

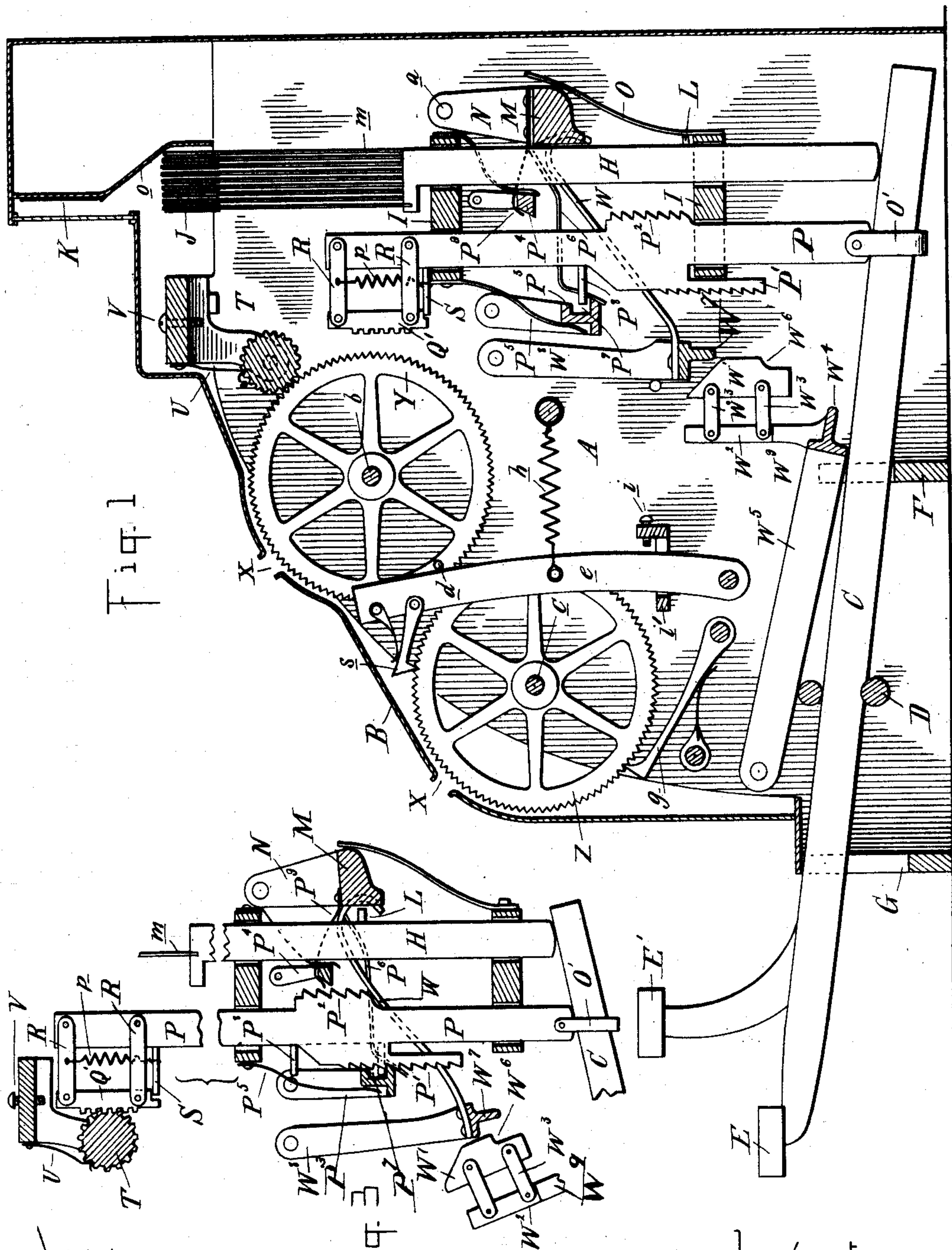
(No Model.)

3 Sheets—Sheet 1.

W. G. LATIMER.
CASH INDICATOR AND REGISTER.

No. 430,390.

Patented June 17, 1890.



Witnesses:

P. M. Hulbert
Cambridge

Inventor:

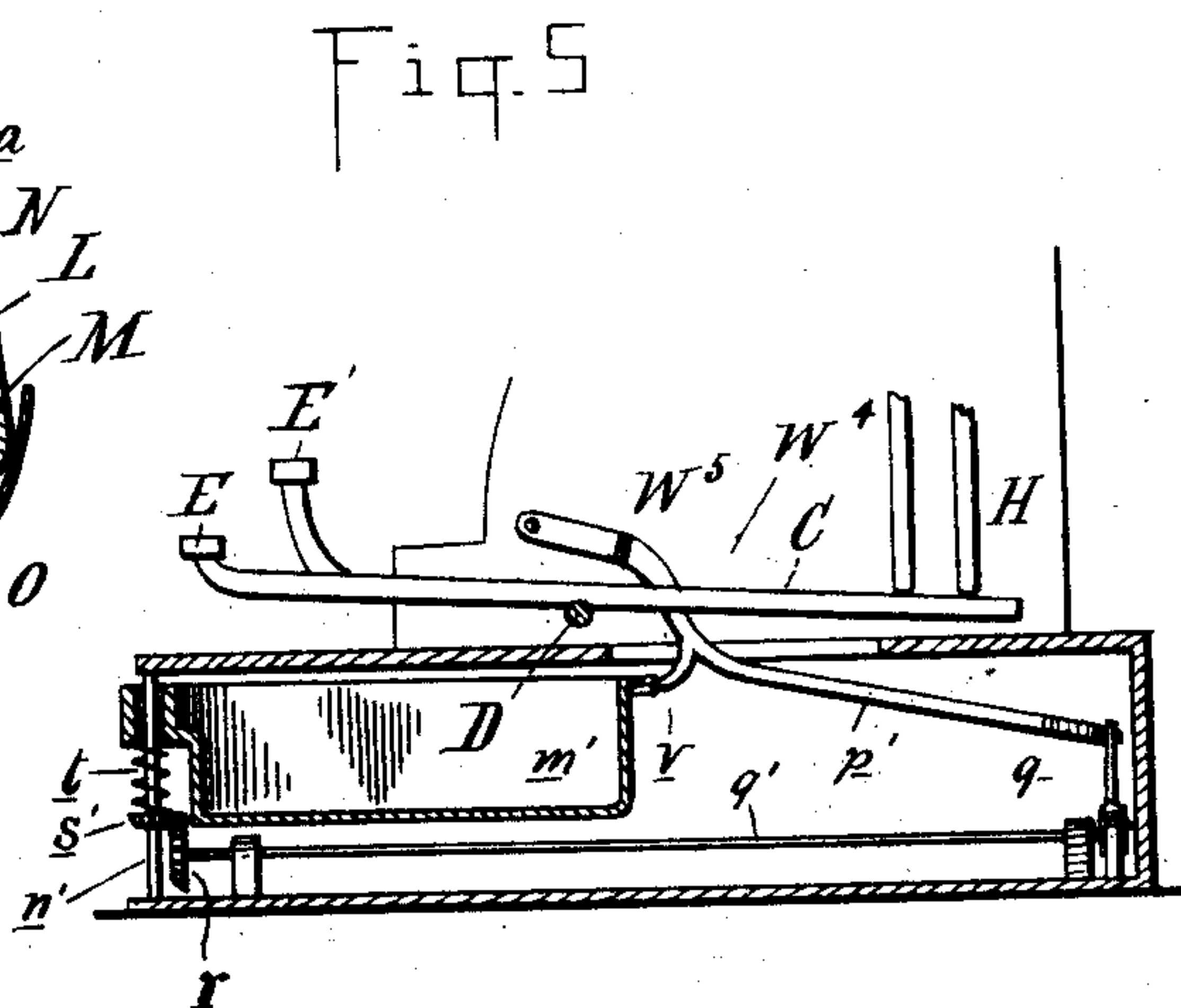
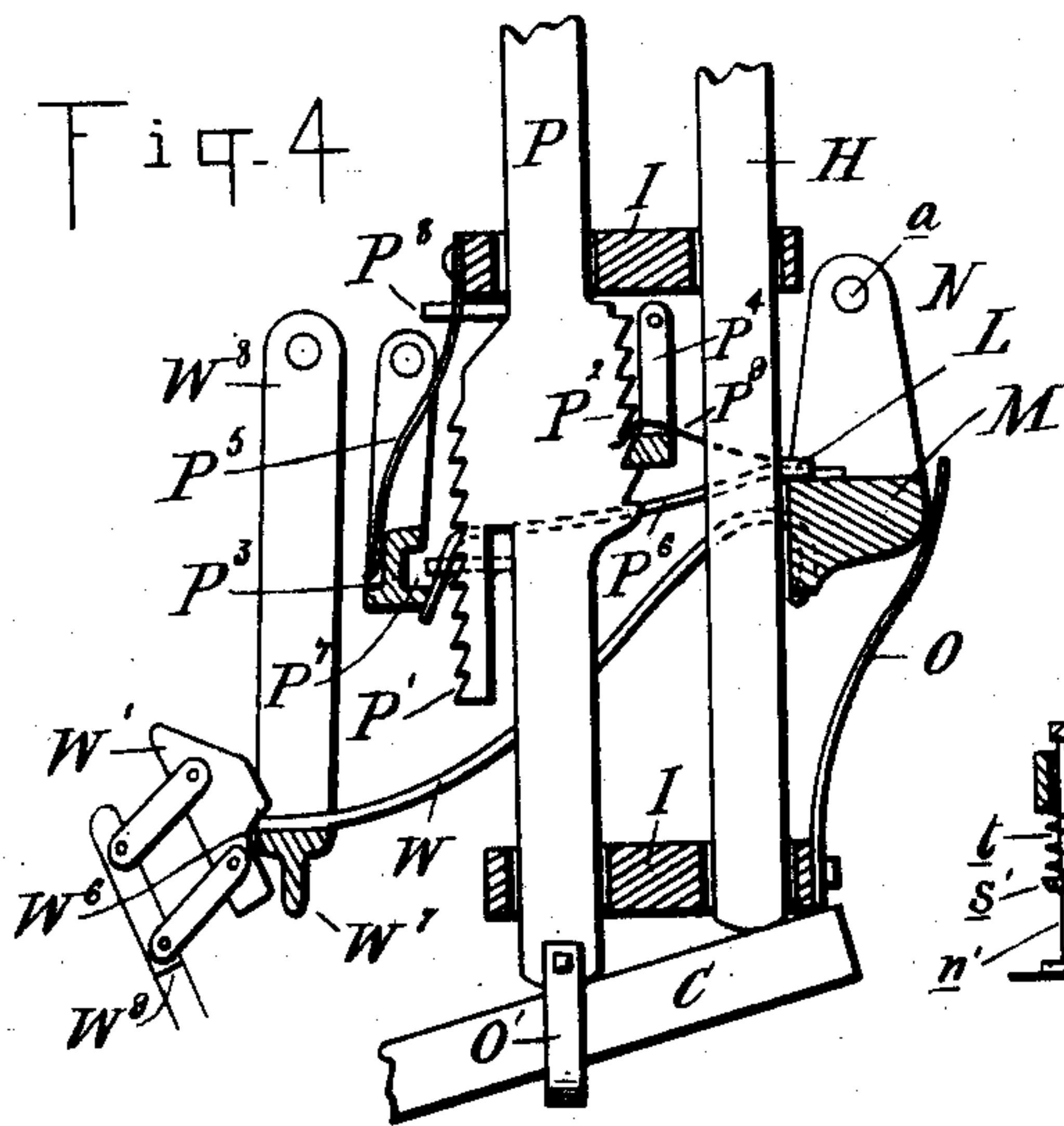
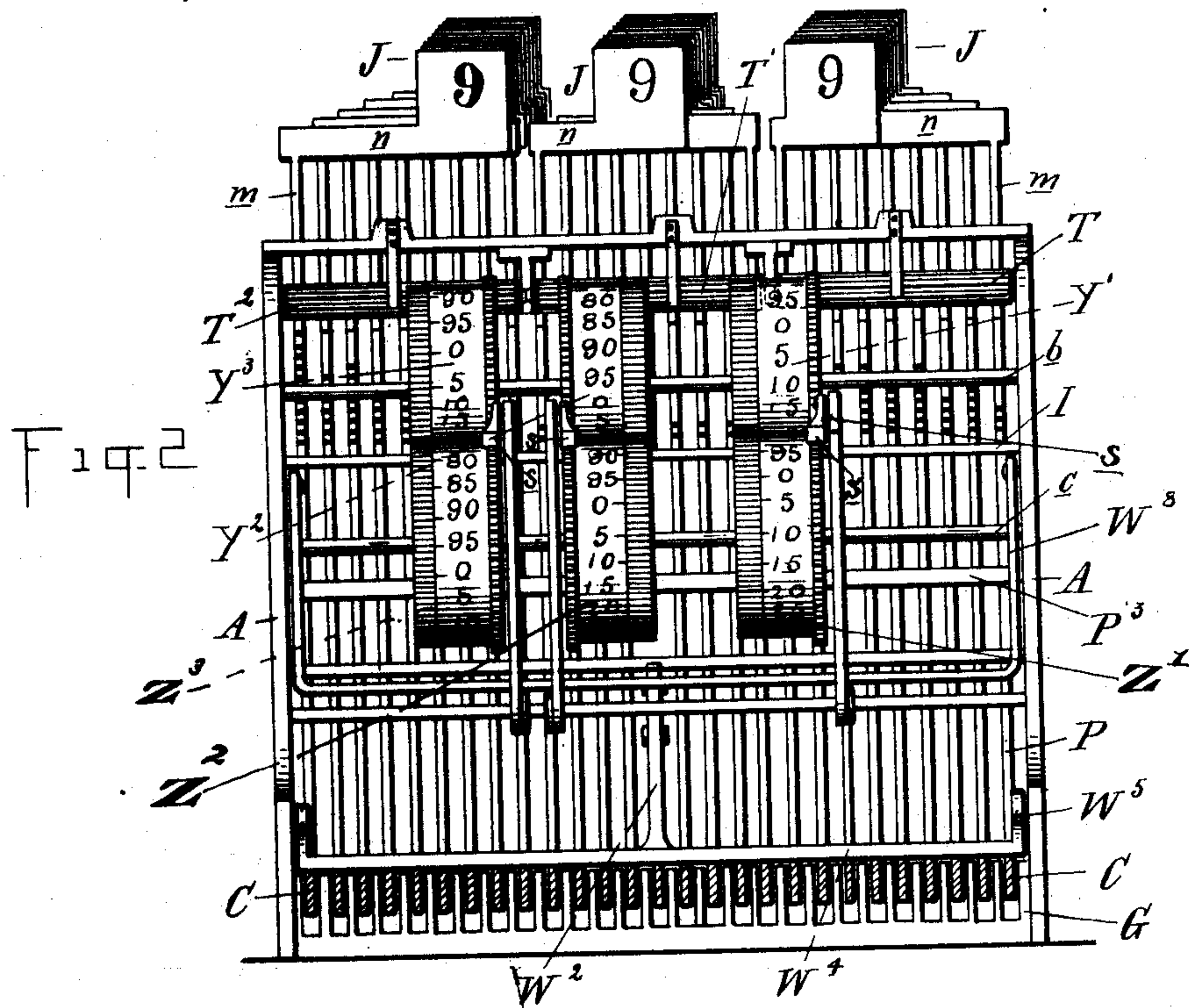
William G. Latimer

By Thos. Sprague for
Att'y.

3 Sheets—Sheet 2.

No. 430,390.

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Inventor

William G. Latimer

B4 Thos. Sprague & Son Att'y

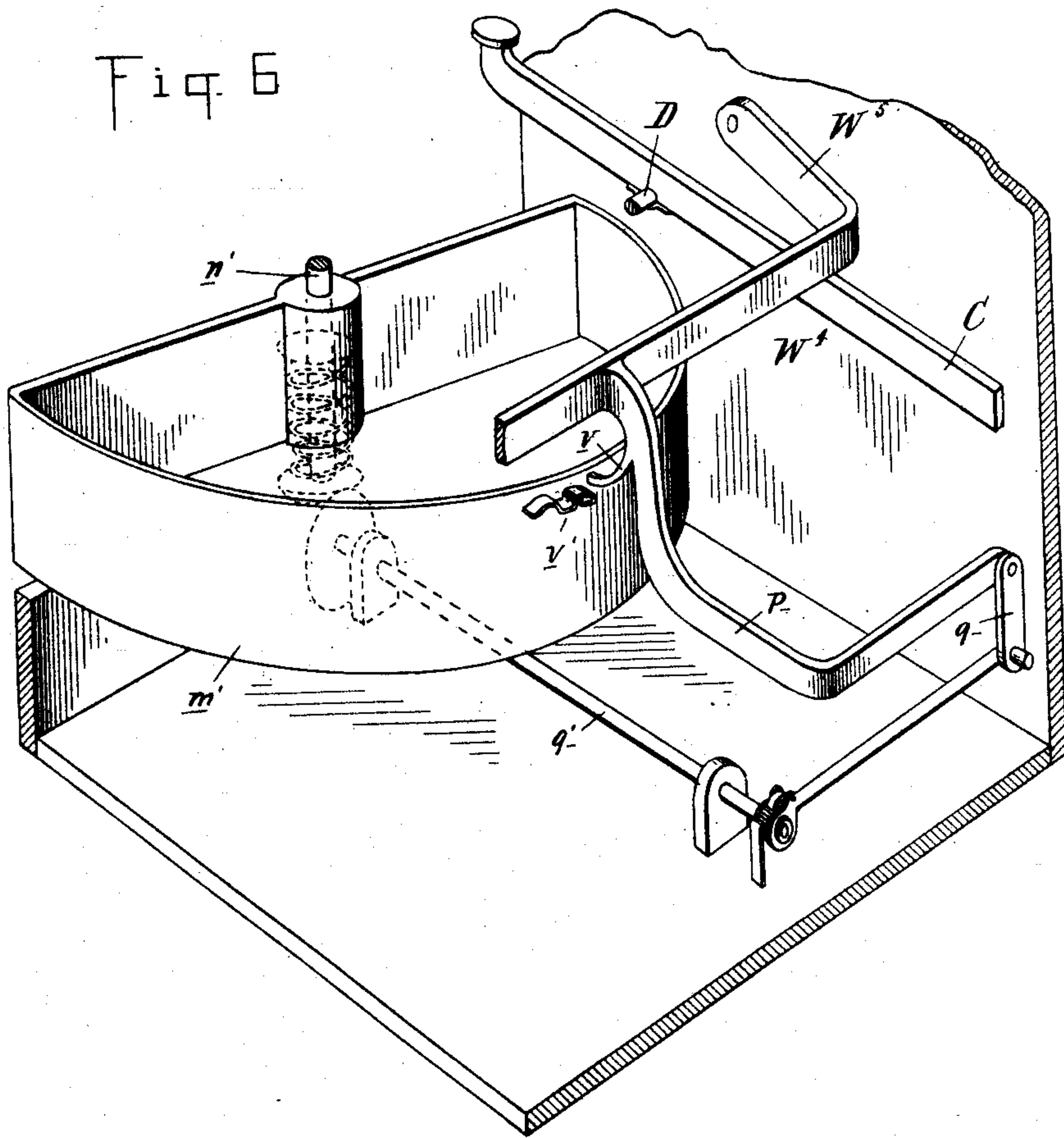
(No Model.)

3 Sheets—Sheet 3.

W. G. LATIMER.
CASH INDICATOR AND REGISTER.

No. 430,390.

Patented June 17, 1890.



Witnesses:
P. M. Halborn
C. C. Alton

Inventor:
William G. Latimer
By Mort Maguire Atty.

UNITED STATES PATENT OFFICE.

WILLIAM G. LATIMER, OF DETROIT, MICHIGAN, ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE LATIMER CASH REGISTER COMPANY, OF SAME PLACE.

CASH INDICATOR AND REGISTER.

SPECIFICATION forming part of Letters Patent No. 430,390, dated June 17, 1890.

Application filed October 5, 1889. Serial No. 326,085. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM G. LATIMER, a citizen of the United States, residing at Detroit, in the county of Wayne and State of Michigan, 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.

10 This invention relates to new and useful improvements in combined cash registers and indicators; and the invention consists in the peculiar construction, arrangement, and combination of different parts, whereby a very positive operation of the whole device is obtained in a very simple manner, and which precludes any irregular operation or tampering with fraudulent intent, which in the present constructions is the main cause of the parts getting out of order.

20 In the drawings which accompany this specification and form a part thereof, Figure 1 is a vertical longitudinal section through the device. Fig. 2 is a front elevation of the device with the front casing removed and the key-levers in section. Figs. 3 and 4 show a part of Fig. 1 with the parts as in operation. Fig. 5 is a longitudinal section through the cash-drawer. Fig. 6 is a detail perspective view of the till and its operating mechanism.

30 A is the supporting-frame of the device and forms the sides of a casing.

B is a cover removably secured and forming the remaining sides and top of the casing.

35 C are a series of horizontal levers, fulcrumed upon a cross-bar D near the bottom of the casing, and provided with keys E E' upon their free ends, which project out in front. The keys are preferably arranged in two banks and formed into three groups of nine keys each, numbered from 1 to 9, consecutively. The first group on the right hand has the keys from 1 to 5 placed in the lower bank and the rest in the upper bank. The central group has four keys in the lower bank and the remaining five keys in the upper bank, while the left hand group has the first five keys in the lower bank and the remaining four keys in the upper bank. By thus distributing the keys of each group in the proportion of four

and five alternately between the two banks of keys a symmetrical arrangement of the three groups of levers in two banks of keys is obtained, and no difficulty will be experienced by the operator to become familiar with the operation of the device, as will be more fully hereinafter described.

55 F and G are horizontal cross-bars, each provided with a series of vertical slots through which the levers pass to keep them in parallel relation to each other and to guide them in their vertical movement, the rear bar F serving also as a means for supporting the levers in their normal position, as shown in Fig. 1.

60 H are a series of vertical indicating supporting-rods, one for each lever, and with their lower ends loosely supported upon the rear ends of the levers. These rods are supported in vertical position by the slotted cross-bars II, which form suitable guide-bearings through which the supporting-rods may freely rise and fall. To the upper end of each of these supporting-rods is secured on a flexible extension *m*, secured to the supporting-rod and having a horizontal arm *n*, a tablet J, which tablets are numbered correspondingly to the key belonging to their supporting-rod and arranged in three groups corresponding to the three groups of keys, but with the tablets of each group in front of each other. The three groups of tablets are also preferably approached toward each other in the center of the device. Above each group of tablets is fixed an incline *o* and a zero-tablet K. Each of the supporting-rods H is provided upon its rear side with a projection L.

75 M is an engaging cross-bar on the rear side of the supporting-rods. It is supported in position free to move rearwardly in any suitable manner—such as by means of the hangers N, formed at the ends of the bar and pivotally secured at *a*—and O is a spring which tends to hold the engaging cross-bar in contact or proximity with the rear supporting-rods.

90 P are a vertical series of registering-rods, one for each lever. These rods are supported upon the levers C in front of the indicating-rods H and are connected by hinges or stir- 100

5 rups O' to the levers. They pass through suitable slots in the guide-bearings I I , and the upper end of each of these supporting-rods carries a rack-pawl Q' , hinged thereto by means of the parallel links R R and resting with its lower end upon a fixed stop S , which supports the pawl with the links extended at right angles to the supporting-bar. The number of cogs or teeth on each rack-pawl corresponds to the numerical value of each lever by which it is actuated, and thus they form three groups in conformity with the three groups of levers.

15 T , T' , and T^2 are three like geared or serrated rollers journaled transversely in suitable bearings in axial line with each other and independently rotatable of each other. These rollers are journaled in the path of the rack-pawls Q' , so that when the latter are elevated by the action of the levers C they will actuate the rollers by the engagement of their respective cogs or teeth. The roller T is adapted to be operated by any one of the rack-pawls belonging to the first group of levers on the right-hand side. The roller T' is adapted to be operated by any one of the rack-pawls belonging to the central group of levers, and the roller T^2 is adapted to be operated by any one of the rack-pawls belonging to the left-hand group of levers.

30 The rack-pawls Q' are only adapted to engage and operate the rollers T , T' , and T^2 in their upward movement, as in the downward movement they withdraw out of engagement therewith, owing to the manner of securing them, as shown in Fig. 3, the spring p being merely strong enough to draw them into normal position again when free to do so. To prevent any accidental turning of the rollers, each is provided with a suitable back-stop U . The amount of movement imparted to the rollers T , T' , and T^2 , respectively, depends upon the number of cogs belonging to the rack-pawl by which it happens to be actuated, and to adjust said movement correctly the rack-pawls strike at the end of their upward movement against a series of adjustable stops or set-screws V , one for each rack-pawl, adjustably secured in a cross-bar above the rack-pawls.

55 W is a swinging arm or knocker, extending with its free end in proximity to the engaging-bar M . The inner end of the arm of the knocker is secured to a cross-bar W^1 , the ends of which are secured to hangers W^2 , by means of which the knocker is suspended between the sides of the frame free to swing. W' is its actuating striker-arm, which is pivotally secured parallel to the vertical supporting-bar W^2 by the links W^3 , which are held normally in the position shown in Figs. 1 and 3 by a shoulder W^4 on the supporting-bar. The lower end of the supporting-bar W^2 is secured to the cross-bar W^4 , which extends on top of all the levers, and is supported thereon free to rise and fall by the crank-arms W^5 upon its ends.

Y' Y^2 Y^3 and Z' Z^2 Z^3 are two corresponding series of registering-drums loosely journaled upon the transverse shafts b and c , respectively. Each registering-drum has at one end a circumferential scale indicating the amounts it will register, and at the other end a gear-wheel.

75 The gear-wheels Y of the upper series of drums engage into the geared rollers T T' T^2 , respectively, and the gear-wheels Z of the lower series engage with the dogs s , one for each wheel. The dogs s are secured to vibrating pawls e , which are adapted to be actuated by a stub d on the upper series of drums, all so arranged that at each revolution of one of the series of upper drums the corresponding drum of the lower series will be turned one tooth of the gears.

85 A suitable detent g on each registering-wheel Z prevents any accidental displacement, and a spring h returns the pawl e into its normal position, in which it rests against a set-screw i , which is adjustably secured in a cross-bar i' , which is provided with suitable slots in which the pawls e are guided in their movement.

95 Suitable windows X X are placed in the cover B for the display of the tablets and the reading of the registering-wheels by a person standing in front of the device, and if necessary for accurate reading a suitable index may be placed upon the windows of the registering-wheels.

100 The parts so far described form the essential elements of my device; but as it is one of the essential features of a device of this kind to admit of no irregular operation by means of which it might be possible to commit fraud, I preferably embody in the construction of the device the following controlling mechanism intended to prevent such irregular operation.

110 Each registering-rod bar P has two ratchet-bars P' P^2 on its front and rear sides, respectively. The ratchet-bar P' operates in connection with a bar or stop P^3 to control the falling of the supporting-rods P , and the ratchet bars P^2 operate in connection with an engaging bar or stop P^4 to control the rising of the supporting-bars P . The bar P^3 is supported free to swing in and out of engagement with the ratchet-bar P' under the control of a spring P^5 and an arm P^6 , which is secured to the engaging-bar M . It is also provided its whole length with a recess P^7 , into which the projecting pins or lugs P^8 on each of the bars P of the unoperated keys are adapted to engage. The engaging-bar P^4 is supported free to swing in or out of engagement with the ratchet-bar under the control of an arm P^9 , secured to the engaging-bar M and engaging with its free end the engaging-bar P^4 .

130 Having now described its construction, I proceed to describe the operation of the device.

By depressing any one of the keys E or E'

the lever actuated thereby will cause its pair of bars H and P to rise at the same time the striker-arm W' is lifted up and strikes the cross-bar W⁷, which in turn causes the
 5 knocker W to push the engaging-bar M sufficiently backward to allow the lug L of the indicating supporting-rod to pass by. As soon as this lug L has cleared the bar M the latter falls back again, on account of the effect on shoulder W⁶ on the lower end of the
 10 striker-arm, thus retaining the indicating-rod in its raised position after its actuating-lever is released by the operator. The tablet carried by the indicating-rod is thus displayed in front of the zero-tablet of the group to which it belongs, the object of the incline
 15 being to press the rear tablets forward, so as to display them in the same place as the front tablets. If the tablet thus displayed belongs to the right-hand group of levers, it is displayed in front of the right-hand zero-tablets and indicates cents. If it belongs to the central group of levers, it rises in front of the central zero-tablet and indicates
 20 dimes, and if it belongs to the left-hand group of levers it rises in front of the left-hand zero-tablet and indicates dollars. Its value in every instance corresponds with the number of the key of its actuating-lever. Any indicating supporting rod or rods elevated by a previous operation will drop down
 25 as soon as the engaging-bar M is pushed back by a new operation, and thus the zero-tablets appear in sight in every group in which no key is struck, and whatever key is struck a numerical tablet corresponding to the number of the key struck will rise in front of one of the zero-tablets, and by its relative position in relation to the stationary zero-tablets
 30 will indicate the monetary value of the number. At the same time with the indicating supporting-bar the registering supporting-bar P of the lever so struck is also raised, and by the engagement of its rack-pawl Q with one of the rollers T, T', and T² will impart to the
 35 latter a rotary movement of the proper degree and cause its respective registering-drum to revolve and display in the window a number corresponding to the number of the key struck, its monetary value being indicated by its position in relation to the indicating-tablets, as the registering-wheels are correspondingly grouped with the indicating-tablets. If two of the keys of different
 40 groups are struck, an amount represented by two numerals will be indicated, and if three keys of different groups are struck an amount indicated by three numerals will be indicated, and simultaneously with each indication the respective registering-wheel will register a like amount, which will be added to its previous registration. Whenever one of the registering-drums Y' Y² Y³ completes
 45 one revolution—that is, when it has registered to ninety-nine—it will turn its companion registering-drum one notch. Thus while the registering-drum Y' counts the cents the

registering-drum Z' represents for each division or notch of its actuating-wheel Z one hundred cents. In like manner the registering-
 50 drum Y² counts dimes, while the registering-drum Z² represents one hundred dimes (that is, ten dollars) for each division or notch of its actuating-wheel z. The amount registered by the machine can thus be readily read off
 55 and computed from the registering-wheels, and at the same time a very large amount may be registered before any necessity arises for setting the registering-wheels back to zero—an operation which is easily performed
 60 by turning the registering-wheels backward by hand.

The operation of the controlling devices for the registering mechanism is as follows: Normally the bar P³ is kept by the arm P⁶ out of
 65 the path of the ratchet-bar P', and the engaging-bar P⁴ is normally kept by the arm P⁹ in the path of the ratchet-bar P²; but whenever a lever is struck the bar P³ is pushed by its spring P⁵ into the path of the ratchet-bars
 70 P', while the engaging-bar P⁴ is drawn out of the path of the ratchet-bars P². This is the result of the engaging-bar M being pushed back by the knocker W; but it will be observed by examining Fig. 1 that the striker-
 75 arm W' has a little distance to rise before it can actuate the knocker, while the registering-rods P are immediately uplifted by their levers. The result of this arrangement is that all of the registering-rods P not actuated
 80 will be locked in position by the pins P⁸ engaging into the recess P⁷ of the bar P³, while the particular supporting-rods operated upon escape being locked. Now suppose a registering-rod P is only partially raised, as in
 85 Fig. 3. It will be seen that if the operator should fail to complete the operation the registering-rod remains suspended, and its actuating-lever cannot drop back into normal position unless the operator first completes the
 90 operation, for the reason that the bar P³ engages with the teeth of the rack P' and holds the operated registering-rod in its elevated position. Should the operator after depressing one of the levers to the full extent only
 95 allow it to return partially to its normal position, and thus try to reduce its registering function for a succeeding operation, the engaging-bar P⁴ would engage into the rack-bar P², and thereby prevent any lever which has
 100 only partially returned to its normal position from being operated again before returning it to normal except through the operation of some other key, and as this would leave the amount registered of an unknown quantity
 105 to the operator when the cash was balanced at night the fact of the machine being tampered with would be apparent, and thus prove an effectual check upon any such attempt by the operator.

I preferably construct underneath the machine a till controlled by the levers C, and this till I preferably construct as shown in
 110 Figs. 5 and 6 of the drawings, wherein m' is

a swinging till secured to a vertical shaft n' , and held in its closed position by means of a catch v , formed on the arm p' , which latter is secured to the cross-bar W^4 , and extending rearwardly has its free end connected by the link q to an arm on the rock-shaft q' . The latter is secured in suitable bearings and carries at its front end the beveled pinion r , which engages with a similar but smaller pinion s' on the shaft n' . A small coil-spring t is sleeved upon the shaft n' , with one end attached to the shaft and the other to the drawer. In practice the till is automatically swung open by the winding of the spring t whenever the cross-bar W^4 is forced up by the depression of one or more keys. In closing it again it is held in position by the engagement with the catch v . The tension of the spring acts not only to open but to close my till, it being opened and closed in each rotation. Each depression of a key winds up the spring with the required tension for the rotation of the drawer.

In the specific construction of every part throughout the whole device I have striven to maintain simplicity and avoid friction, and as a result my machine requires but little power to operate it. Its operation is very simple and absolutely positive, and with any ordinary care is not liable to get out of order.

This invention is designed as an improvement on Letters Patent No. 409,107, granted to me August 13, 1889.

I show in the drawings the single bar P^3 , having the recess P^7 acting as a lock or stop to hold down the unoperated registering-rods during the registration of an operated key, and also adapted to engage with the teeth of the rack P' to hold up the operated registering-rod at any point of partial registration, and I prefer this construction on the ground of simplicity of manufacture. It is evident, however, that it is not necessary to give to a single bar both of these functions, and I do not desire to limit myself to such construction, but desire to claim the bar P^3 as applied to either function separately, as well as constructed and operating precisely as shown.

I do not herein broadly claim the semi-cylindrical rotary cash-till, nor such a cash-till opened and closed by rotating it upon its axis by the impulse from the keys, as I have made that the subject of my concurrently-pending application, Serial No. 352,308, filed May 19, 1890.

What I claim is—

1. The combination, with the series of levers and the series of registering-rods, of a controlling device consisting of the series of pins P^8 on the registering-rods and the engaging-bar P^3 , provided with a longitudinal recess P^7 , adapted to engage with the series of pins P^8 , said engaging-bar being controlled by the movement of the levers to lock the registering-rods in their normal position, substantially as described.

2. The combination, with the series of le-

vers and the series of registering-rods, of a controlling device consisting of a series of pins P^8 on the registering-rods, the engaging-bar P^3 , provided with a longitudinal recess P^7 , the spring P^5 , adapted to swing said engaging-bar into engagement with the series of pins P^8 , and the arm P^6 , adapted to throw said engaging-bar out of engagement with the series of pins under the control of the levers, substantially as described.

3. The combination, with the series of levers and the series of registering-rods, of a controlling device consisting of the series of ratchet-bars P' on said registering-rods, the engaging-bar P^3 , common to all the rods, adapted to engage into said ratchet-bars under the control of the levers, and the stirrups O' , or their equivalents, connecting the registering-rods and levers, substantially as described.

4. The combination, with the series of levers and the series of registering-rods, of a controlling device consisting of the series of ratchets on said rods, a bar P^4 , common to all the rods, adapted to engage with said ratchet-bars under the control of the levers, and the stirrups O' , or their equivalents, connecting the registering-rods and levers, substantially as described.

5. The combination, with the series of levers and the series of registering-rods, of a controlling device consisting of two series of ratchet-bars $P' P^2$ on the front and rear of the registering-rods, the engaging-bars $P^3 P^4$, common to all the rods, adapted to engage with said ratchets under the control of the levers, substantially as described, and the stirrups O' , or their equivalents, connecting the levers and registering-rods.

6. The combination, with the series of levers and the series of indicating supporting-rods, of indicating-tablets supported on flexible extensions of said supporting-rods and grouped in front of each other and the incline o above said groups of tablets, substantially as described.

7. The combination, with the series of levers C , of a mechanically-operated money-drawer consisting of the cross-bar W^4 , supported on top of the levers and having the rearwardly-projecting arm p' , the rock-shaft q' , operated by said arm, the vertical shaft n' , the intermeshing bevel-pinions $r s'$, secured on the rock-shaft q' and shaft n' , respectively, the swinging drawer m' , pivotally supported on the shaft n' , the coil-spring t , adapted to transmit motion from the shaft n' to the swinging drawer, and the catch v on the arm p' , adapted to lock the drawer, all arranged to operate substantially as described.

8. In a cash-register, the combination, with the casing, of a rotary till pivoted upon a shaft and a spring attached to the till and the shaft, respectively, and acting with its tension to rotate said till, substantially as described.

9. In a cash-register, in combination with

the casing, a rotary cash-till pivoted upon a shaft, a spring acting with its tension to rotate said till, and a stop arranged in the path of said till to stop and hold the till in its closed position, substantially as described.

10. In a cash-register, in combination with the casing, a rotary cash-till pivoted upon a shaft, a spring acting with its tension to rotate said till, and the stop *v*, arranged in the path of the drawer, substantially as described.

11. In a cash-register, in combination with the casing, a semicircular till pivoted upon a vertical shaft in said casing, a spring acting with its tension to rotate said till, a stop arranged in the path of said till, and means for withdrawing said stop to allow the till to rotate, substantially as described.

12. In a cash-register, the combination, with a series of keys, of a rotary till below said keys, a spring acting with its tension to rotate said till, a stop arranged in the path of the till, and intermediate mechanism between said keys and stop, whereby upon the depression of any key or keys the stop is disengaged and the till is rotated, substantially as described.

13. In a cash-register, the combination, with a series of keys, of a rotary cash-till pivoted upon a vertical shaft below said keys, of a spring acting with its tension to rotate said till, and of intermediate connections between said keys and spring, whereby upon the depression of a key or keys tension is given to said spring to rotate said till, substantially as described.

14. In a cash-register, the combination, with a series of keys, of a rotary till pivoted upon a shaft below said keys, of a spring acting with its tension to rotate said till, of a stop arranged in the path of said till, and of mechanism intermediate said spring and stop whereby upon the depression of a key or keys the stop is withdrawn and the tension is given to the spring to rotate said till, substantially as described.

15. In a cash-register, the combination, with the series of keys, of a rotary till journaled below said keys upon a vertical shaft, a spring sleeved upon said shaft, the pinion *s'*, the gear *r*, meshing therewith, and the rock-shaft *q'*, cross-bar *W*⁴, and connection between said cross-bar and the rock-shaft, whereby, upon the operation of a key or keys, tension is given to the spring to rotate the till, substantially as described.

16. In a cash-register, the combination of the following elements: a series of operating-keys, a series of registering-rods actuated thereby, a projection on each of said rods, a swinging stop, a universal bar extending across the keys, a striker-arm on said universal bar, a series of indicating-rods, a swinging bar *M*, connection between the universal

bar and the bar *M*, and connection between the bar *M* and the swinging stop, the parts operating as and for the purpose described.

17. In a cash-register, the combination, with a series of operating-keys and a series of registering-rods actuated thereby, of a rack upon each of said registering-rods and a pawl common to all the rods engaging with the rack of an operated rod or rods during the interval of registration, substantially as described.

18. In a cash-register, the combination, with a series of operating-keys and a series of registering-rods operated thereby, of a rack upon each of the registering-rods, a pawl common to all the rods, and intermediate connections between the keys and said pawl whereby the pawl is engaged with the rack of an operated key during registration, substantially as described.

19. In a cash-register, the combination, with a series of operating-keys and a series of registering-rods, of a connection between each key and its rod, a rack upon each of said rods, and a pawl common to all the rods engaging with the rack of an operated rod during the interval of registration, whereby the key and rod are held in their operated position at any point of partial registration, substantially as described.

20. In a cash-register, the combination, with a series of operating-keys and a series of registering-rods actuated thereby, arranged in groups, of a rack upon each of said rods, a pawl common to all the rods of each group, and engaging with the rack of an operated rod or rods during the interval of registration, substantially as described.

21. In a cash-register, the combination, with a series of operating-keys and a series of registering-rods operated thereby, arranged in groups, of a rack upon each of said rods, a pawl common to all the rods of each group, and intermediate connections between the keys of each group and the pawl, whereby the pawl is engaged with the rack of an operated key of its group during the interval of registration, substantially as described.

22. In a cash-register, the combination, with a series of operating-keys and a series of registering-rods actuated thereby, of a stop on each of said rods, a rack on each of said rods below said stops, and the bar *P*³, having the recess *P*⁷, operating as and for the purpose described.

In testimony whereof I affix my signature, in presence of two witnesses, this 10th day of June, 1889.

WILLIAM G. LATIMER.

Witnesses:

ED. MCBREARTY,
A. HAMILTON.