

No. 775,088.

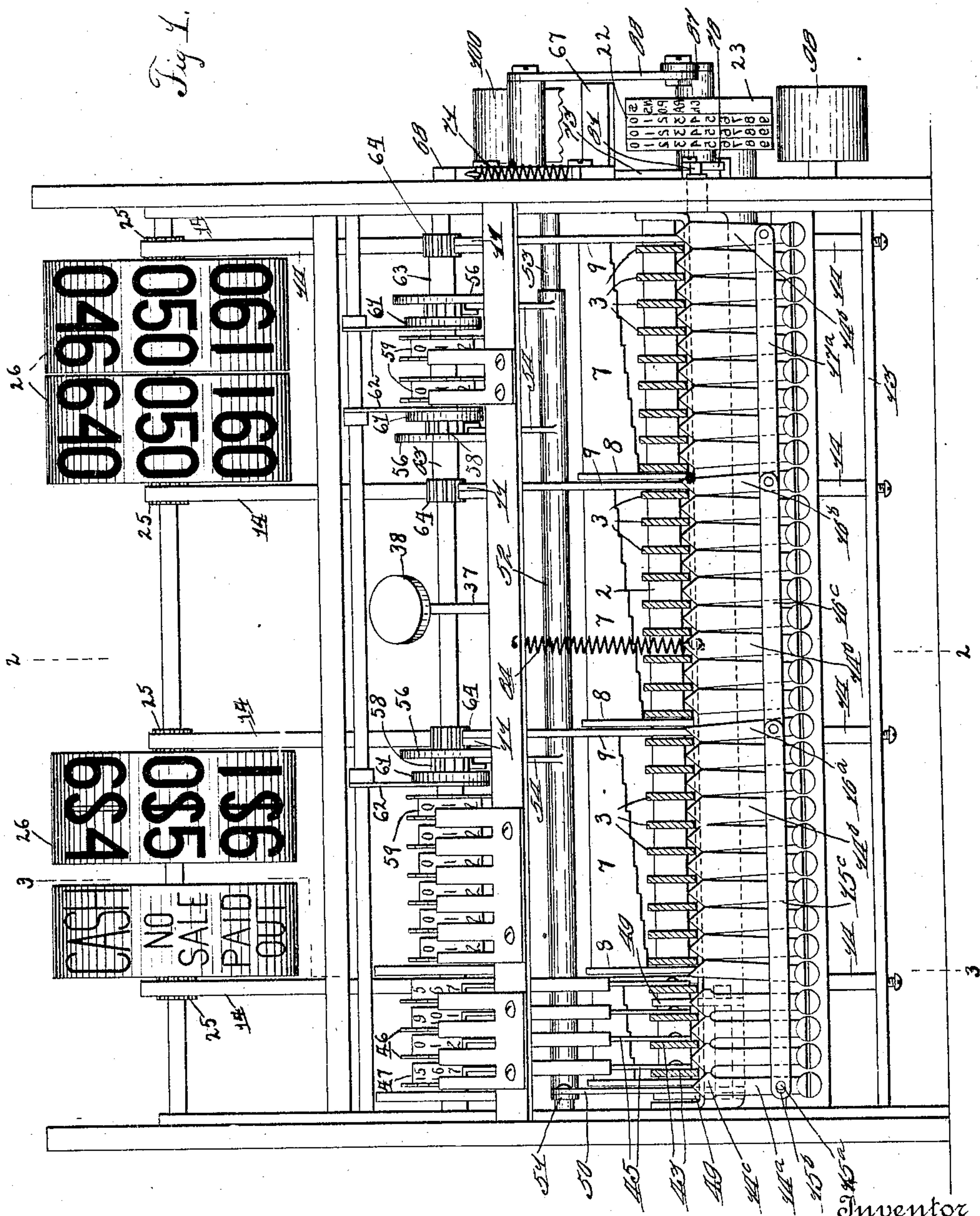
PATENTED NOV. 15, 1904.

W. H. MUZZY.
CASH REGISTER.

APPLICATION FILED MAR. 15, 1904.

NO MODEL.

4 SHEETS—SHEET 1.



Witnesses
W. M. McCortley
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Inventor
W. H. Muzzy

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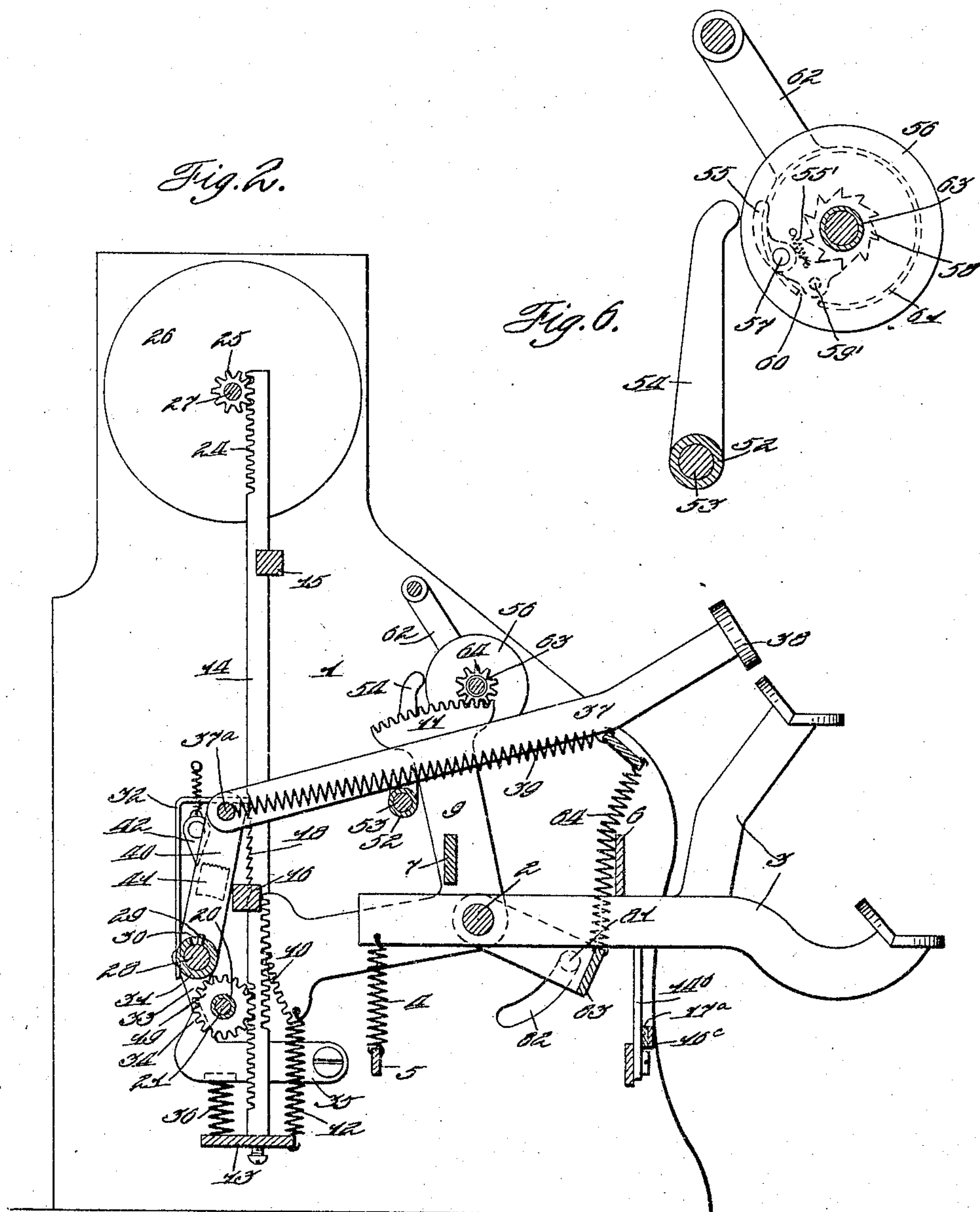
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NO MODEL.

4 SHEETS—SHEET 2.



Witnesses

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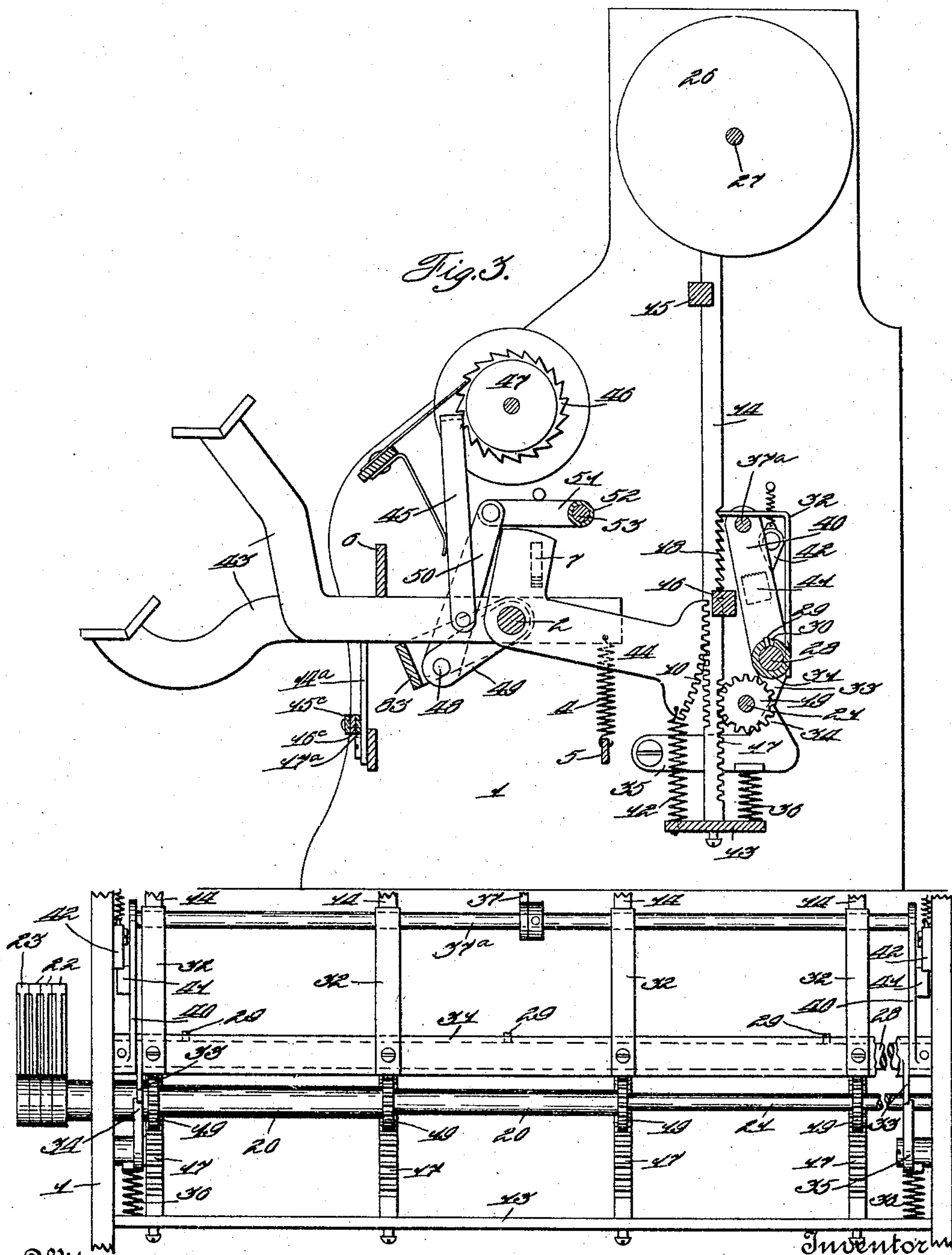
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4 SHEETS--SHEET 3.



Witnesses
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Fig. 4.

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No. 775,088.

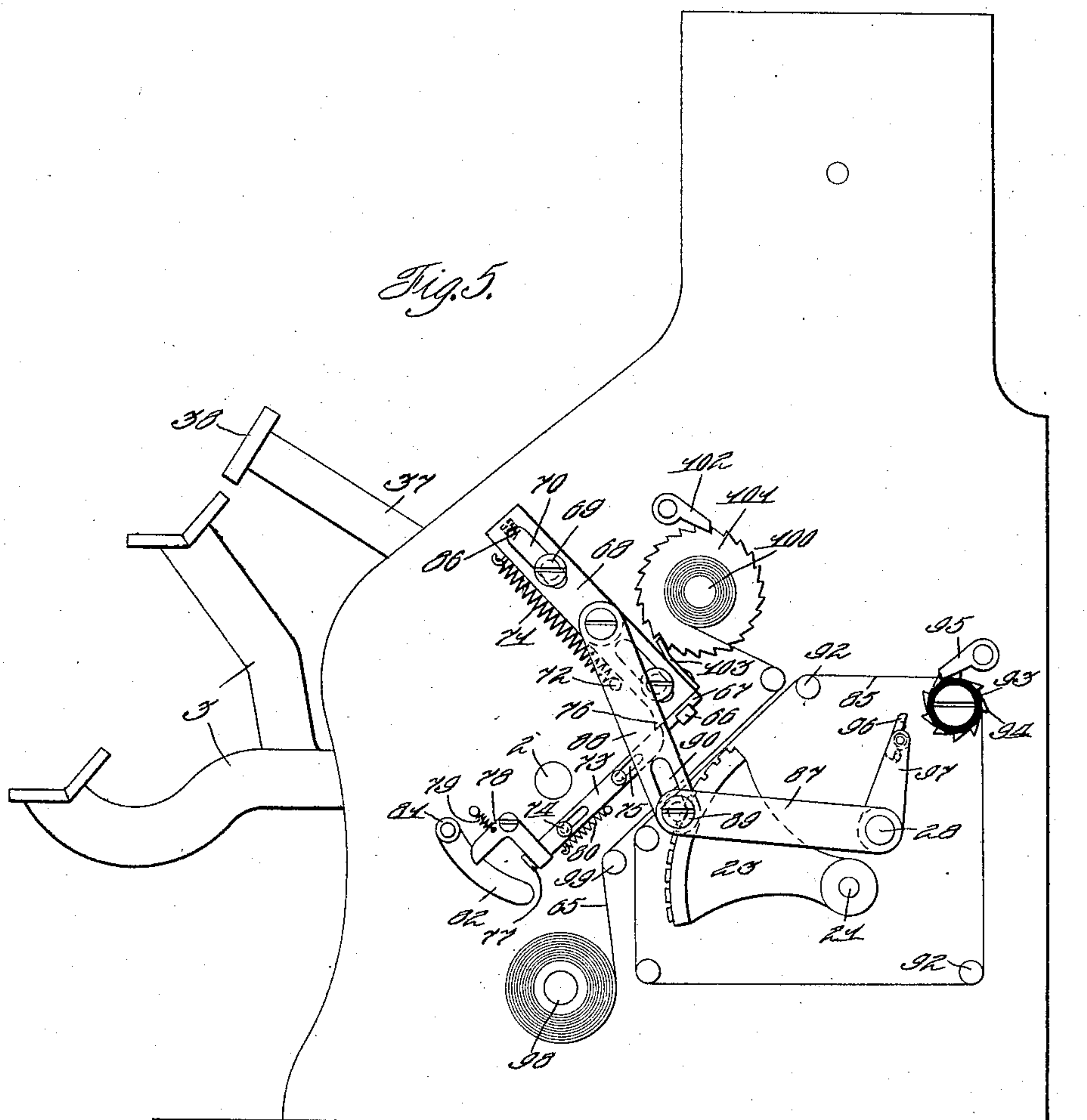
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APPLICATION FILED MAR. 15, 1904.

NO MODEL.

4 SHEETS—SHEET 4.



Witnesses

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Inventor

H. Cluzey

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.

SPECIFICATION forming part of Letters Patent No. 775,088, dated November 15, 1904.

Application filed March 15, 1904. Serial No. 198,221. (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, 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 type patented to Watson and McGraw, No. 686,683, dated November 12, 1901.

One of the several objects of the invention is to provide the type of machine mentioned with an improved printing mechanism.

Another object of the invention is to provide improved safety devices for preventing fraudulent manipulation of the machine.

A further object is to provide improved devices for suspending the operation of the counter when it is desired to print a transaction without registering it.

With these and incidental objects in view the invention consists in certain novel features of construction and combinations of parts, the essential elements of which are set forth in appended claims and a preferred form of embodiment of which is hereinafter specifically described, with reference to the drawings which accompany and form part of this specification.

Of said drawings, Figure 1 represents a front elevation, partly in section, of a machine of the type mentioned with my improvements applied thereto, the cabinet and cash-drawer 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 through the machine on the line 3 3 of Fig. 1. Fig. 4 represents a detail top plan view of the nested sleeves and connections for supporting and operating the printing-segments. Fig. 5 represents an end elevation of the machine, showing the printing mechanism; and Fig. 6 represents a detail side elevation of the devices for throwing out the counter when it is desired to record certain transactions without registering them.

As many of the parts shown in the present drawings are substantially identical in construction and operation to the corresponding parts shown in the aforesaid patent, I will refer to the latter for such detail descriptions as are not hereinafter given. Described in general terms, however, it may be said that the machine comprises a series of operating-keys which are normally locked and are released by an independent release-key, this release-key also releasing any of the rotary indicators which have been previously set by the keys and left in their set or exposed positions when the keys returned to their normal positions. The operation of any one of the amount-keys results in a graduated movement of a rack-segment. This segment through suitable intermediate gearing actuates the counter-wheels.

Described more in detail, each of the key-levers 3 is pivoted upon a transverse shaft 2, which is mounted in the main frame 1 of the machine. Each lever is normally drawn downward at its rear ends by a coil-spring 4, which connects it to a rigid cross-bar 5, the movement of the lever being limited by a cross-bar 6 of the main frame located forward of the pivotal shaft 2. The amount-key levers are arranged in banks and are numbered from "1" to "9," respectively. The key-lever of any particular bank when operated is arranged to contact with and actuate a stepped cross-bar 7, which, as best shown in Fig. 1, connects an arm 8, mounted loosely on the shaft 2, to the bell-crank rock-lever 9, also mounted loosely on said shaft. The levers 8 and 9, together with the cross-bar 7, form a yoke-frame over their particular set of keys, which frame is constructed to be actuated differentially according to the value of the key operated. As these yoke-frames of each bank, excepting the special bank, are substantially identical, I will describe one only, as this description will suffice for all.

Each of the levers 9 is provided upon its opposite ends with segmental racks 10 and 11 and is drawn into the normal position (shown in Fig. 2) by a coil-spring 12, which connects it to the cross-bar 13 of the main frame. The

segmental rack 10 meshes with rack-teeth formed on a vertically-movable bar 14, which is guided in cross-bars 15 and 16 of the main frame and is provided with a series of rack-teeth 17 and a series of ratchet-teeth 18 upon its rear side. The teeth 17 mesh with pinions 19, mounted upon the inner ends of a series of nested sleeves 20 and the supporting-shaft 21, said shaft and sleeves being provided at their outer ends with the type-segments 22, representing the amounts, and the special type-segment 23, representing the special transactions, as clearly shown in Figs. 1 and 4. The said bars are also provided near their upper ends with a series of rack-teeth 24, which mesh with pinions 25, secured to the respective indicator-wheels 26, which are loosely mounted upon the transverse supporting-shaft 27. The indicator for the dollars-bank, as shown in Fig. 1, is provided with a reversely-arranged double set of numerals representing "0" to "9," inclusive, and arranged to be disclosed at both the back and front of the machine. The indicators for the tens-of-cents bank and the units-of-cents bank are substantially identical, excepting that in addition to the reversely-arranged sets of numerals each of the same is provided with a third series of ten zero characters. The object of this third series of characters is to provide the proper zeros for the tens of cents to be read properly from the opposite sides of the machine. Thus the indication of fifty cents would read with the zero upon the units-of-cents indicator and the five upon the tens-of-cents indicator, while the corresponding indication at the back of the machine would read entirely upon the tens-of-cents indicator. For this purpose the indicator-apertures in the cabinet are so arranged that the operation of the machine will disclose at the front of the machine the right-hand series of numerals of the tens-of-cents indicator and the left-hand series of numerals of the units-of-cents indicator. The indication at the back of the machine will show the two left-hand series of numerals on the tens-of-cents indicator and the two right-hand series of numerals in the units-of-cents indicator.

It will be seen from the aforesaid description that the movement of any one of the racks 10 will result in the corresponding movement of its bar 14 and the indicator-wheel and type-segment controlled thereby.

When the indicator and type-wheel have been so set, means must be provided for latching them in this set position to prevent their return under the impulses of the springs 12 when the key returns. This latching means comprises a rock-shaft 28, mounted transversely of the machine and provided with radially-projecting pins 29, which project into elongated slots 30, formed in a sleeve 31, which loosely surrounds shaft 28. Attached to this sleeve 31 are a series of angular spring

retaining-pawls 32, which are normally held to engagement with the rack-teeth 18 by means of V-shaped arms 33, pendent from the sleeve 31 and engaged by V-shaped noses 34, formed on pivoted pawls 35, which are suitably mounted upon the main frame. The pawls 35 are normally forced upward by coil-springs 36, interposed between them and the bar 13, as plainly shown in Figs. 2 and 4. It will be seen that the upper inclined rear side of each nose 34 normally engages the forward inclined side of each arm 33, and thus holds all of the retaining-pawls 32 yielding in engagement with the ratchet-teeth 18. Located approximately at the middle of the machine is a release-key bar 37, which extends through a suitable aperture in the front of the machine and is provided with an operating head or button 38, by means of which it may be forced inward against the tension of the coil-spring 39, which connects it to the main frame. The rear end of the bar 37 is pivotally connected to a shaft 37^a, which has its opposite ends mounted in arms 40, which are fast to the transverse rock-shaft 28, whereby when said key 37 is forced rearward the shaft 28 is correspondingly rocked. Each of the arms 40 carries a ratchet-plate 41, which is engaged by a pivoted, pendent spring-drawn pawl 42, suitably mounted on the main frame and cooperating with said plates 41 to compel full movement of the arms 40 in both directions in a manner well known in the art.

When the bar 37 is initially forced inward to release the indicators, the sleeve 31 remains stationary, as the shaft 28 is free to rock a certain distance before the pins 29 come into contact with the rear walls of the slots 30, formed in the sleeve. The continued rearward movement of the bar 37 now rocks the sleeve 31 to disengage the pawls 32 from the ratchet-teeth 18. This rocking of the sleeve 31 causes the arms 33 to depress the rear ends of the pawls 35 until said arms pass entirely over the noses 34, when the pawls 35 rise under the impulse of their springs, and thus engage the rear faces of the arms 33. As the pins 29 at this time are in the rear portion of the slots 30, the sleeve 31 is free to move independently rearward. This independent movement of the sleeve is very rapid and is of sufficient extent to totally disengage all of the spring-pawls 32 from their ratchet-teeth 18 to release the bars 14 and allow them to assume their normal positions. In machines of the type above mentioned the inaccuracies of manufacture cause the pawls 32 to disengage from the ratchet-teeth 18 and the bars 14 at different periods if the bar 37 is moved slowly inward, and one indicator is thus released before another, which action permits of the indication being changed without any registration taking place. Further, the construction at present employed in this type of machine permits of the machine being manipu-

lated by giving the key 38 a slight tapping blow, which will temporarily disengage the pawl 32 from the ratchet-teeth 18 and then permit said pawl to again engage the ratchet-teeth and arrest the indicator before it has resumed its normal zero-indicating position. The devices above described, however, altogether obviate this difficulty, as no one of the pawls 32 can be disengaged from its ratchet-teeth 18 before the remaining pawls. The disengaging movement is automatic and is virtually beyond the control of the operator, as such movement of the pawls is controlled by the springs 36 and could not possibly be arrested by the operator by any manipulation of the bar 37. Further, after the pawls 32 start their movement to disengage from the ratchet-teeth they cannot again engage said teeth until the bar 37 has been pressed inward fully, as the pawl 42 prevents any retrograde movement of said bar 37 until the same is fully operated.

As above stated, the detail description before given refers particularly to the banks of keys pertaining to the amounts; but this description also applies in part to the bank of special keys 43. These keys, as best shown in Fig. 3, are arranged in substantially the same manner as the amount-keys and cooperate with a special operating-frame 44. This frame is connected to its particular indicator in substantially the same manner as the frame pertaining to the amount-banks. This particular frame 44, however, is not provided with a counter-operating rack-segment 11. Each of these special keys, however, is provided with a pivoted spring-pressed pawl 45, which engages a ratchet-wheel 46 for operating one of a series of special counters 47 for keeping track of the number of times each of the special keys is operated in a manner well-known in the art. Further, each of these keys 43 when depressed is arranged to contact with a transverse bar 48, which connects two arms 49, loosely mounted upon the shaft 2, to form a special operating-yoke for the bank of special keys. The link-bar 50 connects this yoke to an arm 51, mounted upon a sleeve 52, which in turn is mounted upon the transverse supporting-shaft 53, as best shown in Figs. 1 and 3.

From the above construction it results that when any one of the special keys is depressed the sleeve 52 is rocked forward. This forward movement of the sleeve causes the series of vertically-arranged arms 54, mounted thereon, to engage the rear ends of pawls 55, which are carried by disks 56, to move said pawls upon their pivots 57 and out of engagement with ratchet-wheels 58, which are connected to the respective counter-wheels 59. When the pawls 55 are rocked out of engagement with the ratchets 58 in the manner above described, laterally-projecting pins 59' mounted thereon pass through notches 60,

formed in stationary rings 61, mounted rigidly beside the disks 56 by means of arms 62, as best shown in Fig. 6. Each of the disks 56 is mounted upon a sleeve 63, which carries a pinion 64, meshing with its respective operating rack-segment 11. Each of the pawls 55 is normally drawn into engagement with its respective ratchet-wheel 58 by a coil-spring 55', which connects it to the disk 56.

It will be seen from the above that when the disks 56 are rotated by the operation of the keys 3 they normally operate the registering-wheels to a degree corresponding with the values of the keys operated. When the pawls are thrown out in the manner above described, the movements of the disks 56 simply result in moving the pins 59' over the rings or flanges 61, whereby the pawl is held out of engagement with its ratchet-wheel 58 during its entire forward stroke and only re-engages said wheel again when the disk 56 resumes its normal position, whereby the pin 59 can again pass through the notch 60. There is sufficient clearance between the pin 59' and the inner surface of the ring 61 to allow the pawl 55 to ride back over the teeth of the ratchet 58 during the normal operation of the machine. It will be seen from the above description that when any one of the special keys is actuated the counting mechanism will be thrown out, so that while the indicators will be set to indicate the proper amount no registration will take place.

As before stated, the setting of the different graduated frames, whether they be amount-frames or the frame pertaining to the bank of special keys, sets the type-carriers 22 and 23 for printing both the amount of the transaction and also the character of the transaction. By reference to Fig. 1 it will be seen that when the type-carrier 23 is in its normal position the dollar-sign will be printed in connection with any amount printed. When this special type-carrier is moved, however, from its normal position, characters will be printed in connection with the amount characters for indicating whether the transaction is "No sale," "Paid out," "Received on account," or a "Charge."

If the type-carriers have been set as above described, an impression is taken upon the detail-strip 65 by means of a platen 66. This platen is mounted on an angular platen-arm 67, as best shown in Figs. 1 and 5. The arm 67 is connected to a slide 68, which is mounted upon the main frame by headed bolts 69, which pass through elongated slots 70, formed therein. The platen-bar 68 normally tends to move toward the type-segments under the impulse of the coil-spring 71, which connects said bar to a pin 72, mounted on the main frame. The bar is held, however, in its retracted position (shown in Fig. 5) by a sliding latch-bar 73, mounted upon the main frame by means of headed screws 74, which pass through

slots 75, formed therein. The upper end of the slide 73 is beveled and coöperates with a beveled lug 76, formed on the bar 68. The lower end of the slide 73 is provided with a lug 77, against which the bell-crank tripping-lever 78 is normally drawn by means of a coil-spring 79, which connects the lever to the main frame. The slide 73 is normally held in its latching position by a coil-spring 80, which connects it to the main frame. One end of the bell-crank lever 78 is beveled upon one side and projects into the path of the anti-friction-roller 81, which extends through a segmental slot 82, formed in the main frame, and is carried by a pivoted yoke-frame 83, extending under all of the levers and operated by the depression of any one of the same. This frame is normally drawn upward against the under edges of the keys by a coil-spring 84, which connects it to the main frame.

It will be seen from the above description that when any one of the keys is depressed the roller 81 will move downward and engaging the bell-crank lever 78 will rock the same upon its pivot without affecting the latch 73. When the key returns toward its normal position, however, and permits the frame 83 to move upward, the roller 81 will engage the lever 78 and rock the same in the opposite direction, which will cause the lever to retract the slide 73 and release the platen. When the platen is so released, it springs forward because of the tension of the spring 71 and strikes a hammer-blow upon the detail-strip 65, forcing the latter, together with the endless inking-ribbon 85, against the types in printing position. The platen is slightly retracted after striking its hammer-blow by a small coil-spring 86, mounted in the upper wall of one of the slots 70 and arranged to engage its respective bolt 69 when the platen descends. After the platen has been operated, as above described, it is again recocked by the operation of the key 38 and the rocking thereby of the shaft 28. This shaft, as best shown in Fig. 5, is extended through the side plate of the machine and is provided with a crank-arm 87. This arm is connected to a toggle-link 88 by means of a headed bolt 89, which passes through an elongated slot 90, formed in the link. The upper end of this link is pivotally connected to the platen-bar 68. When the platen is released and descends, the link 88 passes down and rearward independent of any movement of the arm 87, the pin 89 meanwhile passing from one end of the slot 90 to the other. When the key 38 is depressed previous to the subsequent operation of the keys, the arm 87 is moved upward at its forward end by the rocking of the shaft 28, and the toggle formed by this arm and the link 88 is thus straightened out and the bar 68 forced upward and forward sufficiently to again become latched. When pressure upon the key 38 is removed, the shaft 28 and

arm 87 automatically resume their normal positions, (shown in Fig. 5,) so that the platen 68 is again free to descend when released without interference from the arm 87.

The endless inking-ribbon 85 is guided on suitable supporting-studs 92 and passes about an absorbent ink-roller 93, which is journaled upon the main frame. This roller is provided with a ratchet-wheel 94, which is engaged by a restraining-pawl 95 and is arranged to be actuated by a spring-pressed pawl 96, mounted upon the arm 97, which is fast to the shaft 28. The inking-ribbon is thus fed forward a slight distance upon each operation of the machine. The detail-strip 65 passes from the supply-roller 98 over suitable guiding-studs 99 and about the feeding-roller 100. This roller carries a ratchet-wheel 101, which is engaged by a restraining-pawl 102 and also by a spring feeding-pawl 103, mounted upon the platen-bar 68. By this means the detail-strip is fed forward to bring a fresh space into printing position upon each recocking movement of the platen-bar 68.

It will be observed that when an amount-key is operated the indicators and type-segments are first set by the downward movement of the key. After being so set the indicators and type-segments are latched in such set positions, whereby they are unaffected by the return movements of the keys. During this return movement the platen is released and prints upon the detail-strip the numerals and character set up by the keys previously operated. The only additional work which the keys must perform is the setting of the type-segments and the releasing of the platen, the duty of recocking the platen against the tension of the spring 71 being thrown upon the releasing-key 38, thus preventing any overloading of the amount or special keys.

It will of course be understood that other forms of platens or strips and ink-ribbon-feeding devices might be employed in connection with the present improvements without departing from the spirit of this invention. I also do not care to limit myself to the particular construction of devices for automatically and simultaneously disengaging all of the ratchet-pawls from their respective ratchets, as numerous other constructions varying in detail but not in principle might be employed to accomplish this same result.

In order to prevent any possibility of any one of the special keys being operated after the amount-keys have been displaced from their normal position and also to prevent the simultaneous operation of more than one key in each bank, I provide a series of pivoted key-stops 14^a and 14^b. The stops 14^a are pivotally mounted upon the cross-bar of the main frame and are formed at their upper ends with wedge-shaped heads 14^c, which lie directly beneath the special key-levers 43. When any one of the special keys is operated, the key-

stops 14^a are forced both to the right and left in order to permit the descent of the lever. After any one of the key-levers has been fully depressed the stops 14^a are again freed. This peculiar action of the stops 14^a is utilized to lock all of the amount-keys during the time that the special keys are being depressed. To accomplish this result, the left-hand stop 14^a is provided with a pin 15^a, which projects into an elongated slot 15^b, formed in a link-bar 15^c. The bar 15^c is pivotally connected to a special key-stop 16^a, which is in turn connected to a similar stop 16^b by link-bar 16^c. The stop 16^b is connected by link-bar 17^a to the extreme right-hand key-stop 14^b. All of the key-stops 14^b are suitably pivoted upon the main frame and are beveled at their upper ends and constructed to prevent the simultaneous operation of more than one key in the same bank. Should an amount-key be operated first, the right-hand displacement of the stops 14^b will cause the link-bar 15^c to move to the right until the end of the slot 15^b contacts with the pin 15^a. As none of the key-stops 14^a can now move to the left, the special keys are locked and remain so until the amount-key is returned to its normal position. Whenever a special key is partly depressed, the pin 15^a moves to the left end of the slot 15^b, and the special key-stops 16^a 16^b and the right-hand key-stop 14^b are thereby locked against movement to the right, which prevents the operation of a key in any one of the amount-banks. As the general operation of these key-stops is so well understood in the art, no further description of the same is thought to be necessary.

While the form of mechanism here shown and described is admirably adapted to fulfil the objects primarily stated, it is to be understood that I do not care to confine myself to any form of embodiment of the invention here disclosed, for it is susceptible of embodiment in various forms, all coming within the scope of the claims which follow.

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 a series of keys, of indicating devices controlled thereby, a latch for said indicating devices, a latch-controlling device, and means governed by the latter for automatically actuating the latch independently of said controlling device.

2. In a cash-register, the combination with a series of keys, of indicators and type-carriers controlled thereby, latches for said indicators and type-carriers, a latch-controlling device, and means governed by the latter for simultaneously and automatically operating all of the latches independently of said controlling device.

3. In a cash-register, the combination with

setting devices, of a series of indicators, latches for the indicators, a latch-controlling device and means governed by the latter for simultaneously and automatically releasing all of the latches independently of said controlling devices.

4. In a cash-register, the combination with a series of keys, of a series of indicators, connections between the keys and indicators including ratchets, locking-pawls engaging the ratchets and holding the indicators in their set positions, means for automatically disengaging the pawls from the ratchets, and means for starting said disengaging movement.

5. In a cash-register, the combination with a series of keys, of a series of indicators, means intermediate the keys and the indicators including ratchets, locking-pawls engaging the ratchets, means for controlling the disengagement of the pawls from the ratchets, and devices for automatically continuing this disengaging movement independently of the first-mentioned disengaging means.

6. In a cash-register, the combination with a series of a keys, of a series of indicators, means intermediate the keys and indicators including ratchets, a series of pawls engaging said ratchets, means for controlling the disengagement of said pawls from the ratchets, and an independent means for compelling the simultaneous disengagement of all of the pawls.

7. In a cash-register, the combination with a series of keys, of a series of indicators, rack-bars intermediate the keys and indicators, a series of spring-pawls engaging the rack-bars, a special key for controlling the disengagement of the pawls from the rack-bars, and means for continuing the disengaging movement of the pawls independently of the movement of the special key.

8. In a cash-register, the combination with a series of keys, of a series of indicators, rack-bars intermediate the keys and indicators, pawls engaging said rack-bars, means for controlling the disengagement of the pawls from the rack-bars and devices for preventing the reengagement of the pawls with the rack-bars before the controlling means has been fully operated.

9. In a cash-register, the combination with a series of keys, of a series of type-carriers, connecting means intermediate the keys and type-carriers, a spring-actuated platen, a latch for the same, a special key for cocking the platen, and means operated by the regular keys for releasing the platen.

10. In a cash-register, the combination with a series of keys, of a series of type-carriers, connecting means intermediate the keys and carriers, a series of indicators and connections, latches for holding the indicators in their set positions, a spring-actuated platen, a latch for the platen, a special key for releasing the indi-

cators and cocking the platen, and means controlled by the regular keys for releasing the platen.

11. In a cash-register, the combination with a series of keys, of a series of indicators, connecting means intermediate the keys and indicators, a series of type-carriers controlled by the keys, latches for the indicators, a platen, a special key and connections for controlling the platen and the indicator-latches, and means operated by the regular keys for releasing the platen.

12. In a cash-register, the combination with a series of keys, of a series of indicators, a series of type-carriers, connecting mechanism intermediate the keys, indicators and type-carriers, latches for the indicators, a platen, a latch for the platen, a special key and connections for controlling the platen and the indicator-latches, and means operated by the regular keys for actuating the platen-latch.

13. In a cash-register, the combination with a series of keys, of a series of indicators, a series of type-carriers, connecting mechanism intermediate the keys, indicators and the type-carriers, latches for holding the indicators in their set position while the keys return, a platen, a special key controlling said latches and the platen, and means operated by any one of the regular keys for releasing the platen.

14. In a cash-register, the combination with a series of amount-keys, of a series of special keys, a series of type-carriers controlled by said keys, a series of counter-wheels, actuating-pawls, and means operated by the special keys for preventing the pawls when operated from turning the counter-wheels.

15. In a cash-register, the combination with a series of amount-keys, of a series of special keys, type-carriers controlled by said keys, a series of counter-wheels, a series of actuating-pawls and connections controlled by the amount-keys, stationary means for holding the pawls out of engagement with the counter-wheels, and means controlled by the special keys for bringing the pawls into engagement with said stationary means.

16. In a cash-register, the combination with a series of amount-keys, of a series of special keys, a series of counter-wheels, operating-pawls and connections controlled by the amount-keys, stationary means for holding the pawls out of engagement with the counter-wheels and means controlled by the special keys for bringing said pawls into engagement with the stationary means.

17. In a cash-register, the combination with a series of amount-keys, of a series of special keys, rocking frames actuated by the amount-keys, a series of counter-wheels carrying ratchets, pawls actuated by the rocking frames and arranged to engage said ratchets, stationary devices over which the pawls may ride to

hold them out of engagement with the ratchets, and means controlled by the special keys for bringing the stationary devices and the pawls into coöperative relation.

18. In a cash-register, the combination with a series of amount-keys, of a series of special keys, graduated frames operated by the amount-keys, racks carried by said frames, pinions meshing with said racks, disks carrying pawls connected to said pinions, a series of counter-wheels having ratchets which are engaged by said pawls, a series of rings arranged to coöperate with the pawls to hold them out of engagement with the ratchets, and means controlled by the special keys for bringing the rings and the pawls into coöperative relation.

19. In a cash-register, the combination with a series of keys, of a series of graduated frames comprising side bars, and a graduated stepped bar connecting the same and arranged to be engaged by the keys, a series of type-carriers, connecting means intermediate the type-carriers and the graduated frames, means for holding the type-carriers in their set positions while the keys return to their normal positions, a platen, and independent means controlling the platen also arranged to release the type-carriers to permit them to return to their normal positions.

20. In a cash-register, the combination with a series of keys, of a frame operated by the same, a rack mounted on said frame, an indicator, a rack-bar connecting said rack and indicator, a pawl engaging the rack-bar, a special-key shaft rocked by said key, a sleeve mounted on said shaft and supporting said pawl, and means connecting the shaft and sleeve to allow a slight independent movement of said shaft or sleeve whereby the pawl may be disengaged from the rack-bar automatically but at the will of the operator.

21. In a cash-register, the combination with a series of keys, of registering-frames actuated by the same and arranged to be held in their set positions when the keys return to their normal positions, type-carriers connected to said frames, and a special key for releasing said frames to permit them to turn to normal position prior to being reset by said series of keys.

22. In a cash-register, the combination with a setting mechanism, of a series of type-carriers, connecting means intermediate the setting mechanism and type-carriers, a spring-actuated platen, a latch for the same, a special key for cocking the platen, and means independent of the special key for releasing the platen.

23. In a cash-register, the combination with a setting mechanism, of a series of type-carriers, connecting means intermediate the mechanism and carriers, a series of indicators and connections, latches for holding the indicators in their set positions, a spring-actuated platen, a latch for the platen, a special releasing device

for releasing the indicators and cocking the platen, and means independent of the special releasing device for releasing the platen.

24. In a cash-register, the combination with a
5 setting mechanism, of a series of type-carriers connected thereto, a spring-actuated platen, a latch for the same, a special key for cocking the platen, and means independent of the

special key for releasing the platen after the type-carriers have been set.

10

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

WILLIAM H. MUZZY.

Witnesses:

MILDRED MONFORT,
WM. O. HENDERSON.