

No. 773,051.

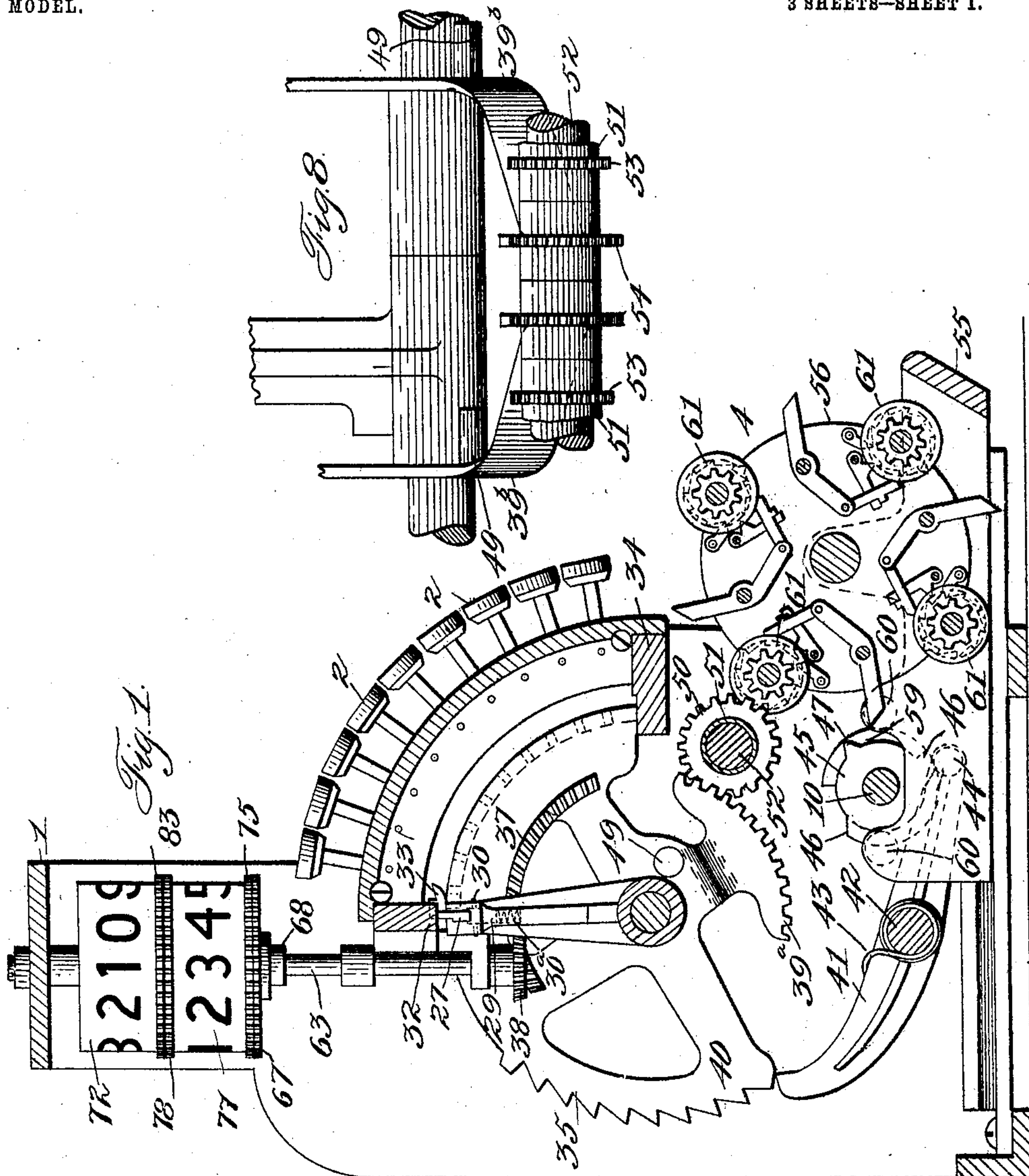
PATENTED OCT. 25, 1904.

T. CARNEY.
CASH REGISTER.

APPLICATION FILED DEC. 30, 1897.

NO MODEL.

3 SHEETS--SHEET 1.



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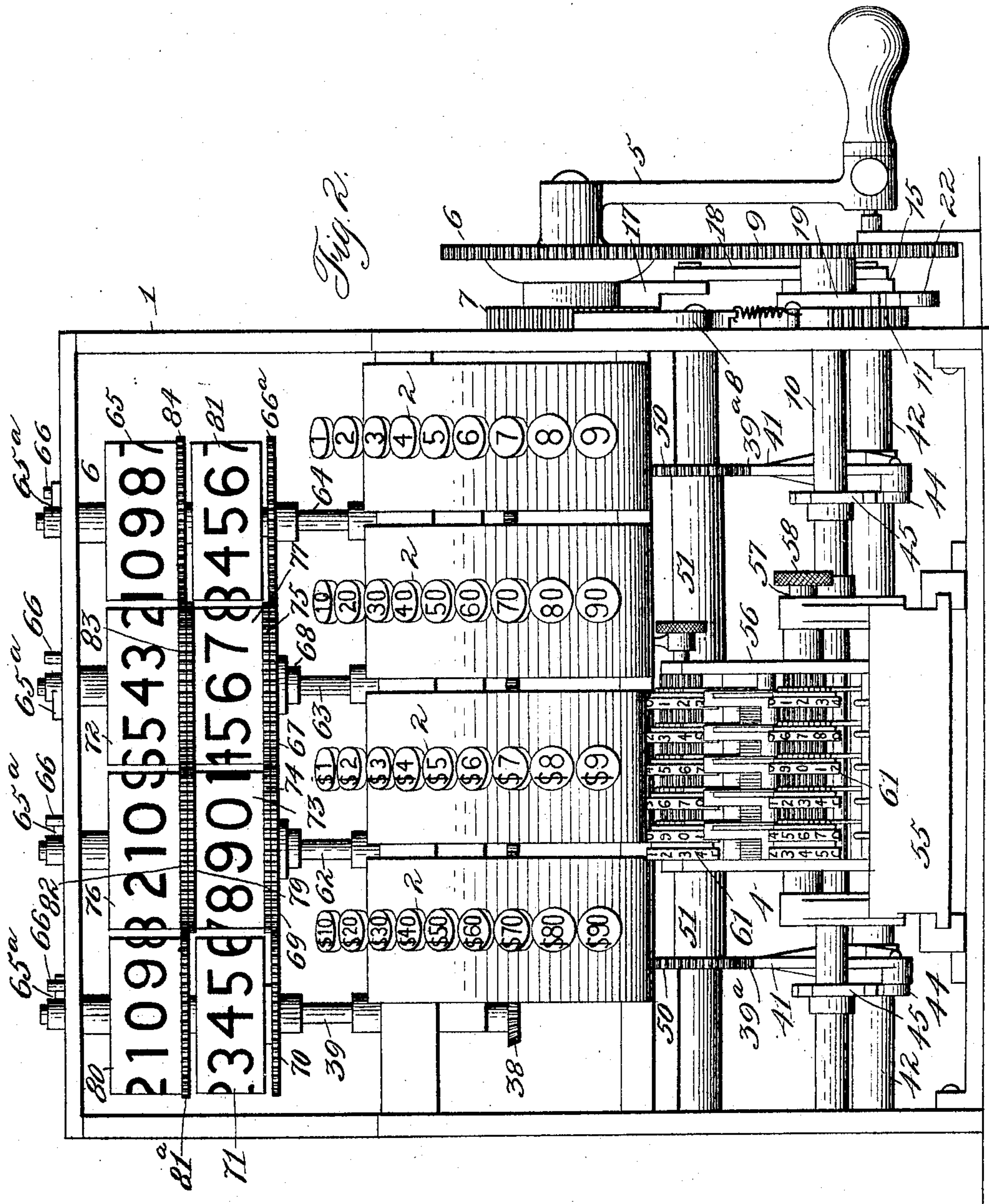
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3 SHEETS—SHEET 2.



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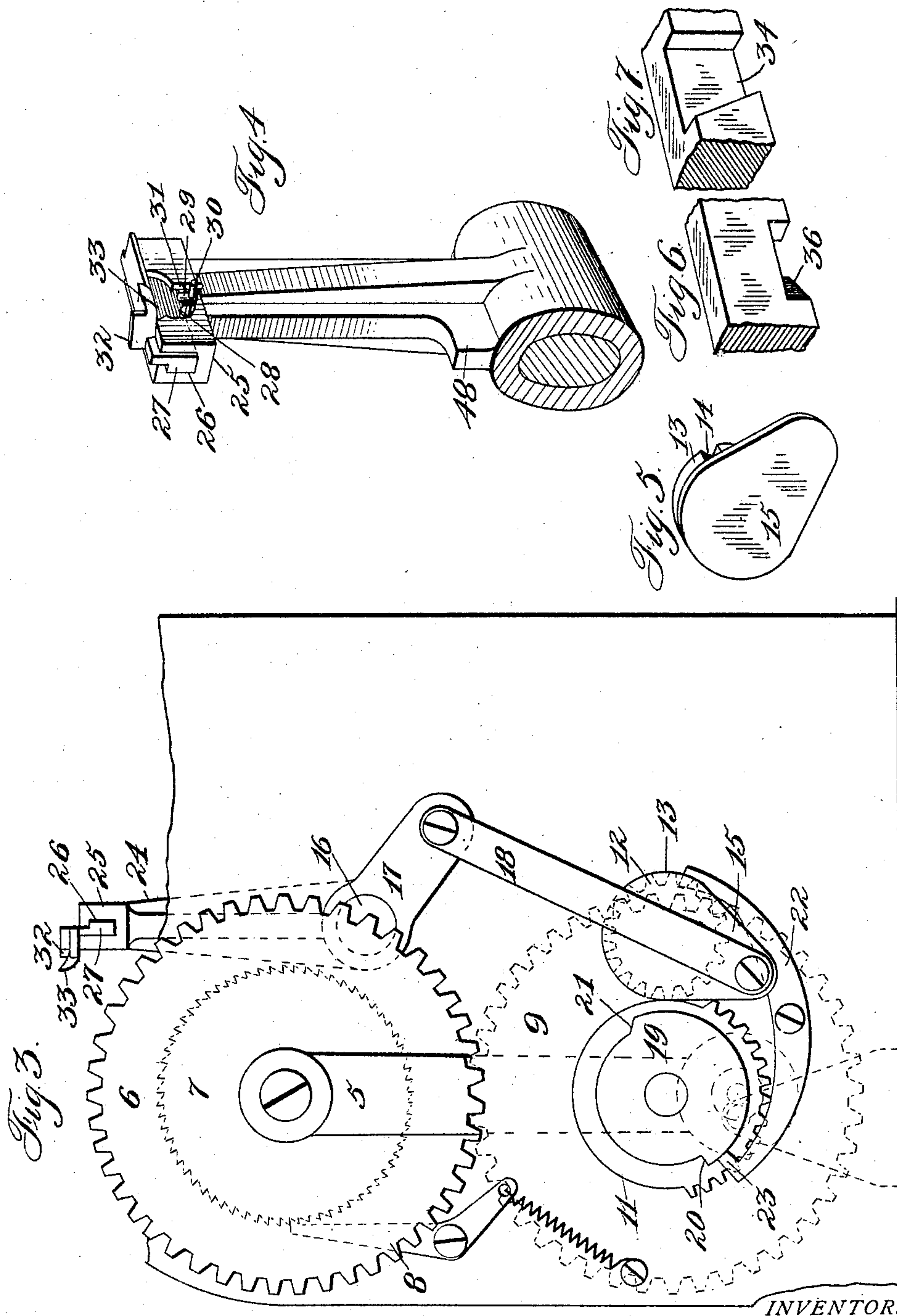
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UNITED STATES PATENT OFFICE.

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CASH-REGISTER.

SPECIFICATION forming part of Letters Patent No. 773,051, dated October 25, 1904.

Application filed December 30, 1897. Serial No. 664,568. (No model.)

To all whom it may concern:

Be it known that I, THOMAS CARNEY, a citizen of the United States, residing at Dayton, in the county of Montgomery and State of Ohio, have invented certain new and useful Improvements in Cash-Registers; and I do hereby declare the following to be a full, clear, and exact description of the invention.

This invention relates to improvements in cash registers and indicators, and has more particular relation to the type of machine patented to me October 11, 1892, and numbered 484,297.

The invention consists of certain novel constructions, combinations, and arrangements of parts, all of which will be hereinafter more particularly set forth and claimed.

In the accompanying drawings, forming part of this specification, Figure 1 represents a vertical section through the devices embodying my invention. Fig. 2 represents a front elevation of the same. Fig. 3 represents an enlarged detail side elevation, partly in dotted lines, of the operating-gears and locking device for the same. Fig. 4 represents an enlarged detail perspective view, partly broken away, of one of the operating-levers. Fig. 5 represents an enlarged detail perspective view of the notched wheel and operating-arm by means of which some of the parts are locked during a portion of the operation. Figs. 6 and 7 represent, respectively, enlarged detail perspective views of the portions of the frame including the recesses having inclined walls. Fig. 8 represents an enlarged detail perspective view of the two ends of the middle segmental racks with surrounding mechanism, and Fig. 9 represents an enlarged detail top plan view of one of the operating-arms.

As numerous parts of the mechanism illustrated in connection with the present invention are fully described and covered by the before-mentioned patent, attention is respectively directed to the same for such description.

In the said drawings, 1 represents the frame of the machine; 2 2, the keys; 4, the multiple registers, and 5 the operating crank-handle.

This handle is suitably journaled on the frame 1 and is provided upon its hub portion with a gear-wheel 6 and a ratchet-wheel 7, the latter being engaged by a spring-pressed pawl 8, mounted on the frame, whereby all backward movement of the crank-handle is prevented. The said gear-wheel 6 meshes with a gear-wheel 9, mounted upon a transverse shaft 10, thus transmitting the movements of the crank-handle to said shaft. This shaft further carries a wheel 11, having gear-teeth formed on one-half of its periphery and adapted to mesh with a pinion 12, journaled upon the main frame. A crank-wheel 13, having a notch 14 formed in its periphery and provided with a crank-arm 15, is rigidly mounted upon the pinion 12, so as to turn therewith to operate the main shaft 16, said shaft being also provided with a crank-arm 17, which is connected to the arm 15 by a pivoted link-bar 18. The said shaft 10 is further provided with a cam-wheel 19, having a square shoulder 20 and an incline shoulder 21 formed on its periphery. A segmental locking-lever 22 is pivoted on the frame 1 and is formed at one end with a nose or projection 23, which bears against the periphery of the cam 19 and is thereby tripped to operate said lever. The end of the lever opposite from the nose 23 engages the periphery of the wheel 13, so that it will enter or be withdrawn from the notch 14 according to the movements imparted to said lever by the cam 19. The relative arrangements of the wheels 11 and 12, the cam 19, the wheel 13, and the lever 22 are such that the said wheel 12 is locked by the said lever after the gear-teeth of the wheel 11 pass out of mesh with it. Just as the nose 23 passes off the shoulder 20 the teeth of the wheel 11 engage those of the wheel 12 and rotate the wheel 13, which forces the end of said lever 22 out of the notch 14. When the shoulder 21 reaches the nose 23, it forces the same outward and again operates the lever to cause its end to enter the notch 14 and lock the wheel 13.

The main operating-shaft 16, which receives a rocking motion through the mechanism

above described, is provided with a plurality of spaced operating-levers 24, fast thereon, and each provided at its upper end with a head 25, formed with a central guiding-groove 26. A slide 27 is mounted in each one of the grooved heads and is formed in its under side with recesses 28, into which a latch-pin or plunger 29 is adapted to project. Each of said pins is mounted in a suitable recess formed in its respective lever 24 and is normally forced upward by a coil-spring 30, mounted beneath it in said recess. Each of said pins is further provided with two laterally-projecting guiding-studs 30, which are adapted to operate in guiding-slots 31, formed in the head 25. Each of the said slides 27 is provided on its upper side with an incline flange 32 and a resetting-plate 33, extending at right angles to the same.

It will be observed from the above description that when a key in a certain bank is depressed the lower end of its shank will lie in the path of the flange 32 of the slide mounted in its respective lever 24. When the said lever is operated, the flange 32 contacts with the protruding end of the shank upon the forward and downward movement of the lever and moves the slide 27 to the right, so that said lever can continue its downward movement. When the lever reaches its lowermost position, the end of the plate 33 strikes the incline wall of a recess 34 formed in the frame, and thus forces the slide to the left again into a position to cause the flange to again contact with the end of the shank upon the upward and rearward movement of said lever, the pin 29 in the meantime holding the slide in the different positions without liability of overthrow or accidental displacement because of any violent operation of the lever. As the said lever moves upward the flange 32 strikes the protruding end of the shank and is thus forced to the left to move the end of slide 27 into one of the notches of the respective operating-segment 35, hereinafter more fully described. As the flange 32 is forced to the left the end of the shank is forced upward by the plate 33 to cause the key to resume its normal position. When the lever 24 again reaches its upper position, the flange 32 engages the inclined wall of a recess 36 formed in the frame, and thus forces the slide 27 back to its normal position and out of engagement with the segment 35. The construction of the said segments 35 and their operation in connection with the indicating mechanism and the register-operating gears is substantially the same as disclosed in the before-mentioned patent, and attention is therefore directed to the same. One exception to the above statement is the addition to each segment of a curved rack 37, having inclined gear-teeth which mesh with a gear-wheel 38 upon the lower end of the respective indicator-operating shaft 39. The segmental gears 39^a

of the two end segments 35 lie in alinement with the said segments; but the similar gears of the two middle segments 35 are fixed on curved arms 39^b, so that they lie in proximity to each other for a purpose hereinafter more fully described. Each of the segments 35 is further provided with a plurality of ratchet-teeth 40, by means of which said segments are locked in their several adjusted positions and all accidental registering or indicating from overthrow thus prevented. A plurality of locking-levers 41 are loosely mounted upon a transverse shaft 42 and are connected thereto by springs 43, so located as to force the rear ends of said levers normally away from the teeth 40 of the respective segments. Each of the levers 41 is provided at its forward end with an antifriction-roller 44, which is adapted to contact with the periphery of one of a series of cams 45, mounted upon the shaft 10 so as to turn therewith. Each cam is formed with two shoulders 46, arranged on diametrically opposite sides, and with a peripheral tooth or projection 47, arranged midway between said shoulders. When the operation of the crank-handle is commenced, the levers 41 are simultaneously disengaged from the rack-teeth 40 or the ends of the segments by the rollers 44 ascending behind the shoulders 46. As the rotation of the crank is continued any of the segments 35 which have previously been moved are returned to their normal positions by arms 48, mounted on the respective levers 24, engaging pins 49, mounted on the respective segments. The locations of the teeth 47 are such as to cause the levers 41 to engage the segments 35 just as the latter are returned to their normal positions, and thus prevent any rebound of said segments which might be caused by a violent movement of the same. Said levers 41 are again immediately disengaged from the segments 35 to permit of the same being turned by the ascending levers 24. At the termination of this movement of the segments the levers 41 are again operated by the shoulders 46 and caused to engage the teeth 40, and thus prevent any overthrow of the segments which might result from a violent operation of the same.

Each of the end racks 39^a meshes with a gear-wheel 50, said wheels being fast upon sleeves 51, loosely mounted upon a transverse shaft 52. Each of said sleeves is further provided at its inner end with a gear-wheel 53, which is adapted to mesh with one of the gears of the registering mechanism, hereinafter described. The middle racks 39^b, which lie in proximity to each other, mesh with gears 54, loosely mounted on the shaft 52 between the gears 53 and adapted to mesh with the gears of the registering mechanism.

It will be observed from the above that the gears 53 and 54 lie close together, so that they may be readily brought into mesh with the re-

spective gears of the registering mechanism. This mechanism comprises a sliding carriage 55, mounted in suitable guides in the frame 1, and a rotatable drum 56, journaled on said carriage and provided with a plurality of registering mechanisms any one of which may be brought into mesh with the gears 53 and 54. One of the journals of said drum is extended, as at 57, and provided with a milled knob or head 58, by means of which the drum may be rotated to bring the desired registering device into operative position. The said carriage 55 is adapted to be moved back and forth by a cam 59, mounted on the shaft 10 and projecting between and engaging spaced antifriction-rollers 60, mounted upon one side of said carriage. By this means the carriage is moved forward and again retracted upon each revolution of the crank-handle, so that the drum is free to be turned by hand when in such retracted position. The registering mechanisms 61, mounted on said drum, are substantially the same in construction and operation as those included in my Patent No. 587,702, dated August 10, 1897, and reference is therefore made to the same.

The shaft 39, as well as the remaining shafts 62, 63, and 64, are all journaled in the frame of the machine and are provided, respectively, at their lower ends with bevel-gears similar to the gears 38, whereby they are operated upon the movements of their respective segments 35. Each of said shafts is further provided at its upper end with a laterally-projecting finger 65^a, which is adapted to contact with one of a series of pins 66, mounted upon the main frame, and thus act as a stop for the shaft. The indicator-wheels, which are mounted upon the respective shafts, are arranged in two banks, one above the other, said banks being adapted to indicate respectively, but simultaneously, at the front and rear of the machine. The shaft 64, which is operated by the units-of-cents segment 35, is fast to the left-hand wheel 65 of the upper row, which is to be read by the operator of the machine. Said shaft 64 further carries a gear-wheel 66^a, which meshes with a similar wheel 67, loosely mounted upon the shaft 63 and supported in position by a collar 68, fast to said shaft. The said wheel 67 meshes with a similar loose gear 69, mounted upon the shaft 62, and this latter gear in turn meshes with a gear 70, loose upon the shaft 39, but fast to the lower left-hand wheel 71, which indicates to the customer in front of the machine the same amount indicated to the operator by the wheel 65. The indicating-wheel 72 of the upper bank is fast to the shaft 63, while the corresponding wheel 73 is loose upon the shaft 62 and is provided with a gear-wheel 74, which meshes with a similar gear 75, fast upon the shaft 63. The wheel 76 of the upper bank is fast upon the shaft 62, while

its corresponding wheel 77 of the lower bank is loose upon the shaft 63 and is provided with a gear-wheel 78, which meshes with a similar gear 79, fast upon the shaft 62. Lastly, the wheel 80 of the upper bank is fast to the shaft 39 and communicates with its corresponding wheel 81 of the lower bank and which is loose upon the shaft 64 by gears 81^a, 82, 83, and 84, similar to the gears 67, 69, and 70.

It will be observed from the above description that the corresponding wheels of the upper and lower banks are operated simultaneously to indicate the amount registered to persons on both sides of the machine. It will also be further seen that any overthrow or rebound of the machine which might occur were the same violently operated is altogether avoided or prevented and the danger of mis-registration or misindication thus reduced to a minimum. Lastly, by the employment of the rotatable drum carrying the independent registering mechanisms I am enabled to secure a plurality of independent registrations at will and with the same operating devices.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a cash-register, the combination with a register-operating mechanism, of a sliding carriage mounted in proximity thereto, guides for supporting and guiding said carriage in its reciprocations so as to have a rectilinear movement toward and from the same, spaced antifriction-rollers mounted on said carriage, a cam mounted on a movable part of the machine and projecting between said rollers so as to engage the same and thus move the carriage directly toward and away from the operating mechanism and a registering mechanism mounted on said carriage.

2. In a cash-register, the combination with a series of keys, of a plurality of operating-segments each having a rack portion, and a series of operating projections, a plurality of operating-levers, slides mounted on said levers and arranged to engage the keys and thus be moved into connection with the operating projections, a sliding carriage having a rectilinear movement toward and away from the operating-segments, guides for said carriage, and a movable frame mounted on said carriage and supporting a plurality of counters which are so arranged that any one of the same may be brought by a rectilinear movement into engagement with the rack portions of the segments.

3. In a cash-register, the combination with register-operating devices, of a sliding carriage having rectilinear movement toward and away from the operating devices, spaced projections on said carriage, guides for said carriage, a cam connected to the operating devices and extending between said projections, a rotary drum mounted on said carriage,

and a series of counters mounted on said drum so that any one of the same may be brought to registering position by a rectilinear movement and at will.

5 4. In a cash-register, the combination with register-operating devices, of a sliding carriage, having a rectilinear movement toward and away from the operating devices, spaced projections on said carriage, guides for said
10 carriage, a cam connected to the operating devices and extending between said projections to give the carriage a rectilinear movement toward and away from the operating devices, and a registering mechanism on said
15 carriage.

5. In a cash-register the combination with the main frame, of a series of keys, a series of operating devices, a plurality of operating-levers, slides mounted on said levers and arranged to be given rectilinear movements by the keys and thus brought into engagement with the operating devices, and projections on the main frame at each end of travel of said levers for operating the slides to move
25 them into and out the paths of the keys.

6. In a cash-register the combination with a series of keys, of a series of operating devices, a plurality of operating-levers and slides having rectilinear movements toward
30 and from the operating devices mounted on said levers and each of the same having an incline flange and a resetting-plate, the former for forcing the slide into engagement with the operating devices and the latter for simultaneously returning the operated key to
35 normal position.

7. In a cash-register the combination with a series of keys, of a series of operating devices, a plurality of operating-levers and
40 slides mounted on said levers and constructed to be given rectilinear movements by an operated key and thus moved into engagement with the operating devices and simultaneously return said key to its normal position.

45 8. In a cash-register the combination with a main frame, of a series of keys, a series of operating-segments, a plurality of operating-levers, slides mounted on said levers and arranged to be moved by the keys to engage
50 the operating-segments and projections on the frame arranged to engage said slides and

force them positively out of engagement with the operating-segments.

9. In a cash-register the combination with a registering mechanism, of operating devices 55 for the same, a series of keys for determining the registering movement of said operating devices, pivoted stop-levers adapted to engage said devices, and means independent of the operative positioning of said keys for operating and releasing said levers a number of times during each operation of the machine whereby the operating devices are alternately released, locked and then released and locked again. 65

10. In a cash-register, the combination with an operating mechanism, a registering mechanism, an oscillatory register-operating device, a series of keys, and means controlled by the keys for determining the extent of 70 movement of said register-operating device; of a locking device for said register-operating device; and means controlled by the operating mechanism for actuating said locking device to successively lock and release said 75 register-operating device at the extremities of its oscillatory movement.

11. In a cash-register, the combination with an operating mechanism, a registering mechanism, an oscillatory register-operating device having differential movement, a series of keys, means controlled by the keys for pre-determining the extent of differential movement of said register-operating device, and means connected with the operating mechanism 85 for returning said register-operating device to normal position; of a locking device; and means controlled by said operating mechanism for actuating said locking device to successively release said register-operating 90 device at the beginning of its return movement to normal position, lock the same at the end of such return movement, release the same prior to its differential movement, and lock the same at the end of its differential 95 movement.

In testimony whereof I affix my signature in presence of two witnesses.

THOMAS CARNEY.

Witnesses:

WM. H. MUZZY,

IRA BERKSTRESSER.