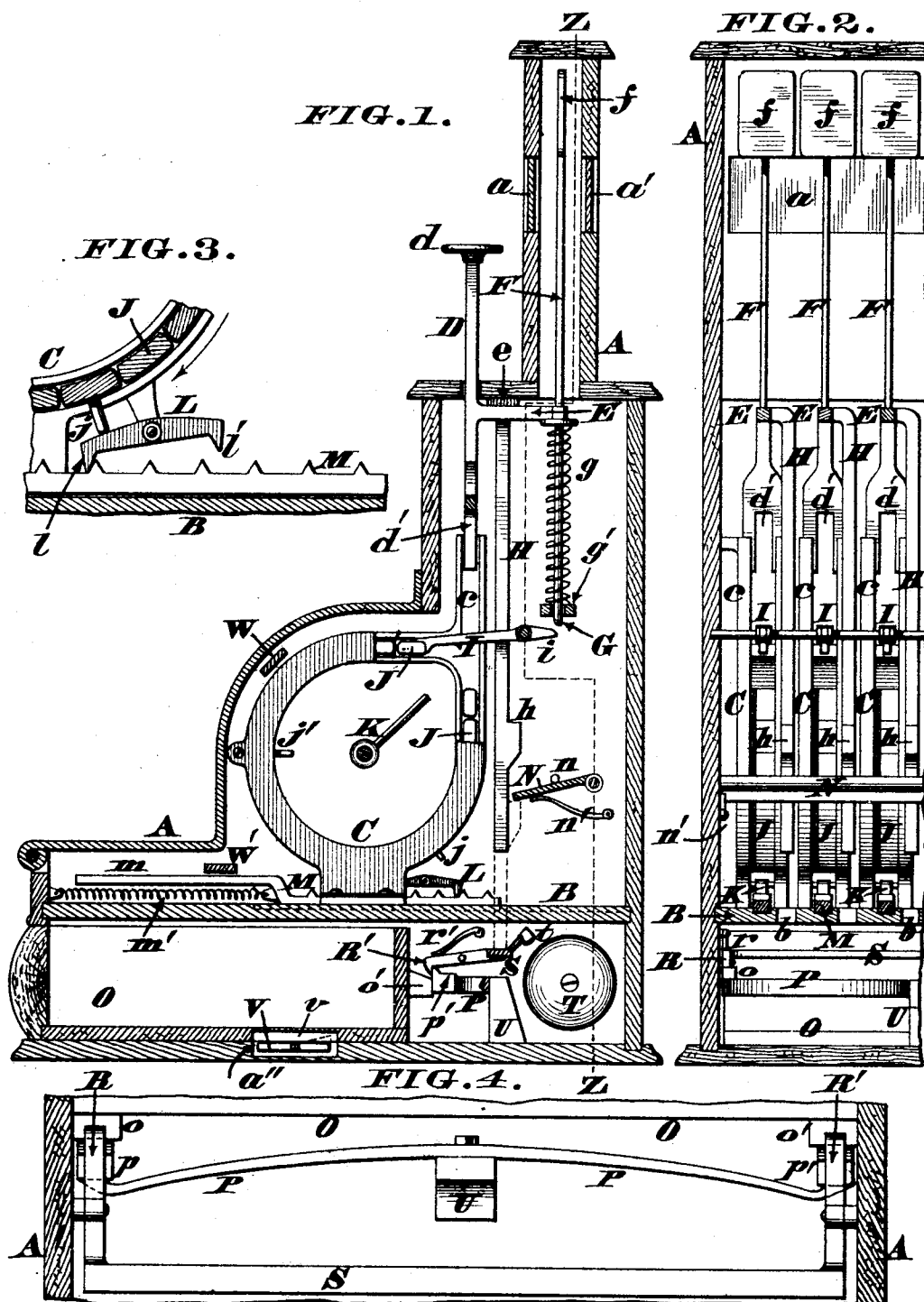


(No Model.)

E. H. MURDOCK.
CASH INDICATOR AND REGISTER.

No. 501,153.

Patented July 11, 1893.



Attest.

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UNITED STATES PATENT OFFICE.

EDWIN H. MURDOCK, OF CINCINNATI, OHIO.

CASH INDICATOR AND REGISTER.

SPECIFICATION forming part of Letters Patent No. 501,153, dated July 11, 1893.

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To all whom it may concern:

Be it known that I, EDWIN H. MURDOCK, a citizen of the United States, residing at Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Cash Indicators and Registers; and I do hereby declare the following to be a full, clear, and exact description of the invention, reference being had to the annexed drawings, which form part of this specification.

This invention relates, more particularly, to the peculiar form of cash-indicator seen in Letters Patent No. 484,917, granted to me October 25, 1892, although some of my present improvements are applicable to various constructions of such machines.

One of the features, capable of being used with my old form of indicator, is an automatically-acting pawl that prevents a set of counters being shifted within their inclosing housing by any shaking or vibration of the machine, as hereinafter more fully described.

Another feature, applicable to the old machine, is a novel combination of devices for advancing a "record bar" that shows how often a set of counters has made one complete circuit through the inclosing housing or guide, as hereinafter more fully described.

In order still further to improve the old machine, I have combined in a single device, a plunger that operates the counters, a stem that carries a tablet, another stem around which is coiled an elevating spring, and a rod that operates a drawer-opener, as hereinafter more fully described.

The principal improvement, applicable to cash-indicators in general, is a novel way of arranging and operating the money drawer or till, which drawer is never locked, neither is it coupled in any manner to the cabinet, nor to any attachment or operative part of the machine, but is free to be opened at any time. It is the intention, however, that the drawer shall be normally closed, in which position its inner end simply bears, either directly or indirectly, against a spring under tension without, however, being coupled thereto. But as soon as a key or other operating device is struck, to actuate the indicating appliances, this spring is liberated and instantly initiates the opening of the unlocked or un-

coupled drawer, as hereinafter more fully described.

Another feature, applicable to ordinary indicators, is an automatic detent which can be used in some cases to prevent the drawer being opened by inclining the machine forward, as hereinafter more fully described.

In the annexed drawings, Figure 1 is a vertical section taken from front to rear of my improved cash indicator, said section being taken in the plane of one of the plungers, which is elevated, a portion of one of the housings being broken away, and the money drawer closed. Fig. 2 is a vertical transverse-section of a portion of the indicator taken at the irregular line Z—Z, of the preceding illustration. Fig. 3 is an enlarged view of the devices that operate the "record bar" of the machine. Fig. 4 is an enlarged plan of the drawer spring and its accessories, the drawer being closed, and the spring under tension.

The inclosing case or cabinet A is of any desired shape and has near its top a pair of windows *a, a'*, at which the tablets are exposed, a horizontal partition B being fitted in the base of said cabinet for the support of the principal operative parts, the essential members of which are annular guides or housings C, arranged substantially as described in my patent No. 484,917, each housing being prolonged upwardly, as at *c*, to admit the lower portion of a plunger D, carrying a knob or button *d*, that is numbered to agree with the tablet operated by said stem. Furthermore, the lower end of this plunger is slotted vertically at *d'*, for a purpose that will presently appear, a lateral extension E of said plunger being provided with two stems F, G, that project in opposite directions, the upper stem F being provided with an ordinary tablet *f*, while the lower stem G has an elevating spring *g*, coiled around it. *g'* is a bar against which, the lower end of spring *g* bears, and *e* is a cushion or pad that limits the upstroke of the extension E. Depending from one side of this extension is a rod H, having near its lower end a shoulder *h*, said rod being adapted, at the proper moment, to pass through an opening *b* of partition B, which opening is seen in Fig. 2.

Hung upon a suitable support and adapted to play between the two parts of the housing,

and also to traverse the slot d' , of the plunger, is a pawl I whose front end bears against one of the numbered counters J, while its rear or short end i is so arranged as to be struck by the stem G when it is forced down. These counters are arranged and adapted to be operated in the same manner as in my patent previously alluded to, one of said counters being provided with an outwardly projecting pin j , while another counter has an inwardly-projecting pin j' , adapted to be struck by the re-setting device K.

Hung upon a rod extending across the machine, or suspended from the housing C is an escapement L, having a pair of teeth l, l' , that engage with the teeth of a bar M, the front or smooth portion of which m is numbered to afford a record of every complete circuit of the counters J, a pulling spring m' , being provided to draw said bar forward when momentarily released by said escapement.

N is a pivoted stop-plate extending across the machine, and normally forced up against a pin n by a spring n' .

O, is a sliding money drawer or till, the outer end of which has no handle or other pull attached to it, because the opening of said drawer is automatically initiated every time a plunger is forced down, which movement is effected in the following manner. Attached to the inner end of this drawer are blocks o, o' , which, when said drawer is closed, may abut against the opposite ends of a plate spring P, but usually they come in contact with special bearings p, p' , of said spring but do not couple to nor engage with said bearings. The upper edges of these bearings are inclined to permit the ready engagement of lever-latches R, R', pivoted to the sides of the cabinet, and having their front ends normally forced down by a pair of springs r, r' . S is a bar connecting these latches, which bar is located under the rods H.

T, is a bell, the hammer of which t is usually carried by bar S, but, if desired, this hammer may be operated by the drawer, when opened or closed.

U is a stump to which the spring P is fastened, at its mid length.

a'' is a recess in the bottom board of the cabinet to admit a balanced detent, V, which is adapted, when said cabinet is inclined forward, to come in contact with the inner end of a groove v in the bottom of the money drawer, and thereby prevent said drawer being opened by tilting the machine either forward or backward, but when the machine is practically level, this detent is inoperative.

W, W', are windows that permit the proper numbers of the counters and record bar being read, which windows are to be applied to an inner case, not seen in the drawings, as such devices are quite common in this class of machines.

To illustrate the operation of my improved machine, I will suppose the various parts of the same are in the position seen in Fig. 1,

the plunger and its attachments being now elevated, and the pawl I in contact with one of the counters J in the short horizontal portion of the casing C. Furthermore, in this normal position of the machine, the drawer O is closed, its blocks o, o' , in contact with the bearings p, p' , of the spring P, and all the tablets f are raised above the windows a, a' , and thus concealed. Again, the spring P is now held under tension, because the lever-latches R, R', engage over the bearings p, p' , of said spring. Such being the normal position of the machine, it will be readily understood that when the button d is struck, the plunger D will be forced down, thus carrying the extension E, stems F, G, and rods H with it, and as the stem G descends, it strikes the heel i of pawl I, and swings the latter up sufficiently to traverse the slot d' of said stem. Consequently, said plunger is free to complete its stroke and act upon the upper counter in the vertical portion of the housing, and thus drive all the counters forward within the latter. But this full descent of the plunger is only for a moment, and when it recedes sufficiently to bring its shoulder h , in contact with the under side of stop-plate N, as indicated by the dotted lines in Fig. 1, the further ascent of said plunger is arrested, in such a position as to expose its tablet at the windows a, a' . As the plunger is thus elevated, the pawl I swings forward to its normal position, thereby preventing any shifting of the counters within the housing. At the completion of the down stroke of the plunger, the rod H strikes the cross bar S, with such force as to depress it, and disengage the latches R, R', from the bearings p, p' , and as each end of spring P is now liberated, they instantly fly forward a limited distance, and initiate the opening of the money drawer. When the drawer is again closed, its blocks o, o' , strike the bearings p, p' , and bend the ends of the spring back until said bearings re-engage with the lever latches, in the manner above described. It is evident the depressed tablet will remain exposed as long as the shoulder h is caught under the stop-plate N, but the instant another plunger is operated, its shoulder will swing down the free edge of said plate, and thereby release the shoulder of the first plunger, which latter instantly ascends as far as pad e will permit. Consequently, the first tablet is now concealed, and the second tablet exposed. Every time the plunger is depressed, the counters J are advanced in the direction of the arrow, seen in Fig. 3, and sooner or later the outwardly-projecting pin j , strikes the escapement L in front of its pivot, thereby inclining said escapement and bringing its front tooth l in contact with one of the teeth of record bar M, but raising the rear tooth l' above said bar. But as soon as this pin passes beyond the escapement, the stress of spring m' , tends to advance the bar M, and rock the escapement in the opposite direction, which act depresses the

rear tooth l' , and causes it to serve as a stop that limits the farther forward movement of said bar, as shown in Fig. 1. Therefore, it will be seen that every time the counters describe a complete circuit through the housing, the pin j operates the escapement and allows the bar M to advance the distance of one tooth, and by numbering the extension m , to agree with the teeth, said bar will afford an exact record of all the movements of said counters, which latter can be re-set at any time by causing the rod K to operate against the inwardly-projecting pin j' , in the manner described in my old patent. The absence of any handle or pull from the drawer O , and the convex outer end of the same, renders it impossible for the drawer to be opened without using some special appliance, and if the machine should be inclined, for the purpose of launching said drawer forward, the balanced detent V , will strike against the rear end of groove v , and form a positive lock, until the machine is restored to its proper position. But if the machine is tilted rearwardly, for the purpose of disengaging the detent, it will then bear against the front end of said groove, thereby showing that the cabinet or case must stand about level to allow the drawer to be opened. In this normal or level position of the cabinet, the drawer is perfectly free to be opened at any time, because it is not locked to the case by a detent or fastener of any kind, neither is it permanently nor temporarily coupled to any attachment of said case, nor to any appliance operated either by the registering or indicating devices.

I claim as my invention—

1. The combination, in a cash-indicator and register, of a housing, a series of independent counters traversing the same, a plunger that advances said counters, a pawl that prevents them shifting, and a stem carried by said plunger and operating said pawl, in the manner described.

2. The combination, in a cash-indicator and register, of a housing, a series of independent counters traversing the same, a plunger that advances said counters, a lateral extension to said plunger, a stem projecting above and below said extension, a tablet carried by the upper portion of said stem, and a retaining pawl operated by the lower portion thereof, for the purpose described.

3. The combination, in a cash-indicator and register, of a housing C , a series of independent counters J , traversing the same, a plunger D that advances said counters, a lateral extension E , of said plunger, a stem F G , projecting above and below said extension, a tablet f carried by the upper portion F , of said stem, an elevating spring g coiled around the lower portion G thereof, and a retaining pawl I , operated by said lower portion G , in the manner described, and for the purpose stated.

4. The combination, in a cash indicator and register, of a housing, a series of independent counters traversing the same, a plunger that advances said counters, a stem carried by said plunger, a tablet mounted upon said stem, another stem carried by said plunger and surrounded by a coiled lifting-spring, and a pivoted pawl operated by the latter stem, all as herein described.

5. The combination, in a cash-indicator and register, of a housing, a series of independent counters traversing the same, a plunger that advances said counters, a pin j , projecting outwardly from one of them, a pivoted escapement L , having teeth l' , and operated by said pin in the manner described, and a toothed bar M , provided with a pulling spring m' , for the purpose stated.

6. The combination, in a cash-indicator and register, of an unlocked drawer O , a longitudinal groove v in the bottom thereof, a recess a'' in the cabinet base, and a balanced detent V , fitted within said recess, for the purpose described.

7. The combination, in a cash-indicator and register of a drawer that is neither locked to nor otherwise engaged with any part of the machine, a device that normally tends to open it, a retainer that holds this device in check, and an appliance that liberates said retainer when the machine is operated, as herein described.

8. The combination, in a cash indicator and register, of an unlocked drawer, a spring that normally tends to open it, a pair of lever-latches that hold said spring in check, and a rod that disengages said latches from said spring when the machine is operated, substantially as described.

9. The combination, in a cash indicator and register, of an unlocked drawer O , a spring P that normally tends to open it, a pair of lever-latches R , R' , that engage with the ends of said spring and hold it in check, a bar S uniting said latches, and a rod H that actuates said bar, said rod H being carried by a plunger D , that operates the machine, in the manner described.

10. The combination, in a cash-indicator and register, of a plunger, registering or counting devices operated by it, a money drawer that is neither locked to nor otherwise engaged with any part of the machine, a device that initiates the opening of said drawer, a retainer that holds this device in check, and an attachment to said plunger for releasing said retainer, substantially as herein described.

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

EDWIN H. MURDOCK.

Witnesses:

JAMES H. LAYMAN,
ARTHUR MOORE.