M. NORGREN.
Adding-Machine.

No. 209,977. Patented Nov. 19, 1878.

Fig. 1.

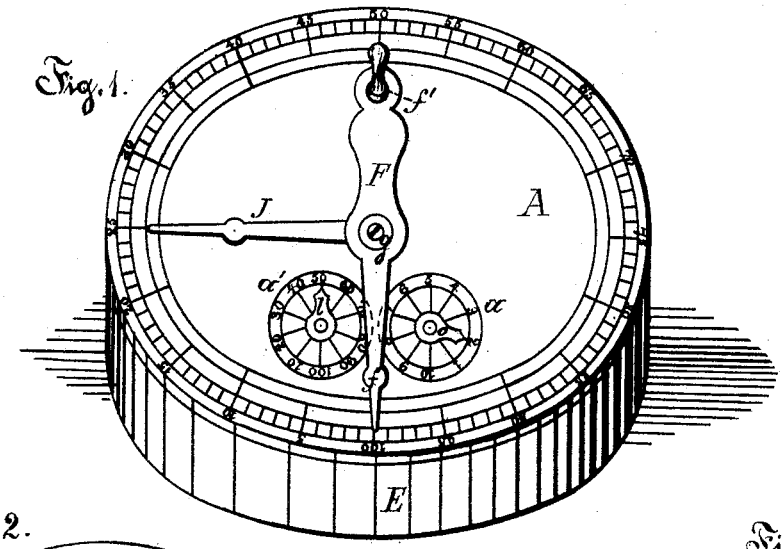


Fig. 2.

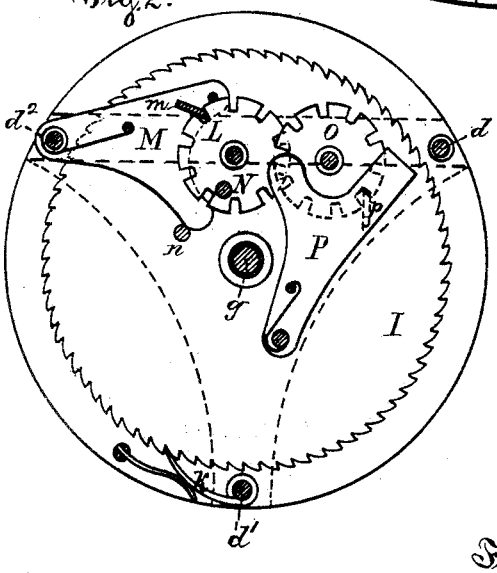


Fig. 3.

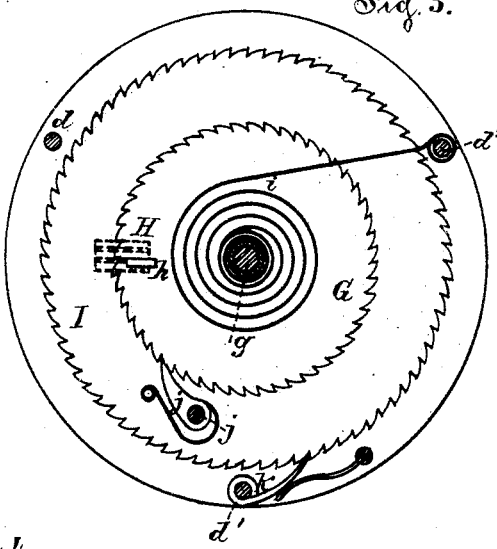
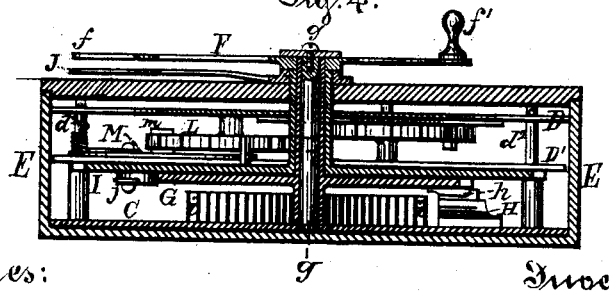


Fig. 4.



Witnesses:
Jacob Richter
Emil H. Drommann

Inventor:
Martin Norgren
by Wm H. Lotz
his attorney

UNITED STATES PATENT OFFICE.

MARTIN NORGREN, OF CHICAGO, ILLINOIS.

IMPROVEMENT IN ADDING-MACHINES.

Specification forming part of Letters Patent No. **209,977**, dated November 19, 1878; application filed April 11, 1878.

To all whom it may concern:

Be it known that I, MARTIN NORGREN, of Chicago, in the county of Cook and State of Illinois, have invented a new and Improved Adding-Machine, as fully set forth in the following specification:

The nature of my invention relates to the so-called "arithmometers" or "calculating-machines," and is particularly adapted for addition.

My invention consists in a finger receiving its impulse from a lever and moving in one direction only, and registering consecutively, by addition, the numbers pointed out by said lever; in two small dials, impulse to the fingers on which is transmitted from the unit dial-finger, one of which indicates the hundreds and the other one the thousands; and in the construction and arrangement of the operating mechanism, as more fully hereinafter explained.

In the drawing, Figure 1 represents an exterior perspective view of the adding-machine; Fig. 2 a sectional plan, and Fig. 3 a sectional bottom view, of the operating mechanism, and Fig. 4 a vertical transverse section of the same.

A is the dial-plate, graduated into one hundred divisions near its periphery, and having two small dials, *a* and *a'*, each graduated into ten divisions, one of which is to indicate the hundreds and the other one the thousands. To the under side of this dial-plate is secured a frame composed of disk C, spider-plate D, bar D', and connecting-studs *d*, d^1, and d^2, which frame is inclosed in cylindrical case E.

F is a lever, having a pointer, *f*, at one end and a knob-handle, *f'*, at its opposite end, and being secured upon the end of a spindle, *g*, projected through the center of the dial-plate, and pivoted into the disk C. Upon the lower portion of this spindle *g* is rigidly secured a ratchet-wheel, G, the face of which carries a projecting lug, *h*, which, in combination with the stop H, projecting from disk C, will arrest the movement of wheel G; and a spiral spring, *i*, one end of which being secured to the hub of wheel G, while its opposite end is connected with stud d^2 of the frame-work, will cause said wheel G and lever F to return to their starting-point after each motion.

I is a larger ratchet-wheel, the hub of which is loosely sleeved upon the spindle *g*, and is projected through the dial-plate, where it carries an indicating-finger, J. Against the face of this ratchet-wheel I is pivoted a pawl, *j*, having a suitable spring to compel its engagement with the teeth of the ratchet-wheel G, so that said wheel G will impart motion to wheel I in one direction, but not in the other, a pawl, *k*, pivoted on stud d^1, holding it from turning back with said wheel G.

As will be seen by the above-described arrangement, exactly the same distance of forward travel of lever F is transmitted to finger J; but while the former returns to its starting-point the latter will hold its acquired position, thus adding the distance of the motions of lever F and the numbers indicated thereby consecutively on the dial-plates.

The disk L, the spindle of which carries the finger *l*, has ten notches in its rim equal distances apart, and a tumbler-plate, M, depressed by a suitable spring, has a projecting lug, *m*, which engages with one of the notches in said disk and holds the same stationary until said tumbler is lifted by a pin, *n*, projecting from the face of wheel I, which pin at the same time engages with one of the notches and rotates said disk one-tenth of a revolution, after which it releases said tumbler again for relocking the disk. This disk L will make one-tenth of a revolution for every one revolution of wheel I, and the finger *l* coupled thereto will indicate hundreds.

O is a disk, similar in every respect with disk L, the spindle of which carries the finger *o*, it having ten notches and a tumbler-plate, P, with projecting lug *p*, for holding said disk from turning until a stud, N, projecting from the face of disk L, lifts said tumbler, and at the same time engages with one of the notches and turns said disk one-tenth of a revolution for every revolution of disk L, and the finger *o* connected to its spindle will indicate thousands.

The projecting lugs *m* and *p* of the tumbler-plates M and P are made slanting, so that said disks L or O may be turned backward by their indicating-fingers.

This machine is useful not only for adding up figures, but also for keeping account of the gross receipts during a day, week, or month;

and by coupling the lever F with any moving part of a machine or punch the number of revolutions or strokes or the number of passenger-fares can be registered thereby.

What I claim as my invention is—

1. The dial-plate A of an adding-machine, arranged with lever F, having spindle *g*, ratchet-wheel G, stop H *h*, and spring *i*, in combination with the ratchet-wheel I, sleeved upon said spindle *g*, having indicating-finger J and pawls *j* and *k*, all constructed and arranged within a suitable frame, and operating substantially as herein set forth.

2. The wheel I, having stud *n*, the notched disk L, having indicating-finger *l*, stud N, and tumbler M, and the notched disk O, having indicating-finger *o* and tumbler P, all constructed and arranged to operate in combination with an adding-machine, substantially in the manner set forth.

3. In combination with the dial-plate A, lever F, having spindle *g*, ratchet-wheel G, stop H *h*, and spring *i*, the ratchet-wheel I, carrying indicating-finger J, pawl *j*, and stud *n*, in combination with notched disk O, having indicating-finger *l*, stud N, and tumbler M, and notched disk O, having indicating-finger *o* and tumbler P, the whole of it arranged within a suitable frame and casing having dials A, *a*, and *a'*, and pawl *k*, and all constructed, arranged, and operating substantially as and for the purpose set forth.

MARTIN NORGREN.

Witnesses:

EMIL H. FROMMANN,

LOUIS KLINOKERFUER.