

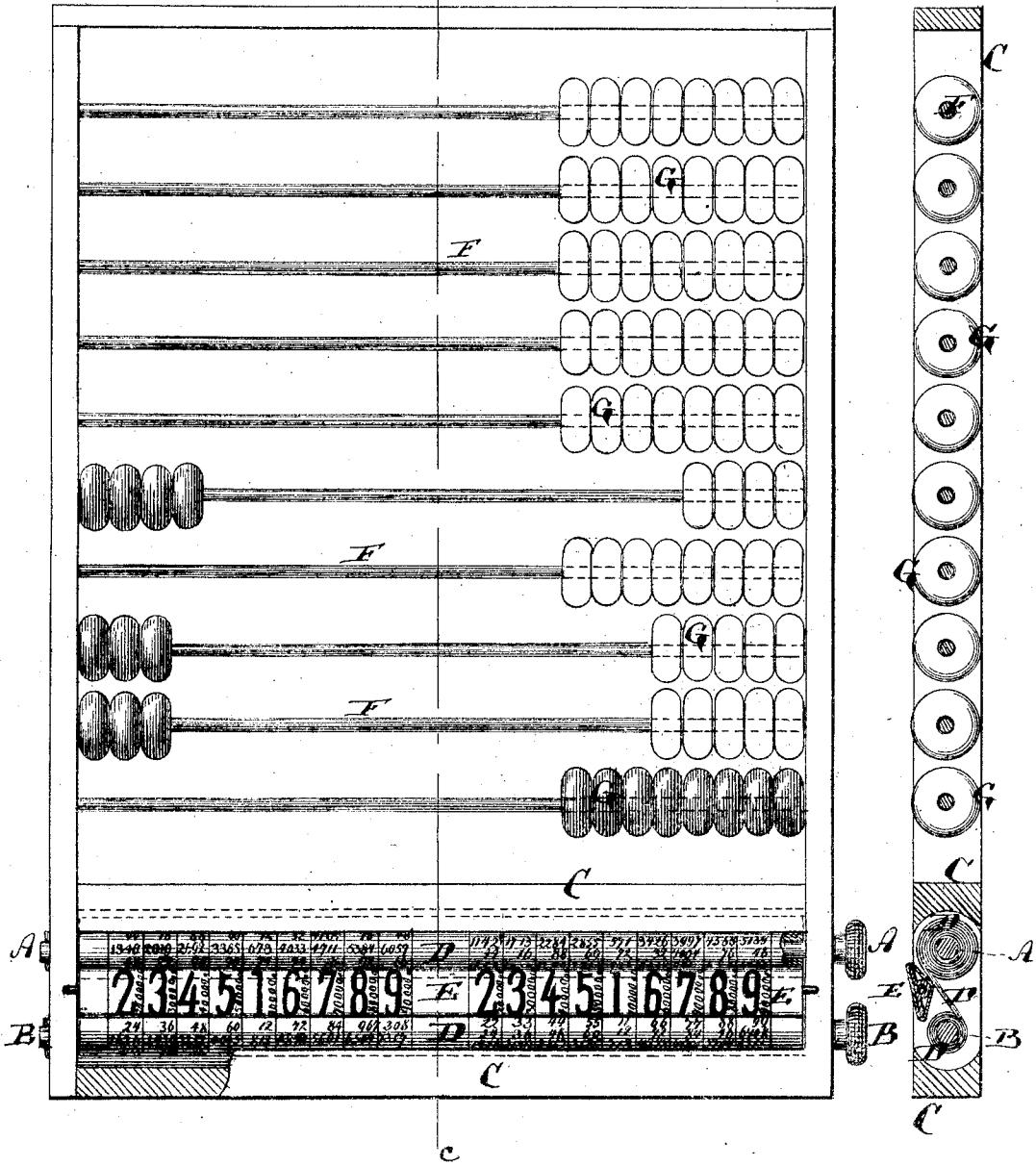
T. ESERSKY.
Calculating-Machines.

No. 144,523.

Patented Nov. 11, 1873.

Fig. 1.

Fig. 2.



Witnesses.
John Becker
J. W. Haynes

Theodor Esersky
by his Attorneys
Romaine & Allen

UNITED STATES PATENT OFFICE.

THEODOR ESERSKY, OF ST. PETERSBURG, RUSSIA.

IMPROVEMENT IN CALCULATING-MACHINES.

Specification forming part of Letters Patent No. **144,523**, dated November 11, 1873; application filed August 21, 1873.

To all whom it may concern:

Be it known that I, THEODOR ESERSKY, of St. Petersburg, Russia, have invented an Improved Calculating-Machine, of which the following is a specification:

Figure 1 is a face view of my improved calculating-machine, and Fig. 2 a transverse section thereof on the line *c c*, Fig. 1.

Similar letters of reference indicate corresponding parts in both figures.

The object of this invention is to produce a machine or table by means of which intricate multiplications and divisions may be rapidly and without difficulty effected; and the invention consists in the combination of an endless band or strip of paper, which contains rows of figures in a peculiar arrangement on both faces, with two rollers upon which the said strip is wound, and with a stationary indicator, all as hereinafter more fully described.

In the accompanying drawing, the letters A and B represent two parallel rollers, of wood or other material, hung into a frame, C, of suitable size. Upon these rollers are wound the ends of a strip, D, of paper or other fabric, which strip has rows of figures printed or written, or otherwise formed, on both of its faces, and which is wound upon the said rollers in opposite directions, respectively, as shown in Fig. 2, so that by observing the two rollers from one side the opposite faces of the strip will be displayed to the eye. E is a bar or plate, secured with its ends in the frame C, and placed in such position that it will practically cover the strip D where the same is between the two rollers A and B—that is to say, the plate E will conceal the portion of D between A and B. Upon the face of the plate E are printed or written in a row the units from 1 to 9, either once or twice, as shown, or more times. The rows of figures on the strip D are so placed, with respect to each other and to the units printed upon the plate E, that those rows on D which are in line with the unit 1 on E will be the multiplicands for the other figures in the same rows of D, respectively, the remaining figures on E being the multipliers of such multiplicands on D, to give the products on the rows respectively opposite to them. Thus, when, as in Fig. 1 on the left-hand side above the strip E, the figure 674 is

directly above the edge E such figure will be the multiplicand of the remaining figures of the same horizontal row of the strip D, the products thereof, with the multipliers on E, being respectively apparent directly above such multipliers. Thus there will be above the figure 2 of E the figures 1348 on D, meaning that twice 674 equals 1348. Above the figure 3 the figures 2,022, meaning that three times 674 is equal to 2,022, and so on through the several figures in the row, and in the same manner through the other figures in other rows. The rows beneath the plate E are arranged the same way, but one pointed or formed on the opposite face of the sheet D, so that thus both sides of the sheet are utilized, and can be brought to view on the same side of the instrument.

It is easy to observe how this instrument can be used, and how readily, for the multiplication of larger figures, the table thus formed can be brought to practical use by merely turning the two shafts A B by means of handles formed at their ends, and thereby bring the requisite row of figures of the sheet D directly above or below the row of figures on the plate E.

For division, the apparatus is equally effective, and also for the finding of logarithms; but I believe it is unnecessary to specially point out the manner in which it is used for each purpose, or to cite examples of calculation.

The apparatus described may be formed on the same frame C with a series of rods, F F, upon which sliding buttons G G may be hung to facilitate the process of addition or subtraction that follows the multiplication or division.

I claim as my invention and desire to secure by Letters Patent—

The combination of the two rollers A B for displaying opposite surfaces of the strip D, having rows of figures on both sides, and with the index-plate or bar E, substantially as herein shown and described.

This specification signed by me this 16th day of November, 1872.

THEODOR ESERSKY.

Witnesses:

CARL HEINRICH KNOOP,
EDWARD JUSTUS THODE.