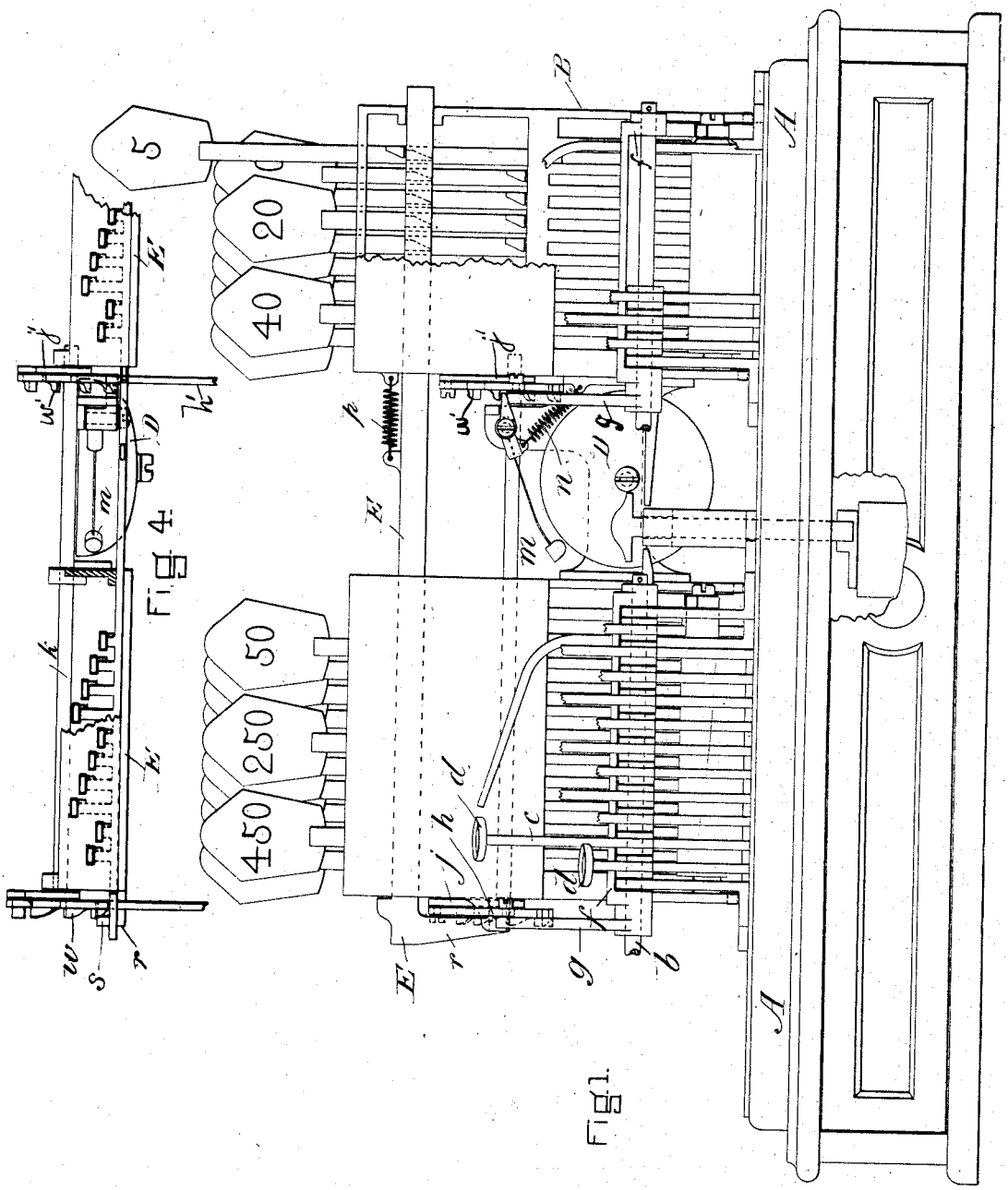
(No Model.)

2 Sheets—Sheet 1.

E. B. PARKHURST.

CASH INDICATOR AND REGISTER.

No. 422,823. Patented Mar. 4, 1890.



Witnesses.
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(No Model.) 2 Sheets—Sheet 2.

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Fig. 1.

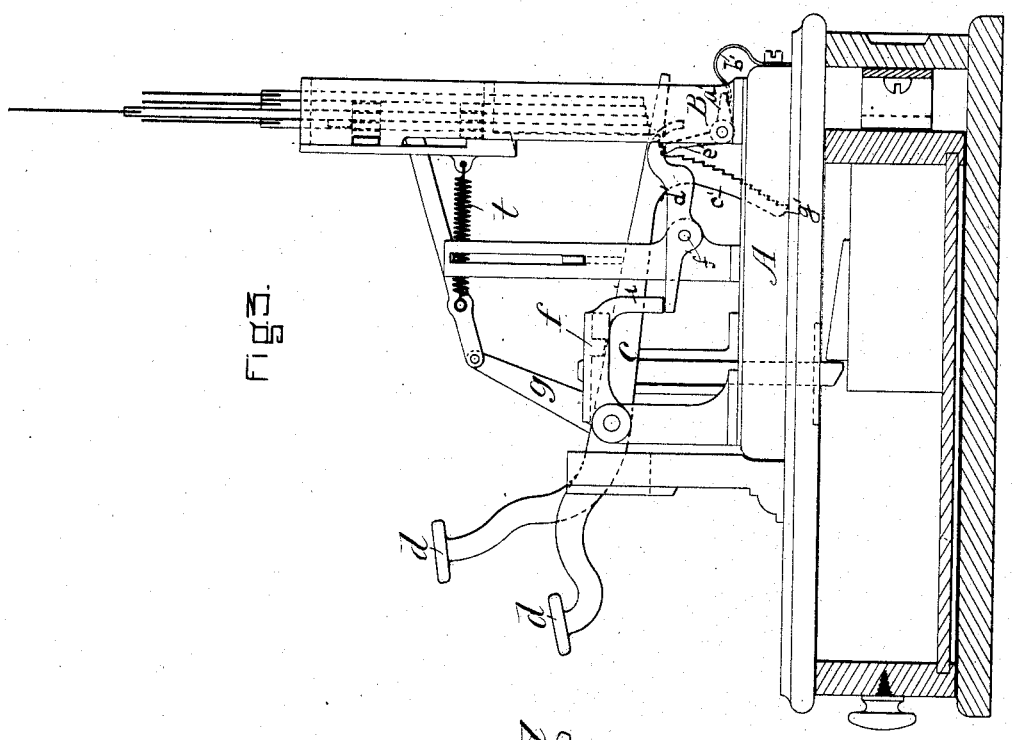
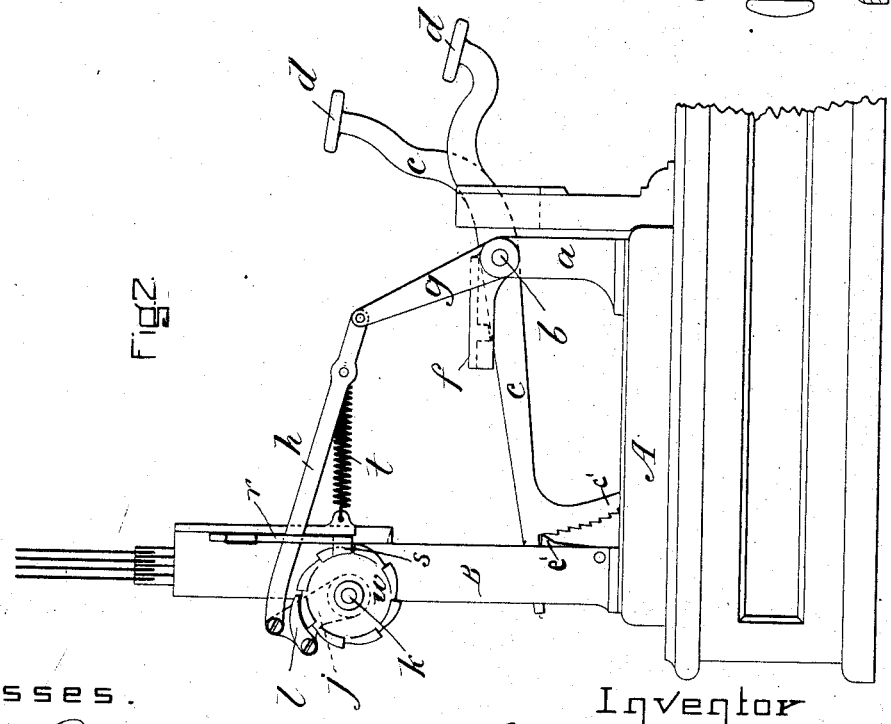


Fig. 2.



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UNITED STATES PATENT OFFICE.

EDWARD B. PARKHURST, OF WOBURN, MASSACHUSETTS, ASSIGNOR TO THE NATIONAL CASH REGISTER COMPANY, OF DAYTON, OHIO.

CASH INDICATOR AND REGISTER.

SPECIFICATION forming part of Letters Patent No. 422,823, dated March 4, 1890.

Application filed September 15, 1888. Serial No. 285,444. (No model.)

To all whom it may concern:

Be it known that I, EDWARD B. PARKHURST, of Woburn, county of Middlesex, and State of Massachusetts, have invented certain new and useful Improvements in Cash Indicators and Registers, of which the following is a specification, reference being had to the drawings accompanying and forming a part hereof, in which—

Figure 1 is a front elevation of a machine with my improvement attached. Figs. 2 and 3 are end elevations of a machine with my improvement attached, and showing only those parts of the apparatus which I deem necessary to show to make clear the construction of my present improvement and its relation to the other parts of the mechanism. Fig. 4 is a top view of part of the machine, showing my improvement.

The chief object of my invention is the construction of an effective device which may be applied to cash-indicators to insure the ringing of a bell each time a key is depressed; and it consists in the construction and arrangement of the parts hereinafter more particularly described.

Another object of my invention is to improve the construction of the key arresting and releasing devices by causing the said devices to be automatically thrown into and out of action upon the operation of any one of the keys.

I have shown my invention as embodied in a machine such as is shown and described in the joint application of Edward B. Parkhurst and Foster Ham, now pending in the United States Patent Office, Serial No. 279,049, and as the machine is fully shown and described in said application I will confine my present description to my improvement and to those parts of the machine with which it is directly connected.

In the drawings like letters of reference indicate like parts.

A is the base on which the indicating and registering mechanism rests.

a are uprights which support the rod or pin *b* on which the key-levers are pivoted.

c are the key-levers and *d* the keys.

f is a table which rests on top of the key-levers and is pivoted on the rod *b*, which supports the key-levers, said rod *b* passing through downward projections at either end of the table. (See Fig. 1.) A rigid arm *g* is secured to the table at one end thereof, and at the upper end of said arm a link or connection *h* is pivoted. (See Fig. 2.) The other end of the connection *h* is pivoted to an arm *j*, which is set loosely on the shaft *k*, which is mounted in the uprights B, forming part of the frame which supports the tablet-rods.

The shaft *k* carries two ratchet-wheels *w* *w'*, which are fast thereon, one such wheel being provided for each bank of keys used. The teeth of these wheels are set on the face thereof, and coact with a pawl *l*, pivoted on the arm *j*, so that each time the arm *j* is moved forward the ratchet is turned one tooth.

A similar pawl mechanism is provided for each ratchet used, that for the ratchet *w* being lettered in the drawings *j l h*, &c., and that for the ratchet *w'* being lettered *j' l' h'*, &c., and in connection with one of the ratchets, preferably the one located nearest the center of the machine, (see Fig. 1,) I provide a bell D and hammer *m*. The hammer is secured to a lever pivoted in proximity to the ratchet-wheel, and so that the free end of the lever will be moved by contact with a ratchet-tooth each time the ratchet moves. As the hammer is held down by a spiral spring *n* secured at one end to the frame, and at the other to the hammer-lever, each movement of the ratchet serves to trip the hammer and ring the bell.

While the ratchet in the center of the machine serves to ring the bell, the one at the end (see left of Fig. 1) also acts to shift the tablet-supporting bar, thus allowing the tablet which is up to drop, and the tablet of the key which is depressed to move up. This tablet-supporting bar is shown at E, Fig. 1, and is the same in construction as the bar shown in the said pending application above referred to. Said bar is actuated in one direction by the spiral spring *p*, and one end of the bar is bent downwardly at *r*, (see left of Fig. 1,) the downwardly-bent end being provided with a projection *s*, (see Fig. 2,) which lies in the path of revolution of the ratchet-teeth. As

a tooth passes the projection, the projection rides over it and the bar E is moved to the left, allowing the tablet-rod which is up to drop and another to move up. As the tooth passes the projection, the bar moves to the right again under the tension of spring *p* and holds up the tablet-rod which has just been raised. The ratchet mechanism described performs the double function of operating the bar which holds the tablet-rods in their raised position and of ringing the bell each time a key is depressed. The connecting-rod *h*, which is moved forward by the depression of the key which raises the table *f* and throws forward the rigid arm *g*, is moved in the opposite direction by the spiral spring *t* fast at one end to the frame and at the other to a pin on the connection *h*, as will be clear from Figs. 2 and 3.

The employment of the above-described device insures the ringing of the bell each time a key is depressed, while the shifting of the tablet-rod-supporting bar is accomplished with great ease, causing the machine to work easily and certain.

In the cash register and indicator shown in the hereinbefore-mentioned application of Parkhurst and Ham, Serial No. 279,049, each of the keys is provided with a rack with which a pawl common to all the keys is intended to engage when a key is partially operated and to be disengaged therefrom when the key has been fully operated, and a latch is provided for holding the pawl out of engagement with the rack while the key is being reset, said latch being in turn adapted to be tripped upon the closing of the drawer by the action of a tripping mechanism controlled by said drawer. My present invention differs from the one just described principally in this: Instead of the latch being operated by tripping mechanism controlled by the drawer it is operated automatically upon the resetting of the key, thereby rendering the tripping of the latch entirely independent of the motions of the drawer. The key-levers *c* near their rear ends have each a downwardly-projecting rack *c'*, against which a pawl *e'*, Fig. 3, acts. The pawl *e'* is pivoted near the base of the upright B and has a rearward projection *a'*, engaged by a spring *b'*, which presses the upper end of the pawl *e'* into engagement with the teeth of the rack *c'*. The rack *c'* is provided at its lower end with a projection *g'*, and it results from this construction and arrangement that the key cannot be partially operated and then returned to its normal position, but must be fully operated so as to bring the projection *g'* of its rack *c'* into contact with the pawl *e'*. This projection *g'* is of sufficient length to throw the pawl *e'* back out of engagement with the rack *c'*, and it is caught and held in this position by the shoulder on the rear end of a gravitating latch *d'*, pivoted, as at *f''*, to the frame of the machine. The operated key is then free to return to its normal position of rest, and when it has reached that position the latch *d'* is tripped by a pendent projection *i* on the table *f*, which upon the resetting of the key comes in contact with and depresses the front end of the latch, thereby lifting its rear end from engagement with the pawl *e'*, and releasing the latter, so that it can re-engage the rack *c'* preparatory to the next operation of the key. The pawl *e'* consists of a metal bar extending across the entire bank of keys and of the shape in transverse section, shown in Fig. 3, so that one bar acts as a pawl for all the keys of its bank.

I do not wish to be understood as claiming in this case, broadly, the combination of the operating-keys provided with the racks, the pawl-bar, and a latch for holding the racks and bar out of engagement during the resetting of an operated key, for that combination forms the subject-matter of claims in the joint application of myself and Foster Ham, before referred to. What I desire to claim in the present application, so far as this feature of my invention is concerned, is the combination of the keys provided with the racks, the pawl-bar, and a latch for the bar which is tripped or released upon the resetting of an operated key, as will be specifically set forth in the claims herein.

I do not claim the combination, with an operating-key provided with a rack, of a pawl arranged to engage said rack when a key is partially operated and to be disengaged therefrom when the key has been fully operated, a latch for holding the pawl and rack out of engagement while the key is being reset, and a trip for releasing said latch, as such combination is the joint invention of myself and Foster Ham, and is made the subject of claim in our joint application, Serial No. 279,049, filed July 5, 1888.

What I claim is—

1. In a cash register and indicator, the combination, with the tablet-rods and tablets and their supporting-bar and the operating-keys, of a ratchet-wheel actuated by said keys and arranged upon the operation of a key to move the supporting-bar to release the elevated tablet-rod and permit the ascent of the newly-operated one, substantially as and for the purpose described.

2. In a cash register and indicator, the combination, with the operating-keys and the tablet-rods and tablets, of the supporting-bar E and the ratchet-wheel *w*, with its operating mechanism, substantially as and for the purpose described.

3. In a cash register and indicator, the combination, with the tablet-rods and tablets, their supporting-bar E, the ratchet-wheel *w*, arm *j*, pawl *e'*, and link *h*, of the key-levers *c*, plate *f*, and arm *g*, substantially as and for the purpose described.

4. In a cash register and indicator, the combination, with the gong and its hammer, a series of operating-keys, and a vibrating bar extending across and actuated by the opera-

tion of any one of said keys, of a ratchet-wheel actuated by the movement of said bar upon the operation of any key to trip the gong-hammer and sound the gong, substantially as and for the purpose described.

5. In a cash register and indicator, the combination, with the gong D, its hammer m, the wheel w', arm j', pawl e', and link h', of the key-levers c, table f, and arm g, substantially as and for the purpose described.

6. A cash-indicator having a ratchet, as w, for each bank of keys mounted on a shaft, as k, and operated by pawl mechanism actuated from the key-levers, in combination with a pivoted bell-hammer lever adapted to engage with the teeth of one of said ratchets, and a tablet-rod-supporting bar, as E, in contact with another of said ratchets, whereby each time a key is depressed, moving the ratchets one tooth, the bell is rung, and a tablet-rod is allowed to drop, substantially as shown and described.

7. In a cash register and indicator, the combination, with an operating-key provided with a rack, of a pawl arranged to engage said rack when the key is partially operated and to be disengaged therefrom when the key has been fully operated, a latch for holding the pawl and rack out of engagement while the key is being reset, and a trip for said latch operating automatically to trip the latch upon the resetting of the key, substantially as and for the purpose described.

8. In a cash register and indicator, the combination, with an operating-key pivoted between its ends and provided with a rack, of a pawl arranged to engage said rack when the key is partially operated and to be disengaged therefrom when the key has been fully operated, a latch for holding the pawl and rack out of engagement while the key is being reset, and a trip for said latch operating automatically to trip the latch upon the resetting of the key, substantially as and for the purpose described.

9. In a cash register and indicator, the combination, with an operating-key provided with a rack having a projection at one end, of a pawl arranged to engage said rack when the key is partially operated and to be disengaged therefrom by the projection at the end of the rack when the key has been fully operated, a latch for holding the pawl and rack out of engagement while the key is being reset, and a trip for said latch operating automatically to trip the latch upon the resetting of the key to permit the re-engagement of the pawl with the rack, substantially as and for the purpose described.

10. In a cash register and indicator, the combination, with a rack having a projection at its lower end, of a pawl arranged to engage said rack as the key is operated and the rack lifted and to be disengaged therefrom by the projection at the lower end of the rack when the key has been fully operated, a latch for holding the pawl and rack out of engagement while the key is being reset, and a trip for said latch operating automatically to trip the latch upon the resetting of the key, substantially as and for the purpose described.

11. In a cash register and indicator, the combination, with an operating-key pivoted between its ends and provided with a rack having a projection at one end, of a pawl arranged to engage said rack when the key is partially operated and to be disengaged therefrom by the projection at the end of the rack when the key has been fully operated, a latch for holding the pawl and rack out of engagement while the key is being reset, and a trip for said latch operating automatically to trip the latch upon the resetting of the key, substantially as and for the purpose described.

12. In a cash register and indicator, the combination, with the pivoted key-lever c, provided with the rack c', having the projection g', of the pawl e', the latch d', and the pivoted table f, arranged to trip said latch upon the resetting of the key, substantially as and for the purpose described.

13. In a cash register and indicator, the combination, with a series of operating-keys, of a horizontal bar extending across said keys and arranged to engage a partially-operated key and prevent its being reset and to be disengaged therefrom when the key has been fully operated, a latch for holding said bar and key out of engagement while the latter is being reset, and a trip for said latch operating automatically to trip the latch upon the resetting of the key, substantially as and for the purpose described.

14. In a cash register and indicator, the combination, with a series of operating-keys, each provided with a rack, of a bar extending across the entire series of keys and arranged to engage and act as a pawl for each one of said racks to prevent any key of the series being reset when only partially operated and to be disengaged therefrom when the key has been fully operated, and a latch arranged to hold said bar and rack out of engagement while the key is being reset and to be released upon the resetting of the key, substantially as and for the purpose described.

15. In a cash register and indicator, the combination, with a series of operating-keys, each provided with a rack having a projection at one end, of a bar extending across the entire series of keys and arranged to engage and act as a pawl for each one of said racks to prevent any key of the series being reset when only partially operated and to be disengaged from said rack by the projection on the latter when the key has been fully operated, and a latch arranged to hold said bar and rack out of engagament while the key is being reset and to be released upon the resetting of the key, substantially as and for the purpose described.

16. In a cash register and indicator, the combination, with the operating-keys, each provided with a rack, of a pawl arranged to

engage said rack when a key is partially operated and to be disengaged therefrom when the key has been fully operated, a latch for holding the pawl and rack out of engagement while the key is being reset, and a vibrating bar or table extending across and actuated by the operating-keys and arranged to trip said latch upon the resetting of said key, substantially as and for the purpose described.

17. In a cash register and indicator, the combination of the key-levers *c*, each provided with a rack *c'*, the pawl-bar *e'*, engaging said rack, means for automatically disengaging said bar from said rack upon the full operation of the key, the latch *d'*, for holding the bar *e'* out of engagement with the rack *c'* while the key is being reset, and the table *f*, extending across the operating-keys *c* and arranged to trip the latch *d'* upon the resetting of the key, substantially as and for the purpose described.

18. In a cash register and indicator, the combination of the key-levers *c*, each provided with a rack *c'*, having a projection *g'* at its lower end, the pawl-bar *e'*, engaging said rack, the pivoted latch *d'*, and the table *f*, arranged to depress the front end of said latch and release the bar *e'* upon the resetting of an operated key, substantially as and for the purpose described.

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Witnesses:
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