

(No Model.)

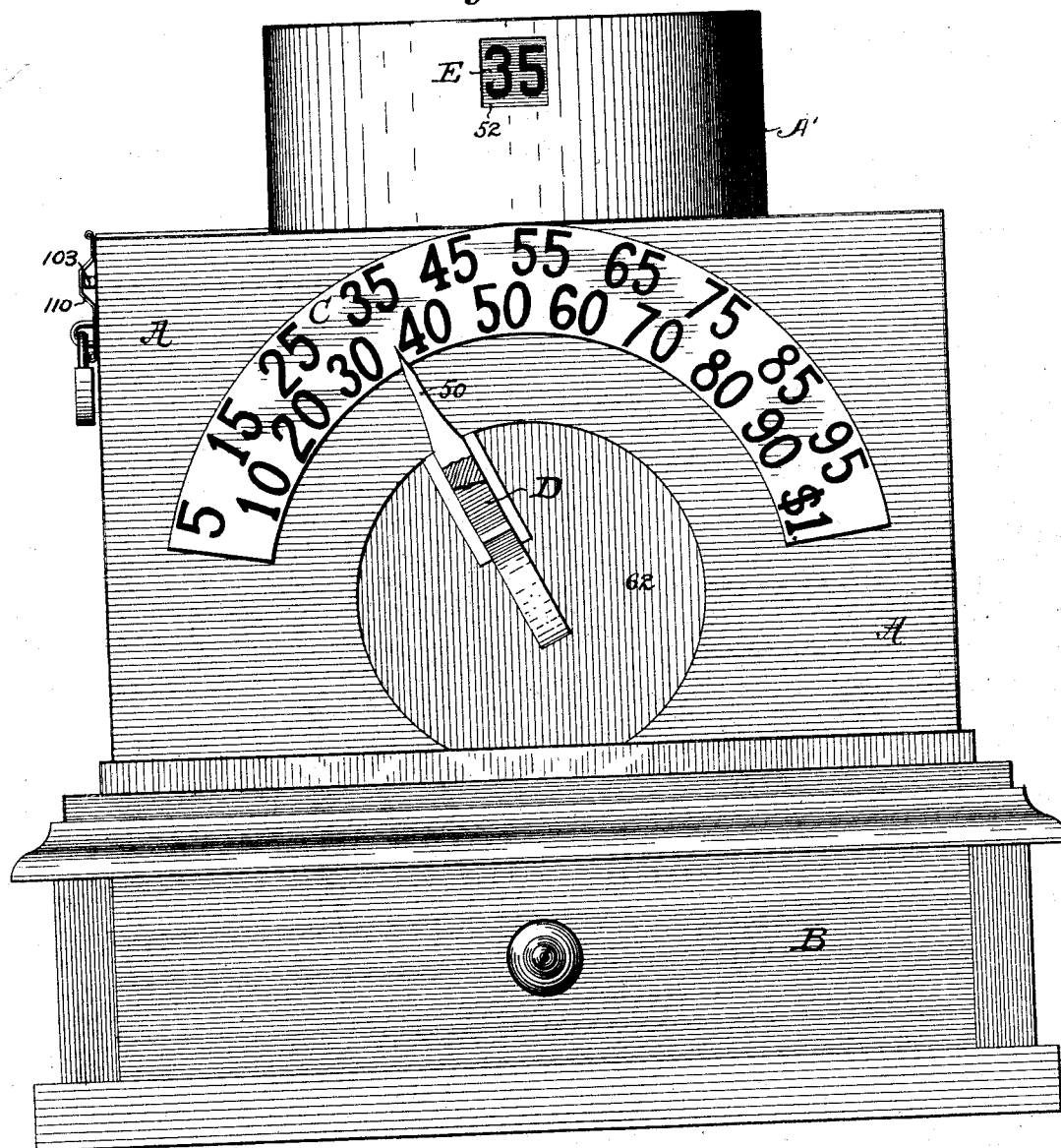
8 Sheets—Sheet 1.

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CASH REGISTER.

No. 506,167.

Patented Oct. 3, 1893.

Fig. I.



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Chas Hanimann
N. Marler

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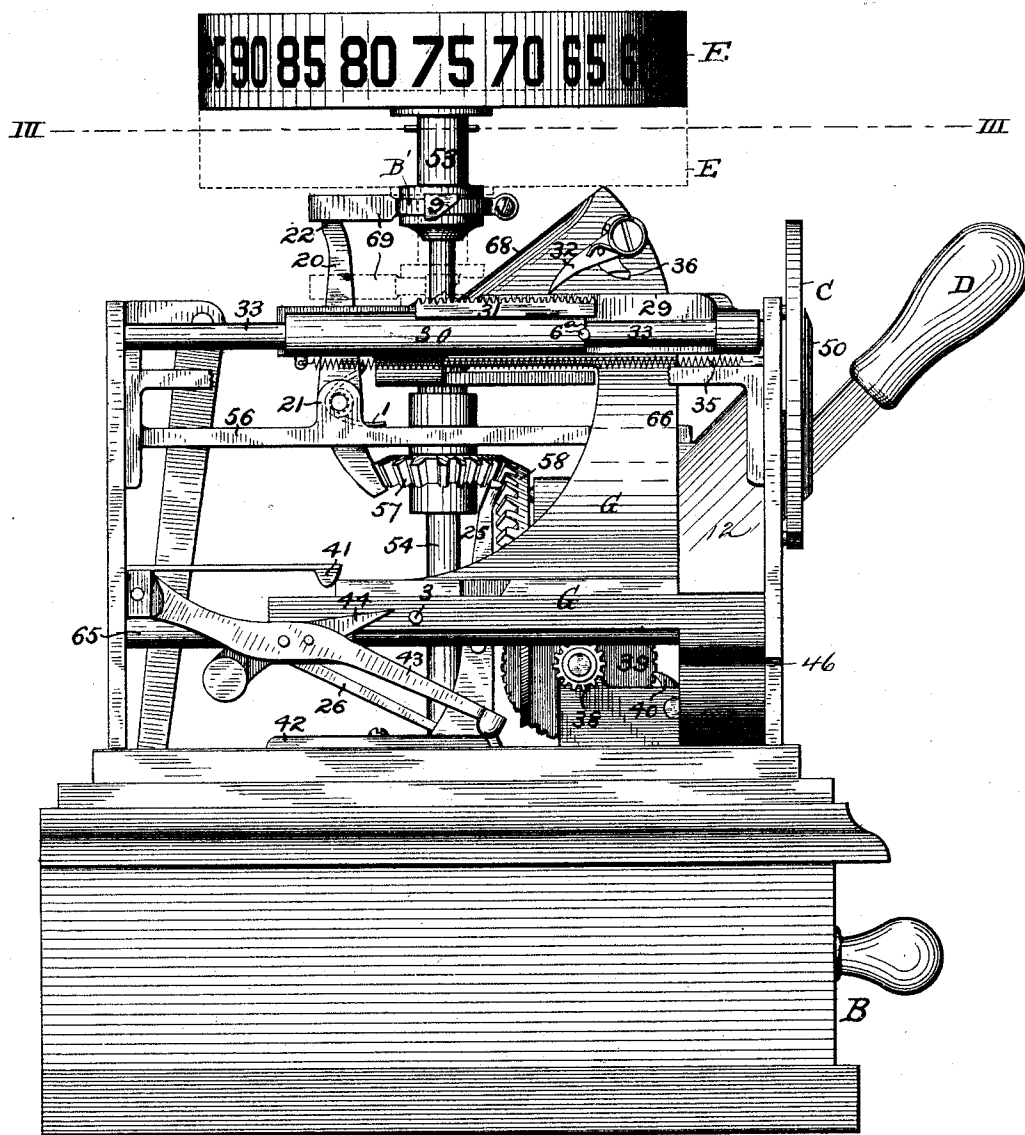
Leo Ehrlich,
by Geo. H. Hataun
att'y.

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No. 506,167.

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Fig. II.



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Fig. III.

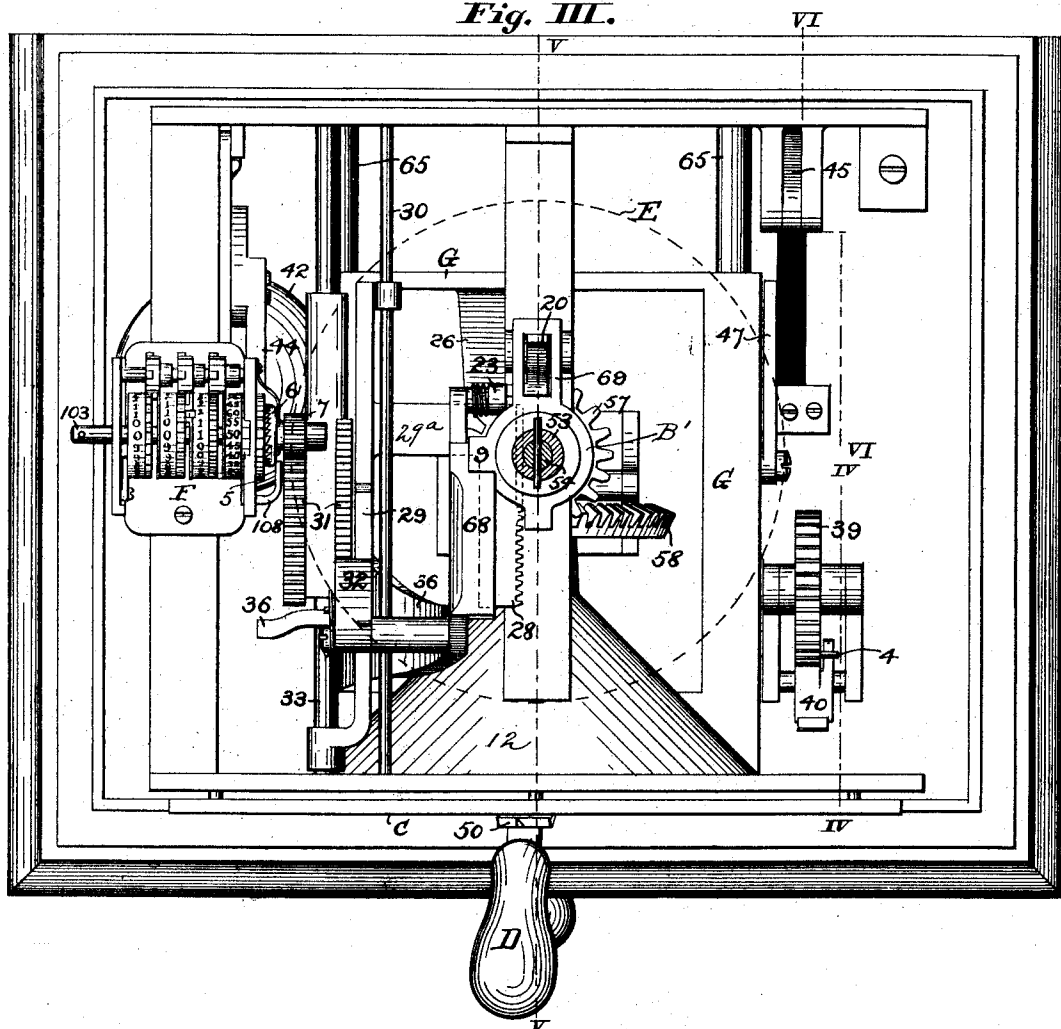
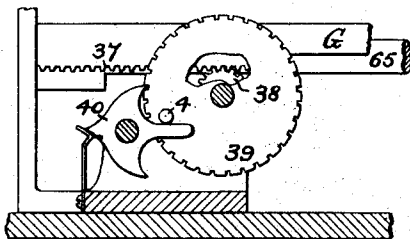


Fig. IV.



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Fig. V.

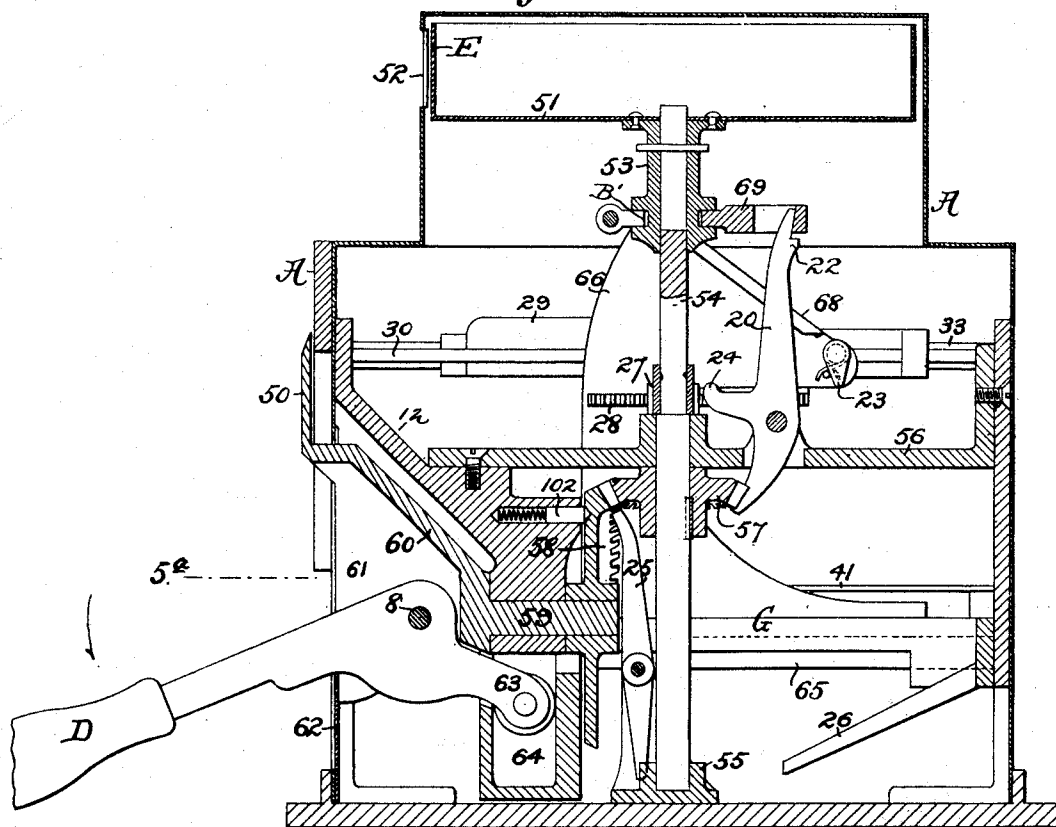


Fig. VI.

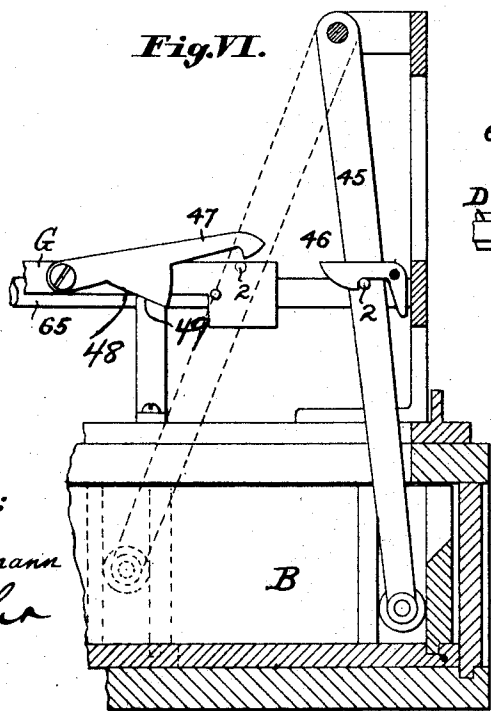
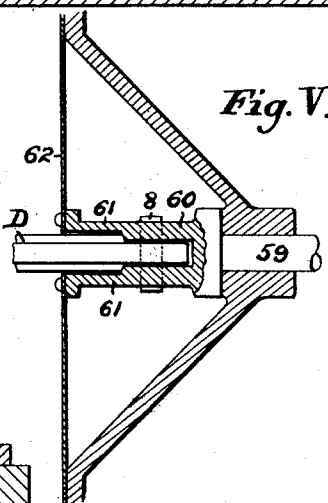


Fig. V.^a



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Fig. VII.

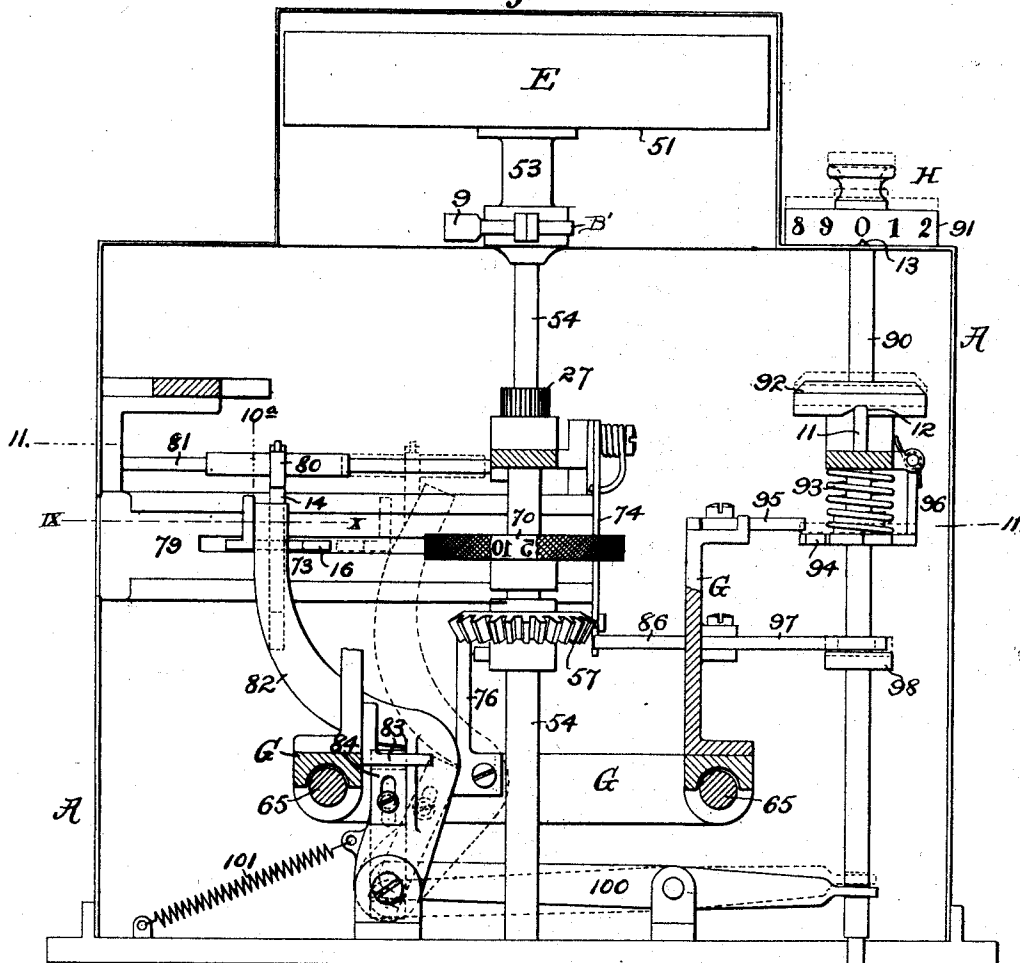


Fig. VIII.

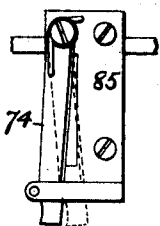


Fig. IX.

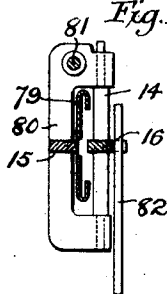


Fig. IX.

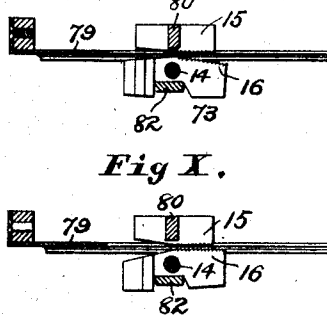
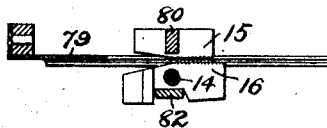


Fig. X.



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Fig. XI.

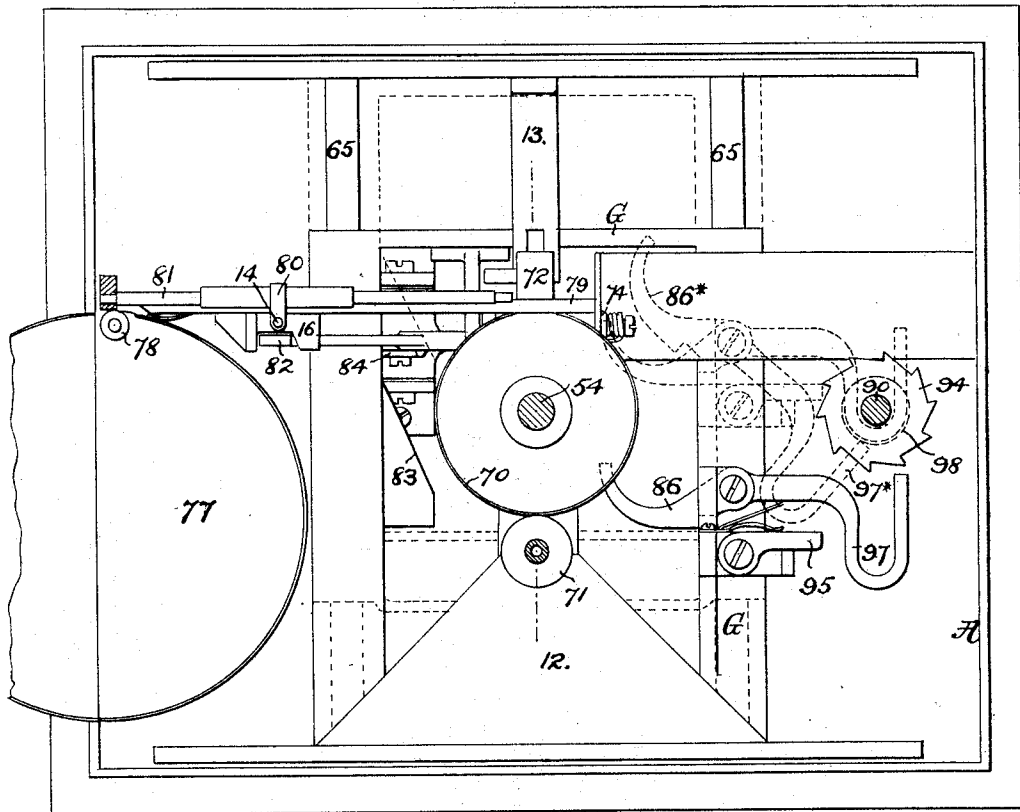


Fig XII.

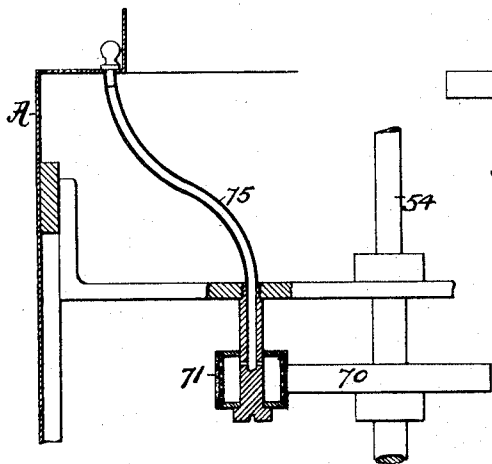
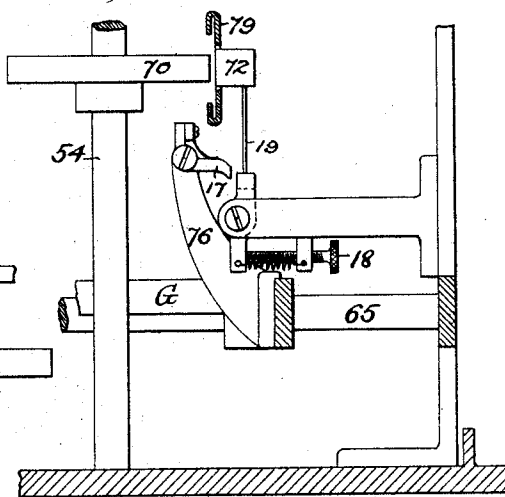


Fig XIII.



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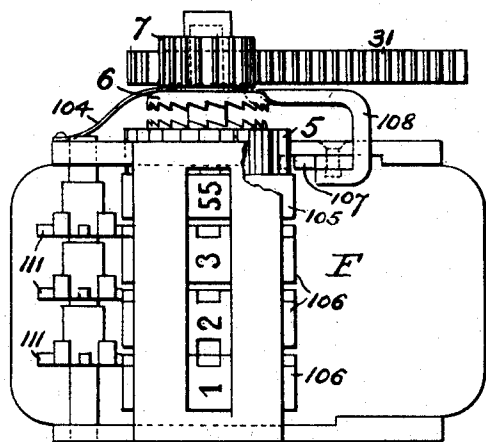


Fig. 18.

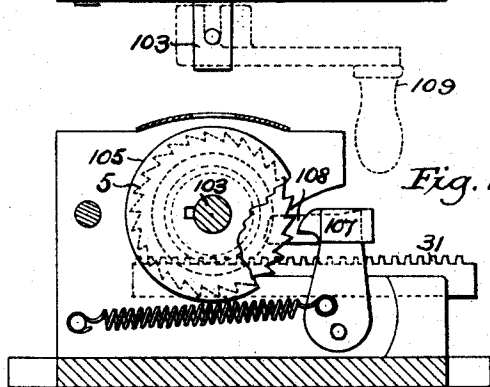


Fig. 19.

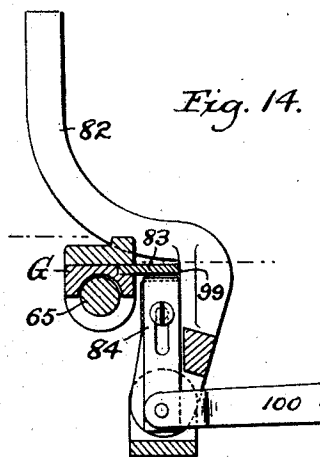


Fig. 14.

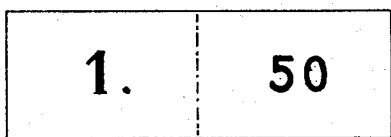


Fig. 17.

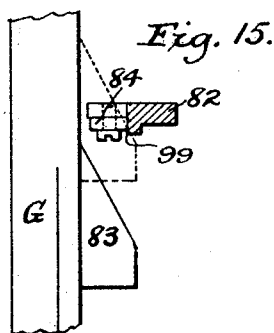
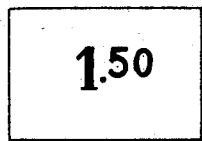


Fig. 15.

Witnesses

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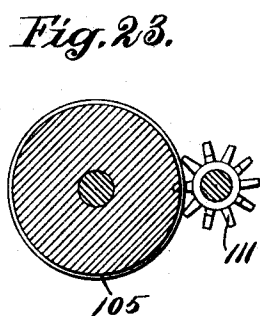
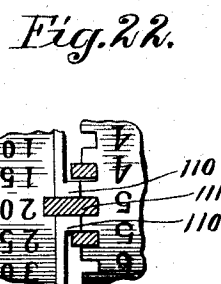
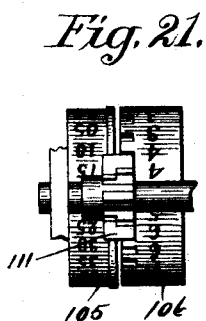
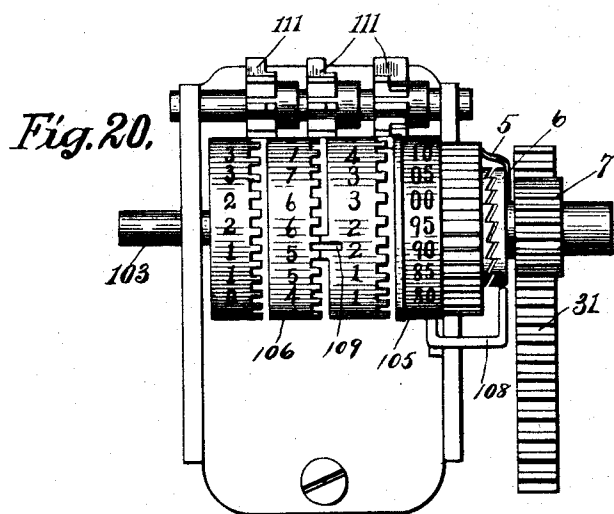
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UNITED STATES PATENT OFFICE.

LEO EHRLICH, OF ST. LOUIS, MISSOURI, ASSIGNOR TO THE NATIONAL CASH REGISTER COMPANY, OF DAYTON, OHIO.

CASH-REGISTER.

SPECIFICATION forming part of Letters Patent No. 506,167, dated October 3, 1893.

Application filed October 23, 1891. Serial No. 409,633. (No model.)

To all whom it may concern:

Be it known that I, LEO EHRLICH, a citizen of the United States, residing at the city of St. Louis, in the State of Missouri, have invented certain new and useful Improvements in Cash Registers and Indicators and Check-Printers, of which the following is a description, reference being had to the accompanying drawings, forming part of this specification.

In the complete organized machine which I have illustrated in the drawings there are embodied a registering mechanism, an indicating mechanism and a printing mechanism, but many features of my invention are not restricted to a machine containing all of these elements. On the contrary my invention in its several features relates to novel combinations, modes of operation and constructions and arrangements of parts in the separate mechanisms, as well as to combinations and modes of operation involving all of said mechanisms.

My new machine is of that class in which a single operating handle is employed for actuating the entire machine, as distinguished from machines in which is employed a series of handles or operating keys, or a series of keys, stops or trips in combination with a main operating handle or actuating device; and one of the chief features of novelty of my machine consists in the combinations and modes of operation by and under which such single operating handle is caused to actuate the various parts of the machine.

In the accompanying drawings Figure 1 represents a front elevation of the machine, with the end of the operating handle broken away; Fig. 2 a side elevation of the left hand side of the machine, with the casing removed to expose the working mechanism; Fig. 3 a top plan view of the machine with the top of the casing removed and the indicator support cut off on the line 3—3 of Fig. 2; Fig. 4 a detail view of the ratchet and pawl mechanism for compelling complete strokes of the reciprocating carriage of the machine; Fig. 5 a vertical section of the machine proper on the line 5—5 of Fig. 3, looking toward the left of the machine, and with the operating handle in depressed position; Fig. 5^a a sectional

detail approximately on the line 5^a—5^a of Fig. 5, showing the pivotal support of the operating handle; Fig. 6 a sectional detail of the drawer locking and opening mechanism, on the line 6—6 of Fig. 3, looking toward the left of the machine; Fig. 7 a transverse vertical section of the machine in an irregular plane slightly forward of the central vertical shaft, and looking toward the rear of the machine; Fig. 8 a detail view of the cutting mechanism; Figs. 9, 10 and 10^a detail views of the check-strip feeding mechanism; Fig. 11 a horizontal section of the machine approximately on the line 11—11 of Fig. 7; Fig. 12 a detail vertical section showing the printing wheel and the inking roller and its supply tube; Fig. 13 a detail view of part of the printing mechanism, showing the platen and means for operating it; Figs. 14 and 15 sectional detail views of parts of the check-strip operating mechanism; Figs. 16 and 17 face views of printed checks; Fig. 18 a detail plan view of the registering wheels and associated parts; Fig. 19 a side elevation of the same, partly in section; Fig. 20 a detail plan view corresponding to Fig. 18, but with the parts in a different position; Fig. 21 a rear elevation of two of the registering wheels and their transfer pinion; Fig. 22 an enlarged detail of the rear side of two registering wheels, with the co-operating teeth of their transfer pinion shown in section; and Fig. 23 a side elevation of one of the registering wheels and transfer pinions.

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

The main casing of the machine in this instance consists of a rectangular metal box A mounted upon a base containing the usual money drawer B, and surmounted by a cylindrical indicator casing A' provided upon its forward side, above its middle line, with a sight opening 52 for the exposure of the numbers upon the indicator E. This indicator consists of a circular band or section of a cylinder, bearing upon its surface a series of numbers representing the amounts which the machine is adapted to indicate and register, and supported at its lower edge upon a horizontal plate or disk 51 secured to and carried by a vertical hub or sleeve 53 loosely mounted

upon the upper end of a vertical shaft 54, which has a bearing near its middle in a horizontal cross plate 56 of the framework and rests at its extreme lower end in a bearing 55 upon the base plate of the machine, Figs. 2, 3, 5 and 7. The upper end of the shaft 54 is provided with a vertical slot in which fits a cross pin passed through the hub 53. This connection of the indicator with the shaft 54 causes the two to turn together but permits the indicator to be raised and lowered independently of the shaft. When the indicator is in its lower position, indicated by the dotted lines in Fig. 2, the cross pin rests in the bottom of the slot in the vertical shaft 54, and when the indicator is in its elevated position it is temporarily held there by means hereinafter described. When in its lower position the indicator is entirely hidden within the cylindrical casing B', and when in its elevated position it is brought into the horizontal plane of the sight opening 52, so that its indicating numbers may be exposed thereat.

Fast upon the shaft 54 beneath the frame plate 56 is a beveled gear 57, Figs. 2 and 5, which meshes with a beveled gear or segment thereof 58 fast upon the rear end of a horizontal shaft 59 journaled in a suitable bearing in the framework and having secured upon or formed integral with its front end a housing composed of two vertical side plates 61 and an inclined top plate or portion 60, Figs. 5 and 5^a. This housing carries at its extreme upper end a pointer 50 adapted to travel over an index plate or dial C upon the forward side of the main casing, Fig. 1.

Pivoted between the vertical plates 61 upon a pivot pin 8 is the operating handle D, which consists of a bent lever whose downwardly extending rear end projects rearward of its pivotal point and carries an anti-friction roller 63 for a purpose hereinafter explained.

The normal position of the operating handle is shown in Fig. 2, from which it will be seen that if the handle be swung laterally upon its pivotal support 59, and the pointer 50 caused to move over the dial C the vertical shaft 54 and indicator F geared to it will be turned, and the adjustment of the parts is such that when the handle is moved until the pointer 50 stands opposite a given number upon the index dial the corresponding number upon the indicator E will be brought into vertical line with the sight opening 52 in the cylindrical casing B, and, the indicator being in its lowermost position, will stand immediately below said opening and be hidden from view. Upon then lifting the indicator to its upper position such number will be exposed to view at the opening.

The beveled gear or segment 58 is provided upon its forward side near its upper edge with a series of holes or recesses arranged concentrically to its axis and with which co-operates a spring-pressed plug 102 confined in a housing in the framework, the engagement of the

plug with the recesses serving to adjust the parts and yieldingly hold them in proper operative position, with the pointer 50 exactly opposite some number upon the dial and some number upon the indicator E immediately beneath the sight opening 52.

The framework of the machine is provided above and in rear of the housing 60—61 with a flaring portion 12, Figs. 2, 3, 5 and 11, which contains the housing 60—61 and within which the latter is adapted to oscillate back and forth upon its axis 59. The open outer end of the recess or receptacle formed by the flaring part 12 is closed and access to the interior thereof prevented by a circular disk 62, Fig. 1, which is secured to the forward edges of the plates 61 and provided with a radial slot co-incident with the space between such plates, to permit vibration of the operating handle D upon its pivot 8 for the purpose hereinafter explained.

The means for lifting the indicator and for temporarily holding it in elevated position, may now be described. Mounted to slide backward and forward upon horizontal guide rods 65 in the lower part of the machine, Figs. 2, 3, 5, 7 and 11, is a rectangular frame or carriage G. This frame is provided at its left hand side with a vertical extension 66, Figs. 2, 3 and 5, whose extreme upper end has a downwardly and rearwardly inclined edge 68 which forms a cam surface for lifting the indicator when the frame G is slid rearward.

Fitting in a circumferential groove in the indicator hub 53 is a split ring or collar B', Figs. 2, 3, 5 and 7, having secured to or formed upon one side of it a beveled lug 9, and being provided also with a rearwardly extending slotted arm 69 in whose slot fits the upper end of a lever 20 pivoted near its lower end between ears 21 upon the frame plate 56 and extending downward through an opening in said plate. The engagement of the upper end of said lever with the slotted arm 69 prevents the collar B' from turning with the indicator hub, while the collar and parts carried by it are free to rise and fall with the indicator. A spring 1, Fig. 2, coiled around the pivotal support of the lever 20 and bearing against the lever presses its upper end rearward and holds it in engagement with the rear wall of the slot in the arm 69, Fig. 5. The lever 20 is provided upon its rear edge near its upper end with a shoulder 22 upon which the rear end of the slotted arms 69 is adapted to rest when the indicator is lifted until the arm is carried above the shoulder, and by which the indicator is supported in elevated position. Referring now to Fig. 2, where the lower position of the indicator and connected parts is indicated by the dotted lines, it will be seen that if the frame G be slid rearward the inclined surface 68 will ride under the lug 9 and lift the indicator and connected parts to the position shown by the solid lines in said figure, and the shoulder 22 of the lever 20 will catch under the arm 69 as

soon as it passes above the shoulder and maintain the indicator in elevated position. The lever 20 is tripped or moved at the beginning of each operation of the machine, to release the indicator and permit it to drop to lower position. This is accomplished in the present instance by causing the lower end of the lever 20 to engage the beveled gear 57. When the lever rests in a notch between two of the teeth of said gear its upper end is in position for its shoulder 22 to support the indicator, but when the gear 57 is turned in either direction and one of its teeth rides over the lower end of the lever 20 and forces it rearward the upper end of the lever will be thrown forward and its shoulder 22 disengaged from the arm 69 and the indicator thereby released. In this manner at the beginning of each operation of the machine the first movement of the operating handle in either direction will automatically release the indicator and permit it to drop out of view. In case the amount to be indicated and registered at the second operation should happen to be the same as that at the preceding operation the same number upon the indicator would of course have to be exposed to view, but it is nevertheless desirable that the indicator shall be dropped out of view after each operation of the machine and lifted into view again at the succeeding operation, and to this end I have provided means for releasing the indicator at the beginning of each operation of the machine even though the operating handle be not turned from the position it occupied at the previous operation. This means consists of a trigger 23, Fig. 5, which is pivoted to the extreme rear end of the extension 66 of the sliding frame G and is adapted to engage the rounded upper end of an arm 24 formed upon and extending forward from the lever 20 near its pivotal point. At the beginning of the rearward movement of the sliding frame G the trigger 23 will ride over the end of the arm 24 and slightly depress it, thereby rocking the lever 20 and releasing the indicator, whereupon the latter will drop until the lug 9, Fig. 2, strikes the cam surface 68, by which the indicator will be again lifted as the sliding frame continues its rearward movement. At the return forward movement of the sliding frame the trigger 23 will yield and slip over the end of the arm 24 without moving the lever 20 or releasing the indicator.

The sliding frame G is given its reciprocating movement by the vibration of the operating lever D upon its pivot 8, and to that end the front side of the frame has formed upon it a curved housing 46, Figs. 2 and 5, into which extends the rearwardly projecting arm of the operating lever carrying the anti-friction roller 63 before referred to. This housing 46 is curved to conform to the arc of the circle traversed by the rear end of the lever as its outer end and the pointer 50 are oscillated forward and backward over the index dial on the front of the casing and when

the front end of the lever is thrown downward its rear end forces the sliding frame G rearward and when it is moved upward it carries said frame forward to normal position again. It will thus be understood that whenever the operating handle and connected parts are turned upon the pivotal shaft 59 until the pointer 50 stands opposite a given number upon the index dial, and the handle is then rocked upon its pivot 8 to its limit of movement the frame G will be slid rearward and the indicator lifted to elevated position and caught and supported by the lever 20 with the number corresponding to that indicated by the pointer exposed to view at the sight opening 52.

For the purpose of insuring a full vibration of the operating lever and a consequent full reciprocation of the sliding frame G the latter is provided upon the lower edge of its right hand side, Figs. 2, 3 and 4, with a rack 37 which meshes with a pinion 38 fast upon a shaft which carries a toothed wheel 39 with which co-operates a double-toothed pawl 40. The adjustment of the parts is such that a complete movement of the sliding frame G in either direction will give the wheel 39 one complete revolution, and the wheel is provided with a pin 4 which co-operates with the pawl 40 at the ends of its opposite revolutions to disengage one of the teeth of the pawl from the wheel and engage its opposite tooth with it, the pawl also having co-operating with it the usual spring to yieldingly maintain it in its opposite operative positions.

For the purpose of forcing the frame G fully into normal position, just as it completes its return forward movement, there is provided a spring arm 41, Figs. 2 and 5, which is provided upon its underside at its free end with a rounded nose or lug which bears upon a horizontal surface of the frame G and just as the latter reaches its forward position clears said surface and bears against the end of the frame in rear thereof, thereby aiding in forcing the frame fully to normal position at the end of its movement by the operating handle. It is desirable that after the operating handle has been swung laterally upon its pivotal axis 59, to adjust the indicator, and has then been rocked to any extent upon its pivot 8, it shall be locked from oscillation in either direction upon its axis 59 until it has been given a complete vibration upon its axis 8, to lift the indicator into exposed position and to perform other duties hereinafter explained. To this end there is provided a locking lever 25, Figs. 2 and 5, pivoted to the framework near its middle and having its upper end extended into position adjacent the rear edge of the beveled gear or segment 58. A suitable spring, not shown, tends to press the upper end of this locking lever into engagement with said gear and thereby lock the latter, and consequently the operating handle and indicator, from movement. When the operating handle is in its ex-

treme upper position and the sliding frame G in its extreme forward position the front end of an arm 26 carried by the frame G engages the lower end of the locking lever 25 and holds it in forward position, with its upper end disengaged from the gear 58, as seen in Fig. 2, leaving the operating handle to be oscillated upon its axis 59; but as soon as the handle is slightly depressed or rocked upon its axis 8 and the frame G started rearward the arm 26 is carried out of engagement with the lower end of the lever 25 and the upper end of the lever is thrown into engagement with the gear 58 and the handle thereby locked from any further oscillation upon its axis 59, thus necessitating a complete stroke of the handle upon its axis 8 and a return of the frame G to its normal position before any further movement of the handle upon the axis 59 can be had.

From the foregoing description it will be understood that at the beginning of an operation of the machine the operating handle D is free to be swung laterally in either direction and the pointer 50 moved to the number it is desired to indicate; that at the beginning of such movement of the handle the indicator will be released and dropped out of view, thereby destroying the previous indication; and that upon vibrating the handle upon its axis 8, after the pointer has been moved opposite the desired number, the indicator will be lifted to elevated position again and the proper number exposed to view through the sight opening 52.

Having now described the indicating mechanism of the machine, I will next proceed to describe the registering mechanism: Mounted to slide backward and forward upon a rod 33, but held from turning thereon, Figs. 2 and 3, is a rack-frame 30 carrying upon its upper side in this instance two racks 31, which, however, might be merged into a single broad rack and will be hereinafter referred to as a single rack. A coiled spring 35 connected at its rear end to the frame 30, Fig. 2, and at its forward end to the framework of the machine, serves to yieldingly hold the frame in its normal forward position against a stop pin 6^a upon the rod 33, and to return the frame to such position after it has been slid rearward. The rack 31 meshes with a pinion 7 loose upon a shaft 103 which has mounted upon it a train of registering wheels 105—106, Figs. 3 and 18. The pinion 7 has fast upon it one part of a clutch 6, the other part of which is fast upon a ratchet 5 splined upon the shaft 103 and in this instance secured to the side of the primary registering wheel 105 which is also splined upon the shaft. A spring 104 secured at one end to the framework and slotted or forked at its opposite end to straddle the hub of the pinion 7 between the pinion and the part of the clutch 6 carried by it, bears against said part of the clutch and tends to hold it in engagement with the part carried

by the ratchet 5, so that as the rack 31 is moved in one direction the pinion 7 will turn the primary registering wheel 105 with it, and as it moves in the opposite direction the teeth of the part 6 of the clutch carried by the pinion will slip idly over the teeth of the part carried by the ratchet 5, the spring yielding to permit such movement, and a pawl 107 preventing backward movement of the ratchet 5 and primary wheel. The details of this part of the registering device will be described in detail hereinafter, and I will first describe the means for actuating the rack 31, to turn the pinion 7 and primary registering wheel. Mounted upon the end of a laterally projecting stud carried by the extreme upper end of the vertical extension 66 of the frame G, Fig. 3, is a pawl 32. This pawl is adapted to cooperate with the rack 31 and is pressed by a spring toward it. Mounted at its rear end upon a rod 30 and at its forward end upon the rod 33 is a backwardly and forwardly sliding guard plate 29. The forward half of the upper edge of this plate is higher than the part in rear thereof and projects above the horizontal plane of the adjacent rack 31. The pawl 32 is wide enough to overlie both the guard 29 and rack 31, but is held out of engagement with the rack by the guard so long as the pawl rests upon the latter. This guard plate 29 is rigidly connected by a cross plate 29^a with a rack 28, which meshes with a pinion 27 fast upon the vertical shaft 54 above the frame plate 56, Figs. 3, 5 and 7. The guard 29, cross plate 29^a and rack plate 28 constitute a rigid frame adapted to slide backward and forward, and to be so moved by the oscillations of the vertical indicator shaft 54. The pawl 32, carried by and moving with the frame G, has a uniform backward and forward stroke at each operation of the machine. In its rearward movement it will slide over the raised portion of the guard plate 29 until it reaches the rear end of such raised portion, whereupon its spring will throw it into engagement with the rack 31, and from that point to the rear end of its stroke it will carry the rack 31 with it and turn the pinion 7 of the primary registering wheel. The distance which the pawl will move the rack 31 and turn the primary wheel at any given operation of the machine will therefore depend upon the position of the guard plate 29. This guard plate slides backward and forward as the operating handle is oscillated in one direction or the other over the index dial, and the adjustment of the parts is such that when the pointer of the operating handle stands opposite any given number upon the dial the guard plate 29 will occupy such position that the pawl 32 in its rearward travel will clear the raised portion of the guard plate and engage the rack 31 at the proper point to cause it to move the rack and turn the pinion 7 and primary registering wheel just far enough to register the amount of said number. Thus, when the op-

erating handle is moved until its pointer stands opposite one of the higher numbers upon the index dial the guard plate 29 will be moved forward, so that the pawl 32 will clear its raised portion early in its rearward movement and consequently carry the rack 31 with it during a considerable portion of its movement, whereas if the handle be moved until the pointer stands opposite one of the lower numbers upon the dial the guard plate will be moved rearward and the pawl will not clear its raised portion until it has nearly completed its movement and will consequently carry the rack 31 and turn the primary registering wheel only a short distance. From the foregoing description it will be understood that the oscillation of the operating handle upon its axis 59 serves to set the indicator and also the guard plate of the register, and that the positive stroke of the handle upon its axis 8 then lifts the indicator into view and actuates the register to add thereon the amount of the indication.

For the purpose of positively arresting the registering wheel at the end of the actuating stroke of the pawl 32, and preventing any overthrow by the momentum of the parts the pawl is provided with a laterally projecting locking arm 36, Figs. 2 and 3, which engages the ratchet 5 at the end of the rearward stroke of the parts and locks said ratchet and the primary wheel from further movement. The primary wheel is in this instance adapted to register multiples of five from 5 to 95, and at each complete revolution to transfer a dollar to the units of dollars wheel 106. The three wheels 106, representing respectively units, tens and hundreds of dollars, are loose upon the shaft 103. The transfers from the wheel 105 to the first wheel 106, and from the first wheel 106 to the second, and from the second to the third, are effected by transfer pinions 111, each pinion being in gear with the succeeding wheel in the train and being adapted to be engaged and turned one-tenth of a revolution by a projection upon the preceding wheel in the train at each complete revolution of the latter wheel.

The pinion 7 and the part of the clutch 6 carried by it, while free to turn upon the shaft 103 are suitably held from endwise movement upon it, so that if said shaft be slid to the right in Fig. 3 the pinion and its connected clutch member will be carried with the shaft and the clutch member disengaged from the clutch member which is fast upon the ratchet 5, as seen in Fig. 18. A curved arm 108 is secured at one end to the pawl 107 and its beveled opposite end stands in position to be engaged by the moved clutch member when the shaft 103 is slid endwise, the engagement of such clutch member with the arm 108 forcing said arm to the right in Fig. 18 and carrying the pawl 107 out of engagement with the ratchet 5, as seen in Fig. 19. The registering wheels may then be turned to initial position. A handle 109 is provided, which may

be applied to the end of the shaft 103 for the purpose of sliding it to the position shown in Fig. 18 and rotating it. The end of the shaft 103 projects through the side of the casing and access to it may be controlled by a hasp 110, Fig. 1, fitting over a staple and held by a padlock.

As seen in Fig. 3, and more particularly in Fig. 20, each of the dollar registering wheels 106 is provided with a duplicate series of numbers arranged in a single line around its periphery, there being two adjacent ciphers interposed between the adjacent 1 and 9 upon each wheel; thus, 0, 0, 1, 1, 2, 2, and so on to 9, 9; while the cents registering wheel 105 is provided with but a single series of numbers, said numbers representing multiples of five from 5 to 95 inclusive, with a cipher between the 5 and 95. The purpose of the duplicate series of numbers upon the dollar wheels 106 is this: The wheels 105 and 106 are in this instance of approximately twice the diameter of the pinions 111, so that a twentieth of a revolution of the wheel 105 for instance, if in gear with the adjacent pinion 111, will impart a tenth of a revolution to said pinion, while a tenth of a revolution of the wheel 105 when in gear with the pinion will impart two-tenths of a revolution to the pinion. The pinion being in constant mesh with the first wheel 106 whose gear has twenty teeth, a tenth of a revolution of the pinion will impart a twentieth of a revolution to said wheel, while two-tenths of a revolution of the pinion will impart one-tenth of a revolution to the wheel. If the wheels 105 and 106 were of the same diameter as the pinions and each had a single projection adapted to engage its co-operating pinion at each complete revolution of the wheel, then at each complete revolution the wheel would turn the pinion a tenth of a revolution; but inasmuch as the wheels are twice the diameter of the pinions each wheel will at each complete revolution turn its co-operating pinion two-tenths of a revolution. Now, the wheel 105 necessarily moves in twentieths of a revolution, each twentieth adding five upon it. At each complete revolution it must actuate the adjacent pinion 111 and cause it to advance the first wheel 106 a tenth of a revolution. If, however, at any given operation the wheel 105 be moved only one-twentieth of a revolution, as will be the case where five cents is to be indicated and registered, it will not be possible for it to move the pinion 111 more than a tenth of a revolution and consequently it cannot move the first wheel 106 more than a twentieth of a revolution. If, therefore, the wheel 105 should happen to be standing at 95 and the machine should then be operated to indicate and register five cents the wheel 105 would be given a twentieth of a revolution and its cipher be brought beneath the reading opening, but the first wheel 106 would be given only one-twentieth of a revolution, and if it were provided with but a single series of numbers,

representing the nine digits and a cipher, as has heretofore been the case, it would be turned only far enough to carry the number previously exposed by it partly out of view and to bring partly into view the next higher number. The wheel 105 would then stand at zero, while the wheel 106 would stand in a position in which neither its number previously exposed nor the next higher number upon it would be clearly in view. By providing the wheel 106 with two duplicate series of numbers the transfer from the wheel 105 may be properly exhibited by it even though each wheel be given only a twentieth of a revolution. This is accomplished by so adjusting the parts that as the wheel 105 completes nineteen-twentieths of a revolution and brings its number 95 to the reading point it will turn the first dollars wheel 106 a twentieth of a revolution, causing the first of any two given numbers upon the wheel 106 to be carried out of view and the succeeding duplicate number to be brought into view; then at the next twentieth of a revolution of the wheel 105, by which its cipher is brought to the reading point, the wheel 106 will be given an additional twentieth of a revolution and the first of the two succeeding higher numbers be brought into view, and the transfer from the wheel 105 thereby shown. Of the two-tenths of a revolution which the wheel 105 imparts to the pinion 111 at each complete revolution, one-tenth is imparted as the wheel 105 completes nineteen-twentieths of its revolution, and the other tenth as it moves the remaining twentieth. Referring to Fig. 18 it will be seen that the registering wheels exhibit 123.55. Each of the numbers upon the three wheels 106 is the first of the two double numbers. If the first wheel 106 be turned forward a twentieth of a revolution the exposed number 3 will be carried out of view and the succeeding number 3 be brought into view; so, if the middle wheel 106 be turned forward a twentieth of a revolution the second number 2 upon it will be brought into view, while a twentieth of a revolution of the third wheel 106 will bring its second number 1 into view. Now, when the wheel 105 is turned until its number 95 is brought to the reading point it will advance the first wheel 106 a twentieth of a revolution and bring its second number 3 into view; and at the next twentieth of a revolution of the wheel 105 the wheel 106 will be turned an additional twentieth of a revolution and the first of its two numbers 4 brought into view, and four dollars be thus indicated by it and the wheel 105. When the wheel 105 completes nineteen-twentieths of its next revolution the wheel 106 will be advanced a twentieth of a revolution and the second of its two numbers 4 brought into view, and at the completion of the revolution of the wheel 105 the wheel 106 will be again advanced and the first of its two numbers 5 brought into view; all as will be readily understood. So, in the case

of the transfer from the first dollars wheel 106 to the second dollars wheel: when the first wheel 106 completes nineteen-twentieths of a revolution it will advance the second wheel a twentieth of a revolution and bring the second of its two numbers 2 into view, and then when the first wheel is given its next twentieth of a revolution and the first of its two ciphers is brought into view it will advance the second wheel another twentieth of a revolution and bring the first of its two numbers 3 into view, and thus cause thirty dollars to be indicated by the two wheels; and the transfer between the second and third wheels 106 is effected in the same manner.

From the foregoing description it will be seen that although each of the wheels moves in twentieths of a revolution, nevertheless the exact amount registered upon the wheels is always clearly exhibited to view at the reading opening, with the numbers directly beneath such opening.

I am aware that it is not broadly new to provide a registering wheel or disk with duplicate series of numbers arranged in single order around it, but so far as I am aware I am the first to employ such an arrangement of numbers upon a secondary wheel which is intermittently actuated by a primary wheel moving in twentieths of a revolution, in the manner and for the purpose described. Such being the case this feature of my invention is not peculiar or confined to the particular form of registering device which I employ, but is applicable to all registering devices in which the prime mover or master-wheel advances in twentieths (either twentieths of a complete revolution or twentieths of any other unit of movement) and in which the secondary wheel must be moved in tenths in order to effect the transfer from the primary wheel. Thus, the pinions 111 in the present instance might be of the same diameter as the wheels 105 and 106 and be provided with twenty teeth, in which case each registering wheel would at each complete revolution impart a tenth of a revolution to its co-operating pinion and the latter would impart a tenth of a revolution to the next higher registering wheel, the tenth of a revolution, however, being imparted in two successive steps of a twentieth of a revolution each. Nor is it essential that the gears upon the registering wheels should contain twenty teeth, for they might contain only ten teeth each, and the pinions be likewise provided with ten teeth. Nor is it essential that the primary or cents registering wheel be mounted upon the same axis as the dollars wheels, as it might be mounted upon a different axis and be arranged to intermittently actuate the first pinion 111 either directly or indirectly, to advance the first dollars wheel at each complete revolution. Again, this feature of my invention does not depend upon the character of the connection by which the primary wheel is moved to intermittently actuate the trans-

fer gear or pinion at each complete revolution, and in the foregoing description I have assumed that each wheel be provided with a single tooth or projection adapted to engage and turn its co-operating transfer pinion at each complete revolution, in the usual well known manner; but the particular registering device which I employ in the present instance is of different construction and may be described as follows.

As seen in Figs. 18 and 20 each of the registering wheels 106 has its right hand-edge formed into a gear containing twenty teeth. Each of the pinions 111 is provided with ten teeth, one of which is always in mesh with the gear of the wheel 106 at its immediate left. The transfer devices between the several wheels are exactly the same, and as each wheel and the adjacent higher one upon its left constitute a primary and a secondary wheel, so far as the transfer device between them is concerned, I will so refer to them and describe but one device. The alternate teeth of each pinion 111 are wide enough to overlie both the smooth portion of the periphery of its co-operating primary wheel and the gear of its co-operating secondary wheel, while the intermediate teeth of the pinion are narrow or cut away to clear the edge of the primary wheel, Figs. 20 to 23. The wheel 105 and each of the wheels 106 as well, excepting the left hand one, is provided at one point upon the left hand edge of its periphery with a notch or recess 109, and at each side of the notch with a slight lateral projection or lug 110, Figs. 20 and 22. The pinion normally stands with one of its narrow teeth in engagement with the gear of its co-operating secondary wheel, and with its two broad teeth upon opposite sides of its engaged narrow tooth overlapping said gear and also the left hand edge of the primary wheel, Fig. 23. When the primary wheel completes a revolution and its notch 109 is brought around to the pinion the projection 110 at the forward side of said notch will engage the narrow tooth of the pinion which is in mesh with the gear of the secondary wheel, and which is wide enough to project laterally beyond the plane of said gear, and will turn the pinion forward, the notch 109 immediately behind such projection receiving the succeeding broad tooth of the pinion which enters said notch and also passes between two of the teeth of the gear on the secondary wheel, as seen in Fig. 22. The primary wheel therefore turns the pinion and secondary wheel both by the engagement of the projection 110 with the narrow tooth of the pinion and by the engagement of its notch 109 with the broad tooth of the pinion, the one engagement following the other and the two together serving to turn the secondary wheel a full tenth of a revolution. It will thus be seen that when a pinion is in normal position its broad teeth upon the opposite sides of the narrow tooth which is engaged with the gear overlap and rest

upon the periphery of the adjacent primary wheel, which thereby locks the pinion and secondary wheel from movement, Fig. 23, so that they cannot turn until the primary wheel completes a revolution and brings its notch 109 opposite the lower one of the two broad teeth which rest upon its periphery. In this manner the separate locking disks generally employed, for locking the secondary wheel from movement except when actuated by the primary wheel, are dispensed with and the transfer pinions themselves made to perform this duty.

Having now described the indicating and registering mechanisms of the machine, I will next proceed to describe the mechanisms by which the amount indicated and registered at each operation is printed upon a paper strip, the strip advanced, and the printed check or ticket severed therefrom: Fast upon the vertical indicator shaft 54 about midway of its length, Figs. 7 and 11, is a type wheel 70 bearing upon its periphery a series of type numbers corresponding to the numbers upon the indicator and index dial. The position of the type wheel upon the shaft is such that whenever the operating handle is turned until its pointer stands opposite a given number and the corresponding number upon the indicator is brought into vertical line with the sight opening the corresponding type number upon the wheel will be brought to the printing point, in this instance immediately in rear of the wheel. The roll of paper strip is carried within a storage drum or cylinder 77, Fig. 11, whence it is led outward over a guide roller 78 and thence to the right through a suitable horizontal guide-way 79, Figs. 7, 10^a, 11 and 13. As seen in Figs. 7 and 11 this guide-way extends laterally from the drum 77 to a point at the right of the type wheel 70, and by it the paper strip is conducted and guided past said wheel. Immediately in rear of the type wheel the guide-way is provided with an opening through which is adapted to play a platen 72 carried by a spring arm 19, which is pivoted near its lower end to a bracket upon the framework, Fig. 13. The lower end of this spring arm has a spring connected to it tending to throw its upper end forward and carry the platen 72 against the type wheel. The arm is held in normal vertical position against the stress of the spring, with the platen slightly removed from the type wheel, by a set screw 18 whose front end engages the lower end of the spring arm. The backwardly and forwardly sliding frame G heretofore described has secured to it an upwardly extending arm 76 which carries a pivoted trigger 17 adapted to engage a shoulder or bearing upon the arm 19 during the rearward movement of the frame G and throw the upper end of said arm and the platen 72 rearward, against the stress of the spring connected to the arm, and to then clear the shoulder and release the arm and permit the spring to throw it quickly

back to initial position and cause the platen 72 to strike the type wheel or the paper strip led across the wheel between it and the platen. During the return forward movement of the frame G the trigger 17 will slip idly over the shoulder upon the spring arm 19 without moving the latter. An inking ribbon may be interposed in any suitable manner between the paper strip and type wheel; in this instance it is in the form of an endless band encircling and carried by the wheel itself, and is adapted to be inked by an inking roller 71 bearing against the periphery of the wheel, Figs. 11 and 12. This inking roller, which is also an ink well, consists of a hollow drum or cylinder loosely mounted upon a vertical bearing formed by a screw secured to the under side of a cross plate of the framework, the head of the screw supporting the roller. The stem of the screw is hollow and provided within the roller with ports communicating with its bore and with the interior of the roller, and its bore also communicates with a tube 75 leading upward to the exterior of the machine and having its upper end closed by a suitable stopper. The cylinder which constitutes the inking roller is formed of metal and is perforated and is inclosed within a snugly fitting covering of felt or other suitable absorbent material which bears against the inking ribbon upon the type wheel 70. The supply of ink is poured into the upper end of the tube 75 and passes thence through the hollow stem of the screw into the interior of the inking roller, whence it escapes through the perforations to the felt covering of the roller and by the latter is distributed upon the ribbon as the wheel 70 is turned from one position to another.

From the foregoing description it will be seen that when the operating handle is swung from side to side and the pointer 50 moved over the index dial upon the front of the machine the type wheel 70 will move in unison with the pointer and the indicator, and when the latter are brought to rest at any given number the corresponding number upon the type wheel will stand opposite the platen 72, and that upon then giving the operating handle a full positive stroke upon its pivot 8 and thereby moving the sliding frame G rearward the platen will be retracted against the stress of the spring connected to its supporting arm and then released and thrown by said spring against the paper strip led between it and the type wheel, forcing said strip against the type number which has been brought to the printing point and effecting the printing of such number upon the strip. The means for advancing the paper strip after the number has been printed upon it, and for then severing the printed check from the strip, may now be described.

Suitably supported in the framework along the upper edge of the guide way 79, and extending from the left hand end thereof, Fig. 11, to a point adjacent the type wheel, is a

rod 81 upon which is mounted a sliding sleeve which has secured to and depending from it a bracket plate 80, Figs. 7, 9, 10, 10^a and 11. Rigidly secured to this bracket plate about midway of its length is a horizontal plate 15 whose forward edge is serrated or roughened to form a gripping surface, and coincident with which the guide way 79 is provided with a horizontal slot or opening, Fig. 10^a, extending nearly the full length of the guide-way, Fig. 7.

Fast upon a vertical rock shaft 14 mounted at its upper and lower ends in the bracket plate 80 is a second gripping plate or jaw 16, adapted to co-operate with the relatively fixed plate or jaw 15 to grip the paper strip between them.

Fitting within a notch or recess in the forward edge of the jaw 16 is the upper end of a lever 82 which is pivoted at its lower end to a suitable support upon the base plate of the machine.

Secured to the left hand bar of the sliding frame G, Fig. 11, is a cam plate 83 which is adapted to engage the left hand edge of the lever 82 near its lower end when the frame G is slid rearward and to throw the upper end of the lever to the right to the position shown by the dotted lines in Fig. 7. The first movement of the upper end of the lever 82 to the right will rock the gripping jaw 16 from the position shown in Fig. 9 to that shown in Fig. 10 and cause it to grip the paper strip between it and the jaw 15, and during the further movement of the lever to the right it will carry both jaws and the paper strip with it, the sleeve supporting the bracket plate 80 sliding along the rod 81. This will advance the paper strip a distance corresponding to the length of the throw of the upper end of the lever 82, which will be the length of the check which is to be severed from the strip at each operation. When the sliding frame G is returned to its forward position and the cam plate 83 carried out of engagement with the lever 82 a spring 101 connected to said lever will pull the latter back to normal position, the lever carrying the gripping jaws and connected parts with it, but at the first backward movement of the lever the gripping jaw 16 will be rocked from the position shown in Fig. 10 back to that shown in Fig. 9, to cause the jaws to release the paper strip, and they will travel backward without moving the strip.

The printed check is severed from the strip by means of a hinged cutter blade 74, Figs. 7, 8 and 11, adapted to co-operate with a fixed cutting edge upon a plate 85 secured to the framework. A spring coiled around the pivotal support of the blade 74 yieldingly holds it in and returns it to normal position, leaving a sufficient space between it and the fixed cutter 85 to permit the passage of the paper strip. The blade 74 is actuated, to sever the strip, by an arm 86 carried by the sliding frame G at its right hand side, Figs. 7 and

11, the extreme left hand end of the arm 86 engaging the lower end of the blade 74 and forcing it rearward to the position shown by the dotted lines in Fig. 7 just as the sliding frame completes its rearward movement, thereby shearing off the check against the fixed cutter 85.

The operation of the parts is so timed that during the rearward movement of the sliding frame G the platen will first be actuated to print the desired number upon the paper strip, the feeding device then caused to advance the strip and carry the printed number away from the printing point, and then at the end of the movement of the sliding frame the cutter will be actuated to sever the printed check from the strip.

For the purpose of enabling a check to be printed with an amount beyond the normal capacity of the machine as above described, I have provided means for temporarily throwing the cutting mechanism out of operation, so that successive amounts may be indicated and registered and printed upon a single check. In machines of this class heretofore in use no amount above the normal capacity of the machine, that is to say, above the highest amount which the machine is capable of indicating and registering at a single operation, which in the present instance is one dollar, could be printed upon a single check, and if a sale amounting to a sum beyond such normal capacity were made it was necessary to print the amount making up such sum upon two or more separate checks. Inasmuch as machines of this character are usually employed in places where the customer is given the printed check as his bill and delivers it to the cashier with his money in payment, two or more checks could not be safely given to the customer, since it would be possible for him to pay only one and conceal the other or others; where, however, the several amounts making up the gross sum are printed upon a single check such defrauding of the establishment where the machine is used is not possible.

In my improved machine I have provided not only means for temporarily throwing the cutting mechanism out of operation, so that two or more amounts may be printed upon a single check, but the means for accomplishing this result is such that the cutting mechanism may be maintained out of action during any desired number of operations of the machine and then automatically thrown into position for action at the end of such operations, it being only necessary to set the controlling device at the start for any desired number of operations. Thus, if a sale amounting to a dollar and fifty cents has been made the clerk will set the device to hold the cutter out of action during one operation of the machine. He will then turn the operating handle until the pointer stands opposite the dollar mark upon the index dial and then operate the handle to effect the indication and

registration and printing, and then turn it until the pointer stands opposite the number 50 and operate it to indicate and register and print 50. The cutter will be held out of action during the first operation, while the dollar was being indicated, registered and printed, but will be thrown into position for action preceding the second operation, so that at such second operation, by which the 50 is indicated and registered and printed, the printed check, bearing \$1 and 50, will be severed from the strip. This controlling device for the cutting mechanism may now be described. Mounted in the right hand side of the casing of the machine, Fig. 7, is a vertical rock-shaft 90 whose lower end is journaled in the base plate of the machine and whose upper end projects above the top of the main casing and has fast upon it a thumb piece H and a numbered index disk 91 with which co-operates a fixed pointer 13. Within the casing the shaft 90 passes through a fixed cross plate of the framework, which carries a vertical plate 11 upon the upper end of which is adapted to rest a disk 92 fast upon the rock-shaft 90 and provided upon its under edge with a notch 12 in which the upper end of the plate 11 is adapted to fit when the shaft is turned until the notch is brought over it. A short distance below the fixed frame-plate which supports the plate 11 the shaft 90 has fast upon it a ratchet 94, between which and the fixed frame-plate a spring 93 is coiled around the shaft and serves to press the latter downward and yieldingly maintain the notch 12 of its disk 92 in engagement with the plate 11. Below the ratchet 94 the shaft 90 has fast upon it a collar 98. The arm 86 which actuates the cutter blade 74 is in fact one end of a lever which is pivoted near its middle to the sliding frame G and is free to swing in one direction but not in the other, and whose right hand end, Fig. 11, is curved into a hook which is adapted to embrace the shaft 90 when the frame G is slid rearward, as indicated by the dotted lines in Fig. 11. If, however, the shaft 90 be lifted until its collar 98 stands in the path of travel of the hooked lever 97 the latter will engage such collar when the frame G is slid rearward and the lever will be tilted upon its pivot and its actuating arm 86 thrown rearward and to the right, out of line with the cutter blade 74, as indicated by the dotted line at 86* in Fig. 11. So long, therefore, as the shaft 90 is maintained in its upper position, with its collar 98 in the path of the hook 97, the cutter blade 74 will not be actuated by the rearward movements of the sliding frame G. The right hand side plate of the frame G carries at its extreme upper end a pawl 95 which is adapted to engage the ratchet 94 when the shaft 90 has been lifted and the ratchet brought into the horizontal plane of the pawl, to cause the ratchet and shaft to be turned one step toward the left at each operation of the machine. A pawl 96 pivoted to and depending from the frame-plate which

supports the plate 11 and spring-pressed into engagement with the right hand side of the ratchet 94 prevents movement of the ratchet and shaft 90 in reverse direction. When it is desired to throw the cutting mechanism out of operation the shaft 90 is lifted by means of the thumb piece H at its upper end and turned to the left until the number upon its disk 91 indicating the number of operations during which it is desired to maintain the cutting mechanism out of action stands opposite the pointer. The engagement of the plate 11 with the under side of the disk 92 will hold the shaft in its elevated position until it is turned backward to initial position again and its notch 12 brought over such plate. After the shaft has been lifted and turned to the left to the desired number the machine is operated in the manner heretofore described and at each operation the pawl 95 will engage the ratchet 94 and turn the shaft 90 backward toward normal position the distance of one number, and when it reaches normal position the notch 12 in its disk 92 will be brought over the plate 11 again and the spring 93 will throw the shaft downward and carry its collar 98 out of the path of the lever 97, so that at the next operation the cutting mechanism will be actuated as usual. Thus, if it be desired to print two amounts upon a single check the shaft 90 will be turned to the left until its number 1 is opposite the pointer, indicating that the cutting mechanism is to be held out of action during one operation of the machine; if three amounts are to be printed upon a single check the shaft will be turned until the number 2 upon its index disk 91 is opposite the pointer; and so on, as will be readily understood.

In the above manner the controlling device for the cutting mechanism may be set to cause any desired number of amounts to be printed upon a single check and to cause the cutting mechanism to be automatically thrown into action at the last operation, to sever the printed check from the strip.

Under the construction so far described the paper strip would be advanced the full length of a check at each operation of the machine, so that if the controlling device of the cutting mechanism were set to permit two amounts to be printed upon a single check such check when issued would be twice as long as the usual check bearing a single amount. Thus, if \$1.50 were to be indicated and registered and printed upon a single check the check would be such as that shown in Fig. 16. If three amounts were to be printed upon a single check the check would be three times as long as a single check; and so on. While this method of issuing checks would be practicable and useful, yet it is preferable to have the several amounts making up the gross sum printed closely together upon a single check, and to that end I have provided means for varying the feed of the paper strip, in such manner that when the controlling device of

the cutting mechanism is set to hold said mechanism out of action during any given number of operations the check-strip will be advanced at each of such operations only a very slight distance, instead of the usual full length of a check. This means for varying the feed of the check-strip is in this instance under control of the devices for throwing the cutting mechanism out of action, so when it is desired to print two or more amounts upon a single check it is only necessary to set the controlling device of the cutting mechanism in the manner heretofore described and then proceed with the usual operations of the machine to indicate and register and print the desired amounts.

The means for varying the feed of the check-strip may now be described as follows: In the description heretofore given of the means for reciprocating the gripping jaws which advance the check-strip it was stated that the cam plate 83 carried by the frame G engaged the lever 82 at each rearward movement of the frame and swung said lever to the position indicated by the dotted lines in Fig. 7. Now, as a matter of fact, in the present instance the cam plate 83 does not in the ordinary operation of the machine directly engage the lever 82, but instead bears against a vertically sliding plate 84 mounted upon said lever, Figs. 7, 14 and 15. The lower end of this plate 84 is pivoted to the left hand end of a lever 100 fulcrumed near its middle in a support upon the base plate of the machine, Fig. 7, and having its right hand end slotted and fitting in a circumferential groove in the lower end of the vertical rock-shaft 90. When the rock-shaft 90 is in its lower position, in which it is normally held by the spring 93, it holds the lever 100 in the position shown in Fig. 7, with the left hand end of the lever elevated and the upper end of the plate 84 in the path of the cam plate 83, so that when the frame G is slid rearward said cam plate will engage the plate 84 and give the upper end of the lever 82 a full movement to the right and cause the check-strip to be advanced the full length of a check. When, however, the rock-shaft 90 is lifted and turned, to throw the cutting mechanism out of action, the right hand end of the lever 100 is lifted with it and the left hand end of said lever and the plate 84 thrown downward to the position shown in Fig. 14, in which position the upper end of the plate 84 is out of the path of travel of the cam plate 83, so that when the frame G is slid rearward the cam plate will directly engage the lever 82 at the point 99, Fig. 14, and throw the upper end of said lever only slightly to the right, the adjustment of the parts being such that this movement of the lever will cause the check-strip to be advanced just far enough to carry the printed number away from the printing point and allow the next number to be printed immediately adjacent to it, as indicated by the check shown in Fig. 17. When the

rock-shaft 90 is re-set to normal position, as it is automatically in the manner heretofore described, it will carry the lever 100 and plate 84 to normal position again, to cause the check-strip to be advanced the full length of a check at the next operation of the machine.

The means for automatically locking, unlocking and opening the money drawer is illustrated in Fig. 6. As there seen the rear end of the drawer B has secured in it a vertical plate between which and the rear wall of the drawer extends the lower end of a lever 45, pivoted at its upper end and carrying an anti-friction roller at its lower end. About mid-way of its length this lever has a laterally projecting stud or pin 2 with which co-operates a latch 46 to normally lock the lever in its rear position and the drawer closed. The sliding frame G has pivoted to it a hooked arm 47 which at the end of the rearward movement of said frame is adapted to ride under the rounded nose of the latch 46 and lift the latter out of engagement with the pin 2 upon the lever 47, and to itself hook over said pin, so that as the frame G is moved forward to normal position the arm 47 will carry the lever 45 with it to the position shown by the dotted lines in Fig. 6 and thereby force the drawer open. As the frame G reaches the end of its forward movement the beveled surface 48 upon the under side of the arm 47 rides over a post 49 and the arm 47 is lifted out of engagement with the pin 2 upon the lever 45, so that the drawer is free to be pushed inward to closed position and be locked by the re-engagement of the latch 46 with the pin 2. When the arm 47 is carried away from the post 49 at the beginning of the rearward movement of the frame G it will drop to horizontal position and rest upon a pin projecting laterally from the side of the frame G, in position to engage and lift the latch 46. The machine is provided in this instance with a gong 42, Fig. 2, which is adapted to be sounded at each operation by a striker 43 which is pivoted to the framework near its middle and has pivoted to it at a point in front of its own pivotal support a weighted trip or trigger 44. The forward end of this trip has an inclined under side, and the trip is free to be swung in one direction upon its pivot, its forward end moving downward and its rear end upward, but cannot move in the opposite direction. When the sliding frame G is moved rearward a pin 3 projecting laterally from its side rides under the beveled lower side of the trip 44 and lifts said trip and the striker lever 43 until the pin clears the bearing surface upon the front end of the trip, whereupon it releases the trip and lever and the latter drops to normal position and sounds the gong. At the return forward movement of the frame G the pin 3 rides over the front end of the trip 44 and slightly depresses it as it passes, the gravity of the rear end of the trip then causing the latter to resume its normal position.

From the foregoing description, and the statement at the beginning of the specification, it will be understood that the several features of my invention are not restricted, in their broader scope, to details of construction or arrangement of parts, but contemplate broadly the new combinations of elements and new modes of operation which have been described and which will be particularly set forth in my claims. Thus, so far as I am aware I am the first in the art to employ in an indicating mechanism an indicator mounted to turn upon a vertical axis, for the purpose of setting it, and movable vertically (either up or down) to expose the indication to view; and while I desire to secure such an element broadly as one feature of my invention, yet in the combination of an indicator with a single operating handle having two movements, one to set the indicator and the other to expose it to view, my invention in its broadest scope is not restricted to the employment of an indicator which is movable vertically to expose the indication, but contemplates broadly the combination of an indicator with a single operating handle having two movements, one a setting movement to set the indicator and the other an exposing movement to expose it to view, and this whether the exposing movement of the handle moves the indicator vertically or not. Thus, it will be readily understood that instead of the indicator which I have shown and described being itself movable vertically it might simply turn upon a vertical axis in the same horizontal plane as the sight opening and there be provided a suitable screen plate movable between the indicator and the sight opening in the casing to alternately hide and expose the indicator, so that upon one movement of the handle the indicator would be turned to bring the proper number opposite the sight opening and upon the other movement of the handle the screen would be moved away from the sight opening to expose the number to view.

Again, I believe myself to be the first in the art to produce the combination of an indicator and an operating handle having a setting movement to set the indicator and an exposing movement to expose the indication, with means of any sort for compelling a full exposing movement of the handle; also the first to produce such combination of an indicator and operating handle with means of any sort for locking the handle from setting movement after its exposing movement is begun.

As to the registering mechanism, I believe myself to be the first in the art to combine a reciprocating rack of any sort (bar, segment or wheel), an actuating pawl co-operating with it and an adjustable guard for holding the pawl out of engagement with the rack during part of its stroke, with a single operating handle for both adjusting the guard and actuating the pawl; and this feature of my

invention, in its broader scope, contemplates such broad combination and mode of operation.

Again, I believe myself to be the first in the art to produce the combination of a type-carrier of any sort, a co-operating platen, means of any kind for moving a paper strip between the platen and carrier, and a cutter or cutting mechanism of any character for cutting the strip into checks, with a single operating handle, lever or key of any kind for setting the type-carrier and actuating the platen and cutter and advancing the paper strip, and my invention in this respect is limited only by the terms of the claims in which it is set forth.

The above statements as to the scope of my invention in respect to the indicating, registering and printing mechanisms are also applicable to the several other features of the invention, such as the controlling device for the cutting mechanism, the variable feed device for the paper strip, the combinations of the indicating and registering mechanisms, of the indicating and printing mechanisms, of the three mechanisms combined, and of such mechanisms combined with the feeding and cutting mechanisms.

Having thus fully described my invention, I claim—

1. In an indicating mechanism, the combination of a single indicator, bearing a series of numbers adapted to be exposed singly at a sight opening and an operating handle medially connected therewith and having two movements, one operating to set the indicator and the other to expose it to view after it has been set, substantially as described.

2. In an indicating mechanism, the combination of a single indicator mounted to turn upon a vertical axis, and bearing a series of numbers adapted to be exposed singly at a sight opening and an operating handle medially connected therewith and having two movements, one operating to set the indicator and the other to expose it to view, substantially as described.

3. In an indicating mechanism, the combination of an indicator mounted to turn upon a vertical axis, and an operating handle geared to the indicator and having two movements, one operating to set the indicator and the other to expose it to view, substantially as described.

4. In an indicating mechanism, the combination of an indicator, having both a setting and an exposing movement and an operating handle fulcrumed on two axes and movable upon one axis to set the indicator and upon the other to expose it to view, substantially as described.

5. In an indicating mechanism, the combination of an indicator having both a setting and an exposing movement and an operating handle fulcrumed on two axes and geared to the indicator, said handle operating when moved upon one axis to set the indicator and

when moved upon the other to expose it to view, substantially as described.

6. In an indicating mechanism, an indicator mounted upon a vertical axis and adapted to turn thereon to set the indication and to move vertically upon said axis without turning to expose the indication to view, substantially as described.

7. In an indicating mechanism, an indicator mounted to turn upon an axis to set the indication, and to be moved longitudinally thereof without turning to expose the indication to view, substantially as described.

8. In an indicating mechanism, the combination of an indicator mounted to turn upon a vertical axis and also to move vertically, thereon and a single operating handle having two movements, one for turning the indicator upon its axis and the other for moving it vertically, substantially as described.

9. In an indicating mechanism, the combination of an indicator mounted to turn upon a vertical axis and also to move vertically, and a single operating handle geared to the indicator and having two movements, one operating to turn the indicator to set it and the other to move it vertically to expose the indication, substantially as described.

10. In an indicating mechanism, the combination of an indicator mounted to turn upon a vertical axis and also to move vertically, and a single operating handle fulcrumed on two axes and operating when moved upon one axis to set the indicator and when moved upon the other to move the indicator vertically to exposed position, substantially as described.

11. In an indicating mechanism, the combination of an indicator mounted to turn upon a vertical axis and also to move vertically, and a single operating handle fulcrumed on two axes and geared to the indicator, said handle operating when moved upon one axis to set the indicator and when moved upon the other to move the indicator vertically to exposed position, substantially as described.

12. In an indicating mechanism, the combination of an indicator mounted to turn upon a vertical axis and to move longitudinally thereof without turning, means for turning the indicator to set it and for moving it vertically to expose it to view, and means for temporarily holding it in exposed position, substantially as described.

13. In an indicating mechanism, the combination of an indicator mounted to turn upon a vertical axis and to move longitudinally thereof without turning, means for turning the indicator to set it and for lifting it to expose it to view, and means for temporarily supporting it in elevated position, substantially as described.

14. In an indicating mechanism, the combination of an indicator mounted to turn upon a vertical axis and to move longitudinally thereof without turning, means for turning

the indicator to set it and for moving it vertically to expose it to view, means for temporarily holding it in exposed position, and means for automatically releasing it at the next operation of the machine, substantially as described.

15. In an indicating mechanism, the combination of an indicator mounted to turn upon a vertical axis and to move longitudinally thereof without turning, means for turning the indicator to set it and for moving it vertically to expose it to view, means for temporarily holding it in exposed position, and means for automatically releasing it at its next movement upon its axis, substantially as described.

16. In an indicating mechanism, the combination of an indicator mounted to turn upon a vertical axis and also to move vertically, means for turning the indicator to set it and for moving it vertically to expose it to view, a movable support for temporarily holding the indicator in exposed position, and a releasing device turning with the indicator and co-operating with the movable support to release the indicator when turned upon its axis, substantially as described.

17. In an indicating mechanism, the combination of an indicator mounted to turn upon a vertical axis and also to move vertically, means for turning the indicator to set it and for moving it vertically to expose it to view, a pivoted supporting arm or lever co-operating with the indicator to temporarily hold it in exposed position, and a toothed wheel turning with the indicator and co-operating with said arm to release the indicator when the latter is turned upon its axis, substantially as described.

18. In an indicating mechanism, the combination of a vertical rock-shaft, an indicator mounted to turn with and move upon said shaft, and a single operating handle having two movements, one for turning the shaft and the other for moving the indicator vertically upon it, substantially as described.

19. In an indicating mechanism, the combination of a vertical rock-shaft, an indicator mounted to turn with and move vertically upon said shaft, and a single operating handle fulcrumed on two axes and operating when rocked upon one axis to turn the shaft to set the indicator, and when rocked upon the other to move the indicator vertically to expose it to view, substantially as described.

20. In an indicating mechanism, the combination of an indicator mounted to turn upon a vertical axis and to move longitudinally thereof without turning, a single operating handle co-operating with the indicator to turn it upon its axis to set it, and to move it vertically to expose it to view, and means for temporarily holding it in exposed position adapted to automatically release it at the succeeding operation of the machine, substantially as described.

21. In an indicating mechanism, the combi-

nation of an indicator mounted to turn upon a vertical axis and also to move vertically, a single operating handle co-operating with the indicator and having two movements, one to turn it upon its axis to set it, and to move it vertically to expose it to view, a movable support for temporarily holding the indicator in exposed position, and means for moving said support to release the indicator at the next movement of the handle to turn the indicator upon its axis, substantially as described.

22. In an indicating mechanism, the combination of an indicator mounted to turn upon a vertical axis and also to move vertically, a single operating handle co-operating with the indicator to turn it upon its axis and to move it vertically, a pivoted supporting arm or lever co-operating with the indicator to temporarily hold it in exposed position when moved vertically, and means for tripping said supporting arm to release the indicator at the next movement of the operating handle to turn the indicator upon its axis, substantially as described.

23. In an indicating mechanism, the combination of a vertical rock-shaft, an indicator mounted to turn with and move vertically upon said shaft, a single operating handle co-operating with the shaft and indicator, to turn the former to set the indicator, and to move the latter vertically to expose it to view, a movable support for holding the indicator in exposed position, and means for moving said support to release the indicator at the next operation of the machine, substantially as described.

24. In an indicating mechanism, the combination of a vertical rock-shaft, an indicator mounted to turn with and move vertically upon said shaft, means for turning the shaft and moving the indicator vertically upon it, a movable support for temporarily holding the indicator in exposed position, and a toothed wheel upon the rock-shaft, co-operating with the movable support to release the indicator when the shaft is turned, substantially as described.

25. In an indicating mechanism, the combination of an indicator, an operating handle having two movements, one a setting movement for setting the indicator, and the other an exposing movement for exposing it to view, and means for compelling a full exposing movement of the handle, substantially as described.

26. In an indicating mechanism, the combination of an indicator mounted to turn upon a vertical axis and also to move vertically, an operating handle having a setting movement for turning the indicator and an exposing movement for moving it vertically into view, and means for compelling a full exposing movement of the handle, substantially as described.

27. In an indicating mechanism, the combination of an indicator, mounted to turn upon and move longitudinally of an axis an oper-

ating handle having two movements, one a setting movement for setting the indicator, and the other an exposing movement for exposing it to view, and means for locking the handle from setting movement after beginning its exposing movement, substantially as described.

28. In an indicating mechanism, the combination of an indicator mounted to turn and move longitudinally upon a vertical axis, an operating handle having a setting movement for turning the indicator, and an exposing movement for moving it vertically into view, and means for locking the handle from setting movement after beginning its exposing movement, substantially as described.

29. In an indicating mechanism, the combination of an indicator mounted to turn and move longitudinally upon a vertical axis, an operating handle geared to the indicator and mounted upon two axes, having a setting movement upon one and an exposing movement upon the other, a toothed wheel turning with the handle during its setting movement, and a locking device movable into engagement with said wheel at the beginning of the exposing movement of the handle, to lock it from further setting movement, substantially as described.

30. In an indicating mechanism, the combination of an indicator, mounted to turn upon an axis and move longitudinally thereof an operating handle having two movements, one a setting movement for setting the indicator, and the other an exposing movement for exposing it to view, means for locking the handle from setting movement after beginning its exposing movement, and means for compelling a full exposing movement of it, substantially as described.

31. In an indicating mechanism, the combination of an indicator mounted to turn upon a vertical axis and also to move vertically, an operating handle having two movements, one for setting the indicator, and a reciprocating frame or carriage actuated by the other movement of the handle and co-operating with the indicator to lift it to indicating position, substantially as described.

32. In an indicating mechanism, the combination of an indicator mounted to turn upon a vertical axis and also to move vertically, an operating handle geared to the indicator and having two movements, one for setting the indicator, a reciprocating frame actuated by the other movement of the handle and co-operating with the indicator to lift it to indicating position, and a support for temporarily holding the indicator in such position, adapted to be tripped by the reciprocating frame to release the indicator, substantially as described.

33. In an indicating mechanism, the combination of a vertical indicator shaft carrying an indicator movable longitudinally thereon, a horizontal shaft geared to the vertical shaft, an operating lever fulcrumed on a bearing

carried by the horizontal shaft, on an axis at right angles to said shaft, and a reciprocating frame actuated by the movements of the handle on said axis, substantially as described.

34. In an indicating mechanism, the combination of a vertical indicator shaft carrying an indicator, a horizontal shaft geared to the vertical shaft, an operating lever fulcrumed on a bearing carried by the horizontal shaft, on an axis at right angles to said shaft, a reciprocating frame actuated by the movement of the handle on said axis, and means for compelling a full movement of said frame, substantially as described.

35. In an indicating mechanism, the combination of a vertical indicator shaft, an indicator mounted to turn with and move vertically upon said shaft, a horizontal shaft geared to the vertical shaft, an operating lever fulcrumed on a bearing carried by the horizontal shaft, on an axis at right angles to said shaft, and a reciprocating frame actuated by the movement of the handle on said axis and co-operating with the indicator to lift it to indicating position, substantially as described.

36. In an indicating mechanism, the combination of a vertical indicator shaft, an indicator carried thereby, a horizontal shaft geared to the vertical shaft, an operating lever fulcrumed on a bearing carried by the horizontal shaft, and a reciprocating frame having a segmental housing adapted to receive one end of said lever, whereby the lever is free to be swung upon the horizontal shaft as a fulcrum, while its movement upon the bearing carried by said shaft actuates the reciprocating frame, substantially as described.

37. In an indicating mechanism, the combination of a vertical indicator shaft, an indicator carried thereby, a horizontal shaft geared to the vertical shaft, an operating lever fulcrumed on a bearing carried by the horizontal shaft, a dial plate or index, a pointer carried by the horizontal shaft and movable over the dial, and a reciprocating frame having a segmental housing adapted to receive one end of said lever, whereby the lever is free to be swung upon the horizontal shaft as a fulcrum, and the pointer moved over the dial, while the movement of the lever upon the bearing carried by said shaft actuates the reciprocating frame, substantially as described.

38. In an indicating mechanism, the combination of a vertical indicator shaft, an indicator mounted to turn with and move vertically upon said shaft, a horizontal shaft geared to the vertical shaft, an operating lever fulcrumed on a bearing carried by the horizontal shaft, a dial plate or index, a pointer carried by the horizontal shaft and movable over the dial, and a reciprocating frame co-operating with the indicator to lift it into view and having a segmental housing adapted to receive one end of said lever, substantially as and for the purpose described.

39. In a registering mechanism, the combi-

nation of a rack-bar reciprocating back and forth in a straight line, an actuating pawl also reciprocating back and forth in a straight line and adapted to co-operate with the rack-bar, said pawl having a definite stroke at each operation, an adjustable guard for holding the pawl out of engagement with the rack-bar during part of its stroke, and means for adjusting the guard and actuating the pawl, substantially as described.

40. In a registering mechanism, the combination of a reciprocating rack-bar, a pinion meshing therewith, a registering wheel, a clutch between the pinion and wheel, a reciprocating actuating pawl co-operating with the rack bar and having a definite stroke at each operation, an adjustable guard for holding the pawl out of engagement with the rack during part of its stroke, and means for adjusting the guard and actuating the pawl, substantially as described.

41. In a registering mechanism, the combination, with a registering wheel and an operating rack in gear therewith, and a spring for returning the rack after each registering movement, of a movable guard co-operating with the rack, and a reciprocating pawl for moving the rack and controlled by said guard, substantially as described.

42. In a registering mechanism, the combination, with a registering wheel, an operating rack in gear therewith and a clutch interposed between the wheel and rack to permit return movement of the rack, of a reciprocating pawl for moving the rack, and a movable guard for controlling the engagement of the pawl with the rack, substantially as described.

43. In a registering mechanism, the combination of a reciprocating rack, a reciprocating actuating pawl co-operating therewith, an adjustable guard for holding the pawl out of engagement with the rack during part of its stroke, and a single operating handle for adjusting the guard and actuating the pawl, substantially as described.

44. In a registering mechanism, the combination of a reciprocating rack, a reciprocating actuating pawl co-operating therewith, an adjustable guard for holding the pawl out of engagement with the rack during part of its stroke, and an operating handle geared to said guard and having two movements, one to adjust the guard and the other to actuate the pawl, substantially as described.

45. In a registering mechanism, the combination of a reciprocating rack, a reciprocating actuating pawl co-operating therewith, an adjustable guard for holding the pawl out of engagement with the rack during part of its stroke, and an operating handle fulcrumed on two axes and movable on one to adjust the guard and upon the other to actuate the pawl, substantially as described.

46. In a registering mechanism, the combination of a reciprocating rack, a reciprocating actuating pawl co-operating therewith, an ad-

justable guard for holding the pawl out of engagement with the rack during part of its stroke, and an operating handle geared to the guard and fulcrumed on two axes, said handle being movable upon one axis to adjust the guard and upon the other to actuate the pawl, substantially as described.

47. In a registering mechanism, the combination of a reciprocating rack, a reciprocating actuating pawl co-operating therewith, an adjustable guard for holding the pawl out of engagement with the rack during part of its stroke, a rock-shaft, and an operating handle fulcrumed on a bearing carried by said shaft and co-operating with the guard to set it and with the pawl to actuate it, substantially as described.

48. In a registering mechanism, the combination of a reciprocating rack, a reciprocating actuating pawl co-operating therewith, an adjustable guard for holding the pawl out of engagement with the rack during part of its stroke, a rock-shaft geared to the guard, and an operating handle fulcrumed on a bearing carried by said shaft and co-operating with the pawl to actuate it, substantially as described.

49. In a registering mechanism, the combination of a reciprocating rack, a reciprocating actuating pawl co-operating therewith, an adjustable guard for holding the pawl out of engagement with the rack during part of its stroke, a horizontal shaft geared to the guard, and an operating handle fulcrumed on a bearing carried by the shaft and co-operating with the pawl to actuate it, substantially as described.

50. In a registering mechanism, the combination of a reciprocating rack, a reciprocating frame, a pawl carried by the frame and co-operating with the rack, an adjustable guard for holding the pawl out of engagement with the rack during part of its stroke, and an operating handle having two movements, one operating to adjust the guard and the other to reciprocate the frame, substantially as described.

51. In a registering mechanism, the combination of a reciprocating rack, a reciprocating frame, a pawl carried by the frame and co-operating with the rack, an adjustable guard for holding the pawl out of engagement with the rack during part of its stroke, and an operating handle geared to the guard and co-operating with the reciprocating frame, to set the guard and actuate the pawl, substantially as described.

52. In a registering mechanism, the combination of a reciprocating rack, a reciprocating frame, a pawl carried by the frame and co-operating with the rack, an adjustable guard for holding the pawl out of engagement with the rack during part of its stroke, and an operating handle fulcrumed on two axes and geared to the guard, said handle operating to adjust the guard when moved on one axis,

and to actuate the reciprocating frame when moved on the other, substantially as described.

53. In a registering mechanism, the combination of a reciprocating rack, a reciprocating frame, a pawl carried by the frame and co-operating with the rack, an adjustable guard for holding the pawl out of engagement with the rack during part of its stroke, a horizontal shaft geared to the guard, and an operating handle fulcrumed on a bearing carried by said shaft and co-operating with the reciprocating frame, substantially as described.

54. In a registering mechanism, the combination of a reciprocating rack, a reciprocating pawl co-operating therewith, an adjustable guard for holding the pawl out of engagement with the rack during part of its stroke, a dial or index, a pointer connected with the guard and movable over the dial to indicate the position of the guard, and an operating handle having two movements, one with the pointer over the dial, to set the guard, and the other to actuate the pawl, substantially as described.

55. In a registering mechanism, the combination of a reciprocating rack, a reciprocating pawl co-operating therewith, an adjustable guard for holding the pawl out of engagement with the rack during part of its stroke, a dial or index, a pointer connected with the guard and movable over the dial to indicate the position of the guard, and an operating handle fulcrumed on two axes, movable upon one with the pointer over the dial, to set the guard, and upon the other to actuate the pawl, substantially as described.

56. In a registering mechanism, the combination of a reciprocating rack, a reciprocating pawl co-operating therewith, an adjustable guard for holding the pawl out of engagement with the rack during part of its stroke, a dial or index, a horizontal shaft geared to the guard, a pointer carried by the shaft and movable over the dial to indicate the position of the guard, and an operating handle fulcrumed on a bearing carried by the shaft and co-operating with the pawl, substantially as described.

57. In a registering mechanism, the combination of a reciprocating rack, a reciprocating pawl co-operating therewith, an adjustable guard for holding the pawl out of engagement with the rack during part of its stroke, a single operating handle co-operating with the guard and with the pawl and having two movements, one a setting movement to set the guard, and the other an actuating movement to actuate the pawl, and means for compelling a full actuating movement of the handle, substantially as described.

58. In a registering mechanism, the combination of a reciprocating rack, a reciprocating frame, a pawl carried by the frame and co-operating with the rack, an adjustable guard for holding the pawl out of engage-

ment with the rack during part of its stroke, a single operating handle for setting the guard and actuating the reciprocating frame, and means for compelling a full reciprocation of the frame, substantially as described.

59. In a registering mechanism, the combination of a reciprocating rack, a reciprocating pawl co-operating therewith, an adjustable guard for holding the pawl out of engagement with the rack during part of its stroke, an operating handle co-operating with the guard and pawl and having two movements, one a setting movement to set the guard, and the other an actuating movement to actuate the pawl, and means for locking the handle from setting movement after its actuating movement is begun, substantially as described.

60. In a registering mechanism, the combination of a reciprocating rack, a reciprocating pawl co-operating therewith, an adjustable guard for holding the pawl out of engagement with the rack during part of its stroke, an operating handle co-operating with the guard and pawl and having two movements, one a setting movement to set the guard, and the other an actuating movement to actuate the pawl, means for locking the handle from setting movement after its actuating movement has begun, and means for compelling a full actuating movement of the handle, substantially as described.

61. In a registering mechanism, the combination of a secondary wheel provided with two duplicate series of numbers arranged in single order around the wheel and each representing the nine digits and a naught, a primary wheel bearing a series of numbers representing multiples of five from 5 to 95, inclusive, and moving in twentieths of a revolution or other unit of movement, and means intermediate the primary and secondary wheel for advancing the latter one-twentieth of a revolution twice during each complete movement of the primary wheel, substantially as described.

62. In a registering mechanism, the combination of a registering wheel, a reciprocating rack, a pinion meshing therewith, a clutch between the pinion and registering wheel, a ratchet wheel turning with the registering wheel, and an actuating pawl for the operating rack provided with a locking arm or dog adapted to engage the ratchet wheel at the end of the stroke of the pawl to lock the registering wheel from further movement, substantially as described.

63. In a registering mechanism, the combination of a reciprocating rack, a pinion meshing therewith, a registering wheel having a locking ratchet moving with it, a clutch between the pinion and wheel, an adjustable guard co-operating with the rack, and a reciprocating pawl co-operating with the rack and controlled by the guard, and a locking arm or dog moving with the pawl and adapted to engage the locking ratchet at the end of

the registering stroke of the pawl to lock the wheel from further movement, substantially as described.

64. In a registering mechanism, the combination of a train of registering wheels mounted upon an endwise movable shaft, a rack and pinion for actuating the wheels, a clutch between the pinion and primary wheel, a pawl for normally preventing backward movement of the primary wheel, and means intermediate said pawl and the endwise moving shaft for disengaging the pawl from the wheel when the shaft is so moved, substantially as described.

65. In a registering mechanism, the combination of a train of registering wheels mounted upon an endwise moving shaft, a rack and pinion for actuating said wheels, a clutch between the pinion and primary wheel, a pawl for preventing backward movement of the primary wheel, and means intermediate the endwise moving shaft and the clutch and pawl for separating the clutch and disengaging the pawl from the primary wheel upon the endwise movement of said shaft, substantially as described.

66. The combination of a type-carrier, a platen, a spring for throwing the platen against the carrier, and a single operating handle co-operating with the carrier and platen and having two movements, one for setting the carrier and the other to retract the platen against the stress of its spring, substantially as described.

67. The combination of a type-wheel mounted to turn upon a vertical axis, a platen, a spring for throwing the platen against the type-wheel and a single operating handle co-operating with the carrier and platen and having two movements, one for turning the carrier, and the other for retracting the platen, against the stress of its spring substantially as described.

68. The combination of a type-carrier, a platen, a spring for throwing the platen against the carrier an operating handle co-operating with the carrier and platen and having two movements, one a setting movement for setting the carrier and the other an actuating movement for retracting the platen against the stress of its spring, means for locking the handle from setting movement after its actuating movement is begun, and means for compelling a full actuating movement of the handle, substantially as described.

69. The combination of a type-carrier, a platen co-operating therewith, a spring for throwing the platen against the carrier, a reciprocating frame for retracting the platen, and an operating handle having two movements, one for setting the carrier and the other for moving the reciprocating frame to actuate the platen, substantially as described.

70. The combination of a type-carrier, a platen co-operating therewith, a spring for throwing the platen against the carrier, means

for moving a paper strip between the platen and carrier, and a single operating handle having two movements, one operating to set the carrier and the other to retract the platen and advance the paper strip, substantially as described.

71. The combination of the type-wheel, the platen, the reciprocating grip-jaws, one fixed and the other pivoted, for moving the paper strip between the platen and carrier, and means for vibrating positively the pivoted jaw to cause it to grip the strip and for reciprocating both of them to advance it, substantially as described.

72. The combination of the type-wheel, the platen, the reciprocating grip-jaws, one fixed and the other pivoted, the vibrating arm or lever engaging the pivoted jaw, and means for setting the type-wheel and actuating the platen and vibrating arm, substantially as described.

73. The combination of the type-wheel, the platen, the reciprocating grip-jaws, one fixed and the other pivoted, the vibrating arm or lever engaging the pivoted jaw, the reciprocating frame for actuating the platen and carrying the cam co-operating with the vibrating arm, and the single operating handle for setting the type-wheel and actuating the reciprocating frame, substantially as described.

74. The combination of a type-carrier, a platen co-operating therewith, means for moving a paper strip between the platen and carrier, a cutter for severing the strip into checks, and a single operating handle for setting the type-carrier and actuating the platen and cutter and advancing the paper strip, substantially as described.

75. The combination of a type-carrier, a platen co-operating therewith, a feeding device for moving a paper strip between the platen and carrier, a cutter for severing the strip into checks, a reciprocating frame for actuating the platen, feeding device and cutter, and a single operating handle for setting the type-carrier and actuating the reciprocating frame, substantially as described.

76. The combination of a type-carrier, a platen co-operating therewith, a feeding device for moving a paper strip between the platen and carrier, a cutter for severing the strip into checks, and an operating handle fulcrumed on two axes and movable upon one to set the carrier and upon the other to actuate the platen, feeding device and cutter, substantially as described.

77. The combination of a type-carrier, a platen co-operating therewith, a feeding device for moving a paper strip between the platen and carrier, a cutter for cutting the strip into checks, a reciprocating frame for actuating the platen, feeding device and cutter, and an operating handle geared to the carrier and co-operating with the reciprocating frame, substantially as described.

78. The combination of a type-carrier, a platen co-operating therewith, a feeding de-

vice for moving a paper strip between the platen and carrier, a cutter for cutting the strip into checks, a reciprocating frame for actuating the platen, feeding device and cutter, a shaft geared to the carrier, and an operating handle fulcrumed on a bearing carried by said shaft and co-operating with the reciprocating frame, substantially as described.

79. The combination of a type-carrier mounted to turn upon a vertical axis, a platen co-operating therewith, a feeding device for moving a paper strip horizontally between the platen and carrier, a cutter for cutting the strip into checks, a reciprocating frame for actuating the platen, feeding device and cutter, a horizontal shaft geared to the type-carrier, and an operating handle fulcrumed on a bearing carried by said shaft and co-operating with the reciprocating frame, substantially as described.

80. In a cash indicator and check printer, the combination, with the cutting mechanism, of a controlling device for temporarily holding the cutting mechanism out of action and automatically actuated by the operations of the machine to release it or throw it into action again, substantially as described.

81. In a cash indicator and check printer, the combination, with the cutting mechanism, of a controlling device for temporarily holding the cutting mechanism out of action, said controlling device being adapted to be set to hold the cutting mechanism out of action during any desired number of operations of the machine and to automatically release it or throw it into action again at the end of such operations, substantially as described.

82. In a cash indicator and check printer, the combination, with the cutter for cutting the paper strip into checks, and a movable part of the machine adapted to actuate the cutter, of a controlling device adapted to be set to automatically hold such movable part out of operative position and to automatically release it and permit it to actuate the cutter, substantially as described.

83. In a cash indicator and check printer, the combination, with the cutting mechanism, of a controlling device for such mechanism adapted to be set to hold it out of action during one or more operations of the machine, and means for moving the controlling device step by step toward normal position at the succeeding operations of the machine, to throw the cutting mechanism into action again, substantially as described.

84. In a cash indicator and check printer, the combination, with the cutting mechanism, of a controlling device for such mechanism adapted to be set to hold it out of action during one or more operations of the machine, said controlling device embodying a resetting ratchet, and a reciprocating pawl co-operating with the ratchet to return the controlling device step by step to normal position to throw the cutting mechanism into action again, substantially as described.

85. In a cash indicator and check printer, the combination, with the cutting mechanism, of an endwise movable rock-shaft, a stop or abutment adjustable by the endwise movement of the shaft to throw the cutting mechanism out of action, means for yieldingly maintaining the parts in such adjusted position when the shaft is moved endwise and turned, a resetting ratchet for the shaft, and a reciprocating pawl co-operating with the ratchet to reset the shaft, substantially as described.

86. In a cash indicator and check printer, the combination, with the cutting mechanism, of an endwise movable rock-shaft, a spring pressing it in one direction, a notched disk fast upon the shaft, a detent co-operating with such disk to maintain the shaft in endwise adjusted position against the stress of its spring when the shaft is moved endwise and turned, a stop or abutment adjustable by the endwise movement of the shaft to throw the cutting mechanism out of action, a resetting ratchet for the shaft, and a reciprocating pawl co-operating with the ratchet to reset the shaft and permit its spring to move it endwise to normal position, substantially as described.

87. In a cash indicator and check printer, the combination, with the cutter for cutting the paper strip into checks, and a reciprocating arm or lever adapted to actuate the cutter, of a vertically arranged endwise movable rock-shaft, a spring pressing the shaft endwise, a notched disk fast upon the shaft, a fixed detent plate co-operating with such disk to maintain the shaft in endwise adjusted position against the stress of its spring when the shaft is moved endwise and turned, an index co-operating with the shaft to indicate its different adjusted positions, a stop or abutment adjustable by the endwise movement of the shaft to stand in the path of the actuating arm of the cutter and maintain it out of operation, a resetting ratchet for the shaft, and a reciprocating pawl, co-operating with the ratchet to reset the shaft, substantially as described.

88. In a cash indicator and check printer, the combination, with the feeding mechanism for the paper strip adapted to normally move the strip a given distance at each operation, of a controlling device for such mechanism adapted to be set to cause it to advance a less length of the paper strip at one or more operations of the machine and to then automatically permit it to resume its normal operation, substantially as described.

89. In a cash indicator and check printer, the combination, with a reciprocating feeding device adapted to normally advance the paper strip a given distance at each operation of the machine, of a controlling device therefor adapted to be set to shorten the stroke of the feeding device at one or more operations of the machine, to cause it to advance a less length of the paper strip, and to

then automatically permit it to resume its full movement, substantially as described.

90. In a cash indicator and check printer, the combination, with a reciprocating feeding device adapted to normally advance the paper strip a given distance at each operation of the machine, a cam for actuating such device, an adjustable bearing interposed between the said device and cam and with which the cam may engage, and by means of which the movement imparted by the cam to the feeding device may be varied, and means for adjusting the bearing and actuating the cam, substantially as described.

91. In a cash indicator and check printer, the combination, with a reciprocating feeding device, a vibrating arm or lever for actuating such device, an adjustable bearing plate upon said arm, an actuating cam normally co-operating with said plate to give the arm and feeding device a full movement, and means for withdrawing said plate from the path of the cam and causing the latter to engage another bearing upon the arm, to give the arm and feeding device a less movement, substantially as described.

92. In a cash indicator and check printer, the combination, with a reciprocating feeding device, an adjustable bearing plate upon a movable part thereof, an actuating cam normally co-operating with said plate to give the feeding device a full movement, means for withdrawing the plate from the path of the cam and temporarily maintaining it out of its path, to cause the cam to engage another bearing and give the feeding device a less movement, and means for automatically releasing the adjusting plate and permitting it to resume its normal position in the path of the cam, substantially as described.

93. In a cash indicator and check printer, the combination, with the feeding mechanism adapted to advance the paper strip a given distance at each operation of the machine, and the cutting mechanism adapted to cut a check from the strip at each operation of the machine, of a controlling device co-operating with such mechanisms and adapted to be set to cause the feeding mechanism to advance a less length of the strip and to throw the cutting mechanism out of action, during one or more operations of the machine, and actuated automatically to throw the cutting mechanism into action again and to cause the feeding mechanism to resume its normal operation, substantially as described.

94. The combination of the reciprocating cash drawer, the lever engaging it, the latch co-operating with the lever to hold the drawer closed, the reciprocating hooked arm adapted to disengage the latch from the lever and to itself engage the lever and pull the drawer open, the trip for disengaging the hooked arm from the lever to permit the drawer to be closed, and means for actuating the hooked arm, substantially as described.

95. In an indicating and registering ma-

chine, the combination of an indicator and a register, and a single operating handle having two movements, one to set the indicator and the other to actuate the register, and expose the indicator substantially as described.

96. In an indicating and registering machine, the combination of an indicator mounted to turn upon a vertical axis, a register, and a single operating handle having two movements, one to turn the indicator upon its axis and the other to actuate the register, and expose the indicator substantially as described.

97. In an indicating and registering machine, the combination of an indicator mounted to turn upon a vertical axis and to move vertically, a register, and a single operating handle having two movements, one to turn the indicator upon its axis and the other to actuate the register and move the indicator vertically, substantially as described.

98. In an indicating and registering machine, the combination of an indicator, a register, an operating rack for the register, an actuating pawl for the rack, an adjustable guard for holding the pawl out of engagement with the rack during part of its stroke, and a single operating handle having two movements, one for setting the indicator and adjusting the guard, and the other for actuating the pawl, substantially as described.

99. In an indicating and registering machine, the combination of an indicator, a register, an operating rack for the register, an actuating pawl for the rack, an adjustable guard for holding the pawl out of engagement with the rack during part of its stroke, and an operating handle geared to the indicator and guard and having two movements, one for setting the indicator and adjusting the guard, and the other for actuating the pawl, substantially as described.

100. In an indicating and registering machine, the combination of an indicator, a register, an operating rack for the register, an actuating pawl for the rack, a guard for holding the pawl out of engagement with the rack during part of its stroke, a shaft geared to the indicator and guard, and an operating handle fulcrumed on a bearing carried by said shaft and having two movements, one to set the indicator and adjust the guard, and the other to actuate the pawl, substantially as described.

101. In an indicating and registering machine, the combination of an indicator mounted to turn upon a vertical axis, a register, an operating rack for the register, a reciprocating frame, an actuating pawl carried thereby and co-operating with the rack, an adjustable guard for holding the pawl out of engagement with the rack during part of its stroke, and an operating handle geared to the indicator and guard and co-operating with the reciprocating frame, substantially as described.

102. The combination of an indicator, a register, a type-carrier, a cutter a platen co-operating with the carrier, and a single oper-

ating handle having two movements, one operating to set the indicator and type-carrier, and the other to actuate the register, platen and cutter and expose the indicator substantially as described.

103. The combination of an indicator mounted to turn upon a vertical axis, a register, a type-carrier, a platen co-operating with the carrier, a cutter and an operating handle geared to the indicator and type-carrier and having two movements, one operating to set the indicator and type-carrier and the other to actuate the register, platen, and cutter and expose the indicator substantially as described.

104. The combination of an indicator, a type-carrier, a platen co-operating with the carrier, means for moving a paper strip between the platen and carrier, a cutter for cutting the strip into checks, and a single operating handle for setting the indicator and type-carrier and advancing the strip and actuating the cutter, substantially as described.

105. In a machine such as described, the combination of a horizontal shaft, a sliding frame reciprocating in line with said shaft and provided with a segmental housing, and an operating lever fulcrumed on a bearing carried by said shaft and having one end confined in the segmental housing of the reciprocating frame, substantially as described.

106. In a machine such as described, the combination of a horizontal shaft, a sliding frame reciprocating in line with said shaft, an operating handle fulcrumed on a bearing carried by the shaft and co-operating with the sliding frame, a toothed wheel turning with the shaft, and a locking device co-oper-

ating with the toothed wheel, normally held out of engagement therewith by the sliding frame and moving into engagement therewith as soon as said frame is displaced from normal position, substantially as described.

107. In a cash indicator and printer, the combination of a type-carrier mounted to turn upon a vertical axis, and an inking roller also turning on a vertical axis and co-operating therewith, said roller consisting of a hollow perforated cylinder covered with felt or other absorbent material and adapted to receive a supply of ink through a duct in its vertical axis and distribute it upon the type-carrier through its absorbent covering, substantially as described.

108. In a cash indicator and printer, the combination of a type-carrier mounted to turn upon a vertical axis, an inking roller also mounted upon a vertical axis and co-operating therewith, said roller consisting of a hollow perforated cylinder covered with felt or other absorbent material, and a supply-tube communicating with the interior of said roller through a duct in its axial bearing, substantially as and for the purpose described.

109. In a cash indicator and printer, the combination of a type-carrier having an inking ribbon secured upon its periphery over its type, and an inking roller co-operating therewith, substantially as described.

In witness whereof I have set my hand, this 14th day of October, 1891, in the presence of two witnesses.

LEO EHRLICH.

Witnesses:

GEO. H. GRAHAM,
N. MARLER.