(No Model.) 4 Sheets—Sheet 1.

W. H. CLARK.

CASH INDICATOR AND REGISTER.

No. 431,438. Patented July 1, 1890.

Fig. 1.

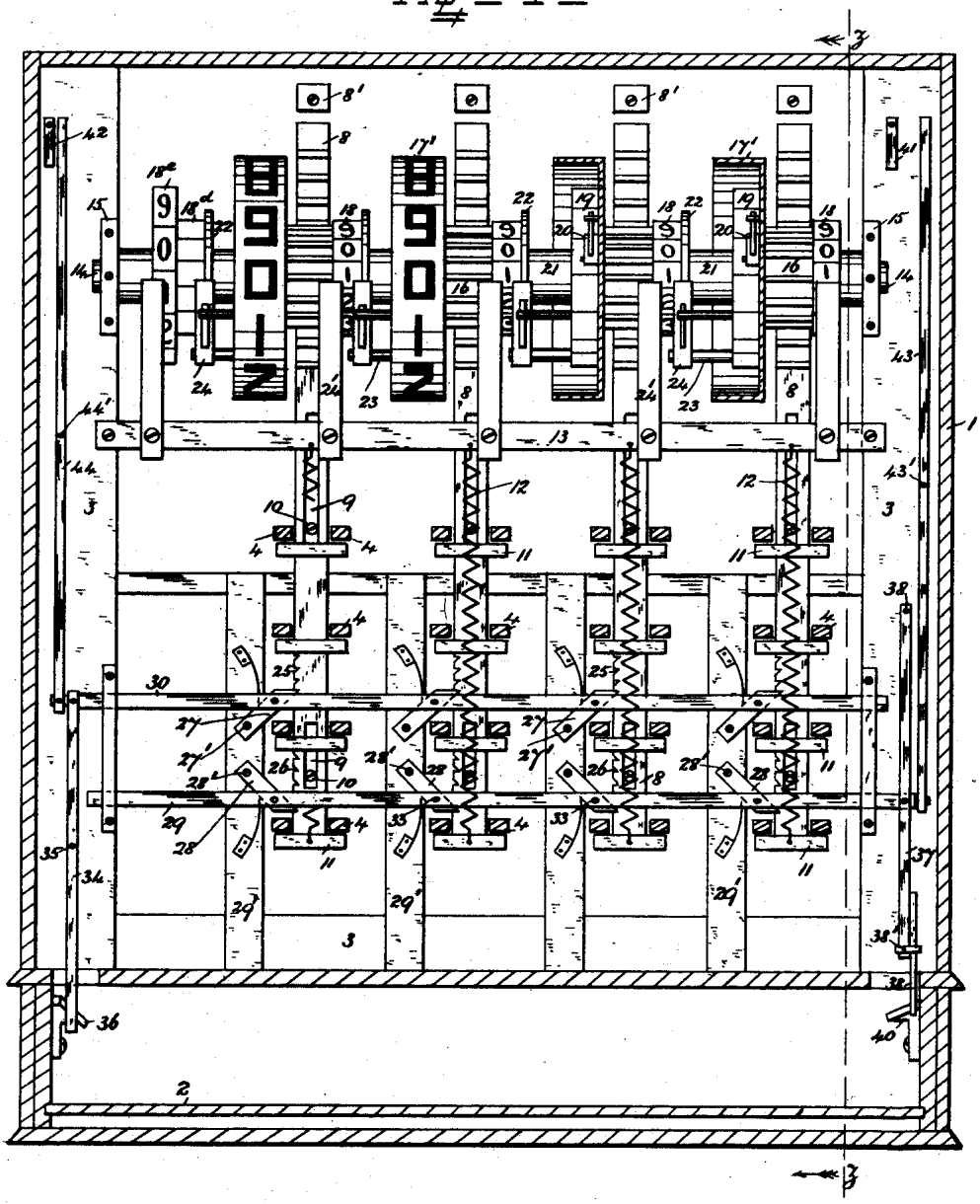

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Fig. 4.

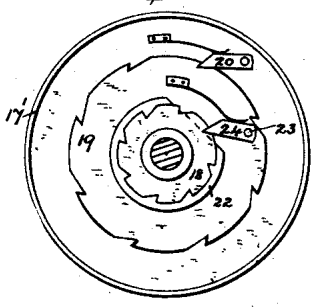
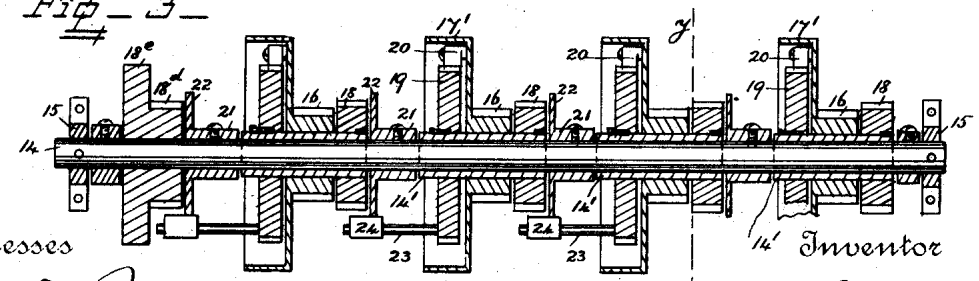


Fig. 2.

Fig. 3.



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(No Model.) 4 Sheets—Sheet 3.

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CASH INDICATOR AND REGISTER.

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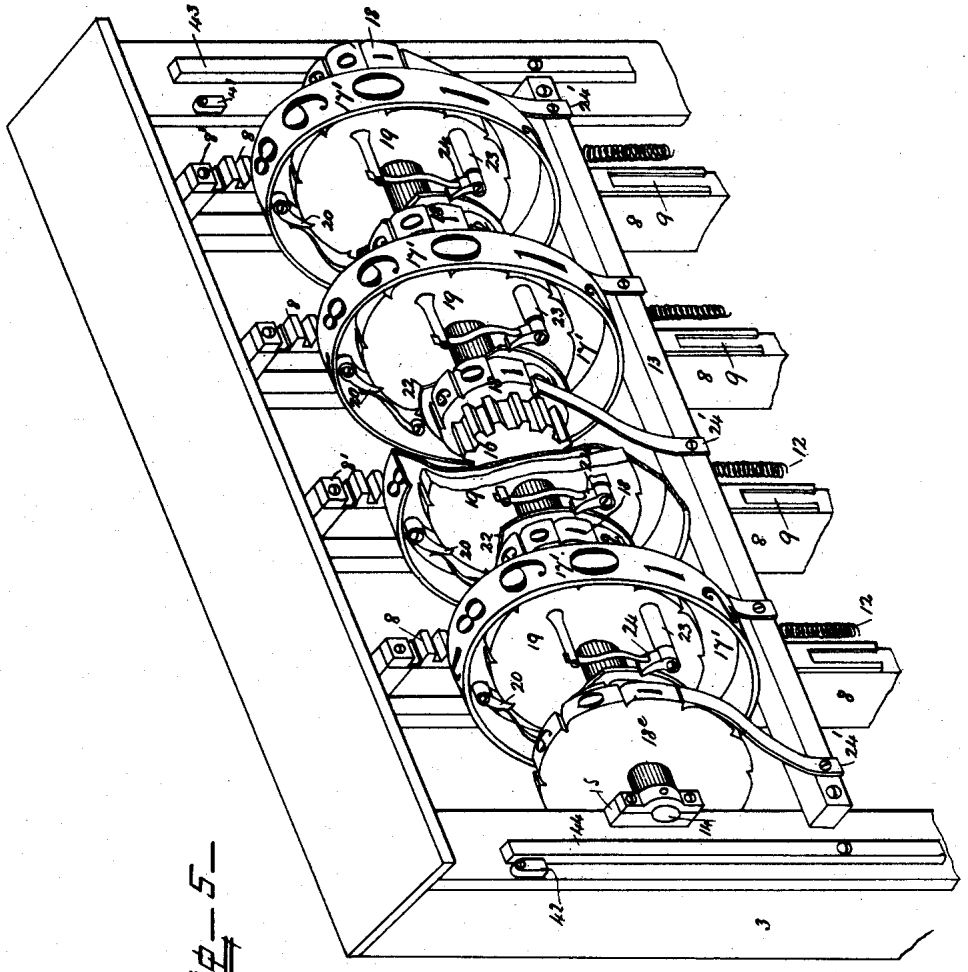

Fig. 5.

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CASH INDICATOR AND REGISTER.

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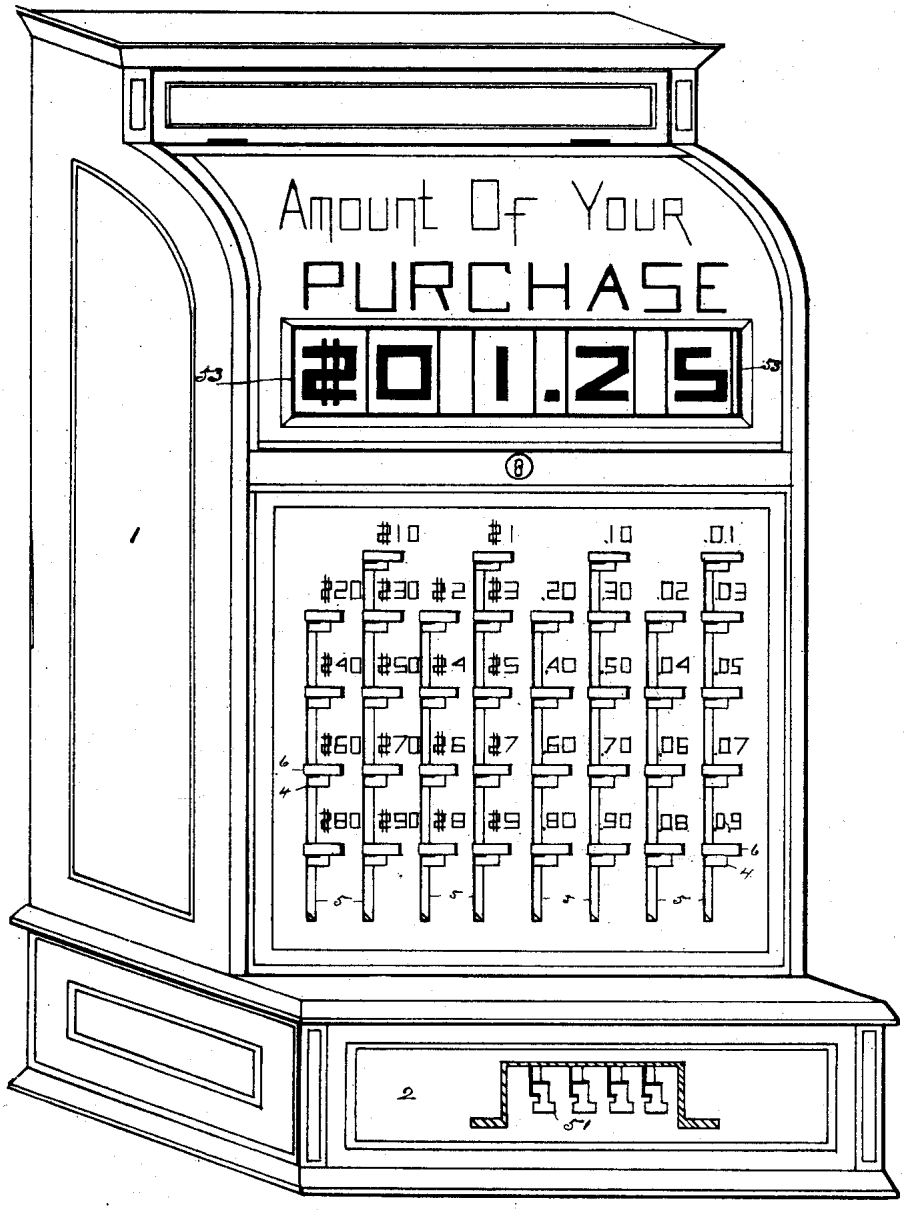
Fig. 6.



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UNITED STATES PATENT OFFICE.

WILLIAM H. CLARK, OF ALBION, PENNSYLVANIA.

CASH INDICATOR AND REGISTER.

SPECIFICATION forming part of Letters Patent No. 431,438, dated July 1, 1890.

Application filed October 8, 1888. Renewed December 5, 1889. Serial No. 332,614. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. CLARK, a citizen of the United States, residing at Albion, in the county of Erie and State of Pennsylvania, 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, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and numerals of reference marked thereon, forming part of this specification.

This invention relates to cash-registers; and it consists in the novel construction and combination of the parts hereinafter fully described and claimed.

In the drawings, Figure 1 is a front view of the interior of the machine, showing the key-levers and drawer in section. Fig. 2 is a vertical cross-section through the machine, taken on line *z z* in Fig. 1, in the direction of the arrows. Fig. 3 is a longitudinal section through the registering and indicating wheels, taken on line *x x* in Fig. 2. Fig. 4 is a cross-section, taken on line *y y* in Fig. 3, in the direction of the arrows. Fig. 5 is a perspective view of the indicating and registering mechanism. Fig. 6 is a perspective view of the outside of the machine.

The inclosing-case 1 is provided with a cash-drawer 2 at is lower part. A series of horizontal key-levers 4 is provided, and the levers are pivoted on pins *a*, projecting from a frame 3 inside the case, and the front ends of said levers project through the vertical slots 5 in the front of the case and are provided with keys 6. Thirty-six keys are shown; but the number may be varied, if desired. These keys are arranged in eight vertical rows, and the numbers shown upon the case adjacent to the keys are preferably placed upon the keys themselves in practice. The first two right-hand rows of keys are numbered for cents from one to nine, inclusive, and the second two rows by tens, from ten to ninety, inclusive. The third and fourth two rows are numbered for dollars in the same manner, as indicated by the figures on the front of the case. Each two rows of key-levers are operated by similar devices and in a similar manner, and the description will therefore be confined to the first two rows. Between the key-levers 4 is a rack-bar 8, provided with slots 9, which slide upon the screws 10, projecting from the frame. These screws form guides for the bars to slide on, and are clearly shown at the left hand of Fig. 1, the return-spring being shown broken away in the middle in order to expose them. A cross-piece 11 is secured to the rack-bar directly under each pair of key-levers 4, and 12 is a spiral spring secured to the cross-piece 13 of frame 3 and to the bottom cross-piece 11. This spring returns the rack-bar when the key is let go, and 8′ is a stop at the top of the case for limiting the upward motion of said bar. Springs 7 are secured to frame 3 and bear against the sides of the key-levers, so that when the one-cent key is depressed, and with it the rack-bar and all the cross-pieces 11 under the key-levers, the two-cent key and all the other keys operating the same rack-bar remain stationary by frictional contact with said springs 7, although the cross-pieces 11 no longer support them. Stops *b* project from frame 3 and limit the downward motion of the key-levers in proportion to their denomination—that is to say, for example, the four-cent key-lever stop is arranged at such a distance beneath it that the four-cent lever may depress the rack-bar twice the distance of the travel of the two-cent lever as limited by its stop.

A non-revoluble shaft 14 is secured by brackets 15 to the upper part of frame 3, and 14′ is a loose sleeve journaled on said shaft. A pinion 16, having ten teeth, is journaled loosely upon the said sleeve and gears into the rack-bar. An indicating-wheel 17′ is secured to the said toothed pinion, and is provided with figures from 1 to 0, inclusive, which are visible through the opening 53 in front of the case. A ratchet-wheel 19 is secured to the sleeve 14′ inside the indicating-wheel 17′, and a combined registering and ratchet wheel 18 is secured to the opposite end of the sleeve beyond the toothed pinion. The registering-ratchet-wheel 18 is provided with a series of numbers from 1 to 0, inclusive. A disk 22 is secured by its collar 21 to shaft 14 at the left hand of the end of each of the loose sleeves

14′, and the edge of this disk is cut away upon one side. From each ratchet-wheel 19 an arm 23 extends laterally to the left hand over the disk 22 and partially over the ratchet-wheel 18 upon the next adjacent loose sleeve. A spring-actuated dog 24 is pivoted upon the end of arm 23 and normally rides upon the edge of disk 22, out of contact with the ratchet registering-wheel to the left of said disk. Each time the dog comes to the cut-away portion of said disk, which it does once in each revolution of ratchet-wheel 19, it falls into gear with the said ratchet registering-wheel and moves it one-tenth of a revolution around. The ratchet-wheel 19 is connected to the indicating-wheel 17′ on its right hand by means of the spring-actuated dog 20. When the one-cent key is depressed, it moves the right-hand rack-bar and turns the right-hand pinion 16 one tooth around. The indicator-wheel 17′, secured to said pinion, indicates one cent, and the dog 20 turns the ratchet-wheel 19, and with it the registering-wheel 18, secured upon the same sleeve 14′ with said ratchet-wheel 19, and the registering-wheel registers one cent. When more than nine cents have been run up on the right-hand registering-wheel by the right-hand rack-bar, every tenth cent is carried on and is registered upon the registering-wheel 18 on the left hand of the aforesaid ratchet-wheel 19 by means of the spring-dog 24, before described.

Springs 24′ are secured to cross-bar 13 and engage with the ratchet registering-wheels 18, so that they cannot be turned backward. All the remaining rack-bars and indicating-wheels are similar to those before described. An additional registering-wheel is provided at the extreme left of shaft 14. This wheel is made in two parts for convenience—18ᶜ, which carries the numbers, and 18ᵈ, which carries the ratchet-teeth. These two parts are secured together and are journaled directly upon the shaft 14. The ratchet-teeth are operated by means of a spring-dog and disk 22, as before described. This left-hand registering-wheel enables the machine to register the total of the amounts taken up to $999.99, while separate amounts are indicated up to $99.99 only, which is sufficient for ordinary business requirements.

The drawer is preferably provided with a combination-lock 48 of approved construction. 51 are the actuating-keys of this lock at the front of the case. A bell 45 is secured to the case and is provided with a pivoted hammer 46. A catch 46′ on the rear of the drawer raises the hammer, as shown in Fig. 2, when the drawer is closed. When the drawer is pulled out suddenly, the catch releases the hammer and the spring 47 causes it to strike the bell.

The machine may be used as described; but in order to guard against improper use the drawer is provided with a good lock, and locking mechanism is arranged so that the machine cannot act until the said drawer has been unlocked and drawn forward. This mechanism consists of two parallel bars 29 and 30, which slide crosswise in guides 31, secured to frame 3. Spring-actuated pawls 27 are provided, and are pivoted on pins 27′, projecting from uprights 29′, secured to frame 3. The pawls 27 project upwardly and engage with notches 25 in the rack-bars, and the said pawls are coupled to bar 30. When the pawls 27 are in the notches 25, the rack-bars cannot be depressed. The pawls 28 project downwardly and are pivoted on pins 28′. The pawls 28 engage with notches 26 in the rack bars, and are coupled to the bar 29 by pins 33. When the pawls 28 are in the notches 26, the rack-bars cannot be moved upward. The opening of the drawer disengages all the pawls in the following manner: A lever 34 is pivoted to the case on pin 35, and has its upper end connected to the end of bar 30. An inclined plate 36 inside the drawer operates the lower end of lever 34 when the drawer is pulled out, thereby traversing the bar 30 to the left and disengaging the pawls 27 from the rack-bar. To operate bar 29, a lever 37 is pivoted to the case on pin 38 at its upper end and is connected to bar 29 about the middle of its length. The lower end of lever 37 is preferably provided with a vertically-sliding extension-piece 38, secured to it by a band 38′. An inclined plate 40 inside the drawer operates the extension-piece when lowered sufficiently to bear against it, so that when the drawer is pulled open the bar 29 is traversed to the left, disengaging the pawls 28 from the rack-bars. This locking apparatus can be wholly or partially thrown out of action when required. A lever 44 is pivoted to the case on pin 44′, and has its lower end connected to the end of bar 30. A pivoted catch 42 is provided at the top of the lever. When the bar 30 is traversed to the left and the pawls are out of gear, this catch can be turned so as to retain the lever 44 and prevent the bar from being slid back by the pressure of the springs behind the pawls. A lever 43 is also pivoted to the frame on pin 43′ and is provided with a pivoted catch 41 which can be turned to hold the lever 43 in position, with its bottom end preventing the return motion of the bar 29 toward the right after it has been moved to the left to disengage the pawls 28 from the rack-bars.

What I claim is—

1. The combination, with a revoluble indicator-wheel 17′, having a toothed operating-pinion secured to it, of a registering-wheel 18, journaled on the same axis as the said indicator-wheel, a ratchet-wheel 19 positively connected to said registering-wheel, a spring-actuated dog pivoted to the indicator-wheel and engaging with ratchet-wheel 19, and a fixed spring 24′, engaging with the said registering-wheel and preventing it from revolving backward, substantially as set forth.

2. The combination, with a revoluble indi-

cator-wheel 17′, having a toothed operating-pinion secured to it, of a registering-wheel 18, journaled on the same axis as the said indicator-wheel, a ratchet-wheel 19 positively connected to said registering-wheel, a spring-actuated dog pivoted to the indicator-wheel and engaging with ratchet-wheel 19, a fixed spring 24′, engaging with the said registering-wheel and preventing it from revolving backward, a second revoluble registering-wheel, also journaled on the same axis as the said indicator-wheel, a non-revoluble disk 22, having one side cut away, and a spring-actuated dog 24, pivoted to the ratchet-wheel 19 and bearing on said disk 22, for engaging with the said second registering-wheel at intervals, substantially as and for the purpose set forth.

3. The combination, with the non-revoluble shaft 14, of a sleeve 14′, journaled on said shaft, a ratchet-wheel 19, secured on one end of the sleeve, a combined registering and ratchet wheel secured on the other end of said sleeve, an indicator-wheel 17′, having a toothed operating-pinion 16 secured to it and journaled loosely on the middle of said sleeve, a spring-actuated dog 20, pivoted to the indicator-wheel and engaging with ratchet-wheel 19, and a fixed spring 24′, engaging with said registering ratchet-wheel and preventing its backward movement, substantially as set forth.

4. The combination, with a revoluble indicator-wheel 17′, having a toothed pinion 16 secured to it, of a vertically-reciprocating rack-bar 8, gearing into said pinion and provided with notches 25 and 26 in its lower end, a key-lever 4, and a spring 12 for operating the said rack-bar, and removable locking-pawls 27 and 28, projecting upwardly and downwardly and normally preventing the motion of the rack-bar, substantially as and for the purpose set forth.

5. The combination, with the vertically-reciprocating rack-bars 8, provided with notches 25, of the pivoted spring-actuated pawls 27, engaging with said notches, and normally preventing the downward movement of the rack-bars, the sliding bar 30, pivoted to said pawls, the pivoted lever 34, connected to said bar 30, and the inclined plate 36 on the cash-drawer for operating said lever and disengaging the said pawls from the rack-bars, substantially as set forth.

6. The combination, with the rack-bars 8, provided with notches, and spring-actuated pawls engaging with said notches and normally preventing the rack-bars from moving, of a sliding bar pivoted to the pawls for drawing them out of gear with the rack-bars, a pivoted lever operating on one end of said sliding bar, and a pivoted catch for retaining said lever and preventing the return of the sliding bar, substantially as and for the purpose set forth.

7. The combination, with the vertically-reciprocating rack-bars 8, provided with notches 26, of the pivoted spring-actuated pawls 28, engaging with said notches and normally preventing the upward movement of the rack-bars, the sliding bar 29, pivoted to said pawls, the pivoted lever 37, and the inclined plate 40, secured on the cash-drawer and adapted to operate said lever and disengage the pawls from the rack-bars, substantially as and for the purpose set forth.

8. The combination, with the sliding drawer provided with a stop 46′, of the bell behind the drawer, the pivoted hammer having its lever operated by said stop, and the spring 47 for causing the said hammer to ring the bell when the drawer is opened suddenly, substantially as set forth.

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

WILLIAM H. CLARK.

Witnesses:

WM. P. HAYES,

C. B. HAYES.