

(No Model.)

4 Sheets—Sheet 1.

W. J. BUSSE.
CASH RECORDER AND INDICATOR.

No. 584,303.

Patented June 8, 1897.

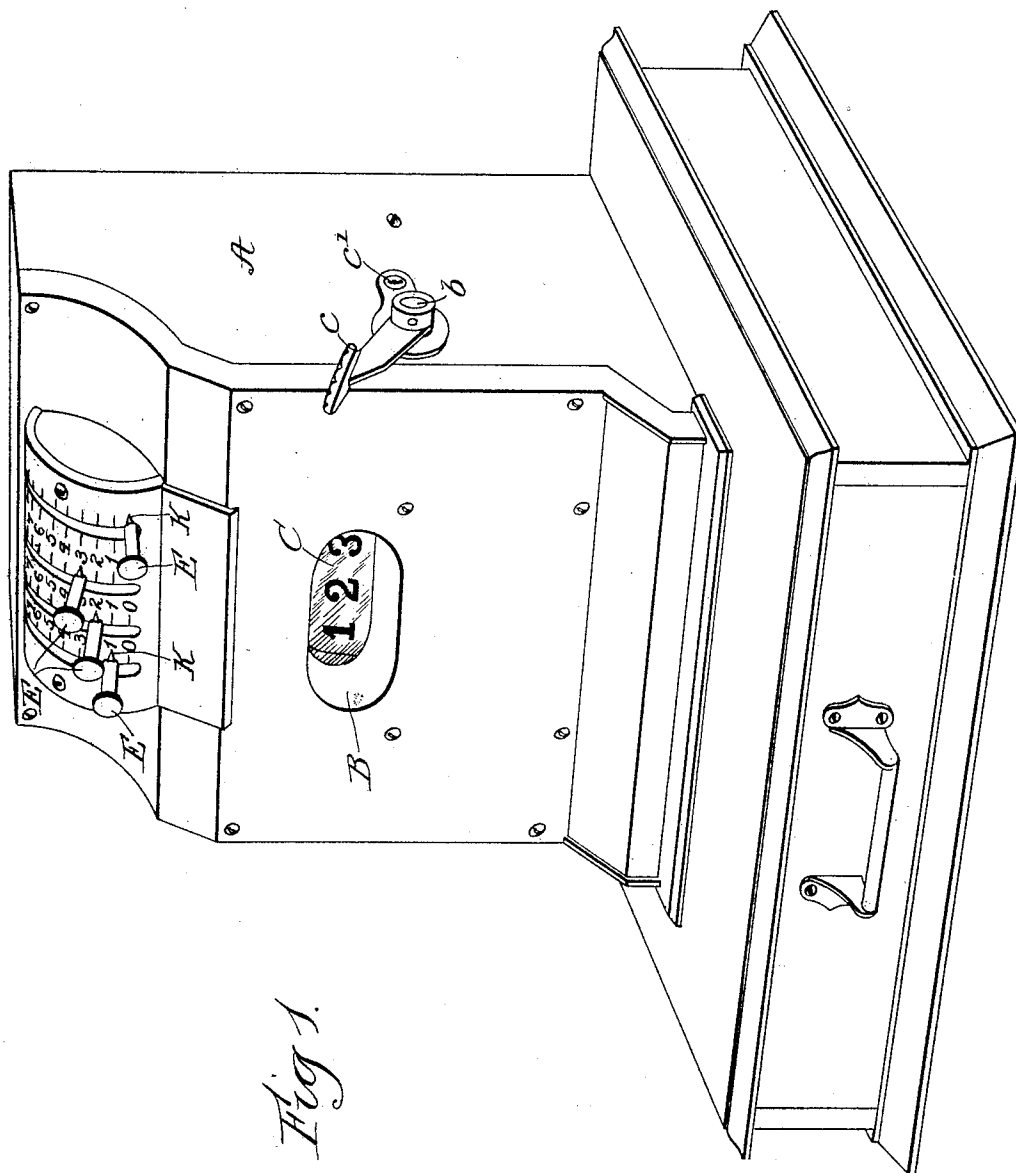


Fig. 1.

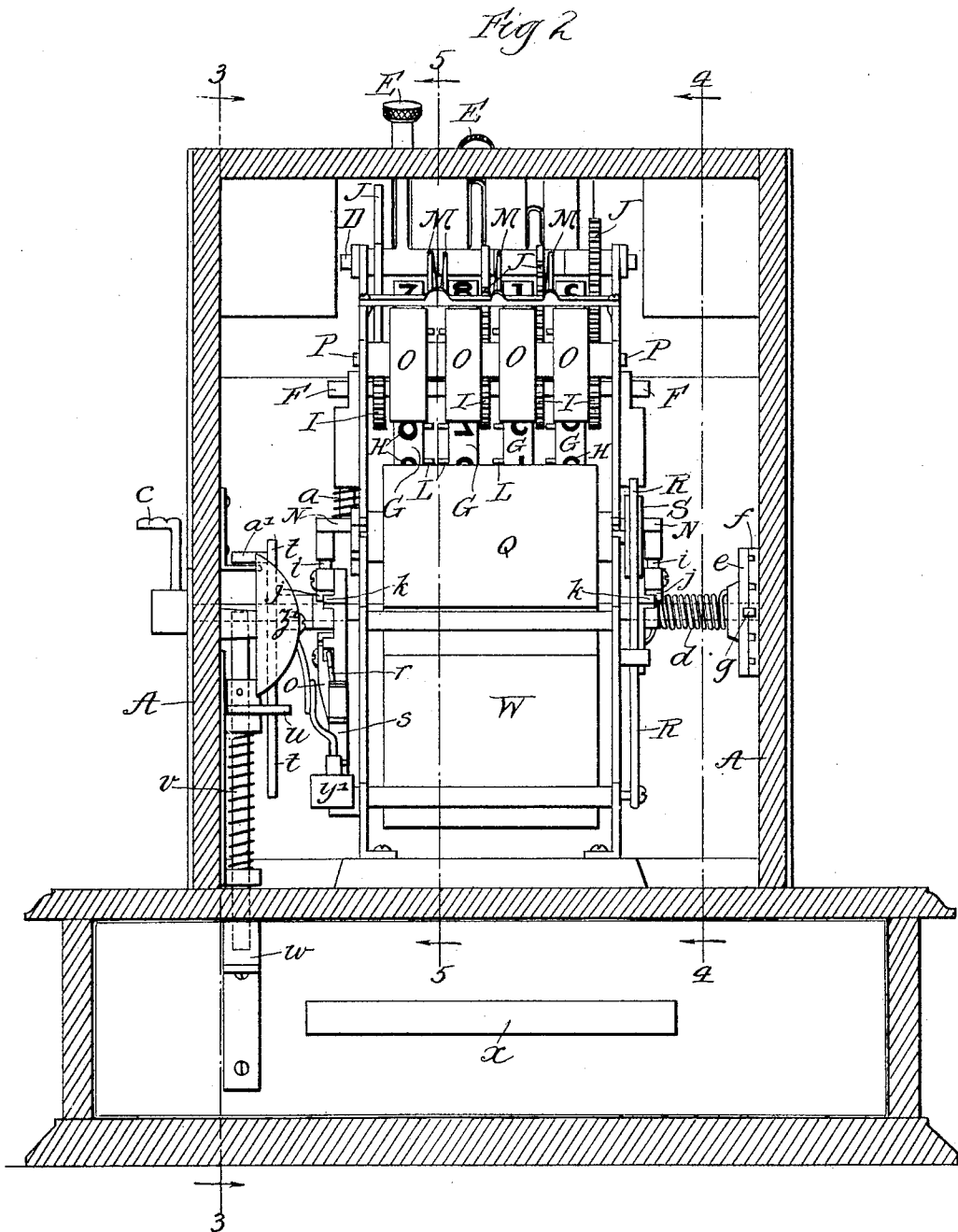
Witnesses
Wm. J. Huming
St. M. P. Theun.

Inventor
W. J. Busse
by Raymond S. Quohundt
Attys

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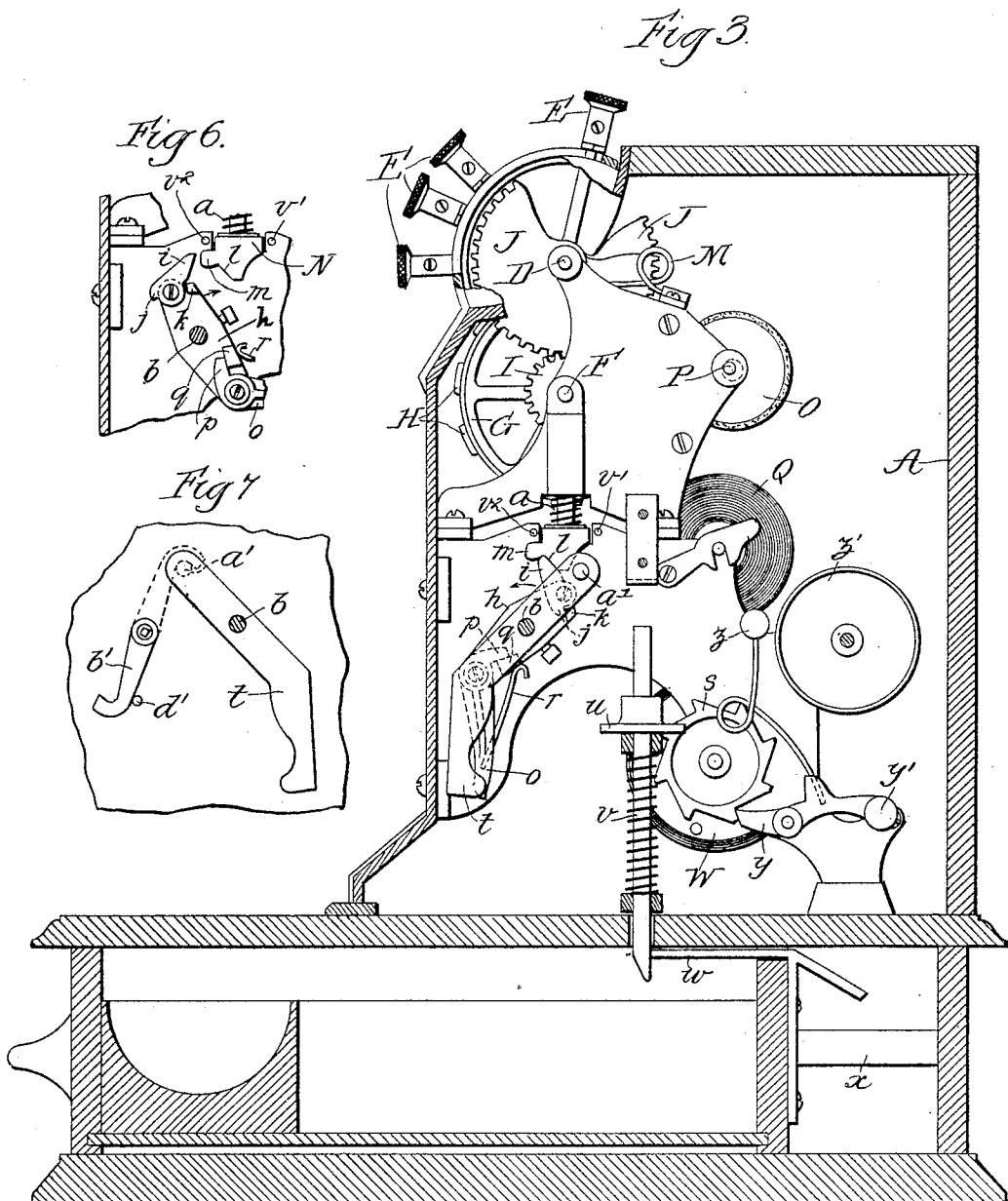
Witnesses.
Wm J. Fleming
Stm M. Rhein

Inventor
Wm J. Busse
by Raymond W. Quinlan
Atty's

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by
Raymond P. Quahndro
Att'y's

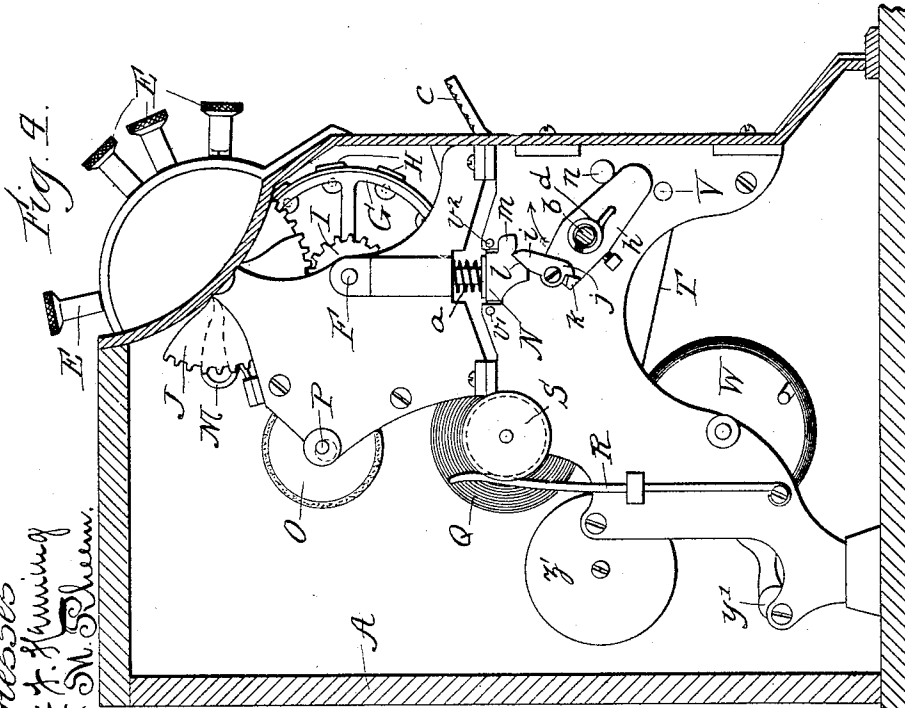
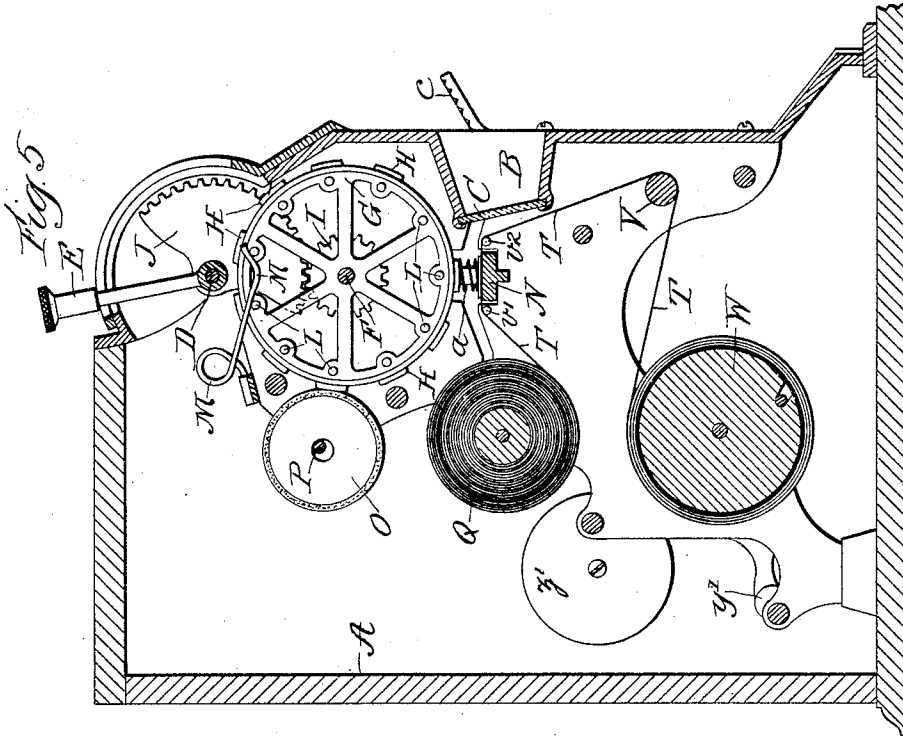
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Witnesses
Wm. F. Hanning
Jas. M. Plenum.

Inventor
Wm J. Busse
by Raymond C. Dethmunds Attys

UNITED STATES PATENT OFFICE.

WILLIAM J. BUSSE, OF CHICAGO, ILLINOIS, ASSIGNOR OF THREE-FOURTHS
TO JOHN J. MILLER AND CARROLL B. VASTINE, OF AUSTIN, ILLINOIS.

CASH RECORDER AND INDICATOR.

SPECIFICATION forming part of Letters Patent No. 584,303, dated June 8, 1897.

Application filed May 28, 1894. Serial No. 512,674. (No model.).

To all whom it may concern:

Be it known that I, WILLIAM J. BUSSE, a citizen of the United States, and a resident of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Cash Recorders and Indicators, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

This invention relates to improvements in that class of apparatus known as "cash recorders and indicators," employed principally in stores, by means of which the amount of each sale is recorded and indicated to the clerk or customer before the cash-drawer can be opened to receive the money for such sales.

My invention has for its primary object greater simplicity, durability, and economy in the cost of manufacture of machines of this class.

Another primary object of this invention is to simplify and improve the mechanism by means of which the machine operates to show the amount of a sale on the recording-tape at each operation of the machine, thereby dispensing with the separate indicating devices heretofore employed to a large extent in apparatus of this kind.

A further object of this invention is to improve the mechanism by means of which the recording-tape is brought into contact with the type-wheels for the purpose of facilitating the adjustment and operation of the type-wheel and insuring perfect alinement of the letters on the different wheels and improve the printing resulting therefrom; and other objects of the invention are to simplify and improve the general construction of the different parts, including novel and simple mechanism for successively operating the movable platen, the storage-reel, and the cash-drawer release and subsequently resetting these parts for the next operation by a single reciprocation of a vibrating actuating-lever.

These and other objects that will appear hereinafter in the specification and be pointed out in the claims are attained by the devices illustrated in the accompanying drawings, in which—

Figure 1 represents a perspective view of an apparatus embodying my invention. Fig. 2 is a vertical section through the casing of the apparatus, taken just inside of the back wall thereof and showing the inclosed mechanism in rear elevation. Fig. 3 is a vertical section on line 3 3 of Fig. 2, looking in the direction indicated by the arrow. Fig. 4 is a similar section taken on the line 4 4 of Fig. 2, looking in the direction indicated by the arrows. Fig. 5 is a vertical section taken on the line 5 5 of Fig. 2, looking in the same direction as in Fig. 4; Fig. 6, a detail view of the platen-operating devices, showing the position of the parts after a movement thereof; and Fig. 7, a detail view of a locking device for preventing the use of the apparatus.

Similar letters of reference indicate the same parts in the several figures of the drawings.

Referring by letter to the accompanying drawings, A indicates a casing of any suitable contour and dimensions for containing the operating devices of my apparatus, and is provided at about the center of the front wall thereof with a horizontally-elongated opening B, closed by a glass or other transparent plate C, through which the recorded sale is seen by the purchaser or salesman, as will be described farther on.

In the upper part of the casing is mounted a fixed transverse shaft D in a suitable frame within the casing A, and upon said shaft is loosely journaled a series of indicating-levers E, each operating to set a type-wheel so as to cause any one of the figures or characters thereon to register with a movable platen over which travels a recording-tape upon which the figures or characters are to be printed, and as the indicating-levers all operate alike it will be sufficient to describe the operation of a single one of them.

Preferably below the shaft D is mounted in the frame carrying said shaft another fixed shaft F, upon which is loosely journaled a series of type-wheels G, corresponding in number with the indicating-levers E and having secured to the peripheries thereof a series of type H at regular intervals apart, which type may be figures or any other suitable characters.

To the type-wheel G and concentric therewith is secured a pinion I, with which meshes a segment-rack J, rigidly secured to the pivoted end of the indicating-lever E, so that
 5 whenever the said lever is moved a corresponding movement of the type-wheel is produced. The outer end of the indicating-lever E projects through the front wall of the casing A, which latter is curved on the arc of a
 10 circle struck from the axis of the shaft D and is slotted so as to serve as a guide for the said lever.

The outer free end of the indicating-lever terminates in a suitable thumb-piece, to which
 15 is attached an index or pointer K, as more clearly shown in Fig. 1, which pointer indicates upon a scale, stamped or otherwise formed upon the adjacent portion of the casing, the figure or character on the type-wheel
 20 which is in position for printing, the parts being so proportioned and arranged that such figure or character corresponds in all positions of the indicating-lever with the figure or character to which the index points in any
 25 particular position of said lever.

In order to hold the type-wheel, and consequently the indicating-lever, in any adjusted position, I provide a series of pins L on one side of the type-wheel, and a spring-catch M,
 30 attached at a suitable point to a stationary portion of the frame, the outer free end of the spring-catch being bent so that the said end will rest upon two adjacent pins, with the bent portion between the pins, so as to yield-
 35 ingly maintain the type-wheel against movement in either direction, although if sufficient force is applied to the indicating-lever the type-wheel may be readily rotated; but whenever the force is withdrawn the angular end
 40 of the spring-catch will compel the centering and registering of the type-wheel, so that one of the characters thereon will be immediately over the movable platen N.

The type is automatically inked at every
 15 movement of the type-wheel by means of an inking-wheel O, which is loosely mounted upon a fixed rod or shaft P, preferably at the rear side of the type-wheel, the hole through the inking-wheel being of somewhat greater
 50 diameter than the rod P, which is set closer to the periphery of the type-wheel than the center of the inking-wheel, so that the latter hangs eccentrically on the said rod and the gravity thereof causes it to rest at all times
 55 against the face of the type on the type-wheel. The inking-wheel is of course free to rotate upon the rod P and therefore constantly changes the face thereof upon the type, which it could not do if it were not loosely as well
 60 as eccentrically hung. The same result might be obtained by having the pivoting-rod concentric with and fitting the opening in the inking-wheel, but resting in obliquely-disposed slots in the frame, so that the wheel
 65 might back off and revolve under the action of the type-wheel; but in practice I have found the form shown to be preferable.

The recording-tape on which the type is designed to print when the type is brought in contact therewith by the movable platen N
 70 is wound upon the supply-reel Q, of suitable dimensions, which is loosely journaled in the frame of the machine and held against a too free rotation by any suitable tension device, such, for instance, as the tension-spring R,
 75 bearing against the face of the grooved wheel S, secured to the end of the shaft of said reel. The tape T is trained over antifriction-rollers or guide-bars V' V² at each side of the
 80 movable platen, which underlies the tape between said rollers immediately beneath the type-wheel, and the tape then passes around another guide-bar or roller V and onto an inter-
 85 mittently-acting storage-reel W, the operation of which will be described farther on, the tape being exposed to the view of the clerk or customer through the opening B in the casing at a point between the roller or
 guide-bar V² and roller or guide-bar V.

The movable platen N is normally held out
 90 of contact with the type-roller by suitable springs *a* at each end thereof, and is moved into contact with the type by a mechanism comprising a transverse shaft *b*, loosely jour-
 95 naled in the frame of the machine, which is moved in one direction by the reciprocating actuating-lever *c* (see Figs. 1 and 2) and in the opposite direction by a spring of some
 100 suitable character, such as the coiled spring *d*, sleeved upon one end of the shaft, one end of which spring is rigidly secured to the shaft or to a part fixed thereon, the other end of the spring being secured to a stationary por-
 105 tion of the machine frame or casing. The connection with the machine frame or casing may be made adjustable by attaching the
 110 spring to a disk or collar *e*, fitting up against the face of a notched plate *f*, rigidly secured to the casing or frame, and a key *g*, which fits into one of the notches in the plate *f* and a
 115 corresponding notch in the plate or collar *e*, so as to securely lock the parts together in any adjusted position.

Upon each end of the shaft *b* is rigidly
 115 mounted a two-armed lever *h*, upon one end of which is pivotally secured a dog *i*, having a shoulder *j* thereon adapted and arranged to engage a suitable stop *k* upon the said lever, so as to stop the dog in proper position
 120 to engage a notch *l*, formed in the projecting end of the platen when the parts are in the normal position shown in the drawings. The dog *i* and the arm of the double-ended lever to which it is attached constitute a toggle, so
 125 that when the lever is moved in the direction indicated by the arrows in the drawings the toggle will be straightened out, and thus cause the platen to be elevated into contact
 130 with the type-wheel, the continuous further movement of the toggle past the dead-center releasing the platen so that it moves down under the influence of the springs *a* out of contact with the type-wheel, the parts at such
 time being in the position shown in Fig. 6.

Upon the releasing of the actuating-lever *c* and the reverse rotation or oscillation of the shaft *b*, carrying with it the lever *h*, the point of the dog *i* will engage the projection *m* upon the platen, throwing said dog back to its normal position against its stop and in position to be again seated in the notch *l* upon the completion of the reverse movement of the oscillatory power-shaft *b*, ready for another actuation of the platen. The other arm of one of the levers comes in contact with a stop *n* upon the frame of the machine, so as to normally hold the part in proper normal position, while the corresponding arm of the other lever, preferably near the end of the oscillatory shaft *b*, to which the actuating-lever *c* is secured, carries a spring-actuated pawl *o*, pivotally secured thereto and provided with a shoulder or projection *p*, adapted and arranged to strike against a stop or shoulder *q* upon the lever *h*, against which the shoulder is held by the spring *r*, all as clearly shown by the full and dotted lines in Fig. 3. This pawl is adapted and arranged to engage one of the teeth of a ratchet-wheel *s*, rigidly mounted upon the end of the shaft of the storage-reel *W* and to move or rotate said wheel the space of one tooth. The engagement of the pawl with the ratchet-wheel takes place immediately after the platen has been elevated, so as to cause the recording-tape to make contact with the type-wheel, the continued movement of the oscillatory power-shaft *b* causing such operation to take place and in such degree as to move the newly-printed portion of the recording-tape from the platen to a point in front of the opening *B* in the frame-casing where it may be viewed by the clerk or purchaser. It will of course be understood that the pawl by reason of its spring actuation will drag over the ratchet-wheel on its return stroke without causing any movement thereof and that the movement imparted to the ratchet-wheel and consequently the storage-wheel by the pawl is intermittent, but takes place immediately after every printing operation, the pawl moving to position to cause this movement during the printing operation.

The third operation is performed by the oscillatory power-shaft immediately following the two just described, and that is the releasing of the lock devices which secure the cash-drawer until both the printing operation and the storage operation have been completed. This third operation is obtained by means of an angular arm *t*, rigidly secured to the oscillatory shaft *b*, adjacent to the lever *h*, which arm, moving with the other parts, strikes against a collar or projection *u* upon a spring-actuated and vertically-disposed locking-bolt *v*, the end of which bolt projects down in front of a suitable stop device *w* inside the drawer, and prevents the opening of the drawer until the arm *t* has raised the lock-bolt against the tension of its actuating-spring sufficiently to clear the stop *w*, when the

drawer will be slightly projected by the force of a spring of some suitable character, such as the flat spring *x*, attached to the rear end of the drawer and confined between the drawer and the back wall of the casing. This operation of releasing the drawer is, as I have before stated, the last of the three to take place, the purpose of such an arrangement being to insure that the record shall be printed and the partial storage of the recording-tape to bring the last record in view shall be made before the drawer can be opened for either the deposit or withdrawal of cash therefrom. In connection with this last operation, if desirable, an alarm-bell may be simultaneously sounded by means of a pivoted dog *y*, engaging the teeth of the ratchet-wheel *s* and held in contact therewith by a weighted arm *y'* or any equivalent spring or weighted device, to which dog or arm is secured a spring-supported hammer *z*, which is caused to strike the bell or gong *z'* whenever the ratchet-wheel is moved the space of a single tooth, thus sounding an alarm each time the cash-drawer is opened.

To prevent surreptitious or fraudulent operation of the machine or tampering therewith or opening of the cash-drawer by unauthorized persons in the absence of the merchant or his employees, I provide a very simple lock device to prevent the operation of the machine, which consists of a pin or stop *a'* on a prolongation of the arm *t*, with which engages a hook-like catch *b'*, operated by any suitable key inserted through a suitable key-hole *c'* (see Fig. 1) in the side of the casing of the apparatus. The normal position of this catch is that shown in full lines in Fig. 7, the catch resting against a pin *d'* out of the way, so as to permit the free movement of the arm *t*, while the dotted lines show the catch in its operative position in engagement with the pin *a'*, so as to prevent the movement of the arm *t*, which thereby locks all of the mechanism excepting, of course, the indicating-levers and type-wheels, the movement of which produces no effect, as they are at all times movable back and forth and can be reset from any position to any other desired position without affecting the recording or indicating devices. In the making of change the type-wheels may be set so as to print a row of ciphers or any other characters that the merchant or manufacturer may select.

A cash recorder or indicator embodying my invention is extremely simple yet durable and effective in construction, and is cheap as to cost of construction, as most of the parts composing the machine are rods and stamped or cheaply-cast sections which do not require for their perfect operation a very high degree of finish or especial accuracy in fit. At the same time the apparatus furnishes the merchant with a sealed record which is the equivalent of a day-book or blotter, which not only records every sale, but also clearly indicates the same to the clerk or customer or

both, without the employment of the more or less complicated indicating devices heretofore commonly employed in machines of this class.

5 It is to be understood that I do not desire to limit myself to the exact devices and groups of mechanism herein shown and described for accomplishing the desired object, as obviously many variations thereof will
10 readily suggest themselves to the skilled mechanic, and all such variations would be within the scope of my invention.

Having thus described my invention, what I claim as new therein, and desire to secure
15 by Letters Patent, is—

1. In a cash recorder and indicator, the combination with a series of adjustable type-wheels, an intermittently-actuated recording-tape, a vertically-movable platen provided
20 with a notch and shoulder at each end thereof, and a lock for the cash-drawer, of an oscillatory power-shaft, a lever-arm mounted on each side of said shaft and each lever provided with a dog for engagement with
25 said notch and shoulder for actuating the platen, a spring-actuated pawl-and-ratchet-wheel connection between said shaft and the storage-reel for the recording-tape, and a lever carried on one end of said shaft for
30 lifting and thereby releasing the drawer-locking bolt, substantially as and for the purpose described.

2. In a cash recorder and indicator, the combination with a series of adjustable type-wheels, an intermittently-actuated recording-tape, and a movable platen having a notch
35 and shoulder, of an oscillatory power-shaft, a lever mounted on each side of said shaft, each lever having a dog for engaging said notch and shoulder to actuate the platen, a
40 spring-actuated pawl-and-ratchet-wheel connection between said shaft and the storage-reel for the recording-tape, a lock for the cash-drawer, an arm mounted on said oscillatory shaft for releasing said lock, and an
45 alarm device actuated by said ratchet-wheel connection, substantially as described.

3. In a cash recorder and indicator, the combination with the series of adjustable type-wheels, an intermittently-actuated recording-tape and a vertically-movable platen, of an
50 oscillatory power-shaft, mechanism carried by each end of the shaft for operating the platen, mechanism carried by said shaft for actuating the recording-tape, an arm mounted on one end of the shaft for raising the lock-bolt to release the drawer, and a locking-catch device for said arm to prevent the actuation
55 thereof, substantially as shown and described.

60 4. In a cash recorder and indicator, the combination with a series of type-wheels, an in-

termittently-actuated recording-tape, a movable platen, of an oscillatory shaft having
mounted thereon a two-armed lever at each side thereof, each lever having at the upper
65 end a dog and stop, said dog being adapted to engage with and actuate the platen, one of said levers having at its lower end a spring-pawl and stop for intermittently actuating the winding-reel, said shaft having also
70 mounted thereon an arm for releasing the cash-drawer lock, and a catch device on said arm to prevent the actuation thereof, all substantially as described.

5. In a cash recorder and indicator, the combination with a type-roller, an indicating-lever, and a platen normally out of contact with the type-roller and provided with a notch
75 and projections *m*, of a rock-shaft *b* journaled in bearings in the frame of the machine, a two-armed lever *h* mounted on said shaft, a stop *k* upon said lever, a dog *i* pivotally secured on one end of said lever and having a
80 shoulder *j* thereon adapted to engage said stop, and an actuating-lever secured on said shaft and outside of the frame of the machine, substantially as described.

6. In a cash recorder and indicator, the combination with a type-roller, an indicating-lever adapted to actuate the same, and a platen
90 normally held out of contact with the type-roller and provided with a notch and projections, a shaft *b* journaled in bearings in the frame of the machine, a two-armed lever *h* mounted on said shaft, a dog *i* pivotally secured
95 to the lever and adapted to engage the notch in the platen, a shoulder *j* on said dog adapted to engage a stop *k* upon said lever, a stop *n* upon the frame of the machine adapted to be engaged by the other arm of the lever, a stop or shoulder *q* upon the lever *h*,
100 and a spring-actuated pawl *o* pivotally secured upon one end of said lever and provided with a shoulder or projection *p* adapted to engage said stop or shoulder *q*, substantially as described.

7. In a cash recorder and indicator, the combination with a vertically-disposed spring-actuated locking-bolt *v* adapted to engage the
110 drawer of the machine, a projection *u* upon said bolt, and a shaft *b* journaled in suitable bearings in the frame of the machine, of an angular arm *t* rigidly secured on said shaft and adapted to engage the projection on said bolt, a pin or stop *a'* on a prolongation of the
115 arm *t*, a catch *b'* to engage said pin or stop, and means for releasing said catch, substantially as described.

WILLIAM J. BUSSE.

Witnesses:

M. E. SHIELDS,

CHAS. B. BOWEN.