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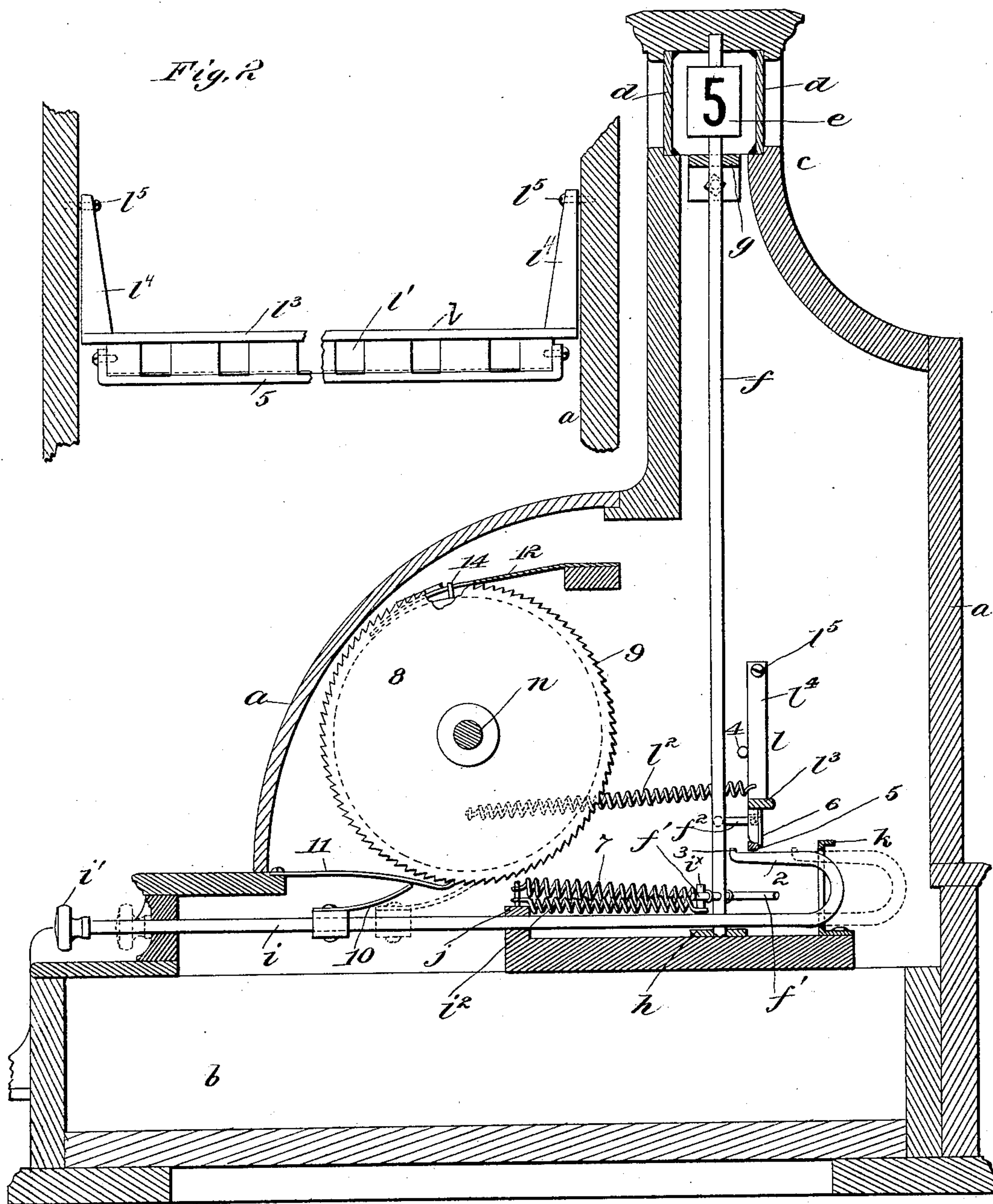
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W. L. DUNHAM & J. H. LINCK.  
CASH INDICATOR AND REGISTER.

No. 547,772.

Patented Oct. 15, 1895.

*Fig. 1*



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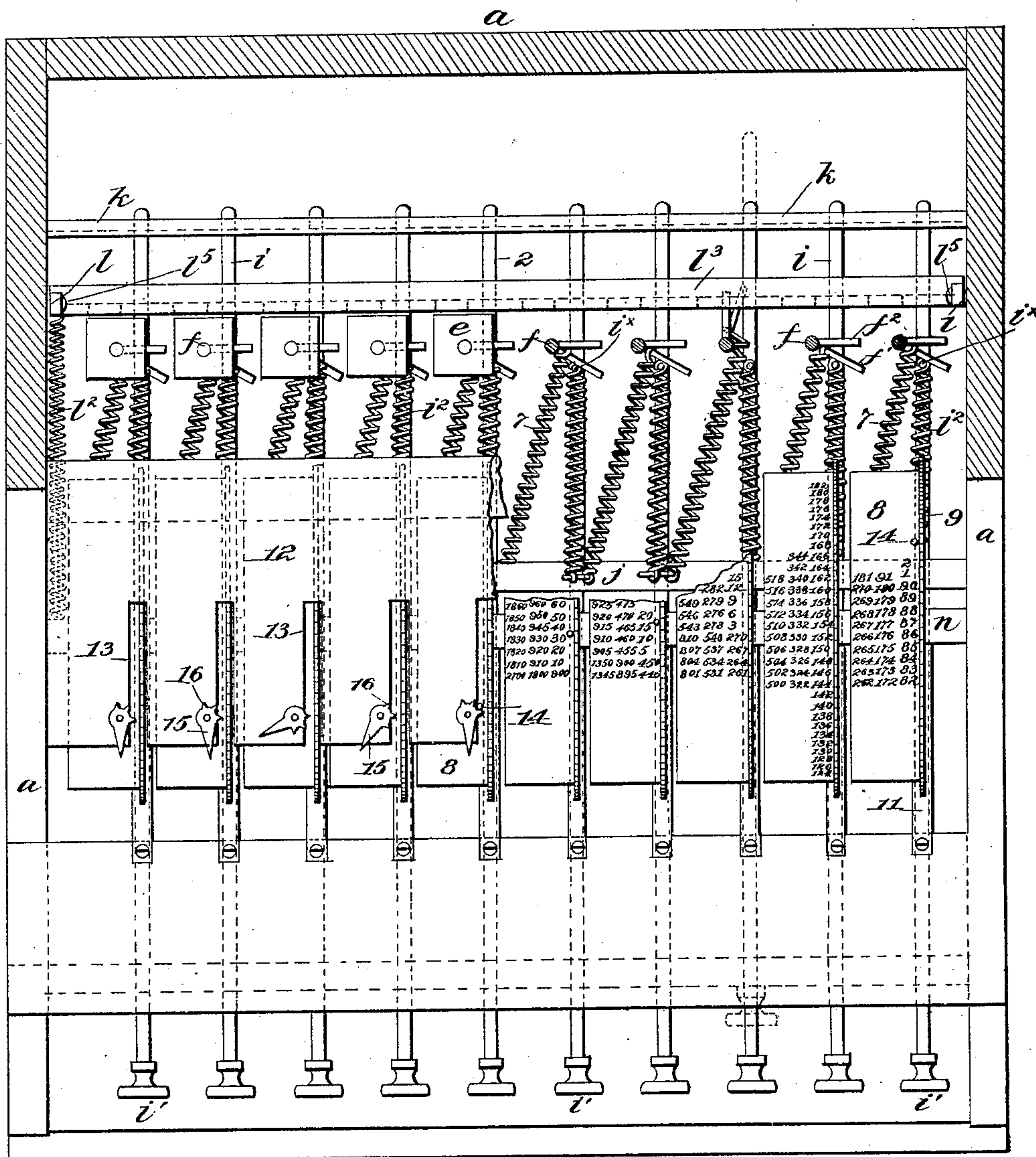
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Fig. 3





(No Model.)

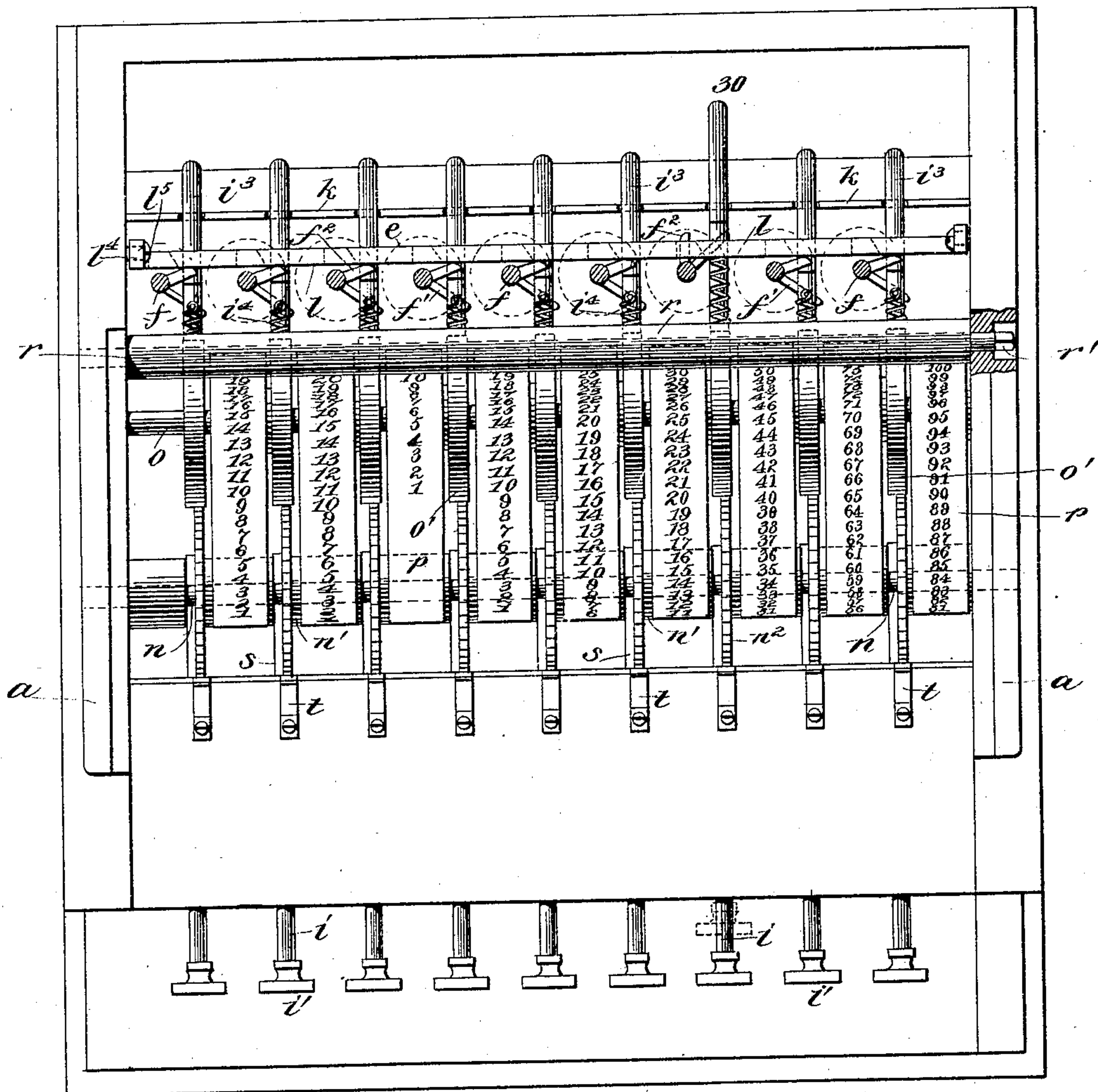
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Fig. 5



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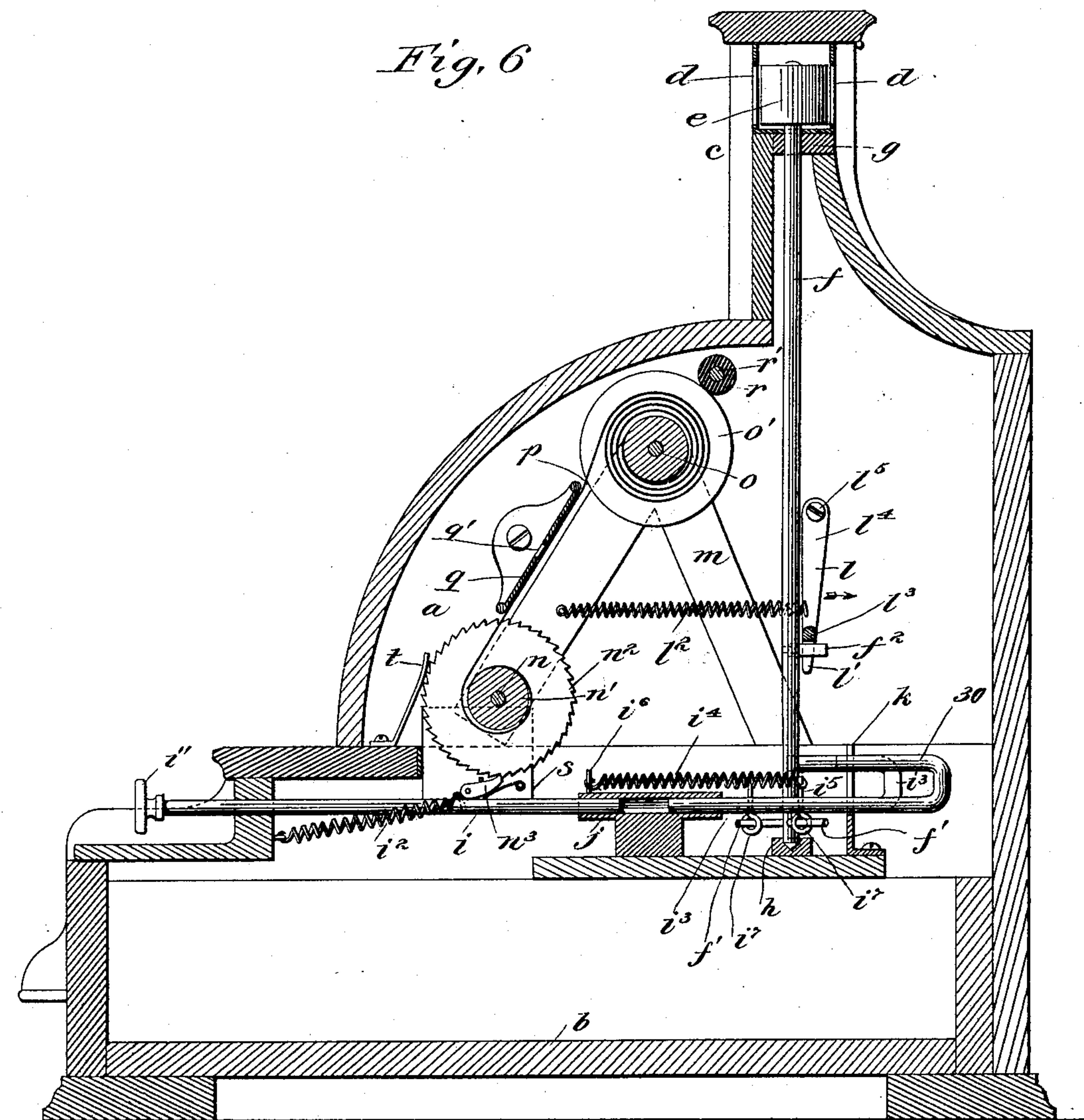
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### CASH INDICATOR AND REGISTER.

No. 547,772.

Patented Oct. 15, 1895.



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Fig. 7

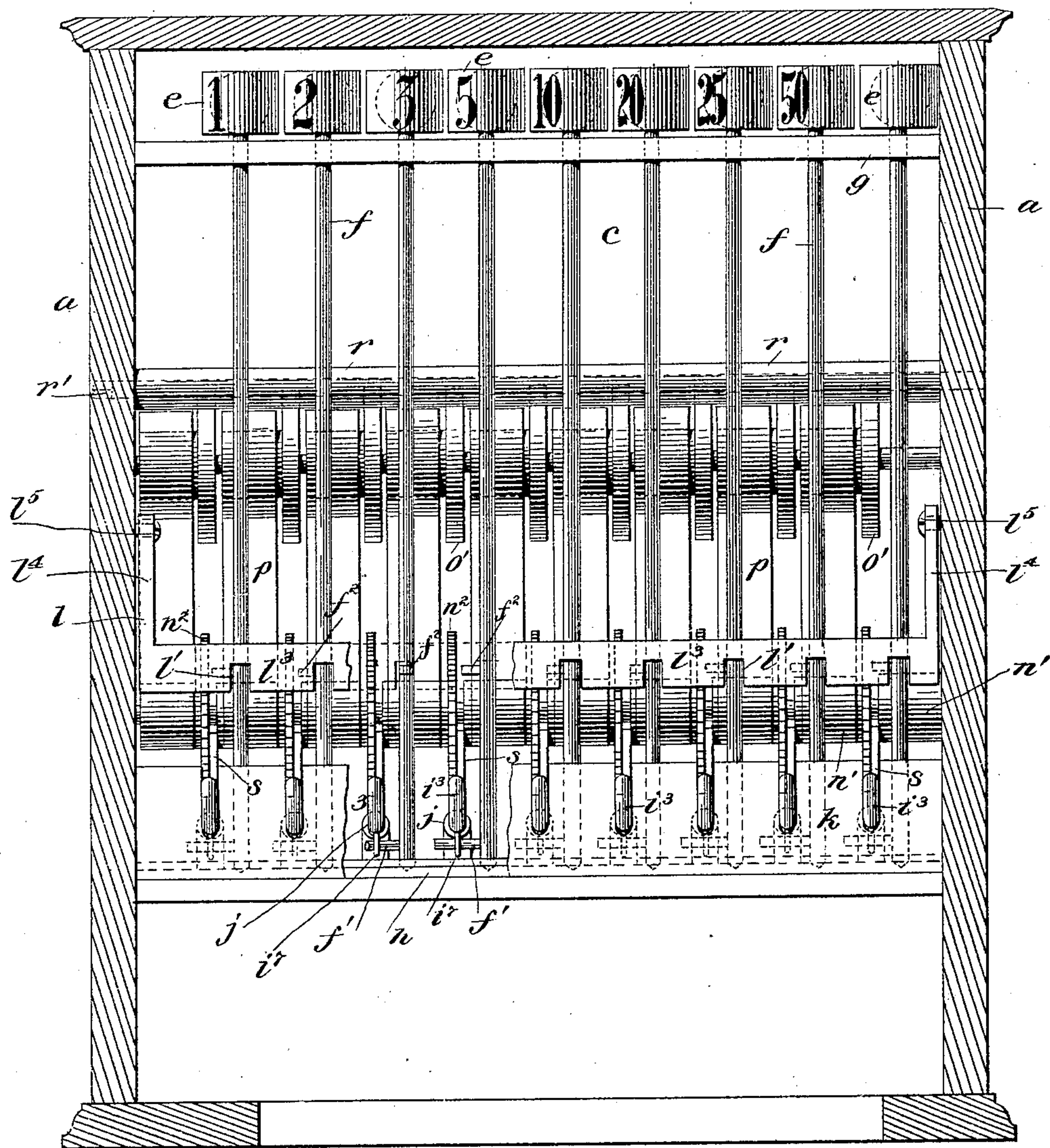
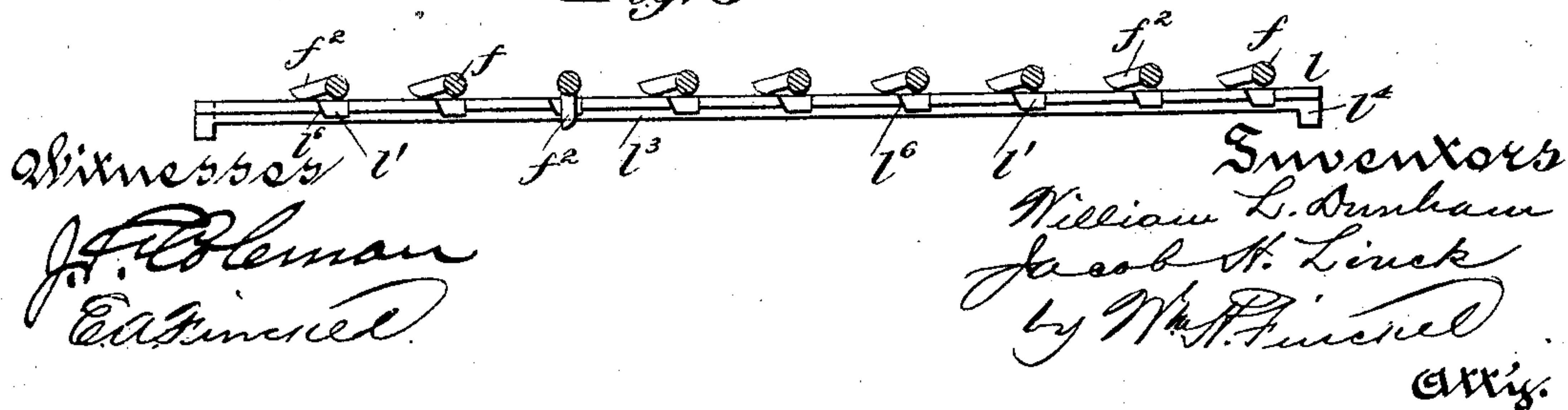


Fig. 8





# UNITED STATES PATENT OFFICE.

WILLIAM L. DUNHAM AND JACOB H. LINCK, OF WILLIAMSPORT, PENNSYLVANIA.

## CASH INDICATOR AND REGISTER.

SPECIFICATION forming part of Letters Patent No. 547,772, dated October 15, 1895.

Application filed November 24, 1894. Serial No. 529,792. (No model.)

*To all whom it may concern:*

Be it known that we, WILLIAM L. DUNHAM and JACOB H. LINCK, citizens of the United States, residing at Williamsport, in the county of Lycoming and State of Pennsylvania, have invented a certain new and useful Improvement in Cash Indicators and Registers, of which the following is a full, clear, and exact description.

10 This invention relates to that class of apparatus used in stores and other places where goods are sold, by means of which the money value of the sale may be indicated to the purchaser and such amount registered in the apparatus, the registering mechanism indicating the aggregate amounts registered during the day or any other given period of time.

15 The features of this present invention are the indicating mechanism and the means for operating it, and also the registering mechanism and the means for operating it, all as we will proceed now more particularly to set forth and finally claim.

25 In the accompanying drawings, illustrating two principal modifications of our invention, in the several figures of which like parts are similarly designated, Figure 1 is a central sectional elevation of one form of our invention. Fig. 2 is an elevation of the detent broken away at the middle. Fig. 3 is a horizontal section with the upper part of the casing removed, the right-hand half of the figure being a section just beneath the cover-plate of the registering-drums. Fig. 4 is a sectional elevation illustrating the operation of the detent. In the illustrations of the other form of our invention, Fig. 5 is a plan view with the upper part of the casing removed, and showing the indicator-spindles in section and the indicators in dotted lines. Fig. 6 is a vertical section. Fig. 7 is a rear elevation with the casing removed; and Fig. 8 is a longitudinal section of the indicator-detent, showing all of the indicator-spindles out of engagement therewith, as they will be when the indicators are not exhibiting, excepting the third from the left-hand side, which latter is in engagement with the detent, as it will be when the indicator is exhibiting.

50 The casing *a* in both forms of the invention, may be of any approved construction to re-

ceive the mechanism hereinafter described, and may contain a cash-drawer *b* of usual construction and operation. The top of the casing *c* is made with a series of glazed or other openings *d*, in number equal to the number of indicators that may be used in the apparatus, and we prefer to use these glazed openings at the front and the back of the machine, so that the machine may be placed upon a counter or upon shelving back of the counter when in use, in either case to enable the customer to read the indicators. Within a chamber in this top portion *c* are arranged the indicators *e*, which, as shown in Figs. 1 and 3, are composed of cubes, or, as shown in Figs. 5, 6, and 7, may be cylinders, on which are placed numerals indicative of various denominations of money. These indicators are supported within this chamber upon individual spindles *f*, the said spindles having an upper bearing, as in a cross-piece *g* in the upper portion of the casing, and being stepped in a foot-step piece or individual foot-steps *h* in the lower portion of the machine or apparatus, in such manner that the said spindles may have a motion of rotation longitudinally of their axes. Each spindle is provided with a laterally-projecting finger *f'*, by means of which it may be engaged with an operating push-rod, hereinafter specified, and each spindle also is provided with a laterally-projecting finger *f''*, adapted to engage a detent to hold the spindle and its indicator in exhibiting position and to release the same upon the operation of another spindle, as will presently appear. For each indicator-spindle an operating mechanism is provided, and the said operating mechanism comprises the rod *i*, having a push-knob *i'* arranged outside the casing, which push-knob is normally projected outwardly into its position to be operated by means of the spring *i''*, which is made fast at one end to some fixed part of the machine and engages the rod at its other end. In Figs. 1 and 3 this spring is shown as fast to an upright pin *i'''* on the push-rod. The inner end of this push-rod extends into a guide *j*, arranged within the casing. This guide *j* may be a simple casting provided with openings for the several push-rods, as shown in Fig. 1, or it may be made as a tube, as in Fig.



6, suitably supported within the casing, one such tube for each operating mechanism.

In the first form of our invention (shown in Figs. 1 to 4) the push-rod is made solid with a crooked end 2, arranged in a vertically-slotted guide  $k$ , and this crooked end is provided with an upturned finger 3, which co-operates with the swinging detent  $l$ . Two forms of detent are shown, and in both of them the lower edge is provided with notches  $l'$ , and said detent is held up to position by means of springs  $l^2$ , so as to permit its notches to be engaged by the fingers  $f^2$  of the indicator-spindles  $f$ . These notches are made in a cross-bar  $l^3$ , constituting the lower edge of the detent, and this cross-bar extends crosswise of the machine in the rear of the indicator-spindles and is supported by arms  $l^4$ , pivoted at their upper ends by pivots  $l^5$  let into the casing. In the first form of our invention the movement of the detent toward the spindles is limited by the stop-pins 4. An independently-movable swinging trip-bar 5 is pivoted at its ends to the cross-bar  $l^3$  and extends along the bottom edge of such cross-bar. It has unlimited movement toward the spindles; but its rearward movement is limited to vertical alignment with the cross-bar by a stop or stops 6. In this form of our invention the indicators on the indicator-spindles are normally held in concealed or non-indicating position and returned to such position when released from the detent by means of individual springs 7, applied at one end to fingers  $f'$  on the spindles and made fast to some fixed portion of the machine at their other ends. As a push-rod is pushed in to actuate an indicator, the finger 3 strikes the detent and carries the same backwardly into the position shown by the dotted lines, Fig. 4, thereby releasing the finger  $f^2$  of any other spindle than that appropriate to the push-rod being actuated, and the spindle so released is turned into non-exhibiting position by its spring 7, the rotation being limited by the finger  $f'$  coming into contact with the pin  $i^x$ . At the same time the spindle appropriate to the push-rod being actuated is rotated by the pin  $i^x$  coming into contact with its finger  $f'$  to exhibit its indicator, the finger  $f^2$  meanwhile having been carried into alignment with its appropriate notch  $l'$  in the detent, and when this is accomplished the push-rod will have reached the limit of its inward movement, the finger 3 will have passed the arc of rotation of the detent, and the said detent being thereby released from the push-rod will be pulled forward by its spring or springs  $l^2$  and effect an engagement with the finger  $f^2$  of the spindle, thereby holding the indicator in exhibiting position. After this last-described operation is effected, the pressure upon the push-rod being released, the said push-rod is by its spring  $i^2$  returned to normal position for the next operation, and in making this return movement the trip-rod 5 tilts forwardly, as indicated by the left-hand dotted-line posi-

tion, to allow the finger 3 to pass in front of it to be in readiness for the next operation, the trip meanwhile being returned by gravity or otherwise to its normal full-line position.

We have shown, also, two forms of registering mechanism, and that illustrated in Figs. 1 and 3 comprises a series of drums 8, corresponding in number with the number of indicators, and mounted upon the spindle  $n$ , which has its bearings within the casing, each drum being rotatable upon the spindle independently of the other. The drums are provided with ratchets 9, with which pawls 10 on the push-rods  $i$  engage to rotate them. The pawls may be adjusted on the push-rods, as indicated, to vary their throw. Detents or dogs 11 are also employed to prevent reversal of the ratchets. The periphery of each drum is supplied with a column or columns of figures showing additions of successive exhibitions of its appropriate indicator, and we prefer to use several (we have shown three) columns of figures, so as to condense on a small drum as many operations as possible. A cover-plate 12 overhangs these drums, and opposite each drum a slit 13 is made in the cover-plate, through which a pin 14 on each drum projects. A pointer 15 is pivoted to the cover-plate adjacent to each slit, and this pointer has at its end next the slit a number of teeth or spurs 16, corresponding in number with the number of columns on each drum. As the drum makes a complete revolution, the pin 14 strikes one of the spurs 16 of the pointer and shifts said pointer to the next column, and thus an automatic adder is produced. Any one of the registering-drums may be reset by manually shifting the pointer back to the unit-column and reversing the drum, if need be. As is obvious, every time one of the push-rods is moved inwardly to operate an indicator to indicate a sale, its pawl or dog 10 will engage the proximate tooth of its appropriate ratchet and rotate the drum one space, so as to register the next higher number.

Referring now to the other form of our invention, as illustrated in Figs. 5, 6, and 7, the push-rod is divided or made in two parts, its parts  $i$  and  $i'$  and its spring  $i^2$  corresponding with similarly-designated parts in Figs. 1 and 3. Within the other end of the guide  $j$  is arranged the other part of this divided push-rod—namely, a rod  $i^3$ —which is normally pulled into contact with the inner end of the rod  $i$  by means of a spring  $i^4$ , one end of which spring is made fast to the said rod  $i^3$ , as at  $i^5$ , and the other end made fast to the guide, as at  $i^6$ . The outer end of the rod  $i^3$  is loop-shaped to hold the said rod in proper position within the slitted guide-piece  $k$ . The rod  $i^3$  is provided with an eye or other device (such as fingers)  $i^7$  to engage positively the finger  $f'$  of the indicator-spindle, so that by longitudinal movement of the said rod  $i^3$ , consequent upon the inward movement of the rod  $i$ , the spindle will be rotated in order to



change the position of the indicator to bring its numeral into exhibiting position. It will be observed that when the rod  $i$  has been moved inwardly by pressure upon the push-knob  $i'$ , and the rod  $i^3$  moved, as before described, then upon release of pressure upon the knob  $i'$  the spring  $i^2$  will return the rod  $i$  to its normal outward position, the said rod  $i$  leaving the rod  $i^3$  in the position into which it has been forced by the inward movement of the said rod  $i$ , and the said rod  $i^3$ , with the spindle moved into exhibiting position, will be retained against the return movement of the spring  $i^4$  by means of the detent  $l$ , hereinbefore referred to, by virtue of the engagement of the finger  $f^2$  with a slot or notch  $l'$  in said detent. As shown in Fig. 8, one edge of the notches  $l'$  in this detaining-bar flares inwardly, as at  $l^6$ , in the direction of movement of the fingers  $f^2$ , so as to more readily permit the said fingers to engage with and be disengaged from the said detent. The operation of this portion of this form of our invention is as follows: As already indicated, each indicator-operating mechanism is capable of individual operation and all of the indicator-spindles are detained by the detent  $l$  common to them. Hence, it follows that when any individual indicator is actuated to exhibit its numeral its finger  $f^2$  will, by the rotation of its spindle, bear against the detent and push it rearwardly in the direction of the arrow, Fig. 2, until the said finger shall have entered its appropriate notch  $l'$ , and thereafter the spring  $l^2$  will restore the said detent to its normal position, as shown in Fig. 6. When it is desired to operate another indicator, the inward projection of its appropriate push-rod will cause its finger  $f^2$  to act similarly against the detent, and in so doing will move said detent rearwardly, as before, and thereby move said detent sufficiently away from the finger  $f^2$  of the previously-engaged spindle to permit such finger of said previously-engaged spindle to slip out of engagement with said detent and withdraw the indicator of that first-operated spindle from exhibiting position. This release of the finger  $f^2$  from the detent will leave the said spindle free to be rotated, and such rotation is effected by the action of the spring  $i^4$  upon the rod  $i^3$ , and since the rod  $i^3$  is in positive engagement with the said spindle through the arm  $f'$  and eye or connecting device  $i^7$ , the said return of the indicator first operated will be effected in the manner described. Thus it will be seen, and this is true of both forms of our invention, that upon every subsequent operation of an indicator the one previously operated will be withdrawn from exhibition and its operating mechanism restored to position and condition to be acted upon again to place that indicator in exhibiting position whenever thereafter it may be desired to use it. It will also appear that if two or more indicators are to be used at one time in order to indicate an amount greater than that indicated by any one, all of such indi-

cators will have to be operated simultaneously in order that their fingers  $f^2$  may be engaged simultaneously with the detent, and it will also be obvious that no matter how many indicators may be in exhibiting position at any one time the operation of any one or more of the other indicators subsequently will serve to restore the first-operated indicators into non-exhibiting position.

In Fig. 5 all of the indicators are shown in the withdrawn or non-exhibiting position, excepting the third from the right-hand side of the figure, and this last is shown in exhibiting position. In Fig. 6 the indicator-operating mechanism designated 30 pertains to that indicator which is in exhibiting position, while the other operating mechanism pertains to that indicator which is in non-exhibiting position. In Fig. 7 the rearmost portions of the machinery adjacent to the third and fourth indicators, reading from the left of the figure, are shown as broken out so as to show their operating mechanism and the detent in full lines, and in that figure the indicating mechanism the third from the left is in exhibiting position, while all the others are in non-exhibiting position.

It is to be noted of both forms of our invention that the indicators are positively actuated both to put them into exhibiting position and to withdraw them from such position, and while we have shown what we believe to be the best and simplest means for so operating these indicators, yet we do not wish to be understood as limiting our invention to the details of construction hereinbefore described, excepting in so far as said details form essential elements of the claims herein-after made; in other words, it is within our invention to modify the details of construction so long as the indicators are positively moved into exhibiting position and so retained and positively withdrawn from such exhibiting position and so retained. In this way the various indicators are insured against accidental movement in either direction.

The registering mechanism shown in Figs. 5, 6, and 7, which is but one convenient form of such registering mechanism, is constructed as follows: Suitable brackets  $m$  are arranged at opposite sides of the casing to support rods or spindles  $n$  and  $o$ . These spindles  $n$  and  $o$  are provided with individual spools or reels  $n'$  and  $o'$ , equal in number to the number of indicators and arranged in alignment with the indicator-operating mechanism; and since these various registering devices are alike for each indicating mechanism a description of one will suffice for all. The spools or reels  $n'$  and  $o'$  are provided with a tape or ribbon  $p$ , on which figures are placed from one unit upward, corresponding with the monetary designations of the indicators in addition, and the various tapes or ribbons of the several pairs of spools pass beneath a plate  $q$ , suitably supported in the casing and having an exhibiting-slot or exhibiting-orifices  $q'$  oppo-



site the various tapes or ribbons. The registering tape or ribbon is unwound progressively from spool  $o'$  onto spool  $n'$  in the operation of the machine, so as to aggregate the amounts indicated by the operations of the respective indicators. The several spools  $o'$  are engaged by a friction-roller  $r$ , arranged upon a shaft  $r'$ , having bearings in the sides of the casing, which said friction-roller not only acts as a brake upon the said spools  $o'$ , but also serves additionally as a means for re-winding the tapes or ribbons upon the said spools when the said tapes or ribbons are run off from one spool to the other. The shaft  $r'$  has its outer end squared, as shown in Figs. 5 and 7, to receive a key or crank or other device for rotating it to wind up the ribbons. Each spool  $n'$  is provided with a ratchet  $n^2$ , which ratchet is engaged by a pawl  $n^3$ , carried by the push-rod  $i$ . In order to keep the said pawl  $n^3$  in alignment with its ratchet  $n^2$ , the rod  $i$  is provided with a plate  $s$ , which fits up between adjacent spools, and this plate, therefore, not only serves as a guide, but also serves to space the respective spools, and serves as a washer between them to insure their individual movement without interference of one with another. Each spool is provided also with a detent  $t$  of any appropriate character—such, for instance, as a flat spring bearing against the teeth of the ratchet in order to prevent back movement. Now, it will be apparent that as each individual push-rod  $i$  is projected inwardly to operate the indicator, the pawl  $n^3$  will engage the ratchet  $n^2$  of the particular registering mechanism aligned with said indicating mechanism, and will rotate the said registering mechanism, so as to draw down the ribbon from the spool  $o'$  onto the spool  $n'$ . Of course the rotation of the spool  $n'$  and the position of the ribbon thereon are so timed as that upon each movement of each push-rod the ribbon will be moved a distance sufficient to display the next higher number on the said ribbon and thereby obtain upon the ribbons, by their successive movements, the respective aggregates of the total numbers of exhibitions of the indicators. In other words, the amount indicated on the ribbon containing the register of one-cent purchases will increase by one cent at each movement, while the amount indicated on the ribbon containing the register of higher denominations will increase proportionately, so that at the end of the sales-day the aggregate of sales registered may be taken from the ribbons. In this connection it may be observed that what is commonly known as a "total adder" may be applied to either form of the machine, so as to obtain automatically the aggregate of sales indicated by all of the various indicators within any period of the day.

It is obvious that there may be an interchange of indicating and registering mechanisms in the two forms of machines.

What we claim is—

1. The combination of two or more rotary

spindles and indicating devices thereon, a pair of fingers on each of said spindles spaced apart a distance substantially equal to the length of the arc of rotation of the said spindle, a spindle-operating mechanism comprising a normally retracted push-rod positively engaged with one of the fingers of each of the said spindles to rotate said spindle positively, and a swinging spring detent hung in the rear of the spindles and held up to them by its spring and adapted to be engaged by the other of the pair of fingers of each of the spindles after having released the corresponding finger of the previously operated spindle, substantially as described.

2. The combination of two or more rotary spindles, indicators thereon, and a pair of laterally projecting fingers for each of said spindles, with a spindle-operating mechanism for each indicator spindle, comprising a normally retracted push-rod, a guide for such push-rod, one end of the said push-rod being exposed outside of the machine and the other or inner end being inclosed within the machine, and adapted to engage one of the fingers of the pair of fingers of the indicator spindle, a guide for the inner end of said push-rod, a detent, and a spring normally effecting the engagement of said detent with the other finger of the pair of fingers of the indicator spindle, the inner end of the push-rod being crooked to engage the detent to release it from the spindle under engagement therewith, substantially as described.

3. The combination of two or more spindles  $f$ , each of which is provided with an indicator  $e$ , the laterally-projecting fingers  $f'$ ,  $f^2$ , on each of said spindles, a spindle-operating mechanism comprising a push-rod having an inner crooked end, a guide therefor, springs for normally retracting the push-rod, a loose connection between the push-rod and the finger  $f'$  of its appropriate spindle, and a swinging detent  $l$  cooperating with the fingers  $f^2$  of the several spindles and having the independently swinging trip-rod  $5$  cooperating with said crooked end of each of the push-rods successively, substantially as described.

4. The combination with two or more indicator spindles having detaining fingers, and means to rotate said spindles, of a detent common to all of said spindles and comprising a horizontal bar provided with slots or notches in its lower edge, and a trip-rod pivoted to such detent beneath its notches and moving with such detent and also movable independently thereof, substantially as described.

5. The combination, with a series of rotary spindles and indicators thereon, a pair of laterally projecting fingers on said spindles, means normally to return and hold said spindles in non-exhibiting position and means to move such spindles into indicating position, comprising a push-rod having a crooked end provided with a terminal finger and a swinging detent provided with a trip-rod movable with such detent and also movable independ-



ently thereof, and adapted to cooperate with such finger and one of the fingers on the spindles, substantially as described.

5 6. In a combined cash indicator and register, the combination of a series of indicating spindles and means to operate them, of a registering mechanism comprising a series of drums equal in number to the number of  
10 umns of figures, means to rotate such drums as the spindles are operated, and a shifting pointer for each drum pivoted adjacent thereto on a fixed portion of the machine and hav-

ing spurs 16, each drum having a pin to engage successively the spurs of its appropriate 15 pointer to shift it from one column to the next higher upon each complete rotation of the drum, substantially as described.

In testimony whereof we have hereunto set our hands this 22d day of November, A. D. 20  
1894.

WILLIAM L. DUNHAM.  
JACOB H. LINCK.

Witnesses:

HIRAM MUDGE,  
DANIEL HARTMAN.