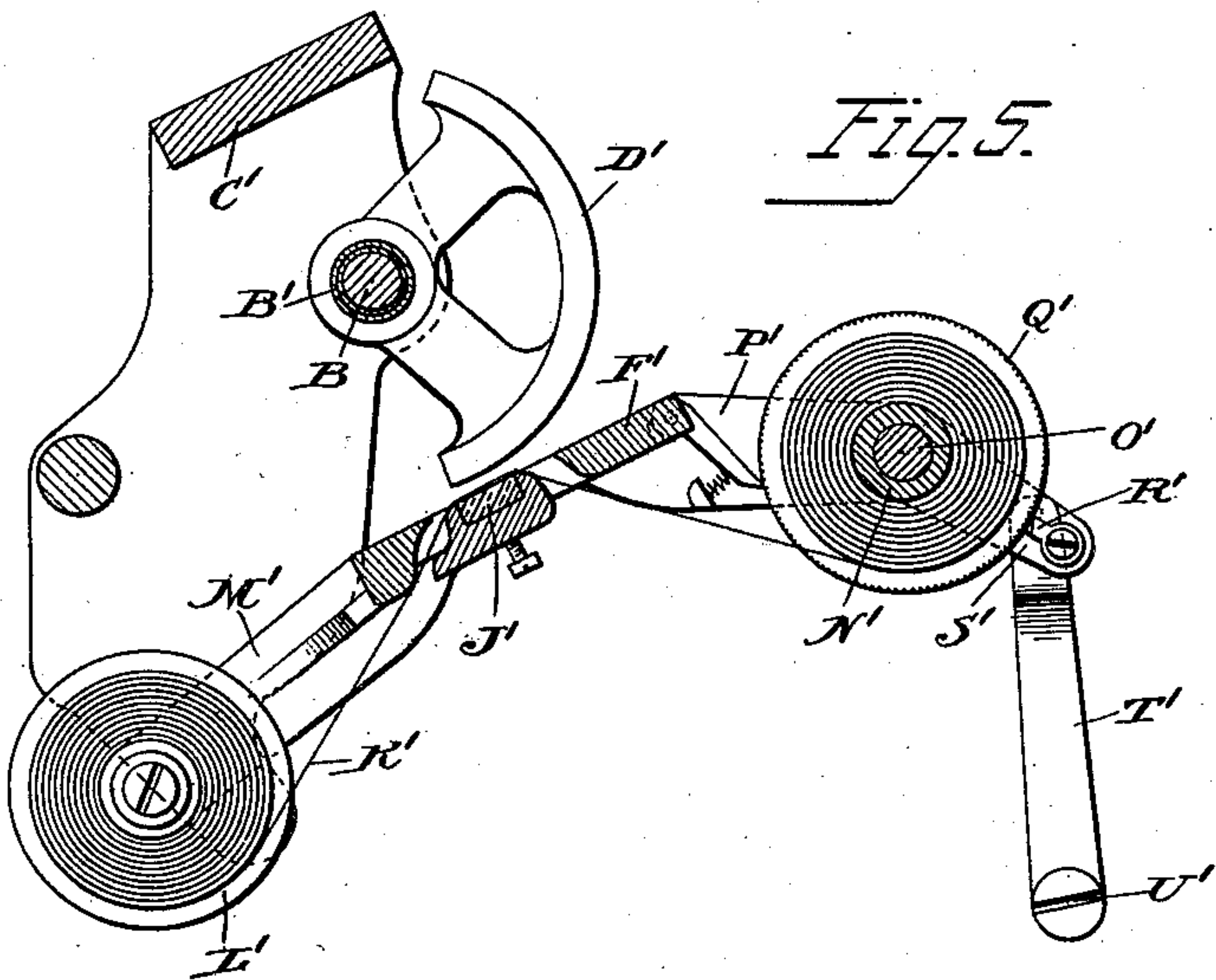
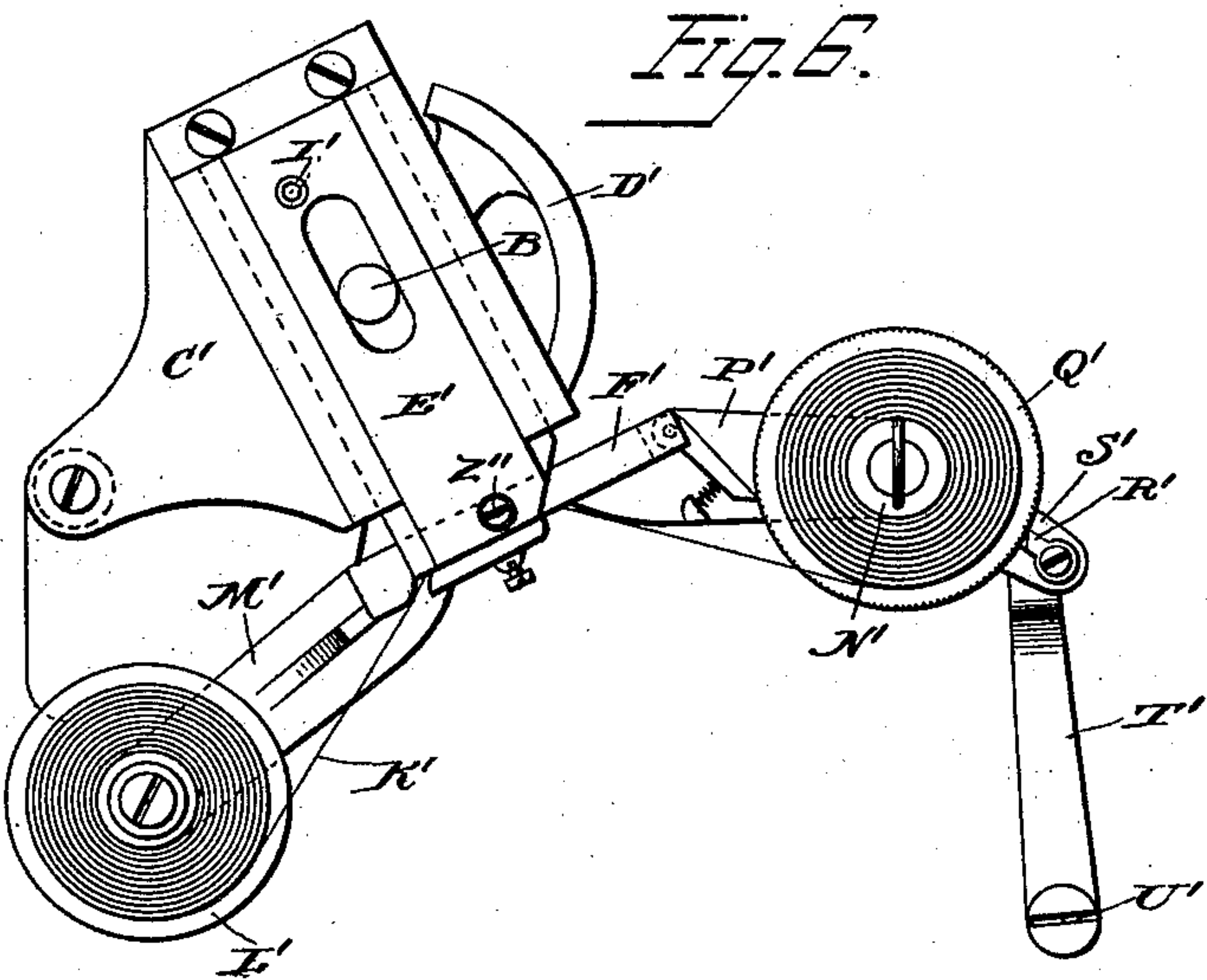


Fig. 7.



		300 .	200 .	100 .
1	2	295 .	195 .	95 .
3	4	290 .	190 .	90 .
5	6	285 .	185 .	85 .
To be served, you will require this Check. Please return it to Cashier and pay highest amount punched.		280 .	180 .	80 .
		275 .	175 .	75 .
		270 .	170 .	70 .
		265 .	165 .	65 .
		260 .	160 .	60 .
		255 .	155 .	55 .
		250 .	150 .	50 .
		245 .	145 .	45 .
		240 .	140 .	40 .
		235 .	135 .	35 .
		230 .	130 .	30 .
		225 .	125 .	25 .
		220 .	120 .	20 .
		215 .	115 .	15 .
		210 .	110 .	10 .
		205 .	105 .	5 .
W. _____				
No. _____				

Witnessed
Martin H. Olsen.
Max Messner

Inventor
Joseph P. Cleal
by Edward Rector
Attorney

UNITED STATES PATENT OFFICE.

JOSEPH P. CLEAL, OF DAYTON, OHIO, ASSIGNOR, BY MESNE ASSIGNMENTS,
TO NATIONAL CASH REGISTER COMPANY, OF JERSEY CITY, NEW JER-
SEY, A CORPORATION OF NEW JERSEY.

CASH-REGISTER.

SPECIFICATION forming part of Letters Patent No. 690,561, dated January 7, 1902.

Application filed August 20, 1894. Serial No. 520,798. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH P. CLEAL, a citizen of the United States, residing at Dayton, in the county of Montgomery and State of Ohio, have invented a certain new and useful Improvement in Cash Registers and Indicators, of which the following is a description, reference being had to the accompanying drawings, forming part of this specification.

My invention relates to that class of machines in which the several mechanisms—such as the indicating, registering, and printing mechanisms—are actuated by a common driving device or operating-handle having a uniform movement at each operation and whose connection with and disconnection from the several mechanisms are controlled by one or more series of keys representing different values as distinguished from that class of machines in which the several mechanisms are actuated directly by the operations of the keys.

My invention consists in the novel combination, with a machine of the class first mentioned, of a ticket or check punching device by which printed tickets bearing a series of numbers representing the various amounts which may be indicated and registered by the machine may be punched to cancel numbers corresponding to the amounts indicated and registered by the machine.

The machine is adapted for use in connection with such a printed ticket as that shown in Figure 7, which bears a series of numbers representing multiples of five from five cents to three dollars. Such checks or tickets are commonly used in restaurants in a manner described at length in my Patent No. 541,264, dated January 18, 1895, in view of which it will be sufficient to say here that when a waiter serves a patron with the first course of his order the number upon the ticket which represents the value of such course is canceled by the inspector or other employee designated for that purpose, and as each succeeding course is served its value is added upon the check by canceling a higher number. By employing a cash register and indi-

cator having an automatic punching device instead of an ordinary hand ticket-punch for canceling the numbers upon the checks the inspector is enabled to preserve a registration of all the amounts which have been canceled upon the checks delivered to the patrons and the amount which the cashier, to whom the patrons pay the checks, must account for may be readily ascertained at all times.

The machine to which I have shown my invention applied in the drawings has been illustrated and described in detail in various patents heretofore granted, among others in Patents Nos. 464,294 and 483,511 to Hugo Cook, and only such illustration and description of its general construction as may be necessary to an understanding of my present invention will be given here.

In the accompanying drawings, Fig. 1 is a perspective view of the machine removed from its casing, looking at its right-hand forward corner; Fig. 2, a front elevation; Fig. 3, a vertical section; Fig. 4, an elevation of the left side of the machine; Fig. 5, a vertical section through the printing attachment; Fig. 6, a side elevation thereof with the cam-disk which actuates the impression-platen and punching device removed, and Fig. 7 a plan view of one of the printed tickets.

The same letters of reference are used to indicate identical parts in all the figures.

The main operating-handle A of the machine, Fig. 1, is secured to the right-hand end of a rotary shaft B, extending entirely through the machine and projecting to the left beyond the framework, as hereinafter described. This shaft has fast upon it adjacent the handle A a gear C, which meshes with a gear D, fast upon a second rotary shaft E, journaled in the framework below and in rear of the shaft B and parallel therewith. At its left-hand end, Figs. 2 and 3, the shaft E has secured to it a crank-arm F, which is connected by a link G to an arm H, fast upon a horizontal rock-shaft I, journaled in the lower middle part of the machine. At each complete revolution of the operating-handle A the shaft I will be given a definite movement

forward and backward. Loosely mounted upon the shaft I is a series of gear-toothed segments J, one approximately in line with each row of keys K. Each of these segments

5 has pivoted upon it at K' a latch-plate L, whose outer end is provided with an open mouth or recess M, adapted to cooperate with the inner ends of the keys K. Fast upon the shaft I beside each of the segments J is a

10 cam-plate N, cooperating with an arm or plate O, fast upon the side of the latch-plate L and provided upon one side at its upper end with a coupling-lug P, adapted to cooperate with a recess Q in the rear edge of the latch-plate

15 L. The sliding keys K are mounted radially to the shaft I in curved guide-plates R S. They have pins passed through them beneath the plate R, and springs coiled around them between said pins and the guide-plate S press

20 them outward and yieldingly hold them in normal position. Near their inner ends the keys are provided with notches which cooperate with beveled lugs or detents T upon the side of a curved detent-plate U, mounted to

25 move in a guideway beneath the keys. Whenever any key is pressed inward, as the fourth key from the bottom in Fig. 3, its notch will be engaged by the corresponding detent T, and the key thereby held in such inner posi-

30 tion against the stress of its spring. With the parts in the position shown in Fig. 3, if the operating-handle be given a revolution the shaft I will be first rocked forward, and at the end of its stroke the coupling-lug P

35 upon the cam-plate N will engage the notch Q in the latch-plate L. At the backward stroke of the shaft I the segment J, being thus coupled to the shaft by the engagement of the lug P with the recess in the plate L, will

40 be carried with the shaft until the outer end of the plate L comes opposite the inner end of the operated key, whereupon the mouth M of the latter will catch over the key. The latch-plate will be rocked upon its pivot by

45 the stress of the lug P tending to escape from the recess Q until it has been moved far enough to permit the escape of the lug, and thereby uncouple the segment from the shaft I. This rocking of the latch-plate throws

50 its outer end outward, so that its mouth M fully embraces the inner end of the operated key, and thereby locks it and the segment from further movement in either direction. At the end of the backward stroke of the shaft

55 I the detent-plate U is lifted, by means described in the aforesaid prior patents, to release the operated key and permit its spring to throw it outward to normal position. At the next operation of the machine and for-

60 ward movement of the rock-shaft I the lug P upon the cam-plate N will reengage the notch in the latch-plate and carry the latter and the segment J forward and downward to the position shown in Fig. 3, where if no key

65 in that particular bank has been set for this operation of the machine it will leave them

and return to normal position alone, special means to this end being described in the patents aforesaid.

From the foregoing description it will be understood that the driving-shaft I is given a definite forward-and-backward movement at each operation of the machine and that when any key in a given bank has been set prior to such movement the shaft will carry the corresponding segment backward with it a distance determined by the position of such key. Thus if the lowest key in the bank be set the segment will be moved one unit of distance. If the second key be set, it will be moved two units of distance, while if the uppermost key be set it will be moved nine units of distance.

The indicators consist of wheels V, geared to the segments J by intermediate gears W X, Fig. 3, the adjustment of the parts being such that when a given segment is moved upward and backward until the latch engages the operated key the corresponding indicator will be turned until the number represented by such key is displayed at the indicating-point, and that at the succeeding operation of the machine and movement of the segment to the position shown in Fig. 3 all of the indicators will be turned until their naughts are displayed at the indicating-point, and such of them as do not correspond to the banks containing the newly-operated keys will be allowed to remain in such position.

The registering-wheels Y are mounted upon a shaft Z in front of the shaft B, Fig. 3, and are actuated by pinions A', meshing with the gears X, suitable ratchets and pawls being interposed between the wheels and the pinions A' to cause the latter to carry the wheels with them in one direction and not in the other.

The four gears X, which mesh, respectively, with the four segments J and operate the four indicator-wheels and the first four registering-wheels, are secured upon the right hand ends of four concentric sleeves B' loose upon the shaft B, Fig. 3. The gear X, which meshes with the right-hand one of the four segments, is fast upon the right-hand end of the innermost one of the four sleeves B', the second gear upon the end of the second sleeve, the third upon the end of the third sleeve, and the left-hand one of the four upon the outer one of the four sleeves. Upon the extreme left-hand ends of the sleeves outside the main framework of the machine and within a supplemental frame C', secured to the left side thereof, are secured four type segments or carriers D'. The extreme left-hand type-carrier and the extreme right-hand gear X are secured upon the opposite ends of the innermost sleeve, and so on through the series, the right-hand one of the type-carriers and the left-hand one of the gears X being secured upon the opposite ends of the outer sleeve, all as fully shown and described in the sec-

ond one of the two patents hereinbefore mentioned.

Fitting in an inclined guideway in the outer wall of the supplemental frame C' is a sliding bar E', which carries at its lower end an integral plate F', projecting inward at right angles to the bar E', beneath the type-carriers D'. Fast upon the outer end of the shaft B is a disk G', fitting against the outer side of the frame C' and sliding bar E'. This disk has upon its inner face a cam-groove H', (shown in dotted lines in Fig. 4,) in which groove fits a stud I' upon the outer face of the bar E'. The result of this is that when the shaft B and disk G' are revolved the bar E' is slid back and forth in its guideway in the frame and the plate F' moved toward and from the type-carriers. Secured in an opening in the middle of the plate F' is a rubber-faced impression-platen J', which when the plate is moved to its highest position contacts with the types upon the carriers at the printing-point or serves to force the paper strip, hereinafter described, against the carriers to effect the printing. The paper strip K', upon which the various amounts indicated and registered by the operations of the machine are printed in successive order, is carried in a roll upon a supply reel or spool L', loose upon a fixed stub-shaft carried by an arm M', extending downward and rearward from the plate F'. From this spool the strip is led upward and forward through the opening in the plate F' at the rear side of the impression-platen J', thence over the same and downward through the opening in the plate F' at the forward edge of the platen, and thence to and around a storage-reel N', loosely mounted upon a stub-shaft O', carried by a second arm P', extending forward from the plate F'. One side of the reel N' consists of a disk Q', having a milled or fine-toothed edge which is engaged by a pawl R', pivoted upon the outer end of an arm S', hung at its inner end upon the shaft O' beside the disk Q'. The outer end of this arm has pivoted to it the upper end of a link T', which is pivoted at its lower end at a fixed point U' upon the framework or casing of the machine. It results from this that the reciprocations of the plate F' and parts carried by it, under the action of the cam-disk G', will cause the pawl R' to turn the reel N' a slight distance at each operation of the machine and advance the paper strip to bring a fresh surface of it to the printing-point.

The shape of the cam-groove in the disk G' and the adjustment of the parts are such that during the first half of revolution of the operating-handle the type-carriers will all be brought to position to present their naughts at the printing-point and the plate F' and impression-platen lowered away from them. During the second half of the handle's revolution the carriers will be moved to proper positions to bring to the printing-point the

numbers corresponding to the keys which have been set, and then the plate F' will be lifted and the platen will force the paper strip against the carriers and effect the printing of the amount upon it.

The devices for inking the type-carriers, which have been shown and described in the prior patents before mentioned, are not illustrated here.

Mounted in approximately vertical guideways V', secured upon the outer side of the supplemental frame C', is the reciprocating support W' of the ticket-punch X', which latter is adapted when lowered to cooperate with a die or hole in a fixed plate Y', secured to the underside of the frame C' and projecting to the left therefrom. The reciprocating support W' is provided near its upper end with a transverse slot Z', in which fits a stud Z'', projecting laterally from the lower end of the bar E', which, as before described, is reciprocated by the cam-disk G', said stud being preferably surrounded by an antifriction-sleeve. Under this construction and arrangement of parts whenever the bar E' is slid downward to its limit of movement the punch X' will pass through its cooperating die or hole in the plate Y', and if one of the printed checks be placed upon the plate Y' beneath the punch a hole will be punched through it. A spring-clip A'', with a slot in line with the punch, is provided for the retention of the tickets in position while being punched.

Upon the ticket shown in Fig. 7 there is printed a dot immediately at the right of each number, and the various amounts may be indicated upon the ticket either by punching out the numbers themselves or by punching out the dots at the right of them. In using these tickets with the machine above described the waiter as he passes from the kitchen to the dining-room with the first course of an order will present an unpunched ticket to the inspector, or the latter will furnish it, as the practice may be. The inspector will press in the proper keys to represent the value of the articles the waiter has upon his tray and place the ticket in position beneath the punch to cancel the corresponding amount upon it. Upon then giving the operating-handle a revolution the ticket will be punched and the amount will be indicated and registered and also be printed upon the paper strip; as will be readily understood.

Having thus fully described my invention, I claim—

1. In a cash-register, the combination with a printing mechanism, of a platen for the same, means for operating the platen, a ticket-punch, and means actuated by the platen-operating means for operating the punch.

2. In a cash-register, the combination with a printing mechanism, of a slide carrying a platen, actuating means for the said slide, a ticket-punch and a shiftable connection between said slide and punch.

3. In a cash-register, the combination with a printing mechanism, of a slide carrying a platen, a slide carrying a punch and means for operating the punch-slide directly from the platen-slide.
- 5 4. In a cash-register, the combination with a printing mechanism, of a rotary cam-disk, a reciprocating slide actuated thereby, a platen carried by said slide, another slide carrying a punch and having a slot formed therein and a pin mounted on the first-mentioned slide and projecting into said slot.

JOSEPH P. CLEAL.

Witnesses:

PEARL N. SIGLER,
GUY FULTON.