No. 775,380. PATENTED NOV. 22, 1904.

W. H. MUZZY.

CASH REGISTER WITH DISTANT INDICATION.

APPLICATION FILED JAN. 28, 1904.

NO MODEL 4 SHEETS—SHEET 1.

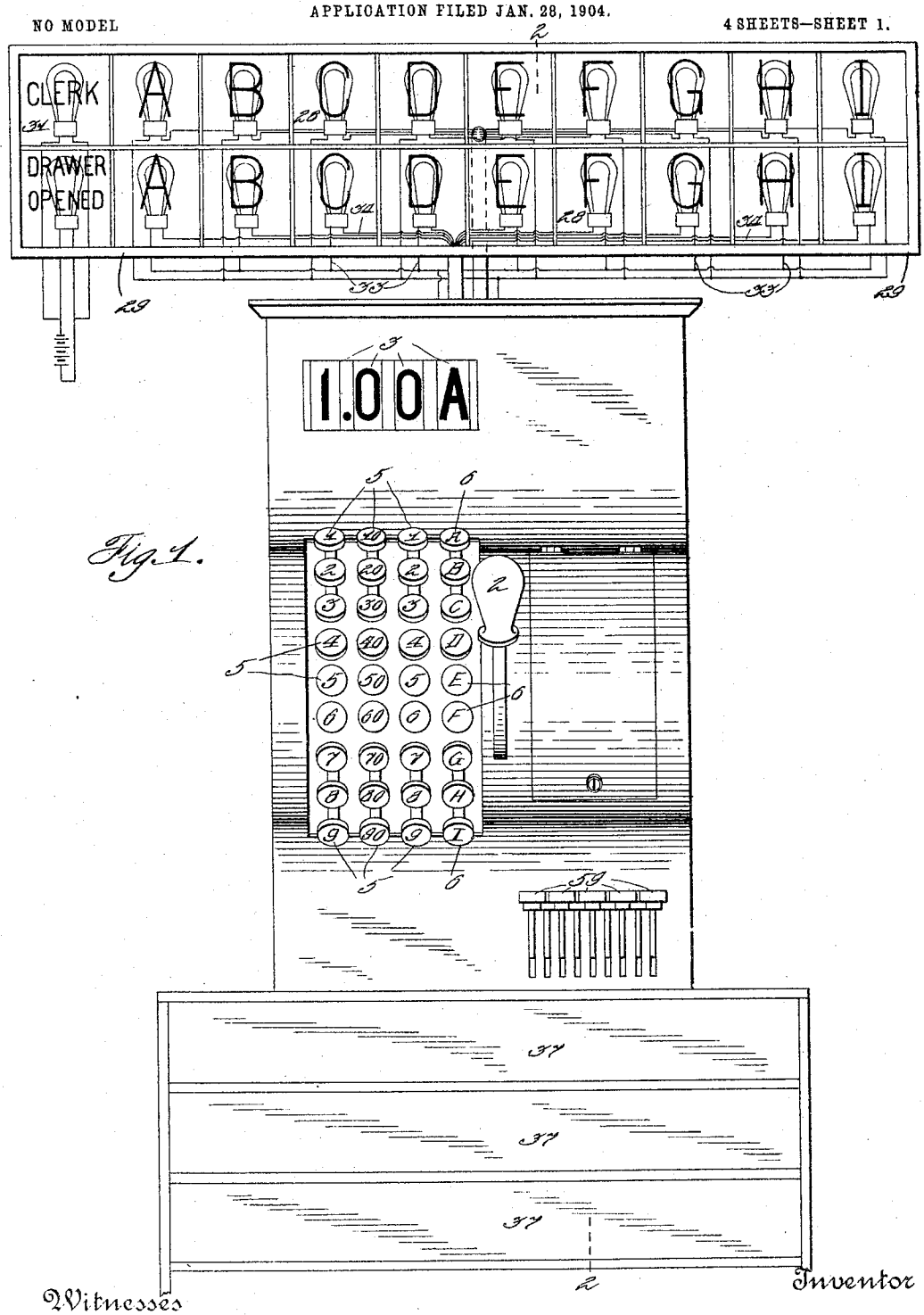


Fig. 1.

Witnesses
W. W. McCarthy
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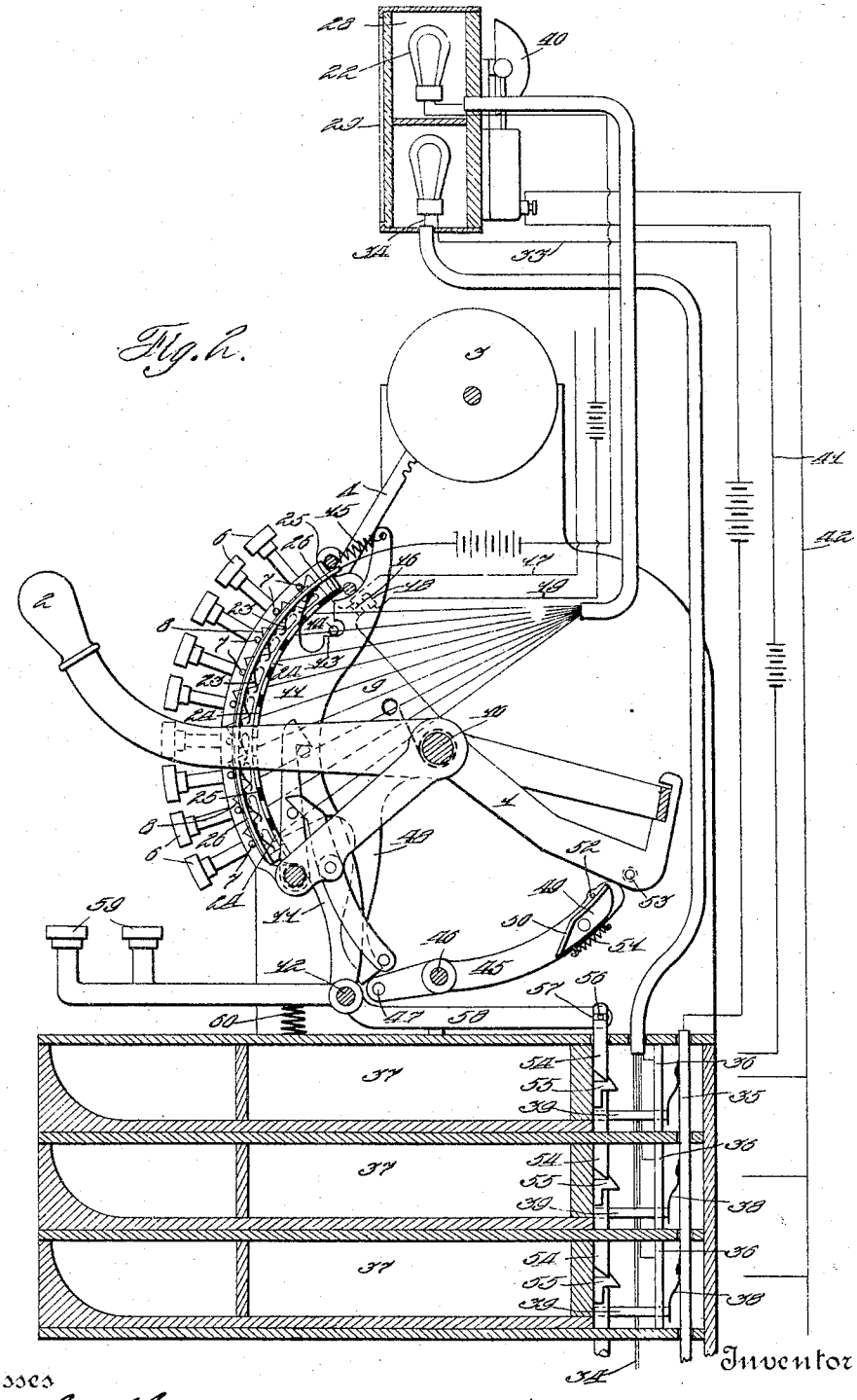
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NO MODEL. 4 SHEETS—SHEET 2.

Fig. 2.



Witnesses
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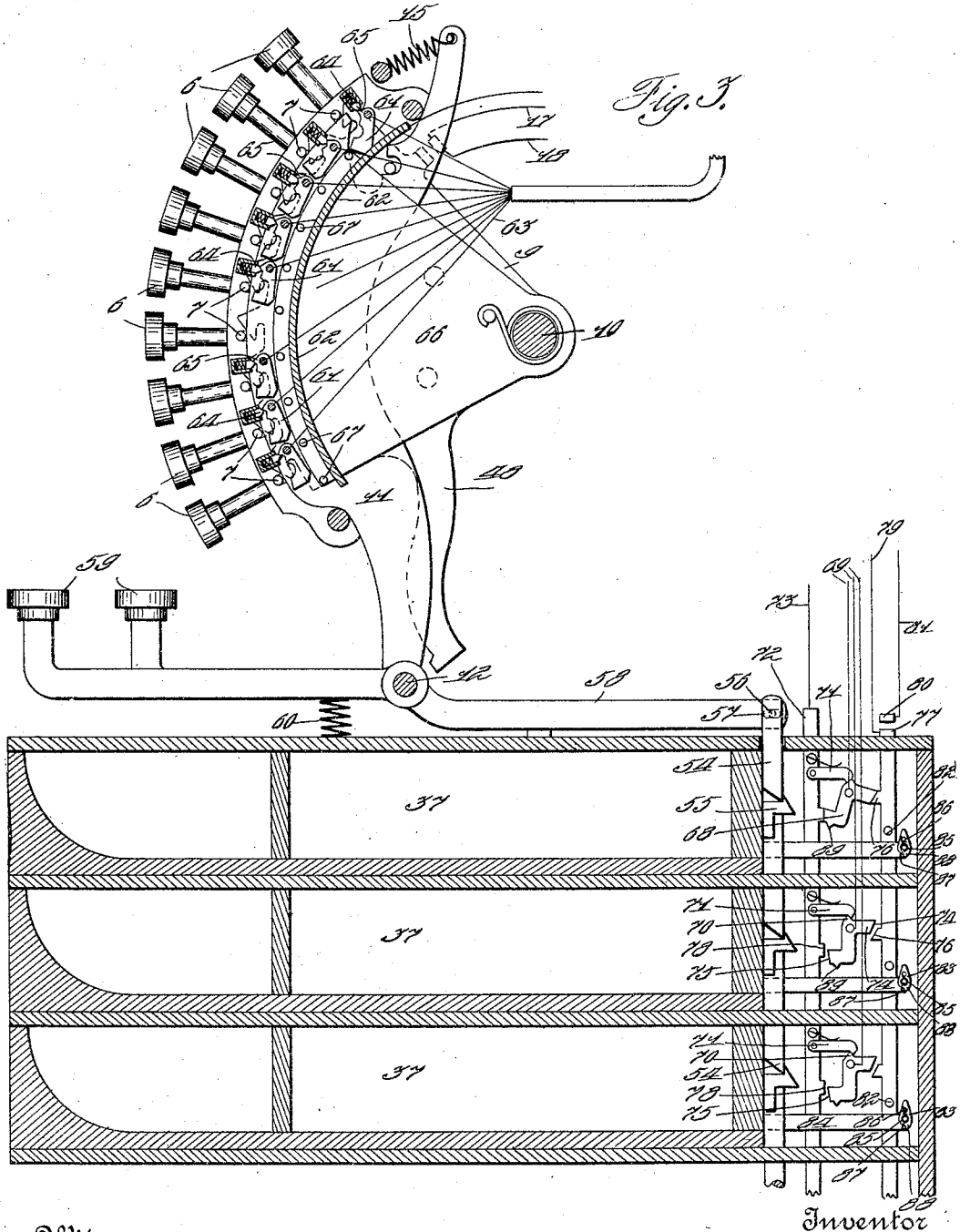
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CASH REGISTER WITH DISTANT INDICATION.

APPLICATION FILED JAN. 28, 1904.

NO MODEL. 4 SHEETS—SHEET 3.

Fig. 3.



Witnesses

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APPLICATION FILED JAN. 28, 1904.

NO MODEL. 4 SHEETS—SHEET 4.

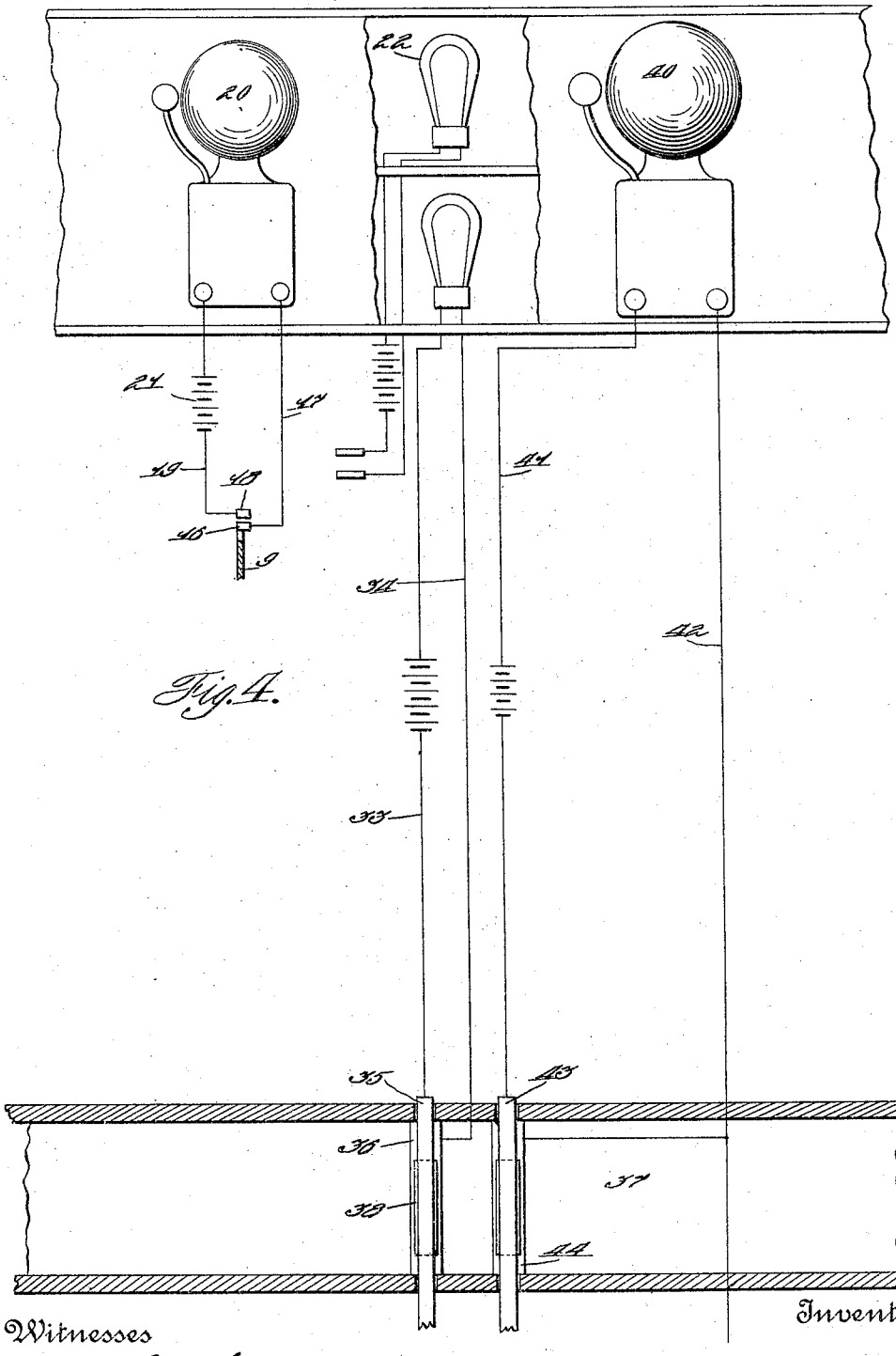


Fig. 4.

Witnesses

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John J. Mulqueary

Inventor

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PHOTO-LITHOGRAPHED BY SACHETT & WILHELMS LITHO. & PTG. CO. NEW YORK.

No. 775,380. Patented November 22, 1904.

UNITED STATES PATENT OFFICE.

WILLIAM H. MUZZY, OF DAYTON, OHIO, ASSIGNOR TO NATIONAL CASH REGISTER COMPANY, OF JERSEY CITY, NEW JERSEY, A CORPORATION OF NEW JERSEY.

CASH-REGISTER WITH DISTANT INDICATION.

SPECIFICATION forming part of Letters Patent No. 775,380, dated November 22, 1904.

Application filed January 28, 1904. Serial No. 191,018. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. MUZZY, a citizen 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 with Distant Indication, of which I 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 registers of the so-called "multiple-drawer" type.

One of the several objects of the invention is to provide improved devices whereby the cash pertaining to different clerks or departments may be kept separate.

A further object is to provide improved indicating devices which may be located at a distance from the register, if desired.

The invention consists of certain novel constructions, combinations, and arrangements of parts, all of which will be hereinafter more particularly set forth and claimed.

In the accompanying drawings, forming part of this specification, Figure 1 represents a front elevation of a machine of the type shown in English patent to Henry S. Hallwood, No. 4,543, dated February 26, 1903, with my improvements applied thereto, the lower cash-drawers being omitted. Fig. 2 represents a transverse vertical section through the same on the line 2 2 of Fig. 1. Fig. 3 represents a similar section of a modified form of my invention, a number of the parts being omitted for clearness; and Fig. 4 represents a diagrammatic view of the electric wiring to the different lights and bells.

As a number of the parts shown in the present drawings are fully illustrated and described in the aforesaid patent, I will refer to said patent for any detail description desired.

Described in general terms, however, the machine to which I have applied my invention includes a main operating element 1, which when operated by a handle 2 returns the parts of the machine previously set to their normal positions. The regular indicators 3 of the machine are set by connecting rack-bars 4 in a manner well known in the art and fully shown and described in the aforesaid patent. As the above-described devices, however, form no part of the present invention and, excepting the handle 2 and its function in connection with the release of the keys, are not used in combination with any of the present devices, I will not enter into any detail description of the same. The amount-keys 5 are arranged in three banks and coöperate with their respective detents and other controlling devices substantially as described in the aforesaid patent. The clerks' keys 6, however, are mounted in a similar manner to the amount-keys, and each of the same is provided with a laterally-projecting pin 7, which when the key is operated contacts with the beveled nose 8 of a hooked detent 9, which is journaled upon the main shaft 10 of the machine. After this detent has been elevated and allowed to drop over the pin 7 it latches the key in its depressed position, and it is only after the handle 2 has been operated that the detent is again elevated and the key released. The detent 9 is normally latched in a partially-elevated position by a lever 11, loosely mounted on a transverse shaft 12 and formed with a locking-shoulder 13, which supports a pin 14, mounted on the key-detent. The lever 11 is normally drawn forward by a coil-spring 15, which connects its upper end to the main frame. The forward edge of the lever 11 projects into proximity to the pin 7 of the clerks' keys, so that when the keys are depressed the lever 11 will be rocked rearward to release the detent 9 and permit the same to descend and latch the key in its depressed position. Prior to the descent of the detent 9, however, it is slightly raised by the pin 7 of the depressed key striking one of the beveled faces of the hooked projections of said detent in a manner well known in the art. This raising of the detent is utilized to sound what might be termed a "clerks' key-alarm" in the following manner: The detent is provided with a contact-piece 16, which is connected to a wire 17. A stationary contact-piece 18 is mounted on the main frame, so as to be engaged by the con-

tact-piece 16 when the detent 9 is raised. The contact-piece 18 is connected to a wire 19. The wires 17 and 19 are connected to an electric bell 20, a suitable battery 21 being included in the circuit, as best shown in Fig. 4. By this means the depression of any one of the clerks' keys will result in the sounding of the electric bell 20. The depression of any key will also result in closing the circuit to a suitable incandescent lamp 22 in the following manner: Directly below each of the pins 7 of the clerks' keys is secured a spring contact-clip 23, which when a key is depressed will be engaged by its respective pin and forced downward into contact with a contact-plate 24, mounted in an insulated plate 25. The plate 24 is connected by a suitable wire with one of the lamps, while a plate 26, upon which all of the clips 23 are mounted, is also connected to the same lamp. By this means when any one of the clerks' keys is depressed the circuit to its particular lamp 22 is closed and the lamp thus illuminated. All of the lamps relating to the clerks' keys are arranged in the upper series of compartments 28 of a special indicating-frame 29, the front of said frame being provided with suitable transparent material, preferably ground glass of different colors for the different compartments. A letter or character is painted or otherwise secured to the front of the glass covering each compartment. Located at one end of the line of compartments representing the different clerks is a special compartment 31, having a colored glass upon which are characters, such as the word "Clerk." The incandescent lamp in this compartment is always burning. When one of the clerks' keys is depressed, its particular lamp by its illumination will show both a distinctive color and a distinctive character or letter. As the frame 29 is hung at a conspicuous place in the store, any clerk upon hearing one of the bells sound may glance at the indicator and instantly ascertain from the color of the light displayed whether his particular key is being operated or not. While the customers may not understand the color-signals, they will understand the different letters which are visible to those near the indicator. The lower series of compartments of the frame 29 are provided with corresponding lights and are covered by correspondingly-colored glass provided with corresponding characters. The end compartment of this group, the light of which is always burning, is provided with such words as "Drawer opened." The lights of this lower row of compartments are connected by suitable wires 33 and 34 to a common contact-plate 35 and individual contact-plates 36, extending down back of the cash-drawers 37. The contact-plate 35 carries a number of spring contact-clips 38, which are normally held out of contact with the individual contact-pieces 36 by means of insulated projections 39, mounted upon the rear walls of the cash-drawers and normally engaging said clips 38. When any one of the cash-drawers is opened, however, its particular clip 38 is allowed to spring forward until it contacts with its respective contact-plate 36, when the light pertaining to that particular drawer will commence to burn. When the drawer is closed, however, the light will be extinguished. The drawer-bell 40 is connected by suitable wires 41 and 42 to contact-pieces 43 and 44, similar to the contacts 35 and 36, as shown in Fig. 4, so that when any one of the cash-drawers is opened the signal 40 will be sounded.

By means of the above-described devices the depression of a clerk's key is indicated by the sounding of an alarm and the illumination of one of the clerks' indicator compartments.

The opening of a cash-drawer is indicated by an alarm of a different tone from the clerk's alarm and the illumination of a particular drawer compartment. After a clerk has heard both of the alarms he knows that the machine has been fully operated, and upon glancing at the indicator-frame he must see two corresponding compartments illuminated, showing two corresponding colors and located directly one above the other. If the indicator shows in this manner, he knows that the machine has been properly operated. Should, however, a clerk have depressed a certain clerk's key and opened a cash-drawer not corresponding thereto, two distinct colored lights will be exhibited and these lights will not be located one above the other, which will indicate at once to the clerk, proprietors, and others that the machine has not been properly operated.

As before stated, the keys after being depressed are retained in their depressed positions by the detent 9, and it therefore becomes necessary to provide means for elevating this detent at the proper time to release the depressed key. This result is effected by means of a lever 45, mounted upon a transverse shaft 46 and provided with a laterally-projecting pin 47, which contacts with the lower end of an arm 48, formed on the detent 9. The lever 45 is provided with a pivoted pawl 49, having a cam-flange 50 and held in its normal position (shown in Fig. 2) by a coil-spring 51, which connects it to the lever 45, a pin 52 on the lever limiting the movement of the pawl.

The main operating-lever 1 is provided with an antifriction-roller 53, which when the lever 1 descends rides under the flange 50 and rocks the pawl 49 on its pivot. After the roller 53 passes forward of the pawl 49 the latter again resumes its normal position, so that when the lever 1 is returned to its normal position by the handle 2 the roller 53 will engage the upper side of the flange 50 and will thus depress the rear end of the lever 45, raising the key-detent and releasing

the key. The release and operation of the respective parts, including the lever 1 and the operating-handle 2, is substantially the same as described in the aforesaid English patent to Hallwood, and reference is made to the same for a detail description of these parts.

The cash-drawers 37 are mounted in the casing in any suitable manner so as to slide freely back and forth therein. These drawers are provided with the usual ejecting-springs, (not shown), whereby when they are released they are projected from the casing. The drawers are normally held within the casing by a series of latch-plungers 54, suitably mounted in the main frame and arranged to engage hooked brackets 55, secured to the rear walls of the respective drawers. Each of the plungers 54 is provided at its upper end with a laterally-projecting pin 56, which extends into an elongated slot 57, formed in the rear end of one of a series of levers 58, which are loosely mounted upon the shaft 12 and are provided with lettered heads 59 at their forward ends. These levers 58 are held in their normal position (shown in Fig. 2) by coil-springs 60, which are interposed between them and the top of the casing or cabinet.

It will be seen from the above that the operation of the levers 58 is altogether independent of any operation of the cash-register proper and that any desired cash-drawer may be released by the depression of its respective drawer-key without operating any other part of the machine. However, if the drawer-key 59 corresponding to the depressed clerk's key 6 is not operated then the signals will show to all observers that a fraudulent manipulation of the machine has been attempted.

The devices above described provide for illuminating the respective compartment-indicators only so long as a clerk's key remains depressed or a cash-drawer remains open, and just as soon as the clerk's key is released or a cash-drawer closed the lights are extinguished. Such a construction is desirable where no constant source of electricity is available; but the current must be supplied from a suitable primary or secondary battery. In cases where sufficient current is available it is desirable to provide for the constant illumination of the indicators between the different transactions. In such an application of my invention I provide devices such as shown in Fig. 3 in connection with both the clerks' keys and the cash-drawers. In this application of my invention the laterally-projecting pin 7 of each of the keys is arranged to contact with and operate a pivoted contact-pawl 61 to cause the same to engage a common contact-plate 62. The pawl 61 is insulated from the remaining pawls and is connected by wire 63 to its respective light. A series of spring-pressed bevel-ended plungers 64 are mounted upon the main frame so as to engage V-shaped noses 65, formed on the respective pawls 61 to hold the latter in their adjusted positions irrespective of the movements of the keys. The regular detent 9 in the present instance is connected to an auxiliary plate 66, which carries a series of spaced pins 67, located in proximity to the plate 62 in such manner that when the detent is operated the pins will engage the bevel ends of any one of the pawls 61 which has been depressed and will elevate the same out of contact with the plate 62. By this means the operated pawl 61 retains the circuit closed even after its respective key is returned to its normal position and it is only when another key in the clerks' bank is depressed and the detent elevated that this particular contact-piece is caused to return to its normal position.

The means for continuing the illumination of the indicators for the cash-drawers comprise a series of pivoted pawls 68, insulated one from the other and connected by wires 69 to their respective lights. These pawls operate in substantially the same manner as the pawls 61, and each of the same is formed with a V-shaped nose 70, which is engaged by a spring-pressed pawl 71 to hold the pawl 68 in its different adjusted positions. The pawls 71 are mounted upon a contact-bar 72, but are insulated therefrom in any suitable manner. The bar 72 is connected by wires 73 to the main light-circuit. Each of the pawls 68 is provided with beveled noses 74 and 75. The noses 74 are arranged to contact with beveled projections 76 upon a vertically-movable bar 77, while the noses 75 are arranged to contact with contact projections 78 on the bar 72. The vertically-movable bar 77 is connected to one wire, 79, of the drawer-bell circuit, while a contact-block 80, mounted above the upper end of the bar 77, is connected to the remaining wire, 81, of the drawer-bell circuit. By this means every time the bar 77 is elevated by the opening of a drawer, as hereinafter described, the drawer-alarm is sounded. This elevation of the bar 77 is accomplished by means of a series of pins 82, mounted thereon and arranged to be engaged and elevated by cam-pawls 83, mounted on brackets 84, projecting from the rear walls of the respective cash-drawers. The pawls 83 are pivotally mounted upon the brackets 84 and are held in their normal positions by small coil-springs 85, which surround their pivot-pins and engage pins 86, mounted thereon, and stationary pins 87, mounted on the brackets 84. Each of the pawls 83 is formed with a stop-shoulder 88, which abuts against a pin 87, and thus limits the movement of the pawl in one direction, but allows free movement of the same in the opposite direction. Each of the pawls 68 is provided with a beveled nose 89. When any one of the cash-drawers is released and projected from the casing, the pawl 83, connected thereto, will engage one of the pins 82, and

thus elevate the rods 77. This upward movement of the rod will cause one of its projections 76 to engage and operate the pawl 68, which is making contact at that time, and return the same to its normal position. The continued outward movement of the drawer will cause the pawl 83 to engage the nose 89 of its respective pawl 68, and thus shift said pawl to establish a contact between its arm 75 and the corresponding lug 78. This contact will remain unbroken until another cash-drawer is opened.

By the above-described means after a clerk's key is depressed and returned to its normal position and after a cash-drawer has been opened and again closed the lights corresponding to the key and drawer will continue to burn and give the indication until the next succeeding transaction is recorded upon the machine.

In wiring up my lights for my machine I prefer to have all the lights included on the main wire with individual light-wires passing to the respective independent contact-pieces of the keys and the cash-drawer. It will of course be understood that the indicator-frame 29 may be located at any position within the store or at a distance therefrom. In this connection I do not care to limit myself to a single indicating-frame, and it will be at once apparent that any number of these frames might be located at different positions within a store and all included in the same circuit.

By the employment of the devices above described it will be seen that I provide a series of cash-drawers to be used in connection with the cash-register without in any way connecting these cash-drawers to the register and leaving the same absolutely independent of any operation of the register. With this construction the register can be operated without opening a cash-drawer at all, or any one of the cash-drawers can be opened without operating the register. However, if a clerk should attempt to fraudulently manipulate the machine by operating only the machine or only a cash-drawer this fact would become known at once, as only the clerk's signal or the drawer-signal would be sounded, and all those within hearing of the machine would know that such fraudulent operation was being attempted. Further, if a clerk attempted to operate the machine and not operate the corresponding cash-drawer this fact would also at once become apparent by a glance at the illuminated indicator. In other words, while no mechanism or other tangible connection exists between the machine and the cash-drawers devices are provided whereby the machine and cash-drawers must be operated properly or the clerk becomes liable to immediate exposure of his fraudulent practice.

I do not care to limit myself to the employment of cash-drawers as such, as I may equally well employ other forms of cash safes or receptacles having movable members by means of which their contents may be exposed.

It will be understood that suitable signals, such as bells, might be substituted for the lights, in which case the tone of a bell for a certain cash-drawer would have to correspond with the companion bell pertaining to the corresponding clerk's key. The two bells would thus ring in harmony when the machine was properly operated. If a cash-drawer is opened that does not correspond to the clerk's key operated, the discordant chime of the unlike bells will become at once apparent to those within hearing of the machine.

It will be observed that by the peculiar construction of the detent 9 a signal is sounded when any key is depressed, and the same signal is again sounded when the operation of the machine is completed by the movement of the handle 2 and a subsequent raising of the detent to release the key. By this means all within hearing of the machine are made aware that the machine has been completely operated and not left in a semi-operated condition, which might be the case if an attempt at fraud were made.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a cash-register, the combination with an operating mechanism including a clerk's setting mechanism, of a series of cash-receptacles having movable members, and independent but corresponding signals for the clerk's setting mechanism and the respective cash-receptacles.

2. In a cash-register, the combination with an operating mechanism, of a series of clerks' setting devices, a series of cash-receptacles, and independent but corresponding signals for the respective clerks' setting elements and the cash-receptacles.

3. In a cash-register, the combination with a series of clerks' keys, of a series of cash-receptacles, and distinctive but corresponding signals for the respective keys and receptacles.

4. In a cash-register, the combination with a series of clerks' keys, of a series of cash-drawers, and independent but corresponding signals for the respective keys and drawers.

5. In a cash-register, the combination with a series of clerks' keys, of a series of cash-drawers, independent corresponding signals for the respective keys and drawers, and mechanism for operating the signals when the keys are depressed and when the cash-drawers are opened.

6. In a cash-register, the combination with a series of clerks' keys, of a series of cash-drawers, and a series of independent but corresponding color-signals for the keys and drawers.

7. In a cash-register, the combination with a series of clerks' keys, of a series of cash-

drawers, and independent but corresponding illuminated signals for the respective keys and drawers.

8. In a cash-register, the combination with a series of clerks' keys, of a series of cash-drawers, independent but corresponding signals for the respective keys and drawers, a signal arranged to be operated by any one of the keys, and an independent signal arranged to be operated by any one of the cash-drawers.

9. In a cash-register, the combination with a series of clerks' keys, of a series of cash-drawers, independent but corresponding signals for the respective keys and drawers, means for operating the signals when the keys are depressed or the cash-drawers opened, and means for continuing the signals in operation until the next succeeding operation of a key or the next succeeding operation of a cash-drawer.

10. In a cash-register, the combination with a series of clerks' keys, of a series of cash-drawers, means for independently opening the cash-drawers, and a series of independent but corresponding signals for the respective keys and cash-drawers.

11. In a cash-register, the combination with a series of clerks' keys, of a series of cash-drawers, an indicator-frame divided into compartments, lights in said frames controlled by the respective keys and cash-drawers, and corresponding signals for the companion keys and cash-drawers illuminated by said lights.

12. In a cash-register, the combination with a series of clerks' keys, of a series of cash-drawers, independent but corresponding illuminated signals controlled by the respective keys and cash-drawers and arranged in groups, and constant signals for indicating the application of the different groups of signals.

13. In a cash-register, the combination with a series of clerks' keys, of a series of cash-drawers, an indicator-frame divided into compartments, lights in said compartments controlled by the keys and cash-drawers, and independent but corresponding transparent signals illuminated by said lights.

14. In a cash-register, the combination with a series of keys, of a series of cash-drawers, independent but corresponding light-signals for the respective keys and drawers and independent acoustic signals for the keys and cash-drawers.

15. In a cash-register, the combination with a series of keys, of a series of cash-drawers, a series of independent but corresponding light-signals for the keys and cash-drawers, and electrical connections between the keys and their signals and the cash-drawers and their signals.

16. In a cash-register, the combination with a series of cash-receptacles, of a movable contact member actuated by the opening of any one of said receptacles, and an electric alarm operated upon the movement of said member.

17. In a cash-register, the combination with a series of keys, of a series of contact-pieces operated by said keys and remaining set upon the return of the keys to their normal positions, and means for moving a set contact-piece upon the next succeeding operation of a key.

18. In a cash-register, the combination with a series of cash-drawers, of a series of contact-pieces operated by the respective drawers and left in set position after the drawers are closed, means for moving a set contact-piece back to its normal position upon the succeeding operation of any one of the cash-drawers, and signals controlled by the contact-pieces.

19. In a cash-register, the combination with a series of clerks' keys, of a series of pivoted contact-pieces, means for holding a contact-piece in its adjusted position under spring tension, means for positively returning the contact-piece to its normal position upon the operation of a key succeeding that by which it was set, and signals controlled by said contact-pieces.

20. In a cash-register, the combination with a series of cash-drawers, of a series of contact-pieces, spring means for holding the contact-pieces in their set positions, means for returning a contact-piece to its normal position upon a movement of a cash-drawer succeeding that by which it was set, and signals controlled by said contact-pieces.

21. In a cash-register, the combination with an operating mechanism, of a series of controlling-keys, a handle also connected to the operating mechanism signals, and means for sounding one signal when a key is operated and another signal when the handle is operated to complete the operation of the machine.

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

WILLIAM H. MUZZY

Witnesses:
JOHN J. UNGVÁRY,
CARL W. BEUST.