(No Model.) 2 Sheets—Sheet 1.

C. M. BUNKER.

CASH INDICATOR AND RECORDER.

No. 539,504. Patented May 21, 1895.

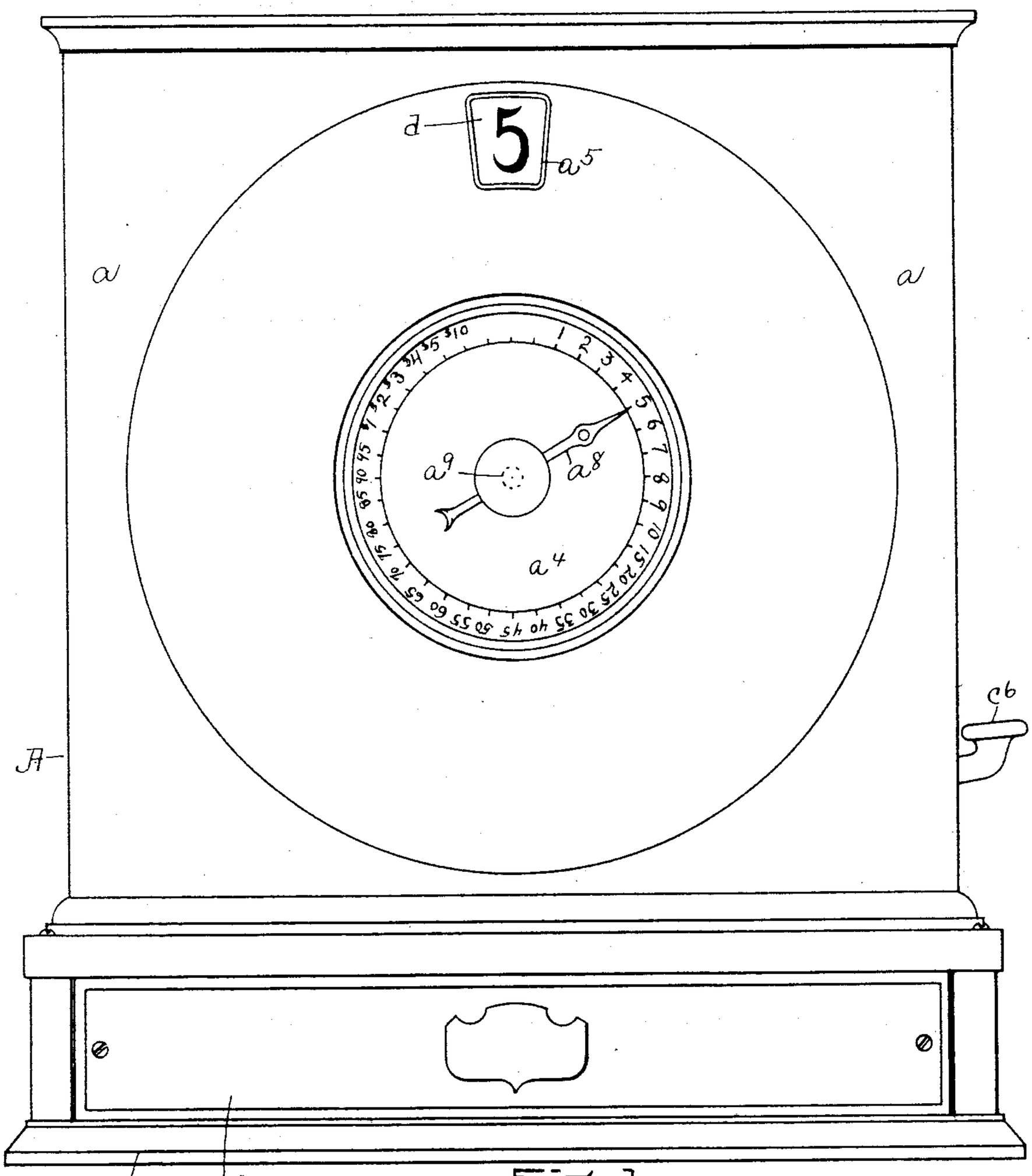

Fig. 1.

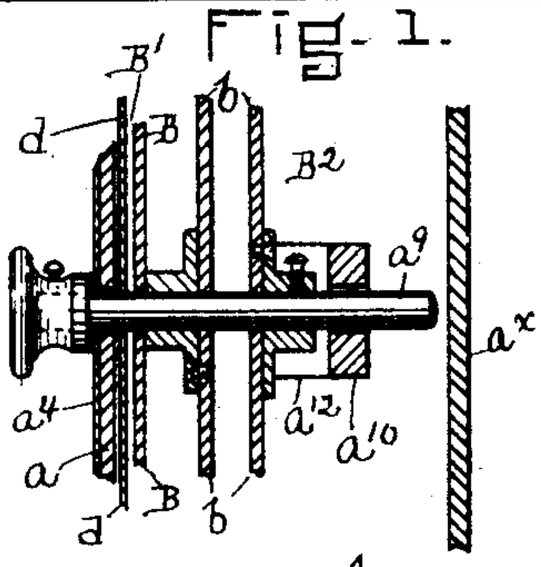

Fig. 4.

WITNESSES.
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ATT'Y

(No Model.) 2 Sheets—Sheet 2.

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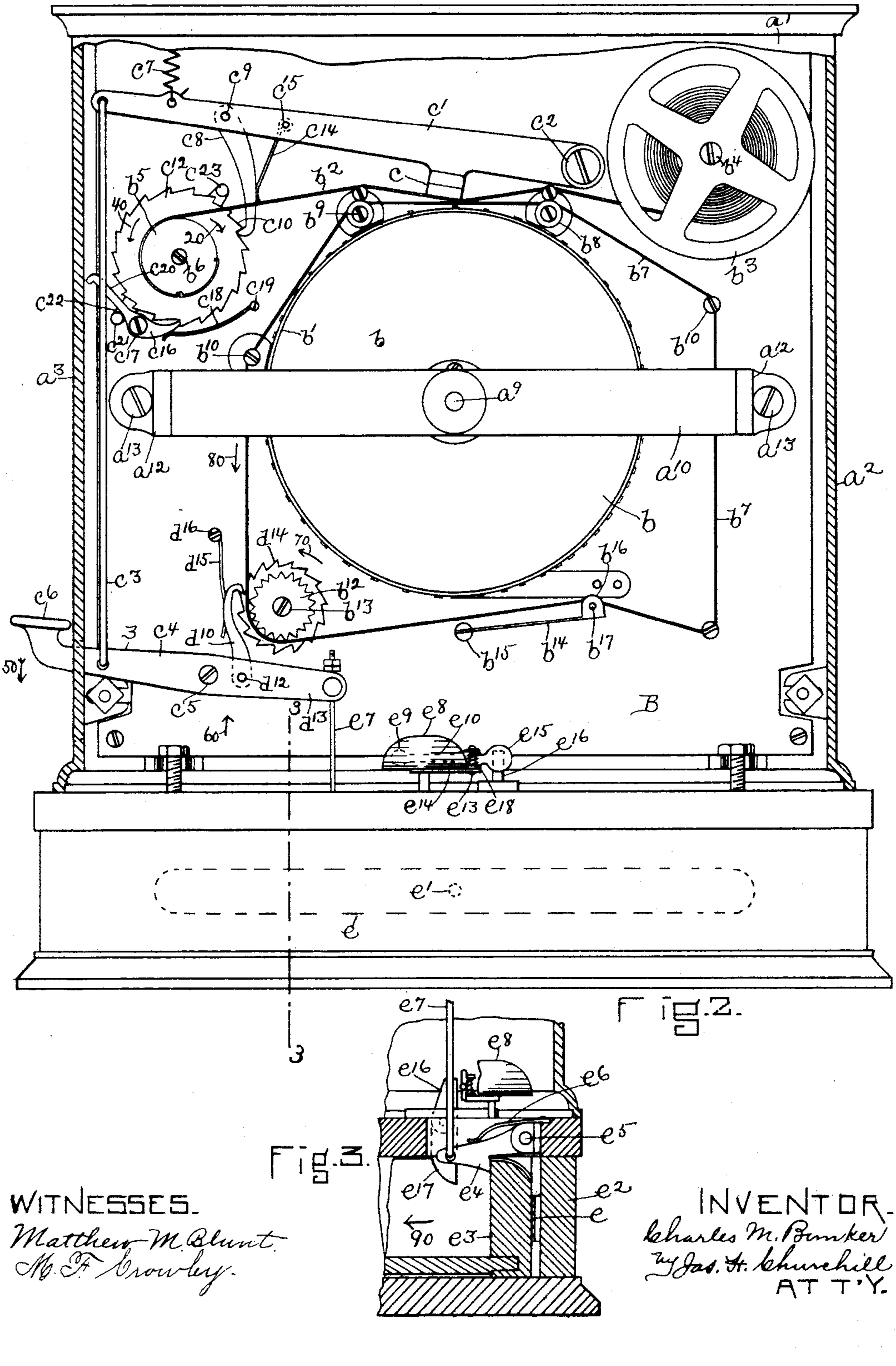

Fig. 2.

Fig. 3.

WITNESSES.

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UNITED STATES PATENT OFFICE.

CHARLES M. BUNKER, OF BOSTON, ASSIGNOR OF ONE-HALF TO PETER FORG, OF SOMERVILLE, AND WALTER VANDENBURGH, OF MELROSE, MASSACHUSETTS.

CASH INDICATOR AND RECORDER.

SPECIFICATION forming part of Letters Patent No. 539,504, dated May 21, 1895.

Application filed November 16, 1894. Serial No. 529,031. (No model.)

To all whom it may concern:

Be it known that I, CHARLES M. BUNKER, of Boston, county of Suffolk, and State of Massachusetts, have invented an Improvement in Cash-Registers, of which the following description, in connection with the accompanying drawings, is a specification, like letters and figures on the drawings representing like parts.

This invention relates to cash registers of that class employing a single key or lever to effect the printing of the amount to be registered, and has for its object to improve, simplify, and cheapen the construction of the same.

The particular features of this invention will be pointed out in the claims at the end of this specification.

Figure 1 is a front elevation of a cash-register embodying this invention; Fig. 2, a rear elevation, partially broken out, of the cash-register shown in Fig. 1; Fig. 3, a sectional detail to be referred to, the section being taken on the line 3 3, Fig. 2, looking toward the right; and Fig. 4, a transverse sectional detail to be referred to.

A represents the upright portion of a casing containing the operating parts of my improved cash register. The casing A, rests upon a bottom frame or casing A′, provided with the drawer A^2. The upright casing A consists of a front plate a, a back plate a', and side plates a^2, a^3, the back plate a', being provided with a substantially large door $a^\times$, which is only shown in Fig 4, and by means of which access may be had to the operating parts for repair, renewal, &c. The front plate a of the upright casing A, is provided with a dial a^4, having graduations indicative of the amount of money to be registered. The front plate a, is provided near its upper end with a substantially large opening a^5, for a purpose as will be described.

The upright casing A contains within it, a vertical wall or partition B, which divides the casing into two chambers or compartments B′, B^2, the wall B, and the front plate a, forming the chamber B′, and the wall B, and the back plate a', and its door, forming the other chamber B^2. The dial a^4, on the front plate a, has co-operating with it a pointer a^8, which is mounted upon a shaft a^9, extended through the vertical partition or wall B, and having its rear end supported in a cross bar a^{10}, provided with inwardly projecting legs a^{12}, by which the cross bar is secured to the vertical partition B, as by the set screws a^{13}, the inwardly projecting legs holding the cross bar a^{10}, away from the partition B, so as to leave a space between the said cross bar and the said partition. The shaft a^9 between the cross bar a^{10} and the partition or wall B has fast on it a drum, disk or wheel b, which may be a spoked wheel or may be made with solid sides as herein shown. The drum b, is provided on its periphery, with suitable type, corresponding to the indications on the dial a^4, and in practice, I prefer that the printing or type surface of the drum or wheel b, should be made in the form of a metallic band b', preferably an electrotype, so that the band b', having thereon one set of indications, numbers, or type, may be readily removed and replaced by another band having a different set of indications or type, to correspond with a second dial a^4, having different indications from those on the dial a^4. Shown in Fig. 1.

The printing type wheel b, has co-operating with it a recording strip b^2 of paper, normally wound upon a reel or drum b^3, loosely mounted on a stud or pin b^4, attached to the vertical partition B. The recording strip b^2, is automatically unwound from the reel b^3, as will be described, and wound upon a drum b^5, loose on a stud b^6 secured to the partition or wall B. The reel b^3 and drum b^5, are located near the top of the casing above the type wheel b, so that the recording strip passes above the type on the wheel, and intermediate of the recording strip and the type wheel is a type ribbon b^7, preferably in the form of an endless band, which is passed about two guide rolls b^8, b^9, secured to the partition B, and located substantially on the same horizontal line and above the type-wheel, so that the type ribbon between the guide rolls b^8, b^9, will be substantially straight. The type ribbon b^7, passes about the guide pins b^{10}, secured to the partition or wall B, about the type wheel b, and the

said type ribbon passes about a corrugated or toothed drum or reel b^{12}, located below the type wheel and loosely mounted on a stud b^{13}, secured to the partition or wall B. The type ribbon b^7, has co-operating with it a tension device, shown as a flat spring b^{14}, located below the type wheel b, and having one end secured to a stud or pin b^{15}, on the upright wall B, and having its front end provided with ears b^{16}, supporting a bar or roller b^{17}, over which the type ribbon b^7 passes, the said spring acting, in the present instance, to force the lower part of the type ribbon upward, and thereby draw the said ribbon taut about its various guide rolls and pins.

The type wheel b, has co-operating with it, a hammer or platen c, secured to a lever c', pivoted as at c^2 to the partition or wall B, above the recording strip b^2. The lever c' at its front end is connected by a link or rod c^3, with the arm 3 of a lever c^4, located near the bottom of the upright casing A, and pivoted as at c^5 to the partition or wall B, the arm 3 of the lever c^4, being extended through a slot in the side wall a^3, of the casing A and provided outside thereof, as herein shown, with a finger piece or key c^6.

The printing lever c', is normally held up by a spring c^7, secured to the top of the casing A, as represented in Fig. 2. The automatic feed of the recording strip b^2, is effected on the return movement of the lever c', and this automatic feed is accomplished by means of a lifting pawl c^8, pivoted as at c^9 to the lever c', and adapted to engage the teeth c^{10} of a ratchet disk or wheel c^{12}, secured to or forming part of the drum or wheel b^5, the pawl c^8, being normally held in engagement with a tooth on the ratchet disk c^{12}, by a spring c^{14}, herein shown as secured to the lever c', as at c^{15}. The ratchet disk or wheel c^{12}, has also co-operating with it a holding pawl c^{16}, pivoted as at c^{17}, to the partition or wall B, and normally held in engagement with a tooth c^{10}, of the said ratchet disk by a spring c^{18}, fastened as at c^{19} to the partition or wall B.

The holding pawl c^{16}, in the present instance, is provided with a rearwardly extending arm c^{20}, which normally bears against a pin or projection c^{21}, on a bar or lever c^{22}, loosely mounted on the stud or pin b^6, and in the present instance, extended diametrically across and beyond the ratchet disk c^{12}, and provided at its opposite end with a pin c^{23}, constituting a handle by which the lever or cross bar c^{22}, may be turned in the direction indicated by arrow 20, Fig. 2, to cause the stud or pin c^{21}, to act on the arm c^{20}, and turn the holding pawl c^{16} on its pivot, so as to disengage it from the ratchet disk c^{12}. This disengagement of the holding pawl permits the recording strip b^2, to be fed forward by hand, if it is so desired, without operating the lever c^4.

The shaft a^9, in the compartment B' has fast on it a substantially large disk d, provided with graduations or indications corresponding to the graduations or indications on the disk or dial a^4, which latter is stationary and is carried by the front plate a.

The operation of the machine as thus far described may be briefly outlined as follows: When a purchase has been made, the operator turns the pointer a^8, to the graduation on the dial a^4 indicative of the amount purchased, which in the present instance, is represented as 5, and which may be supposed to be five cents. The normal position of the pointer a^8, is vertical or in line with the zero mark. Shown in Fig. 1. When the shaft a^9 and its pointer a^8, are turned to the indication mark 5, as represented in Fig. 1, the disk d fast on the shaft turns with it, and brings the substantially large indication 5 on it, in line with the opening a^5 in the front wall or plate a of the upright casing A, thus giving to the customer an opportunity to see the amount of his purchase. When the proper indication on the disk d, appears in line with the opening a^5, the operator depresses the lever c^4, which downward movement is communicated to the printing lever c', by the link or rod c^3. On the downward movement of the lever c', the platen or printing block c, forces the recording strip b^2, and the type ribbon b^7, against the type in line with the printing block c, thereby effecting a record upon the strip b^2, of the amount indicated by the number at the opening a^5. It will be understood that the type on the wheel b, occupy the same relative position as corresponding indications occupy on the disks a^4, and d. On the downward movement of the printing lever c', the pawl c^8, is carried downward and brought into engagement with a new tooth of the ratchet wheel c^{12}, so that when the finger lever c^4 is released, it and the printing lever c', are returned to their normal position by the spring c^7, and the ratchet wheel c^{12}, will be rotated the distance of one or more teeth on the ratchet wheel, in the direction indicated by arrow 40, Fig. 2, which effects a forward feed of the recording strip b^2, and brings a new or unprinted surface of the said strip beneath or in line with the printing platen or block c.

The automatic feed of the type ribbon b^7, is effected by means of a pawl d^{10}, pivoted as at d^{12}, to the arm d^{13}, of the lever c^4, the said pawl engaging teeth of a ratchet disk d^{14}, secured to or forming part of the drum b^{12}, the pawl d^{10}, being normally held in engagement with the ratchet disk d^{14}, by a spring d^{15}, herein shown as secured by a stud d^{16}, to the partition or wall B.

The operation of the ribbon feed is as follows: When the key lever c^4, is depressed in the direction indicated by arrow 50, Fig. 2, the arm d^{13} of the said lever is moved upward or in the direction indicated by arrow 60, and the pawl d^{10} is carried upward and into engagement with a new tooth on the ratchet disk d^{14}, so that when the finger lever c^4, is returned to its normal position, the arm d^{13}

will move downward, and carry with it the pawl d^{10}, and thereby rotate the ratchet disk d^{14} in the direction indicated by arrow 70, which effects the feed or movement of the type ribbon d^7, in the direction indicated by arrow 80. The drawer A^2 in the lower casing A′ is normally closed and is designed to be automatically thrown open, when the finger key c^4, is depressed, and this result is accomplished in the present instance by providing a spring which acts upon the rear side of the drawer to force it open, when the drawer is unlocked or released by the depression of the lever c^4. In the present instance, the spring is shown as a steel strip e, secured at or near its center as at e', see Fig. 2, to the rear wall e^2 of the casing A′, the free ends of the spring e being extended toward opposite sides of the drawer and being in contact with the rear side e^3, of the said drawer, as illustrated in Figs. 2 and 3. The drawer A^2, is normally locked by a latch e^4, (see Fig. 3,) engaging the rear side of the drawer and pivoted as at e^5, to the back wall e^2 of the casing A′, the said latch being normally held down as herein shown by a spring e^6, acting upon its upper surface. The latch e^4, is connected by a rod e^7, to the arm d^{13}, of the finger lever c^4. When the finger lever c^4 is depressed, the rod e^7 is moved backward in the direction indicated by arrow 60, Fig. 2, and the latch e^4 is elevated out of line with the top of the back wall e^3 of the said drawer, thereby leaving the latter free to be forced outward by the spring e. In order to give an audible notice to the purchaser, that the drawer is being opened, a bell e^8, is provided, it being located within the compartment B^2 and provided with a striker e^9 on the end of the lever e^{10}, pivoted as at e^{13} to a support e^{14}, and provided with an arm e^{15} extended into the path of movement of a pivoted dog or lever e^{16}, the said dog or lever having an arm e^{17}, shown by dotted lines, Fig. 3, which projects down into the path of movement of the rear wall e^3, of the drawer. The tapper arm or lever e^{10}, is normally held in engagement with the bell e^8, by a spiral spring e^{18}, wound about the pivot e^{13}, in a manner now commonly practiced.

The operation of the bell is as follows: When the drawer A^2 is thrown outward, the rear wall e^3, strikes the arm e^{17} of the dog or lever e^{16}, and carries the said arm outward or in the direction indicated by arrow 90, Fig. 3, which movement of the arm e^{17}, carries the dog or lever e^{16} backward and against the arm e^{15} of the lever e^{10}, thereby moving the lever e^{10} on its pivot, so as to carry the tapper or striker e^9 away from the bell, and as soon as the drawer has passed beyond the arm e^{17} of the dog or lever e^{16}, the pressure upon the arm e^{15} and the tapper lever e^{10}, is removed, and the spring e^{18} restores the tapper lever e^{10}, to its normal position and brings the striker e^9 against the bell e^8, thereby giving an audible alarm that the drawer has been opened.

In practice, it may be desirable to mount a second disk within the compartment B^2 upon the shaft a^9, which disk would be a duplicate of the disk d, but will register with an opening, not shown in the door forming part of the rear wall of the upright casing A.

I claim—

1. In a cash register, the combination of the following instrumentalities, viz:—a rotatable shaft, a type wheel fast thereon, a recording strip located above the type wheel, an endless type ribbon interposed between said type wheel and recording strip, a printing lever located above the recording strip, a pawl pivoted to said printing lever, a ratchet wheel engaged by said pawl, a drum or roll secured to the ratchet wheel and upon which the recording strip is wound, a finger lever, a link or rod joining said finger lever to the printing lever, a pawl carried by said finger lever, a ratchet wheel engaged by said pawl, and a feed drum or roll secured to the ratchet wheel and operated by the pawl carried by the finger lever and about which the endless ribbon is passed to be fed or moved thereby, substantially as described.

2. In a cash register, the combination of the following instrumentalities, viz:—a rotatable shaft, a type wheel fast thereon, a recording strip located above the type wheel, an endless type ribbon interposed between said type wheel and recording strip, a printing lever located above the recording strip, a pawl pivoted to said printing lever, a ratchet wheel engaged by said pawl, a drum or roll secured to the ratchet wheel and upon which the recording strip is wound, a finger lever, a link or rod joining said finger lever to the printing lever, a pawl carried by said finger lever, a ratchet wheel engaged by said pawl, and a feed drum secured to the ratchet wheel and operated by the pawl carried by the finger lever and about which the endless ribbon is passed to be fed or moved thereby, an indicator disk fast on said shaft, a second indicator disk or dial a^4, and a pointer fast on the said shaft and cooperating with the dial a^4, substantially as described.

3. In a cash register, the combination of the following instrumentalities, viz:—a casing A provided with a vertical wall or partition B, forming two compartments B′ B^2, an indicator dial a^4, carried by the front wall of the casing A, a pointer cooperating with said dial, a shaft a^9 on which said pointer is mounted, a second indicating disk fast on the shaft a^9 and located within the compartment B′, a type wheel fast on the shaft a^9 and located within the compartment B^2, a paper reel b^3, pivotally secured to the wall B above the type wheel, a receiving drum or roller b^5 pivotally secured to the wall B and upon which the paper from the reel b^3 is wound, a type ribbon interposed between the paper and the type wheel, a printing lever pivoted to the wall B above the type wheel, a pawl carried by said printing lever, a ratchet wheel secured to the drum b^5 and engaged by said pawl, a finger lever, a link

joining said finger lever to the printing lever, a money drawer, a latch to lock the same, a link or rod connecting said latch and finger lever, a bell, a striker therefor, a movable dog to act on said striker and actuated by said drawer, and means to throw the drawer out from its casing when released by the latch, substantially as described.

4. In a cash register, the combination of the following instrumentalities, viz:—the upright casing A, the horizontal casing A′, upon which the casing A is secured, a partition or wall B, within the casing A, the shaft a^9, the pointer fast thereon outside of the casing A, the dial a^4 carried by the front plate or wall of the casing A and with which the pointer cooperates, the indicating disk fast on the casing within the same and on one side of the partition or wall B, the front plate of the casing being provided with an opening with which an indication of the disk registers, a type wheel fast on the shaft a^9 on the other side of the wall B, a recording paper strip located above the type wheel, the reel b^3, the drum b^5, the ratchet wheel c^{12} secured to said drum, the pawl c^8 cooperating with said ratchet wheel, the printing lever c' pivoted to the wall B above the type wheel and recording strip, an endless type ribbon or band passed about the type wheel, a feed drum b^{12} for said ribbon, a ratchet wheel d^{14} secured to said feed drum, a pawl d^{10}, engaging said ratchet wheel, a finger lever c^4 to which the pawl d^{10} is pivoted, a link or rod connecting the finger lever and the printing lever, a latch for the drawer, a rod connecting said latch to the finger lever, a bell, a striker therefor, a dog or lever acted upon by the drawer and actuating the striker, and means to throw the drawer out when released by the finger lever, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CHARLES M. BUNKER.

Witnesses:
JAS. H. CHURCHILL,
M. F. CROWLEY.