No. 689,255. Patented Dec. 17, 1901.

J. J. WALSH.

ADDING MACHINE.

(Application filed Jan. 16, 1901.)

(No Model.)

Fig. 1.

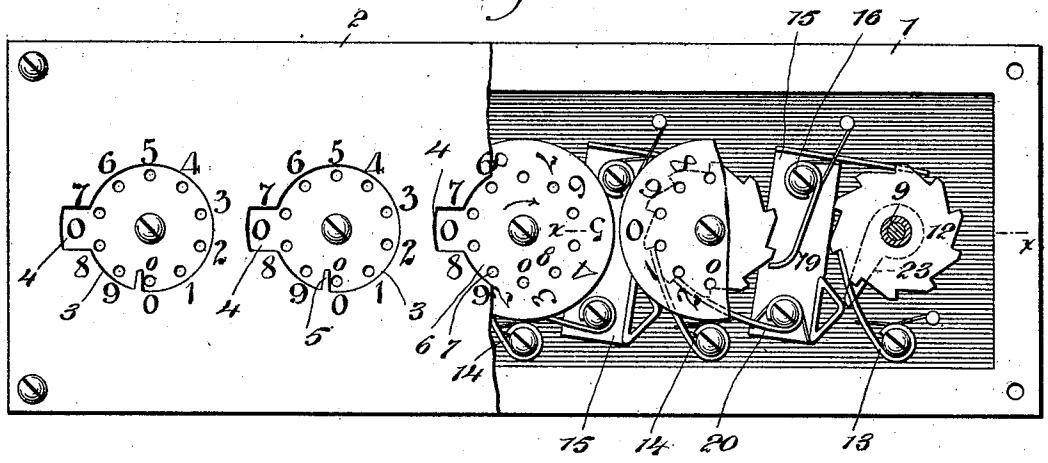


Fig. 2.

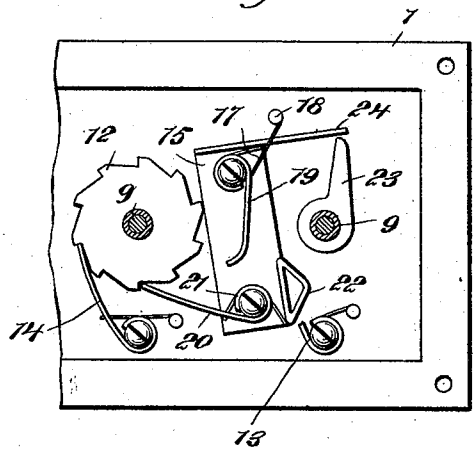


Fig. 3.

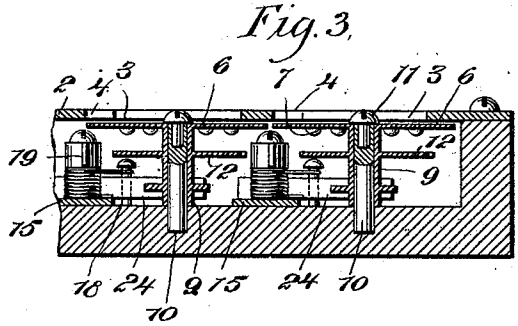
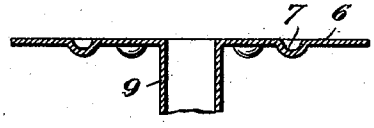


Fig. 4.



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ADDING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 689,255, dated December 17, 1901.

Application filed January 16, 1901. Serial No. 43,468. (No model.)

To all whom it may concern:

Be it known that I, JAMES J. WALSH, a citizen of the United States, and a resident of Elizabeth, in the county of Union and State of New Jersey, have invented a new and Improved Adding-Machine, of which the following is a full, clear, and exact description.

This invention relates to improvements in adding-machines; and the object is to provide a machine of this character of simple and comparatively inexpensive construction and of small compact form, so that it may be carried in a person's pocket or placed upon a desk for the convenience of bookkeepers, accountants, and the like in adding long columns of figures without material mental calculation and insuring a correct total.

I will describe an adding-machine embodying my invention, and then point out the novel features in the appended claim.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a plan view of a machine embodying my invention with a portion of the casing-top removed to show the interior. Fig. 2 is a plan view of a portion of the machine, showing parts in a different position from that shown in Fig. 1. Fig. 3 is a section on the line *x x* of Fig. 1, and Fig. 4 is a section of one of the numeral-disks.

Referring to the drawings, 1 designates a casing of any suitable material and through the top 2 of the casing is a series of alined openings 3, under which the numeral-disks are arranged. Each opening 3 at one side is provided with an offset-opening 4, through which a numeral on a disk will be disclosed, and extended inward from the wall of each opening at a short distance from the offset-opening 4 is a stop-finger 5. Arranged on the top around each opening 3 is a series of figures ranging from "0" to "9." Each numeral-disk 6 has on its upper surface a series of numbers ranging from "0" to "9," and all of the numbers excepting one, which is disclosed in the offset-opening 4, will be covered by the top 2. Each disk is also provided within the circumference of its opening 3 with a circular row of depressions or pockets 7, in which a pencil-point or other tool may be inserted for the purpose of turning the disk, as will be hereinafter described. Adjacent to one of these depressions or pockets a mark is placed, as indicated at 8, which will indicate the depression in which the pencil or other device is to be placed to turn the disk to bring the "0" into the sight-opening 4. Each disk has a tubular hub portion 9, mounted to rotate on a stud 10, extended upward from the bottom of the casing, and the disk with its hub is held in place, as here shown, by means of a screw 11 engaging in a tapped hole in the upper end of the stud, with its head portion engaging upon the upper surface of the disk. Connected to the hub of each disk is a ratchet-wheel 12. It may be here stated that the ratchet-wheel 12 on the hub of the units-wheel is only designed in coacting with a spring-pressed dog 13 to act as a stop to prevent a backward movement of the units-disk. The ratchet-wheels on the other disk-hubs, however, are not only designed to be engaged by spring-pressed stop-dogs 14 to prevent backward movement, but are designed to be engaged with propelling devices that impart rotary motion to the disks.

The propelling devices consist of plates 15, arranged between adjacent disk-hubs and pivoted to swing on the bottom of the casing. Each plate 15 has a sleeve portion through which a pivot-screw 16 passes, and the plate is held yieldingly and normally in its inoperative position by means of a spring 17, coiled around said sleeve and having one end connected to the sleeve, while the other end is connected to a pin 18, attached to the bottom of the casing. Connected to each sleeve surrounding the pivot-pin is a retarding-dog 19, consisting of a strip of metal designed to engage with the surfaces of the ratchet-wheels, as clearly indicated in Fig. 1, as the propelling device is moved forward to impart a rotary motion to the disk. Carried by the free end of each plate 15 is a pawl 20, which is held in yielding engagement with its ratchet-wheel by means of a spring 21.

On the rear side of each plate 15 near its free end is a cam projection 22, the outer edge of said cam projection being inclined from its center in both directions toward the plate. These cam-lugs are designed to be engaged by fingers 23, connected to and extended outward from the hubs 9, and each finger is also

designed to engage with an arm 24, extended outward from the pivoted end of the plate 15, so as to move said plate to its normal position after it shall have performed its service in rotating a disk.

In operation the several disks, commencing with the units-disk at the right-hand end of the machine, are to be rotated until "0" or zero is disclosed through the sight or offset opening 4. This is done by placing a pencil-point or the like in the depression or pocket indicated by "0" and turning the disk in the direction indicated by the arrow in Fig. 1 until the pencil or other turning device strikes against the stop 5, as indicated in Fig. 1. It will be noted that the depressions or pockets of a disk are arranged midway between the figures on said disk, but are in line with the figures on the casing-top. Assuming the first figure of a column to be "9," the pencil-point is to be inserted in the depression or pocket opposite the numeral "9" on the casing-top, then the disk rotated until the pencil is stopped by the finger 5. This will bring the "9" of the disk into the sight-opening 4. The next figure to be added to the "9" may be "8." Therefore the pencil is to be inserted in the depression or pocket of the units-disk opposite the figure "8" on the casing-top and said disk again rotated until stopped by the figure "5." During this movement of the disk the figure "23" by engaging with the cam 22 will swing the plate 15, so that its pawl will rotate the next or tens disk, rotating it one step or until the numeral "1" is disclosed in the sight-opening 4, and at this time the numeral "7" of the units-disk will be disclosed through the sight-opening of said units-disk. The two numerals thus disclosed indicate the total of the added numbers—that is, seventeen. During the operating movement of the plate 15 the dog 19 will engage against the periphery of the tens-disk and prevent any possible overthrow of said disk, while the dog 14 will prevent a backward movement of said tens-disk. After the finger 23 passes the cam 22 it will engage with the arm 24, moving the plate 15 back to its normal position, where it will be held yieldingly, as before stated, by means of the spring 17.

While I have described the machine as an adding-machine, it is quite obvious that it may be employed in other calculations—such, for instance, as multiplication, division, or subtraction.

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

An adding-machine, comprising a casing having a series of openings through its top, each opening having an offset or sight opening at one side, numerals arranged around each opening, a numeral-disk below each opening and having a hub portion mounted to rotate on a stud, a ratchet-wheel on said hub portion, a propelling-finger on said hub portion, a plate mounted to swing between adjacent hubs, a cam projection on the rear edge of said plate near its free end and adapted to be engaged by the propelling-finger, an arm extended from the pivoted end of said plate and adapted to be engaged by said finger, a retarding-dog carried by said plate and adapted for engagement with the ratchet-wheel forward of the plate, a spring-pressed pawl carried by the free end of the plate for engaging with and operating the ratchet-wheel forward of the plate, and spring-pressed stop-dogs engaging with the ratchet-wheels, substantially as specified.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JAMES J. WALSH.

Witnesses:
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