

F. PLUMB.
ADDING MACHINE.

No. 256,591.

Patented Apr. 18, 1882.

Fig. 3.

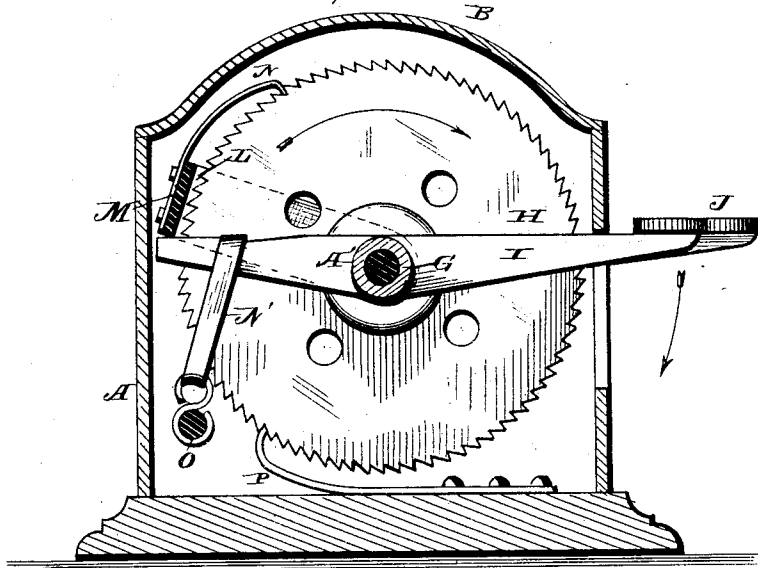
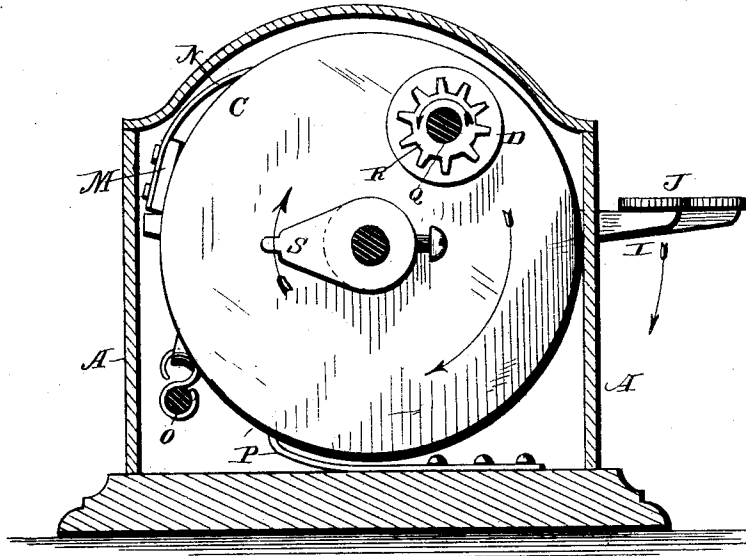


Fig. 4.



WITNESSES

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ADDING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 256,591, dated April 18, 1882.

Application filed June 17, 1881. (Model.)

To all whom it may concern:

Be it known that I, FAWCETT PLUMB, of Streator, in the county of La Salle and State of Illinois, have invented certain new and useful Improvements in Adding - Instruments; 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 pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to an improvement in adding-instruments or arithmometers, the object being to provide a device of this character combining simplicity of construction and accuracy of operation, and requiring but little skill in its manipulation.

The principle upon which the device is constructed consists in the revolution of a disk peripherally encircled by a series of numbers running from 0 to 99 through arcs of circles embracing from one to nine numbers by means of nine keys transmitting motion through a system of suitably-arranged levers.

With the objects of invention above given in view, my invention comprehends the practical application of this principle; and it consists in certain details of construction and combinations of parts, as will be hereinafter described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a view in perspective of a device constructed in accordance with my invention. Fig. 2 is a plan view thereof, the top of the case being removed and one key being depressed. Fig. 3 is a view, in vertical cross-section, showing the operating - levers; and Fig. 4 is a similar view representing the mechanism of the hundreds-wheel.

A represents a case adapted to inclose the working parts of the instrument. It is provided with a removable convex cover, B, which is perforated to expose a small section of the peripheries of the units and tens wheel C and the hundreds-wheel D. Pointers E and F, attached to the said cover, designate the numbers on the wheels C and D respectively. The units and tens wheel C is mounted on a shaft, G, which longitudinally traverses the case A, being journaled in each end thereof. The said shaft G also supports wheel H, the peripheral face of which is provided with exactly one

hundred cog-teeth, and forms the fulcrum of the levers I of the different keys J, which severally represent the numbers from 1 to 9, and of the two levers L, to the outerends of which the bar M, adapted to be actuated by any one of the keys J, is secured. Washers A', interposed between the levers, keep them in their proper positions.

A pawl, N, attached to the bar M is adapted to engage with the cog-teeth of wheel H and revolve the same, together with the shaft G and the units and tens wheel C, when the said bar is elevated by the depression of any one of the nine keys J aforesaid.

The inner ends of all of the levers I are held under constant tension by means of elastic bands N', or any equivalent therefor, the opposite ends of said bands being respectively secured to the levers and to a rod, O, located below them and running parallel with the shaft G. The two levers L, to which the bar M is secured, are also depressed with elastic bands which serve to keep the said bar in contact with the upper faces of the levers, and thus in immediate readiness to be elevated by the depression of any one of the keys. The equivalent suggested in lieu of elastic bands may consist of spiral or elliptic springs, or, if desired, counter-weights may be employed. The forward ends of the nine levers I project through a series of nine elongated slots, O', of unequal lengths, formed in the front wall of the case A.

The amount of reciprocation of each of the levers is limited only by the length of the several slots in which they play, and therefore the slots must be nicely graduated to allow, with the depression of the keys, an elevation of the bar M, and the consequent revolution of wheel H and shaft G, a revolution of the units and tens wheel C through an arc embracing figures equal in number to the number expressed by the key which is depressed. It is therefore apparent that no two of the nine slots can be of equal length, and that every slot will be increased in length over the slot for the number next below it on the scale by one-ninth.

A pawl, P, located below wheel H, in position to engage with its cog-teeth, serves to prevent any undue motion thereof. The hundreds-wheel D, encircled by a series of figures run-

ning from 1 to 10, is mounted on a short shaft, Q, journaled in one end of the case. The said shaft Q also supports a cog-wheel, R, provided with ten cog-teeth, with which a cam, S, rigidly secured to the shaft G is adapted to be engaged to move the hundreds-wheel one-tenth of a revolution to every complete revolution of the units and tens wheel. Ten revolutions of the units and tens wheel are therefore required in the regular operation of the instrument through the keys to effect one complete revolution of the hundreds-wheel. However, to facilitate the operation of setting the instrument, the shaft G is provided with a thumb-nut, T, by means of which the wheel C can be revolved independently of the system of levers and keys before explained, and the short shaft Q is provided with a thumb-nut, U, whereby the hundreds-wheel may be revolved independently of the cog-wheel R and cam S.

The instrument is designed to be used chiefly in adding up long columns of figures, and the accountant need not necessarily look away from them to operate it successfully, for the reason that as there are but nine keys he can learn by little practice to distinguish them by touch.

In view of the description of the operation

of the instrument, interspersed with the description of the instrument itself, a further exposition thereof is not deemed necessary.

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

1. In an adding-instrument, the combination, with the casing having the graduated slots, and the slotted top and pointers F E, of a transverse shaft, G, carrying the wheels C and H, and cam S, a short shaft arranged parallel to shaft G and carrying the wheels D and R, the levers L L, bar M, cam N, and a series of operating-levers, all arranged and adapted to operate substantially as set forth.

2. In an adding-instrument, the combination, with the shafts G and O, of the bar M, pawl N, levers L L, and elastic bands connecting the latter with the shaft O, substantially as set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 9th day of June, 1881.

FAWCETT PLUMB.

Witnesses:

N. PLUMB,

JOHN B. PLUMB.