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F. H. BICKFORD & E. B. LOCK.  
CASH REGISTER.

(Application filed Mar. 23, 1901.)

(No Model.)

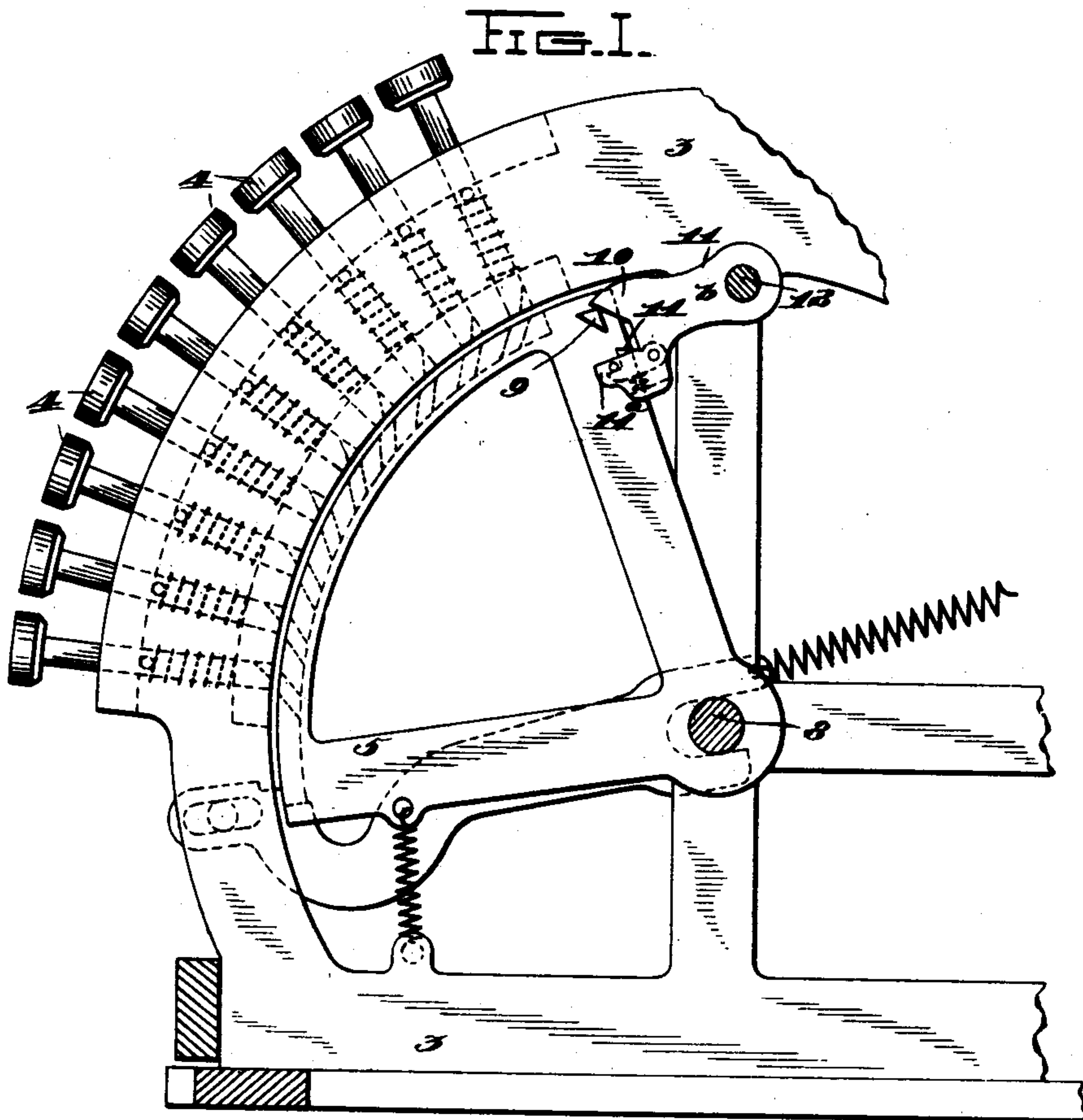
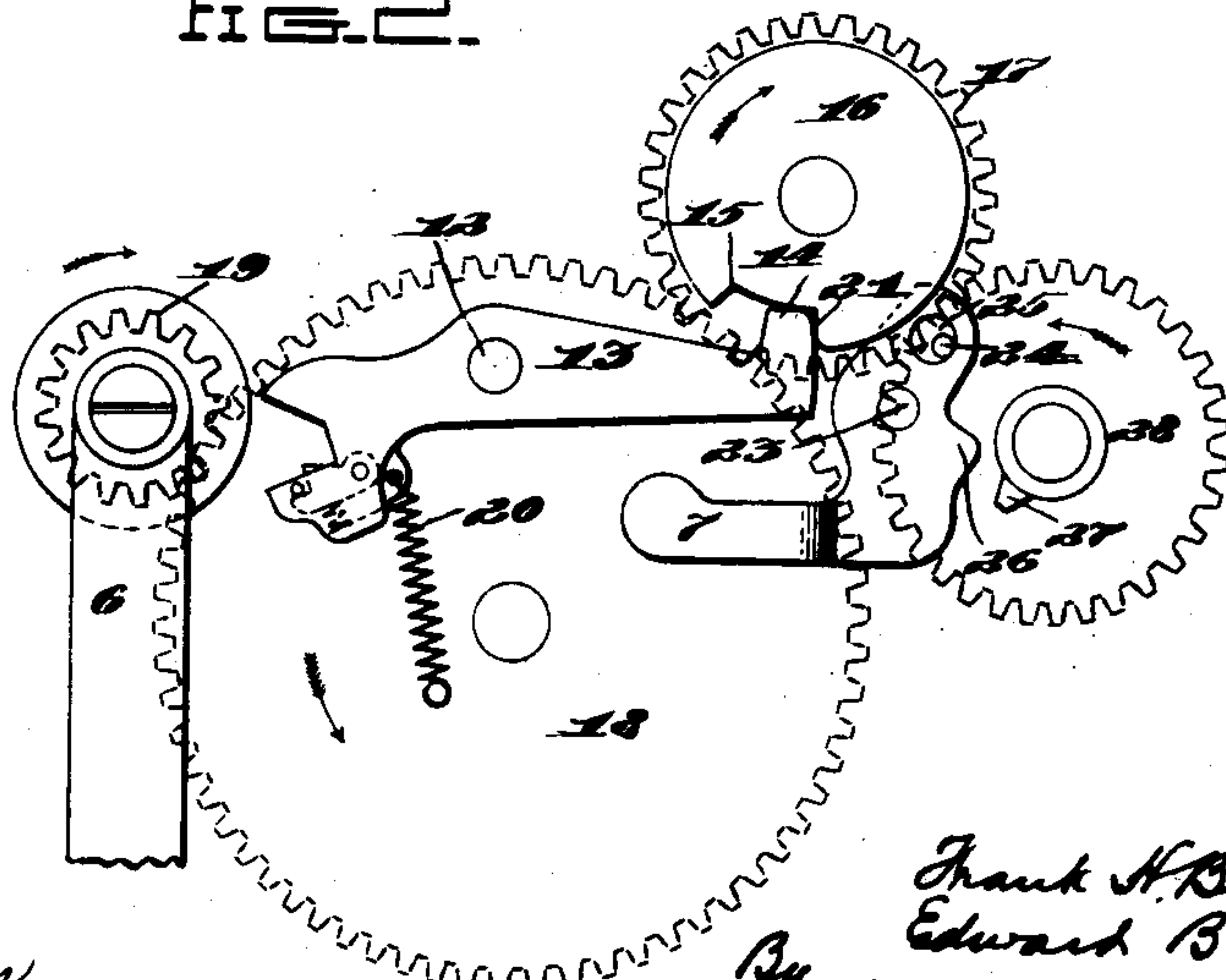


FIG. 2.



Witnesses

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# UNITED STATES PATENT OFFICE.

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## CASH-REGISTER.

SPECIFICATION forming part of Letters Patent No. 713,387, dated November 11, 1902.

Application filed March 23, 1901. Serial No. 52,654. (No model.)

*To all whom it may concern:*

Be it known that we, FRANK H. BICKFORD and EDWARD B. LOCK, citizens of the United States, residing at Dayton, in the county of Montgomery and State of Ohio, have invented certain new and useful Improvements in Cash-Registers, of which we declare the following to be a full, clear, and exact description.

This invention relates to improvements in cash-registers, and has more particular relation to improvements in machines of the two-motion type in which the parts are first set by the depression of certain keys and then operated by an operating-handle or equivalent element.

The object of the invention is to provide means for preventing premeditated and malicious misoperation of the machine, such as might be resorted to in an attempt to "beat" the machine.

In the accompanying drawings, forming part of this specification, Figure 1 represents a broken side elevation of a machine of the type mentioned to which our invention is particularly applicable, and Fig. 2 represents a broken detail side elevation of the operating-gearing of such a machine with our invention applied thereto.

In the above-described drawings, 3 represents the main frame of the machine; 4, the keys; 5, the segmental key-detent; 6, the operating crank-handle, which is broken away, and 7 our improved latch-operating device.

The construction and operation of the keys, detents, and latching devices are substantially old in the art; but in order that the present invention may be more intelligently understood we will give a brief general description of these parts.

The keys 4 are so formed and mounted in the frame that when they are pressed inward they coöperate with a segmental detent 5, mounted on a shaft 8, and elevate said detent to cause a lug 9, formed thereon, to engage a bevel-nose 10, and thus rock an arm 11, which carries said nose. This arm 11 is fast to a transverse rock-shaft 12, which carries the latch-lever 13 for preventing operation of the

machine. A vertical nose 14 on the rear end of the lever 13 projects into a locking-notch 15, formed in a disk 16, which is fast to one of the driving-gears 17. This gear meshes with a large intermediate gear 18, which in turn meshes with a pinion 19, carried by the crank-handle 6. The nose 14 is drawn into the recess 15 by a coil-spring 20, which connects the forward end of the lever 13 to the main frame.

The nose 14 normally lies in the path of a shoulder 21, formed by the notch 15, and thus locks the gear 17, and consequently the operating-handle. Both the nose 14 and shoulder 21 are beveled, so that when the nose is partially depressed by the operation of a key, as above described, the two bevel portions will lie in proximity to each other and the operation of the handle 6 will force the nose fully out of the recess 15, so that it will ride upon the periphery of the disk 16 until it again reaches the notch, when it snaps into the same, as the depressed key has been previously released from its detent, and thus no longer holds the latch.

As there are a number of the banks of keys 4, and consequently a number of the arms 11, all fast to the shaft 12, the rocking of the shaft will elevate all the arms 11. The shaft is of course only rocked by the operation of a key in the special or clerk's key-bank, as the arm 11 of this bank is the only one provided with a nose 10. Each of the arms 11, however, is provided with a jaw 11<sup>a</sup>, on which is mounted a beveled spring-pressed pawl 11<sup>b</sup>. When the shaft 12 receives its initial rocking movement upon the depression of one of the clerk's keys, the pawls 11<sup>b</sup> are of course elevated, but not sufficiently to bring the pawls into the paths of the lugs 9. After the shaft has been further rocked by the lever 13 upon the operation of the crank-handle the pawls 11<sup>b</sup> are moved into the paths of the lugs 9, and thus prevent the raising of any detents that have not been previously raised or that have returned to normal position during the operation of the machine.

It will be observed from the above that after



the nose 14 has been forced out of the recess 15 it is again made to enter the recess 15 upon the completion of the operation of the machine by the spring 20.

5 Our present invention is to make the operation of the latch 13 positive and to compel such a full operation of it as will insure the engagement of the nose 14 with the shoulder 21, and thus arrest the machine after it has  
10 made a complete movement. The lever 7 for accomplishing this result is pivoted upon the main frame at the point 23 and is limited in its movements by a pin 24, also mounted on the main frame and projecting into an aperture 25, formed in the upper part of said lever,  
15 which latter is of bell-crank formation. This lever is provided with a nose 26, which normally projects into the path of a lug 27, fast to the hub of a gear 28, which meshes with the gear 17. During a single operation of the  
20 machine the gear 28 is given one complete revolution, and the lug 27 engages the nose 26, and thus operates the lever 7 to cause it to engage and force the latch-lever 13 upward, and thus cause the nose 14 to pass into the  
25 path of the shoulder 21. After the lug 27 has passed the nose 26 the lever 7 drops back by gravity to its normal position. (Shown in Fig. 2.)

30 Having thus described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. In a cash-register, the combination with an operating mechanism, of a series of keys,  
35 a latch for the operating mechanism operated by the keys, and means actuated by the operating mechanism for positively forcing the latch into latching position.

2. In a cash-register, the combination with  
40 an operating mechanism, of a series of keys, a latch for the operating mechanism operated by the keys, a spring for drawing the latch into position to arrest the operating mechanism, and means actuated by the operating  
45 mechanism for positively forcing the latch into latching position should the spring fail to accomplish this result.

3. In a cash-register, the combination with an operating mechanism including a crank-  
50 handle, of a series of keys, a latch for the mechanism operated by the keys, and means actuated by the operating mechanism for positively forcing the latch back to normal locking position after it has been operated by  
55 the keys.

4. In a cash-register, the combination with an operating mechanism, of a latch therefor,  
60 means independent of the operating mechanism for tripping said latch, and a device actuated by the operating mechanism and adapted to positively return the latch to its normal locking position.

5. In a cash-register, the combination with an operating mechanism, of a latch therefor,  
65 means independent of the operating mechanism

for tripping said latch, a spring for drawing said latch back to its normal locking position, and a device actuated by the operating mechanism and adapted to return the latch to its normal locking position. 70

6. In a cash-register, the combination with an operating mechanism including a rotary disk formed with a locking-shoulder, of a latch adapted to engage said shoulder and thus lock the operating mechanism, means independent  
75 of the operating mechanism for tripping said latch, and a device actuated by the operating mechanism for positively returning the latch to its normal locking position.

7. In a cash-register, the combination with  
80 an operating mechanism including a crank-handle and gearing connected thereto, of a latch-lever adapted to lock the gearing against operation, a series of keys arranged to trip said lever and release the operating mechanism,  
85 and a lever adapted to receive movement from the operating mechanism to return the latch-lever to its normal locking position.

8. In a cash-register, the combination with an operating mechanism including a crank-  
90 handle and gearing connected thereto, of a shouldered disk carried by said gearing, a pivoted latch-lever arranged to engage the shouldered disk to lock the operating mechanism, a series of keys arranged to trip the  
95 latch-lever and a pivoted lever operated by the gearing and arranged to force the latch-lever back to its normal locking position.

9. In a cash-register, the combination with an operating mechanism including an operating  
100 handle and gearing, of a latch for said gearing, means independent of the operating mechanism for operating said latch, a pivoted lever having an operating-nose and adapted to return the latch to normal locking position  
105 and a projection on one of the gears arranged to strike the nose and thus operate the pivoted lever.

10. In a cash-register the combination with an operating mechanism, of a latch for the  
110 same, and means connected to said operating mechanism for positively forcing the latch into its latching position as the operation of the machine is completed.

11. In a cash-register the combination with  
115 an operating mechanism, of a moving member connected to the same and arranged to make one operation at each operation of the machine, a latch for engaging said member to arrest it after it has made a complete opera-  
120 tion and means connected to the operating mechanism for positively forcing the latch into its latching position.

12. In a cash-register the combination with an operating mechanism including a notched  
125 rotary disk, a latch arranged to engage the walls of the notch and lock the operating mechanism, and means connected with said operating mechanism for positively forcing the latch into said notch. 130

13. In a cash-register the combination with  
an operating mechanism, of an automatic  
latch arranged to lock said mechanism after  
it has made a complete movement and means  
5 connected to the operating mechanism for  
positively operating said latch independent  
of its automatic operating means.

In testimony whereof we affix our signatures in the presence of two witnesses.

FRANK H. BICKFORD.  
EDWARD B. LOCK.

Witnesses:

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WM. H. MUZZY.