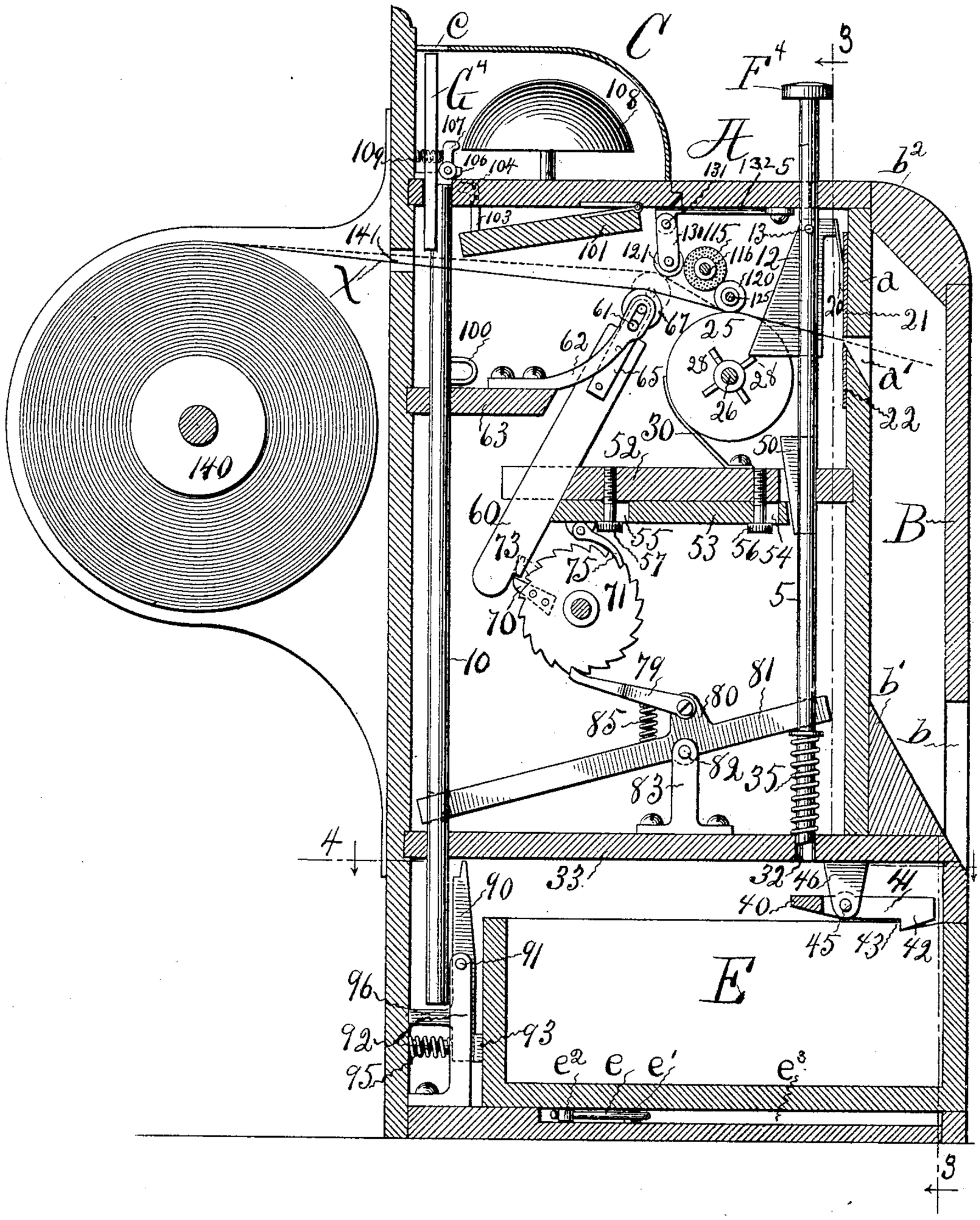
(No Model.) 4 Sheets—Sheet 1.

W. A. ELMORE.

CASH RECORDER AND REFUNDING MACHINE.

No. 562,812. Patented June 30, 1896.

Fig. 1.



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By his Attorney
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(No Model.) 4 Sheets—Sheet 2.

W. A. ELMORE.

CASH RECORDER AND REFUNDING MACHINE.

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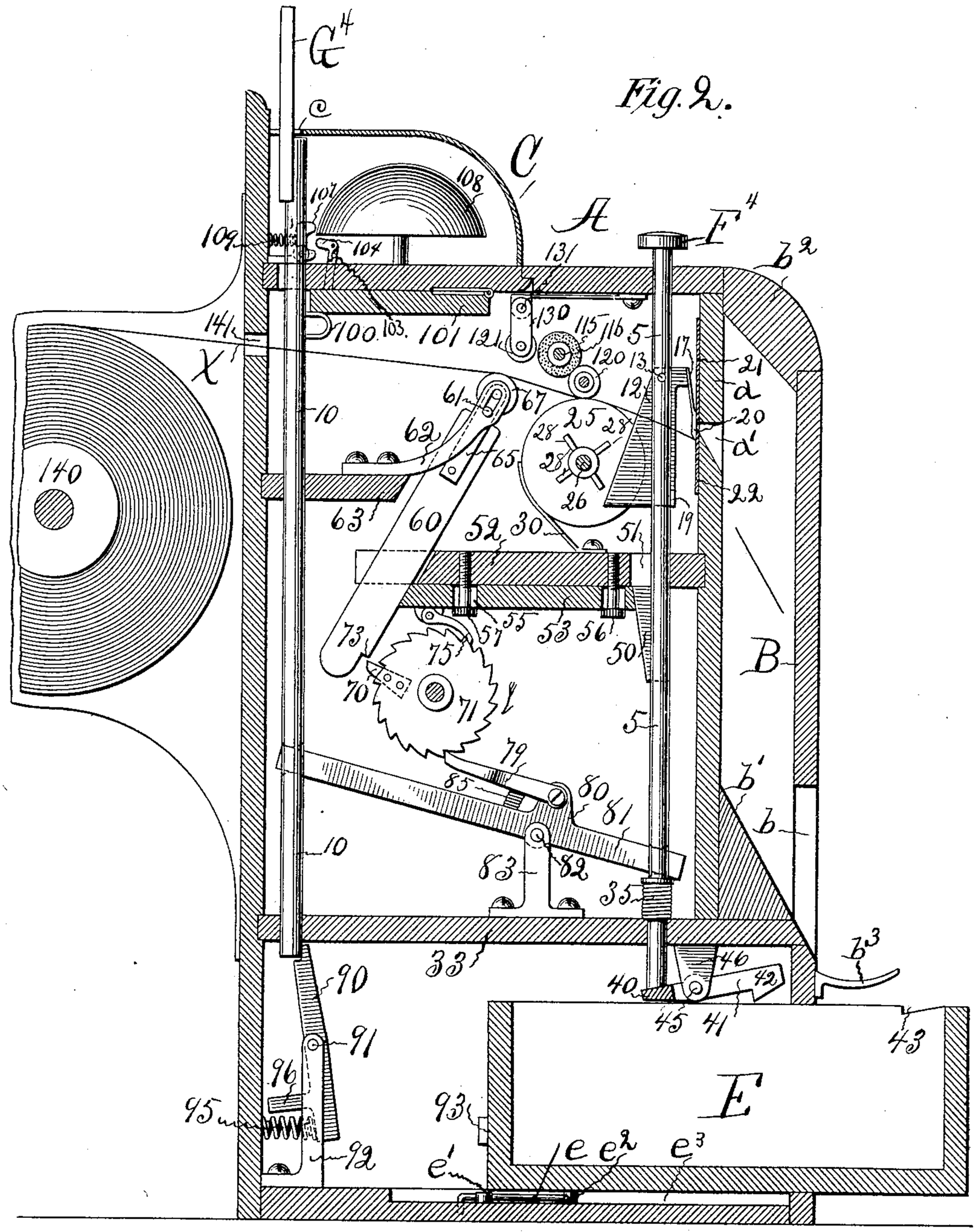
Fig. 2.



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4 Sheets—Sheet 3.

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Fig. 3.

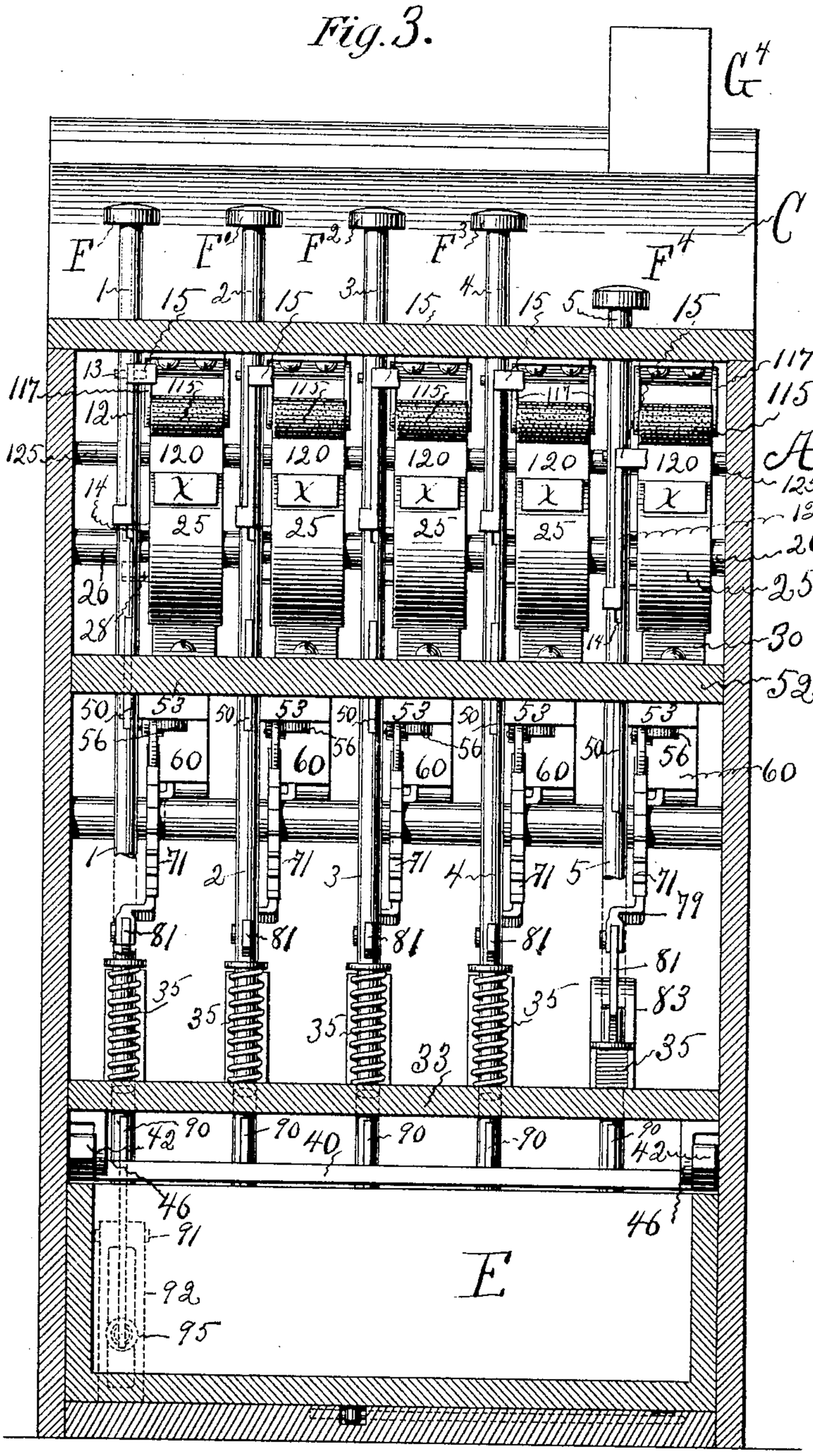


Fig. 6.

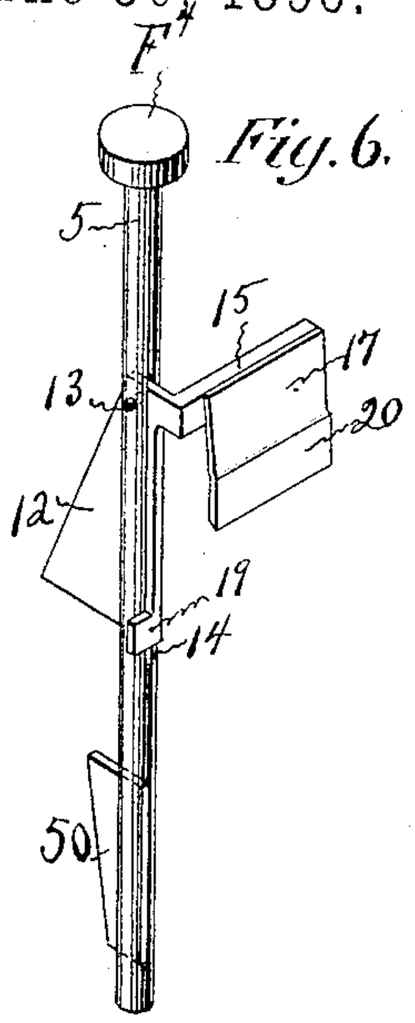
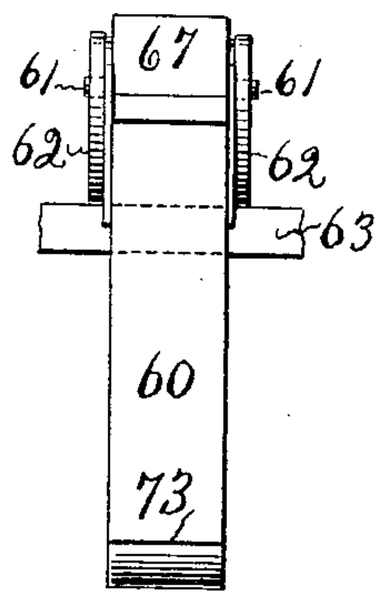


Fig. 7.



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CASH RECORDER AND REFUNDING MACHINE.

No. 562,812. Patented June 30, 1896.

Fig. 5.

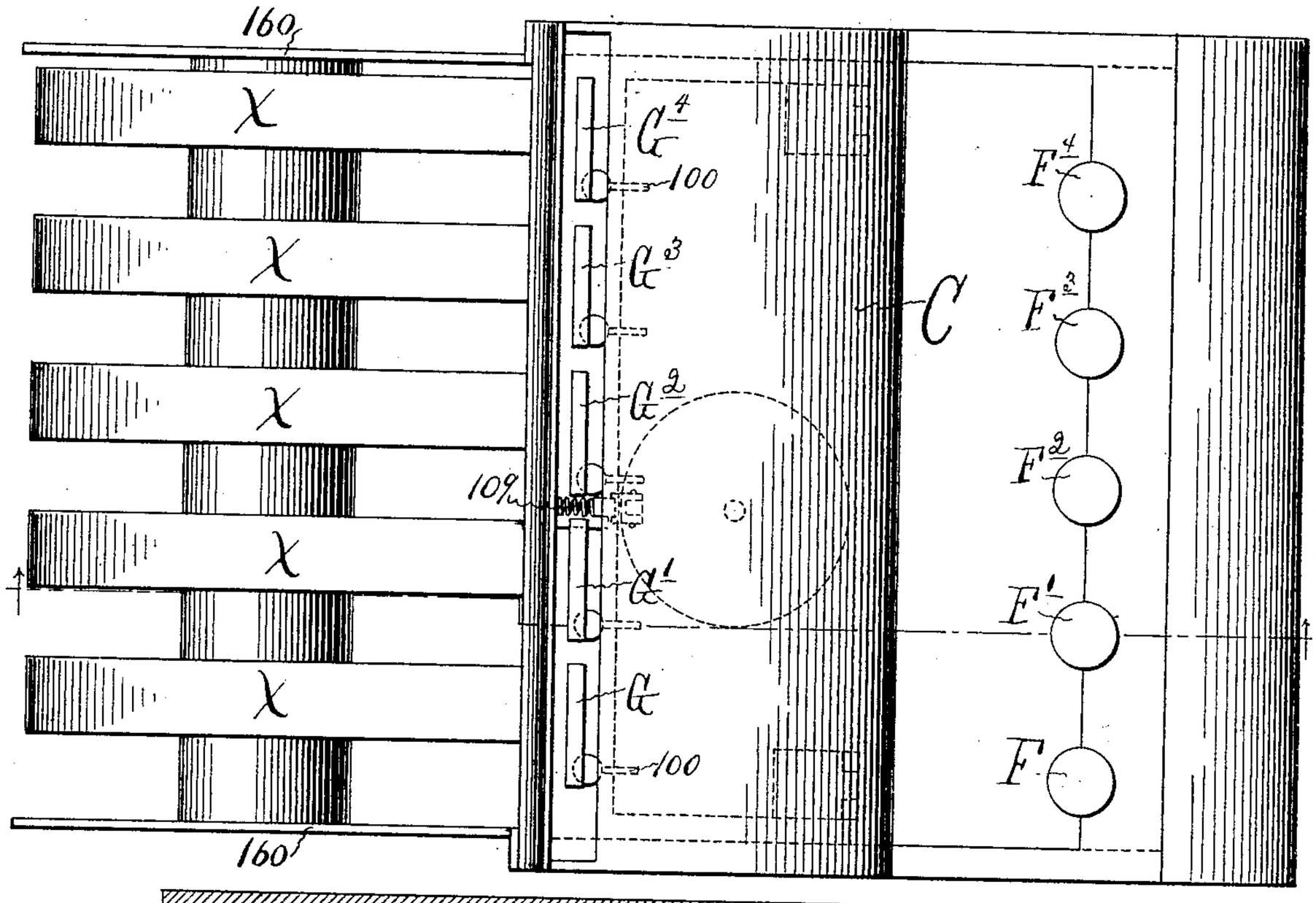
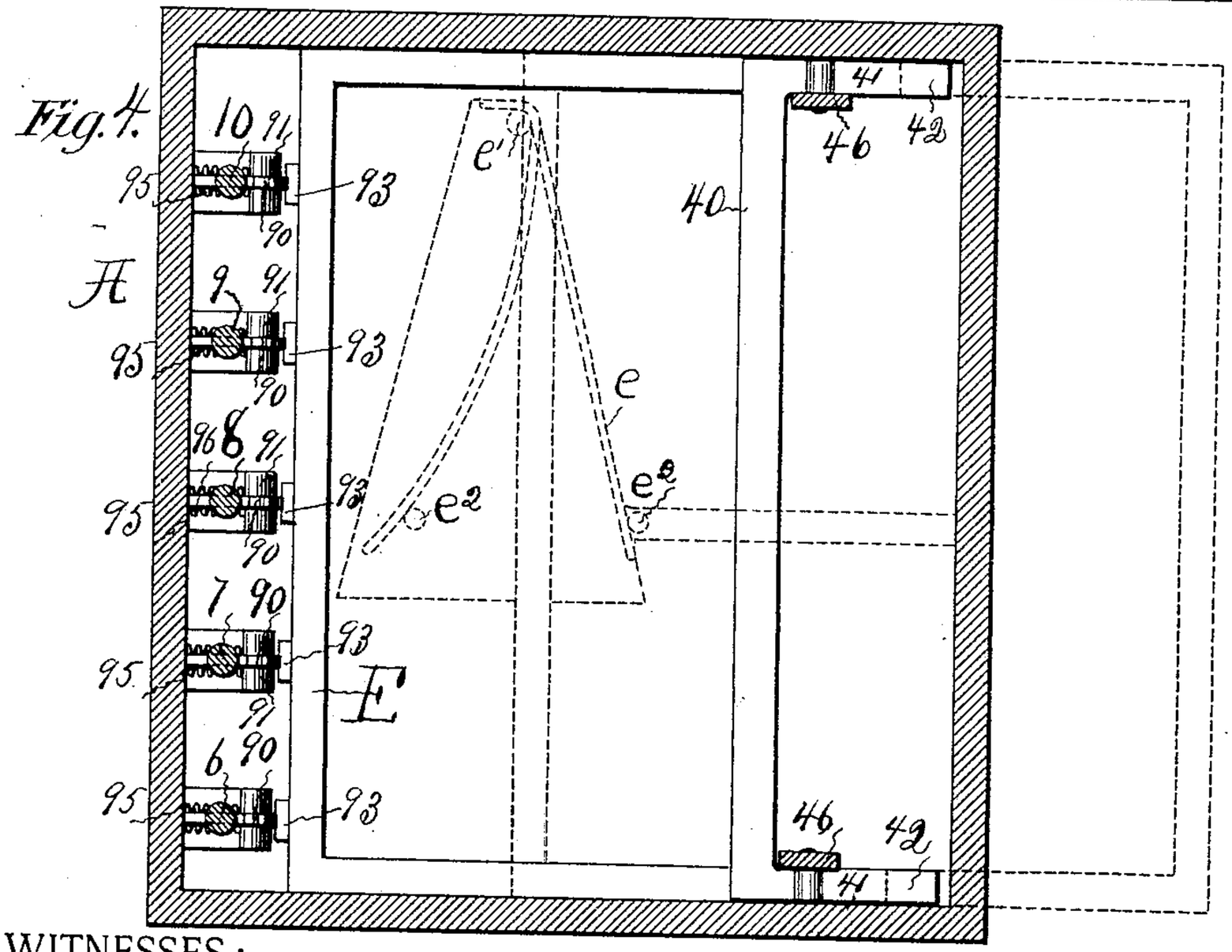


Fig. 4.



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UNITED STATES PATENT OFFICE.

WILLIAM A. ELMORE, OF NEW YORK, N. Y.

CASH RECORDER AND REFUNDING MACHINE.

SPECIFICATION forming part of Letters Patent No. 562,812, dated June 30, 1896.

Application filed June 22, 1895. Serial No. 553,635. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM A. ELMORE, a citizen of the United States, and a resident of the city of New York, county of New York, and State of New York, have invented certain new and useful Improvements in Cash Recorders and Refunding Machines, of which the following is a specification.

My invention relates to improvements in cash recorders and refunding machines, and has for its object to provide a cheap and easily-operated apparatus for recording the cost of purchases, and furnishing prize or rebate tickets therefor.

My recorder and refunding machine is so constructed and arranged that a single depression and elevation of a finger-key shall effect a variety of operations, to wit: first, the printing of the ticket on a paper strip; second, the feeding of the paper strip and the cutting of the ticket therefrom; third, the releasing of the cash-drawer; fourth, the displaying of the indicator on which is printed the price; fifth, the ringing of the alarm-bell to call the attention of the person in charge to the fact that the register has operated; sixth, the printing at the proper interval on the paper strip of the rebate-ticket.

Referring to the drawings which accompany the specification to aid the description, Figure 1 is a vertical section and elevation of the machine, with one side removed and showing the parts in their normal position before any of the keys are depressed. Fig. 2 is a view of the same parts in the position when one of the keys is depressed in order to raise the indicator and open the cash-drawer. Fig. 3 is an elevation and section of the apparatus on the line 3 3 of Fig. 1. One of the keys and its connected mechanism is shown depressed. Fig. 4 is a cross-section on the line 4 4 of Fig. 1. Fig. 5 is a top plan of the register. Fig. 6 is a perspective view of one key with its rod and connected parts. Fig. 7 is a front view of the bar which, at the proper time, lifts the paper strip or tape against the type-wheel for printing the rebate-ticket.

The drawings show the register with five keys, each key for a different price, but any other number of keys may be used, each key and its attachments being a repetition of the other keys and attachments.

A is the case of the register, a being the front wall, and a' a beveled opening for the paper strip or tape X (from which the tickets are cut) to pass through.

B is an outer front plate separated from a to form a chamber to receive the tickets as they are cut from the strip, the blocks b' b^2 forming, respectively, the top and bottom of the said chamber.

b is an opening in the front B with its lower side beveled like the block b', so that the tickets will slide out from the chamber and into the hand of the operator or into a suitable receptacle b^3.

E is a cash and change drawer, preferably extending the whole length of the case A.

F F′ F² F³ F⁴ are finger-keys, respectively secured on the upper end of sliding rods 1 2 3 4 5.

G G′ G² G³ G⁴ are indicators, one for each of said finger-keys, and respectively carried by sliding rods 6 7 8 9 10. Since each of said keys F F′ F² F³ F⁴ and its attachments are like each of the other keys and its attachments, and since each of the indicators G G′ G² G³ G⁴ and its attachments is like each of the other indicators and attachments, I will hereinafter describe only one key F⁴ and only one indicator G⁴, with their respective attachments. The said finger-key F⁴, fixed on the rod 5, may have the price marked on its surface in the usual manner. 12 is a wing or dog pivoted to the rod 5 at 13 and preferably widening toward the bottom, 19 being a stop to limit the oscillation of the wing. Said wing 12 is shown in the drawings as working in a slot 14 in the rod 5, and this is a convenient arrangement.

15 is a bent arm on the upper back part of wing 12. 17 is a spring fixed on said arm 15, and 20 a knife carried by said spring and arranged to work true on the surface of the plate 21, which is fixed on the inside of the front a above the opening a', 22 being a bevel-edged plate (which is in effect a knife edge) fixed on the front a below said opening. Now as the paper strip or tape X projects through the opening a', the knife 20, coöperating with the plate 22, will cut a ticket from the strip X when the knife descends.

Adjacent to each rod 1 2 3 4 5 is a roller 25, and all such rollers (being five in number to

correspond with the keys F F′ F² F³ F⁴) may be arranged to turn on a single shaft 26, which extends from side to side of the case A. The periphery of said roller 25 may be of any suitable material to have a good frictional contact with the strip X.

28 28 are feathers or lugs at the side of the roller 25, preferably four in number and arranged diametrically on the hub of the said roller, as shown; and said feathers 28 are disposed so as to be engaged by the wing 12 when the key F⁴ and the rod 5 are depressed. With four feathers 28 a single depression of the finger-key F⁴ will rotate the roller 25 a quarter-turn, and the rod 5 with the wing 12 will still continue to descend below such feather 28 as was actuated, as indicated in Fig. 2.

30 is a spring-brake to prevent the roller 25 from moving too far by reason of the momentum imparted by a rapid depression of the finger-key, and also to prevent reverse motion of the roller 25. The lower end of the rod 5 is guided by a hole 32 in a cross-piece 33, which extends the entire width and depth of the case A, a little above the drawer E. A spring 35 serves to raise the rod 5 and finger-key F⁴ to its original position, when the operator releases the finger-key.

Arranged below all the rods 1 2 3 4 5, and so as to be actuated as either of said rods approaches the lowest position, is a bar 40, 41 41 being rectangular arms fixed on each end of the bar 40 and provided with catches 42 42, each of which engages a notch 43 43 in the side of the drawer E. Said arms 41 are pivoted at 45 in hangers 46.

A wedge-shaped dog 50, fixed about the middle of the rod 5, works through a slot 51 in the guide-partition 52, so that as the rod 5 descends the wing 50 pushes back a sliding plate or plates 53, that is guided on the under side of the partition 52 by the slots 54 55 and pins 56 57. Said plate 53, of which there may be one or more, is arranged to be engaged by the dogs 50 of said rods 1 2 3 4 5. The back edge of plate 53, being preferably beveled, actuates a bar 60, that is pivoted at 61 in slotted arms 62, which are secured on a shelf 63.

67 is a roller pivoted in straps 65 on the upper end of bar 60 and arranged to force the strip or tape X against a type-wheel to print a rebate-ticket at proper intervals. The pivots 61 are fixed in said straps 65, and the slotted arms 62 permit the bar 60 to rise when pushed by the dog 70, that is carried by the ratchet-wheel 71. There will be as many bars 60 and ratchet-wheels 71 as there are finger-keys, and the said ratchet-wheels will be actuated in the manner hereinafter described by the depression and elevation of any finger-key. Said bar 60 has a shoulder 73 to be engaged at the proper interval by the dog 70. 75 is a pawl carried by the plate 53 and engaging the teeth of the wheel 71 in the ordinary manner of pawls. Said pawl 75 serves to prevent the ratchet-wheel 71 from turning in the reverse direction while the lever 81 is being pushed down by rod 5, but I can omit the said pawl 75. Said ratchet-wheel 71 is actuated by the pawl 79, pivoted on ears 80 of the lever 81. One end of said lever 81, which is pivoted at 82 to a standard 83, passes through a slot in the rod 5, so that the motion of said rod oscillates the lever; or the end of the lever may be moved by pins or shoulders on the rod. The other end of lever 81 passes through a slot or engages shoulders or pins on the rod 10. A spring 85 normally raises the pawl 79 against the edge of the ratchet-wheel 71. There is one lever 81 and attachments for each of the rods 1 2 3 4 5.

Adjacent to the lower end of each of the rods 6 7 8 9 10 is a lever 90, pivoted at 91 to a standard 92 and actuated by a boss 93 on the drawer E, 95 being a spring to throw the lower end of lever 93 outward and bring the upper end, which is preferably notched, as shown, under the end of the corresponding rod 6 7 8 9 10 when said rod is raised, as hereinafter described.

96 is a stop on lever 90.

100 is a projection (which is simply formed of a wire staple) on the rods 6, 7, 8, 9, or 10, and adapted to raise a hinged plate 101, that extends the width of the case A, and carries a dog 103, with a head 104, that is adapted to move the arm 106 of a strike 107. The head of the strike rings the bell 108, 109 being a spring to drive the strike against the bell as the head 104 slips by the arm 106. To facilitate the descent of the head 104 past the arm 106, said head 104 may be pivoted on the dog 103, as shown in Fig. 2.

An ink-roller 115 (there being preferably one roller for each finger-key) is arranged to turn on an axis 116, suspended in hangers 117, near the top of the case A.

120 is a type-wheel for printing the ordinary and 121 a type-wheel for printing the rebate or prize tickets. Wheel 120 is always in contact with the ink-roller 115 and also presses the strip or tape X on the roller 25, said wheel 120 turning on the shaft 125. Wheel 121 is journaled in hangers 130, fastened at 131 to a spring-piece 132, and normally, when a rebate-ticket is not being printed, is out of contact with ink-roller 115; but when the bar 60 rises, to effect the printing of a rebate-ticket, the roller 67 forces the strip X againt the wheel 121, and said wheel 121 against the ink-roller 115.

It is to be understood that there is a wheel 120 and a wheel 121 for each finger-key.

There are as many tapes or strips of paper X as there are finger-keys, each strip being wound on a spool 140, that is journaled on a shaft hung on ears 160 on the back of the case A. The tape or strip X is led through an opening 141 in the rear wall of the case, for-

ward above its appropriate rollers 67 and 25, and out through opening a' in the front wall of the case.

The aforesaid drawer E is pushed out, when the catches 42 are released, by a spring e, which is fixed at one end in the bottom of the case, then brought around pin e', also fixed on the bottom of the case, and bears with its other end against the pin e^2 of the drawer E. To facilitate the motion of the spring e, the bottom of the case is recessed, as at e^3, Figs. 1 and 2.

The operation is as follows: Suppose key F^4 is depressed by the operator, then wing 12 revolves roller 25 a quarter-turn, printing a new ticket and feeding one already printed through opening a', knife 20 descending cuts off this ticket, which falls ultimately into receptacle b^3. The length of the ticket is equal to one-quarter of the circumference of the roller 25, so that one depression of a key feeds just the length of one ticket. Rod 5 continuing to descend, after turning roller 25, as described, wing 50 pushes plate 53 back, and thereby forces the end of bar 60 off the dog 70. Presently the lower end of rod 5 trips the bar 40, releasing drawer E, which is forced out by the spring e. At the same time lever 81 has raised rod 10, displaying the price on the indicator G^4, above the hood C, and the spring 95 has thrown the upper end of lever 90 under the rod 10, thereby sustaining the indicator in its elevated position. Meanwhile the motion of the lever 81 has drawn the pawl 79 back one tooth of the wheel 71, the lever 81, pawl 79, and ratchet 71 being so organized that the down motion of the lever 81 draws the pawl 79 back one tooth, and the up motion pushes the pawl 79 forward one tooth. Meanwhile projection 100 on rod 10 has raised plate 101, dog 103 has tripped strike 107, and the spring 109 has forced the strike sharply against bell 108. When the operator releases key F^4, spring 35 raises rod 5, the wing 12 passing by the feathers 28 without turning the roller 25, because of said wing 12 being pivoted at 13. At the same time the front end of lever 81 rises, drawing down rod 10 and indicator G^4, the drawer E having been first closed by the operator, so that lever 90 is out of the way of rod 10. Pawl 79 revolves wheel 71 in the direction of the arrow one tooth and, except as hereinafter described, the dog 70 passes by the bar 60 without lifting the same, because said bar has been pushed away from the ratchet-wheel 71 by the plate 53. Thus all parts of the mechanism return to their normal position. Now suppose that before depressing key F^4 pawl 70 is in the position of Fig. 1. Then when drawer E is pushed back (after the depression of said key) and the lever 90 is withdrawn from under rod 10, the rising of rod 5 and consequent motion of lever 81 and pawl 79 will revolve ratchet-wheel 71 one tooth and dog 70 will lift bar 60, as indicated by dotted lines, Fig. 1. Roller 67 will force the strip X against type-wheel 121, and the said type-wheel will be pushed against ink-roller 115. Pawl 79, as well as pawl 75, will prevent the revolution of ratchet-wheel 71 in the opposite direction, so that bar 60 will remain up until released by the latter part of the next downward movement of rod 5, through the agency of plate 53, as hereinbefore described. Therefore when the strip X is moved forward by the next downward motion of the rod 5 the type-wheel 121 will print a rebate sign or mark, or a mark denoting a prize, on the strip X, which in due time will be cut off by the knife 20. On said next downward movement of rod 5, after the wing 12 has revolved roller 25, wing 50 will push plate 53 back, and said plate 53 will in turn force bar 60 off the dog 70, so that on the next upward motion of the rod 5 the bar 60 will not be again raised. With twenty teeth and a single dog on the ratchet-wheel 71, as shown, every twentieth ticket will be a rebate or prize ticket, and by varying the number of teeth or dogs the interval at which a rebate-ticket will be printed will be varied accordingly.

Now, having described my improvements, I claim as my invention—

1. The combination, with a tape, an actuating-roller, a knife to cut the tape, a cash-drawer, a price-indicator, a ticket-printing wheel, and a rebate-printing wheel, of a finger-key and rod, and connections between said rod and said roller, said knife, said drawer, said indicator, said ticket-printing wheel and said rebate-printing wheel, whereby a single depression and elevation of said finger-key operates said tape, said knife, said drawer, said indicator and said wheels, substantially as described.

2. The combination of a finger-key and rod, a lever actuated thereby, a rebate-printing wheel, a tape, a roller adapted to intermittently force the tape against the rebate-printing wheel, a reciprocating bar carrying said roller, a dog to actuate said bar, a ratchet-wheel carrying said dog, and a device on said lever for actuating said ratchet-wheel, substantially as described.

3. The combination of a finger-key and rod, a lever actuated thereby, a rebate-printing wheel, a tape, a roller adapted to intermittently press the tape against said rebate-printing wheel, a bar carrying said roller, a dog for actuating said bar, a ratchet-wheel carrying said dog, a sliding plate actuated by the rod of the finger-key, and adapted to force said bar off said dog, and a device on said lever for actuating said ratchet-wheel, substantially as described.

4. The combination in a cash-register and with a finger-key and rod, of a roller actuated by the rod and adapted to feed a tape, a ticket-printing wheel, an ink-roller and a rebate-printing wheel actuated from the motion of the first-named roller, substantially as described.

5. The combination with the rebate-print-

ing wheel 121, as described, of the ink-roller 115, tape X, roller 67, bar 60 carrying roller 67, ratchet-wheel 71 for actuating said bar 60, pawl 79 for actuating said ratchet-wheel 71, lever 81 carrying said pawl 79, and rod 5 and finger-key for actuating said lever 81, substantially as described.

6. The combination, in a cash-register, of a rebate-printing wheel, a roller for intermittently pressing a tape against said wheel, a sliding and oscillating bar carrying said roller, a finger-key and rod, and connections between said last-named rod and said bar, substantially as described.

7. The combination of a rebate-printing wheel, spring-hangers for the axle thereof, an ink-roller, a tape, a roller 67 for forcing the tape against a rebate-printing wheel and said rebate-printing wheel against the ink-roller, and a pivoted and sliding rod carrying said roller 67 and being adapted to be actuated from a finger-key, substantially as described.

8. The combination of the sliding and oscillating bar 60, ratchet-wheel 71 and dog 70, sliding plate 53 for forcing the bar 60 off the dog 70, the wedge-shaped wing 50, and the rod and finger-key for moving said wing 50 and actuating the plate 53, substantially as described.

9. The combination of a tape, a device for moving the tape, a finger-actuated rod, a printing-wheel 121 normally out of action, a reciprocating bar adapted to move said wheel 121 into action, a ratchet-wheel adapted to actuate said reciprocating bar, and a lever actuating by said finger-actuated rod and adapted to operate said ratchet-wheel substantially as described.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of two witnesses, this 19th day of June, 1895.

WILLIAM A. ELMORE.

Witnesses:
DAVID WALLER BROWN,
HENRY V. BROWN.