

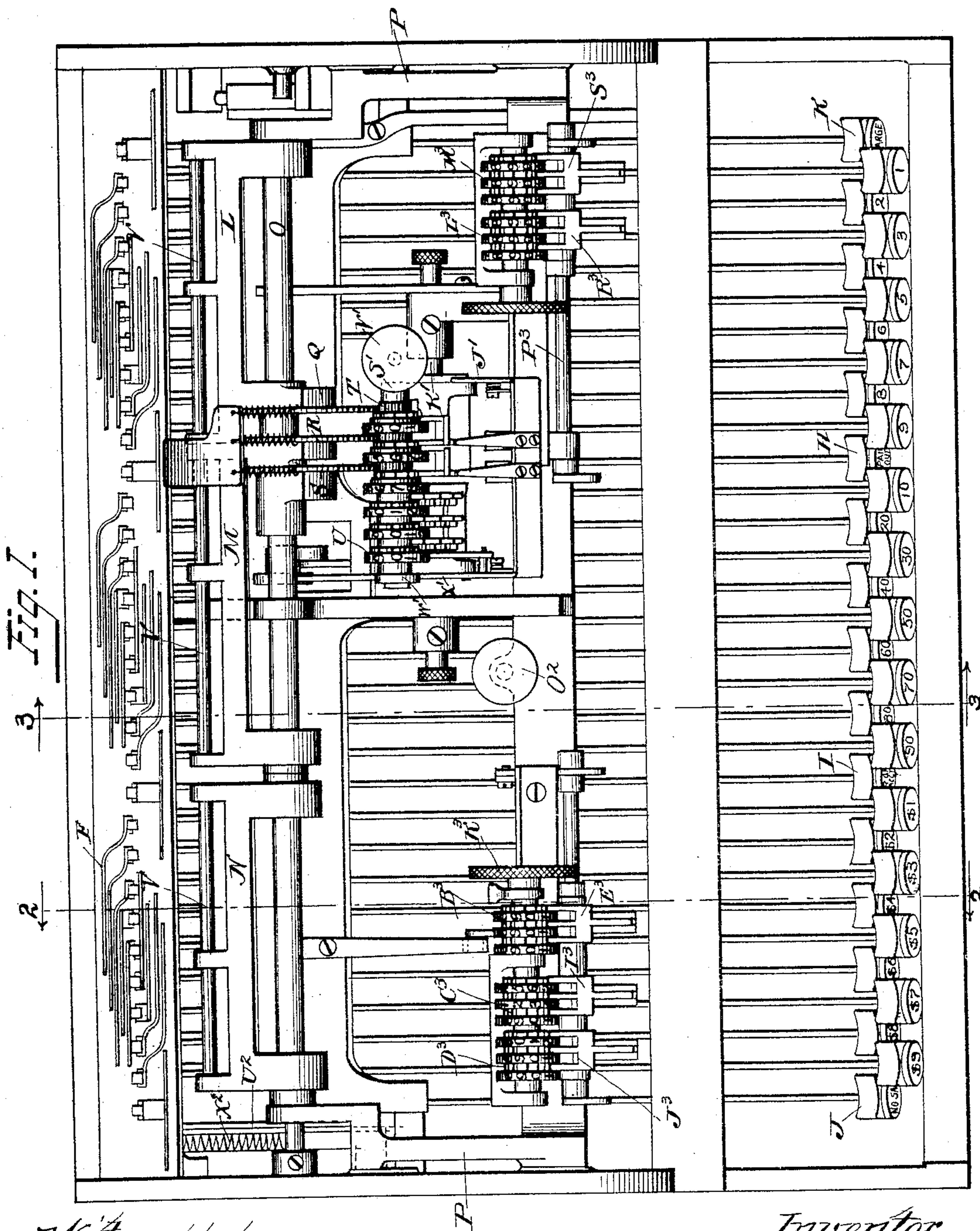
(No Model.)

4 Sheets—Sheet 1.

T. CARNEY.  
CASH REGISTER AND INDICATOR.

No. 532,762.

Patented Jan. 22, 1895.



Witnesses  
Martin A. Olsen.  
S. W. T. Braumard

Inventor  
Thomas Carney  
by Edward Reeder  
his atty

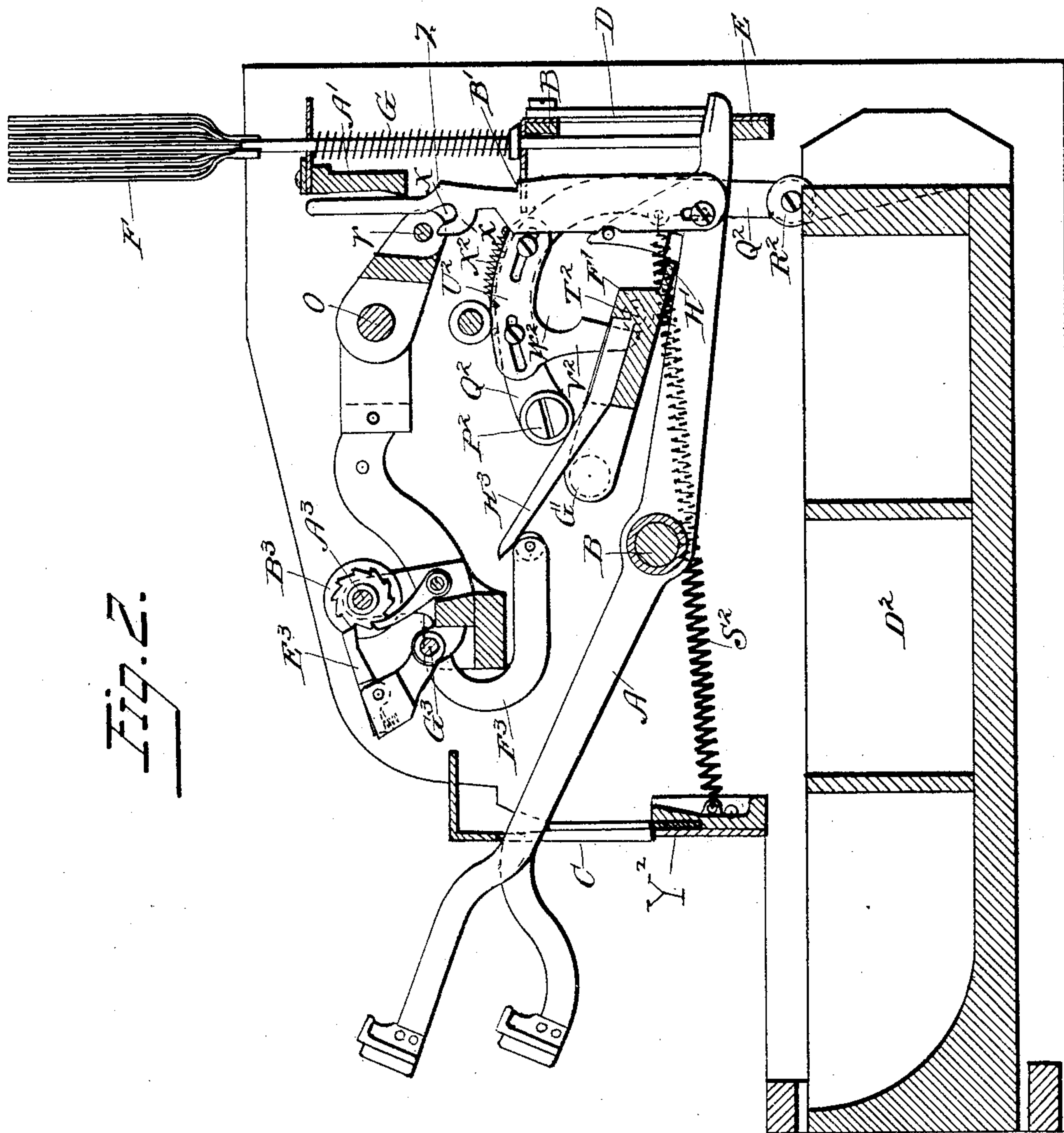
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4 Sheets—Sheet 2.

T. CARNEY.  
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NEED

Witnesses  
Martin H. Olsen.

Sidney W. Brainerd.

Inventor  
Thomas Carney  
by Edward Tector  
his atty



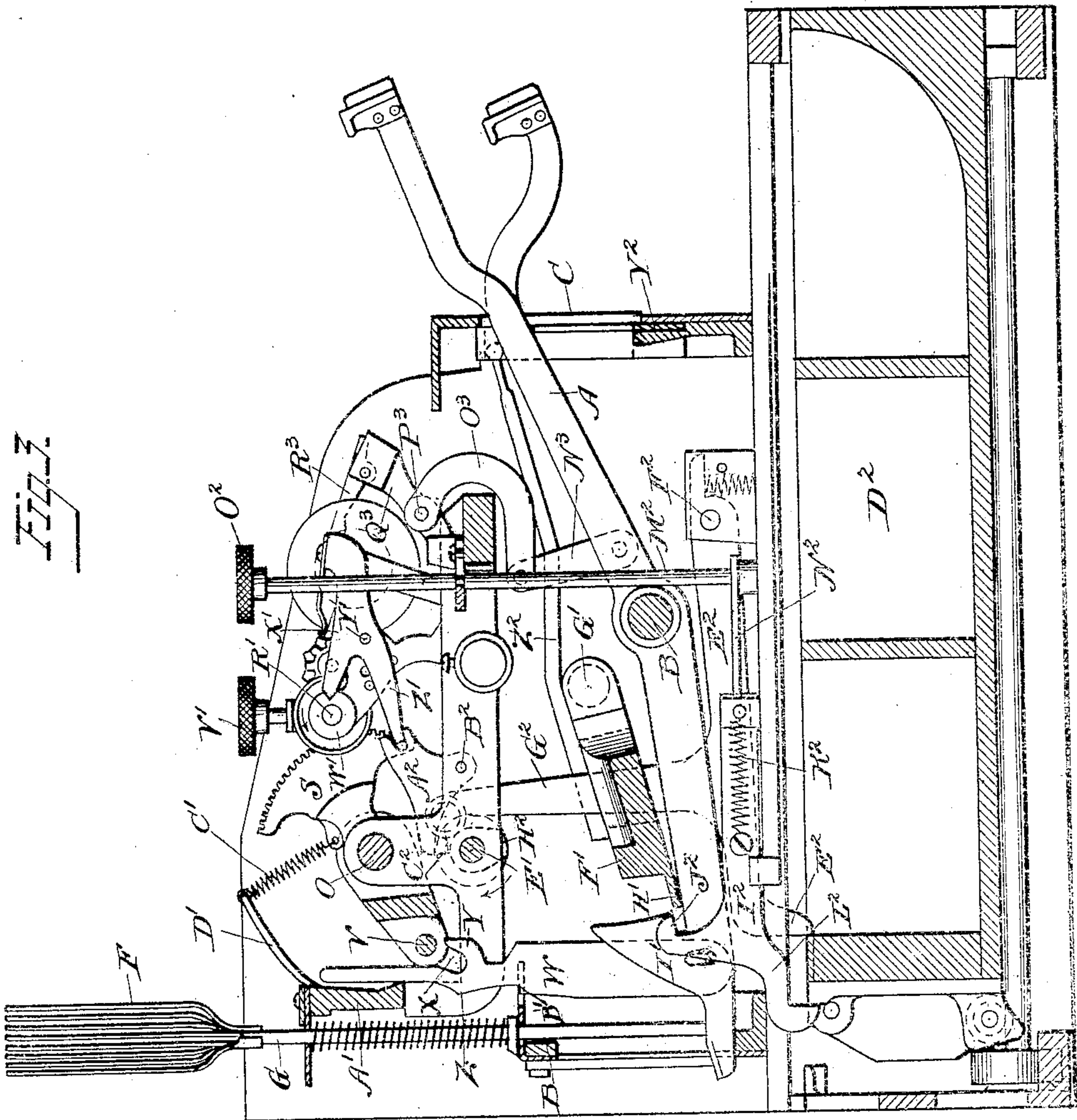
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Witnesses  
Martin A. Olsen.  
Sidney M. Brainard

Inventor  
Thomas Carney  
by Edward Rector  
his atty.

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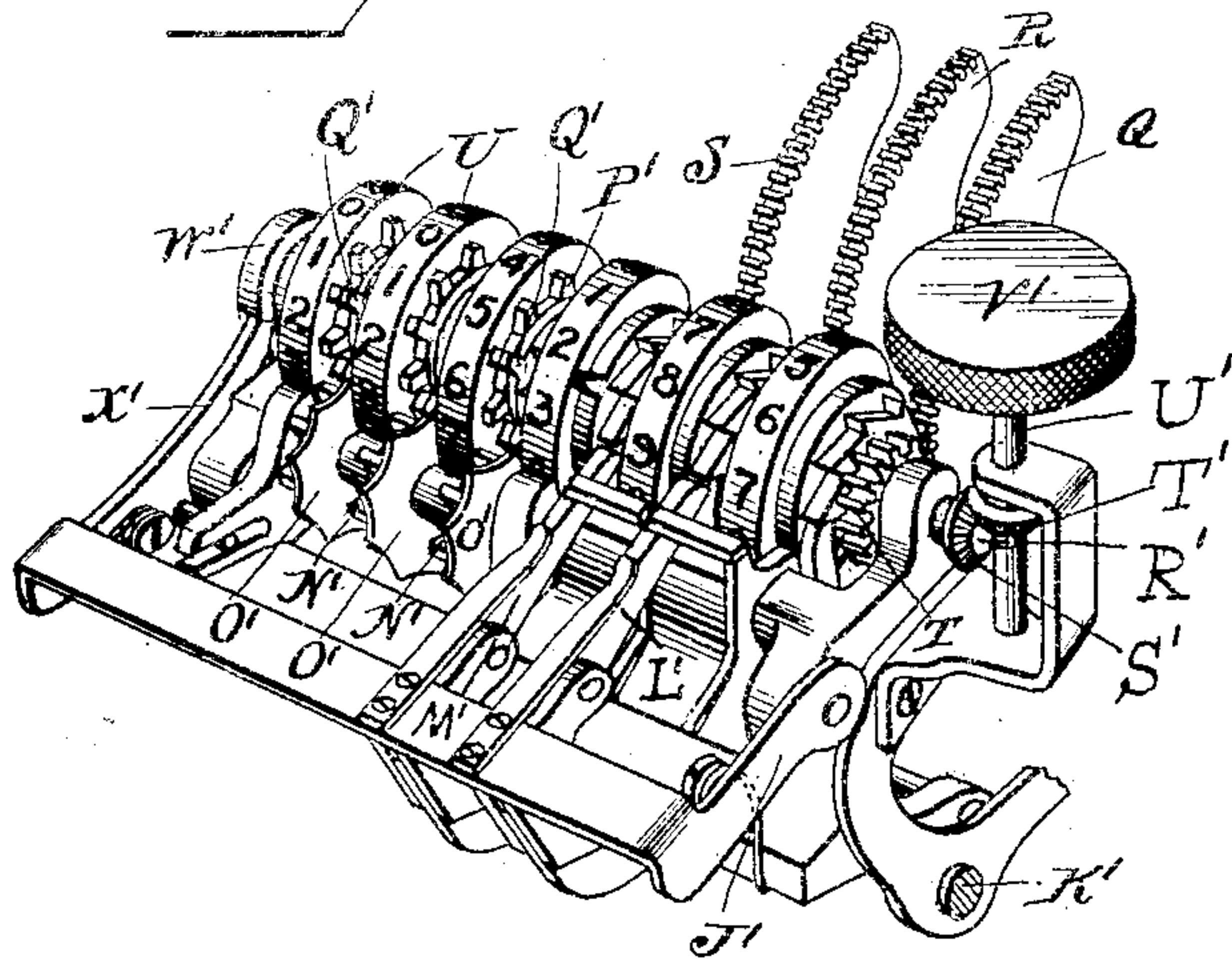
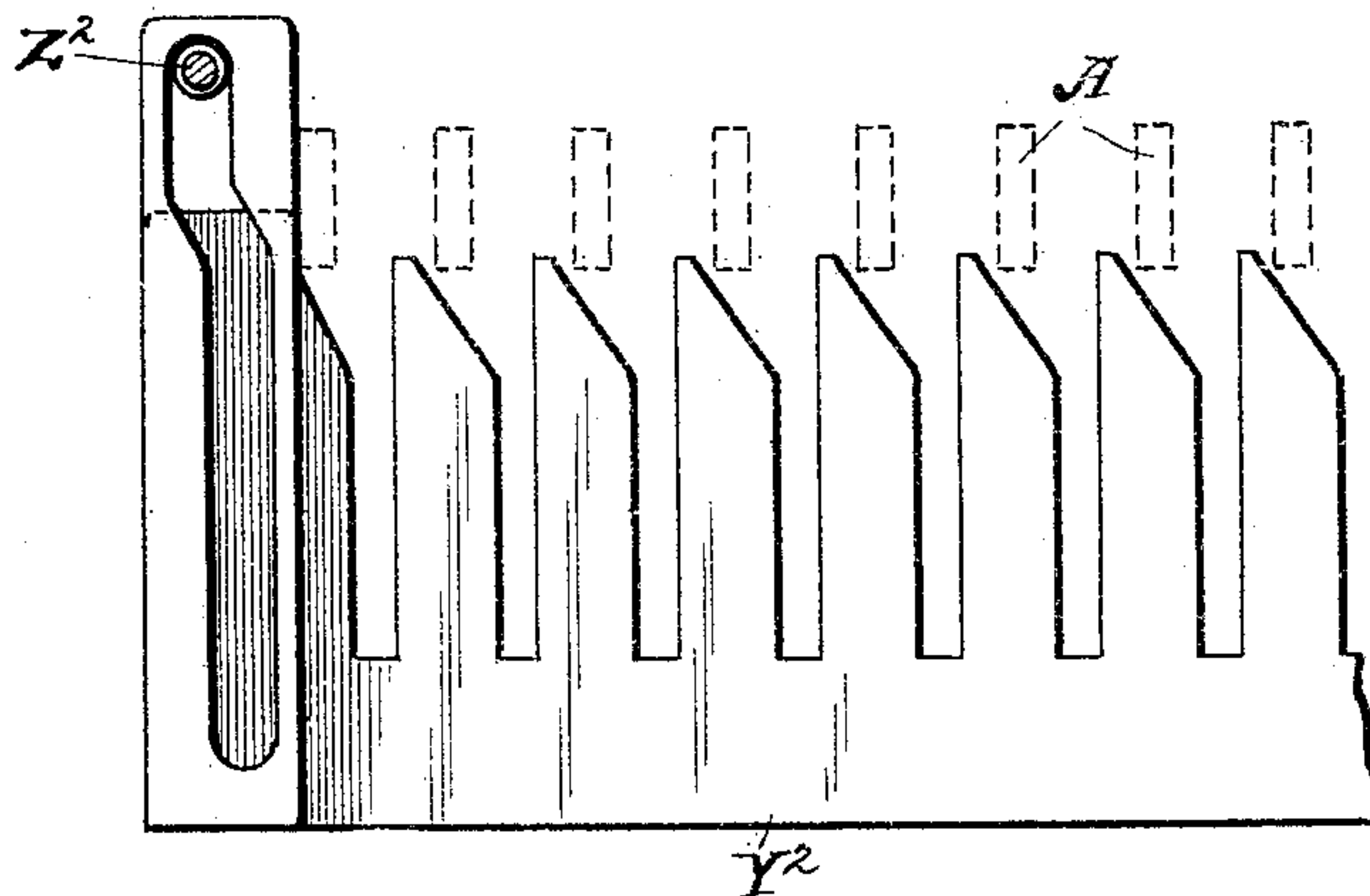


Fig. 5



Witnesses  
Martin H. Olsen.  
Sidney H. Brainard

Inventor  
Thomas Carney  
by Edward Rector  
his atty



# UNITED STATES PATENT OFFICE.

THOMAS CARNEY, OF DAYTON, OHIO, ASSIGNOR TO THE NATIONAL CASH REGISTER COMPANY, OF SAME PLACE.

## CASH REGISTER AND INDICATOR.

SPECIFICATION forming part of Letters Patent No. 532,762, dated January 22, 1895.

Application filed April 9, 1894. Serial No. 506,867. (No model.)

*To all whom it may concern:*

Be it known that I, THOMAS CARNEY, 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 more particularly to certain improvements upon the machine shown and described in Letters Patent of the United States Nos. 497,860 and 497,861, granted me May 23, 1893, but the utility of its several features is not restricted to such machine.

The novelty of the invention consists in certain new constructions, arrangements, combinations and modes of operation of the several parts, which will be hereinafter set forth and particularly pointed out in the claims.

In the accompanying drawings Figure 1 represents a top plan view of the machine removed from its casing; Fig. 2, a vertical section approximately on the line 2—2 of Fig. 1, looking toward the left; Fig. 3, a vertical section approximately on the line 3—3 of Fig. 1, looking toward the right; Fig. 4, an enlarged perspective view of the registering wheels and associated devices; and Fig. 5 an enlarged detail of one end of the slotted guard plate.

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

Reference may be had to my aforesaid prior patents for a detailed description of the general construction and mode of operation of the machine, so that a brief description of them will be sufficient here.

The operating keys consist of levers A fulcrumed on a fixed horizontal rod B, passing through slots in a guide plate C at the front of the casing, passing at their rear ends through a vertically slotted guide plate D and resting upon a cross piece E of the framework.

The indicators of the machine consist of tablets F carried by vertical rods G resting at the lower ends upon the rear ends of the key levers.

The operating keys are divided into sepa-

rate sets or groups, each containing nine keys. In this instance there are three such sets or groups, the right hand one representing units of cents, the middle one tens of cents and the left hand one units of dollars, while intermediate the several groups are two special keys H I, Fig. 1, and at the extreme opposite sides of the groups two other special keys J K. The different keys in the group are arranged to transmit different degrees of movement to a vibrating or swinging registering frame, there being three of such frames, L M N, mounted upon a rock-shaft O journaled at its opposite ends in bracket supports P upon the side frames of the machine, Fig. 1. The frames L M are loose upon the shaft O and the frame N is fast upon it. The frame L has fast upon its left hand end an upwardly and forwardly projecting gear toothed segment Q, while fast upon the right hand end of the frame M, adjacent the segment Q, is a similar segment R, and at the left of the latter and fast upon the rock-shaft O is a third similar segment S, Fig. 3. These segments are adapted to be engaged with and disengaged from the driving pinions T of the first, second and third wheels of a totalizing register U hereinafter more particularly referred to.

Each of the registering frames L M N has rigidly secured in its rear side a transverse rod V parallel with the shaft O upon which the frames are mounted. Each of these rods V is adapted to co-operate with a series of graduated lifters W of the corresponding set of group of keys. These lifters consist of plates connected at their lower ends to the keys near the rear ends of the latter, provided in their forward edges with recesses X forming fingers Y, and upon their rear edges adjacent such recesses and fingers with rounded shoulders or knuckles Z, Figs. 2 and 3. The recesses X and fingers Y of the different lifters in each group are arranged at different distances from the rod V of the registering frame with which they co-operate, the arrangement and adjustment of the parts being such, as explained in my prior patents, that the full stroke of any key in a group will cause its lifter to move the corresponding registering frame a distance proportionate to the value represented by such key. The fingers Y upon



the lifters normally stand beneath their co-operating rods V, so that when the lifter is moved upward its finger and recess will engage the rod and rock the registering frame, but for the purpose of throwing the upper end of the lifter slightly forward and fully engaging its recess X with the rod V each lifter is provided with a shoulder Z upon its rear edge, which shoulder co-operates with the lower forward corner of a fixed cross bar A' of the framework, the engagement of the shoulder Z with such bar serving to throw the upper end of the lifter slightly forward at the moment its recess X engages the rod V and to thereby cause the lifter to clutch the rod and become locked to it, so that any independent movement of them during the further upward movement of the parts is prevented. The rear edge of the lifter below the shoulder Z is so curved that the engagement of the bar A' with it after the shoulder Z has passed above the lower edge of said bar will hold the lifter locked to the rod V during the further upward movement of the parts. In this manner at the moment an operated key begins to move the registering frame it becomes connected to said frame so that neither can move independently of the other, and the exact portion of the movement of the key desired is thus transmitted to the registering frame and any excess of movement of the latter prevented. For the purpose of positively arresting the parts at the end of the positive strokes of the keys and upward movement of the lifters the latter are provided upon their rear edges with shoulders B' having abrupt upper surfaces, which shoulders contact with the lower edge of the cross bar A' at the end of the upward movement of the lifters.

In my prior machine the lifters W were pivoted at their lower ends directly to the sides of the key levers and there was no independent movement of them. The segments of the registering frames are engaged with the pinions of the registers at the beginning of the positive strokes of the key-levers and disengaged from them at the beginning of the return or negative strokes of such levers, as hereinafter described, and where the registering frames begin their return movement at the same time that the keys begin theirs, as was necessarily the case in my prior machine where the lifters were directly pivoted to the key-levers, some considerable nicety of adjustment is necessary to insure the disengagement of the segments from the registers before the segments and registering frames begin their backward movement and thereby prevent "dragging" of the segments over the pinions.

In my present machine I have connected the lifters to the key-levers by slot and pin connections which will permit slight movement of the levers independently of the lifters and registering frames at the beginning of both the positive and negative strokes of

such levers. Thus, as will be seen, when the front end of a key-lever is depressed the pin upon the side of its rear end will have to travel upward through the length of the slot in the corresponding lifter before it will begin to move the latter, and at the beginning of the return stroke of the lever the pin will move downward through the length of such slot before it will pull the lifter downward. Now, as hereinafter described, the pinions of the registers are moved into engagement with the segments of the registering frames at the beginning of the positive strokes of the keys and moved out of engagement therewith at the beginning of their negative strokes, and it therefore results from this loose connection of the lifters with the key-levers that the return stroke of the operated key will be sufficiently advanced to disengage the registering pinions from the segments before the latter are returned to normal position.

While the slot and pin connections of the lifters with the key levers permit slight independent movement of the lifters, yet the provision of the shoulders B' upon the rear sides of the lifters and the contact of those shoulders with the lower edge of the cross bar A' at the end of the positive strokes of the key-levers will prevent any overthrow and excessive movement of the lifters and registering frames, as might otherwise be the case. In the present machine, also, the lower portion of the rear side of the cross bar of each registering frame is curved concentrically to the shaft V and the fingers Y on the lifters are so shaped as to fit snugly in the space between the rod V and such curved surface, with the result that when a lifter is moved into engagement with its registering frame it will become securely connected thereto and play between them be prevented.

The registering frames and their segments are yieldingly held in and returned to their normal positions by springs C' connected at their lower ends to the segments and at their upper ends to the forward edge of a plate D' secured to and projecting upwardly and forwardly from the cross bar A', Fig. 3.

Journaled in the framework of the machine and extending transversely across the same beneath and parallel with the shaft O is a rotary shaft E'. Overlying and resting upon the upper sides of the keys beneath this shaft is a heavy cross bar F' hung at the opposite ends of its forward edge to the side frames of the machine at G'. This bar is provided along its rear side with a flange H' adapted to co-operate with slotted lugs or hooks I' upon the key-levers, to couple the latter to said bar, in a well known manner. Interposed between the bar F' and the rotary shaft E' is a mechanical movement, illustrated and described in detail in my aforesaid prior patents, and not here shown, by which the reciprocating movements or vibrations of the bar F' under the operations of the key levers are transmitted to and converted into rotary motion



in the shaft E', such shaft being turned forward a half revolution during the positive stroke of a key and lifting of the bar F', and another half revolution during the negative stroke of the key and return of the bar F'.

The totalizing register U, Fig. 1, is supported in a rocking frame J', Figs. 1 and 4, mounted upon a fixed rod K' supported in the framework. By means of cams upon the rotary shaft E' and connections between the same and the rocking frame J', illustrated and described in detail in my prior patents, said frame is rocked forward and backward at each complete operation of the machine, to throw the driving pinions T of the registering wheels into and out of mesh with the segments upon the registering frames. The adjustment of the parts is such, as described in the aforesaid patents, that the frame J' is rocked backwardly and the pinions engaged with the segments at the beginning of the positive stroke of the operated key, and rocked forward, to disengage the pinions and segments, at the beginning of the return or negative stroke of such key. In this manner the movements of the registering frames and segments in one direction are imparted to the registering wheels, while the latter are not affected by the movement of the segments and frames in the opposite direction.

In my aforesaid patents the transfers between the several registering wheels were effected by means of transfer pawls, the complete revolution of any wheel in the series operating to set the transfer pawl belonging to the next higher wheel, so that when said pawl was actuated such higher wheel would be turned by it to register the transfer. To insure the proper transfers at all times it was necessary to actuate these pawls in succession from the lower to the higher denominations, so that the pawl belonging to a given wheel would not be actuated until the next lower wheel in the series had been turned as far as might be required both by the number to be added upon it by the direct operation of a key and any transfer to be effected to it from a preceding wheel. Inasmuch as in a register employing six wheels it was necessary to employ five transfer pawls, and inasmuch as such pawls had to be actuated in succession during the negative or non-registering strokes of the keys, it was found extremely difficult to insure their accurate operation under all circumstances in such a limited period of time as that occupied by the return stroke of the keys in the ordinary operation of the machine. To overcome this difficulty I have in some machines arranged the cams upon the rotary shaft to actuate the pawls for two or three of the highest wheels during the positive strokes of the keys, under which arrangement the transfers between the lower wheels would be effected at the operation of the machine at which said wheels were actuated, but any transfers from them to the higher wheels, or between the latter, would not be effected

until the next succeeding operation of the machine. Thus, the register at the end of any operation would not necessarily exhibit the full amount which had been added upon the machine, and assurance that it did exhibit such full amount could be had only by operating one of the blank or special keys of the machine to thereby make certain that all transfers were effected. I have overcome all of these difficulties and objections in my present machine by providing transfer pawls for only the second and third wheels in the series, and effecting the transfers between the remaining wheels by means of transfer gears or pinions meshing with similar gears upon the sides of the respective wheels. Thus, as seen in Fig. 4 there are provided two transfer pawls L' M' adapted to co-operate with ratchets upon the second and third registering wheels, in the manner illustrated and described in my prior patents, while between the third and fourth wheel is a transfer gear N' and notched locking disk O', the former meshing with a gear P' upon the right side of the fourth wheel and the latter co-operating with the notched hub of the third wheel to lock the gear N' from movement except when the third wheel completes a revolution. Projecting from the hub of the third wheel is a tooth Q' adapted to engage the gear N' at each complete revolution of the third wheel and turn said gear and consequently the fourth wheel one-tenth of a revolution and thereby add a unit upon said fourth wheel. Similar transfer devices are interposed between the fourth and fifth and fifth and sixth wheels. It is an easy matter to actuate the transfer pawls for the second and third wheels in succession during the negative stroke of the operated key or keys, so that the transfers to those wheels will always be properly effected, and inasmuch as the transfers between the higher wheels will always be effected by means of the transfer gears and associated devices, regardless of the length of time consumed in the operation of the machine, it will be seen that all of the transfers are rendered sure and the register caused to exhibit at the end of each operation the total amount added upon the machine.

I am of course aware that trains of registering wheels provided with transfer gears and locking disks such as those I employ are old, but I am not aware of any instance in which transfer pawls actuated in succession have been employed for effecting the transfers between the lower wheels of the series and the other form of transfer devices described between the higher wheels of the same series.

The next feature of my invention relates to novel means for locking the machine from operation during the time the registering wheels are being returned to zero. As shown and described in my prior patents the registering wheels are mounted upon a rotary shaft R', Fig. 4, and have interposed between



them and the shaft suitable devices to cause the shaft to pick up the wheels and carry them with it when turned in one direction. The shaft R' has fast upon its right hand end  
 5 a beveled pinion S' meshing with a corresponding pinion T' upon a vertical resetting shaft U' having fast upon its upper end a milled thumb-piece V' by which it may be turned to rotate the shaft R' and pick up the  
 10 registering wheels and carry them to initial position. Fast upon the left hand end of the shaft R' Fig. 3 is a notched disk W' with which co-operates a spring-pressed plate or lever X' pivoted to the frame J' at Y' and having  
 15 a lower rearwardly extending arm Z' which fits in a notch in a rocking plate A<sup>2</sup> pivoted to the framework at B<sup>2</sup> and projecting at its rear end over the rotary shaft E'. Fast upon said shaft in line with the plate A<sup>2</sup> is a disk C<sup>2</sup> provided  
 20 with a notch which in the normal position of the parts rests immediately beneath the rear end of the plate A<sup>2</sup>. Whenever the shaft R' is rotated by turning the thumb piece V', to reset the registering wheels, the movement of  
 25 the disk W' upon the left hand end of the shaft R' will tilt the lever X' upward as the notch in the disk is carried away from said lever, and this tilting of the lever will tilt the plate A<sup>2</sup> and throw its rear end downward  
 30 into the notch in the locking disk C<sup>2</sup> upon the shaft E' and thereby lock said shaft from movement and consequently prevent an operation of any of the keys until the resetting shaft R reaches normal position and the notch  
 35 in the disk W' is brought into engagement with the lever X' again, whereupon a spring acting upon the lever X' will restore the parts to the positions shown in the drawings. In this manner the machine is locked during the  
 40 operation of resetting the registering wheels, while, conversely, the resetting shaft R is locked from operation except when the operating keys and rotary shaft E' are in their normal position of rest, for when the shaft E  
 45 and the locking disk C<sup>2</sup> are turned from normal position by the operation or partial operation of any key the surface of the disk C<sup>2</sup> will ride under the rear end of the plate A<sup>2</sup>, against or adjacent the same, and prevent  
 50 any tilting of the latter and consequently lock the lever X' in the position shown in the drawings, with its upper rear end engaged with the notch in the disk W' fast upon the shaft R'. Inasmuch as the shaft R' cannot  
 55 be turned without rocking the lever X' as the notch in the disk W' is carried from under said lever, it will be seen that the shaft R' cannot be turned to reset the wheels until the operating keys and shaft E' are restored to  
 60 normal position and the notch in the disk C<sup>2</sup> brought under the end of the plate A<sup>2</sup>.

The machine is provided with the usual money drawer D<sup>2</sup> and this drawer, when closed, is locked by the engagement with its  
 65 rear wall of the downwardly bent rear end of a locking lever E<sup>2</sup> which is pivoted at its front end to a support upon the top of the drawer

compartment at F<sup>2</sup>. About midway of its length this lever is provided with an upwardly extending arm G<sup>2</sup> whose upper end carries an  
 70 anti-friction roller standing in the path of a cam H<sup>2</sup> fast upon the rotary shaft E' (dotted lines, Fig. 3). At each operation of any one of the keys and complete rotation of the shaft E' the cam H<sup>2</sup> will throw the upper end of the  
 75 arm G<sup>2</sup> forward and thereby lift the rear end of the locking lever E<sup>2</sup> and release the drawer.

For the purpose of preventing operation of the keys while the money drawer stands open there is provided a backwardly and forwardly  
 80 sliding locking plate I<sup>2</sup> mounted in suitable guides upon the top of the drawer compartment. This plate is provided upon its upper edge with a slotted lug or hook J<sup>2</sup> similar to the lugs I' upon the keys, which lug when the  
 85 plate is in its forward position catches over the flange H' upon the rear edge of the vibrating cross-bar F' and locks said bar, and consequently the key levers, from movement. A  
 90 spring K<sup>2</sup> connected to the plate I<sup>2</sup> tends to hold the latter in its forward locking position, but the plate has upon its under side a rearwardly projecting arm L<sup>2</sup> whose downwardly bent rear end stands in the path of a plate  
 95 upon the rear wall of the drawer, so that when the drawer is closed the plate I<sup>2</sup> will be slid rearwardly and maintained out of locking position.

When a key is operated and the drawer released and the cross bar F' lifted the locking  
 100 plate I<sup>2</sup> will be pulled forward slightly to its limit of movement, and when the key is released and the bar F' restored to normal position its flange H' will press the plate I<sup>2</sup> backward and catch under its hook, thereby lock-  
 105 ing the bar and keys until the drawer is closed.

For the purpose of throwing this locking device out of operation at will there is provided a vertical rock-shaft M<sup>2</sup> having fast  
 110 upon its lower end a plate N<sup>2</sup>, which when the rod is turned to the position shown in Fig. 3 engages the front end of the locking plate I<sup>2</sup> and forces the latter rearward and maintains it out of locking position. When the shaft  
 115 M<sup>2</sup> is turned in the opposite direction and the plate N<sup>2</sup> carried away from the plate I<sup>2</sup> the latter will be thrown into operative position by its spring K<sup>2</sup>. A milled thumb-piece O<sup>2</sup> is secured upon the upper end of the shaft M<sup>2</sup>,  
 120 for turning it.

Heretofore in machines of this class the operating keys and parts moved by them have been reset to normal position by the gravity of parts lifted by the keys or the action of  
 125 springs put under tension by them. To insure the prompt resetting of the keys and other parts it has often been found necessary to employ strong springs or make the gravitating parts of considerable weight, and the work of putting these springs under tension  
 130 or lifting the gravitating parts was added to the other duties of the keys. In my present machine I employ a strong resetting spring for the keys and parts moved by them, and



thus insure their prompt return to normal position, but relieve the keys entirely of the work of putting the spring under tension by providing means for putting it under tension by the closing of the money drawer, maintaining it under tension by the drawer while the latter is locked in its closed position, and releasing it and permitting it to act upon the parts to be reset when the drawer is released and opened. The application of this resetting spring is shown in Fig. 2. Pivoted to the left hand side plate of the framework at  $p^2$  is a rearwardly and downwardly curved arm  $Q^2$  carrying at its lower end an anti-friction roller  $R^2$  standing in the path of the rear wall of the drawer  $D^2$ . A strong spring  $S^2$  connected at its rear end to said arm and at its forward end to a front cross bar of the framework tends to pull said arm forward, but when the drawer is in closed position it holds the arm in the position shown in the drawings. In such position the drawer latch bears the entire stress of the spring and it has no action upon the key levers or the cross bar  $F'$  overlying them. When, however, any key is operated and the cross bar  $F'$  lifted the spring  $L^2$  will pull the arm  $Q^2$  downward and forward as soon as the drawer is released by its latch and cause it to engage a stud or projection  $T^2$  upon the left hand end of the cross bar  $F'$  (said stud being preferably surrounded by an anti-friction collar) thereby applying the full force of the spring to the cross bar  $F'$  and operated key or keys and causing it to assist their gravity in promptly restoring them to normal position. When they reach such position the arm  $Q^2$  will rest against the projection  $T^2$  upon the end of the bar  $F'$  until the drawer is closed and the arm moved by it to the position shown in the drawings. The portion of the rear wall of the drawer which engages the friction roller  $R^2$  upon the lower end of the arm is preferably cut away or inclined as shown by the dotted lines, to facilitate the resetting of the arm. In this instance the spring  $S^2$  is the only spring shown for automatically opening the drawer when released by its latch, but another spring for that purpose may be employed if desired. It will be understood that the drawer is not released, to permit the spring  $S^2$  to act, until the operated key has completed its positive stroke. This will be apparent from the position of the cam  $H^2$  in Fig. 3, where it will be seen that it will not move the drawer-latch and release the drawer until after the shaft  $E'$  has completed a half revolution and consequently not until after the operated key has completed its positive stroke.

From the foregoing description it will be seen that a resetting spring of any desired strength may be employed and the entire work of placing it under tension be imposed upon the drawer and the operating keys be relieved of all duty in that respect. So far as I am aware I am the first in the art to provide a resetting spring for the keys arranged to be put under tension by the closing of the

money-drawer, and my invention in this respect is therefore limited only by the terms of the respective claims in which it is expressed.

Inasmuch as the parts just described would remain inoperative if the drawer were held in its closed position by hand during the entire operation of the machine, I have provided means for preventing manipulation of the machine in that manner. To that end I have mounted by slots and screws upon the side of the arm  $Q^2$  a sliding plate  $U^2$  provided with a downwardly projecting arm  $V^2$  having in its rear edge near its junction with the body of the plate a rounded recess  $W^2$ . A coiled spring  $X^2$  connected at one end to the arm  $Q^2$  and at the other to the plate  $U^2$  tends to pull the latter rearward, and it is maintained in forward position against the stress of such spring by the engagement of the lower end of its arm  $V^2$  with a projection  $T^2$  upon the end of the bar  $F'$ . When, however, the bar  $F'$  is lifted by the operation of a key until its projection  $T^2$  comes opposite the recess  $W^2$  the spring  $X^2$  will slide the plate  $U^2$  rearward and engage the recess  $W^2$  with the projection  $T^2$  and thereby catch and support the bar  $F'$ . Inasmuch as the flange  $H'$  upon the rear edge of the bar operates to lock all of the unoperated keys during the time the bar is displaced from normal position, in the well known manner, it follows that until the drawer is released and opened and the spring  $S^2$  allowed to pull the arm  $Q^2$  downward and forward and reset the parts no other key in the machine can be operated, so that the machine becomes locked from further use until the drawer is opened. At the resetting of the arm  $Q^2$  to the position shown in the drawings, after the drawer has been opened and when it is again closed, the recess  $W^2$  in the plate  $U^2$  will clear the projection  $T^2$  upon the end of the bar  $F'$  and permit the latter to remain at rest while the arm  $Q^2$  and plate  $U^2$  resume the positions shown.

For the purpose of preventing the insertion of wires or instruments of any kind through the slots in the front plate  $C$  of the casing there is arranged immediately behind said plate, in suitable supports, a laterally sliding plate  $Y^2$  provided with a series of vertical slots, one for each key lever, Fig. 5. When this plate is in its normal left hand position its slots do not register with the slots in the plate  $C$ , so that the plate  $Y^2$  serves to close the slots in the plate  $C$ . The cross bar  $F'$  heretofore described has secured to it near its right hand end a forwardly extending arm or rod  $Z^2$ , Fig. 3, whose front end fits in a cam groove upon the rear side of the plate  $Y^2$ , Fig. 5. When any one of the key levers is depressed and the bar  $F'$  thereby lifted the downward movement of the front end of the rod  $Z^2$  will force the plate  $Y^2$  to the right and cause its slots to register with those in the plate  $C$ , and thereby permit depression of the operated key. Upon the return of the parts to normal position the upward movement of



the front end of the rod  $Z^2$  in the cam groove will move the plate  $Y^2$  to the left again and close the slots in the plate C.

Loosely mounted upon a shaft  $A^3$  suitably supported upon the framework, Figs. 1 and 2, are three registers  $B^3$   $C^3$   $D^3$ . The register  $B^3$  is employed to register the total number of operations of the machine. It is actuated by a pawl  $E^3$  pivoted in the upper end of a bent lever  $F^3$  hung upon a rod  $G^3$  and extending at its rear end beneath the front end of an arm  $H^3$  rigidly secured to and projecting forward from the bar  $F'$ . When the latter bar is lifted by the operation of any key in the machine the downward movement of the front end of the arm  $H^3$  will tilt the lever  $F^3$  and cause the pawl  $E^3$  to advance the register  $B^3$  one number. The register  $C^3$  is actuated by the pawl  $I^3$  suitably connected to and operated by the special key I, to preserve a register of the total number of operations of the latter key, while the register  $D^3$  is actuated by a pawl  $J^3$  connected to and operated by the special key J, for the same purpose. Suitable devices are interposed between the wheels of these registers and the rod  $A^3$  upon which they are mounted to cause the latter to pick up the wheels and carry them to zero when it is turned in one direction, and the rod has fast upon its right hand end a milled thumb piece  $K^3$  for turning it for that purpose. Near the right hand side of the machine, in line with the registers just described, are two more similar registers  $L^3$   $M^3$ , actuated by the special keys H and K respectively, to preserve a register of the number of operations of those keys. The key H is connected by a link  $N^3$ , Fig. 3, to the lower end of a curved arm  $O^3$  which is rigidly secured at its upper end to a rock-shaft  $P^3$ , Fig. 1, which shaft has fast upon it adjacent the register  $L^3$  an upwardly extending arm  $Q^3$  in which is pivoted the pawl  $R^3$  which actuates the register  $L^3$ . The pawl  $R^3$  which actuates the register  $M^3$  is similarly connected with the special key K.

Having thus fully described my invention, I claim—

1. The combination, in a cash register, of a series of operating keys, a money-drawer, and a resetting spring for the keys put under tension by the movement of the drawer, substantially as described.

2. The combination, in a cash register, of a series of operating keys, a money-drawer, a latch therefor controlled by the keys, and a resetting spring for the keys put under tension by the movement of the drawer, substantially as described.

3. The combination, in a cash register, of a series of operating keys, and a resetting spring for the keys put under tension by the closing movement of the drawer, substantially as described.

4. The combination, in a cash register, of a series of operating keys, a movable bar common to all of the keys and moved by the operation of any one of them, a money drawer,

and a resetting spring for the movable bar put under tension by the movement of the drawer, substantially as described.

5. The combination, in a cash register, of a series of operating keys, a movable bar common to all of the keys and moved by the operation of any one of them, a money-drawer, a latch therefor controlled by the keys, and a resetting spring for the movable bar put under tension by the closing movement of the drawer, substantially as described.

6. The combination, in a cash register, of a series of operating keys, a movable bar common to all of the keys and moved by any one of them, a money-drawer, a swinging arm held in normal position by the drawer when the latter is closed, and a resetting spring connected to said arm and adapted to move the latter into contact with the movable bar when the drawer is opened, substantially as described.

7. The combination, in a cash register, of a series of operating keys, a movable bar common to all of the keys and moved by the operation of any one of them, a money drawer, a latch therefor controlled by the keys, a swinging arm moved to and maintained in normal position by the closing of the drawer, and a resetting spring connected to said arm and adapted to swing the same into contact with the movable bar when the drawer is released and opened, substantially as described.

8. The combination, in a cash register, of a series of operating keys, a movable bar common to the keys and lifted by the operation of any one of them, a money drawer, and a latch plate controlled by said drawer for holding the movable bar in elevated position, after being lifted thereto by the positive stroke of a key, until the drawer is released and opened, substantially as described.

9. The combination, in a cash register, of a series of operating keys, a movable bar common to the keys and lifted by the operation of any one of them, a money drawer, a latch therefor controlled by the keys, and a latch controlled by the money drawer for maintaining the movable bar in elevated position, after being moved thereto by the positive stroke of the key, until the drawer is released and opened, substantially as described.

10. The combination, in a cash register, of a series of operating keys, a movable bar common to the keys and lifted by the operation of any one of them, a money drawer, a latch therefor controlled by the keys, a swinging arm moved to and held in normal position by the drawer, a spring for moving said arm into contact with the movable bar when the drawer is released and opened, and a spring-pressed latch plate mounted upon said swinging arm and co-operating with a projection upon the movable bar to maintain the latter in elevated position, after being lifted thereto by the positive stroke of a key, until the drawer is released and opened, substantially as described.



11. The combination of the operating keys A, the movable bar F' common thereto, the money drawer, the latch therefor controlled by the keys, the swinging arm Q<sup>2</sup> engaging the drawer at its lower end, and the spring S<sup>2</sup> for swinging the arm Q<sup>2</sup> into contact with the bar F', substantially as and for the purpose described.

12. The combination of the operating keys A, the movable bar F' common thereto, the money drawer D<sup>2</sup>, the latch therefor controlled by the keys, the swinging arm Q<sup>2</sup> engaging the drawer at its lower end, the spring S<sup>2</sup> connected to the arm Q<sup>2</sup>, and the latch plate U<sup>2</sup> mounted upon the arm Q<sup>2</sup> and co-operating with the projection T<sup>2</sup> upon the bar F', substantially as and for the purpose described.

13. In a cash register, the combination of the operating keys A, a swinging registering frame provided with the rod V, the lifters W having the loose connections with and actuated by the keys, and provided with the fingers Y and recesses X co-operating with the rod V and the registering frame, and with the shoulders Z and B', and the fixed bar A' co-operating with said shoulders Z and B', substantially as described.

14. In a cash register, the combination of a series of operating keys representing different amounts, a series of registering wheels actuated thereby to register such amounts, means common to said wheels for turning them to initial position, and a locking device common to the keys and actuated by the wheel-re-setting means to automatically lock the keys from operation while the wheels are being re-set to initial position, substantially as described.

15. In a cash register, the combination of the operating keys A, the rotary shaft R', the registering wheels mounted thereon and actuated by the keys, means intermediate the wheels and shaft for connecting the shaft and

wheels when the shaft is turned in one direction, the rotary shaft E' actuated by the keys, and a locking mechanism intermediate said shaft and the shaft R' for locking the shaft E' when the shaft R' is turned from normal position, substantially as described.

16. In a cash register, the combination of the operating keys A, the rotary shaft R', the registering wheels mounted thereon and actuated by the keys, means intermediate the wheels and shaft for connecting the shaft and wheels when the shaft is turned in one direction, the notched disk W' fast upon the shaft R', the lever X' co-operating with the disk W', the pivoted plate A<sup>2</sup> co-operating with lever X', the rotary shaft E' actuated by the keys, and the notched disk C<sup>2</sup> fast upon the shaft E' and co-operating with the plate A<sup>2</sup>, substantially as described.

17. In a cash register, the combination of the operating keys A, the money drawer D<sup>2</sup>, the latch therefor consisting of the horizontal lever E<sup>3</sup> pivoted at its forward end and engaging the drawer at its rear end and having the vertically extending arm G<sup>2</sup>, the rotary shaft E<sup>2</sup> actuated by the keys, and the cam H<sup>2</sup> fast upon said shaft and co-operating with the arm G<sup>2</sup>, substantially as described.

18. In a cash register, the combination of the operating keys A guided near their forward ends in the vertically slotted plate C, the laterally sliding plate Y<sup>2</sup> mounted behind the plate C and provided with the vertical slots normally out of line with the slots in the plate C, the movable bar F' overlying the keys near their rear ends, and the arm Z<sup>2</sup> secured to said bar and co-operating with a cam upon the plate Y<sup>2</sup>, substantially as and for the purpose described.

THOMAS CARNEY.

Witnesses:

PEARL N. SIGLER,  
JOSEPH P. CLEAL.