



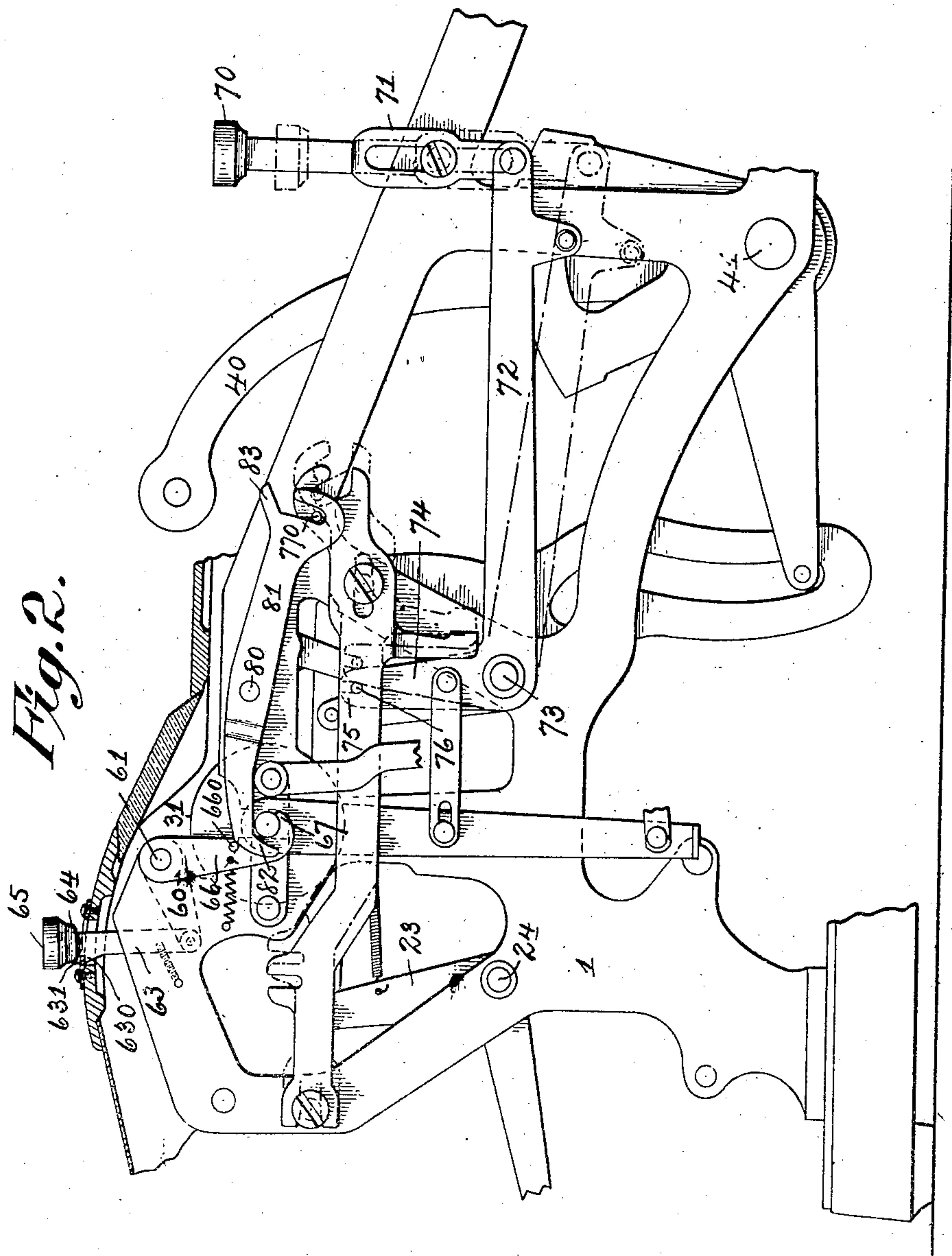
No. 880,159.

PATENTED FEB. 25, 1908.

C. N. McFARLAND.  
ADDING MACHINE.

APPLICATION FILED JUNE 26, 1907.

2 SHEETS—SHEET 2.



Attest:  
*Edgeworth Greene*  
Claw Mc Donnell.

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



# 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. 880,159.

Specification of Letters Patent.

Patented Feb. 25, 1908.

Application filed June 26, 1907. Serial No. 380,858.

*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 particularly to the well known Wales adding machine.

This machine is commonly provided with a printing mechanism mounted at the end of the device farthest from the operator and which mechanism comprises a platen on which the paper to receive the record is mounted, means for appropriately positioning the type at the line of print in front of the platen identical and harmonious in movement with the means whereby the items to be added are enumerated in the machine, means for propelling the type toward the platen and an inking ribbon between the type and the paper.

The machine, in some of its styles, is provided with means whereby the function of the accumulating mechanism may temporarily be interrupted without at the same time suspending the function of the remaining mechanism, and more particularly the printing mechanism, of the machine so that an item may be printed on the paper recording strip above referred to on which the accumulated items are recorded without including such item in the series of items accumulated, or adding it into the total when these items are added up. This is accomplished by the use of a key called an elimination key or "non-adding" key, because the item enumerated is recorded but not added, and it comprises means for preventing the movement of the numeral wheels.

The machine is also provided with a total button or key by the depression of which, through appropriate mechanism, the total which has been accumulated on the wheels, is set up on the printing mechanism and recorded thereon.

The precise operation of the foregoing mechanism is not necessary to an understanding of the invention which is the subject matter of this application.

In using the machine provided with the non-adding key, if this key is accidentally left depressed and it is then attempted to take a

total on the machine the depression of the total button will cause an over rotation of each one of the numeral wheels to 9. It is not necessary to describe the intermediate mechanism by which this movement is accomplished, but it is sufficient to say that such is the result of such movement. It is, therefore, desirable to lock the total button against movement when the non-adding key is depressed and to keep it automatically locked until the non-adding key is restored to its original position, and such is the purpose and object of the subject matter of this application.

In the drawings, Fig. 1 is a side elevation of the parts of an adding machine embodying my invention and Fig. 2 is a similar view showing the same parts in a changed relation.

In the drawing, 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 wheel 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 (not shown) and are supported at 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 a shaft 24. The other ends of the levers 23 are pivotally connected to the printing mechanism.

The rack bars 20 are adapted to mesh with pinions 30 with which the numeral wheels are provided. These numeral wheels display in proper order on their edges (not shown) the numbers from 1 through 9 to 0 and are all mounted on a common shaft 32, there being one numeral wheel for each denominational series of keys.

It will readily be understood that when the rack bars are moved forward through the actuation of the handle 40 on the main shaft 41, and the racks 21 are in mesh with the pinions 30, the extent of the rotation of the wheels 31 is determined by the extent of the movement of the rack which in turn is governed by the position of the key stops above referred to and which is permanently controlled through a series of other stops 25 provided for that purpose.

At each side of the framework of the machine there are provided bell crank levers



pivoted at 61. One arm 62 of the lever 60 is hinged to a stem 63 of a key 64 provided with a finger piece 65 projecting above the upper case of the machine. The other arm 66 is provided at its lower end with a foot or hook 67 adapted to swing under the numeral wheel shaft 32 to support it. A lateral lug 630 is provided on the side of the key stem 63 and is adapted to engage with a plate 631 secured to the case of the machine in order to hold the key 64 depressed when desired. This key 64 and its stem, when depressed, is adapted to swing the bell crank lever 60 to move the feet or hooks 67 upward and thus to lift the numeral wheel shaft 32 so that the rack bars 20, if oscillated, cannot engage with the pinions 30. In other words, the purpose of this key is to interrupt the function of the adding mechanism so that while the depression of the numeral keys above referred to will cause the registration of the corresponding numbers on the paper record strip provided for that purpose, yet so long as this key is depressed such items will not be added by the machine. That is the reason why it is called a non-adding key.

70 is the total button provided with a dependent slotted stem 71 and adapted to swing a bell crank lever 72 pivoted at 73. The upwardly extending member 74 of the bell crank is forked at 75 to engage a pin 76 secured to or made integral with a sliding piece 77 whereby the latter is given a horizontal reciprocating movement. The function of this slide 77 is immaterial to the subject matter of this application, and will not therefore further be referred to. Mounted on the side of the slide 77 is a pin 770 and mounted on the side of the lever 66 is another pin 660.

Pivoted at 80 on the frame of the machine is a swinging trip 81 having a tail-piece 82 adapted to engage with the pin 660 and a forked head 83 adapted to engage with the pin 770.

When the parts are in the position shown in Fig. 1 and the lever 66 is normally held back from engagement with the numeral wheel shaft by the spring provided for that purpose, the trip 81 will drop by the force of gravity into the position shown in the figure and slide 77 can reciprocate freely. In other words, the slide 77 and the total button are free to move just as though the trip 81 did not exist. When, however, the non-adding key is depressed, and either held depressed and locked into position, as shown in Fig. 2, the pin 660 riding along the tail-piece 82 swings the trip 81 upward against the force of gravity and its forked head 83 then engages the pin 770 on the slide 77 so that the latter can no longer move, consequently the lever 72 and the total button itself are both locked against movement until the non-adding key is released and moved upwards,

when, of course, the trip 81 swings on its pivot by the force of gravity and the slide 77 is free to move as before. A small spring (not shown) assists by its tension the movement of the trip 81. By this construction, if the operator has depressed the non-adding key and accidentally left it depressed, and starts to take a total, as soon as he attempts to depress the total button, he will find it locked against movement and upon investigation will, of course, ascertain the cause thereof and release the non-adding key and return it to its initial position.

What I claim as new is:—

1. In an adding machine, comprising numeral wheels, a non-adding key, means operated by the depression of said key for holding the numeral wheels inoperative, and a total key, the combination therewith of means for locking the total key while the non-adding key is depressed, comprising a connection intermediate the total key and the numeral wheels, and means actuated by the depression of the non-adding key to prevent the operation of said connection.

2. In an adding machine, comprising numeral wheels, a non-adding key, means operated by the depression of said key for holding the numeral wheels inoperative, and a total key, the combination therewith of means for locking the total key while the non-adding key is depressed, comprising a connection intermediate the total key and the numeral wheels and a stop brought into position by the depression of the non-adding key to prevent the movement of said connection.

3. In an adding machine, comprising numeral wheels provided with pinions, actuating racks meshing directly therewith, a non-adding key, and means actuated by the depression of the non-adding key for disengaging the pinions from the racks, the combination therewith of a total key, a slide moved thereby and means for locking the slide against movement brought into operation by the depression of the non-adding key.

4. In an adding machine, comprising numeral wheels provided with pinions, actuating racks meshing directly therewith, a non-adding key, and means operated by the depression of the non-adding key for disengaging the pinions from the racks, the combination therewith of a total key, a slide moved thereby, means for locking the slide against movement brought into operation by the depression of the non-adding key and comprising a lever adapted to be moved by said key, a pin mounted thereon, and a connection between the pin and the slide.

5. In an adding machine, comprising numeral wheels provided with pinions, actuating racks meshing therewith, a non-adding key which when depressed is adapted to keep the pinions out of mesh with the racks, a total key and a slide moved thereby, means



for locking the slide against movement brought into operation by the depression of the non-adding key and comprising a lever adapted to be moved by said key, a pin mounted thereon, a pin on the slide and a trip adapted to engage with both pins.

6. In an adding machine, comprising numeral wheels provided with pinions, actuating racks meshing therewith, a non-adding key which when depressed is adapted to keep the pinions out of mesh with the racks, a total key and a slide moved thereby, a trip normally out of engagement with the slide and means actuated by the depression of the non-adding key to bring it into engagement therewith.

7. In a machine of the class described, comprising a non-adding key, a total key and a slide moving in harmony with the latter, a trip kept normally out of engagement with the slide by the force of gravity and brought into engagement therewith by the movement of the non-adding key.

8. In a machine of the class described, comprising a non-adding key, a total key and a slide moving in harmony with the latter, a trip having a tail piece and a forked head, the former adapted to engage with a connection leading to the non-adding key and the latter with a connection leading to the total key.

9. In a machine of the class described, comprising a non-adding key, a total key and a slide moving in harmony with the latter, a trip adapted to engage at one end with a connection leading to the non-adding key and at the other end with a connection leading to the total key.

10. In a machine of the class described, comprising numeral wheels provided with pinions, actuating racks meshing directly therewith, a non-adding key, a lever connected thereto to hold the pinion out of engagement with the racks, a total key, and a slide moving in harmony therewith, the combination therewith of means for locking the slide against movement brought into operation through the actuation of the lever.

11. In a machine of the class described, comprising numeral wheels provided with pinions, actuating racks meshing therewith, a non-adding key, a lever connected thereto to hold the pinions out of engagement with the racks, a total key and a slide moving in harmony therewith, a pin on the lever, a pin on the slide and an operating connection between them.

12. In a machine of the class described, comprising numeral wheels provided with pinions, actuating racks meshing therewith, a non-adding key, a lever connected thereto to hold the pinions out of engagement with the racks, a total key and a slide moving in harmony therewith, a trip intermediate the lever and the slide and means for automatic-

ally actuating it to lock the slide when the lever is actuated.

13. In a machine of the class described, comprising numeral wheels provided with pinions, actuating racks meshing therewith, a non adding key, a lever connected thereto to hold the pinions out of engagement with the racks, a total key and a slide moving in harmony therewith, a pin on the lever and a pin on the slide, and a trip normally out of contact with both, but adapted to be brought into engagement with the pin on the slide by its engagement with the pin on the lever.

14. In a machine of the class described, comprising numeral wheels provided with pinions, actuating racks meshing therewith, a non-adding key, a lever connected thereto to hold the pinions out of engagement with the racks, a total key and a slide moving in harmony therewith, a pin on the lever and a pin on the slide, and a trip weighted to normally remain out of engagement with the pin on the slide.

15. In a machine of the class described, comprising numeral wheels provided with pinions, actuating racks meshing therewith, a non-adding key, a lever connected thereto to hold the pinions out of engagement with the racks, a total key and a slide moving in harmony therewith, a pin on the lever and a pin on the slide, and a trip weighted to normally remain out of engagement with the pin on the slide and adapted to be lifted to engage said pin when the pin on the lever is brought into contact therewith.

16. In a machine of the class described, comprising numeral wheels provided with pinions, actuating racks meshing therewith, a non adding key, a lever connected thereto to hold the pinions out of engagement with the racks, a total key and a slide moving in harmony therewith, a trip intermediate the lever and the slide and weighted to normally remain out of engagement with the slide and automatically to be lifted by the depression of the non-adding key.

17. In a machine of the class described, comprising numeral wheels provided with pinions, actuating racks meshing therewith, a non-adding key, a lever connected thereto to hold the pinions out of engagement with the racks, a total key and a slide moving in harmony therewith, a trip intermediate the lever and the slide and weighted to normally remain out of engagement with the slide and automatically to be brought into engagement therewith by the movement of the lever brought about by the depression of the non-adding key.

18. In a machine of the class described, comprising numeral wheels provided with pinions, actuating racks meshing therewith, a non-adding key, a lever connected thereto to



hold the pinions out of engagement with the racks, a total key and a slide moving in harmony therewith, a pin on the lever and a pin on the slide, and a trip weighted and under tension to normally remain out of engagement with the pin on the slide.

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.