(No Model.)

C. H. BIGELOW.

ADDING MACHINE.

No. 588,260. Patented Aug. 17, 1897.

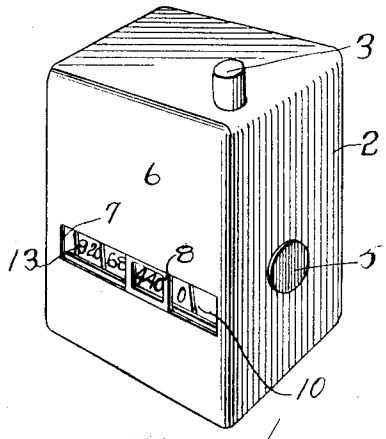


Fig. 1.

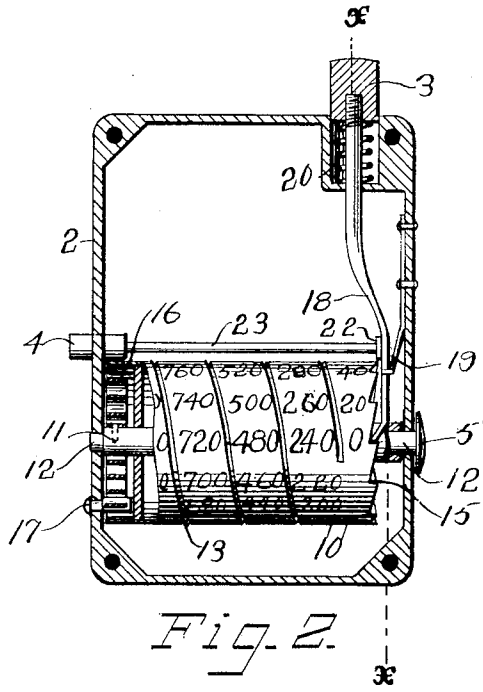


Fig. 2.

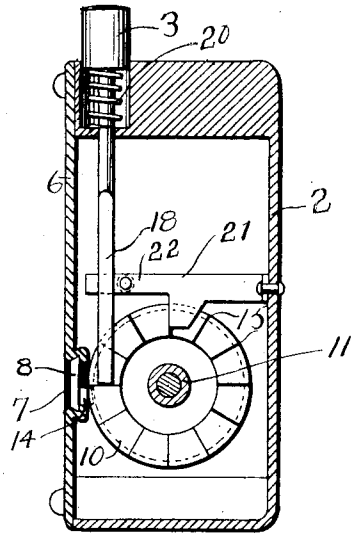


Fig. 3.

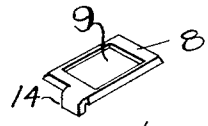


Fig. 4.

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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

CHARLES H. BIGELOW, OF LITCHFIELD, MINNESOTA.

ADDING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 588,260, dated August 17, 1897.

Application filed June 1, 1896. Serial No. 593,697. (No model.)

To all whom it may concern:

Be it known that I, CHARLES H. BIGELOW, of Litchfield, Meeker county, State of Minnesota, have invented certain new and useful Improvements in Adding-Machines, of which the following is a specification.

This invention relates to a mechanical aid to addition. By the use of the device the process of adding figures is rendered simple, easy, and accurate.

The object of the invention is to provide a simple adding device or register adapted to be held in the hand and to be operated by the thumb and finger and which will show upon its face the approximate subtotal or total reached in addition. Even numbers are used in the device, and at the end of addition the odd numbers are carried and being added to the total shown by the device will give the accurate footing or total.

A further object of the invention is to provide a device of the class described which will be of a simple, compact, and cheap construction and an improvement over a similar device shown and described in my pending application, filed in the United States Patent Office October 12, 1895, Serial No. 565,511.

The invention consists generally in the combination, with a suitable case, of a roller provided therein having a spiral groove or rib to be engaged by a small frame or indicator slidable in the frame of the case, said roller bearing a series of numbers or figures in combination with particular means for actuating said roller and for returning the same to the zero-point.

The invention will be more readily understood by reference to the accompanying drawings, wherein—

Figure 1 is a perspective view of an adding-register embodying my invention. Fig. 2 is a vertical and longitudinal section thereof, showing the interior construction. Fig. 3 is transverse vertical section on the line $x\ x$ of Fig. 3. Fig. 4 is a detail perspective view of the sliding frame or indicator.

As shown in the drawings, 2 represents a small and neat case of about the size shown in Fig. 1, so that it may be conveniently held within the palm of the hand with the thumb upon the push-button 3 and one of the fingers upon the releasing-button 4, which extends through the side of the case.

5 represents a small brake wheel or button to which the thumb is applied when the spring is released to return the roller, which is within the casing. The casing is preferably of iron, suitably finished upon the exterior. It is provided with a removable slide 6, in the lower part of which is a slot 7. The upper and lower walls of this opening are in the form shown in Fig. 3, the middle being so formed as to provide a dovetailed groove within which the slide or frame 8 is confined. This frame is provided with a large square opening 9, through which the figures upon the roll 10 may be seen. This roll 10 is fixed upon a shaft 11, having bearings 12 in opposite sides of the casing and upon the outer end of which is the brake wheel or button 5. The roll 10 is of a light, hollow, and preferably metal construction and is provided with the spiral groove 13, into which extends the lip or lug 14 of the sliding indicator 8, the lug being placed on the left-hand edge of said frame. The groove 13 is preferably in the form of a right-hand thread to carry the frame from right to left in its guides. A ratchet 15 is provided or formed upon the end of the roller 10, while the opposite end of the roller incases a clock-spring 16, having one end secured upon the shaft 11 and the other upon a pin 17, fast in the casing.

18 represents the lower spring end of the spindle whereon the button 3 is secured. The lower end engages the teeth of the ratchet 15 and is pressed against the same by a flat spring 19, which also forms a guide for the lower end of the spindle. A spring 20 in the recess beneath the button or key 3 lifts the same after it has been depressed. The roller is revolved against the tension of the spring, which spring is alone used to return the roll to the initial or zero position. To prevent backward movement of the roll, I provide a flat spring-pawl 21 to engage the teeth of the ratchet, and this pawl is provided with an extension 22, which may be pressed against the spindle 18 to force the same out of engagement with the ratchet at the same time that

the pawl 21 is disengaged therefrom. For this purpose the light spindle 23 projects from the button 4 against the pawl 21.

The numbers upon the roll begin with zero and are preferably multiples of twenty or some other number by which convenient divisions of larger numbers may be made.

The slide or indicator 8 moves over the spiral column of figures on the roll as the same is rotated.

For illustration, in beginning the addition of a column of figures the process is carried on mentally up to twenty, or not to exceed thirty-nine, whereupon the button 3 is pushed down by the thumb to rotate the roll and expose the number "20" within the slide or indicator 8. Upon the addition of two or three to the number thirty-nine the button would again be depressed to expose the number "40," the balance exceeding forty being carried into what may be termed the "next group of twenty" or, as it may be better termed, the "unit" of the machine. At the end of the addition the number last carried is added to the total shown by the register to obtain the complete total of the column. This being done, the button 4 is forced in to release the roll, which will be returned by its spring. The return movement of the roll is limited by the arrival of the lug 14 at the end of the spiral slot, and to prevent breakage a slight pressure is preferably applied to the brake wheel or button 5 to prevent the too rapid and powerful action of the spring 16.

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

The combination, with the slotted casing and the spirally-grooved and numbered roll arranged therein, of the sliding indicator connected to said roll, the ratchet upon said roll, the spindle extending into said casing and provided with the spring end 18 that engages said ratchet, the spring-pawl 21 engaging said ratchet and provided with the extension 22 engaging said spindle, the transverse spindle 23 engaging said pawl 21 and the spring 16 connected to said roll, for the purpose set forth.

In testimony whereof I have hereunto set my hand this 16th day of May, A. D. 1896.

CHARLES H. BIGELOW.

In presence of—

N. D. MARCH,

ALEX. JOHNSON.