(No Model.) 4 Sheets—Sheet 1.

L. COONEY, Jr.

CASH REGISTER.

No. 565,964. Patented Aug. 18, 1896.

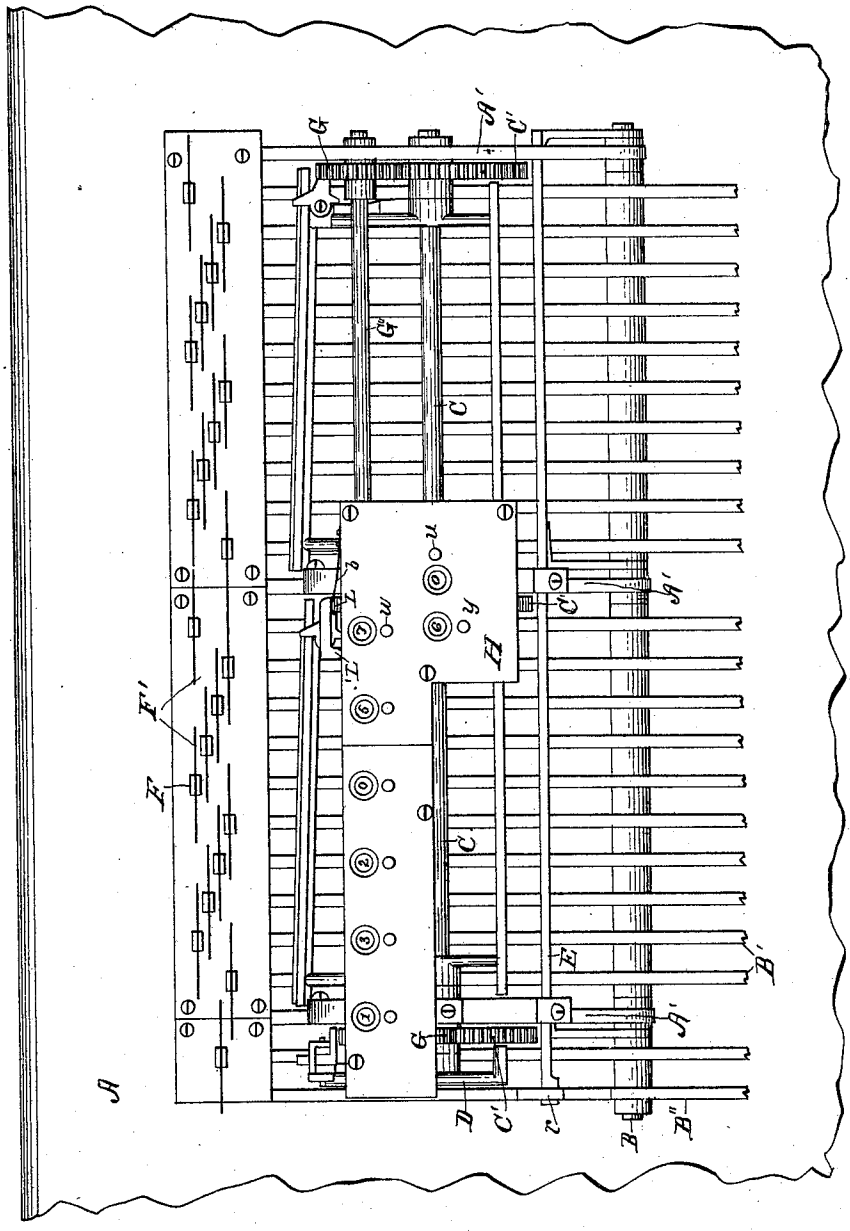


Fig. 1

Witnesses:
Walter S. Wood
V. E. Chappell.

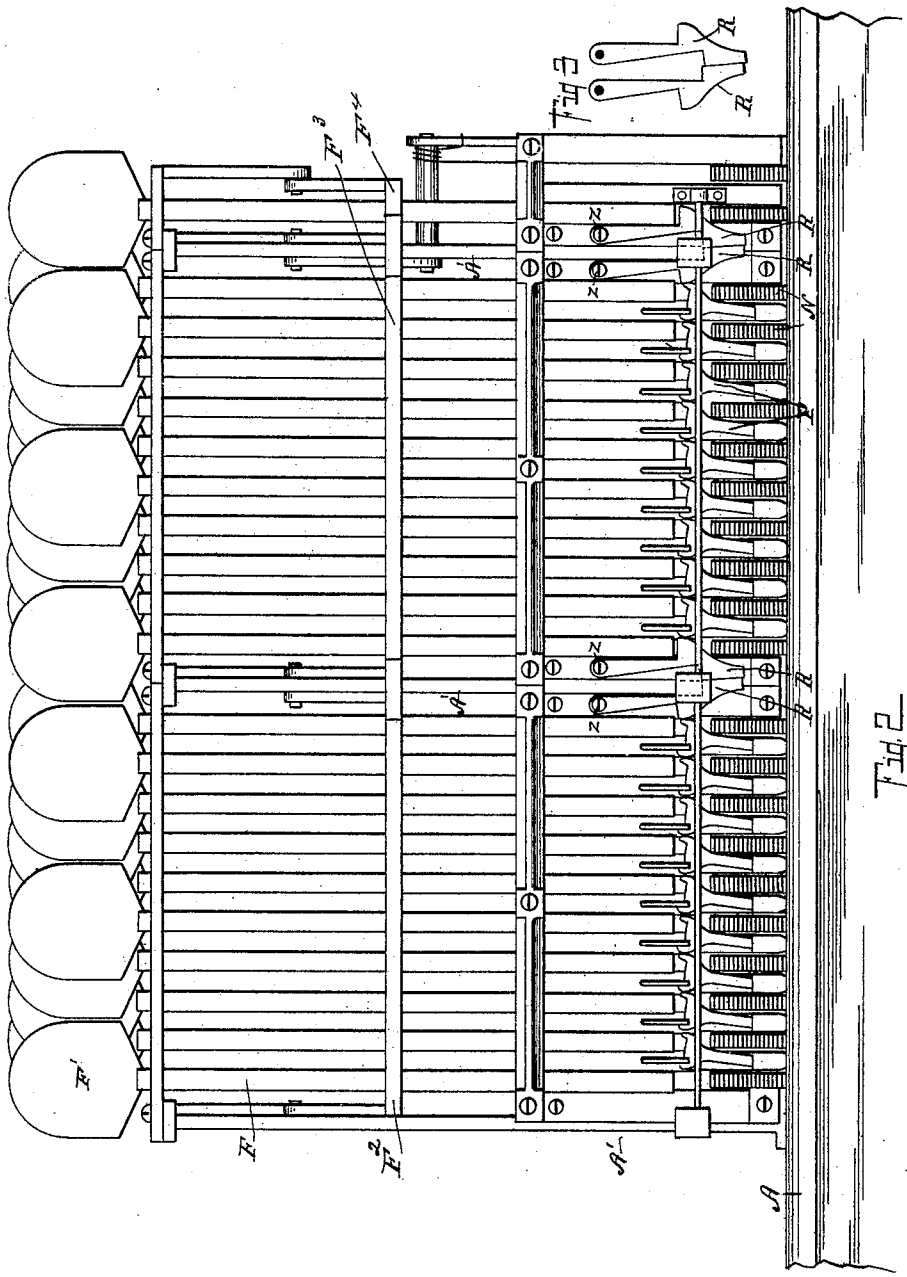
Inventor,
Luke Cooney Jr
By Fred L. Chappell
Atty.

(No Model.) 4 Sheets—Sheet 2.

L. COONEY, Jr.

CASH REGISTER.

No. 565,964. Patented Aug. 18, 1896.



Witnesses:
Hatter S. Hood
V. E. Chappell.

Inventor,
Luke Cooney Jr.
By Fred L. Chappell
Att'y.

(No Model.) 4 Sheets—Sheet 3.

L. COONEY, Jr.

CASH REGISTER.

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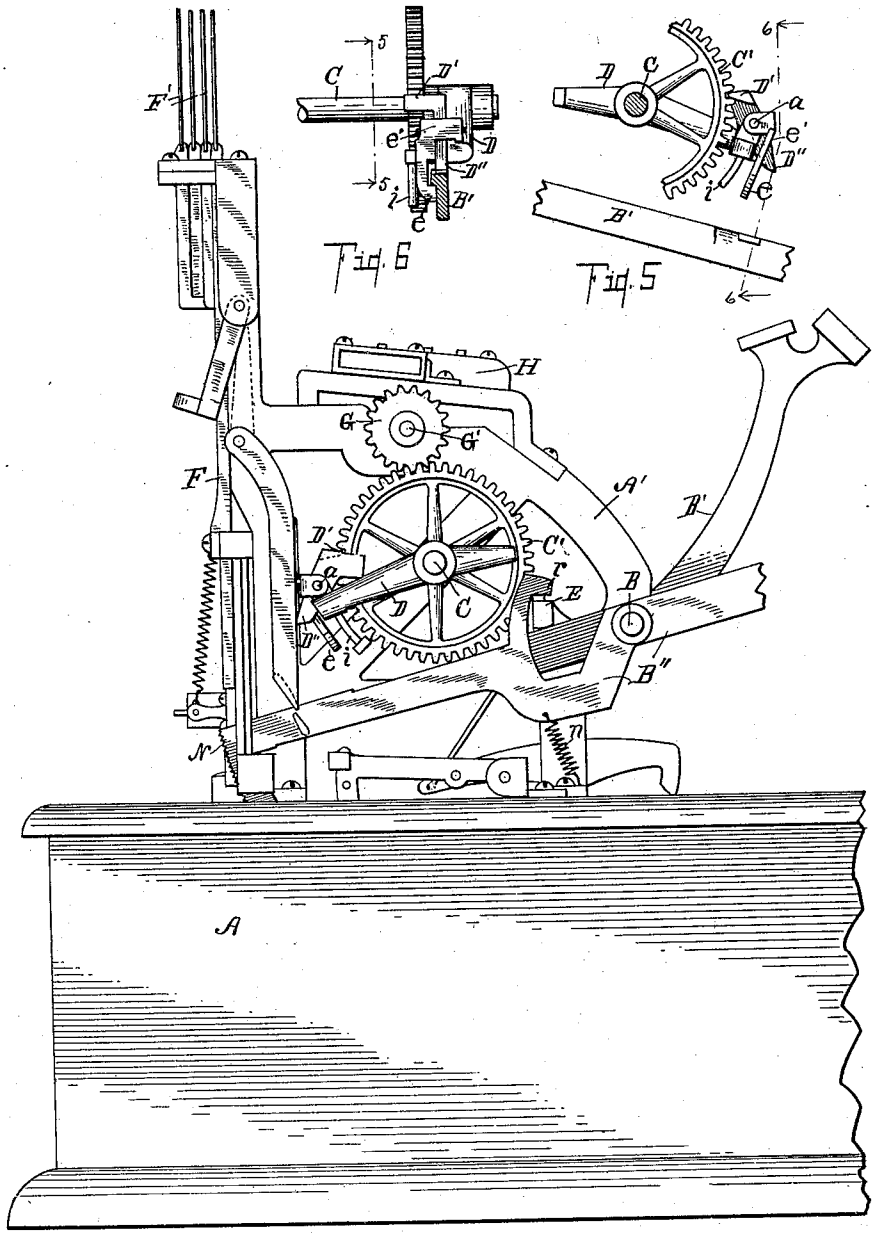

Fig. 4

Witnesses:
Walter S. Wood
V. E. Chappell

Inventor,
Luke Cooney Jr.
By Fred L. Chappell
Att'y.

(No Model.) 4 Sheets—Sheet 4.

L. COONEY, Jr.

CASH REGISTER.

No. 565,964. Patented Aug. 18, 1896.

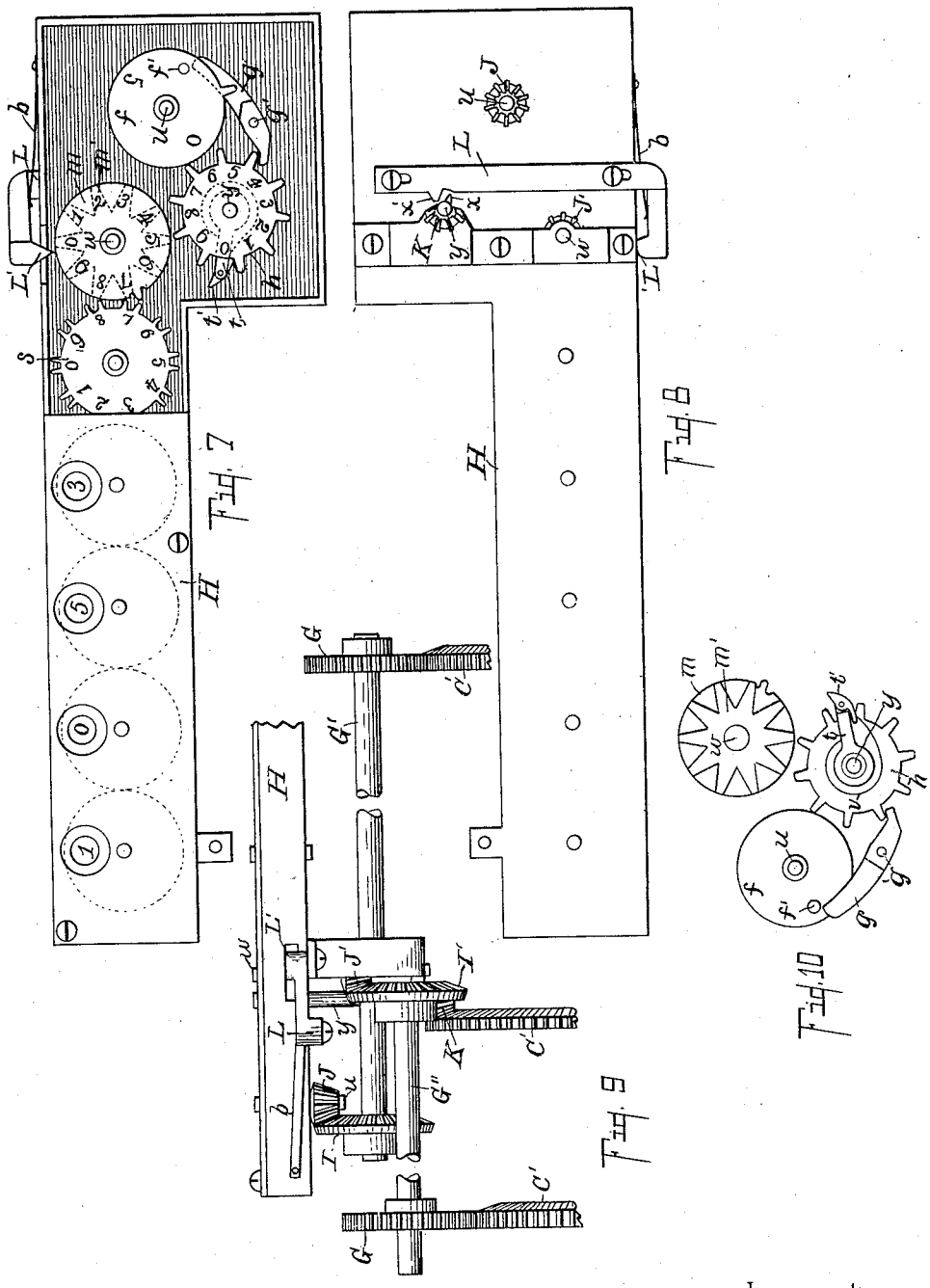

Fig. 7

Fig. 8

Fig. 9

Fig. 10

Witnesses:
Walter S. Wood
U. C. Chappell.

Inventor,
Luke Cooney Jr.
By Fred L. Chappell
Atty.

UNITED STATES PATENT OFFICE.

LUKE COONEY, JR., OF CHICAGO, ILLINOIS, ASSIGNOR, BY MESNE ASSIGNMENTS, TO VERNON T. BARKER, TRUSTEE, OF KALAMAZOO, MICHIGAN.

CASH-REGISTER.

SPECIFICATION forming part of Letters Patent No. 565,964, dated August 18, 1896.

Application filed December 5, 1895. Serial No. 571,100. (No model.)

To all whom it may concern:

Be it known that I, LUKE COONEY, Jr., a citizen of the United States, residing at the city of Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Cash-Registers, of which the following is a specification.

My invention relates to improvements in cash-registers, and in certain particulars is an improvement on my cash-register shown in my application for a patent filed October 23, 1895, Serial No. 566,668.

The objects of my invention are, first, to simplify the construction of cash-registers generally; second, to make them positive in their action by an improved means; third, to provide a cash-register in which there are different groups of keys and indicators corresponding to the denominations of money so arranged that all will register in one complete registering apparatus which will indicate the sum total at a glance without any calculation; fourth, to provide a cash-register in which there are different groups of keys and indicators corresponding to the different denominations of money so arranged that all will register in one complete registering apparatus which will indicate the sum total at a glance without any calculation and so arranged that an indicator will be sustained for each denomination where it is desired to register a sum which will require the use of all the different denominations; fifth, to provide an improved register mechanism which shall be actuated by groups of keys of different denominations and will yet register the sum total in such a manner without the necessity of mathematical calculation; sixth, to provide improved means of locking all the keys of all the groups of the machine whenever a single key of any group is struck up; seventh, to provide improved means of positively uniting a key with the register mechanism during the operation of the key; eighth, to provide an improved register mechanism consisting of trains of geared number-wheels so constructed that the gears can be operated independently without actuating those lower in the scale and only operating those of a higher order when necessary; ninth, to provide an improvement in register mechanism which will prevent the possibility of the same overregistering from the inertia of the machine; tenth, to provide an improved construction of register mechanism for cash-registers for carrying the registration from all parts of the machine to a single registering device; eleventh, to provide improved locking devices for locking the unoperated wheels of the register mechanism during its operation, and further objects appearing definitely in the detailed description. I accomplish these objects of my invention by the mechanism shown in the accompanying drawings, in which—

Figure 1 is a top plan view of the registering and indicating mechanism of my improved machine, the outer casing being removed. Fig. 2 is a rear elevation of the same. Fig. 3 is a detached detail view of a pair of the bodies R R for actuating the key-arresters. Fig. 4 is a side elevation of the same machine. Fig. 5 is an enlarged detail sectional view on line 5 5 of Fig. 6, showing a detail view of the improved means of locking the key-graduating bar and register gear-wheel together. Fig. 6 is a detail sectional view on line 6 6 of Fig. 5. Fig. 7 is an enlarged detail view of the register mechanism or adder with the number and gear-wheels of the lower denomination exposed. Fig. 8 is an inverted plan view of the register or adding mechanism shown in Fig. 7. Fig. 9 is an enlarged detail broken view showing the transfer mechanism for bringing the registered amounts from the various parts of the machine to the register mechanism. Fig. 10 is an inverted detail plan view of the three lowest wheels of the register mechanism, showing their relation and construction from the lower side.

All the sectional views are taken looking in the direction of the little arrows at the ends of the section-lines, and similar letters of reference refer to similar parts throughout the several views.

Referring to the lettered parts of the drawings, A represents the base, which contains the drawer and drawer mechanism, which I preferably construct in the form shown in my last application above referred to, or in other suitable form, though as far as this invention is concerned it is not material. The

registering and indicating parts of this machine are supported in a frame A', made up of sections similar to those shown in my last invention. The keys B' are levers pivotally supported on the shaft B to the front of the machine. Indicator-slides F, bearing indicators F' at the top corresponding to each of the keys, are above the keys to the rear of the machine to be actuated by them. There is a trailer N, with a rack at the rear thereof, on each key, the same as described in my former application, and a common pawl, extending across the machine, operates upon all of the racks the same as before to compel the completion of the stroke.

The keys are in sections, as before, with key-arrester bodies P to prevent the raising of more than one key at a time. Between the key-arrester bodies of each group are pivotally supported downwardly-depending bodies R R for transferring the motion from one group or division of key-arresters to the next when any key of the machine is operated, thus making it impossible to operate more than one key on the entire machine at once. These bodies R R are made large, and are recessed out to accommodate the intervening construction.

The detaining-bars to the rear of the indicator-slides are divided, so that there is a bar from each section of the machine, the same as before, with overlapping ends, which enables all of the bars to be actuated by the union-key at the beginning of each registration, as before. After the registration is begun a key in each division can be operated and its indicator-slide retained. The union-key B'' operates in the same manner as before, with the exception that the hook portion *r* extends above the common bar E above all the keys to insure its actuation when any key is operated.

Above and across the keys extends a shaft C above and to the rear of the shaft B, and on this shaft is a gear-wheel C', which may be actuated from a graduated bar and mechanism, as shown in my application above referred to, so far as the remaining parts of this machine are concerned. That construction is shown on the two divisions of this machine corresponding to the two higher denominations. I show, however, an improved and simplified construction for actuating and uniting the register mechanism and key on the lowest section of the machine, or the division at the left in which there is but a single key. In connection with the graduating-bar at that point is a pawl D', pivoted on the pivot *a*, adapted to engage between the cogs of the gear-wheel for that section. A portion D'', extending across the section parallel with the graduating-bar, is in position to be actuated by keys on the upward stroke, which will hold the pawl securely in mesh with the gear-wheel C' when the key is actuated. A part *e'*, extending across the section and hook portions *e*, corresponding to each key of the section, projects below. This is pivoted below at *a*, the same as the part D'. A laterally-projecting lug is on the key, and when the key is struck up swings the hook to one side and becomes engaged by it, and thus securely locked with the graduating-bar through the remainder of its stroke. This locks the key against the portion D'', which retains the pawl D' securely in mesh with the gear-wheel C'. When the key has completed its stroke, the hook *e* slides off from the lug, allows the key to separate from the bar, which allows the pawl D' to disengage from the gear-wheel C', and permits the same to return. A suitable stop, as the wire *i*, is provided to limit the downward stroke of the graduated bar and support it above the key or keys to permit a proper actuation of the same.

Supported in a suitable plate or casing H on the frame A' of the machine is the adding or registering mechanism. This consists of a train of number-wheels beginning at the lowest denomination at *f*, passing to the register-wheel at *h*, to the wheel *m*, to the wheels *s*, and so on to the train indefinitely. These wheels are constructed on the scale of one to ten, and that is ten revolutions of the lower wheel are required to one revolution of the next higher. This machine is made to register only amounts of five cents and upward; consequently, the lowest wheel is actuated an entire half-revolution on the stroke of the lowest key, and has only the register-figures "5" and "0" upon it, as every second stroke is transferred to the next higher wheel.

If the register registered from one cent up, this wheel would register from one to ten cents. There would be a one-cent key, a two-cent key, and so on up to nine cents, and the lowest wheel would be actuated in that manner. A spur cog or pawl is on each wheel to engage in suitable notches or gears on the next wheel above it to move it one step forward on each revolution. There are three divisions or sections to this machine, and the keys of each division actuate independently the three lower wheels of the train of number-wheels. The division to the left is connected to actuate the number-wheel *f*, corresponding thereto through its gear-wheel G, meshing with the gear-wheel C' of that division, which transmits its motion through the shaft G' to the beveled gear I, meshing with the bevel gear J, which is on the shaft *u*, which actuates the number-wheel *f* above. The central section actuates through its gear-wheel C' the bevel gear K, which is on the shaft *y*, which carries the wheel *h*, and the right-hand or dollar group actuated from its gear-wheel C', the gear G, which transmits its motion through the shaft G'' to the bevel-gear I', which meshes with the bevel-gear J' on the shaft *w*, which carries the number-wheel *m*. It is thus clear that each group of keys or division of the machine actuates its appropriate number-wheel in the train. As none

of the number-wheels above the wheel m are actuated except by the number-wheels below, nothing specially is required in their construction, as only an ordinary train of number-wheels is required. On the under side of the wheel h an arm t projects out and carries a pawl t'. This pawl is held outward or in the engaging position by the spring v, and is adapted to engage toothed wheel m' beneath the number-wheel m, and move the wheel one step at each revolution of the wheel h. A bar L, carrying a dog L', positioned to engage between the teeth on the gear-wheel m', extends across the under side of the case H and is adapted to reciprocate on two carrying-screws at that point, which pass through little slots in the same. A spring b holds the dog L' normally out of engagement from the gear-wheel m'. A lug x, on the shaft y, is in position to engage a lug x' on the bar L, when the pawl t' actuates the gear-wheel m' one step or notch and throws the dog L' momentarily into engagement with the gear-wheel m' and prevents overregistration. The lug x appears very clearly in Figs. 8 and 10. In Fig. 8 a part of the gear-wheel K is broken away to show it. The pawl t' is pivoted to swing in the direction of the motion of the wheels m m', and allows them to be actuated without actuating the lower wheel h. As the number-wheel f carries but one tooth and rotates half-way around at each stroke of the key of the lower division, no such construction is there necessary. A locking-lever g is provided, however, pivoted at g', to engage and lock the gear-wheel h as soon as it has been actuated one step by the pin f' engaging against the same. The pin f' passes the end of the lever at the end of the stroke and so permits a free motion of the wheel h independent of the wheel f. It is thus clear that each division of the machine will actuate the register mechanism exactly in proportion to the amount of the key struck up in that division. The key-arresters and the common pawl acting on the trailers of all the keys to the rear of the machine compels the operation of but a single key at a time. The dividing of the sustaining-bar for the indicator into lengths corresponding to the divisions of the machine permits an indicator to be raised and supported in each division of the machine for each registration. This permits a registration in which an indicator-slide shall be supported in each division, and secures complete registration of all accounts indicated.

Having thus described my improved cash-register, I desire to state that it is capable of considerable variation in its details without departing from my invention. To secure many of the effects of my machine, it would not be necessary to divide the frame of the machine into sections, and so the bodies R R might be dispensed with. Other sustaining devices could, no doubt, be employed for the indicator-tablets than the bars F^2 and F^3, &c., and other styles of adders or registers could be used with the remaining parts; and the adder or register I have shown is adapted for use in a great variety of cash-registers.

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 suitable base of the frame A', and the shaft B, toward the front thereof; register-keys in sections or divisions pivoted on said shaft and projecting to the rear of the machine with trailers N, with racks thereon; the common reversible pawl extending across said trailers to compel the complete operation of each key; key-arrester bodies P, P, for each section to prevent the operation of but a single key; downwardly-depending pivoted bodies R, R, between the sections of arrester-bodies for transferring the motion from one set of key-arresters to the other so that but a single key of the entire machine can be operated at a time; indicator-tablets F'; indicator-slides F, for supporting the same; sustaining-bars F^2, F^3, F^4 for said indicator-slides lapping over each other at a little distance apart so that they may be operated independently; a union-key B'', actuated by suitable connections with the register-keys of the machine to operate a trip-lever to release the indicator-slides and let the tablets fall at each registration; a register mechanism consisting of a train of number-wheels the three lower wheels of which correspond to the divisions of the machine and positioned to be actuated independently from the graduated bar of each division by suitable gear connections therefrom; a spring-pawl on the second number gear-wheel in position to actuate the third and allow the independent forward movement of the third; a dog L', to engage the third wheel in position to be tripped by the second wheel to prevent overregistration of the third; a detaining-dog g, for locking the second wheel a pin f', on the first wheel to actuate said dog to prevent overregistration of the second wheel when the first wheel is operated all coacting together substantially as described for the purpose specified.

2. In a cash-register the combination of a supporting-frame; groups or sections of register-keys the groups corresponding to the denominations of money an indicator-tablet for each key in groups corresponding to the groups of keys; indicator-sustaining devices for each group of keys adapted to operate independently; suitable key-arresters to prevent the operation of more than one register-key on the entire machine at a time; a lever connected to be actuated by any of said register-keys to trip all of the tablet-sustaining devices at the beginning of a registration; a total-register mechanism and a transfer mechanism for transferring the amount registered by each key to the total-register as specified.

3. In a cash-register the combination of the indicator-tablet slides F; and register-keys in

groups for actuating the same; key-arresters P, for preventing the operation of more than one key at a time in each group; and bodies R, R, pivoted at z, z, to the casing to transfer the motion from one group of key-arresters to the remaining groups to prevent the operation of more than one register-key at a time on the entire machine.

4. In a cash-register the combination of the indicator-tablet slides F′, keys B′, for actuating the same; key-arresters P, for preventing the operation of more than one key at a time in each group; and an intervening body to transfer the motion from one group of key-arresters to the remaining groups to prevent the operation of more than one register-key at a time on the entire machine.

5. In a cash-register the combination of a group of keys B′, pivoted on a shaft toward the front of the machine; a shaft above and to the rear of said key-shaft; a graduated bar pivotally supported from said rear shaft; a dog D′, pivoted thereto and projecting rearwardly to be held in mesh with the gear by any key actuated; and a bar e', with downwardly-projecting hooks e, pivoted to said graduating bar and adapted to engage upon a lug upon each key and lock the key to the dog D′, into the gear to actuate the same and prevent overregistration as specified.

6. In a cash-register the combination of groups of register-keys B′, pivoted on a shaft toward the front of the machine; a shaft above and to the rear of said key-shaft; a gear-wheel on said rear shaft; a graduated bar pivotally supported from said rear shaft; a dog D′, pivoted thereto and projecting rearwardly to be held and locked by any key actuated in mesh with the gear to actuate the same and prevent overregistration as specified.

7. In a cash-register the combination of register-keys B′, in groups corresponding to the denomination of money; a gear-wheel to each group actuating amounts corresponding to the amount marked on each key of the group; a total-register mechanism consisting of trains of numbered gear-wheels f, h, m, s, the lower wheels of said train registering independently amounts of the denomination corresponding to the groups of keys and connected to transfer said amounts to the higher indicator-wheels by a ratchet mechanism; a transfer mechanism connecting the gear-wheel of each group to the wheel of the registering mechanism corresponding thereto to transfer all of the amounts from each group of keys to the total-register as specified.

8. In a cash-register the combination of a train of number-wheels f, h, m, and s, in train successively; independent connections from the number-wheels to actuate the same independently; a lock-lever g, pivoted at g', to lock the wheel h; a pin f', for actuating the lever g, to lock the wheel h, whenever it is moved one step by the wheel f; a spring-pawl l', connected to the wheel h, to actuate the wheel m, one step at each revolution of the wheel h, and permit the wheel m to revolve past it in the same direction; a shaft w, through wheel m; a gear-wheel m', on said shaft w; a guided bar L, carrying the dog L′, to engage the gear-wheel m'; and a tooth x, on the shaft y, of the gear-wheel h, positioned to actuate the bar L, by striking a lug x', thereon to throw the dog L′, into the gear-wheel m', to prevent overregistration; and a spring b, to hold the dog L′, normally out of engagement all coacting together for the purpose specified.

9. In a cash-register, the combination of number-wheels f, h, m and s, in train; suitable cogs lugs or pawls on each of said number-wheels meshing directly with the next higher wheel in the train to actuate the next higher number-wheel; a locking-lever extending between the number-wheels f, and h, to lock the wheel h, when it is moved one step from the action of wheel f; the dog L′, actuated from the wheel h, to lock or stop the wheel m, when it is moved one step by the wheel h, as specified.

10. In a cash-register the combination of number-wheels f, h, m, and s in train; suitable gear connections on each of said number-wheels meshing with the next higher; pin or pins f', on the side of number-wheel f, corresponding to the actuating cog or cogs thereon; a stop-lever g, pivoted at g' between wheels f and h with one end in a plane to engage with the teeth of number-wheel h; and the other end offset to contact with a pin f' and be actuated thereby only when the wheel f actuates wheel h, so that the wheel f in actuating wheel h also operates lever g to lock the wheel h as soon as one space is moved, and prevent inaccuracy, as specified.

11. In a cash-register the combination of number-wheels h, m and s in train, supported in a suitable frame; suitable ratchet connections between said wheels h and m to permit the operation of the higher wheels independent of the lower, an axle y for wheel h; a slide L across said frame in close proximity to the axle y of wheel h; a lug x' on said slide, a dog L′ on slide L to serve as a stop to wheel m; a lug x on axle y positioned to actuate slide L to stop wheel m at each step of its actuation; a spring b to hold the dog L′ normally out of engagement, as specified.

In witness whereof I have hereunto set my hand and seal in the presence of two witnesses.

LUKE COONEY, JR. [L. S.]

Witnesses:

WALTER S. WOOD,

V. E. CHAPPELL.