

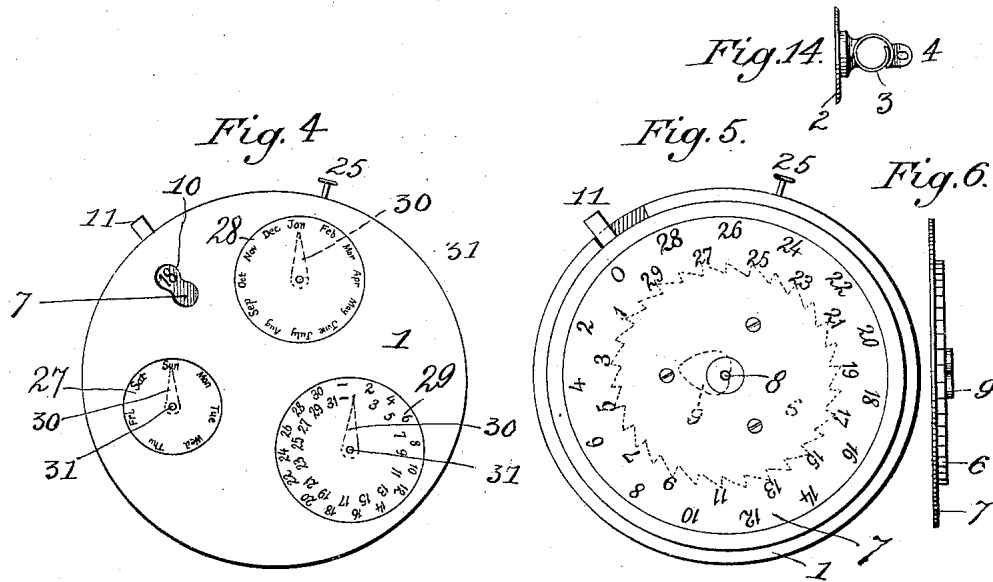
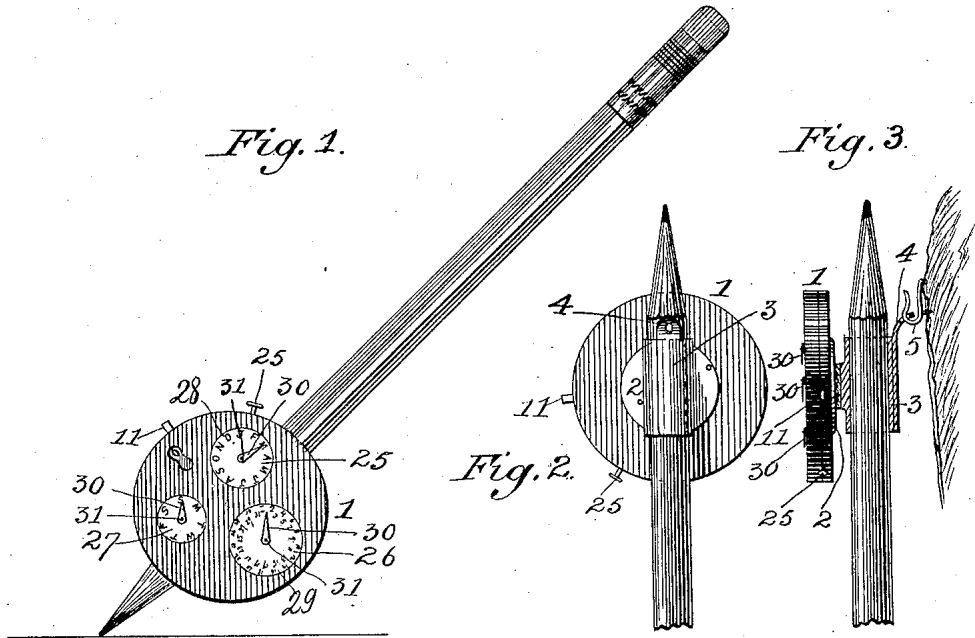
(No Model.)

2 Sheets—Sheet 1.

C. H. REDDING.
ADDING MACHINE.

No. 575,287.

Patented Jan. 12, 1897.



Attest:

W. H. Schott
Grant Burroughs.

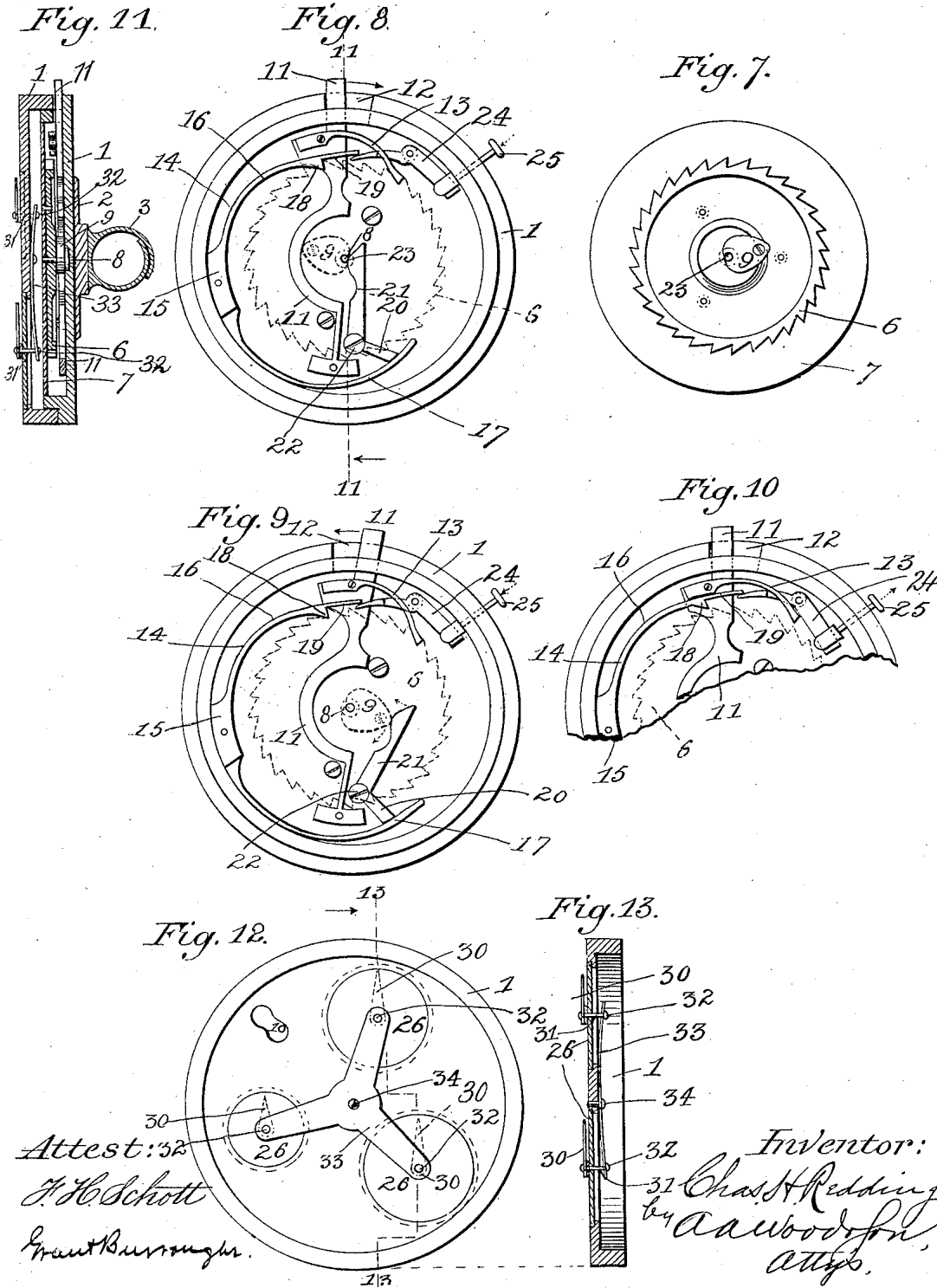
Inventor:

Chas. H. Redding
by Rawwoodson Atty.

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attys.

UNITED STATES PATENT OFFICE.

CHARLES H. REDDING, OF ATLANTA, GEORGIA.

ADDING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 575,287, dated January 12, 1897.

Application filed May 27, 1895. Serial No. 550,865. (No model.)

To all whom it may concern:

Be it known that I, CHARLES H. REDDING, a citizen of the United States of America, and a resident of Atlanta, in the county of Fulton and State of Georgia, have made a certain new and useful Adding-Machine; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to figures of reference marked thereon, which form a part of this specification.

The object of this invention is to provide an adding-machine which may be attached to a pencil and be there operated conveniently for registering tens or hundreds in the addition and be easily returned to naught position, the details of construction whereby these objects are accomplished being hereinafter specified and shown in the accompanying drawings, as follows:

Figure 1 is a view of the device attached to a pencil with the face presented for examination. Fig. 2 is a back view thereof, showing the means for attaching to the pencil. Fig. 3 is an edge view of the device secured to a pencil and suspended from a hook attached to the vest. Fig. 4 is an enlarged face view showing the calendar attachment to the device. Fig. 5 shows the device with the face half of the casing removed, showing the indicating-wheel therein and by broken lines indicating the ratchet-wheel and the return-cam. Fig. 6 is an edge view of the parts indicated by broken lines in Fig. 5. Fig. 7 is a view of the back side of the ratchet-wheel shown in the two previously-named figures. Fig. 8 is a view of the device with the front half of the casing removed, showing the operative parts in normal position. Fig. 9 is a like view with the operative parts in their position of ultimate movement. Fig. 10 is a detail fragmentary view showing the pawls released to allow the return mechanism to operate. Fig. 11 is a section on the line 11-11, Fig. 8, showing the entire device in section. Fig. 12 is a view of the inner side of the front half of the casing with the spring for holding the calendar attachment in place; and Fig. 13 is a section thereof on the line 13-

13, Fig. 12. Fig. 14, Sheet 1, is a detail of the means for attachment of the pencil to this device.

In the figures the same reference-characters are uniformly employed in the designation of the same or corresponding elements of construction in all the views.

1 is a casing that should be made in two parts, either both substantially alike or one forming the casing proper and the other a cover for same. On the back side of this casing is secured a plate 2, to which is in turn secured a split sleeve 3 into which the pencil is inserted, as shown in Figs. 2 and 3, a perforated lip 4, projecting from said sleeve, receiving a hook 5, which may be attached to the coat or vest of the person using the device, and the same may be therefrom suspended when out of use.

6 is a ratchet-wheel, which, as shown in the drawings, carries on one side the disk 7, upon the face of which are arranged the indicating-figures in series of, say, "0" to "29," although of course the series may run as high as desired. This wheel 6 is pivoted concentrically of the casing upon a pivot 8, set in one of the halves of the casing, preferably the back half, as it is desired to leave the cap or front side free from machinery. The disk 7 is presented toward the front of the casing, and a heart cam 9 is secured to the opposite side of the ratchet-wheel 6, the shape of said cam being such as would be drawn on a decreasing radius from point to base. A hole 10 is cut in the front or face half of the casing, through which, one at a time, the figures on the disk 7 become visible.

The operative parts of the device are preferably in the back half of the casing, back of the ratchet-wheel 6, as seen in Figs. 8, 9, 10, and 11. 11 is a spring-arm, which is secured to the casing, is bent midway thereof to avoid the cam 9 in its rotations, and extends outwardly of the casing through a slot in the edge thereof, preferably formed by cutting a notch of the proper form in the said casing. This arm carries, near the edge of the casing, a resilient pawl 12, which engages the teeth of the ratchet 6 as the arm is moved from its position of rest; the said ratchet being partially rotated thereby, said

rotation being of a length commensurate with the distance between two of the figures on the disk 7.

14 is a spring which is thicker at 15 and is there secured to the casing, lying close against the annular portion thereof, its ends being extended in the form of two springs 16 and 17, the spring 16 having formed thereon, near its end, a tooth 18, which engages the teeth of the ratchet 6 and prevents backward movement thereof, its end being extended, as at 19, and forming means for the engagement of the lifting device, as shown in Fig. 10, and will be presently described.

The end 17 of the spring 14 is extended to a point where it will bear upon the arm 20 of the lever 21, contact with the end thereof forcibly, and lying at all times at an angle to the said arm 20 operate to press the said lever in an operative direction. The said lever 20 is pivoted on a screw 22, set in the casing and extends to a point where it contacts with the peripheral surface of the heart cam 9, bearing thereon with sufficient force to cause a half-rotation thereof on the release of the ratchet-wheel. The end of the lever 20 is so formed as to traverse the periphery of said cam with the least possible friction, and it is at the actual point of contact reduced to a wedge shape, or nearly to a point, so that it will catch into the notch 23 in the cam 9 and stop the movement of the same when the point in the semirotation is reached at which the disk shall be at the zero-point. The notch being at the point in said cam of least radial distance, the cam will always stop at the aforesaid point, but this notch renders its exact setting sure.

A lever 24 is pivoted to the casing and is so formed as to engage both the spring-pawl 13 and the spring-catch 16, and so that by depressing the end of said lever opposite its engagement with said parts, by means of the push-pin 25, both said spring-lever and spring-catch will be released from their engagement with the ratchet-wheel 6 and allow the spring-pressed arm 21 to return the same to its normal position through the cam 9.

On the front half of the casing 1, so as to be easily seen from the same side as the figures registered, are three dials marked 27, 28, and 29, and graduated with divisions signifying the year, month, and day. Each of the said dials is provided with a pointer 30, mounted on a shaft or pivot 31, passing through the casing, and having within the same a head 32. A tri-armed spring 33, having bearing on the casing between said pivots, engages the head of each pivot and draws each inwardly, so as to press the pointer down upon the dial and create considerable friction, thereby causing said pointers to remain in any set position. If desired, the said spring may have a screw 34 passed through its middle into the casing and be thereby held in position rigidly. It is obvious that the frictional contact of the spring against the heads of the

pivots might be sufficient to create the desired amount of friction to keep the pointers in place.

The operation of this device is as follows: The parts are normally in the positions shown in Fig. 8. We will suppose that a column of figures is to be added consisting of "24, 48, 37, 20, 31." Commencing at the bottom of the column it is seen that "31" is composed of three tens and one unit. Hence the lever 11 is pressed in the direction of the arrow thereon in Fig. 8 three times into the position shown in Fig. 9, that is, to the limit of the slot through which it protrudes, which causes the ratchet-wheel 6 to turn a distance equal to three teeth thereon and displays a "3" through the holes 10. To do this, the spring-pawl 13 engages the teeth of the ratchet-wheel 6 as the lever 11 is moved forward, the tooth 18 engaging the teeth successively and preventing said wheel from turning backwardly. The "1" is carried to the "20" and two more figures are indicated on the dial. The "1" is carried to the "37," making it "38," and three more tens are registered, and the "8" carried to the "48," making it "56," five more units are registered, and "6" is carried to the "24," making it "30," and three are registered. This makes the total "160." The push-pin 25 is then pressed upon, moving the lever 24 and releasing the pawls from engagement with the ratchet-wheel 6, which allows the said ratchet-wheel and the disk to be returned to "0" position by the action of the spring-pressed arm 21 on the descending cam 9, the said parts stopping upon the entrance of the point on said arm into the notch in the cam. It is obvious that this return will take place from any point, the wheel being returned after any registration of less than half the total number of figures on the disk in one direction, and said wheel turning in the opposite direction when the registration was more than one-half said series of figures. This way of operating the device is given inasmuch as it is always desirable and generally customary with accountants to add two columns of figures at a time, but of course single columns of figures might be added, in which case the accruing tens will be registered in adding the right-hand column and the overplus set down, carrying the number of tens registered to the next column and including them in the footing thereof, repeating the operation as often as necessary to complete the addition.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is—

In an adding-machine, an indicating-wheel having figures on its face and a toothed wheel secured thereto, same being mounted in a casing on a suitable pivot, a spring-lever having a pawl thereon engaging the teeth of said wheel and adapted to be moved in the plane of said wheel and the interdental distance thereof, a double-ended spring extending substantially half-way around said toothed wheel,

carrying a tooth on one end adapted to engage the said toothed wheel, a cam mounted concentrically of said toothed wheel and having its periphery in the form of a volute curve, a lever pivoted to the casing and adapted to bear on the said periphery, an arm on said lever extending to the correlative end of the aforesaid double spring and contacting therewith at an angle thereto, and means for caus-

ing the disengagement of the two aforesaid pawls, substantially as and for the purpose specified.

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

CHARLES H. REDDING.

Witnesses:

A. P. WOOD,
H. L. KEITH.