

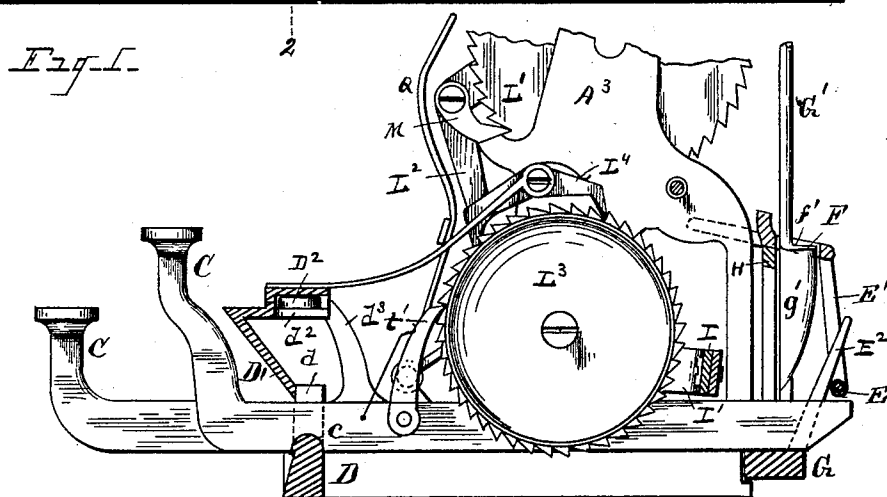
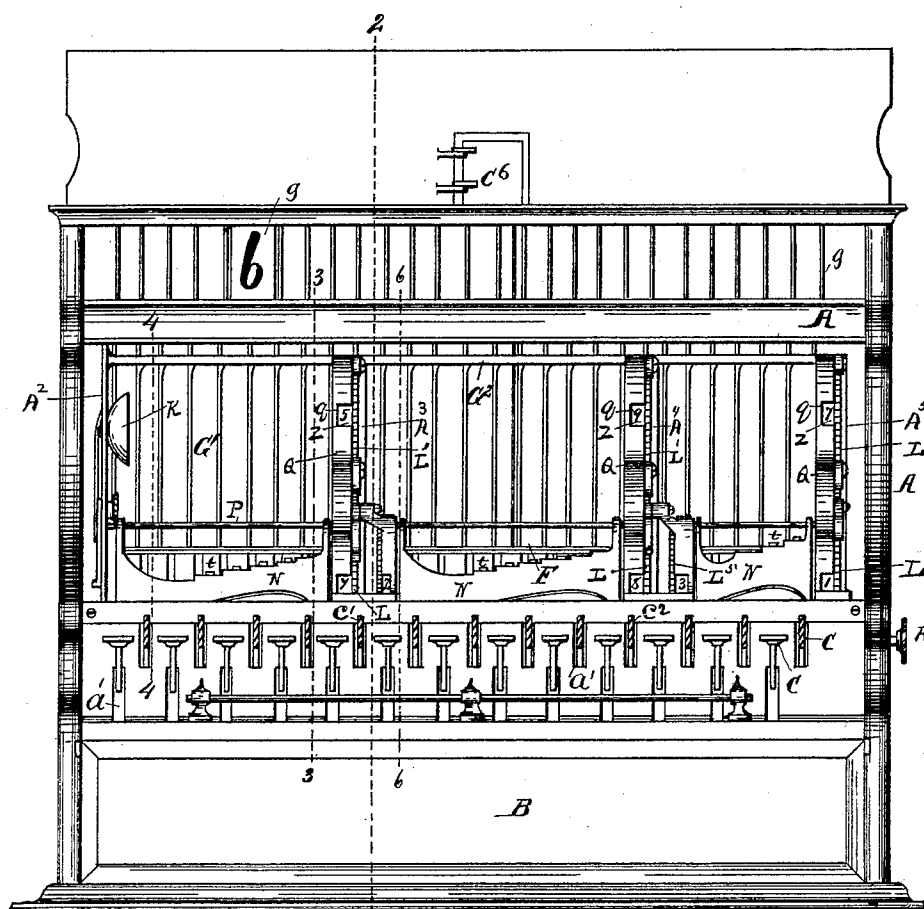
(No Model.)

4 Sheets—Sheet 1.

M. HEINTZ.
CASH REGISTER AND INDICATOR.

No. 520,049.

Patented May 22, 1894



WITNESSES.

Otto B. Baenziger.
Harry P. Wheeler.

Fig. 6.

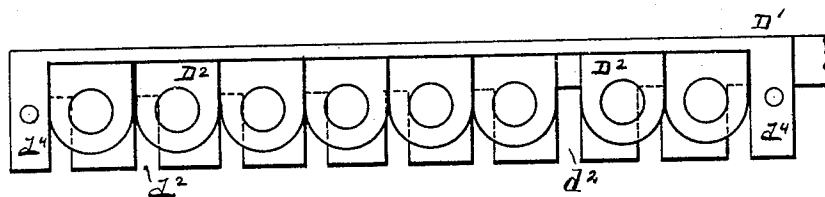
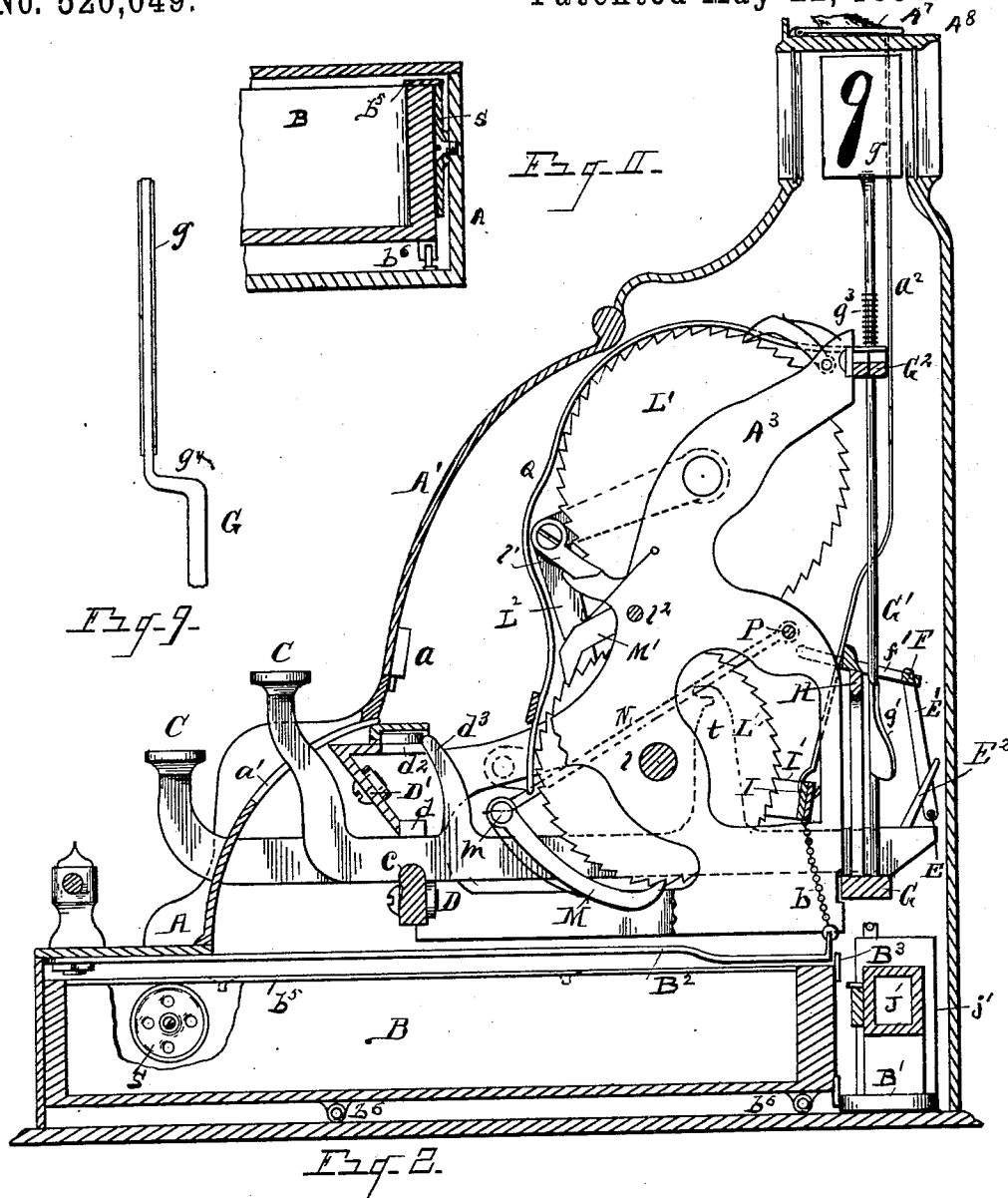
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Michael Heintz
By Maxwell S. Wright
His Attorney.

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Fig. 3-
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(No Model.)

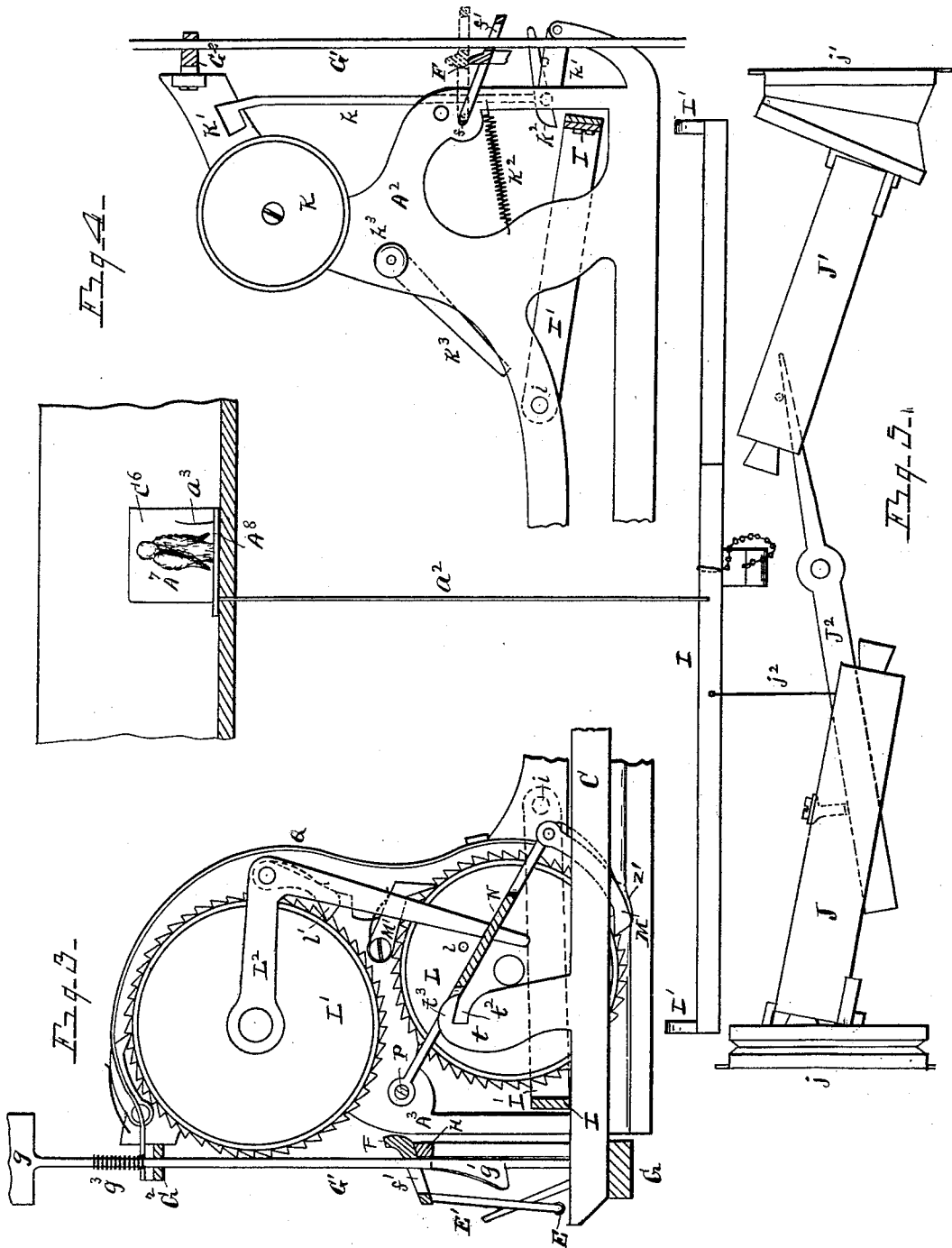
4 Sheets—Sheet 3.

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WITNESSES.

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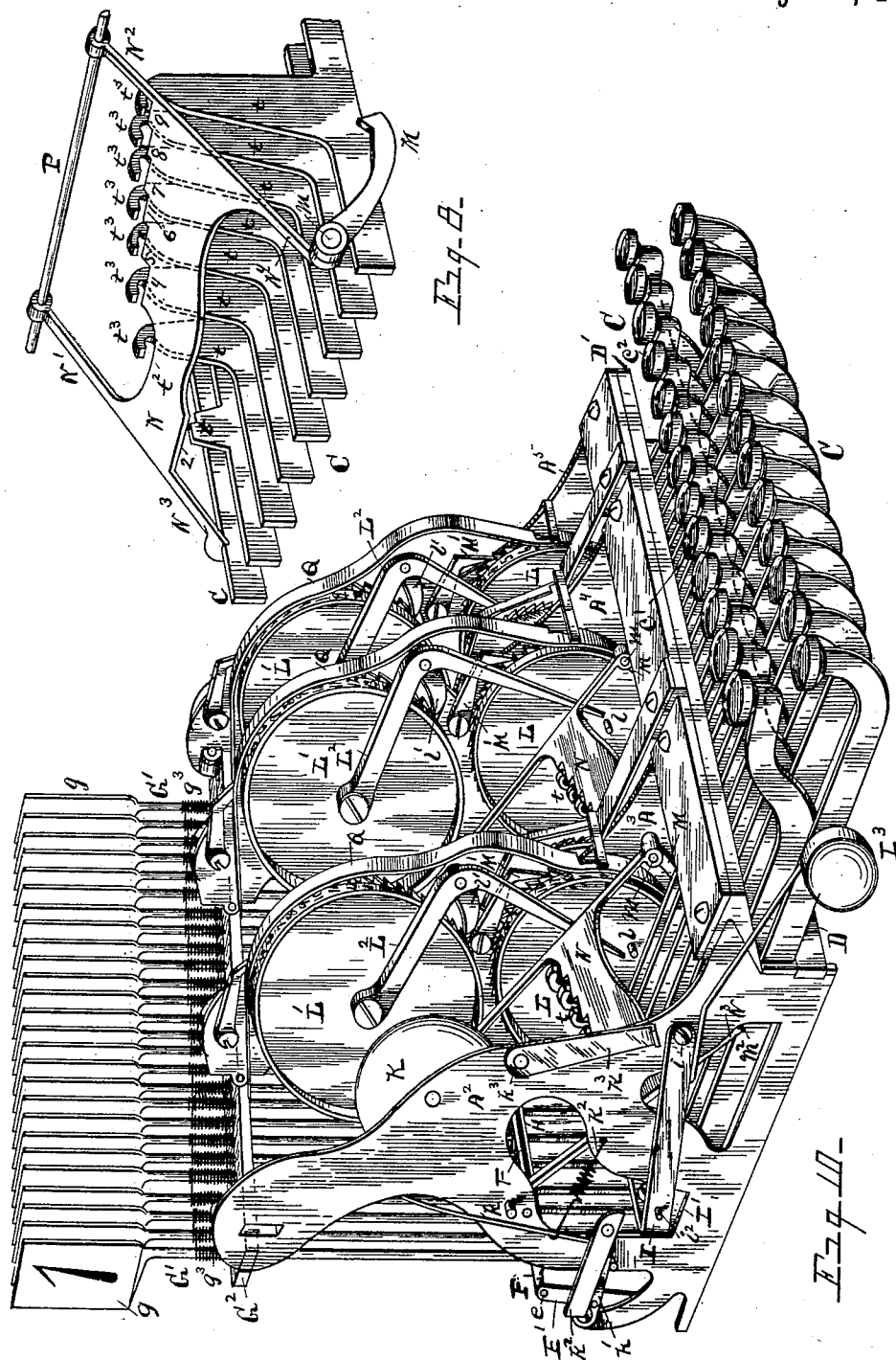
(No Model.)

4 Sheets—Sheet 4.

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WITNESSES.

Otto B. Baenziger.
Harry R. Wheeler.

INVENTOR

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UNITED STATES PATENT OFFICE.

MICHEL HEINTZ, OF DETROIT, MICHIGAN.

CASH REGISTER AND INDICATOR.

SPECIFICATION forming part of Letters Patent No. 520,049, dated May 22, 1894.

Application filed October 16, 1893. Serial No. 488,239. (No model.)

To all whom it may concern:

Be it known that I, MICHEL HEINTZ, a citizen of the United States, residing at Detroit, county of Wayne, State of Michigan, have invented a certain new and useful Improvement in Cash Registers and Indicators; and I declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates to certain new and useful improvements in a cash-register and has for its object superior efficiency, utility and safety, as well as superior economy of construction.

My invention consists of the general construction and arrangement of devices and appliances hereinafter specified and claimed and illustrated in the accompanying drawings, in which—

Figure 1 is a front elevation with the hinged cover removed from the case exposing portions of the interior mechanism. Fig. 2 is a vertical section on the line 2—2 of Fig. 1. Fig. 3 is a similar section on the line 3—3 of Fig. 1. Fig. 4 is a vertical section on the line 4—4 of Fig. 1. Fig. 5 is a detail view in rear elevation of the cuckoo-mechanism. Fig. 6 is a vertical section on the line 6—6 of Fig. 1. Fig. 7 is a detail view showing in plan the mechanism to prevent working two keys simultaneously. Fig. 8 is a detail view of one of the rocking plates for actuating the pawls, with the keys adjacent thereto. Fig. 9 is a detail view of a portion of one of the indicator actuating bars. Fig. 10 is a view in perspective showing the interior mechanism, the casing being removed. Fig. 11 is a detail view showing one of the rolls which supports the drawer B the same being a view in vertical section.

Referring to the drawings, A represents the inclosing case of my improved cash register, and A' is a cover located at the front of the machine forming a portion of the inclosing case and having a hinged engagement therewith at its upper edge and provided with a suitable lock as indicated at "a."

The internal mechanism of the cash-regis-

ter is supported upon vertical brackets A², A³, A⁴ and A⁵ of any suitable form.

B is a drawer located within the case below the registering mechanism and made to be forced forward out of the case to make change and to be retracted within the case.

C denotes a series of operating keys provided with elongated arms extending across from the front to the rear of the machine, as shown. The outer ends of the keys are arranged for convenience of operation in an upper and a lower row, their forward extremities extending forward outside the case through suitable slots a' in the front of the case. Said keys are fulcrumed upon an underlying cross bar D engaged with said brackets and are preferably recessed on their under edges to fit over said cross bar as shown at "c." The cross-bar D is constructed with a series of recesses indicated at "d" into which the arms of the operating keys are engaged. A bridge D' holds the keys in place upon the cross bar D.

E is a swinging rod running lengthwise of the machine normally resting upon the rear extremities of the arms of the operating keys. At its extremities, the swinging rod E is provided with arms E' at right angles thereto and having jointed engagement upon the extremities of the slotted tilting bar F. The arms E' of the swinging rod E have a jointed or pivotal engagement with the ends of the bar F, as indicated at "e," permitting a swinging movement of the bar E. The tilting bar F is jointly connected at its extremities to the two end brackets A² and A⁵, as shown in Fig. 4 at "f" so that its rear edge may have an oscillatory movement in the operation of the machine, as indicated in full and in dotted lines of Fig. 4. The engagement of the swinging rod E with the tilting bar F is such as to lift the bar F when a key is operated, the purpose of which will be further described. As the bar F needs to be raised only a very little, the rod E is arranged to be thrown off from the rear ends of the operating keys in any suitable manner, as by a standard E² set at an angle, and serving to crowd the rod E rearward as it is lifted thereby causing it to ride off from the rear ends of the keys and allowing the rear extremities of the keys to

continue their upward movement without further operating said swinging rod.

Underneath the rear ends of the operating keys is located a transverse bar G engaged with the brackets, already mentioned, upon which are pivotally supported a series of upright indicator actuating bars or rods G'. An additional transverse bar G² engaged with said brackets is located toward the upper ends of said bars G', said bars being rotatably supported in a vertical position by the bars G, G². The tilting bar F which extends across the machine, is constructed with a series of laterally elongated slots f' through which the bars G' pass, respectively. At their upper ends, the bars G' are each provided with an indicator plate "g" provided with any desired numeral to indicate the amount of a given purchase made. These indicators, or indicator plates "g" lie edgewise to the front in their normal position in the machine so that the numerals thereupon are not exposed, and when a given key is struck the corresponding indicator "g" is partially rotated so as to present its face, bearing the numeral, to the front, as indicated in Fig. 1, where the figure 6 is displayed. To rotate the indicator actuating rods G', they are each provided toward their lower ends with a helical faced flange or shoulder g'. When the rear end of a given key is lifted, upon striking the key, it is raised up against the adjacent face of the corresponding helical faced flange or shoulder g', and as the key continues to rise, its contact with said flange causes the rod G', connected therewith, to rotate sufficiently to present the indicator "g" to the front.

The rotation of the indicator actuating bars G' to rotate the indicator "g" forms a special feature of my invention.

It will be observed that the tilting bar F is located upon an incline, the same being inclined downward toward the rear. In their normal position the upper edges of the helical faced flanges g' extend at right angles to the elongation of the slots f' in the tilting bar F. The rotation of a given indicator actuating bar G', causes the upper edge of the corresponding flange g' to strike against the under face of the tilting bar F and to lift said bar sufficiently to permit the upper end of the said flange to rotate into place in the corresponding slot f' of the bar F, the bar F dropping downward over the upper end of said flange and thereby retaining the corresponding bar G' in position to hold the indicator g with its face to the front until the flange of its actuating bar is released from the bar F. It will be seen that the upper end of the flange g' turns rearward when rotated. The bar F is stopped in its downward movement by an underlying transverse bar H engaged with said brackets and upon which the bar normally rests. When the flanges g' are in normal position, projecting laterally or longitudinally of the bar F, the bar F may rest upon the bar H and over the upper edges of

said flanges. But owing to the downward inclination of the bar F when a flange g' is turned rearward it strikes against the lower edge of the tilting bar F and raises it to allow the upper edge of the flange coming into position in the corresponding slot f'. The bar F may then again drop down upon the underlying bar H and hold the corresponding indicator actuating bar G', with its indicator, to the front. In manipulating the next subsequent key, it will be desirable to first release the indicator next previously displayed, so as to prevent more than one indicator being displayed, and unless the previously actuated indicator was so first released, the indicator plates, if adjacent one to the other, might strike the one against the other. It will be seen, as before described, that the operation of the swinging bar E, upon manipulation of a given key, first lifts the bar F sufficiently to release the upper edge of the flange g' of the corresponding indicator actuating bar G'. The bar F is thus lifted in advance of the rotation of the rod G' corresponding to the subsequent manipulation. Retracting springs g³ are arranged to throw the bars G' back into normal position when the bar F is raised. The bars G' are preferably bent toward their upper ends as shown at g⁴, Fig. 9 so as to carry the indicator "g" forward when its face is presented to the front. It will thus be understood how the indicators are operated upon striking the keys.

Resting upon the arms of the keys, toward their rear ends, is a swinging bar I extending across the machine, by the operation of which the drawer is released, a bell is sounded, a cuckoo figure is exposed, a cuckoo call sounded, and a door is simultaneously opened in front of the cuckoo figure. These results are accomplished as follows:—The ends of the bars I are bent to form arms I' having a pivotal engagement at their forward extremities upon the end brackets A² and A⁵, as shown at "i." At the rear of the drawer B is a spring B' arranged to shoot the drawer forward when at liberty to move. A spring arm B² is engaged at one end with the case, its rearward end normally engaging a flange or shoulder B³ upon the rear edge of the drawer to lock the drawer when the spring bar B² is in normal position. This spring bar is connected as by a chain "b" to the swinging bar I. It will be observed that when a given key is struck the spring bar B² will be lifted out of engagement with the drawer permitting the spring B' to throw the drawer forward. Upon forcing the drawer inward, the spring bar B² engages with the shoulder B³, and locks the drawer in position.

Engaged upon the case A is a hinged door C⁶ behind which is mounted a cuckoo figure A⁷ located upon a base A⁸ having a jointed engagement toward the front of the base upon the case A. The base A⁸ of the cuckoo figure is connected toward the rear edge thereof by a rod a² to the bar I. The rear edge of

said base is connected by a rod a^3 with the door C^6 , the construction being such that when the bar I is lifted, the rod a^2 will be raised, thereby tilting the base of the cuckoo figure and opening the door C^6 exposing and tilting forward the cuckoo figure. The weight of the base and its figure will restore it into normal position, thereby closing the door when the bar I is released from its lifted position by the restoration of the key to its normal position.

The cuckoo sounding mechanism consists of suitable musical or vocal pipes J, J' of any ordinary construction provided with bellows "j" and j'. These pipes are connected with a rocking bar J^2 pivotally supported upon the case A intermediate its ends, said bar being connected at one side the fulcrum by a rod j^2 to the cross-bar I. As the bar I is lifted the pipe J is raised and pipe J' depressed thereby compressing the corresponding bellows j' and sounding the note of the pipe J'. When the bar I descends the action of the pipes will be reversed, sounding in a corresponding manner the pipe J. The two pipes are thus sounded each time a key is operated, two notes so sounded being apparently the notes of the cuckoo figure.

K denotes a bell secured upon one of the end brackets in a suitable manner.

K' is a hammer of the bell having its handle "k" engaged with a rock bar k' pivoted at its outer end upon the adjacent bracket. The rock bar is provided with a latch k^2 pivoted thereto at its forward end and projecting forward of the end of the rock bar.

K^2 is a spring connecting the hammer handle with the adjacent bracket. Upon the adjacent arm of the bar I is located a pin i^2 arranged to engage the projecting end of the latch upon the rock bar when the bar I is lifted, thereby raising the rock bar and throwing back the hammer. When the pin i^2 rides past the end of the latch, said spring will throw the hammer forward to strike the bell. The latch being pivoted as above described, will tilt independent of the rock bar allowing the pin i^2 to drop past it into normal position. A movable arm K^3 is pivotally engaged at one end, as at k^3 , upon the adjacent bracket, and is arranged to be thrown into position adjacent to the hammer handle to prevent the striking of the bell if desired. This movable arm may be thrown back out of the way of the hammer handle when it is desired to permit the sounding of the bell.

The registering mechanism for registering the transactions of the machine, is as follows: For this purpose I preferably employ three sets of registering devices. One set, which may be at the left hand of the machine, registering cents, the next or intermediate set for registering dimes and the next or right hand set for registering dollars. As shown, the registering devices for registering cents are constructed to register from one to nine cents inclusive, and are at the left hand

of the change key marked c' in the drawings. The registering devices for registering dimes, as shown, are arranged to register from ten to ninety inclusive, being the keys intermediate the change key and a pay-out key marked " c^2 ." The registering devices for registering dollars, shown at the right hand of the pay-out key, are arranged as shown to register from one to six dollars inclusive. Additional keys may be provided, however, if desired, and the numerals of the keys may be varied as may be desired to register any named numbers or denominations of money which may be desired. Thus instead of the first nine keys at the left hand being used to register cents, they might register multiples of five cents, from five cents to forty-five cents inclusive. The numerals of the keys of the remaining sets may be correspondingly changed if desired. It will be sufficient, in order to the understanding of my invention, to describe the different sets of registering mechanisms as arranged and adapted to register cents, dimes and dollars, as above described, and I would have it clearly understood that I do not limit myself solely thereto, as the same devices may be made to register money of any desired denomination. I will therefore explain the mechanism as arranged in sets to register cents, dimes and dollars to the clear understanding of the mechanism.

The three sets of registering mechanisms are mechanically similar for the most part and only one set of registering devices needs therefore to be described. That more specifically illustrated in Figs. 2, 3 and 6 which is the mechanism for registering cents, or any other denominations of money, first above explained together with change registering mechanism associated therewith.

The same letters of reference will apply to the other registering devices to which like letters are therefore applied.

L denotes a primary toothed registering wheel and L' a secondary toothed registering wheel, which in the drawings is shown located above the corresponding primary wheel. Each revolution of the primary wheel L is to be registered upon the secondary registering wheel. To this end the primary wheel may be provided with a spur " l " and the secondary wheel be provided with an oscillating arm L^2 provided with a pawl l' pivotally engaged with said arm, as shown, the construction being such that at each revolution of the primary wheel L the spur " l " will strike against the arm L^2 and lift it throwing the pawl l' one notch forward to rotate the secondary wheel one notch at each revolution of the primary wheel L. These registering wheels are journaled upon the adjacent brackets. The primary wheel L is actuated by a pawl M. A safety pawl or stop latch M' is pivoted upon the adjacent brackets arranged to engage the primary wheel and prevent its being accidentally rotated in the wrong direction, as in lifting the pawl M to get a new hold upon

the registering wheel when a given key is operated. The pawl M is pivotally engaged, as at m , upon a swinging pawl-actuating web N, shown more fully in detail in Fig. 8. This web is pivotally mounted upon a transverse bar P supported upon the brackets of the machine. Each set of registering mechanism is provided with one of these swinging webs, as shown. Each of the webs is preferably constructed with rearwardly extended arms N^1 and N^2 , pivotally mounted upon the bar P, and also with forwardly extending arms, N^3 and N^4 . The arm N^4 carrying the pawl M. The arm N^3 rests normally against the underlying key and limits the descent of the web. The adjacent key may be recessed, as shown in Fig. 10, at m^2 , to receive the end of the arm N^3 . The body of the swinging web is constructed with a forwardly projecting shoulder marked with the numeral 2, and with rearwardly projecting shoulders on the rear edge thereof extending diagonally from left to right rising one above the other, as shown at the numerals 4, 5, 6, 7, 8 and 9. As shown, the first four keys at the left hand of the machine on the upper row, and the first five keys at the left hand on the lower row operate the cents registering mechanism on the first set of registering wheels at the left hand of the machine. As already described, the left hand key on the lower row lifts directly upon the arm N^3 of the web, the remaining keys of the section are each provided with an upwardly extended finger " t ," said fingers being arranged diagonally across the section from left to right, as shown, and are arranged to correspond with the shoulders, above described, upon the web N. It will be seen, as so constructed, each key will strike the web at a different distance from the fulcrum of the key, and the various keys will therefore lift the said web a corresponding distance and raise the pawl M to a corresponding height to actuate the registering wheel L a corresponding distance. Thus the key at the left in the lower row lifts against the front end of the arm N^3 , the next key at the right lifts against the shoulder marked 2 on the web. The third key from the left is constructed to lift against the web between the shoulders marked 2 and 4. The fourth key will lift against the shoulder 4, the fifth key will lift against the shoulder marked 5, the sixth key will lift against the shoulder marked 6, the seventh key will lift against the shoulder marked 7, the eighth key will lift against the shoulder marked 8, and the ninth key will lift against the shoulder marked 9. The primary registering wheel is so constructed as to be thrown by this means from one to nine notches according to whichever of the first nine keys is struck. The change key, above mentioned, is provided with a pawl t' actuating a toothed wheel L^3 . A stop pawl L^4 is engaged upon the adjacent bracket to prevent the rotation of the change wheel in the wrong direction. It will be perceived that the change key does not operate upon a web

and consequently will not operate the registering wheels L, and L' . The registering mechanism for registering dimes is located adjacent to the bracket A^4 and is similar to that already described. The pay-out key actuates a pay-out registering wheel L^5 in the same manner as the change key actuates its corresponding registering wheel and needs no further description. Inasmuch as the dollar keys, that is, the keys for actuating dollar registering mechanism, are only six in number, as shown, the corresponding web is only provided with a corresponding number of shoulders, and the number of keys in a given section is immaterial so far as the scope of my invention is concerned. No change or pay-out registering wheel is required with the registering wheels at the right hand of the machine.

Over the peripheries of the several registering wheels, is engaged a band z with suitable numerals, although the desired numerals may be placed upon the peripheries of the various registering wheels in any desired manner. In front of the several registering wheels is located a suitable shield Q recessed at suitable points, as shown at " q " to reveal the amount registered thereupon when the cover A' of the case is opened. By adding up the different numerals so exposed, the total amount of the transactions registered, is obtained. In case the change registering mechanism or the pay out registering mechanism is operated, a ticket with a corresponding number should be deposited in the drawer. The sum of the tickets should equal the amounts registered upon the change and pay-out registering wheels, unless, as in the case of the change registering mechanism, an equal amount of money is deposited in the drawer. The amount of money in the drawer, together with any such tickets, should equal the amounts registered.

The operation of the change key and the pay-out key simply tells how many times change has been made, or how many times money has been paid out, as the case may be, and a slip should upon each operation of either of these keys be put into the drawer. The slip corresponding to the pay-out key should record how much money has been paid out. The number of the slips will show how many times the drawer has been opened in the operation of the change key and pay-out key.

It is desirable that no two keys in the same set of registering mechanism should be permitted to be operated at the same time as it will be seen only the highest amount would be registered.

I prevent the operation of any two keys simultaneously in the same set of registering mechanism, in the following manner:—The bridge D' is constructed with a series of recesses, indicated at d^2 shown more particularly in Fig. 7. The several keys are also constructed each with an upwardly projecting finger d^3 adapted to enter corresponding re-

cesses d^2 in the bridge. Upon the bridge are located a series of slotted blocks or plates D^2 cut away at their adjacent edges on the side toward the fingers d^3 of the keys to permit said fingers entering between two adjacent blocks. At the ends of each section of the registering mechanism, the bridge is provided with a shoulder d^4 between which the series of blocks is located upon the bridge. The blocks fill the spaces longitudinally of a single section of the bridge with the exception of barely sufficient room to permit the entrance of a single finger d^3 therebetween. Only one finger in a section can enter its corresponding recess between said blocks, the blocks sliding in one direction or the other to permit a ready operation of a single key. Should it be attempted to strike two keys at once, one of them must necessarily be blocked and not permitted entrance into its corresponding recess. Its corresponding registering mechanism cannot therefore be actuated. The swinging bar I is provided with a retracting weighted arm I^3 to restore it to its normal position.

Should it be desired to lock the registering mechanism so that it cannot be operated at all, I provide a thumb screw R which may be projected inward from the adjacent arm of the bar I so that it cannot be lifted. Any other suitable locking mechanism may be employed in place of the thumb screw.

I prefer to support the drawer mainly upon rolls S journaled upon the case, and flange b^5 engaged with the drawer riding upon said rolls. This construction is shown more particularly in Fig. 11, Fig. 2 showing the drawer also broken away to show the rolls. The drawer may also be provided with rolls, therebeneath, as shown at b^6 .

The fingers " t " of the operating levers, I prefer to construct as shown more particularly in Figs. 3 and 8 in which the upper end of said fingers is shown constructed with lateral recesses t^2 , allowing the web N to enter said recesses when the operating key has reached its proper length of stroke, the hook engaging over the web and effectually holding it so firmly that there can be no possible further movement of the corresponding registering wheel.

What I claim as my invention is—

1. In a cash register provided with a series of operating keys, a series of indicator actuating bars or rods provided with indicators at their upper ends, each of said bars bent beneath its corresponding indicator to carry the indicator forward when its face is presented to the front, said bars or rods each provided toward its lower end with a helical shaped flange whereby each bar or rod may be independently rotated, substantially as set forth.

2. In a cash register, a series of rotatable indicator actuating bars provided with indicators at their upper ends, each of said bars bent beneath its corresponding indicator to

carry the indicator forward when its face is presented to the front, substantially as set forth.

3. In a cash register, the combination of a series of operating keys, a series of rotatable indicator actuating bars each provided with a helical faced flange engaged by the corresponding key when its rear end is lifted into contact therewith, thereby rotating said bar, and means to hold each of said bars in lifted positions, the flange being out of contact with the corresponding key both in its normal and in its lifted position, substantially as set forth.

4. In a cash register, the combination with a series of operating keys, of a series of rotatable indicator actuating bars each provided with a helical faced flange engaged by the corresponding key when the key is operated, a slotted tilting bar embracing said indicator actuating bars, and means to raise said tilting bar when a given key is operated to release the previously operated indicator actuating bar, substantially as set forth.

5. In a cash register, the combination with a series of rotatable indicator actuating bars each provided with a helical faced flange, and a tilting bar F slotted to receive the corresponding flanges, said flanges when rotated engaging in slots of said tilting bar and extending transversely therebeneath when in normal position, substantially as set forth.

6. In a cash register, the combination with a series of operating levers, of a series of rotatable indicator bars provided with indicators at their upper ends, and helical faced flanges toward their lower ends, a slotted tilting bar F and a swinging rod E arranged to lift the tilting bar when the keys are operated, substantially as set forth.

7. In a cash register, the combination of a series of operating keys, a series of rotatable indicator actuating bars provided with helical faced flanges, rotated by said keys respectively, a slotted tilting bar F , a swinging rod E located adjacent to the lower end of the keys and means to force said swinging rod out of engagement with the keys, substantially as set forth.

8. In a cash register the combination with vertical supporting brackets, of a series of fulcrumed operating keys, a registering wheel and a swinging web pivotally supported on the adjacent vertical brackets and arranged to operate the registering wheel, said web constructed with shoulders at different distances from the fulcrums of the various keys, and said keys each provided with an independent finger to engage the corresponding shoulder upon said web, substantially as set forth.

9. In a cash register, the combination of a series of fulcrumed operating keys, a registering wheel and a swinging web arranged to operate said wheel, said web constructed with shoulders at its rear edge, and said shoulders projecting rearwardly the one beyond the other in order laterally of the web, said keys each provided with an independent finger en-

gaging the corresponding shoulder of the web, whereby the various fingers upon the operating keys will engage said web at different distances from the respective fulcrums of the said keys, substantially as set forth.

10. In a cash-register, the combination with a series of fulcrumed operating keys, of a registering wheel and a swinging web arranged to operate said wheel, said web constructed with shoulders at different distances from the fulcrum of the various keys and said keys, provided with fingers corresponding to the shoulders upon the web, the fingers constructed with a recess to engage the web and a hook to engage the upper face of the web, substantially as set forth.

11. In a cash register the combination with a series of operating keys, of bell sounding mechanism, drawer operating mechanism, cuckoo operating mechanism, end brackets, a transverse oscillatory bar I resting upon said keys and formed with arms I' pivotally engaged upon said brackets, the operation of the oscillatory bar I by the individual keys operating the bell sounding mechanism, the drawer opening mechanism, and the cuckoo sounding mechanism, substantially as set forth.

12. In a cash register, the combination of a series of operating keys, of an oscillatory bar

I, oscillating vocal pipes J, J' each provided with a bellows, and a rocking bar J² connected with the bar I and connecting said pipes, substantially as set forth.

13. In a cash register provided with a case and with a hinged door C⁶, the combination with a series of operating keys, of an oscillatory bar I, a cuckoo figure located upon a tilting base behind said hinged door, a rod a² connecting said tilting base and said oscillatory bar, whereby said door will be thrown open and said cuckoo will be thrown forward upon the operation of an individual operating key, substantially as set forth.

14. In a cash register the combination with a series of operating keys, a rod a² surmounted by a cuckoo figure, a hinged door in front of said figure, vocal pipes, and an oscillatory bar I resting upon said keys, the operation of the bar I by the individual key simultaneously sounding said pipes and opening said door and throwing forward said cuckoo figure, substantially as set forth.

In testimony whereof I sign this specification in the presence of two witnesses.

MICHEL HEINTZ.

Witnesses:

N. S. WRIGHT,

H. R. WHEELER.