

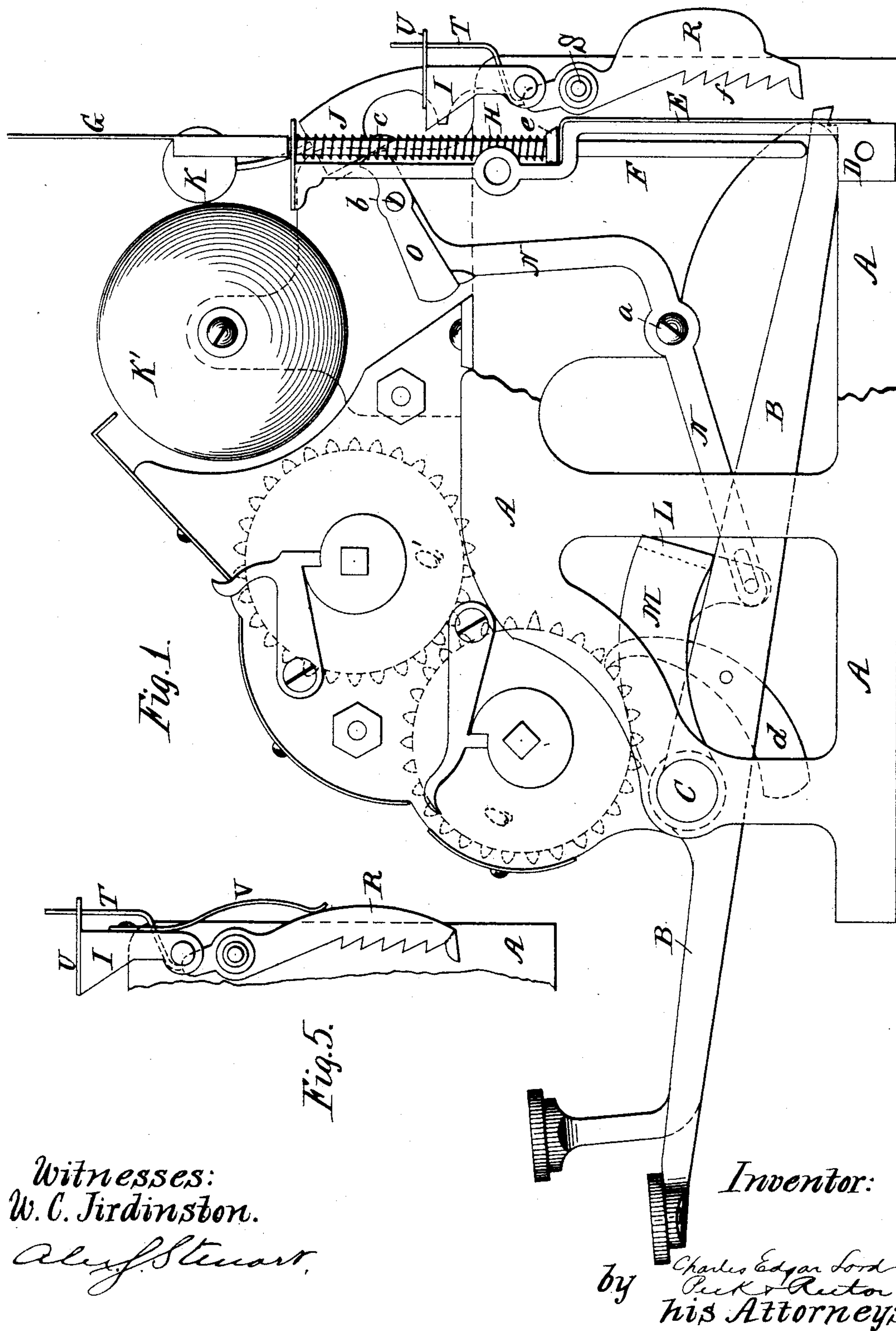
(No Model.)

3 Sheets—Sheet 1.

C. E. LORD.  
CASH REGISTER AND INDICATOR.

No. 445,670.

Patented Feb. 3, 1891.



Witnesses:  
W. C. Jirdinston.  
Alex. Stewart.

Inventor:  
by Charles Edgar Lord  
Peck & Rector  
his Attorneys

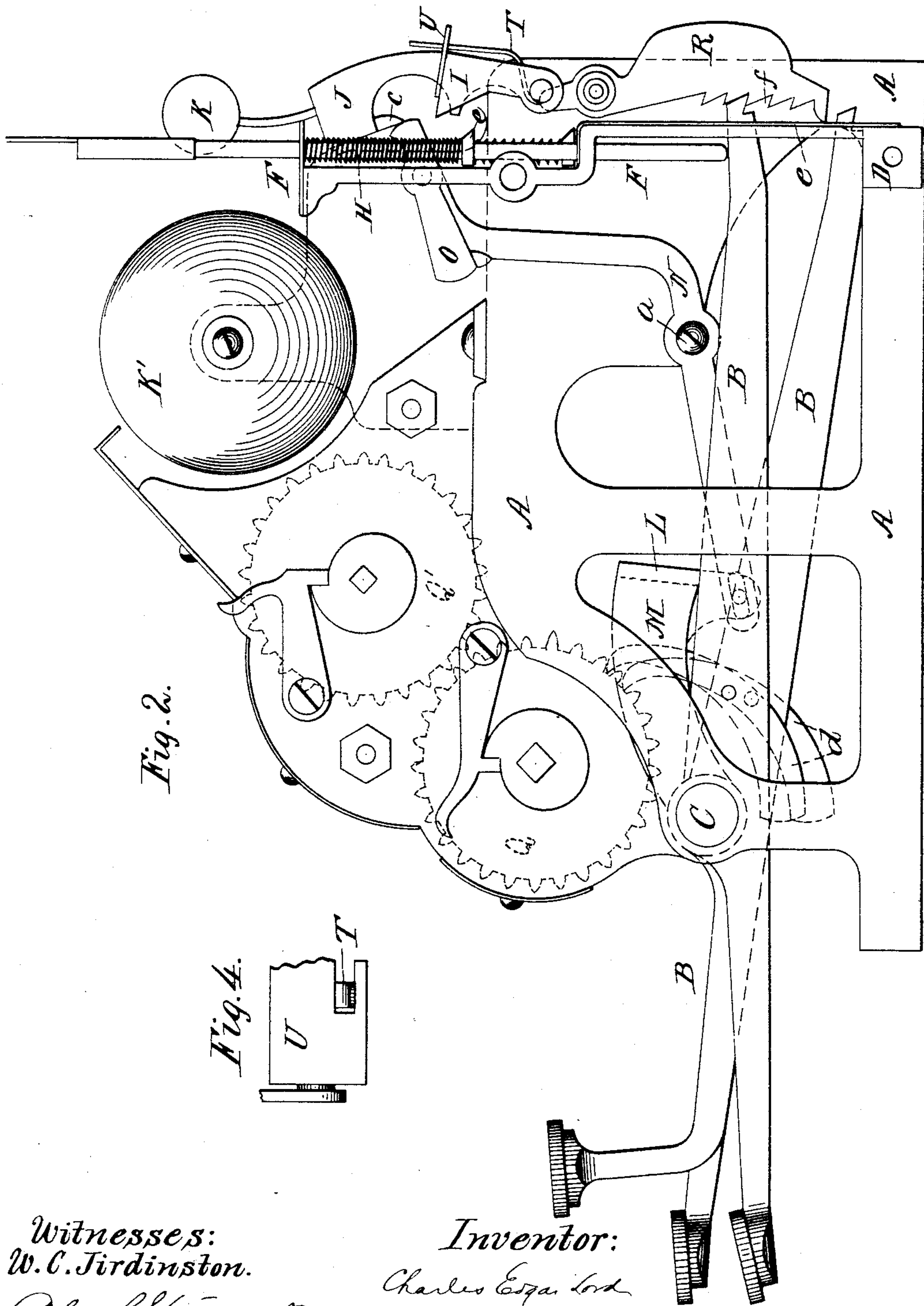
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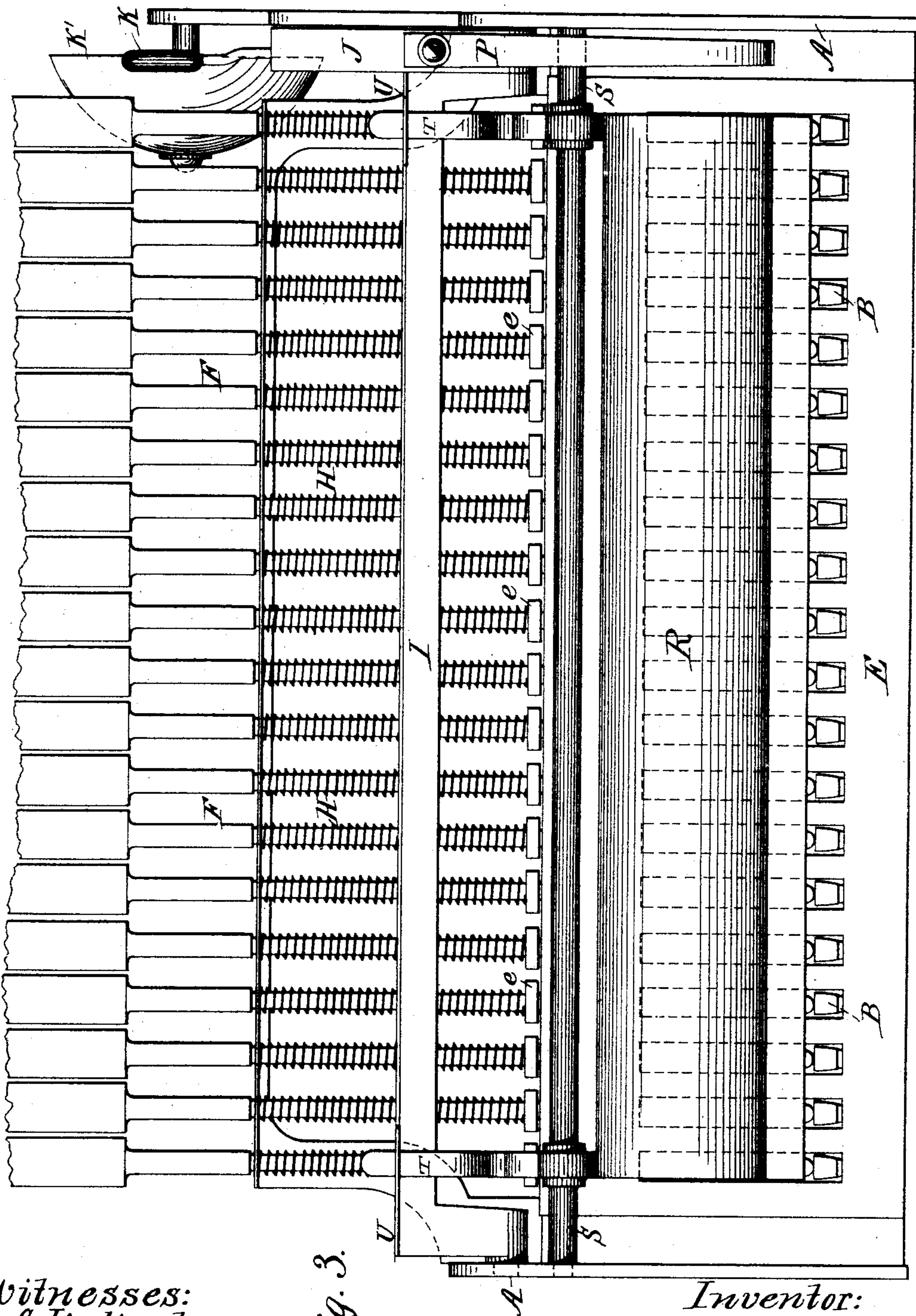
Inventor:  
Charles Ezra Lord  
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Attorneys.



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Fig. 3.

Inventor:

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by Peck & Rector  
his Attorneys.



# UNITED STATES PATENT OFFICE.

CHARLES EDGAR LORD, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO THE  
NATIONAL CASH REGISTER COMPANY, OF DAYTON, OHIO.

## CASH REGISTER AND INDICATOR.

SPECIFICATION forming part of Letters Patent No. 445,670, dated February 3, 1891.

Application filed May 7, 1889. Serial No. 309,888. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES EDGAR LORD, a citizen of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Cash Registers and Indicators, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

My improvement relates to that class of cash registers and indicators which are provided with a registering mechanism actuated by a series of operating-keys, which usually co-operate with a series of indicating-tablets, to both indicate and register the value of each key as it is operated. In such machines it is desirable, for reasons well known to those familiar with their use, to provide means to prevent the resetting of a key to normal position after it has been partially but not fully operated, and to lock the unoperated keys until such partially-operated key has been operated to its full extent; and my invention relates to the provision of improved means for these purposes.

Its novelty will be herein set forth, and specifically pointed out in the claims.

In the accompanying drawings, Figure 1 represents a side elevation of a machine embodying my invention with a portion of the rear side of the frame-work broken away. Fig. 2 is a corresponding view showing one of the keys in a partially-operated position. Fig. 3 is a rear elevation of the same with the indicating-tablets broken away and the registering mechanism removed. Fig. 4 is a detail view showing the engagement of the wing with one of the arms of the key-arresting bar. Fig. 5 is a detail.

The same letters of reference are used to indicate identical parts in all the figures.

I have illustrated my improvements as applied to a well-known form of machine whose general construction may be thus briefly described:

The registering and indicating mechanisms are supported in a proper frame-work A, and are designed to be inclosed in the usual case or cabinet, (not shown,) through the front of which the front ends of the operating-keys

B project, and in the upper rear portion of which is a glass-covered reading-opening for the exposure of the indicating-tablets. The keys B are pivoted on a shaft C, extending across the front of the machine. Their front ends are provided with numbered finger-buttons, while their rear ends, resting in normal position on the cross-piece D of the framework, play up and down in slots in a guide-plate E and carry vertically-guided tablet-rods F, provided at their upper ends with numbered indicating-tablets G and surrounded by the usual coiled resetting-springs H.

The tablet-rods are provided with shoulders e, which are engaged by the pivoted wing I, provided with an upward extension J, carrying the gong-hammer K, and actuated upon the operation of any key to engage the shoulder of the operated tablet-rod and to cause the gong-hammer to strike the gong K' in the following manner and by the following means: Extending across and resting upon the keys in rear of their pivotal support is the bar L, hung by side arms M upon the shaft C. Pivoted, as at a, to the frame of the machine is a bell-crank arm N, whose lower forwardly-extending portion is connected by a slot and pin to the bar L or to one of its side arms M, and whose upwardly and rearwardly extending portion carries a weighted tripping-dog O, pivoted as at b, and whose rearwardly-extending nose engages a wiper-block c upon the upward extension J of the wing I. A spring P (shown only in Fig. 3) presses the wing I and its extension J inward and yieldingly holds them in normal position. It results from this construction that when the front end of a key is depressed the bar L will be lifted, the bell-crank arm N rocked, and its upwardly and rearwardly extending portion thrown backward, and the dog O will engage the wiper-block c on the extension J and push said extension and the wing I backward against the resistance of the spring P until, the shoulder of the operated tablet-rod having passed above the wing, the nose of the dog O slips past the wiper-block c, the extension J and wing I are released and thrown back to their normal position, the hammer K striking the gong K', and the wing I engaging the shoulder of



the elevated tablet-rod to hold its exposed tablet exposed to view, all in the usual manner, and as will be readily understood. When the operated key is released it resets itself, the bar C and bell-crank arm N resume their normal position, and the nose of the dog O slips back over the wiper-block c, ready for another operation.

The registering mechanism illustrated in the drawings consists of two banks of individual registering-wheels Q Q', the wheels of the lower bank being engaged by actuating-dogs d, pivoted to the keys B, and each arranged to turn its corresponding wheel one number upon each full operation of its key. Each wheel of the upper bank is turned one number at each complete revolution of its corresponding wheel in the lower bank, in the usual manner.

As a means for preventing the resetting of a partially-operated key to normal position before the same has been fully operated, I provide a horizontal key-arresting bar extending across the rear ends of the keys and so arranged and actuated that when a key is partially operated it will engage and support the key in its partially-operated position should it be released before it has been fully operated, and upon the full operation of the key it will be automatically disengaged therefrom to permit the key to be reset to its normal position, and for the further purpose of preventing the operation of a second key after a first has been partially but not fully operated I so construct and arrange this key-arresting bar that when one key is partially operated the bar in moving into engagement with said key to support it if released will assume such a position relatively to the unoperated keys as to lock all of them from operation until after the partially-operated key has been fully operated. In this manner a single bar may be made to act both as a key-arrester to prevent the resetting of partially-operated keys and as a key-lock for the unoperated keys; or, as hereinafter explained, it may be constructed and arranged to be used for either purpose independently of the other. As illustrated in the accompanying drawings, it consists of a horizontal bar R, hung upon suitable pivotal supports, as the rod S, and extending across the rear side of the machine, with its lower edge in close proximity to and slightly above the horizontal plane of the rear ends of the keys, and provided on its inner face with a series of serrations or engaging-shoulders f extending its entire length. Under the form illustrated its longitudinal central portion is thickened and rounded out on its rear side, and it is so pivoted on the rod S that when free to move on its pivots it will swing in over the rear ends of the keys to the position shown in Fig. 2. Such being the normal position which the bar tends to assume by its own gravity, it is made to operate as a key-arresting and key-locking bar by providing means for holding it out of such position

when the keys are at rest, as seen in Fig. 1, and releasing it when a key is partially operated, as shown in Fig. 2, to permit it to swing inward to such normal position to cause its shoulders f to engage the rear end of the partially-operated key and its lower edge to move over and lock the unoperated keys. Any suitable means may be employed for this purpose.

In the machine illustrated in the drawings I find it convenient to use the tablet-supporting wing I to hold the bar R in its outward position when the keys are at rest and to return it to such position after a key has been operated, and I employ it for this purpose in the following manner: I provide the bar R with one or more upwardly-extending arms T—in this instance two—one at each end of the bar, and each of which passes through and has limited play in a slotted plate U, secured to the wing I, as seen more particularly in Fig. 5. It results from this construction and arrangement of the parts that when the wing I is in its normal inward position the plates U will hold the arms T tilted inward and the bar R tilted outward, as shown in Fig. 1, and that when the wing I is moved outward the bar R will be free to swing inward to the position shown in Fig. 2. In the operation of the machine, therefore, when the front end of a key is depressed the bar L is lifted and the bell-crank arm N oscillated, the dog O pushes the extension J and wing I backward, and the bar R swings inward and its shoulders f engage the rear end of the operated key, while its lower edge moves over and locks the unoperated keys. If the key whose front end has been depressed is fully operated its rear end merely slips over the shoulders f of the bar R, and when it has reached its limit of operation the dog O slips past the wiper-block c, the spring P resets the wing I and extension J, and the bar R is returned to the position shown in Fig. 1 to unlock the unoperated keys and permit the operated key to be reset.

While I have shown the bar R as so shaped and pivoted that it will swing into engaging and locking position by its own gravity, yet it is not essential that it should do so, for other and independent means may be employed for moving it into such position. For instance, in Fig. 5 I have shown a spring V for that purpose, secured for convenience to the wing I and bearing against the rear side of the bar R. In such case as the gravity of the bar is not depended on to move it into operative position it may be made much lighter than shown in Figs. 1 and 2.

Where it is desired to employ the bar R merely as a key-locking bar, the shoulders f may be dispensed with and the lower edge of the bar be its only operative part; or where it is desired to employ it merely as a key-arresting bar the shoulders may be retained and the lower edge of the bar be beveled off, as shown by the dotted lines in Fig. 5.

I wish it understood that the machine I



have shown and described has been selected by me for this purpose merely because it is of a well-known type and affords a convenient means of showing the application of my improvements, and, such being the case, the means which I have illustrated for actuating the key-arresting and locking-bar are only incidental to the particular construction of this machine, and such other suitable means may be employed for this purpose as may be found convenient or desirable in the different machines to which my improvements may be applied. Nor do I wish to be limited to the particular form or arrangement of said bar, for they may be largely varied without changing its general mode of operation and the results accomplished thereby; also, while I have shown my improvements as applied to a machine whose registering mechanism consists of a series of individual registering-wheels, one for each key, and each arranged to be turned one number by a full operation of its key, they may be employed to perhaps even greater advantage in machines which have a registering-wheel common to and actuated by each of a series of keys, for in such machines the wheel is actuated to different degrees by keys of different values, and it is absolutely essential to an accurate registration that each key be operated to its full extent before being reset.

I am aware that it is not entirely new in cash registers and indicators to employ key-arresting devices for preventing the resetting of a partially-operated key, but those heretofore in use have been radically different from mine both in construction and mode of operation. One form of such devices heretofore in use consisted of a laterally-movable grid of vertical rack-bars supported at the rear of the machine, through which grid the rear ends of the keys projected, and which moved sidewise upon the lifting of the rear end of a key so that one of its rack-bars engaged the side of the key and supported it in partially-operated position if released; but my single horizontal bar movable in the plane of movement of the keys instead of transversely thereof has obvious advantages over such a device as that above described, both in simplicity of construction and increased efficiency of operation.

In another application filed by me August 3, 1888, Serial No. 281,878, I have shown and described a different embodiment of my invention, in which a series of individual key-arresters and key-locks are employed, one co-operating with each key, said key-arresters and locks being of a similar shape in cross-section to the bar R of my present application and arranged to operate in a similar manner.

I do not claim herein the combination, with the operating-keys, of a key-lock arranged upon the partial operation of a key to lock the unoperated keys and to hold them from operation until the partially-operated key has completed its stroke and to then unlock

and release said keys, as I have claimed said subject-matter in another pending application filed by me August 3, 1888, Serial No. 281,878.

Having thus fully described my invention, I claim—

1. In a cash register and indicator, the combination, with the operating-keys, of a bar arranged when a key is partially operated to move into a position to lock the unoperated keys and to be moved out of such locking position when said key has been fully operated, substantially as and for the purpose described.

2. In a cash register and indicator, the combination, with a series of pivoted operating-keys, of a horizontal bar extending across the same and arranged when a key is partially operated to move into a position to lock the unoperated keys and to be moved out of such locking position after said key has been fully operated, substantially as and for the purpose described.

3. In a cash register and indicator, the combination, with the operating-keys, of a bar arranged when a key is partially operated to move over the unoperated keys and lock them from operation, and upon the full operation of said key to move from over and release said unoperated keys, substantially as and for the purpose described.

4. In a cash register and indicator, the combination, with the series of pivoted operating-keys, of a bar extending across the rear of the machine and arranged when a key is partially operated to move over the rear ends of the unoperated keys and lock them from operation, substantially as and for the purpose described.

5. In a cash register and indicator, the combination, with the operating-keys, of a pivotally-supported horizontal bar extending across the keys and arranged when a key is partially operated to swing into a position to lock the unoperated keys from operation and to move out of such position after said key has been fully operated, substantially as and for the purpose described.

6. In a cash register and indicator, the combination, with the operating-keys, of a pivotally-supported horizontal bar extending across the rear of the machine and arranged when a key is partially operated to swing over the ends of the unoperated keys and lock them from operation and to move out of such locking position after the full operation of such key, substantially as and for the purpose described.

7. In a cash register and indicator, the combination, with the operating-keys, of a bar normally tending to move into a position to lock the keys from operation, and a device for holding said bar out of such locking position when the keys are at rest, but arranged to permit it to move into such position whenever any key is partially operated, substantially as and for the purpose described.

8. In a cash register and indicator, the com-



combination, with a series of operating-keys of different values and a registering mechanism actuated thereby to register the values of the respective keys, of a horizontal key-arresting bar extending across the entire series of keys, movable in the plane of movement thereof, and arranged to engage any key of the series when partially operated to prevent it being reset if released and to be disengaged therefrom when said key has been fully operated, whereby a single bar is made to operate as an arrester for all the keys of the series, substantially as described.

9. In a cash register and indicator, the combination, with a series of operating-keys of different values and a registering mechanism actuated thereby to register the values of the respective keys, of a horizontal key-arresting bar extending across the entire series of keys, pivoted on an axis transversely thereof, and arranged to engage any key of the series when partially operated to prevent it being reset if released and to be disengaged therefrom when said key has been fully operated, substantially as and for the purpose described.

10. In a cash register and indicator, the combination, with a series of operating-keys of different values and a registering mechanism actuated thereby to register the values of the respective keys, of a horizontal key-arresting bar extending across the rear ends of the entire series of keys, pivoted on an axis transversely thereof, and arranged to engage any key of the series when partially operated to prevent it being reset if released and to be disengaged therefrom when said key has been fully operated, substantially as and for the purpose described.

11. In a cash register and indicator, the combination, with a series of operating-keys, of a horizontal key-arresting bar extending across the rear ends of the entire series of keys and movable in the plane of movement thereof, and arranged when any key of the series is partially operated to move beneath the end of said key to hold it in its partially-operated position if released, and upon the full operation and release of such key to move from beneath the end thereof to permit it to reset itself, substantially as and for the purpose described.

12. In a cash register and indicator, the combination, with a series of operating-keys of different values and registering and indicating mechanisms actuated thereby to register and indicate the values of the respective keys, of a horizontal key-arresting bar movable in the plane of movement of the keys and arranged to engage a partially-operated key to prevent it being reset if released and to be disengaged therefrom when said key has been fully operated, substantially as and for the purpose described.

13. In a cash register and indicator, the combination, with the operating-keys, of a combined key-locking and key-arresting bar arranged when a key is partially operated to

move into a position to lock the unoperated keys and prevent the resetting of the partially-operated key, substantially as and for the purpose described.

14. In a cash register and indicator, the combination, with the operating-keys, of a bar arranged when a key is partially operated to move over the unoperated keys and beneath the operated key to lock the former from operation and to support the latter in its partially-operated position if released, and upon the full operation and release of such key to move from over the unoperated keys and from beneath the operated key to unlock the former and to permit the latter to reset itself, substantially as and for the purpose described.

15. In a cash register and indicator, the combination, with the operating-keys, of a pivotally-supported horizontal bar arranged when a key is partially operated to move into a position to lock the unoperated keys and prevent the resetting of the partially-operated key, and upon the full operation and release of said key to move out of such position to unlock the unoperated keys and permit the partially-operated key to reset itself, substantially as and for the purpose described.

16. In a cash-register and indicator, the combination, with the operating-keys, of a pivotally-supported horizontal bar extending across the rear of the machine and arranged when a key is partially operated to move over the unoperated keys and beneath the operated key to lock the former from operation and to support the latter in its partially-operated position if released, and upon the full operation and release of such key to move from over the unoperated keys and from beneath the operated key to unlock the former and to permit the latter to reset itself, substantially as and for the purpose described.

17. In a cash register and indicator, the combination, with a series of operating-keys and a series of tablet-rods and indicating-tablets actuated thereby, a series of registering-wheels, one for each key, and a series of actuating-dogs pivoted one to each key and arranged to engage its corresponding registering-wheel and turn the same one number upon each complete operation of such key, of a horizontal bar extending across the rear of the machine and arranged when a key is partially operated to move beneath the end of said key and hold the same in its partially-operated position if released, and upon the full operation and release of said key to move from beneath the end of said key to permit it to reset itself, whereby when a key is partially operated and released and is then operated to its full extent only one registration will be effected by both the partial and complete operations of such key.

18. In a cash register and indicator, the combination, with a series of operating-keys and a series of tablet-rods and indicating-tablets actuated thereby, a series of registering-



wheels, one for each key, and a series of actuating-dogs pivoted one to each key and arranged to engage its corresponding registering-wheel and turn the same one number upon each complete operation of such key, of a pivotally-supported horizontal bar extending across the rear of the machine and arranged when a key is partially operated to move beneath the end of said key and over the ends of the unoperated keys to support the former in its partially-operated position if released and to lock the latter from operation, and upon the full operation and release of the former to move from beneath the end of said key to permit it to reset itself, whereby when a key is partially operated and released and is then operated to its full extent only one registration will be effected by both the partial and complete operation of such key.

19. In a cash register and indicator, the combination, with a series of operating-keys arranged in two banks and provided on their front ends with numbered buttons, a series of tablet-rods and indicating-tablets actuated by said keys, a series of registering-wheels arranged in two horizontal banks, one over the other, and extending across the machine, and a series of actuating-dogs pivoted one to each key and arranged to engage its corresponding registering-wheel in the lower bank and turn

the same one number at each complete operation of such key, of a horizontal key-arresting bar pivotally connected to the frame of the machine and extending across the rear thereof, said bar being yieldingly held in its normal position, but actuated upon the operation of any key and arranged when a key is partially operated to swing beneath the end of said key and over the ends of the unoperated keys to support the former in its partially-operated position if released and to lock the latter from operation, and upon the full operation and release of the former to swing back to its normal position to permit said key to reset itself, whereby when a key is partially operated and released and is then operated to its full extent only one registration will be effected by both the partial and complete operation of such key.

20. In a cash register and indicator, the combination, with the series of operating-keys, of the bar R, extending across the entire series of keys, movable in the plane of movement thereof, and arranged to operate substantially in the manner and for the purpose specified.

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Witnesses:

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EDWARD RECTOR.