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Patented Feb. 12, 1901.

C. A. LEE, E. T. DERGE & E. P. ROOT.

CASH REGISTER.

(No Model.)

(Application filed June 14, 1900.)

4 Sheets—Sheet 1.

Fig. 1.

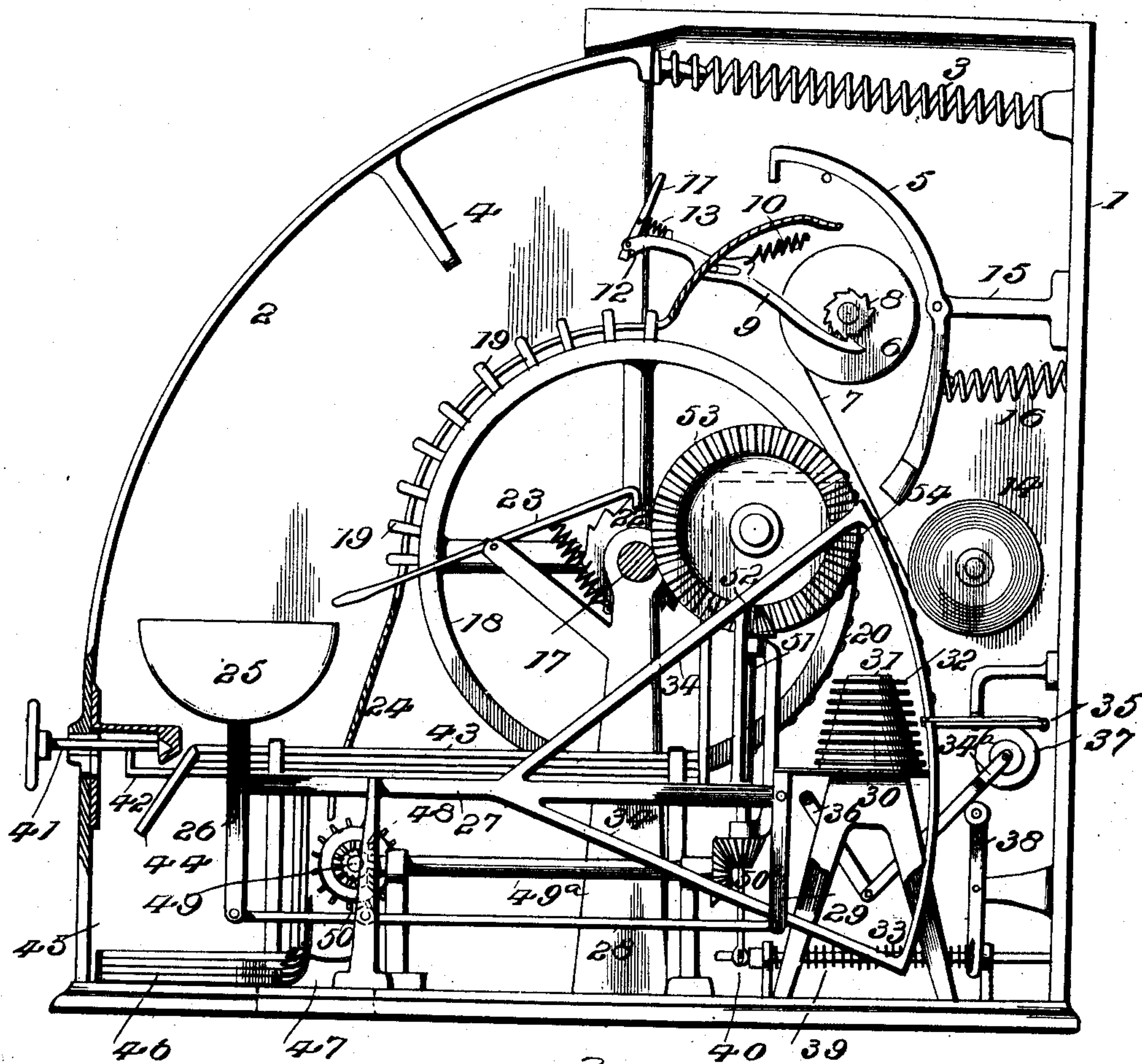
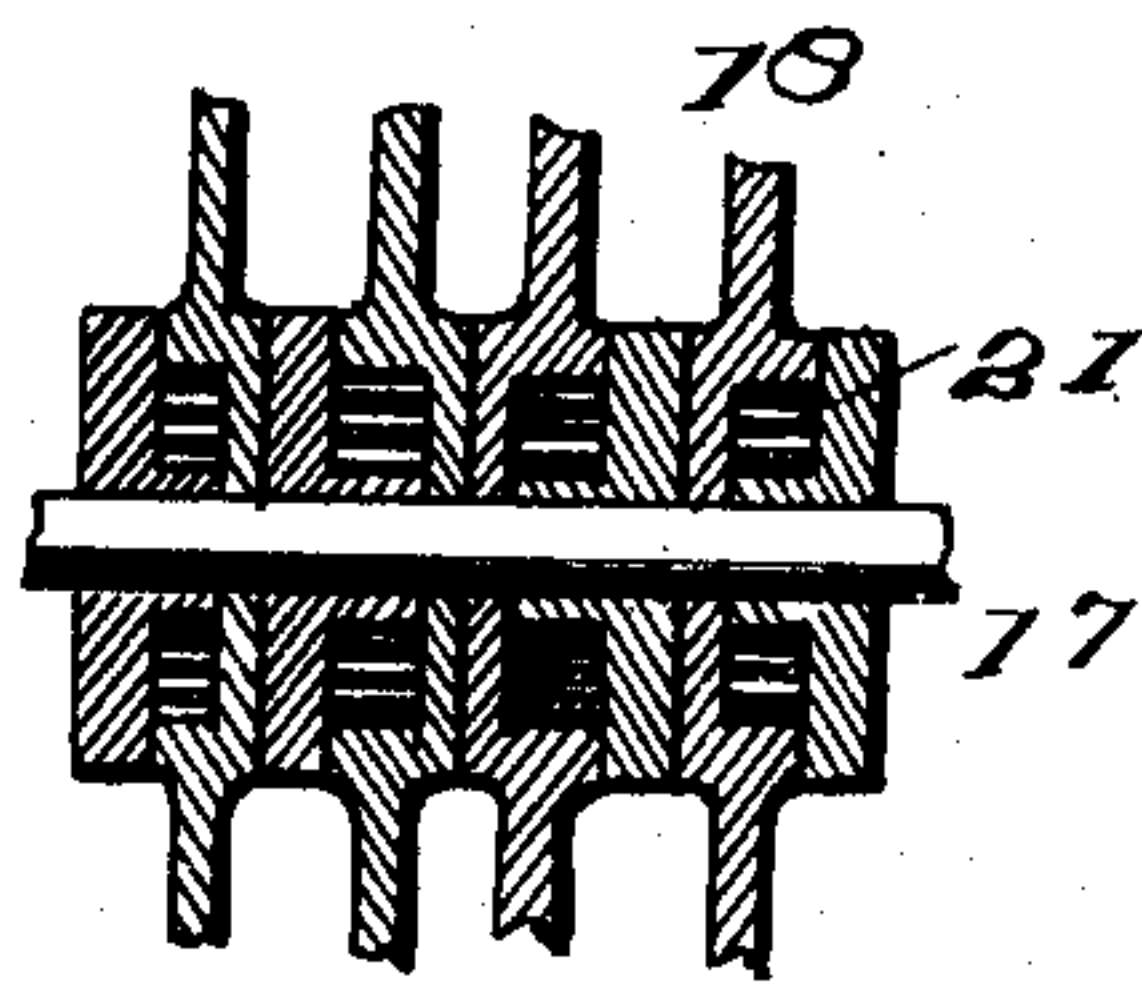


Fig. 3



Witnesses

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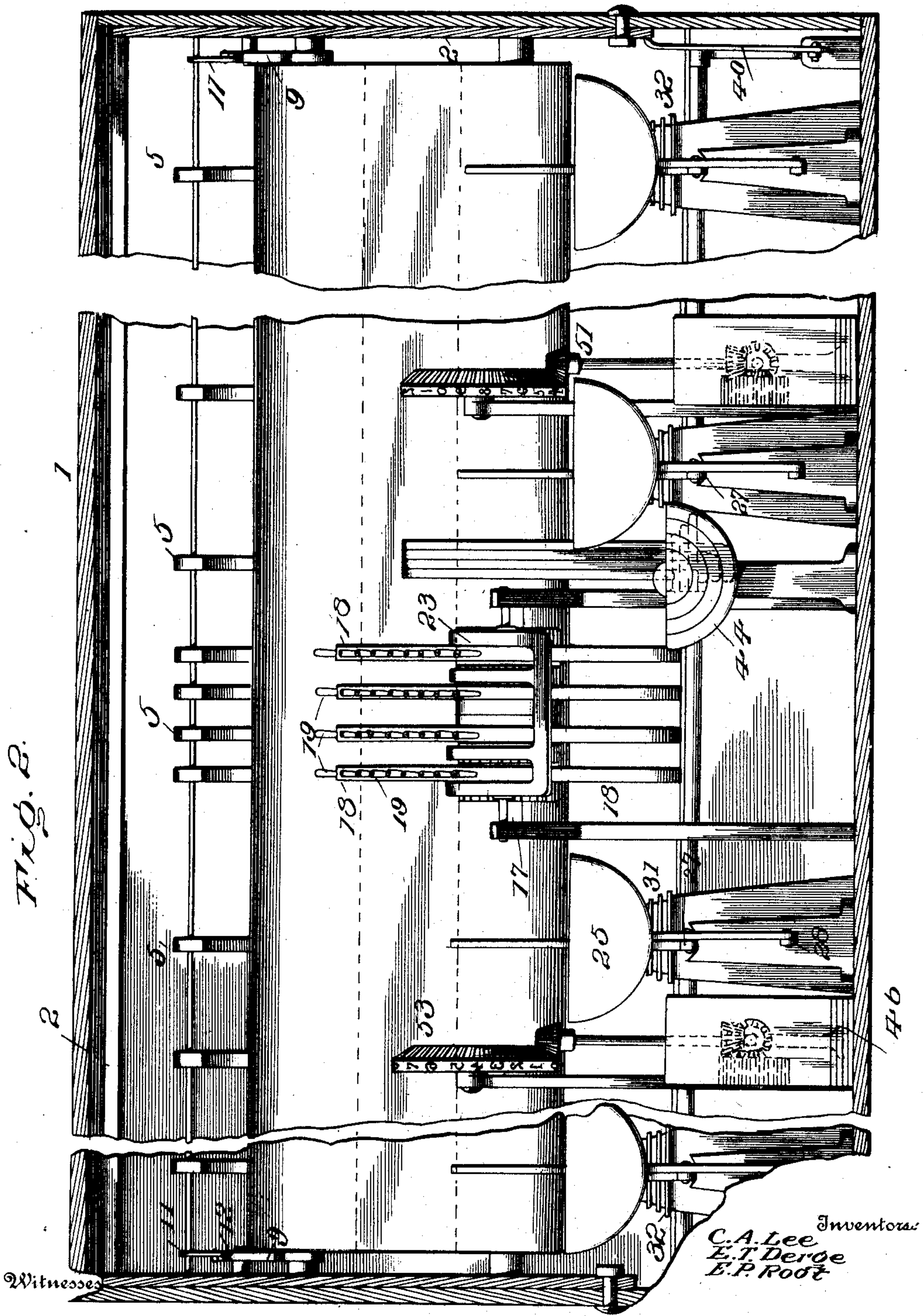
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4 Sheets—Sheet 2.



per minute
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UNITED STATES PATENT OFFICE.

CHARLES A. LEE, OF REPUBLIC CITY, AND ERNEST T. DERGE AND EDWIN P. ROOT, OF LEBANON, KANSAS.

CASH-REGISTER.

SPECIFICATION forming part of Letters Patent No. 667,843, dated February 12, 1901.

Application filed June 14, 1900. Serial No. 20,333. (No model.)

To all whom it may concern:

Be it known that we, CHARLES A. LEE, residing at Republic City, in the county of Republic, and ERNEST T. DERGE and EDWIN P. ROOT, residing at Lebanon, in the county of Smith, State of Kansas, citizens of the United States, have invented certain new and useful Improvements in Cash-Registers; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to means for recording cash sales, the amount of each denomination, whether currency, coin, or gold and silver specie, and a character to indicate the person making the sale. The working parts are housed, and access is had to the tills and currency-receptacles by means of a door which is normally locked and which when thrown open actuates an impression-lever and a locking mechanism, the latter serving to hold the tills stationary so long as the door is open.

In its organization the register comprises tills, currency-receptacles, and recording mechanism for each, together with individual indicating means to determine the amount in each till and receptacle.

For a full description of the invention and the merits thereof and also to acquire a knowledge of the details of construction of the means for effecting the result reference is to be had to the appended description and drawings hereto attached.

While the essential and characteristic features of the invention are necessarily susceptible of modification, still the preferred embodiment of the invention is illustrated in the accompanying drawings, in which—

Figure 1 is a transverse section of a register embodying the invention and taken upon an irregular line, so as to indicate the relative disposition of the cooperating parts. Fig. 2 is a vertical longitudinal section, parts being broken away. Fig. 3 is a detail section of the series of registering-wheels. Fig. 4 is a detail plan view showing more particularly the actuating mechanism. Fig. 5 is a detail perspective view of the key-operated indicating-bars. Fig. 6 is a perspective view of a

key and the front end portions of the series of indicating-bars actuated thereby. Fig. 7 is a perspective view of a till, its mountings, the coin-counterbalances, and the adjunctive parts. Fig. 8 is a detail view of the retainer-actuating mechanism. Fig. 9 is a detail view in perspective of the retainer.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawings by the same reference characters.

The casing 1 for housing the working parts may be of any size or design, according to the style of machine, and is accessible by means of a swinging door 2, which is of curved form in transverse section. The door 2 when closed is locked and is adapted to be opened against the tension of a spring 3, interposed between its top portion and the upper part of the casing. A trip 4 is attached to the door and projects inward therefrom and is adapted to engage with an impression-lever 5 and a part of a mechanism for turning the roller 6, upon which the strip of paper 7 is adapted to be wound. The paper-feeding mechanism may be of any construction, so long as it is adapted to be actuated by the door and to turn the roller 6 every time the door is closed. A ratchet-wheel 8 is secured to the shaft upon which the roller is mounted, and a dog 9 is provided to cooperate with the teeth of the ratchet-wheel to effect a step-by-step movement of the roller. As shown, the dog 9 has a sliding movement and is returned to a normal position by means of a spring 10. A finger 11 is pivotally connected with the outer end of the dog 9 in such a manner as to permit the trip 4 to ride thereover when opening the door 2 and to stand in the path of said trip when the door is closed, so as to impart a positive movement to the roller 6. A stop 12 is provided upon the front end of the dog 9 and is engaged by the lower end of the finger 11, whereby the latter is held in a normal position. The spring 13 for returning the finger 11 to a normal position is of the expandible type and is interposed between the finger and the dog 9. The strip 7, of paper, is adapted to unwind from a roller 14, spaced a proper distance from the roller 6 and parallel therewith. The lower end of the im-

pression-lever 5 is adapted to strike the strip 7 at a point intermediate of the rollers 6 and 14, so as to carry said strip against the type by means of which the printing is effected.

5 The impression-lever 5 is preferably of arcuate form and is fulcrumed intermediate of its ends to a bracket-support 15, projecting forward from the rear wall of the casing. A spring 16 serves to normally hold the impression-lever in a predetermined position to be
10 actuated when opening the door 2, so as to properly effect the recording upon the strip.

The shaft 17 extends lengthwise of the register and is suitably mounted and is provided
15 with a series of registering-wheels 18, provided upon their peripheral portions with a series of pins 19 and types 20, the latter ranging from "0" to "9," the pins 19 and types 20 being oppositely disposed and in like number.

20 The registering-wheels 18 are loosely mounted upon the shaft 17 and are connected therewith by means of springs 21, which are placed under tension when a registering-wheel is forwardly rotated. It is to be understood that

25 each registering-wheel 18 will be provided with a spring 21, by means of which it is connected with the shaft 17. Each wheel 18 is also provided with a ratchet-wheel 22 to co-

operate with a pawl 23, by means of which a
30 registering-wheel is held in the desired position until released by pressure brought to bear upon the projecting end of a part com-

mon to the series of pawls 23. The types 20 are positioned so as to be brought opposite
35 the lower end of the impression-lever 5, and the wheels 18 are adapted to be turned by the operator engaging the pins 19. As a wheel

18 is turned forward the pawl 23 engages with the teeth of the ratchet-wheel 22 and prevents
40 backward rotation of the wheel. In the event of two or more of the registering-wheels being actuated so as to bring the desired type

in position for printing they are simultaneously released by pressure upon a conven-
45 ient portion of a bar 23^a, connecting the pawls in series, and the springs 21, regaining themselves, return the registering-wheels to a normal position. A curved plate 24 incloses

the wheels 18 and is formed with a series of
50 slots for the pins 19 to project through. This plate extends upward and rearward, so as to inclose the roller 6 and attendant parts and projects downward a short distance to afford

protection to the actuating mechanism of the
55 currency-receptacles.

The number of tills 25 will depend upon the extent and capacity of the register, it being understood that a till be provided for
60 each denominate coin. Inasmuch as the tills are similarly mounted and the mechanisms coöperating therewith are duplicates, a single till and coöperating parts are described at

length hereinafter for the sake of simplicity. The till 25 is of cup shape and is provided
65 with a pendent stem 26. A scale-beam 27 projects horizontally from the stem 26 and is pivotally connected therewith. A rod or bar

28 parallels the beam 27 and is pivotally connected with the stem 26. A vertical bar 29
70 connects the rear ends of the parts 27 and 28 and is provided at its upper end with a rest or lifter 30 of fork shape, so as to embrace oppositesides of a stepped cone 31. The parts
75 26, 27, 28, and 29 are pivotally connected and maintain a parallel relation, which is essential to prevent the tilting of the till and the lifter 30 and enable these parts to maintain a position parallel to their normal position. A series of weights 32 of ring form are
80 disposed in vertical series and supported upon the steps or shoulders of the cone 31, and each weight equals the weight of a single coin of a denomination to be counterbalanced thereby. It will thus be understood that
85 when a coin is placed in the till 25 the latter will descend until the lifter 30 comes in contact with a lowermost weight 32 and lifts it from the lowest step or shoulder of the cone 31. Upon the deposition of a second coin in the till 25 the latter will descend a distance,
90 permitting the lifter 30 to carry upward a second weight. By numbering the weights the value or number of coins in one of the series of tills can be readily determined on
95 reference to the topmost weight, supported by the lifter 30. This will be readily understood when it is remembered that the lifter 30 engages with a weight 32 and carries the same upward each time a coin is placed in the till. A permanent record is likewise made
100 by attaching the sector 33 with the scale-beam 27, so as to move therewith, rods or bars 34 connecting the ends of the sector with the said scale-beam. This sector is provided with types in regular order and disposed so
105 as to be brought opposite the lower end of the impression-lever 5, whereby an imprint thereof may be made upon the strip 7.

It is proposed to hold the sector 33 and the till connected therewith stationary when the
110 cover 2 is open, and for this purpose a retainer is provided and consists of pivoted bars 34^a, arranged to grip opposite sides of the sector, a spring 35 coöperating with said

bar to effect the desired end. A releasing
115 mechanism coöperates with the retainer to liberate the sector when the door is closed, and, as shown, consists of a pivoted arm 36, provided at its free end with a wheel 37, hav-

ing its peripheral portion of V shape and
120 adapted to pass between the rear portions of the bars 34^a, so as to spread the front ends thereof and move them away from opposite

sides of the sector 33. A lever 38 is pivoted so as to have its upper end extend in the path
125 of the arm 36, and its lower end is adapted to be operated by a push-bar 39, actuated directly from the cover 2 by means of a rod 40, rigidly attached to said cover and movable

therewith, as shown most clearly in Fig. 8.
130 The arm 36 is of elbow shape, its members being disposed in V form. When the cover 2 is thrown open, the wheel 37 drops by gravity and permits the spring 35 to act so as to

cause the bars 34 to grip opposite sides of the sector and hold the parts stationary. The rod 40 has a pin-and-slot connection at its lower end with the bar 39, and when the cover 2 is thrown open the lower end of the rod 40 moves forward and carries the bar 39 along with it and moves the lever 38 so as to throw its upper end rearward and away from the arm 36, which turns upon its pivot under the influence of gravity and permits the wheel 37 to fall away from the retainer. When the cover is closed, the parts 40, 39, and 38 move in an opposite direction and lift the arm 36 and force the wheel 37 between the rear ends of the bars 34^a and cause their front ends to separate and release the sector 33.

In order that the person making the sale may receive credit therefor, the cash-register is provided with mechanism for indicating the salesman and the amount of sales. The mechanism for effecting this result is actuated by means of a key 41, by means of which the door 2 is unlocked, said key having a point 42, which is differently positioned upon the stems of the several keys, so as to engage with the part indicating the number by means of which the salesman is designated. A series of bars 43 are arranged in parallel relation and are slidably mounted, and their rear ends are provided with type characters to designate the salesman, whereas their front ends are provided with curved bars 44, which are adapted to be engaged by the points 42 of the keys. Each key is constructed to operate its one indicating-bar and no other of the series, and since each salesman is provided with a key the person making the sale and the amount thereof are recorded. It is to be understood that a plurality of keys are provided for each register, and in addition to the usual wards and other safety devices the points 42 are resorted to for actuating the type-bars to admit of crediting the sales to the clerk or party consummating the same. Each key is numbered or lettered and corresponds with the character on the type-bar actuated thereby. The points 42 of the different keys are located at varying distances from the shanks of the keys and are designed to come in contact with the curved bars 44 and press them and the type-bars inward, so as to project the type to be struck by the impression-lever. The currency-receptacles 45 are provided with a plurality of leaves 46, pivoted thereto and provided with tailpieces 47, which are adapted to coöperate with a wheel or drum 48, having parallel grooves for the tailpieces 47 to travel in, whereby a rotary movement is imparted to said drum when the leaves are turned by hand from a vertical to a horizontal position, and vice versa. The shaft 49, carrying the drum 48, is connected by miter-gearing 50 with a horizontal shaft 49^a, which in turn drives a vertical shaft 51, provided at its upper end with a bevel-pinion 52, meshing with correspond-

ing cog-gearing 53 of a recording-wheel 54. It will thus be seen that as each leaf 46 is turned from a vertical to a horizontal position after the bill of denominate value has been placed in the receptacle the drum or grooved wheel 48 is actuated and through the connections imparts a corresponding movement to the recording-wheel 54, whereby the type thereon is brought into position for recording the amount on the strip 7 when the cover 2 is thrown open in the manner stated. The leaves 46 are numbered. Hence the amount in any receptacle can be quickly determined at a glance, since each leaf corresponds to a bill covered thereby.

Having thus described the invention, what is claimed as new is—

1. In a cash-register provided with a swinging door, a recording mechanism including an impression-lever, and a trip attached to the said door and movable therewith and adapted to come in contact with the impression-lever and effect the recording, substantially as set forth.

2. In a cash-register provided with a swinging door, a recording mechanism, a strip upon which the record is made, a roller for the said strip to wind upon, an impression-lever, a dog to effect a winding of the aforesaid strip upon the roller, and a trip carried by the aforementioned door and adapted to actuate the impression-lever when opening the door and to operate the said dog upon closing the door, substantially as specified.

3. In a cash-register, and in combination with a pivotally-mounted till, a series of weights spaced apart and disposed in vertical relation, each equal to the weight of the coin to be counterbalanced thereby, and a lifter operatively connected with the till and adapted to come in contact with the weights in successive order according as the coins are deposited in the till to counterbalance the same, substantially as set forth.

4. In a cash-register, and in combination with a pivotally-mounted till, a conical support, a series of weights disposed in vertical relation and spaced apart and positioned upon the said conical support, the weights being equal to the weight of the coin to be counterbalanced thereby, and a lifter operatively connected with the till and adapted to engage with the said weights in successive order, substantially as and for the purpose specified.

5. In a cash-register, and in combination with a pivotally-supported till and a series of weights disposed in vertical relation and spaced apart, a sector connected with the till so as to move therewith and provided with types, and means for taking an impression from the types of the sector when brought into proper position, substantially as set forth.

6. In a register of the character described, and in combination with a counterbalanced till, a type-bearing support connected with

the said till to move therewith, and a retainer for securing the said type-bearing support, substantially as set forth.

7. In a cash-register, and in combination
5 with a counterbalanced till, and a type-bearing support movable therewith, a retainer for securing the type-bearing support, and a releasing device to cooperate with the said retainer, substantially as set forth.

10 8. In a cash-register, a series of indicating-bars provided at their frontends with curved

extensions, and a key having a point to bear against the curved extension of one of the bars, as and for the purpose set forth.

In testimony whereof we affix our signatures in presence of two witnesses.

CHARLES A. LEE. [L. S.]
ERNEST T. DERGE. [L. S.]
EDWIN P. ROOT. [L. S.]

Witnesses:

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