

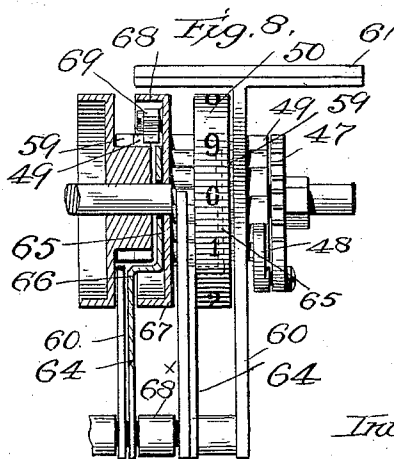
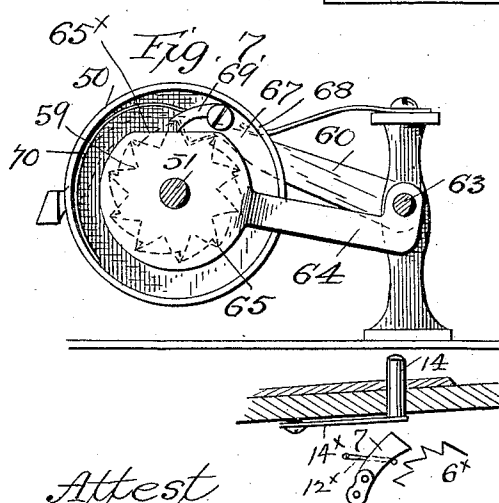
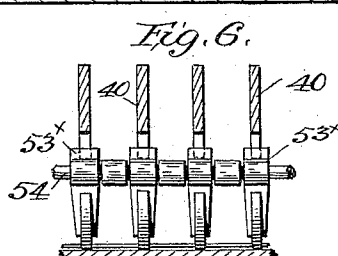
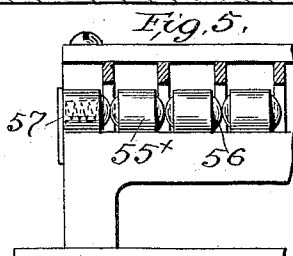
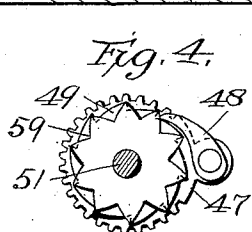
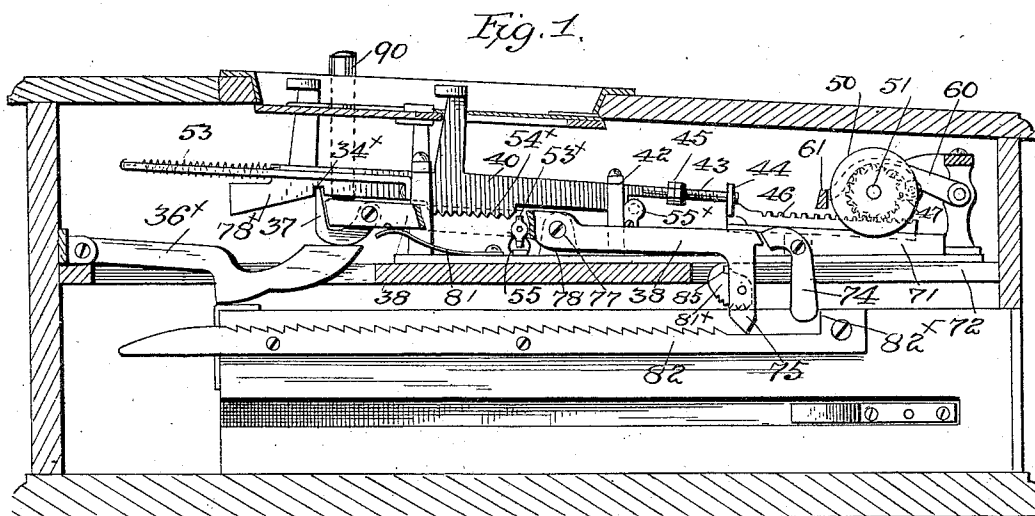
(No Model.)

2 Sheets—Sheet 1.

W. H. THOMPSON.
KEY REGISTER.

No. 527,351.

Patented Oct. 9, 1894.



Attest
James McFar
Wm. F. Hall

Inventor
William H. Thompson
by *Walter M. Maltby & Co.*
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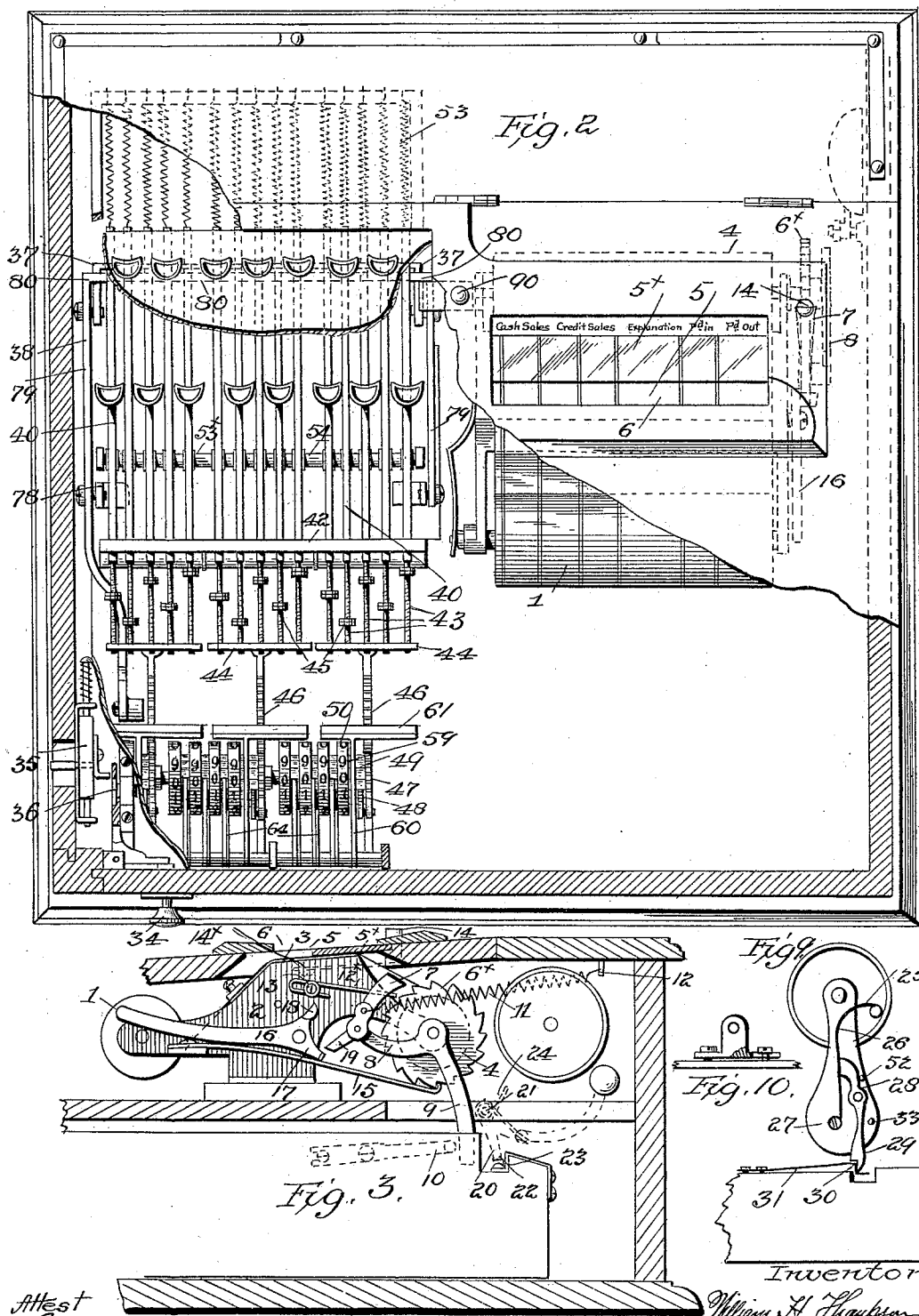
(No Model.)

2 Sheets—Sheet 2.

W. H. THOMPSON.
KEY REGISTER.

No. 527,351.

Patented Oct. 9, 1894.



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UNITED STATES PATENT OFFICE.

WILLIAM HENRY THOMPSON, OF EAST STROUDSBURG, PENNSYLVANIA.

KEY-REGISTER.

SPECIFICATION forming part of Letters Patent No. 527,351, dated October 9, 1894.

Application filed April 4, 1894. Serial No. 506,266. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM HENRY THOMPSON, a citizen of the United States, residing at East Stroudsburg, in the county of Monroe and State of Pennsylvania, have invented certain new and useful Improvements in Key-Registers, of which the following is a specification, reference being had therein to the accompanying drawings.

10 It is the object of my invention to provide a cash register in which key registering mechanism will be combined with autographic mechanism so that the machine will possess the advantages of both the key and the auto-
15 graphic machine, the arrangement being such that either register may be operated entirely independent of the other, notwithstanding the fact that some of the operating connections of the machine are common to both
20 the autographic and the key mechanisms.

My machine includes autographic registering mechanism having a roll of paper adapted to receive autographic memoranda of charged sales, moneys paid and the like, said roll being operated through connections controlled
25 by the movement of the drawer, the paper being thus operated one step each time the drawer is opened so long as in operative position. It includes also a key registering
30 mechanism all the parts of which are locked by the drawer when the same is closed. It includes also a drawer arrester for preventing the return of the drawer when opened or partially opened until one of the keys of the key
35 register mechanism is operated and it includes push button devices whereby the autographic mechanism, normally out of action may be thrown into action at the will of the operator and whereby also the drawer arrester
40 of the key register, normally in action may be thrown out without requiring the operation of one of the keys of the key register.

My invention includes further various details of arrangement hereinafter specifically
45 pointed out.

In the accompanying drawings:—Figure 1, is a vertical section of the machine from front to rear showing the key registering mechanism. Fig. 2, is a plan view of the entire machine with portions thereof broken away. Fig. 3, is a detail sectional view of the autographic mechanism. Fig. 3^a is a detail view

of the push button for controlling the autographic mechanism. Fig. 4, is a detail view of the ratchet and gear wheels of the key
55 register. Fig. 5, is a detail view of the key lock. Fig. 6, is a similar view of the key arrester; Fig. 7, a detail of the registering wheel and attached parts, and Fig. 8 shows the same in plan and partly in section. 60
Fig. 9, is a detail view of the bell mechanism, and Fig. 10, a detail of a minor part of the machine.

The autographic mechanism is substantially the same as that shown and described
65 in my Patent No. 454,089, of June 16, 1891, comprising a paper roll 1 journaled in a frame 2 over the top 3 of which the paper passes to a winding roll 4 after having first
70 passed the opening 5 in the top of the case which opening is partially closed by a glass plate 5^x so as to leave a narrow slit 6 through which the salesman may make his memo-
75 randa upon the paper roll which is then carried beneath the glass plate and rendered inaccessible. The winding roll has a ratchet wheel 6^x thereon to be turned by a pawl 7
80 on the end of lever 8 pivoted on the shaft of the winding roll and having an arm 9 to be forced back by the finger 10 on the drawer when the drawer is forced in, thus setting
85 the pawl for a new action and placing the same with its lever under tension of spring 11 attached thereto and to the machine case at 12 so that when the drawer is opened the
90 pawl will be thrown back and if allowed to engage the ratchet wheel it will turn the same and move the paper forward one step. In my present machine the pawl is normally held out of contact with the ratchet by a
95 spring 12^x held in place by a screw 13, but when the operator desires to use the autographic mechanism he presses the push button 14 held normally up by spring 14^x and this contacting with the pawl forces the same
100 down into the ratchet teeth and upon opening the drawer while the pawl is in this position the winding roll will be operated. The ratchet wheel is controlled by the detent 15 and in order that the winding roll may be
operated either way I have provided a lever 16 pivoted to the frame and having a finger 17 to bear on the detent and a second finger 18 to bear on the tail 19 of the push pawl so

that by turning the lever up both pawls will be thrown out of action.

If it should be desired to have the autographic mechanism operate without using the push button the screw 13 is loosened and the spring 12^x adjusted so that the pawl will be always in engagement with the ratchet and then the autographic mechanism will be operated each time the drawer is opened. The drawer as it moves out operates the bell striker 20 pivoted to the case at 21 and having a finger 22 arranged to be engaged by a shoulder 23 on the drawer, the said striker being under tension of the spring 24. Instead of this form of bell striker as shown in Fig. 3, I prefer to employ that shown in Fig. 9, in which the bell hammer 25 is carried by a spring arm 26 screwed to the bracket 27 to which is also pivoted the lever 28 having a finger 29 extending down to be engaged by a shoulder 30 on the spring 31. As the drawer moves out this lever is operated by the spring to press the bell hammer spring back and when the lever is released the hammer flies forward and strikes the bell. Stop pin 52, 33 may be provided at proper points to limit the movements of the parts.

The key register mechanism embodies the main features disclosed in my Patents No. 496,585, of May 2, 1893, and No. 511,633, of December 26, 1893. The drawer is held locked when closed by a combination lock device shown generally in the left hand front corner of the case, Fig. 2, said mechanism being substantially the same as that patented by me March 15, 1892, No. 470,720, and therefore needing no specific description herein, it being only necessary to state that the operator presses the push button 34 and at the same time draws forward the slides 35, thus retracting the bolt 36 and allowing the drawer to open under action of the ordinary spring. When the drawer is closed the lever 36^x at the rear of the machine case is lifted by contact with the drawer and this lifts the cross bar 37 pivoted to the frame 38 so that the upper edge of the bar will engage the notches 34^x in the key slides 40 and thus lock the same in place so long as the drawer is in closed position and locked within the case. When however, the drawer is opened, the lever and cross bar are allowed to fall and release the key slides which then may be operated to turn the registering wheels. The key slides move through bearings 42 and have threaded extensions 43 passing loosely through the cross bars 44 there being one cross bar common to each group of keys, and when any key is pushed forward a stop 45 adjustably fixed on the threaded extension strikes the cross bar and moves the same forward together with the rack 46 attached thereto so that the toothed pawl carrier 47 will be turned to carry the pawl 48 forward and turn the ratchet wheel 49 and the first numbered registering wheel 50 to which it is attached the said pawl carrier, ratchet and registering wheels being

loose on a rod 51. The stops 45 on the different key slides are in different positions relatively to the cross bar to correspond to the different values of the keys so that more movement will be imparted to the registering wheels when one key is operated than for another.

The key slides are returned to normal position by springs 53 and in both their forward and backward movements the keys are acted upon by the arrester 53^x consisting of a series of upright pawls pivoted on a rod 54 and having depending tail pieces acted on by the U shaped springs 55 which maintain the pawls normally in upright position and allow them to tilt either forward or backward according to the direction of movement of the slide. The upper ends of the pawls engage the teeth 54^x on the key slides and when the key is once started the arrester will hold it against returning movement until it has completed its forward stroke and as it returns the reverse action will take place the arresters acting to prevent the forward movement of the key slides until the key has been moved all the way back to normal position. The keys are also acted upon by a locking device which prevents two keys being operated simultaneously and also locks all the unoperated keys when one key is started and holds them locked until the forward and return stroke of the key has been completed. This consists of a frame having tubular sockets 55^x with spaces between them for the passage of the keys, and in these sockets pins 56 slide having rounded ends bearing against each other, the end pins being pressed normally inward by the springs 57 in the end sockets. When a key is operated it is forced between two of the pins by engaging the rounded ends thereof and said pins are crowded laterally far enough to allow this key to be moved forward but there is not sufficient movement of the pins to allow two keys to be operated at the same time and when the pins are crowded together they will prevent all the unoperated keys from being moved until the operated key has been reset. Each group of keys has a group of four registering wheels or disks and each disk has a ratchet wheel before mentioned and a detent wheel 59 having V shaped teeth to receive the tooth of a detent 60. The detent for the first registering wheel of the series is extended back and at its rear end has a cross bar 61 in line with the key extensions so that in the final movement of any key the end of the extension thereof will bear on the cross bar and insure the detention of the first ratchet wheel and numbering disk at the proper point and prevent them from being thrown over said point, and as all the other registering wheels of the group are actuated through the first one the stopping of the whole mechanism at the proper point will be insured. These detents are all strung on a bar 63 and this bar carries also strung thereon the arms 64 having at their inner

ends the disk 65 on the rod of the registering wheels, said disk lying close against the inner face of the said registering wheel for which purpose the arm is bent at 66. The registering wheel consists of the disk 67 Figs. 7 and 8 and the overhanging numbered flange 68 and to the inner face of the disk and within the overhanging flange, the carrier pawl 69 is pivoted. It is held out of engagement with the ratchet of the next registering wheel by riding around the edge of the disk 65 until it comes to the cut away sector 65^x of the disk when it will fall into the teeth of the ratchet wheel and at the next movement of its registering wheel it will carry the movement to the next registering wheel through the ratchet thereof. All of these parts are strung on the two rods and they may be removed one by one. Suitable spacing collars 68^x are provided between the disk arms and detents. The carrier pawl is under tension of the spring 70 secured to the registering wheel. The rack bars move in suitable ways 71 projecting up from the partition plate 72 which separates the registering mechanisms from the drawer.

When the drawer is opened it is "arrested" or prevented from returning to normal position by the arrester finger 75 on the arrester frame 38 pivoted at 77 in bearings 78 at each side of the key mechanism said frame comprising the side arms 79 and the rear cross bar 80. This arrester frame is pressed by a spring 81 and as the drawer moves out the arrester finger engages the rack bar 82 on the side of the drawer and prevents the same from being returned until one of the keys are operated. The keys are now free to be operated when the drawer is out as the cross bar and lever have been allowed to drop, and when so operated the incline 78^x on the key striking the cross bar of the detent or arrester frame will raise the arrester finger so that the gravity dog 74 will engage it and hold it up out of action, thus leaving the drawer free to be pushed into normal position and when the inward movement is completed the gravity dog will be released from the drawer arrester by contact with the shoulder 82^x in the drawer, thus letting the arrester drop into engagement with rack teeth of the drawer.

In order to prevent the noise arising from the pawl sliding over the series of rack teeth, I have provided on the detent finger an eccentric 81^x serrated as shown and adapted when the drawer is moved out to turn by contact with the upper edge of the drawer and thus lift the detent frame just high enough to clear the teeth and prevent the clicking of the ratchet. The moment the drawer moves inward however, the eccentric will turn and allow the finger to fall into the teeth. The eccentric is limited by the stop pin 85.

When the autographic mechanism is to be used it is of course desirable that the drawer be returned to closed position without oper-

ating a key of the registering mechanism and for this purpose I have provided a push button 90 adapted when operated to force down the rear end of the arrester frame and elevate the arrester finger so that the drawer may be freely returned.

It will thus be seen that I have provided in one machine autographic and key registering mechanisms both of which are controlled from the drawer and combined with means whereby both may be operated at each movement of the drawer or only one may be operated at a time.

The bearings for the drawer arrester frame may be adjustably arranged as shown in Fig. 10.

I claim—

1. In a cash register, the combination of the autographic mechanism, the key registering mechanism and the controlling means common to both mechanisms, said controlling means acting to lock the key mechanism and to operate the autographic mechanism substantially as described.

2. In a cash register, the combination of the autographic mechanism, the key registering mechanism and the drawer arranged to control both the autographic and the key registering mechanisms, substantially as described.

3. In combination in a cash register, the autographic mechanism, the drawer, the connection between the drawer and autographic mechanism for operating the same, the key registering mechanism, the connection between the same and the drawer and the means for throwing said connections into and out of operative position, substantially as described.

4. In combination in a cash register, the autographic mechanism, the drawer, the connection therefrom to the said mechanism comprising the pawl normally out of action and the push button for throwing the pawl into action, substantially as described.

5. In combination in a cash register, the autographic mechanism, the key mechanism, the drawer having connections thereto, and the push buttons for controlling said connections, substantially as described.

6. In combination in a cash register, the combination of the registering mechanism, the drawer and the signal device comprising the bell, the spring bell hammer and the lever arranged to be operated by the drawer to operate the bell hammer, said lever being pivoted independently of the hammer and engaging the same at a point between its free end and pivot substantially as described.

7. In combination in a cash register, the registering mechanism, the keys, the drawer, the drawer arrester arranged to be operated by the keys, and the push button for releasing the drawer arrester independently of the keys, substantially as described.

8. In combination in a cash register, the registering mechanism, the sliding keys, the

drawer having the ratchet bar, the drawer arrester comprising the finger and the pivoted frame having the rear cross bar, said keys having the inclines for engaging and
5 operating the cross bar, substantially as described.

9. In combination in a cash register, the registering mechanism, the keys, the drawer having the ratchet bar, the drawer arrester
10 and the means for freeing the arrester, from contact with the ratchet bar consisting of the eccentric piece pivoted on the arrester finger, substantially as described.

10. In combination, the registering mechanism, the keys the vertically movable locking bar arranged to engage the keys and to
15 be lifted by the inward movement of the drawer for locking the keys when the drawer is closed, substantially as described.

20 11. In combination, the registering mechanism, the keys the vertically movable locking bar therefor and the independently pivoted lever intermediate of the locking bar and the drawer, for locking the keys when the drawer
25 is closed and for unlocking the same when the drawer is opened substantially as described.

12. In combination, the keys, the registering mechanism comprising the series of number disks, the toothed detent wheel the detent lever pivoted in rear of the wheel extending over the same to the front and the
30 cross bar thereon extending across the num-

ber disks and in front of the keys to be struck thereby, substantially as described. 35

13. In combination, the keys and the registering mechanism comprising the number disks having the ratchets, the rod for supporting the said parts removably, the carrying pawls on the registering wheels, the cut
40 away disks on the shaft of the registering wheels and having arms and the rod upon which the said disk arms are mounted, substantially as described.

14. In combination, the keys and the registering mechanism comprising the series of
45 registering wheels on a shaft or rod, the ratchet and detent wheels connected therewith, the carrier pawls and the detents and carrier disks, said carrier disks having arms
50 arranged side by side with the detents on a second rod or shaft, substantially as described.

15. In combination, in an autographic register, the paper rolls, the ratchet the pawl
55 the adjustable spring for holding said pawl normally out of action and adapted to be moved to allow the pawl to engage the ratchet normally and the push button for controlling
60 the pawl, substantially as described.

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

WILLIAM HENRY THOMPSON.

Witnesses:

A. J. HILL,

THOMAS J. DUNN.