

(No Model.)

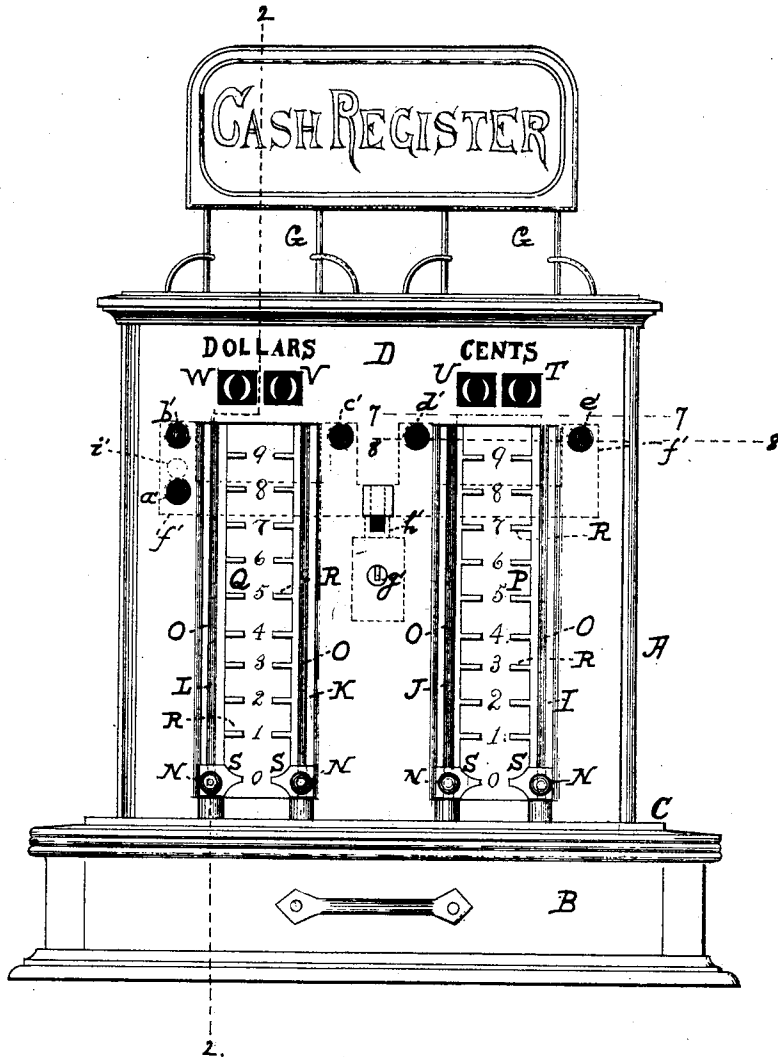
4 Sheets—Sheet 1.

E. F. SPAULDING.
CASH REGISTER.

No. 535,083.

Patented Mar. 5, 1895.

Fig. 1.



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(No Model.)

4 Sheets—Sheet 2.

E. F. SPAULDING.
CASH REGISTER.

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Fig. 3

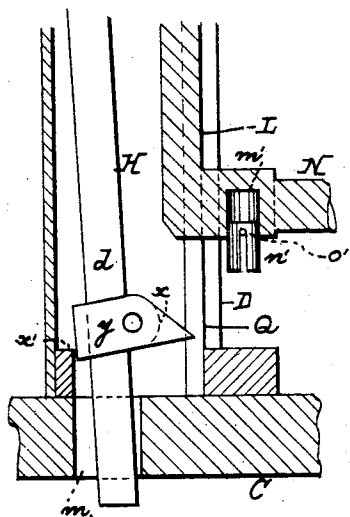


Fig. 2

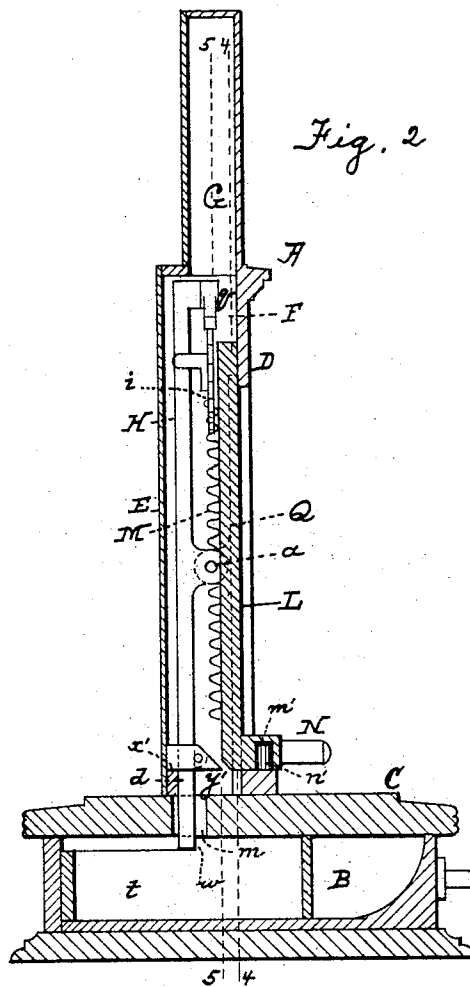
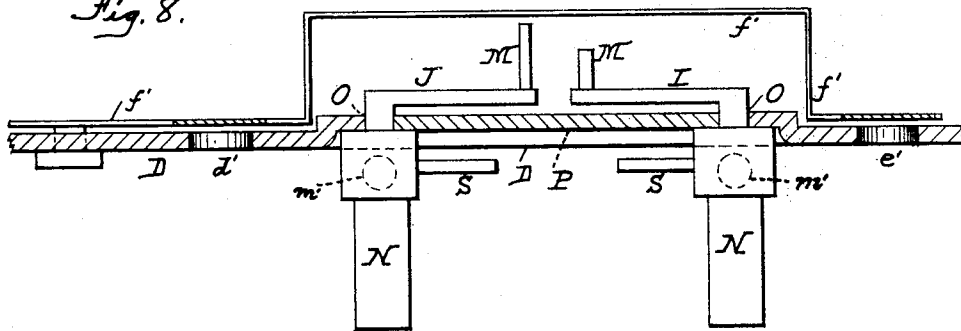


Fig. 8.



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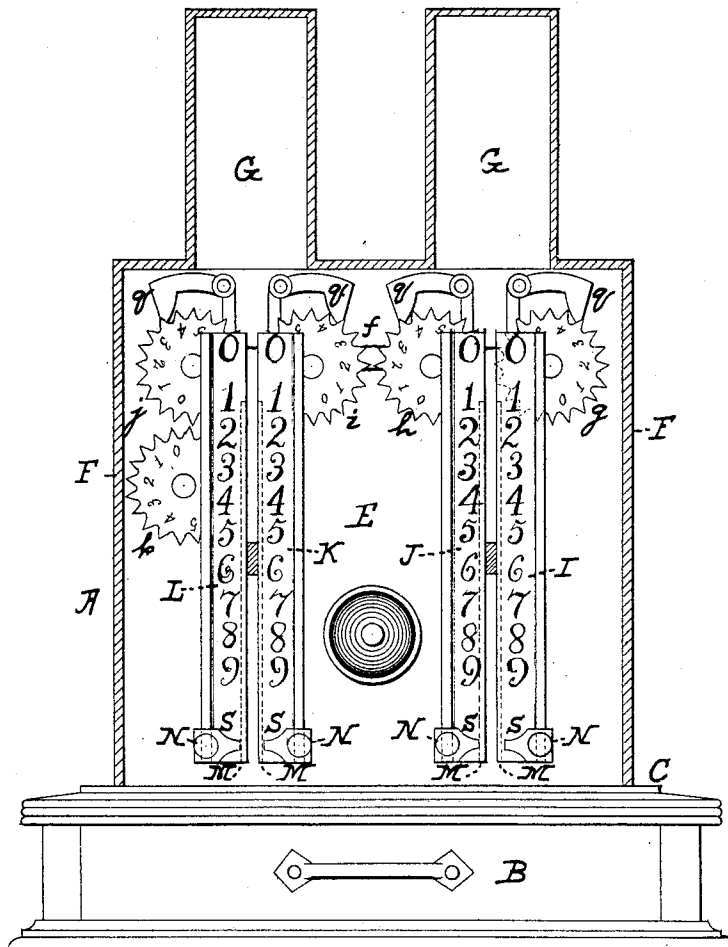
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Fig. 4.



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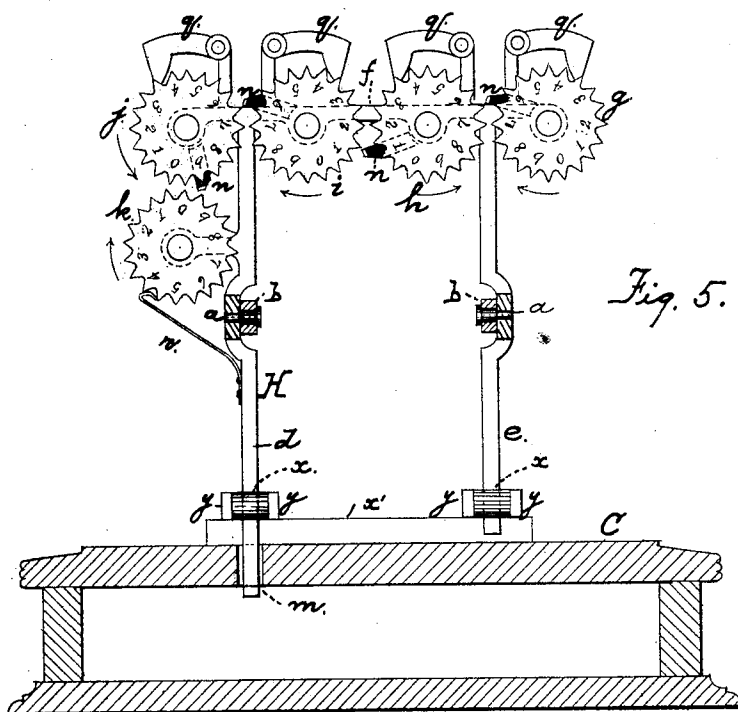
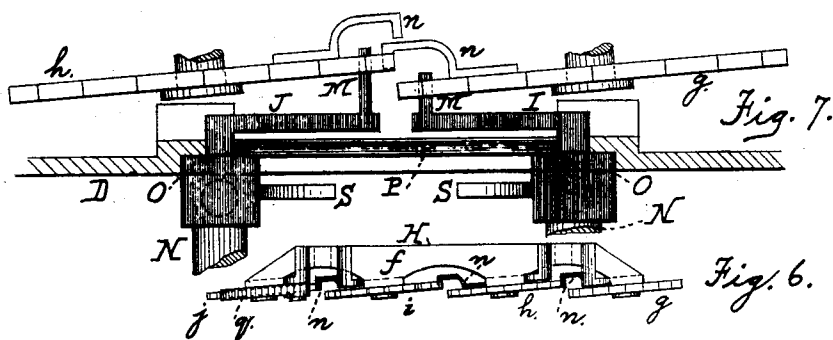
(No Model.)

4 Sheets—Sheet 4.

E. F. SPAULDING.
CASH REGISTER.

No. 535,083.

Patented Mar. 5, 1895.



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UNITED STATES PATENT OFFICE.

ELIJAH F. SPAULDING, OF BOUND BROOK, NEW JERSEY.

CASH-REGISTER.

SPECIFICATION forming part of Letters Patent No. 535,083, dated March 5, 1895.

Application filed March 15, 1894. Serial No. 503,686. (No model.)

To all whom it may concern:

Be it known that I, ELIJAH F. SPAULDING, a citizen of the United States, and a resident of Bound Brook, in the county of Somerset and State of New Jersey, have invented certain new and useful Improvements in Cash-Registers, of which the following is a specification.

The invention relates to improvements in cash registers, and consists of a register embracing the novel features of construction and combinations of parts hereinafter described and particularly pointed out in the claims.

The object of the invention is to provide a cash register which shall be simple and durable of construction, capable of being readily understood and operated, accurate, safe, and possible of manufacture and sale at a figure which will admit of its use by persons who do not employ the expensive registers at present on sale.

Referring to the accompanying drawings forming a part of this specification: Figure 1 is a front view of a cash register constructed in accordance with and embodying the invention. Fig. 2 is a vertical section of same on the dotted line 2—2 of Fig. 1. Fig. 3 is a similar section of a detached portion of same on an enlarged scale and illustrating the operative parts in a position different from that shown in Fig. 2. Fig. 4 is a vertical section of same on the dotted line 4—4 of Fig. 2, said Fig. 4 being substantially a front view of the cash register, with the front of the register removed for the purpose of disclosing the interior mechanism thereof. Fig. 5 is a vertical section of said register on the dotted line 5—5 of Fig. 2 and showing in detached form the mechanism for registering the amount of sales. Fig. 6 is a detached top view of the mechanism illustrated in Fig. 5. Fig. 7 is an enlarged transverse section of a portion of the machine on the dotted line 7—7 of Fig. 1, and Fig. 8 is a transverse section through a portion of the machine on the dotted line 8—8 of Fig. 1, said Fig. 8 being intended particularly to show the form of the shutter which conceals the numbering wheels, except at such time as the owner of the machine may desire the shutter removed for the pur-

pose of disclosing to him the total amount of sales at any definite time.

In the drawings A designates the main exterior frame of the machine, and B the cash drawer below said frame. The frame A is composed of a base C, front-face D, back E, ends F and vertical extensions G, the latter being provided for the purpose of permitting the movement of the actuating slides herein- after referred to.

Between the front face D and the back E of the frame of the register are secured a tilting frame H and a series of vertical actuating slides I, J, K, L, which slides are more clearly illustrated in Fig. 4 and are in the form of vertical tablets numbered from "0" to "9" inclusive. The slides I, J, K, L, are each provided on their rear face with a rack M, illustrated more clearly in Fig. 2 by full lines and indicated in Fig. 4 by dotted lines, and each of said slides is also provided with a handle N projecting forward through the face D in convenient position to be grasped by the attendant.

In the face D of the frame of the machine are provided the vertical slots O through which the handles N project and which serve to guide the same during their vertical movement. Between the pairs of slots O, the face of the machine is provided with the indicating plates or tablets P, Q, numbered, as illustrated in Fig. 1, from "9" to "0" inclusive and provided with the indicating ribs or marks R in line with the numerals on said plates. The handles N projecting forward through the slots O, are each provided with an index finger S, which, during the operation of recording the amount of sales, will be carried upward in line with the numerals on the plates P, Q, as hereinafter explained, and during such movement the ribs or marks R will serve to guide the attendant in bringing the said index fingers S in direct alignment with the numerals on said plates P, Q.

In the front-face D of the frame of the machine and directly over the plates Q, P, thereof are the apertures T, U, V, W, which are in alignment with the upper ends of the slides I, J, K, L, and when said slides are in their lower position disclose the cipher at the upper ends thereof, and when said slides are ele-

vated so that the index fingers S reach any special figures on the plates P, Q, the corresponding figures on the slides will be disclosed at the said apertures T, U, V, W, and indicate to the purchaser the amount being registered.

In rear of the vertical slides I, J, K, L, is pivotally mounted the frame H, indicated more clearly in Figs. 2 and 5, the said frame being secured by pivots *a*, to ears *b* cast upon the inner face of the front D of the machine. The frame H is composed of the vertical side bars *d*, *e*, the upper transverse connecting bar *f*, and suitable lugs which need not be especially referred to, for supporting the numbering wheels lettered, respectively, *g*, *h*, *i*, *j* and *k*, as illustrated in Fig. 5. The pivots *a* are below the horizontal center of the frame H, and hence the upper portion of said frame being heavier than the lower portion thereof, will tilt when left unrestrained and I have therefore called the frame H a tilting frame. The purpose of allowing a tilting movement of the said frame H will be referred to hereinafter.

The wheels *g*, *h*, *i*, *j*, *k*, are numbered from "0" to "9" inclusive and are arranged with respect to each other so that the said wheels will add and register the amount of sales during a day or any other period of time, the wheel *g* registering cents up to ten; the wheel *h* registering tens or dimes up to one dollar; the wheel *i* registering dollars up to ten; the wheel *j* registering tens of dollars up to one hundred, and the wheel *k* registering a multiple of one hundred dollars up to ten.

The wheels *g*, *h*, *i*, *j*, are actuated to revolve in the directions indicated by arrows in Fig. 5, by means of the racks M carried by and projecting rearward from the slides I, J, K, L, as indicated more clearly in Fig. 7; and said wheels *g*, *h*, *i*, *j*, are provided with bent arms *n* which serve to do the carrying of the amounts from one wheel to another in succession, the said arms being more clearly shown in Fig. 7 and being so arranged that with each revolution of a wheel its arm will move the next adjoining wheel a distance equal to one tooth thereof. The wheel *k* is not provided with one of the arms *n* since the amount registered thereon is not intended to be carried to any other wheel.

In order to prevent any back movement of the toothed wheels *g*, *h*, *i*, *j*, the frame H is provided with pivoted pawls *q*, as shown in Fig. 5, which engage said wheels and prevent their movement, except in the direction of the arrows and in the proper operation of the machine for registering the amount of sales and carrying the same forward. The wheel *k* has contacted with its teeth a flexed spring *r* which prevents any undue movement of said wheel. As will be more fully observed from Figs. 6 and 7 the wheels *g*, *h*, *i*, *j*, *k* are arranged at an angle with respect to the vertical portion of the front of the machine and the object of such arrangement is to prevent

the arms *n* from coming into contact with each other during the revolution of said wheels. When arranged in the manner illustrated, the arms *n* may pass each other, as illustrated in Fig. 7, and perform their due functions without danger of meeting each other and obstructing the operation of the machine.

When the frame H is in an upright position, as illustrated in Fig. 2, the teeth of the racks M on the slides I, J, K, L, will be in position to engage the teeth of the wheels *g*, *h*, *i*, *j*, upon the upward movement of the slides for the purpose of registering the amount of the sale; but when, after the elevation of the said slides and the registering of the said amount, the drawer B is pulled open to receive the money and permit the making of change, the said frame H will, at its upper end, tilt rearward, thereby removing the said wheels *g*, *h*, *i*, *j*, from alignment with the said racks M and at such time no change in the position of the numbering wheels can be made. The tilting of the frame H is accomplished simply by the pulling outward of the drawer B, which leaves the frame unrestrained and permits its heavier portion to tilt rearward. As shown in Figs. 2 and 5 the arm *d* of said frame H projects downward through a slot *m* in the base C and is directly over a partition *t* formed in the drawer B. The upper edge of the partition *t* is cut away to form a shoulder *w* which, when the drawer B is pushed inward will come into contact with the lower front edge of the arm *d* and operate to restore the frame H to a vertical position and to retain the same in such position until the said drawer is again pulled outward and the shoulder *w* relieved from the lower end of the arm *d*, at which time the frame H will again tilt rearward and withdraw its wheels *g*, *h*, *i*, *j*, from alignment with the racks M.

Upon the lower front portions of the arms *d*, *e*, forming a part of the frame H are the ears *x* to which are pivoted the dogs *y*, whose front ends are inclined and lighter than their rear ends (see Figs. 3 and 5) which are in position to rest upon the shoulder *x'* of the back E, as shown in Fig. 2, when the frame H is in an upright position, and to bear against the front edge of said shoulder, as shown in Fig. 3, when the frame H is allowed to tilt rearward by the opening of the drawer B, during such time as the slides I, J, K, L, or any of them, may be in a raised position. The object of the dogs *y* is to prevent the frame H from being restored to its upright position except when the slides I, J, K, L, are in their lower position, and thus a salesman could not when the frame is in a tilted position and the cash drawer open, move any of the slides upward and then secure it in its elevated position by the registering wheels by closing the cash drawer. When the dogs *y* are in the position shown in Fig. 3 and it being assumed that the slide K is being held up by the salesman, the insertion of the drawer B would not

restore the frame H to its vertical position, since the dog *y* pressing against the shoulder *x'*, would prevent such result. When, however, the slide descends, it strikes the front end of the dog *y* and turns the rear end thereof upward from the front of the shoulder *x'*, and at such time, the slide being stationary in its lower position, the insertion or closing of the cash drawer will restore the frame H to its upright position, and the slide cannot be elevated without engaging and turning the registering wheels.

In the operation of the machine the amount of sales will be recorded by the attendant by the moving upward of the slides I, J, K, L, by means of the handles N, and in accordance with the amount of sales. If a sale should amount to five cents, the attendant would elevate the slide I until the index finger S thereof registered with the numeral "5" on the tablet or plate P, and if the following sale should amount to fifty cents, the attendant will, by means of the handle N elevate the slide J until its index finger S registers with the numeral "5" on said plate P, thus indicating a sale amounting to five tens or fifty cents; and if a sale amount to five dollars the attendant will by means of the arm N elevate the slide K until its index finger S registers with the numeral "5" on the plate Q; and if the sale should amount to fifty dollars the attendant will elevate the slide L until its index finger S registers with the numeral "5" on said plate Q. Thus for the varying amounts of sales the slides I, J, K, L, will be operated, in each instance, the index finger S being arrested at the numeral on the plates P, Q, which would indicate the amount of the sale. The upward movement of the slides I, J, K, L, actuates the wheels *g, h, i, j*, in the direction of the arrows, illustrated in Fig. 5, the sale amounting to five cents causing the wheel *g* to revolve a distance equal to five of its numerical spaces; the sale of fifty cents resulting in the wheel *h* being moved a distance equal to five of its numerical spaces; the sale amounting to five dollars resulting in the wheel *i* being revolved a distance equal to five of its numerical spaces, and the sale of fifty dollars resulting in the wheel *j* being revolved a distance equal to five of its numerical spaces, and the said sales being indicated by the numerals on said wheels. Upon the continued sales amounting to more than ten cents or one dollar or ten dollars, respectively, the wheels *g, h, i, j*, will communicate their movement from one to the other in a well known manner in adding machines by reason of the arms *n* on one wheel engaging the teeth of the next adjoining wheel and revolving said wheel a distance equal to one of its numerical spaces. With each elevation of the slides I, J, K, L, the amount of the sale is exposed at the openings T, U, V, W, and may be seen by the customer; while the total amount of sales registered on the wheels *g, h, i, j, k*, is not exposed to the customer, but may be read by the proprietor through the open-

ings *a', b', c', d'*, and *e'*, which openings are in line with the numerals on said toothed wheels and are preferably closed by means of a sliding plate or shutter *f'* interposed between the wheels *g, h, i, j, k*, and the said openings. The shutter *f'* is simply a plate of metal bent into form to pass around the slides I, J, K, L, and its shape is indicated in Figs. 1 and 8. The shutter *f'* is adapted to be operated by means of a lock *g'*, the key to which will be held by the proprietor and the bolt *h'* of which will be connected with the said shutter and upon being extended upward from its casing, as illustrated in Fig. 1, will push the shutter *f'* upward so as to close the apertures *a', b', c', d'*, and *e'*, and when the lock *g'* is operated to withdraw the bolt *h'* into its casing the shutter *f'* will be lowered a sufficient distance for the openings *b', c', d'*, and *e'*, to be used in reading the indicating numerals on the registering wheels *g, h, i, j*. In the shutter *f'* is provided an aperture *i'*, as indicated by dotted lines in Fig. 1, which aperture, upon the lowering of the shutter will come into alignment with the opening *a'* in the front of the machine and permit the exposure of the indicating numeral of the wheel *k*. Thus upon the lowering of the shutter *f'*, the indicating numerals on all of the registering wheels will be exposed and the proprietor may read the entire amounts of sales for any given period.

Upon the elevation of the slides I, J, K, L, their upper ends enter the extensions G formed at the upper end of the machine, and thus said slides are enabled to make their full vertical movement without obstruction.

In order to prevent any noise or rattling of the parts of the machine during the descent of the slides I, J, K, L, there is provided at the lower ends of said slides a simple form of dash-pot, as illustrated more clearly in Fig. 3, in which it will be observed that at the lower end of the slide adjoining the arm N is provided a recess or cylinder *m'* receiving a piston *n'* which is held in place by a pin *o'* and permitted to have a vertical movement by means of the slot in said piston passing over said pin. Upon the elevation of the slide the piston *n'* will of its own weight descend to the position shown in Fig. 3, and upon the descent of the slide the piston *n'* will by its contact with the frame of the machine below it, be driven upward into the cylinder *m'*, and thereby will be formed an air cushion which will ease the contact of the parts and prevent noise.

In practical use, when a sale is made, the drawer B is first drawn out to receive the money and permit the making of change, this operating to permit the frame H to tilt backward and the rear weighted end of the dogs *y* to assume a position to drop downward in contact with the front edge of the shoulder *x'* should any of the slides at such time be elevated and thus relieved from the front end of said dogs. Upon the money having been

placed in the drawer B, the latter is closed, thus restoring the frame H to its vertical position, and thereupon the proper slide or slides will be elevated to accomplish the registering.

5 When a slide is thus elevated, it will remain in its upward position until the next sale is made and the drawer B pulled open, at which time, the frame H and registering wheels tilting rearward, the slide will be unsupported
10 and fall to its lower position, during which movement it will strike the front end of the dog *y* and thus operate to lift the rear end of same free of the shoulder *x'*, thus leaving the frame H in a condition in which it may be restored to its vertical position on the next insertion of the drawer. It will be observed
15 that the registering is accomplished after a sale has been made and the money has been placed in the drawer and the latter closed.

20 To prevent the fraud which would ensue in case the salesman should be able to elevate a slide while the drawer is open, and then close the drawer to restore the registering wheels into position, to hold the slide without said
25 wheels having been rotated, I have provided the dogs *y*, which prevent, as above described, the drawer from being closed and the frame H from being restored to its vertical position except when the numbered slides have actu-
30 ally been permitted to descend to and are stationary in their lower position. Then on the closing of the drawer the frame H will assume its vertical position and the elevation of the slide or slides cannot be effected with-
35 out acting on the wheels to register the sale.

As above mentioned, when the drawer is pulled out or opened, the frame H tilts and the dogs *y* come to a position in which, should the slides or any of them be at such time
40 raised, their rear ends will drop down against the front edge of the shoulder *x'*, as shown in Fig. 3, and prevent the closing of the drawer and the restoring of the frame H to its vertical position, and hence any attempt to raise
45 the slides when the drawer is open for the purpose of disclosing the sale at the apertures T, U, V, W, would be frustrated, since the slides would not remain elevated and the dogs *y* would prevent the registering wheels from
50 being moved forward to the racks M by the closing of the cash drawer.

After the proprietor has, at the close of day or any other period, examined the registering wheels through the apertures *a'*, *b'*, *c'*, *d'* and
55 *e'*, he may return said wheels to zero by means of the slides I, J, K, L, which will then be used to rotate the wheels until the ciphers thereon appear opposite to said apertures.

What I claim as my invention, and desire
60 to secure by Letters Patent, is—

1. In a cash register having a front face, the tablets P, Q, numbered from "9" to "0" inclusive on said face, and the vertical slides bearing numbers from "0" to "9" inclusive
65 and having exposed handles and index fingers S, combined with the series of toothed registering wheels bearing numerals as described,

mechanism intermediate said slides and wheels for actuating the latter when said slides are elevated, and apertures for exposing
70 the numerals on said wheels and on said slides when the latter are elevated; substantially as set forth.

2. In a cash register having the numbered tablets, the series of vertical slides bearing
75 numbers and having exposed handles whereby the slides may be operated, combined with the tilting frame carrying the series of toothed registering wheels, racks carried by said slides and adapted to engage said wheels and
80 means for restoring said tilting frame to its upright position; substantially as set forth.

3. In a cash register having the numbered tablets, the series of vertical slides bearing
85 numbers and having handles whereby the slides may be elevated, combined with the series of toothed registering wheels mounted on inclined positions, racks carried by said slides and engaging said wheels, and arms carried
90 by said wheels and adapted upon rotation of one wheel to engage a tooth of the next adjacent wheel; substantially as set forth.

4. In a cash register having the numbered tablets, the series of vertical slides bearing
95 numbers and having exposed handles whereby said slides may be elevated, combined with the tilting frame, the series of toothed registering wheels secured on inclined positions to said frame, racks carried by said slides and
100 adapted to engage said wheels, arms on said wheels for communicating the motion of one to the other thereof in succession, means for tilting said frame from said slides and means for restoring said frame to its upright position;
105 substantially as set forth.

5. In a cash register having the numbered tablets, the series of vertical slides bearing
110 numbers and having the exposed handles whereby said slides may be operated, combined with the tilting frame having one arm extended downward in due relation to the cash drawer of said register, the series of
115 toothed registering wheels secured to the upper portion of said frame and having arms for communicating the motion of one to the other thereof in succession, racks intermediate said slides and wheels for operating the
120 latter from the former, and the shoulder connected with the cash drawer for maintaining said frame in an upright position when the drawer is closed and permitting said frame
125 to tilt when the drawer is open; substantially as set forth.

6. In a cash register the front face bearing the numbered tablets P, Q, and having the
125 slots O at opposite sides of each thereof, and the vertical slides I, J, K, L, bearing numbers and having handles extending through said slots and carrying index fingers S extended
130 inward from opposite sides of each of said tablets, combined with the series of numbered toothed registering wheels within the register, and the racks carried by said slides and adapted to engage said wheels when the slides

are elevated, the said front face being provided with apertures above said tablets for exposing the numbers on said slides and also with the series of apertures for exposing the numbers on said register wheels at the proper time; substantially as set forth.

7. In a cash register having upon its face the numbered tablets, the series of vertical slides bearing numbers and having the exposed handles whereby said slides may be operated, combined with the tilting frame, the series of registering wheels secured to the upper portion of said frame, racks intermediate said slides and wheels for operating the latter, and arms secured to said wheels for communicating motion of one to the other thereof in succession, said frame having a downwardly extending arm engaging a shoulder on the cash drawer and being provided with the safety dog; substantially as set forth.

8. In a cash register having the numbered tablets the vertical numbered slides having handles, combined with the tilting frame carrying the series of toothed registering wheels

to be engaged by said slides, means for restoring said frame to its upright position on the closing of the cash drawer, and means for preventing the engagement of said wheels with said slides when the said drawer is open; substantially as set forth.

9. In a cash register having the numbered tablets, the vertical numbered slides having handles, combined with the tilting frame carrying the series of toothed registering wheels to be engaged by said slides, means for maintaining said frame in its upright position while the cash drawer is closed, and the pivoted dogs secured to said frame to prevent the said frame being given a vertical position except when the numbered slides are down; substantially as set forth.

Signed at New York, in the county of New York and State of New York, this 12th day of March, A. D. 1894.

ELIJAH F. SPAULDING.

Witnesses:

CHAS. C. GILL,
ED. D. MILLER.