

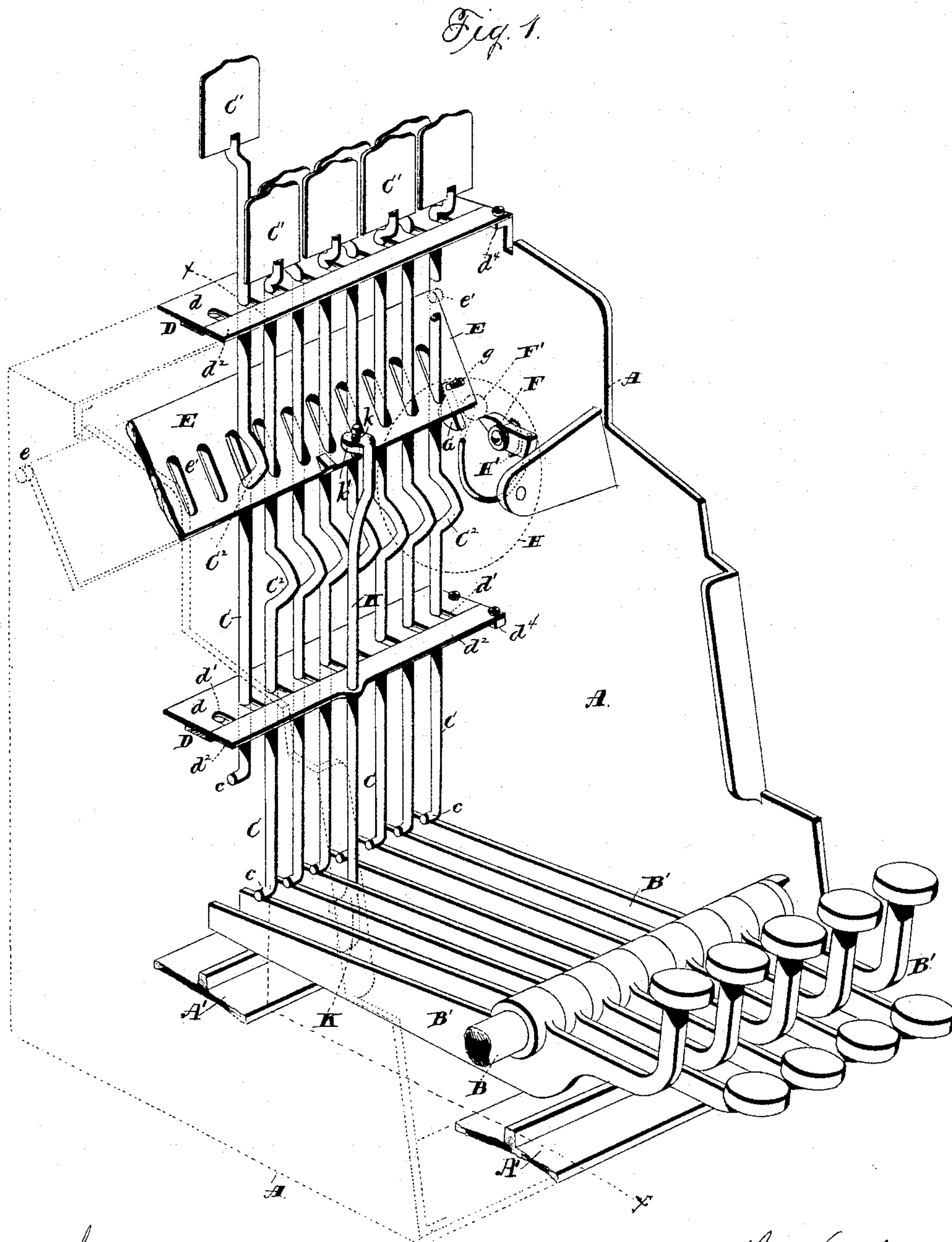
(No Model.)

2 Sheets—Sheet 1.

J. F. PFEFFER.
CASH REGISTER AND INDICATOR.

No. 410,917.

Patented Sept. 10, 1889.



Witnesses
Chas. Williamson.
Jas. E. Hutchinson.

Inventor
John F. Pfeffer
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his Attorneys

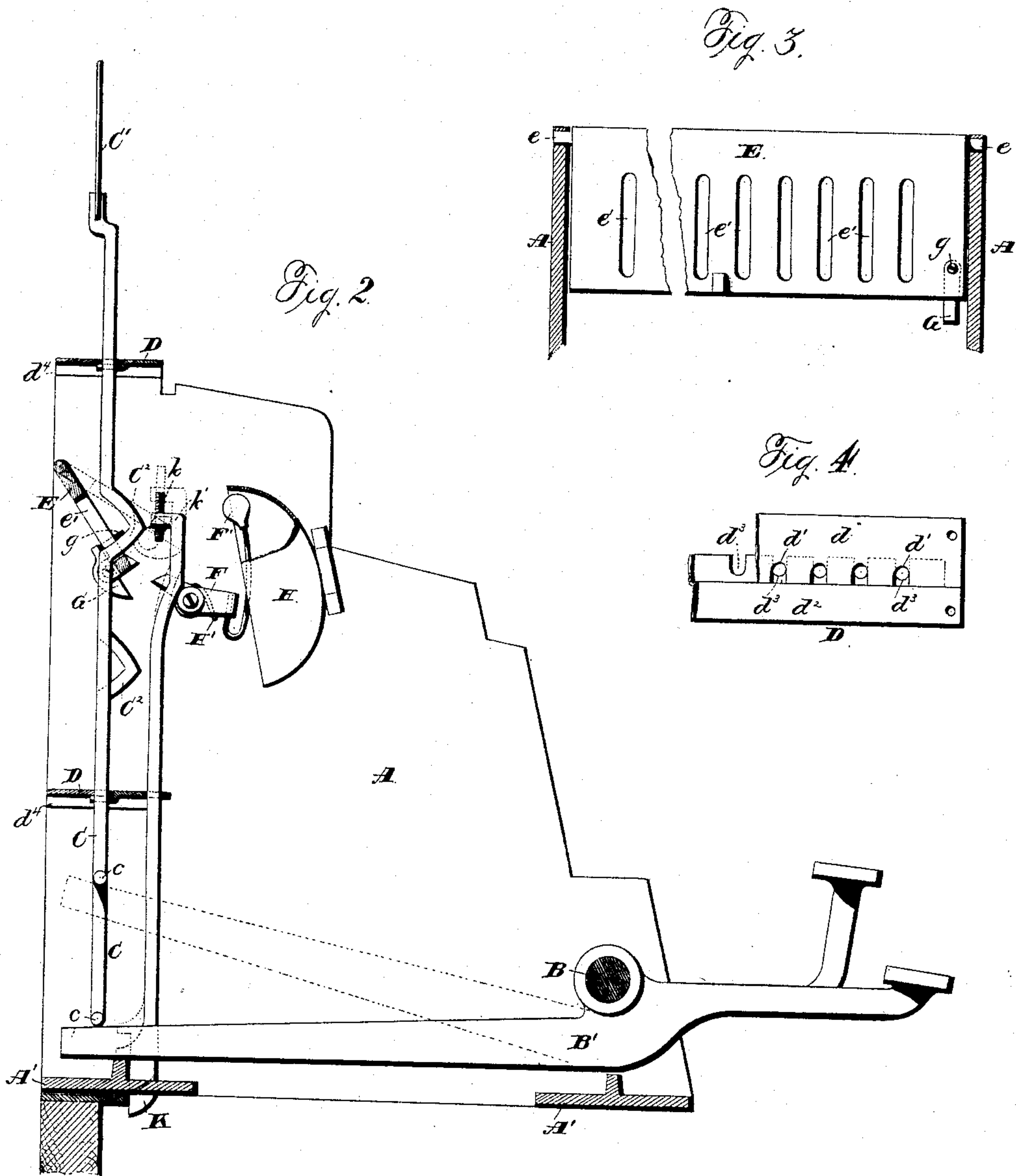
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UNITED STATES PATENT OFFICE.

JOHN F. PFEFFER, OF CINCINNATI, OHIO.

CASH REGISTER AND INDICATOR.

SPECIFICATION forming part of Letters Patent No. 410,917, dated September 10, 1889.

Application filed June 13, 1889. Serial No. 314,104. (No model.)

To all whom it may concern:

Be it known that I, JOHN F. PFEFFER, of Cincinnati, in the county of Hamilton, and in the State of Ohio, have invented certain new and useful Improvements in Cash Registers and Indicators; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, in which—

10 Figure 1 shows a perspective view of an apparatus made in accordance with my invention; Fig. 2, a vertical section on line $x x$ of Fig. 1; Fig. 3, a plan view of the swinging wing with the supporting frame-plates in section; Fig. 4, a similar view of one of the
15 guide-bars for the indicator-rods.

Letters of like name and kind refer to like parts in each of the figures.

20 The object of my invention is to provide certain improvements in cash registers and indicators; and to this end my invention consists in the apparatus and in the construction, arrangement, and combination of the parts thereof, as hereinafter specified.

25 While my improvements are intended especially for use in cash registers and indicators, they are also applicable to other machines or apparatus in which indications are to be made by a series of movable indicating
30 devices.

In the drawings, A A designate two side frame-plates, which, as shown, are of the form common in cash registers and indicators, though such form is not necessary and can be
35 varied as desired without departure from my invention. Connecting such plates at their lower edges are the usual bars A' A', one at the front and one at the rear.

Pivoted upon the shaft B, supported at its
40 opposite ends in plates A A, are the key-levers B' B' for actuating the indicating devices. Such key-levers, as shown, are of the ordinary form and construction of those used in cash registering and indicating devices.
45 Instead of them, other forms of keys, such as reciprocating or sliding ones, can be used to actuate the indicator-rods, to be described hereinafter.

50 While I have not shown any registering mechanism connected with or operated by the keys, I desire it to be understood that any of the well-known forms of such mechanism can

be used in connection with my indicating devices without departure from my invention.

Extending across above the rear ends of
55 the keys B' is a series of vertically-movable rods C C, one for each key. Each rod, which is preferably made round in cross-section, as shown, but can be of any other desired shape, has at its lower end a short horizontal arm c
60 in the path of one of the key-levers. At their upper ends the rods C C bear the usual indicating tablets or targets C' C', marked as desired to indicate various amounts.

For guiding the rods in their up and down
65 movements, I provide two guide-bars D D, supported at their opposite ends from the side frame-plates A A, and extending across, respectively, near the upper and lower ends of the rods. Each bar is preferably made
70 in two parts, as shown, to facilitate the placing and removal of the rods. The rear part d consists of a plate having its forward edge provided with a series of notches d' d' to receive the respective tablet-rods, while the
75 front part d^2 consists of another plate having its rear side provided with notches d^3 d^3 similar to those in part d . The notched portions of the two parts overlap each other, as shown, so that the indicator-rods are inclosed and
80 held steadily in position, while being free to move up and down.

The two parts of each bar D D are separately attached by screws or other detachable means to suitable ribs or brackets d^4 on the
85 side frame-plates A A, so that the front part d^2 can be removed, as desired, to allow any rod to be disengaged from the notches in rear part d and removed. This arrangement enables the rods to be most readily put in
90 place when the parts of the machine are being assembled and facilitates the change or replacing of a rod at any time.

At a point below the upper guide-bar D is a swinging wing E, pivoted at its opposite
95 ends in the frame-plates A A by pintles or pins $e e$ on a line to the rear of the series of rods C C. In this wing there is a series of forwardly-extending slots e' e' , through each of which passes one of the indicator-rods.
100 These slots are of such length that the wing can swing well down before their forward ends strike the rods, as shown in Fig. 1. The upright portions of said rods then serve

to limit the downward swing of the wing and prevent its going beyond its normal forwardly and downwardly inclined position. With this construction, as the wing is swung up, the forward ends of the slots $e' e'$ will obviously move upward and forward away from the plane of the forward sides of the rods. Each of said rods is, at a point below the wing when the rod is down, provided with a forwardly-extending bend or shoulder C^2 , having its upper and lower sides inclined, respectively, downwardly and upwardly toward each other, as shown. The inclines are preferably convex, rounded, or curved, for a purpose to be described hereinafter.

The rod shoulders or bends are so situated with reference to the slotted wing E that when any rod has been raised into indicating position the point where the lower side of the shoulder joins the upright portion of the rod will be just above the normal lower position of the forward end of the respective slot e' in the wing E, as shown in the drawings, Figs. 1 and 2.

The extent of the forward projection of the shoulders or bends is such that when the wing E has been swung a certain distance upward and forward the ends of its slots will stand so that the shoulders can pass them, as indicated in dotted lines in Fig. 2.

With the construction and arrangement as far as described, as any indicator-rod is raised its shoulder or bend comes into contact with the forward end of its respective slot in wing E, and then swings such wing upward and forward until the end of the slot passes off of the front end of the shoulder. The wing then swings downward and rearward again until the end of the slot, passing under the rod shoulder or bend, rests against the rod. In this position the slot end, by engaging the shoulder, locks the rod in its elevated position and prevents it from dropping before the wing is swung upward and forward again.

To allow of free swing of the wing into rod-locking position when a rod has been raised, as described, the under side of each rod shoulder or bend is curved on the arc of travel of the respective slot end as the latter swings under the raised shoulder. The wing can then drop quickly into locking position just as soon as the front end of the respective wing-slot passes off of the upper side of the shoulder.

With a rod raised and locked as described, if a new indication is to be made and another rod is raised, the upper side of the shoulder or bend on this second rod engages the end of the slot in the wing and cams the latter upward and forward. This movement of the wing carries the end of the slot engaging the under side of the shoulder on the raised rod upward and forward to and beyond the end of such side, so that such rod can drop to its normal position again. The end of the wing-slot engaging the shoulder on the newly-raised

rod then passes off of the end of the rod-shoulder and is brought under the lower side of the latter into locking position by the downward and rearward swing of the wing.

Where my indicator-rods and locking-wing are used in connection with registering mechanism to be operated by the keys which move the rods, the bends or shoulders on the latter are to be so arranged with relation to the slotted wing that, as a full registration is made by the movement of a key, the respective rod will be raised into position to be locked by the wing in the manner described.

In order to give an alarm, when the apparatus is operated to make an indication, and so, when a full registration is made, if registering mechanism be used with my indicating devices, I provide an alarm-sounding mechanism operated by the raising of the rod-locking wing.

Pivoted to one of the side frame-plates A is the hammer-lever F, carrying on one end a bell-striker F' , of any desired construction, and having its other end situated close to the path of the forward edge of a portion of the swinging wing. Upon such wing is a swinging trip or pawl G, whose outer end is adapted to strike and raise the end of the bell-striker lever as the wing rises and to pass off of such lever end as the wing finishes its upward movement.

For the purpose of adjusting the pawl G, so as to regulate the points in the travel of the wing at which it will engage and pass out of engagement with the striker-lever, I provide on the wing E a set-screw g , which with its lower end engages the inner or rearward arm of the pawl. With this construction, as the screw is turned down, the striker-lever engaging end of the pawl will obviously be swung upward, so as to engage the striker-lever at an earlier stage in the movement of the wing.

A bell H is suitably supported on an arm from the side frame-plate in position to be struck by the hammer when the striker-lever is swung back by spring H' after being moved and released by the pawl G.

The swinging wing E, which locks the indicator-rods and actuates the alarm mechanism, is also used by me to trip the till or drawer lock K just as the alarm is sounded. For this purpose the bolt or lock is provided with a suitable bearing-piece to be struck and raised by the wing just as or after the pawl G passes up or out of engagement with the striker-lever. Such bearing is preferably a set-screw k on an arm k' , so that the point at which the wing will engage it to trip the bolt or lock can be adjusted at will.

The drawer-engaging portion of the lock is of the ordinary construction, and need not be described.

Any desired means for guiding the lock may be employed. In the drawings its upper portion or stem is shown as passing through

a guide-opening in the lower indicator-rod-guiding bar D; but I do not intend to limit myself to such a construction or arrangement.

The operation of my apparatus as a whole is briefly as follows: As any key-lever is moved to raise its respective indicator-rod up into indicating position, the wing E is struck and swung upward and forward by the shoulder on the rod until it releases the shoulder on any previously-raised rod, and then drops back under the shoulder of the rod just raised. On its upward and forward swing the wing, by its pawl G, moves the hammer-lever F against the stress of spring H' until the pawl passes up off of the lever end, which it does just before the wing is swung far enough to release the shoulder of any previously-raised rod. Near the upper end of its movement the wing engages the lug or bearing connected with the till or drawer lock and lifts the latter, so as to fully disengage it from the till or drawer when or just after the alarm mechanism is caused to sound an alarm.

With my apparatus, as shown and described, it will be observed that I use one piece—the swinging wing—to perform several functions, and that only one spring is used—viz., the one for actuating the bell-striker.

The wing as arranged needs no spring to swing it into or hold it in its indicator-rod-locking position. Its own gravity throws it downward and rearward when it has been raised and released, as hereinbefore described.

Instead of pivoting the wing to the rear of the series of indicator-rods, as shown, it can, if desired, be hinged or pivoted in front thereof, so as to swing upward and rearward. In such case the shoulders or bends on the rods are, of course, turned to the rear.

Instead of making the locking-shoulders by bending the rods, as shown, I contemplate, where it is desired, forming them of lugs or projections attached to or made in one piece with straight rods.

Having thus described my invention, what I claim is—

1. In an indicating apparatus, in combination with a movable indicating device provided with a shoulder, the locking-wing provided with a slot whose outer end is adapted to be engaged by the rod-shoulder, substantially as and for the purpose specified.

2. In an indicating apparatus, in combination with the swinging wing provided with a series of slots, a series of movable indicator-rods passing through such slots, and each provided with a locking-shoulder, substantially as and for the purpose shown.

3. In an indicating apparatus, in combination with the swinging wing provided with a series of slots, the series of indicator-rods passing through such slots, and each provided with a locking-shoulder having an inclined face to engage the end of the respective slot in the wing to swing the latter as the rod is moved into indicating position, substantially as and for the purpose set forth.

4. In an indicating apparatus, in combination with the swinging wing provided with a series of slots, the series of rods passing through such slots and provided with shoulders situated below the outer ends of the respective slots when the rods are down, substantially as and for the purpose described.

5. In an indicating apparatus, in combination with the swinging locking-wing provided with the series of slots extending in planes at right angles to the axis of its motion, the series of indicator-tablet-bearing rods projecting up through such slots and each having a shoulder with oppositely-inclined upper and lower sides situated on the rod, so as to stand below the respective slot end when the rod is down, substantially as and for the purpose specified.

6. In an indicating apparatus, in combination with the swinging locking-wing provided with the series of slots extending in planes at right angles to the axis of its motion, the series of indicator-rods passing up through the slots, and each provided with a locking-shoulder adapted to stand below the outer end of the respective slot in the wing when the rod is down, and having its upper side inclined and its lower side curved, substantially as and for the purpose shown.

7. In combination with the series of reciprocating indicator-rods, each provided with a locking-shoulder having its upper side inclined downward away from the rod, the swinging locking-wing provided with the series of slots at right angles to its axis, through which the rods pass, and pivoted at the side of the series of rods opposite to the locking-shoulders and above the level of the shoulders when the rods are down in their normal positions, substantially as and for the purpose set forth.

8. In an indicating apparatus, in combination with a series of movable keys and the series of indicator-rods adapted to be actuated by the keys and each provided with a locking-shoulder, the swinging locking-wing provided with slots at right angles to its axis, through which the indicator-rods pass, substantially as and for the purpose described.

9. In combination with a series of movable keys, the series of shouldered indicator-rods, each adapted to be raised by one of the keys, and the swinging locking-wing hinged at a point above the shoulders on the rods, and having a series of slots through which the rods pass, substantially as and for the purpose specified.

10. In combination with the series of key-levers and the swinging locking-wing provided with a series of slots, the series of vertically-movable indicator-rods adapted to be raised by the key-levers passing up through the slots in the wing, and each provided with a locking-shoulder with inclined upper side situated so as to stand below the wing when the respective rod is down, substantially as and for the purpose shown.

11. In combination with the series of keys and the swinging locking-wing provided with the series of slots, the series of indicator-tablet-bearing rods passing up through the slots in the wing, each adapted to be raised by one of the key-levers, and provided with a wing-engaging shoulder with oppositely-inclined rounded surfaces on its upper and lower sides, substantially as and for the purpose set forth.

12. In combination with the series of shouldered movable rods and the slotted wing, an alarm mechanism adapted to be operated by the wing, substantially as and for the purpose described.

13. In combination with a series of keys and the series of shouldered rods to be actuated thereby, the slotted locking-wing and an alarm mechanism adapted to be operated by the movement of the wing, substantially as and for the purpose specified.

14. In combination with the swinging slotted locking-wing, the series of movable indicator-rods, each having a shoulder with its under side in position to be engaged by the wing when the rod has been raised into locking position and its upper side adapted to engage the wing and swing it out of locking position as the rod is being raised, an alarm-sounding device, and means carried by the wing for actuating such device to sound an alarm as the wing is raised by the movement of an indicator-rod, substantially as and for the purpose shown.

15. In combination with the shouldered indicator-rods and the slotted locking-wing, a pawl or trip carried by the latter and alarm-sounding mechanism engaged by such trip or pawl, substantially as and for the purpose set forth.

16. In combination with the series of shouldered indicator-rods and the swinging locking-wing, alarm-sounding mechanism and an adjustable trip on the wing for actuating such mechanism, substantially as and for the purpose described.

17. In combination with the shouldered indicator-rods and the swinging locking-wing, a spring-retracted bell-striking lever, a pivoted pawl on the wing for engaging the striking-lever, and the set-screw on the wing for adjusting the pawl, substantially as and for the purpose specified.

18. In combination with the series of shouldered rods and the locking-wing therefor, the draw or till lock adapted to be tripped by the wing, substantially as and for the purpose shown.

19. In combination with the series of shouldered indicator-rods and the slotted swinging locking-wing, a movable bolt or latch adapted to be tripped by the wing, substantially as and for the purpose set forth.

20. In combination with the series of shouldered indicator-rods and the swinging slotted locking-wing therefor, a bolt or latch having an adjustable bearing to be engaged by the wing, substantially as and for the purpose described.

21. In combination with the swinging wing and the bolt or latch adapted to be tripped thereby, an alarm-striking mechanism and means carried by the wing for actuating the same, substantially as and for the purpose specified.

22. In combination with the shouldered indicator-rods and the swinging locking-wing therefor, the bolt or latch adapted to be tripped by the wing and an alarm mechanism actuated by the movement of the wing to sound an alarm, substantially as and for the purpose shown.

In testimony that I claim the foregoing I have hereunto set my hand this 27th day of May, A. D. 1889.

JOHN F. PFEFFER.

Witnesses:

CHARLES H. KUMLER,
JOHN B. TEHRN.