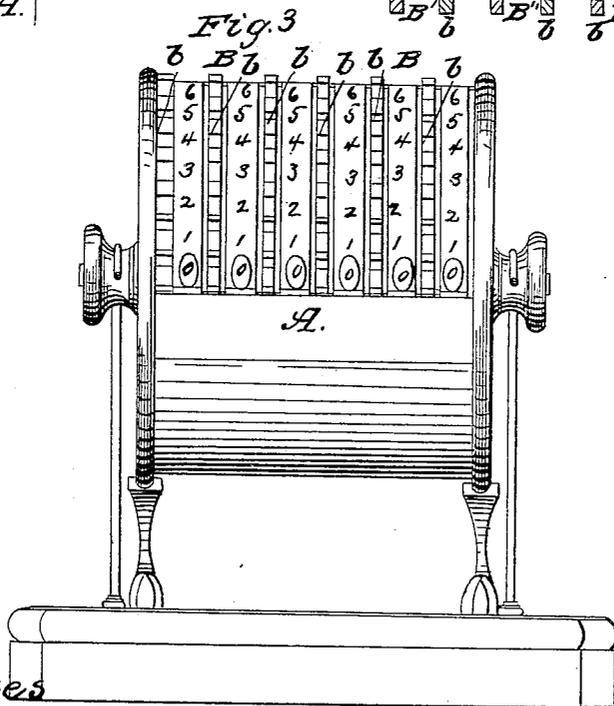
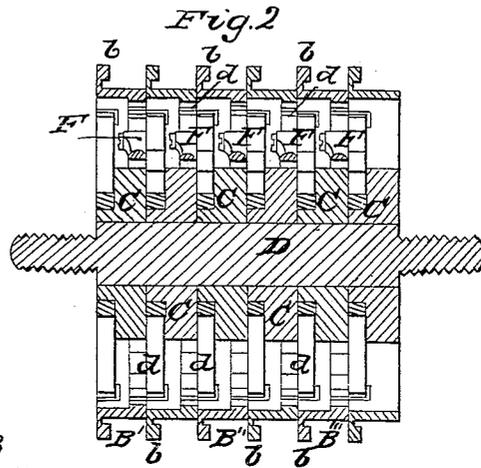
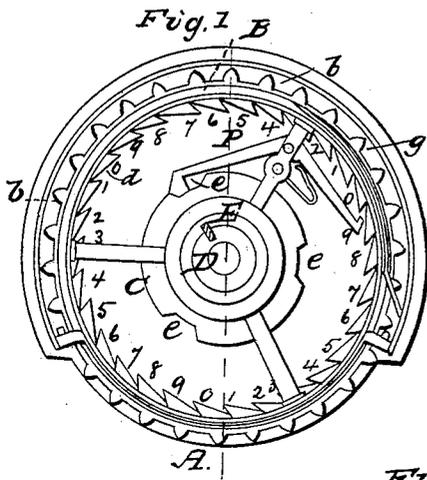


M. C. JEFFERS.
Adding Machine.

No. 40,105.

Patented Sept. 29, 1863.



Witnesses
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Chas. C. Morse

Inventor
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UNITED STATES PATENT OFFICE.

MILTON C. JEFFERS, OF NEW YORK, N. Y.

IMPROVEMENT IN ADDING-MACHINES.

Specification forming part of Letters Patent No. 40,105, dated September 29, 1863.

To all whom it may concern:

Be it known that I, MILTON C. JEFFERS, of the city, county, and State of New York, have invented certain Improvements in Machines for Adding Numbers; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

My invention relates to that class of machines in which a series of wheels are employed on which wheels numbers are marked, and which wheels are so combined together and made to operate as by the several manipulations corresponding to the numbers to be added to show the true amount or sum total upon the machine.

My invention consists in combining with these wheels fixed hubs on a central shaft, the said hubs containing teeth, or notches, or indentations, and verges or scapements attached to the wheels, which verges work into or upon the teeth or notches in the fixed hub in such a manner as to cause each wheel to turn the wheel at the left of it a distance equivalent to one number upon being itself turned a distance equivalent to ten numbers—or, in other words, in such a manner as to cause the machine to carry one for every ten.

In the accompanying drawings, Figure 1 is an end view with the end plate removed, showing the construction of the scapement and illustrating the manner in which the verge attached to one wheel operates upon the other wheel to move it one number upon being itself moved ten numbers. Fig. 2 is a vertical section representing the parts which lie upon the right-hand of the center of the shaft in Fig. 1. Fig. 3 is a front elevation of the machine. In Fig. 2 the supporting-frame and some other parts are omitted.

A is a casing which surrounds the wheels. This casing is divided in front and on the top partially to allow the teeth of the wheels to project outside of it, the casing being in that place sunk in toward the shaft for that purpose. That part of the casing is represented at the bottom in Fig. 1. In addition to this openings are made at the lower part of this portion of the casing to show the numbers upon the wheels, and numbers are placed upon the casing above these openings to indicate the distances which these wheels are to

be turned to correspond with the numbers to be added.

B B are the wheels, the hubs of which are turned out or bored to fit upon the hubs C, which are placed upon the main shaft D, and kept from turning upon that shaft by the key E.

When the parts are put together, the casing A is so connected to the shaft as not to turn upon it, and consequently it will remain in the same relative position to the shaft, though the shaft and casing may be turned together in the supports for the purpose of accommodating the convenience of the operator under different circumstances. The wheels B B are formed with teeth *b* projecting outward, and with ratchet-teeth *c* projecting inward, from the rim of the wheel. The verge or scapement F is attached to one of the arms of each of these wheels to work into the notches *d d* to turn the wheels to carry one for every ten, as above specified. The scapement attached to one wheel works into the wheel at the left of it for that purpose. Each of the wheels B B are provided with thirty teeth, *b b*, and thirty teeth, *d d*. They are also marked with numerals corresponding with thirty numbers, the numerals running up from 0 to 9, and then being repeated. It is obvious that each revolution of either wheel should give or cause to be shown on the machine a number equivalent to thirty numbers placed in the position which the wheel occupies in the enumeration. To cause each wheel to carry one for every ten, I make notches *e* in the periphery of the disks or hubs C at equal distances of one-third of the distance around said disk or hub, and I so construct the verges as to cause them to fall into these notches, and at the same time that they do this to engage one of the teeth in the next wheel to the left of the one to which they are attached, the verge or scapement being kept up against the hub C by a spring for this purpose. I so graduate these notches that each wheel will turn its fellow at the left of it one tooth or number while the verge is in the notch in hub C, when it will again become disengaged, and the wheel continue its revolution without interfering with the operation of its fellow till it reaches the next point, at which one should be carried to the left-hand column of figures. To secure the wheels from being turned by friction

against each other, I so construct them that they do not touch each other except in the manner above stated; and to prevent their being accidentally turned out of position or carried beyond their place when operated upon by the next wheel at the right I attach small springs *g g* to the case of the machine, and so construct them that they will bear in grooves in the rim of each wheel, and thus by their friction prevent the undue rotation of the wheels upon which they bear.

I am aware that a machine has been made for the purpose of adding numbers in which wheels with the numbers and teeth somewhat similar in these respects to those used in my machine have been used, the carrying processes being performed by means of the

inclined plane attached to the casing, as described in the patent granted to Joseph Harris, Jr., the 1st day of January, 1861.

In my machine the difficulties which are found in the machine of Harris in the way of the usefulness of an adding-machine are remedied.

Having thus fully described my invention, I claim—

The combination, in an adding-machine, of the wheels *B B*, hubs *C C*, and verges or scapements *F F*, substantially as and for the purposes set forth.

MILTON C. JEFFERS.

Witnesses:

THOS. P. HOW,
J. B. NONES.