

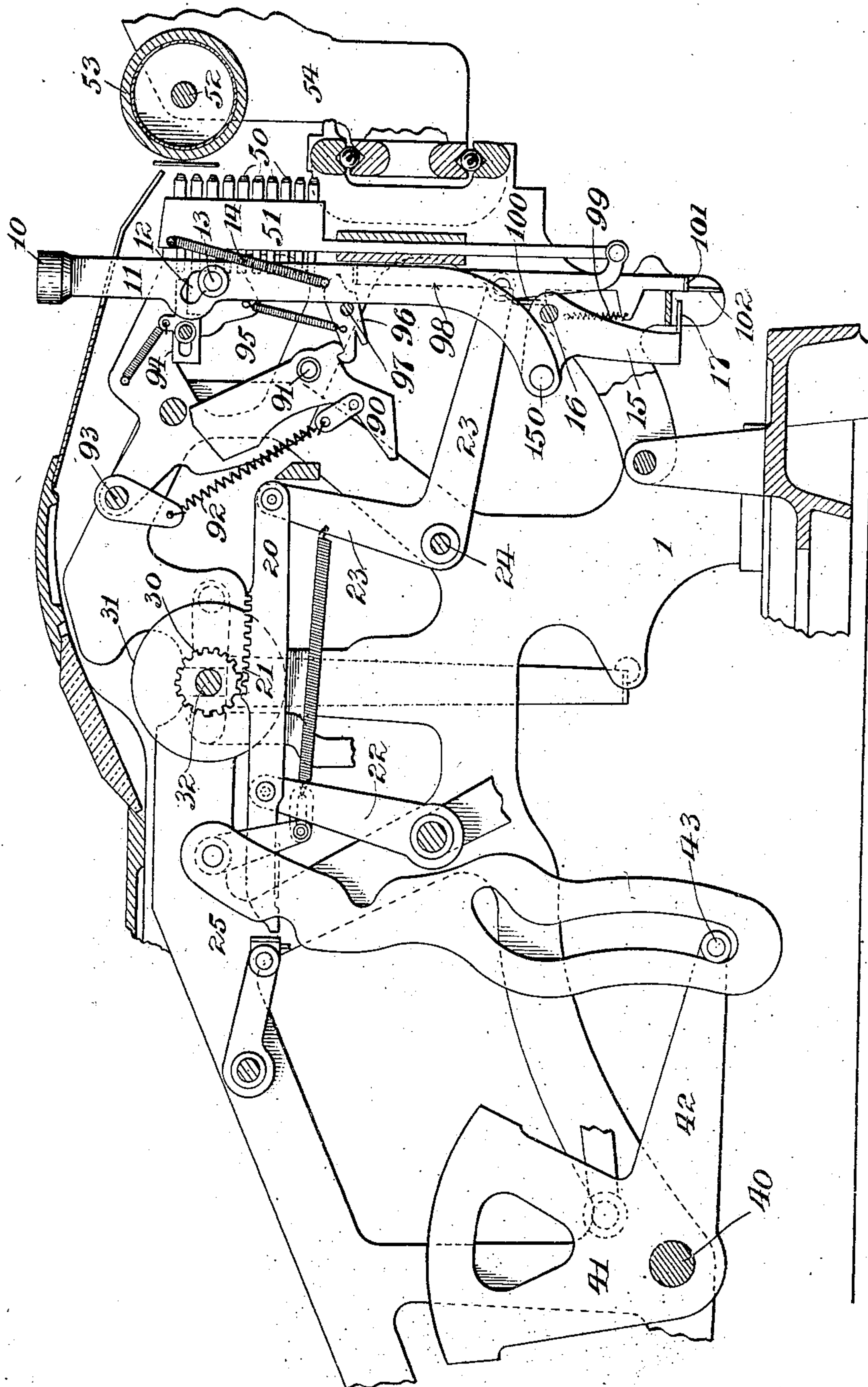
C. N. McFARLAND.
 ADDING MACHINE.
 APPLICATION FILED JULY 3, 1907.

924,264.

Patented June 8, 1909.

3 SHEETS—SHEET 1.

Fig. 1.



Attest:
Edgeworth Green
 Alan Mc Donnell

Charles N. McFarland, Inventor:
 by *William R. Baird*
 his Att'y.

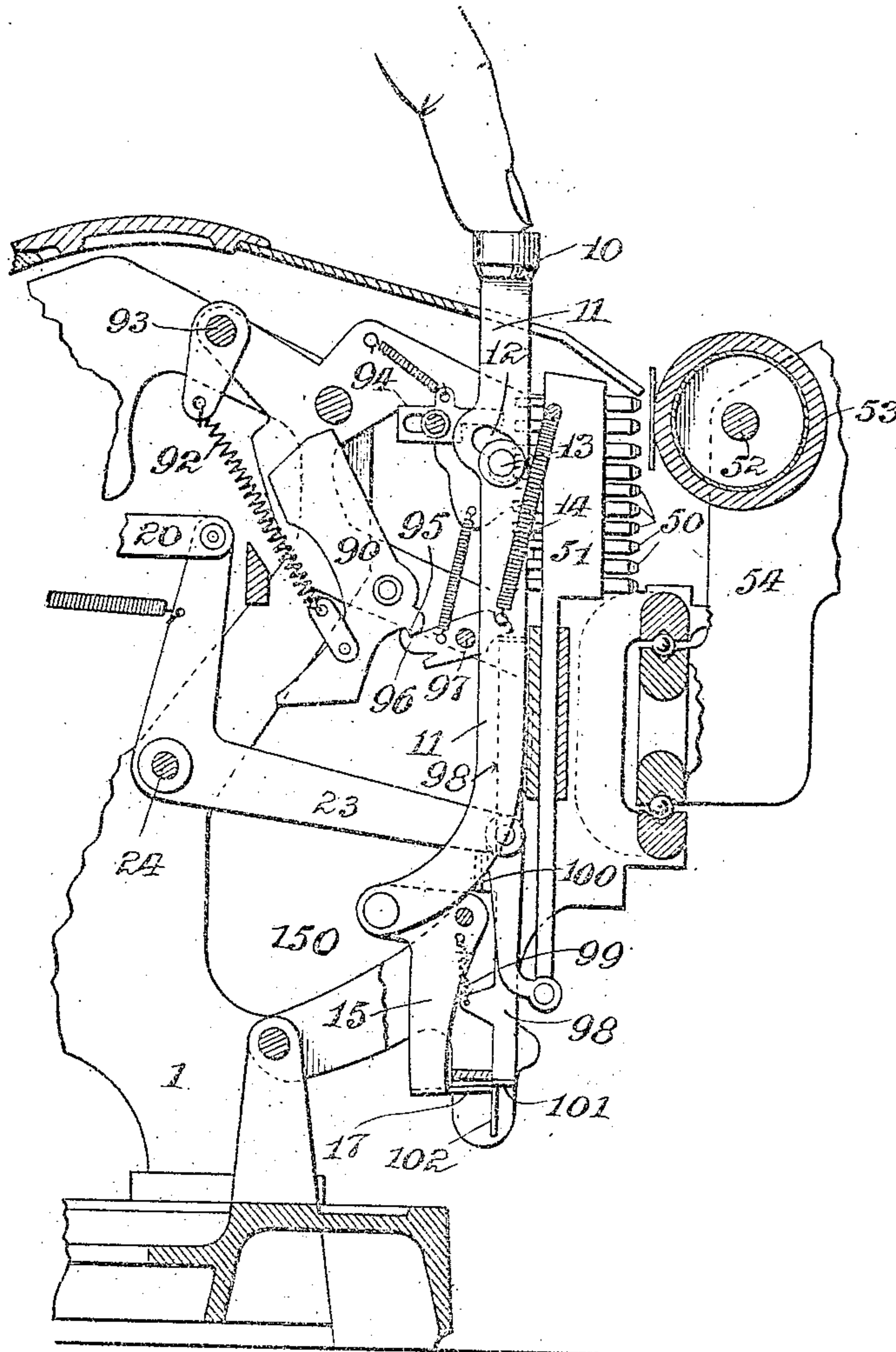
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8 SHEETS—SHEET 2.

Fig. 2.



Edgworth Greene
Alan Mc Donnell

Charles N. McFarland, Inventor:
by William R. Baird
his Atty.

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 3 SHEETS—SHEET 3.

Fig. 3.

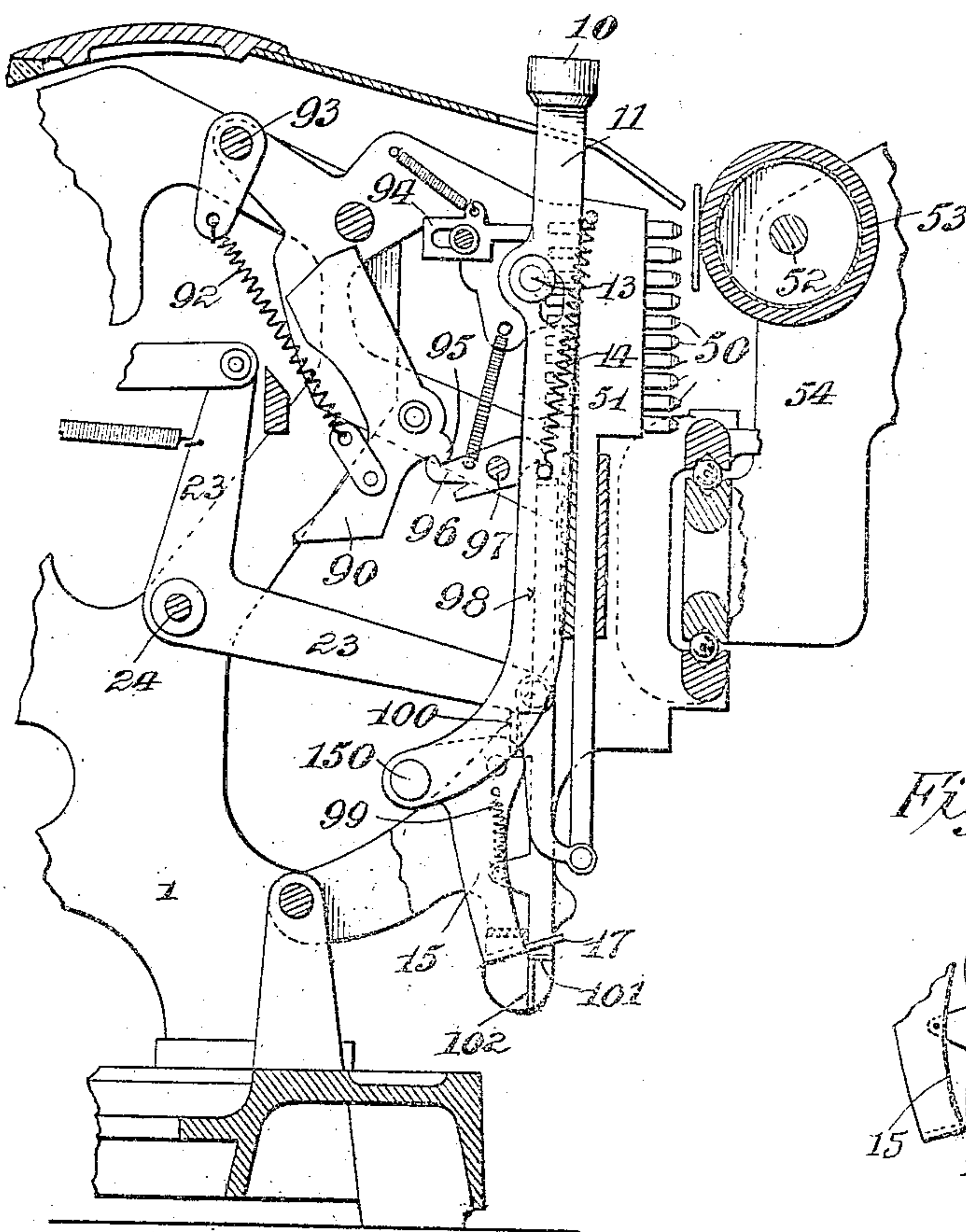
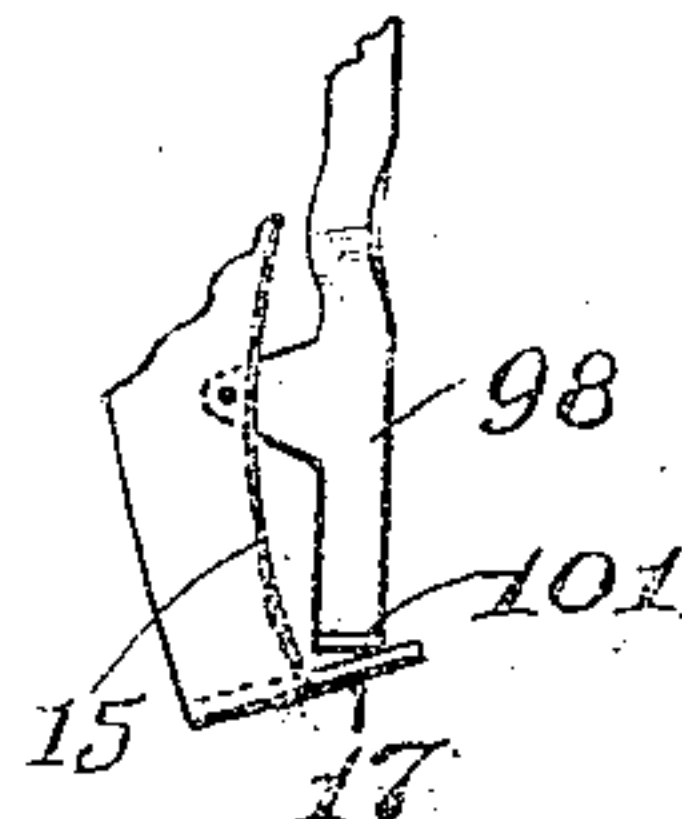


Fig. 4.



Attest:
Edgeworth Curran
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UNITED STATES PATENT OFFICE.

CHARLES N. McFARLAND, OF DORRANCETON, PENNSYLVANIA, ASSIGNOR TO THE ADDER MACHINE COMPANY, OF KINGSTON, PENNSYLVANIA; A CORPORATION OF PENNSYLVANIA.

ADDING-MACHINE.

No. 924,264.

Specification of Letters Patent.

Patented June 8, 1909.

Application filed July 3, 1907. Serial No. 382,009.

To all whom it may concern:

Be it known that I, CHARLES N. McFARLAND, a citizen of the United States, and a resident of Dorranceton, in the county of Luzerne and State of Pennsylvania, have invented certain new and useful Improvements in Adding-Machines, of which the following is a specification.

My invention relates to adding machines and more particularly to the well known Wales adding machine. This machine is commonly provided with a printing mechanism mounted at that end of the device farthest from the operator. It also comprises means for registering the items to be enumerated and added upon numeral wheels, an actuating handle and connections between the handle, the numeral wheels and the printing mechanism whereby, when the machine is normally operated, the items set up upon the numeral wheels are recorded by means of the printing mechanism. One style of the machine is provided with means whereby the function of the printing mechanism is temporarily interrupted without at the same time affecting the functions of the other mechanisms, such means terminating at the top of the machine in the key called the printing eliminating or non-printing key, all as described and illustrated in a co-pending application for United States Patent, filed Oct. 23, 1906, by Charles Wales, and numbered 340,135. It has been found by experience that in the operation of this machine it sometimes happens that after the operator has started to print an item, he changes his mind and actuates the non-printing button. This does not interfere with the enumeration of an item by the operator or the actuation of the main handle of the machine, but when the parts are sought to be restored to their original positions, the actuation of the non-printing button has placed them in such relations to each other that they are apt to become broken.

The purpose of the subject matter of this application is to provide means whereby the disaster above mentioned is prevented.

In the drawings, a machine embodying my invention is shown in three views in side elevation and partial vertical section.

In Figure 1 the non-printing key is shown

undepressed; in Fig. 2 it is shown partly depressed and in Fig. 3 it is shown wholly depressed, in each case the parts being supplied with the means for preventing the depression of the non-printing key after the release bar of the printing mechanism has started to move toward its predetermined position. Fig. 4 shows the parts accidentally buckled or bent.

In the drawings, 1 is the frame of the machine on which the parts are mounted. These parts include a bank of keys arranged in denominational series, each key provided with a stem by the depression of which a stop corresponding to the numeral value of the key depressed is interposed in the paths of rack bars 20, one for each numeral wheel 31. These rack bars are each provided with toothed racks 21 on their upper edges and are supported on their front ends upon links 22 suitably pivoted and at their rear ends upon the extremities of bell crank levers 23 mounted to oscillate upon the shaft 24. The other ends of the bell cranks are pivotally connected to the printing mechanism hereinafter described. The numeral wheels are provided with pinions 30 and are all mounted upon the common shaft 32. The numeral wheels display the digits in proper order on their edges (not shown) and their pinions 30 are adapted to mesh with the racks 21 above referred to.

It will be readily understood that when the rack bars are moved the extent of their movement and of the rotation of the numeral wheels when their pinions are in mesh with such bars is governed by the position of the stops above referred to and the forward movement of the racks to any extent is controlled by a series of other stops provided for that purpose, and one of which is shown at 25.

A main shaft 40 is adapted to vibrate either by a handle manually operated or by any other suitable source of suitable power. This in turn oscillates a section 41 provided with a leg 42 which in turn, through the pin 43, moves a train of mechanism, the construction of which is immaterial to our present purpose, whereby the racks 20 are moved and through them movement is communicated to the printing mechanism.

The printing mechanism comprises a series of type bars 50 arranged in vertical series on a carrier 51 so that when any one of the racks 20 is moved the corresponding type bar is raised until that type displaying the number corresponding to the extent of the movement of the rack is opposite the point of print. This point of print is in a fixed horizontal plane opposite the shaft 52 on which the platen 53 is mounted, the platen and its shaft being in turn mounted upon a carriage 54 adapted to move laterally in the machine. The device is also provided with suitable means for inking the type and propelling forward the paper intermittently and for moving the other parts in harmony to perform their separate functions, but as these particular mechanisms form no part of this present invention, a detailed description of them is omitted.

The printing mechanism comprises a series of pivoted hammers 90, one for each denominational series, and all adapted to oscillate on a common bar 91. They are actuated by individual springs 92 secured at their opposite ends to a common rocking bar 93 which is actuated by mechanism not relevant to the present invention and the function of which is to energize the springs 92. Appropriate mechanism is also provided normally to lock the hammers against movement until the time comes for their desired actuation.

A series of intermediate plungers 94 are arranged opposite the point of print, one for each denominational series of keys and numeral wheels in the machine. The function of the hammers 90 when they are released and are propelled by their springs 92 is to strike these plungers 94 and to drive them sharply against the particular type bar positioned to receive the blow, so as to propel such type bar against the paper on the platen, and thus print the item to be recorded on such paper.

Each hammer 90 is provided with a detent 95 adapted to engage with one of a series of hammer hooks 96 pivoted upon a bar 97 suitably located and common to all of the hooks. These hooks are operated and caused to swing upon the bar 97 by means of a vertically movable release bar 98 which is adapted to slide in suitable bearings. It is provided with a tension spring 99 which in turn is secured at its opposite end to a fixed point in the machine. It is also provided with a stop lug 100 which in normal position is located immediately under the extremity of the bell crank lever 23 and it is also provided with a laterally extending foot 101.

When the bell crank lever 23 is oscillated upward and is therefore no longer in contact with the stop and lug 100, the release bar under the tension of the spring 99 will move

upward. As it does so, its upper end will trip the hammer hook 96 and will disengage it from the detent 95 and this will cause the hammer 90, energized by the stretching of the spring 92, to be swung forward to deliver its appropriate blow to that one of the plungers 94 in position to receive it.

It can readily be understood that if the release bar 98 is prevented from moving to strike the hammer hook 96 when the lever 23 is vibrated, then the hammer 90 will not be actuated and even if the appropriate type to record the number set up on the numeral wheel is raised to its position opposite the point of print, its corresponding plunger 94 will not be moved forward to propel the type against the paper and the item will not be recorded. In other words, if the release bar is prevented from rising under tension of the spring 99 when the bell crank lever 23 is moved, the function of the printing mechanism will be temporarily interrupted. The interruption of this function is brought about by means of a key 10 comprising an appropriate finger tip and a stem 11. The key stem is provided with a slot 12 and thereby adapted to engage with a button 13 suitably located in the frame of the machine. A spring 14 is secured to the key stem 11 and to some other fixed convenient place. At its lower extremity the stem 11 is pivoted at 15 to one end of a bell crank lever 15 which is adapted to oscillate on a pivot 16. The other end of this lever is provided with a laterally projecting interference bar 17. It is obvious that if the non-printing key 10 is depressed it will oscillate the lever 15 and move the interference bar 17 toward the right, as shown in Fig. 3, so that when the release bar 98 starts to move upward when the bell crank lever 23 is swung on its pivot, the foot 101 will be brought into contact with the interference bar 17 and the release bar 98 will be prevented from moving upward, and therefore, although the movement of the rack bar 20 will have rotated the wheel 31 through its appropriate pinion 30 to enumerate the item set up on the keys, on the numeral wheels, such item will not be recorded because the hammer hook 96 will not be released and the hammer 90 will not be actuated. The button 13 serves to hold the key 10 down when it has been depressed, it being held normally undepressed under tension of the coiled spring 14. When, after depression, it is desired to restore it to its original position, it is moved slightly forward and away from the button 13 when it at once moves upward.

There are a series of release bars arranged across the machine, one for each denominational series of type bars and hammers, and each release bar has its individual lateral foot 101. The interference bar 17 is made

of such width that it will pass across the machine and it is toothed or slotted to pass readily between the series of release bars.

It sometimes happens that the operator sets an item on the keyboard and then starts to pull the operating handle and it suddenly occurs to him that he does not care to print or record that particular item and he pushes down the non-printing key 10. In the meantime his slight actuation of the handle will have moved the rack bars 20 and bell cranks 23 and permitted the release bar 98 to rise slightly so that the foot 101 is above the level of the interference bar 17. When the parts are in this position and the non-printing key is depressed, the interference bar 17 is moved under the foot 101. When it is sought to restore the parts to their normal position as the actuation of the handle is completed, the foot 101 of the release bar 98 in its downward movement strikes against the interference bar 17 and the release bar or its connected parts are broken or buckled as shown in Fig. 4. In order to avoid such an accident I provide the release bar 98 with a downwardly projecting lateral guard 102. If, when the guard is provided, the non-printing key 10 is depressed after the movement of the actuating handle is commenced, as shown in Fig. 2, the interference bar 17 will strike against the guard 102 and the motion of the key 10 downward will be arrested and the operator will thus be informed that he should have depressed the key 10 before he pulled the main handle. Or if he does not notice that he has not entirely depressed the key, when the parts are restored to their normal position and the release bar 98 is moved downwardly, no harm is done because its guard 102 is engaged by the edge of the interference bar 17.

What I claim as new is:—

1. In a machine of the class described, comprising a printing mechanism, an adding mechanism and a non-printing key provided with a stem by the actuation of which printing may be prevented, a member moved by the stem, and a stop therefor, for automatically preventing the actuation of the printing means when the printing mechanism has been partly operated.

2. In a machine of the class described, comprising a printing mechanism, an adding mechanism and a non-printing key provided with a stem by the actuation of which printing may be prevented, a member moved by the stem, and a stop therefor, for automatically preventing the actuation of the non-printing key after the adding mechanism has been partly operated.

3. In a machine of the class described, comprising a printing mechanism, an adding mechanism and a non-printing key provided with a stem by the actuation of which printing may be prevented, a member moved by

the stem, and a stop therefor, for automatically preventing the actuation of the non-printing key after the printing operation has been commenced.

4. In a machine of the class described, comprising a printing mechanism including type moving mechanism and a member adapted when moved to set in operation the type moving mechanism, and a non-printing key provided with an interference member whereby the said moving member is held against movement, means for preventing the engagement of the interference member and the moving member after the latter has moved past a predetermined point.

5. In a machine of the class described, comprising a printing mechanism including type moving mechanism and a member adapted when moved to set in operation the type moving mechanism, and a non-printing key provided with an interference member whereby the said moving member is held against movement, means for preventing the engagement of the interference member and the moving member after the latter has moved past a predetermined point consisting of a guard against which the interference member impinges.

6. In a machine of the class described, provided with a printing mechanism comprising type hammers, detents normally holding the same out of action, a release bar adapted when moved to actuate the detents and a non printing key adapted to prevent the movement of the release bar, means adapted to lock the non-printing key against movement after the release bar has commenced to move.

7. In a machine of the class described, provided with a printing mechanism comprising type hammers, detents normally holding the same out of action, a release bar adapted when moved to actuate the detents, a non-printing key adapted to prevent the movement of the release bar, and means adapted to lock the non-printing key against movement after the release bar has commenced to move, comprising a guard on the release bar.

8. In a machine of the class described, provided with a printing mechanism comprising type hammers, detents normally holding the same out of action, a release bar adapted when moved to actuate the detents, a non-printing key adapted to prevent the movement of the release bar, means adapted to lock the non-printing key against movement after the release bar has commenced to move, comprising a guard on the release bar, and an interference bar adapted to be moved by the non-printing key to contact therewith.

9. In a machine of the class described, provided with a printing mechanism comprising type hammers, detents normally holding the same out of action, a release bar adapted

when moved to actuate the detents, a non-printing key adapted to prevent the movement of the release bar, means adapted to lock the non-printing key against movement after the release bar has commenced to move, comprising a guard on the release bar, and a member moved by the non-printing key to contact therewith.

Witness my hand this 24th day of June 1907, at the borough of Dorranceton, in the county of Luzerne and State of Pennsylvania.

CHARLES N. McFARLAND.

Witnesses:

A. L. WILLIAMS.

P. L. DRUM.