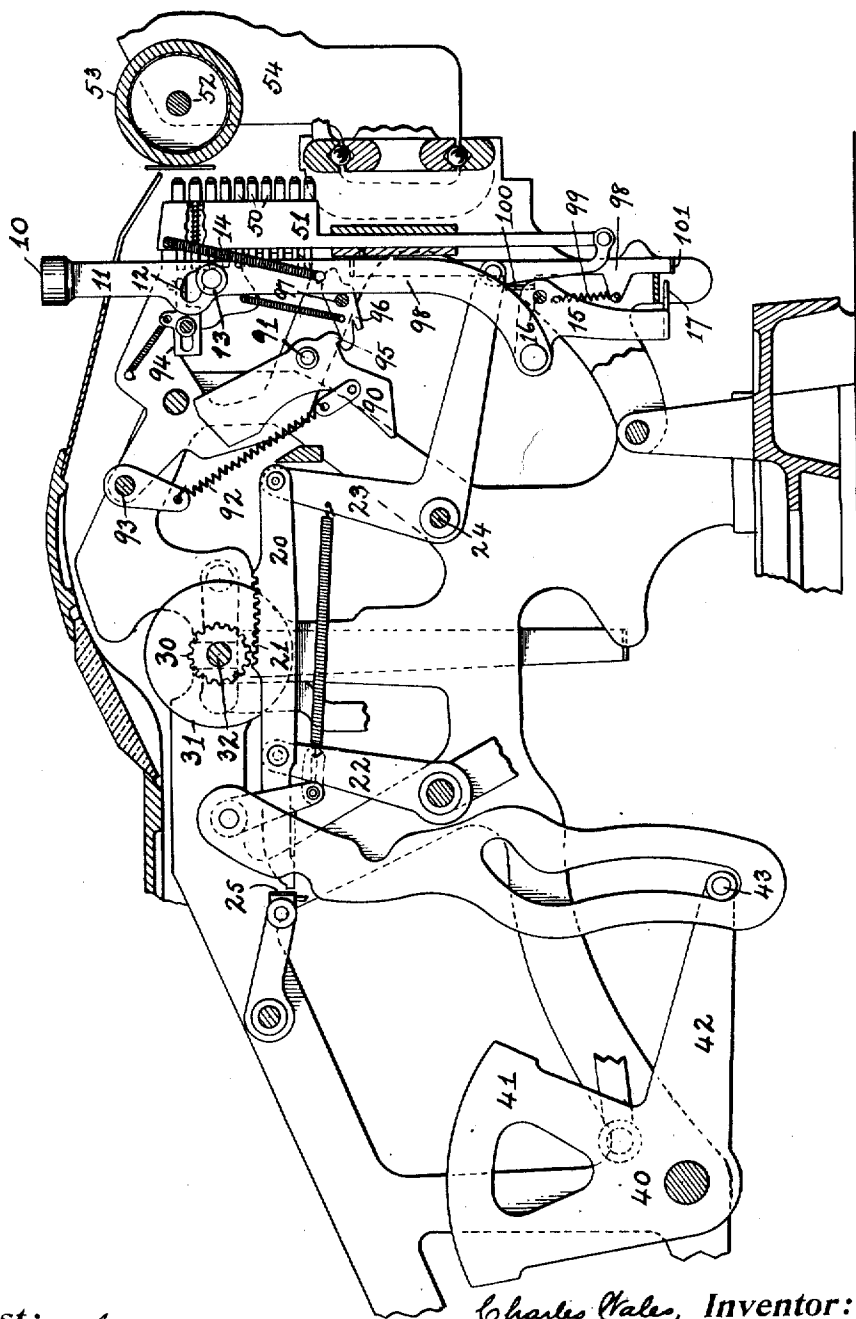


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 PRINTING ELIMINATING DEVICE FOR ADDING MACHINES.  
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Attest:  
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*his Att'y.*

# UNITED STATES PATENT OFFICE.

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## PRINTING-ELIMINATING DEVICE FOR ADDING-MACHINES.

No. 902,125.

Specification of Letters Patent.

Patented Oct. 27, 1908.

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*To all whom it may concern:*

Be it known that I, CHARLES WALES, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Printing-Eliminating Devices for Adding-Machines, of which the following is a specification.

My invention relates to adding machines and its object is to provide means entirely under the control of the operator whereby the mechanism for enumerating the items to be added may be utilized to accumulate it into the total of the other items enumerated without, however, recording it with such other items.

Machines of this class have reached a high degree of perfection and are accurate and reliable. They commonly comprise accumulating mechanism and recording or printing mechanism, and the usual operation is to set up the items on keys, and then, by the movement of a handle, or the vibration of a shaft, set in motion trains of mechanism whereby the items so set up are accumulated and recorded and finally, through other mechanism, a total is determined and recorded. There are a variety of other functions performed by the different mechanism, but the above is their main purpose.

It is convenient at times to accumulate an item without recording it on the slip on which other items are listed and recorded. Where the mechanism is in its normal state this cannot be done because all of the items enumerated by means of the keys are printed as they are accumulated. I have, however, provided a means called an "elimination key" or non-printing key whereby the function of the printing mechanism is interrupted without affecting the functions of the other mechanism. I also provide means for restoring this function or keeping it interrupted at will.

In order to explain the invention I shall describe it in connection with the related parts of an adding machine and I have selected for that purpose the machine which is the subject matter of Letters Patent No. 797,032, issued to me August 15, 1905, and I refer to that patent for a particular description of the mechanism not directly involved here.

In the drawing there is shown in side ele-

vation and partial vertical section, that portion of an adding machine embodying my invention. The registering mechanism is not shown but it will be understood that it consists of 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 path of rack bars as described in the Wales patent above referred to. In the drawing, the rack bars are designated 20. These are each provided with toothed racks 21 on their upper edges 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 bell cranks are pivotally connected to the printing mechanism. The rack bars 20 are adapted to mesh with pinions 30 with which the numeral wheels 31 are provided. These numeral wheels display the digits in proper order on their edges (not shown) and are all mounted on a common shaft 32, there being one wheel for each denominational series of keys.

It is readily seen, that when the rack bars 20 are moved forward, and the racks are in mesh with the pinions 30, the extent of rotation of the wheels 31 is determined by the extent of the movement of such of the rack bars 20 as are permitted to move by raising stops 25, such movement being governed by the position of the stops above referred to and thrown up by the depression of the keys.

A main shaft 40 is adapted to vibrate either by a handle manually operated or from a suitable source of power. This oscillates a sector 41 provided with a leg 42 which, in turn, through a pin 43, moves a train of mechanism whereby the racks 20 are moved and through them movement is communicated to the printing mechanism. This latter comprises a series of type bars 50 arranged in vertical order on a carrier 51 so that when a rack is moved its type bar is raised until the type carrying the number corresponding to the extent of its movement is opposite the point of print. This point of print is in a fixed horizontal plane and is opposite the shaft 52 of the platen 53 which in turn is mounted upon a carriage 54 adapted to move laterally in the machine. It will be understood of course that suitable means are

provided to ink the type and propel forward the paper and to move the parts in harmony to perform their functions.

The accumulating mechanism is not shown complete in the drawing. It is fully described in my former patent above referred to. It comprises carrying mechanism whereby when a number greater than 9 is accumulated on one numeral wheel it is suitably transferred to the wheel of next higher denomination and zero restoring mechanism, whereby the parts are all replaced in their initial position when the adding operation has taken place.

The printing mechanism comprises pivoted hammers 90, one for each denominational series, adapted to oscillate on a common bar 91 actuated by individual springs 92 secured at their opposite ends to a common rock bar 93, actuated by mechanism not relevant to the present invention, although we may say that its function is to energize the springs 92. Mechanism is also provided normally to lock the hammers against movement until the time comes for their actuation.

A series of intermediate plungers 94 are arranged opposite the point of print and the function of the hammers 90, when released is to strike the plungers to drive them against the type bar positioned to receive the blow and so to propel such type bars against the paper on the platen so as to print the item registered and accumulated in the other mechanism.

Each hammer is provided with a detent 95 adapted to engage with one of a series of hammer hooks 96 pivoted on a bar 97 suitably located. These hooks are operated by a vertically movable release bar 98 adapted to slide in suitable bearings and are each provided with a tension spring 99 secured at its opposite end to a fixed point in the machine, with a stop lug 100 placed immediately under the bell crank lever 23, and a foot 101 projecting laterally from the bar.

It is obvious that when the bell crank lever 23 is oscillated upward it will no longer be in contact with the stop lug 100 and consequently the release bar 98 will move upward under tension of the spring 99. The upper end of the release bar will trip the hammer hook 96 to disengage it from the detent 95 and the hammer 90 energized by the spring 92 will strike the plunger 94 as above stated.

None of the parts so far described form part of this specific invention.

It is obvious that if the release bar 98 is prevented from moving to strike the hammer hook 96 when the lever 23 is vibrated, the hammer 90 will not be actuated and the item embodied in the positioned type bars will not be printed. In other words, if the release bar is prevented from rising, the function of the printing mechanism will be tem-

porarily interrupted. I accomplish this by means of a device which I call an elimination key, or non-printing key.

Suitably mounted at a convenient point in the frame of the machine is this key 10 comprising a finger tip and a key stem 11. The latter is slotted at 12 and adapted to engage with a stop button 13, suitably located on the frame of the machine. A restoring spring 14 is secured to the key stem and to some other convenient place. At its lower extremity, the stem 11 is pivoted to one end of a bell crank lever 15 adapted to oscillate on a pivot 16. The other end of the lever is provided with a lateral interference bar 17. 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 lateral foot 101. If the key 10 is depressed it will oscillate the lever 15 and move the bar 17 into the path of the foot 101 and so prevent the release bar from rising to trip the hook. The interference bar is made of such a width as to pass across the machine and it is toothed or slotted to pass between the series of release bars. The button 13 serves to hold the key 10 down when it has been depressed, it being normally held undepressed under tension of the restoring spring 14. When it is desired that it shall be restored to its normal position, it is moved slightly forward and away from the button 13 when it at once springs upward.

What I claim as new is:—

1. In a machine of the class described, comprising adding mechanism and printing mechanism, the latter, comprising separate type, separate means whereby they are individually propelled to record their respective figures separate holding means for the propelling means, and separate releasing means to permit each propelling means to operate, the combination therewith of means adapted to suspend temporarily the function of the releasing means.

2. In a machine of the class described, comprising adding and printing mechanism, the latter comprising separate type, separate means whereby they are individually propelled to record their respective figures separate holding means for the propelling means, and separate releasing means to permit each propelling means to operate, the combination therewith of means adapted to suspend temporarily the function of the releasing means.

3. In a machine of the class described, comprising a printing mechanism provided with type-bars and movable type, means for positioning the type bars, means by which each type is individually propelled to record its respective number, separate holding means for the propelling means and separate releasing means to permit each propelling means to operate, the combination therewith

of means adapted to prevent the operation of the releasing means and thus prevent the propelling means from actuating the type, and a manually depressible key for actuating  
5 said preventing means.

4. In a machine of the class described, comprising a printing mechanism provided with type bars, means for positioning them, hammers for striking such bars, and hooks  
10 for holding the hammers inactive, the combination therewith of means for preventing the disengagement of the hooks and the hammers.

5. In a machine of the class described,  
15 comprising a printing mechanism provided with type bars, means for positioning them, hammers under constant tension and adapted to strike the type bars when released, and hooks for holding the hammers inactive, the  
20 combination therewith of means for preventing the disengagement of the hooks and the hammers.

6. In a machine of the class described, comprising adding and printing mechanism  
25 and means for actuating them, the printing mechanism being provided with type bars, plungers for striking the same and hammers adapted to strike the plungers when released, the combination therewith of hooks for hold-  
30 ing the hammers inactive until released, means adapted normally to release said hooks automatically when the accumulating mechanism of the machine is operated, and means  
for preventing said release.

35 7. In a machine of the class described, comprising adding and printing mechanism, and means for actuating them, the printing mechanism being provided with type bars, plungers for striking the same and hammers  
40 adapted to strike the plungers when released, the combination therewith of hooks for holding the hammers inactive until released,

means adapted normally to release said hooks automatically when the accumulating mechanism of the machine is operated, and means  
45 for preventing said release, consisting of a manually operated key.

8. In a machine of the class described, comprising adding and printing mechanism and means for actuating them, the printing  
50 mechanism being provided with type bars, plungers for striking the same and hammers adapted to strike the plungers when released, the combination therewith of hooks for holding the hammers inactive until released,  
55 means adapted normally to release said hooks automatically when the accumulating mechanism of the machine is operated, means for preventing said release consisting of a manually operated key, and means for re-  
60 storing said key to its initial position after its operation.

9. In a machine of the class described, comprising adding and printing mechanism and means for actuating them, the printing  
65 mechanism being provided with type bars, plungers for striking the same and hammers adapted to strike the plungers when released, the combination therewith of hooks for holding the hammers inactive until released,  
70 means adapted normally to release said hooks automatically when the accumulating mechanism of the machine is operated, and means adapted to hold said releasing means inactive comprising a key adapted to be manually  
75 depressed and automatically raised after such depression.

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

CHARLES WALES.

Witnesses:

WILLIAM R. BAIRD,  
ALAN McDONNELL.