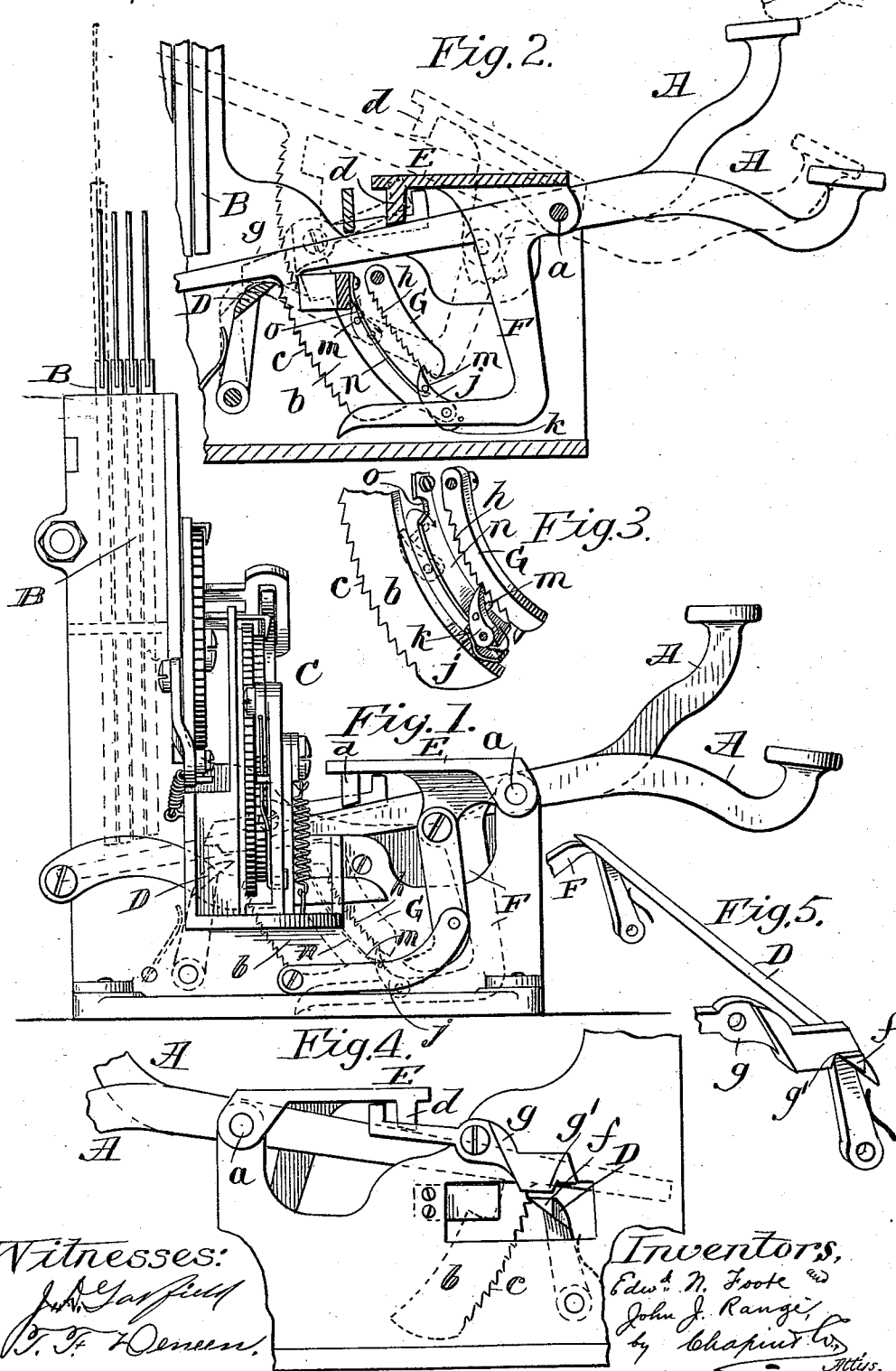


(No Model.)

E. N. FOOTE & J. J. RANGE.
CASH REGISTER.

No. 469,194.

Patented Feb. 16, 1892.



UNITED STATES PATENT OFFICE.

EDWARD N. FOOTE AND JOHN J. RANGE, OF NORTHAMPTON, MASSACHUSETTS, ASSIGNORS TO THE BOSTON CASH REGISTER COMPANY, OF SAME PLACE.

CASH-REGISTER.

SPECIFICATION forming part of Letters Patent No. 469,194, dated February 16, 1892.

Application filed July 20, 1891. Serial No. 400,149. (No model.)

To all whom it may concern:

Be it known that we, EDWARD N. FOOTE and JOHN J. RANGE, citizens of the United States, residing at Northampton, in the county of Hampshire and State of Massachusetts, have invented new and useful Improvements in Cash-Registers, of which the following is a specification.

This invention relates to improvements in cash indicators and registers, and particularly relates to means for preventing any undue manipulation of any of the key-levers, whereby there might be recorded on the register a sum greater than there should be to correspond with the amount or amounts of cash received and desired to be registered.

The invention consists in constructions and combinations of parts, substantially as will hereinafter more fully appear, and be set forth in the claims.

Reference is to be had to the accompanying drawings, in which the present invention is illustrated, and in which similar letters of reference indicate corresponding parts in all of the views, and in which—

Figure 1 is an end elevation of the cash-register as removed from its case, the features particularly pertaining to this invention being indicated in dotted lines. Fig. 2 is a sectional end elevation as taken just inside of the one end standard or upright of the register-frame, the devices of the invention here being seen clearly in full lines and in positions assumed thereby at the instant prior to their return to their normal positions at the conclusion of registering operation. Fig. 3 is a view in perspective in illustration of the most important parts of the present novel mechanism. Fig. 4 is an elevation of part of the machine, taken at the end thereof opposite to the one shown in Fig. 1; and Fig. 5 is a perspective view of the common stop-pawl for all of the key-levers of the machine, which will hereinafter be referred to.

A brief description of portions of the register and indicator, such as is already well known, will be briefly described or referred to, whereby the application and availability of the pres-

ent improvements may be the more readily ascertained, and therefore it will be understood that the machine comprises a series or bank of key-levers A, as usual, fulcrumed upon the common horizontal rod *a*, and each adapted at its inner extremity to upwardly force the indicator-rod B, respectively, provided therefor. Each depression of the key insures a rotational movement of the register-wheels (indicated generally at C) through the means of interposed mechanism of connection or engagement between the key-levers and the register, it being understood that certain of the keys force the register-wheels around farther than do others, and thereby indicate a larger or different cash-receipt, owing to the peculiar formation and arrangement of the parts intervening between the key-levers and the pawl devices of the register, such means of connection forming no part of the present invention, and are consequently not illustrated. Each key-lever is formed with a downwardly-extended arc-formed arm *b*, having its rear edge formed ratcheted, as at *c*.

D represents a pawl-bar, which ranges from end to end of the machine, and is adapted to be in engagement with and common to all of the ratcheted arms *b* of the key-levers A, so that as any one of the levers is by its rear portion upwardly swung to indicate at B and to work the register there can be no return movement of the key until the latter has made its full upward stroke.

E represents a rocking plate pivotally hung on the aforesaid fulcrum-rod *a* and adapted to swing in unison with any one of the key-levers as the latter is swung, said rocking plate having the downwardly-extended longitudinal rib *d*, which bears across the upper edges of all the keys. This rocking plate is provided with the rigid downwardly-extended angular arm F, which, by its extremity, is adapted to impinge against the common pawl-bar D as a key-lever and the rocking plate E complete their upward swinging movements and are ready to return to their normal positions, and thus the pawl-bar is swung rearwardly from engagement with the ratcheted key-le-

ver arm. The pawl-bar D is extended outwardly beyond one end standard of the machine-frame and is formed with a stop-lug *f*.

g represents a gravity-trigger intermediately pivoted on the end upright of the frame and provided in its end adjacent the pawl-bar catch-lug *f* with the catch-notch *g'*, and the other end of the trigger is extended to lie under the rocking plate E and to be normally slightly elevated as to its notched end, owing to the depression of its forward end by the plate E. As the rear portion of a key and rocking plate are raised, the catch-notch end of the trigger settles down and bears upon the top of the catch-lug *f*, and as the pawl-bar D is rearwardly forced at the completion of the working movement of the key-lever to free the lever for its return the lug *f* clicks into engagement with the trigger-catch notch *g'*. The rocking plate E with the key, resuming its normal position, bears upon the proximate end of the trigger, swinging the same and frees the pawl-bar, which swings forwardly to its engagement with the teeth of the several key-lever arms *b*.

It now having been made manifest in what manner retrograde movement of a key-lever is prevented while going to the limit of its working movement, so that it may not be permitted to take a supplemental "hitch," and thereby record on the register more than proper, (as might be the case were the operator to force the lever, say, half-way down, permit it to return a short distance, and then force it in its working direction farther,) the novel mechanism of the present invention will be now described, whereby it will be seen in what manner, after the key-lever has been carried to its working position, and is in its return, with the rocking plate, to its normal position, and the pawl-bar D is by the trigger held out of engagement with the ratcheted arm *b*, the key-lever is prevented from being given any upward or working movement to thereby unduly record on the register, and it will be also clear from the following description, in connection with the illustration, why the devices for preventing a working motion of the lever as the same is being returned do not prevent the working motion of the lever at the time the lever is "going," or, in other words, at the time such working motion is properly being made; and therefore, referring to the drawings, G represents an arc-shaped bar which is securely affixed to and supported from the frame of the machine inside of one end thereof and adjacent the angular arm of the rocking plate E, the rear edge of the bar being ratcheted, as at *h*. *j* indicates the spring-pressed pawl, which is pivoted upon the lower member of the rocking plate arm F, the point of which is adapted to extend into engagement with the teeth of the curved ratchet-bar G. The said pawl has a stud *m*, projected from its face parallel

with the axis of the pawl-pivot, and adjacent the course of movement of the pawl and its stud, in unison with the rocking plate and key-lever, there is an arc-shaped guard-plate *n*, which downwardly and forwardly extends, being supported at its upper part on a fixed part of the machine-frame. The lower end of the guard-plate terminates at about the position of the said pawl-stud *m*, when the same and the keys are all in their positions of rest.

In Fig. 2 the key-lever, the rocking plate and its arm, and the pawl and stud are indicated in full lines as having nearly, but not quite, come to their normal positions, at which latter time the stud *m* will pass slightly in advance of and below the free end of the guard-plate *n*, when the latter will by its resiliency have a slight upward spring toward the ratchet-bar G, and the stud *m* will lie relatively to the extremity of the guard-plate at the rear or under side thereof, so that as a key-lever is at its forward end again depressed to register and the pawl upwardly moves it will be held by the guard-plate engaging the stud out of engagement with the ratchet-bar *b*, and thereby no impediment to the working movement of the key for a proper or working movement thereof is afforded by the pawl *j*; but it will be noticed that at the upper end of the guard-plate there is a notch or opening *o*, and as the key-lever and the pawl complete their upward movements and are about to return the pawl-spring *k* is permitted to force the pawl toward the ratchet-bar G, the stud passing through the opening *o* and assuming a position on the upper and front side of the guard-plate, and the pawl is of course during the return movement of the key-lever in engagement with the teeth of the ratchet-bar G, sliding freely over the teeth during such movement, but serving effectively to prevent any reverse movement of the key-lever until after the latter has first resumed its normal position.

What we claim, and desire to secure by Letters Patent, is—

1. In a cash-register, in combination, register-operating key-levers and devices for preventing retrograde movements thereof while same are in their working movements, a part movable in unison with the key-levers which is provided with a stud extended angularly to the plane of swinging movement of the pawl and its carrier, a ratchet-bar arranged with its teeth in proximity to the course of the pawl, and a guard-plate having a bearing-surface arranged in proximity to the course of movement of the pawl-stud, said bearing-surface terminating near the upper and lower ends of the course of said stud and so located with relation thereto that the stud going will bear on the side of the guard-plate farthest from the teeth of the ratchet-bar and returning will have passed to the other side

of the guard-plate, whereby the pawl will be permitted to engage the teeth of the ratchet-bar, substantially as and for the purpose set forth.

pawl mounted on the said arm and having the stud *m*, all substantially as and for the purpose set forth. 10

5 2. In a cash-register, in combination, register-operating key-levers, the rocking plate having an arm *F*, the ratchet-bar *G*, and the guard-plate *n*, with the opening *o*, and the

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Witnesses:

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