

L. M. HERON.
 CALCULATING MACHINE.
 APPLICATION FILED OCT. 1, 1912.

1,136,673.

Patented Apr. 20, 1915.

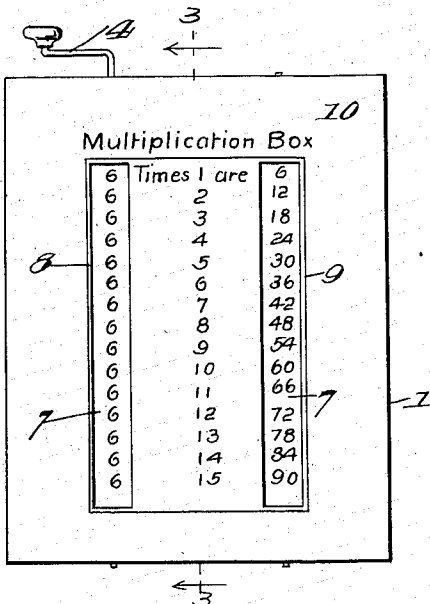


Fig. 1.

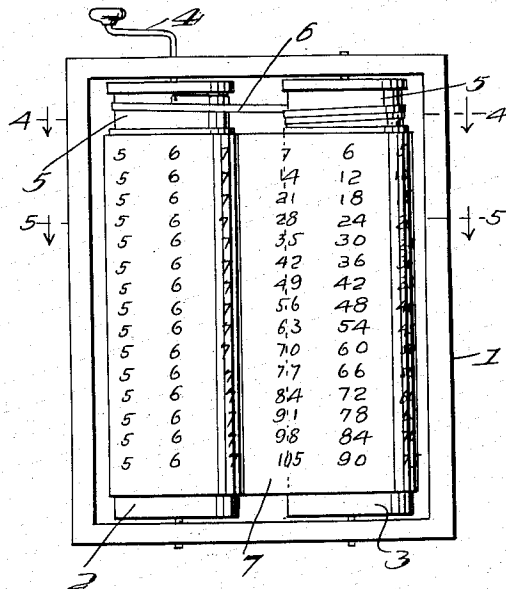


Fig. 2.

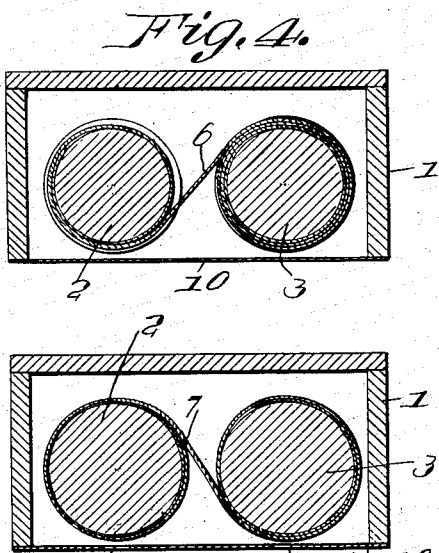


Fig. 5.

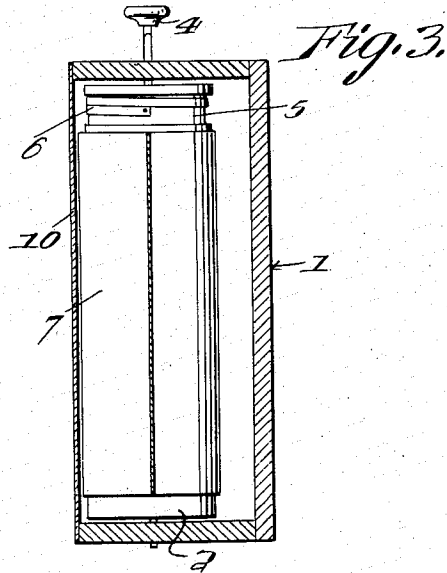


Fig. 3.

Witnesses
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UNITED STATES PATENT OFFICE.

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CALCULATING-MACHINE.

1,136,673.

Specification of Letters Patent.

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Application filed October 1, 1912. Serial No. 723,419.

To all whom it may concern:

Be it known that I, LOUIS M. HERON, a citizen of the United States, residing at the city of Washington, in the District of Columbia, have invented new and useful Improvements in Calculating-Machines, of which the following is a specification.

This invention relates to certain new and useful improvements in calculating machines, and the primary object of the invention is to provide a machine of this type which is possessed of maximum simplicity; which embodies a minimum number of parts and which can be manufactured at an exceedingly low cost.

Further the invention aims to provide novel means for actuating the web in its winding movements from one roller to the other.

In the drawings: Figure 1 is a top plan view of the invention; Fig. 2 is a similar view showing the cover plate removed; Fig. 3 is a section on the line 3—3 of Fig. 1; Fig. 4 is a section on the line 4—4 of Fig. 2; and Fig. 5 is a section on the line 5—5 of Fig. 2.

The invention includes a casing 1, preferably rectangular in form, in which a pair of spaced parallel rollers 2 and 3 are journaled. Roller 2 has a crank 4 secured thereto to enable manual rotation thereof. The rollers are preferably, though not necessarily, reduced in diameter at 5 to receive a tape or cord 6 which has one end secured to roller 3, whereby it will be seen that when roller 2 is given clockwise movement, the tape 6 will be wound thereon. A web 7 has one end secured to roller 3, the web being secured to the rollers so that the part thereof between the rollers crosses that part of the tape 6 between the rollers, so that as the tape 6 is wound on roller 2, the web 7 will be unwound from roller 2, and the tape will unwind from roller 3 and actuate the latter, and will wind the web on said roller 3. Thus the web performs a dual function, namely that of actuating the roller 3 when the tape 6 is being unwound from roller 2 and also its usual function of bearing the figures that represent the mathematical cal-

culations for which the machine is fitted, or designed.

The invention in the present case is illustrated for use in multiplication, and the web is therefore provided with columns of figures on the faces thereof, the columns being arranged in spaced relation so that two of the same are exposed through longitudinal slots 8 and 9 formed in a cover plate 10, which latter may be secured to the casing by any suitable fastening means. The cover, between the slots 8 and 9 bears a column of figures from 1 to 15 and the legend "Times are" so that in use the column of figures exposed through slot 8 form the multipliers and the column of figures borne by the cover form the multiplicands, while the figures of the column exposed through slot 9 indicate the products. The columns of figures that represent the multipliers and those that represent the products are arranged so that the correct products will appear through the slot 9 when the multipliers appear through slot 8.

From the above it will be evident that the device is extremely simple, compact and can be made and assembled with little cost.

What is claimed is:

1. In a calculating machine, a casing, a pair of rollers journaled in the casing, means to manually operate one of the rollers, a flexible connection between the rollers rigidly connected at its ends to the rollers whereby when the connection is wound on the manually operated roller the other roller will rotate with said manually operated roller but in an opposite direction from the latter, and a web bearing figures connected to the rollers so that when the flexible connection is unwound from the manually operated roller the web will actuate the other roller.

2. In combination with a casing, a pair of spaced rotary rollers therein, means to manually operate one of the rollers, and a pair of flexible connections between the rollers whereby clock-wise or anti-clock-wise movement of either roller will cause opposite rotation of the other roller, rotation of either roller causing one of the pair of flexi-

ble connections to be wound on that roller and unwound from the other roller and the other connection to be unwound from the first mentioned roller and wound on the
5 said other roller.

In testimony whereof I have hereunto set

my hand in presence of two subscribing witnesses.

LOUIS M. HERON.

Witnesses:

W. H. BRERETON,
ROYCE A. RUESS.