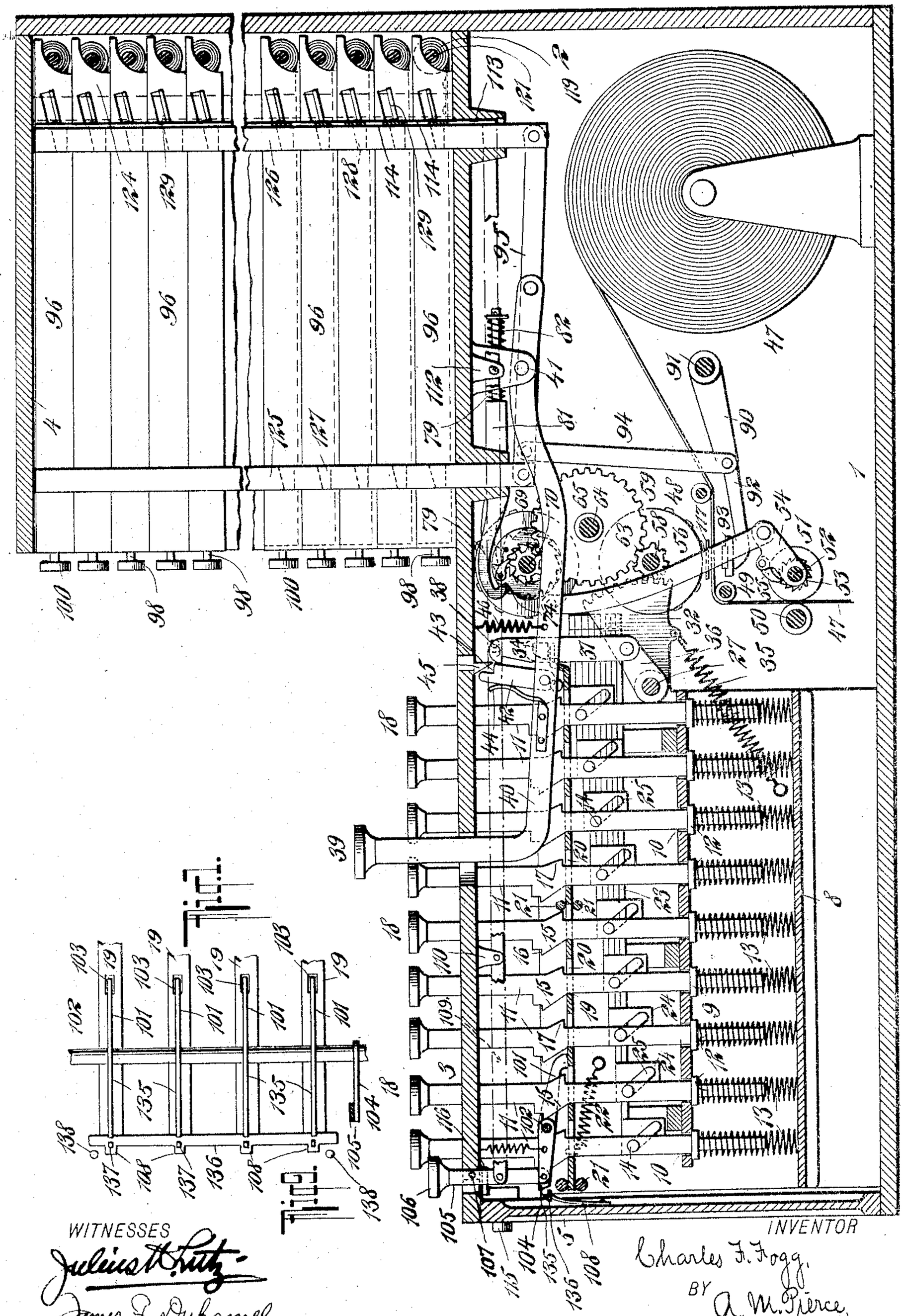
No. 883,306. PATENTED MAR. 31, 1908.

C. F. FOGG.

ACCOUNT REGISTER.

APPLICATION FILED MAR. 28, 1907.

4 SHEETS—SHEET 1.



WITNESSES

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4 SHEETS—SHEET 2.

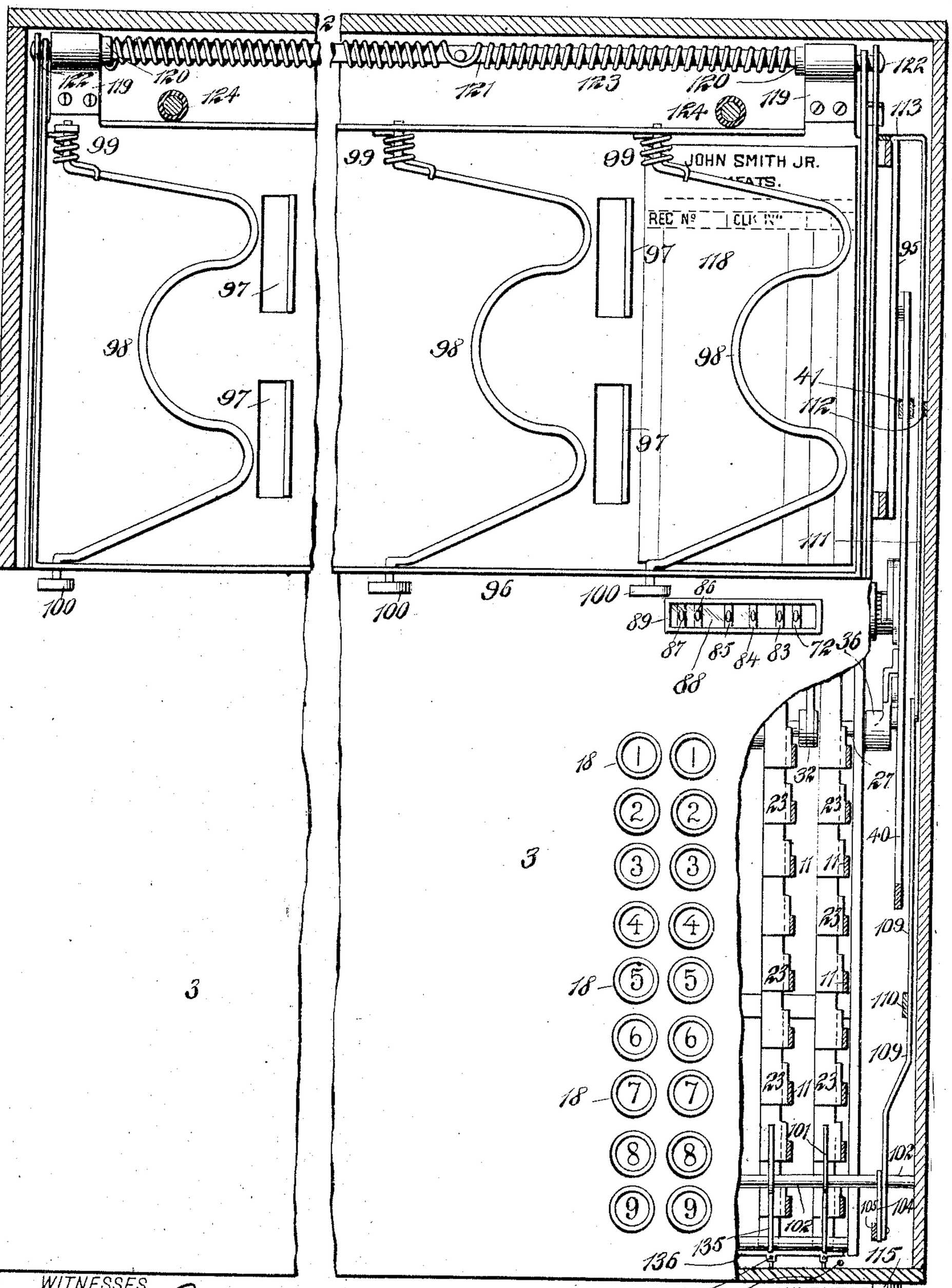

Fig. 2

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4 SHEETS—SHEET 3.

Fig. 3.

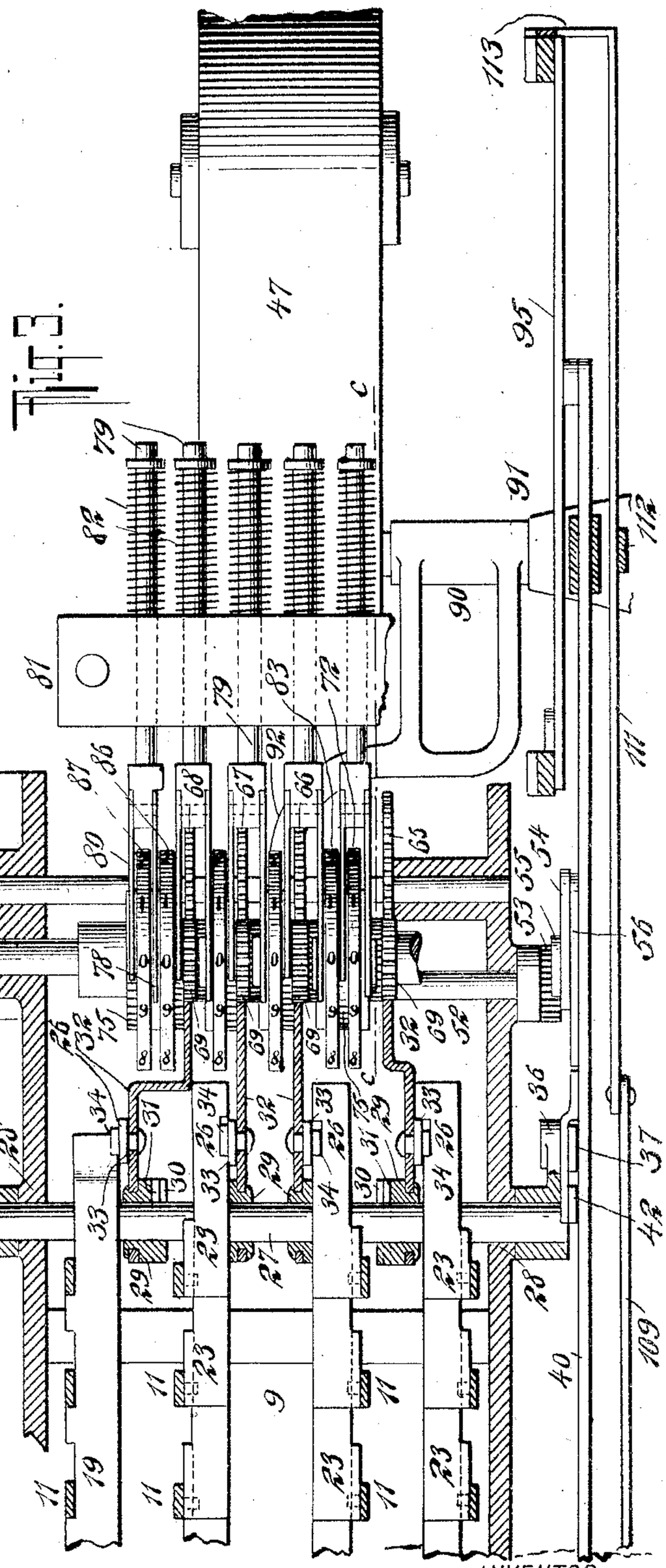

Fig. 4.

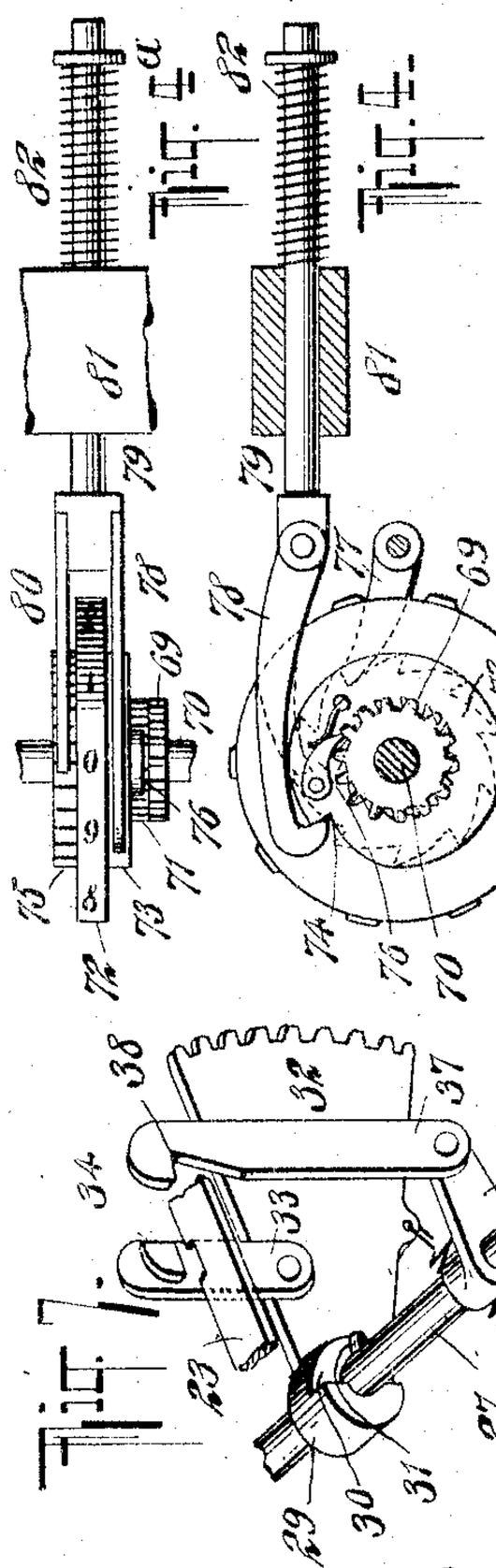

Fig. 5.

Fig. 6.

Fig. 7.

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4 SHEETS—SHEET 4.

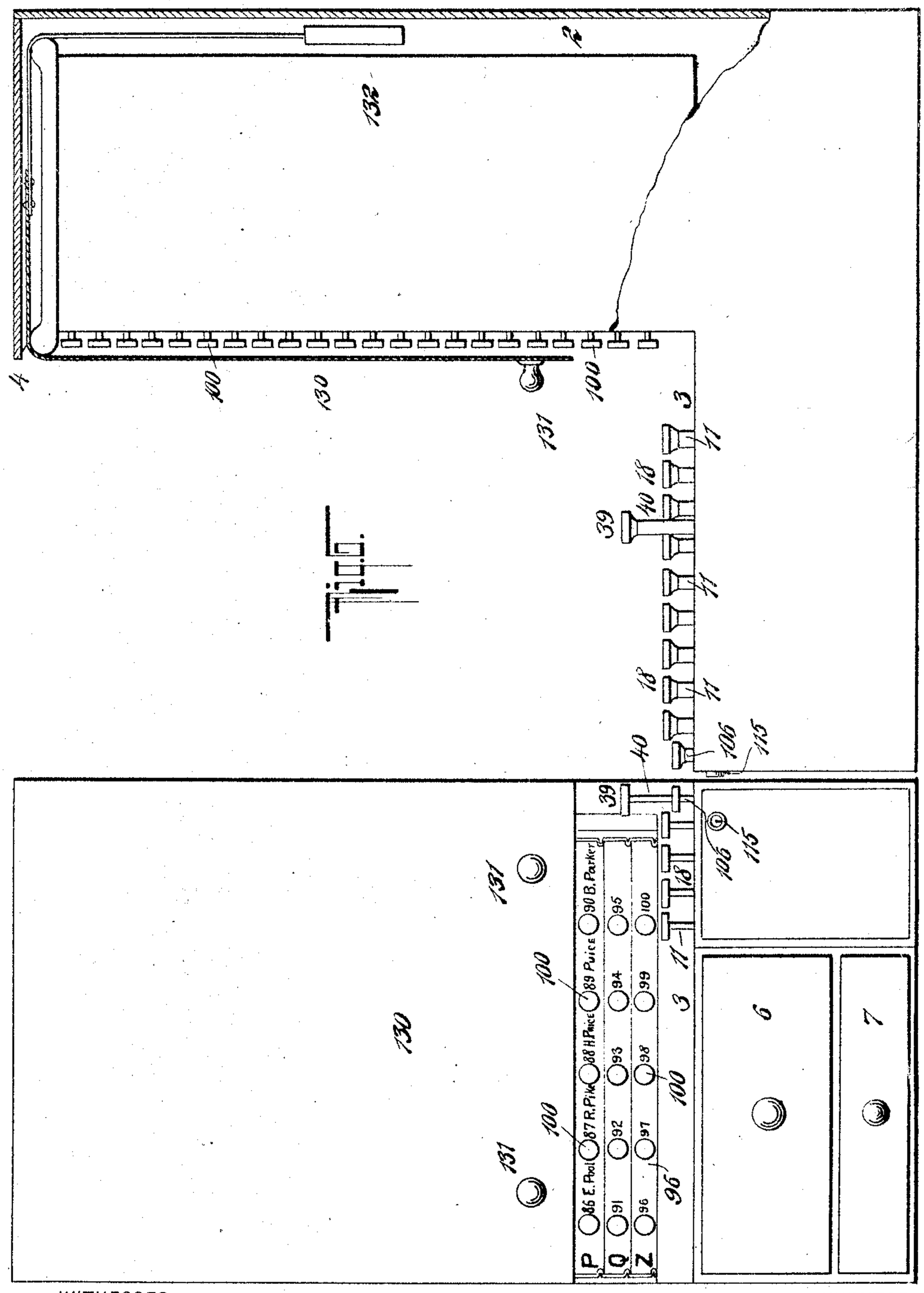

Fig. 1.

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UNITED STATES PATENT OFFICE.

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ACCOUNT-REGISTER.

No. 883,306. Specification of Letters Patent. Patented March 31, 1908.

Application filed March 28, 1907. Serial No. 365,101.

To all whom it may concern:

Be it known that I, CHARLES F. FOGG, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Account-Registers, of which the following is a specification, reference being had therein to the accompanying drawing.

My invention relates especially to that class of devices employed for mechanically keeping records of accounts, dispensing with the usual book-keeping heretofore required, and has for its object the provision of an effective and complete structure wherein the totals of the credits are added, and a record is made of each individual credit, as the credit-bill is placed in its appropriate compartment.

To attain the desired end, my invention consists in certain novel and useful combinations or arrangements of parts, and peculiarities of construction and operation, all of which will be hereinafter first fully described, and then pointed out in the claims.

In the drawings, Figure 1 is a side elevation and partial vertical section of my improved account register. Fig. 2 is a plan view of the front portion of the register, and partial horizontal section. Fig. 3 is a horizontal sectional view. Fig. 4 is a vertical, sectional view at line *c*—*c* of Fig. 3, and Fig. 4ª is a plan view of the detail shown in Fig. 4. Fig. 5 is a front elevation of the register on a reduced scale, and Fig. 6 is a side elevation on the same scale. Fig. 7 is a perspective detail view of an operating segment 32. Fig. 8 is an elevation of the printing and adding wheels looking from the right towards the left of the mechanism in the lower portion of the casing as shown in Figs. 1 and 3. Fig. 9 is a plan view of the outer ends of the bars 19 and the connected parts.

Like numerals of reference, wherever they occur, indicate corresponding parts in all the figures.

1 is the bottom of the casing of the register, made of any approved material, and 2 is the back.

3 is the top of the lower portion of the casing, and 4 is the top of the back portion.

5 is the front of the lower portion, provided with drawers 6 and 7.

8 is a horizontal plate fixed within the front portion of the casing, and 9 is a guide-plate, provided with perforations 10, located a short distance above the plate 8.

11 are vertical bars, movably mounted in the perforations in the plate 9, and in corresponding perforations in the top-piece 3. On each bar 11, beneath the plate 9, are stops 12.

13 are springs which surround the lower portions of each bar 11 and find a bearing against a stop 12 and the plate 8, as particularly illustrated in Fig. 1 of the drawing. One side of each bar 11 bears a stud 14, and on one edge of each of said bars is a projection having a beveled face 15, and a step 16. On the opposite edge of the bar 11 is a second projection having a beveled face 17. There are four rows of these bars 11, each row consisting of nine bars; the upper extremities of the bars bear manipulating knobs or buttons 18, numbered from one to nine, both inclusive, as shown in Fig. 2 of the drawing.

19 is a horizontally movable plate, provided with slots 20 and supported in place, so as to permit horizontal movement, by rods 21. A plate 19 is provided for each row of bars 11, and such plate will hereinafter be termed a "locking-plate." A plate 19 normally occupies the position shown in Figs. 1 and 3 of the drawing, and when moved towards the front of the register in operating the same, will be returned to its initial position, when released, by means of a spring 22.

In order to lock the mechanism of the register against accidental movement, a series of dogs 101 are fixed upon a horizontal shaft 102, the said dogs being arranged to take in slots 103 in the locking-plates 19. An arm 104 on the shaft 102 bears a rod 105 which passes through the top-piece 3 and carries a manipulating knob 106.

107 is a horizontal pin passing through the rod 105, arranged to catch beneath the top-piece 3 when the bar is depressed and rocked forward, and 108 is a spring which will catch over the free extremity of an arm 135, holding the dogs out of engagement with the slots 103 during the operation of the register.

136 is a horizontal bar provided with perforations 137 through which the springs 108 extend, the object of the bar being to so connect the springs that they must always act in unison, and move backward and forward together, holding the dogs 101 out of engagement with the slots 103 in the plates 19, or

permitting such engagement, as required by the movements of the mechanism of the register.

138 are stops against which the bar 136 finds leverage in acting to release the dogs 101.

In order to lock the drawers containing the account bills against being opened excepting when bills are to be inserted or removed, a bar 109 is pivoted to the vertical rod 105, and fulcrumed at 110; the inner extremity of the bar 109 is pivoted to a second bar 111, which in turn is fulcrumed at 112. The inner end of the bar 111 is pivoted to a vertical movable bar 113, having slots 114 therein, arranged to permit movement of the drawers 96 when the bar 113 is dropped.

When it is desired to prevent any manipulation of the register, a lock 115 is provided, having a projecting finger 116 which is arranged to pass beneath the pin 107, holding the rod 105 against depression. When unlocked, the finger 116 swings away from beneath the pin 107.

23 are horizontal, longitudinally movable bars, each provided with a depending ear 24 having a slot 25 in which one of the studs 14 on a bar 11 is arranged to play. The inner end of each bar 23 is slotted at 26.

27 is a shaft mounted in bearings 28.

29 are hubs loosely mounted on the shaft 27. The side of each hub is cut away at 30, pins 31 are fixed in the shaft 27 limiting the rotation of the hubs thereon, as particularly illustrated in Fig. 7 of the drawing. Secured to each hub 29 is a toothed segment 32. Pivoted to each segment 32 is a vertical bar 33, having at one side a stop-piece 34. A spring 35 engages each segment 32 and serves to draw such segment downward when permitted to move, the segment being normally held against movement by the stop-piece 34 resting on a plate 19. At the outer extremity of the shaft 27 is a crank 36 to which is connected a vertical bar 37 having therein a notch 38.

39 is the master key of the register, mounted on a lever 40, fulcrumed at 41.

42 is a finger pivoted to the lever 40, and having a step 43, this finger 42 being forced forward at its free end by a spring 44 mounted on the lever 40.

45 is a fixed wedge extending downward from the under side of the top 3.

46 is a spring for returning the lever 40 to its original position after being depressed.

47 is a strip of paper passing from a roll beneath a roller 48, over a roller 49, and between a roller 50 and a feeding wheel 51, the shaft 52 of which is provided with a ratchet 53 and a movable arm 54 having thereon a dog 55; from the arm 54 a rod 56 extends to a pivot on the bar 40.

58 is a shaft whereon are loosely mounted printing wheels 59, 60, 61 and 62, each provided with an attached gear 63 which meshes with one of the segments 32.

64 is a fixed shaft whereon are loosely mounted gear wheels 65, 66, 67 and 68, each of these gears meshing with one of the gears 63, and with a gear 69 loosely mounted on a fixed shaft 70.

71 is a ratchet wheel secured to the first gear 69.

72 is the first total adding wheel, provided with figures from 0 to 9 on its periphery, loose on the shaft 70, and having on one side a disk 73 wherein is a single notch or tooth 74, this disk is so shaped that as it rotates it will first pull an engaging dog forward, and then release said dog, the stem whereof rides on the periphery of the disk.

75 is a ratchet wheel secured to the second adding wheel 83.

76 is a dog pivoted to the disk 73 and arranged to take in the teeth of the ratchet 71.

77 is a dog for preventing backward movement of the ratchet 75.

78 is a dog pivoted to a horizontally movable bar 79 and arranged to take in the notch 74 of the disk 73, and 80 is a dog, also pivoted to the bar 79, arranged to take in the ratchet wheel 75. The bar 79 is drawn forward by the dog 78 catching in the notch 74 of the disk 73 with each revolution of said disk, and the bar 79 in its forward movement causes the dog 80 to move the ratchet 75 and wheel 83 the distance of one tooth of the ratchet, the dog 80 dropping back one tooth only when the dog 78 is released.

81 is a bearing wherein the several bars 79 move, and 82 are springs for drawing the bars 79 back to their initial positions after the dogs carried by same bars have acted.

83, 84 and 85 are the second, third and fourth adding wheels, arranged in the same manner as the first wheel 72.

86 and 87 are the last wheels of the total adder which are operated by the last pair of dogs 78 and 80, and not from the printing mechanism which is illustrated in Fig. 8 of the drawing.

The total addition may be read at a glance through the glass 88 set in an opening 89 in the top 3 of the case, as shown in Fig. 2 of the drawing.

90 is a yoke pivoted at 91, and bearing an arm 92 carrying a printing platen 93 arranged to raise the paper 47 up toward the printing wheels.

117 is a printing ribbon located between the paper and the periphery of the printing wheels. The lifting of the platen 93 is accomplished through the medium of a bar 94 pivoted to a bar 95, which in turn is pivoted to the master key lever 40.

96 are drawers, mounted one above another, and lettered or indexed on the front, as shown in Fig. 5 of the drawing. These drawers are preferably made of metal, and

partitions or divisions 97 are formed by cutting portions of the metal of the bottom so they may be bent upward, as shown in Fig. 2 of the drawing.

98 are wire clips arranged to lie flat within the drawer for the purpose of holding credit bill 118 in place, each clip being forced downward by a spring 99. The outer end of each clip is pivoted in the front of the drawer, and terminates in a knob 100 which not only serves as means for turning the clip upward to insert or remove a credit bill, but also as means for pulling the drawer outward. To the rear of each drawer 96 is attached a pair of straps 119 which are wound on drums 120 mounted on a shaft 121 fixed to the casing at 122, this shaft bearing a coiled spring 123 which engages the drums 120, and will be coiled up tightly on the shaft 121 when the drums are rotated in pulling out the drawer.

124 are stops against which the backs of the drawers bear, when closed.

Extending upward from the bar 95 at the side of the drawers 96 are bars 125 and 126, provided with slots 127 and 128.

129 is an inclined, outwardly-projecting tongue formed from the metal of the side of each drawer, as particularly shown in Fig. 1 of the drawing.

In order to cover the front of the drawers 96, when desired, I provide a flexible curtain 130 having manipulating knobs 131. This curtain passes over the top of the tier of drawers, and has a counter-balancing weight 132, as shown in Figs. 5 and 6 of the drawing.

When constructed and arranged in accordance with the foregoing description, the operation of my invention is as follows: While not in use, the curtain 130 is drawn downward, concealing the drawers 96, and the operating mechanism of the register is held against any movement by the lock 115. If this lock is turned, releasing the rod 105 against depression, the depression of said rod releases the dogs 101 from the slots 103 in the plates 19, and at the same time drops the slotted, upright bar 113 at the rear of the drawers 96 so that the slots in said bar come opposite to the tongues 129 against which the solid portions of said bar engage when in the position shown in Fig. 1 of the drawing. As the bar 105 is depressed, the dog 104 passes beneath the spring 108, holding the dogs 101 out of engagement with the slots in the locking-plates 19, and if it is desired to fix the dog in the unlocked position, by rocking the rod 105 outward, the pin 107 will take beneath the top-piece 3, preventing the raising of the bar 105, unless rocked inward.

The credit bill (118) is prepared in the usual manner. If the total amount shown thereon is $2.56, the two of the third row of keys 18, from the right (Fig. 2), is depressed, and as the key-bar 11 moves downward, the locking-plate 19 of that row of keys is forced toward the front of the register by the bevel 15, the key-bar 11 continuing to descend until the step 16 permits the plate 19 to move slightly in a return direction, locking the key-bar from further movement, the bevel piece 17 of each of the other key-bars, resting upon the upper surfaces of the plates 19, locking all the keys excepting the ones first depressed, against any movement. At the first movement of a plate 19, it is drawn from beneath a stop-piece 34, permitting the segment 32 opposite that row of keys to be turned downward by its spring 35 until the stop 34 reaches the projection at the side of the inner extremity of the plate 23, said plate having been drawn forward at the same time as the plate 19 by the depression of key two acting on said plate through the medium of the slotted ear 24 carried by the plate 23, and the stud 14 projecting into said slot from the bar 11 of the key two. This action of the segment 32 will rotate the third gear wheel 63, and its attached printing wheel 61 to bring two to the under side of the printing wheel, and at the same time the gear 67, which also meshes with the gear 63, will turn the total adding wheel 84, two points. The parts above described retain the positions into which they have been moved until released, as will be hereinafter explained. By depressing the five key in the second row from the right, and the six key in the first row the printing wheel 60, adding wheel 83, printing wheel 59 and adding wheel 72, are turned in the same manner. The keys two, five and six are held depressed and locked in the respective positions by the plates 19.

The adding wheels are held against any backward movement, while through the medium of the ratchet wheel 69 with which the intermediate gears engage the printing wheels are permitted to turn back to zero when the segments 32 rise, without moving the adding wheels.

The appropriately indexed drawer 96 wherein the customer's account is kept, is now pulled outward, the tongue 129 on such drawer passing through the slot 123 in the bar 126 slightly raising and then dropping said bar, preventing the return of the drawer to its fully closed position until a record has been made by the register, as the back of the tongue 129 comes in contact with the bar 126, if pressure on the drawer is relieved. The continued outward movement of the drawer carries the tongue 129 through a slot 127 in the bar 125, raising said bar slightly, and after the passage of the tongue, the bar drops sufficiently to cause the tongue 129 to bear against its face, above the slot, holding the drawer wide open. The proper clip in the drawer is raised, and the credit-bill placed beneath it. Master key 39 is now depressed, and the movement of its

lever 40 carries the finger 42 downward until the step 43 thereon passes the notch 38 in the bar 37. The movement of the lever 40 also pushes the bars 125 and 126 upward so the slots therein coincide with the ear 129 of the open drawer, which is closed through the medium of the spring 123. Release of pressure on the master key permits the spring 46 to act to raise the lever 40 to its original position, and in its upward movement the crank 36 connected to the bar 37 turns the shaft 27, and the pins 31 carry the hubs 30 and the segments wherewith they are connected, and which have been partially turned downward, back to their initial positions. Upward movement of the lever 40 feeds a blank space of paper 47 beneath the printing wheels, and the downward movement of said lever raises the platen 93 so as to press the paper against the printing wheels, recording each individual transaction, while to the total amount of sales or credits such transaction is added, and is readable through the opening 88. With each reciprocation of the lever 40 the paper is fed forward by means of the rod 56, arm 54, dog 55, ratchet wheel 53 and feed-wheel 51.

As the lever 40 moves upward, the finger 42 is thrown out of engagement with the arm 37 by the projection on the finger 42 passing up the face of the wedge 45. In its passage upward, the segment 32 raises the bar 33, and the beveled upper corner of the stop-piece 34 moves the plate 19 to the left sufficiently to release the step 16 of the depressed key-bar 11, and the plate 19 is pulled to the right by the spring 22 until the stop-piece 34 has raised above the inner extremity of the lock-plate 19, permitting it to pass beneath the said stop to the position of rest.

If the locking-key 106 is not rocked forward, when a plate 19 moves to the left, its outer extremity strikes the spring 108, releasing the dogs 101, and they rest upon the surface of the plates 19 which have been moved, but when the plate 19 returns to the position of rest, the dogs will drop into the slot therein raising the bar 113 when the drawer which has been opened has been automatically closed, locking it again against being opened, and the entire mechanism against being operated.

Having now fully described my invention, what I claim as new therein, and desire to secure by Letters Patent, is:

1. An account register in which is comprised a series of drawers for containing credit bills; a series of computing keys; a series of printing wheels; a series of total adding wheels; means for moving the printing wheels and total adding wheels in unison, and means for moving the printing wheels independently of the adding wheels, means for locking all of said parts against movement; means for simultaneously unlocking said parts, and means for automatically closing the drawers containing the credit bills.

2. In an account register, a series of computing keys; a series of printing wheels; a series of total adding wheels, and means for moving the printing wheels and adding wheels in unison, in combination with a series of drawers each provided with a closing spring and with means for holding in an open position, and a single key adapted to actuate the printing mechanism, adding mechanism, and release the drawer holding mechanism.

3. In an account register, a series of computing keys; a series of independent, horizontally movable bars superposed one above the other and arranged to be moved by said keys, each of said bars having a slot therein near its inner end, in combination with a toothed segment, a vertically movable bar carried by the segment, and independent means for moving said segment in opposite directions.

4. In an account register, a series of computing keys; a series of independent, horizontally movable bars superposed one above the other and arranged to be moved by said keys, each of said bars having a slot therein near its inner end, in combination with a toothed segment, a vertically movable bar carried by the segment, and printing wheels adapted to be rotated by said segment.

5. In an account register, a series of rows of computing keys; a series of rows of independent, horizontally movable bars superposed one above the other, each of said bars having a slot therein near its inner extremity, in combination with a series of segmental gears, each of said gears being provided with a vertically movable bar; a series of printing wheels arranged to be moved by the segmental gears, and a series of total adding wheels arranged substantially as shown and described.

6. In an account register, the combination with a key, and a horizontally movable bar connected to said key, of a toothed segment carried by a slotted hub loosely mounted on a shaft; a carrying shaft; a slotted hub; a pin projecting from said shaft into the slot of the hub; means for drawing the toothed segment downward, and means for partially rotating the said shaft.

7. In an account register, a toothed segment carried by a slotted hub loosely mounted on a shaft; a carrying shaft; a slotted hub a pin projecting from said shaft into the slot of the hub; means for drawing the toothed segment downward and means for partially rotating the said shaft.

8. In an account register, a toothed segment carried by a slotted hub loosely mounted on a shaft; a carrying shaft; a slotted hub a pin projecting from said shaft into the slot of the hub; means for drawing the toothed segment downward; means for variably lim-

iting its downward movement, and means for returning the segment to its initial position.

9. In an account register, a vertically movable computing key; a horizontally movable stop-plate adapted to be actuated by said key; a perforated locking-plate through which the key-bars passes, and a segmental gear the downward movement whereof is controlled and regulated by the stop plate and locking-plate.

10. In an account register, a segmental gear carried by a slotted hub loosely mounted on a shaft; a carrying shaft; a slotted hub; a spring for pulling said gear downward, and means for limiting the downward movement of said segmental gear, in combination with a master key-lever provided with means for raising the segmental gear to its initial position when depressed.

11. In an account register, a shaft provided with a pin, a slotted hub loosely mounted on the shaft, a toothed segment carried by said hub, a crank attached to said shaft, a notched bar carried thereby, a master key-lever and a finger pivoted in the same arranged to engage the notch in the bar and be released therefrom when the master key-lever is raised.

12. In an account register, the combination with a segmental gear bearing a bar provided with a stop-piece, the bar, and the stop-piece, of a horizontally movable plate having a slotted ear, and a computing key-bar connected therewith and controlling the movement of the movable plate and segmental gear.

13. In an account register, the combination with a series of computing key-bars, each provided with a beveled projection and double step at one edge and a beveled projection on the opposite edge, of a slotted locking-plate through which each key-bar passes; means for controlling the movements of the locking-plate; printing wheels, and independent, horizontally movable bars connected to the key-bars and adapted to control the printing wheels.

14. In an account register, a perforated locking-plate; computing key-bars passing through the perforations in the locking-plate; a dog arranged to take in a slot in the locking-plate; means for releasing said dog, and means for locking said dog against any movement.

15. In an account register, locking-plates provided with slots therein; a series of dogs mounted on a shaft over said locking-plates; a series of connected actuating springs at the rear of the locking-plates, and means for holding the dogs out of engagement with the slots, and for causing them to automatically engage therewith.

16. In an account register, the combination with a series of keys and key-plates, and a series of credit-bill drawers, of a series of locking-plates provided with slots therein; a series of dogs mounted on a shaft over said locking-plates; a series of connected actuating springs at the rear of the locking plates, and means for holding the dogs out of engagement with the slots, and for causing them to automatically engage therewith.

17. In an account register, a series of drawers for holding credit-bills; springs for automatically returning said drawers to a closed position after being opened; slotted bars adapted to hold a drawer against closing when opened, computing mechanism, and a master key lever connected to said slotted bars and to the computing mechanism.

18. In an account register, a series of rows of independent computing keys; independent, superposed, horizontally movable plates, each controlled by one of said keys; a locking-plate provided with a projection at its inner extremity, and a toothed segment adapted to be released from engaging said projection by the depression of either of the keys in a row.

19. In an account register, the combination with the computing keys, the horizontally movable bars controlled thereby, and the locking-plate therefor, of a toothed segment bearing a bar having thereon a stop-piece arranged to pass through a slot in the edge of a key-plate, or engage with said plate, substantially as shown and described.

20. In an account register, a row of computing keys and key plate; means for locking all the other keys in a row against movement when one of the keys has been depressed, and a toothed segment the movements whereof are controlled by the locking means, and limited by the computing key-plate.

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

CHARLES F. FOGG.

Witnesses:
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A. M. PIERCE.