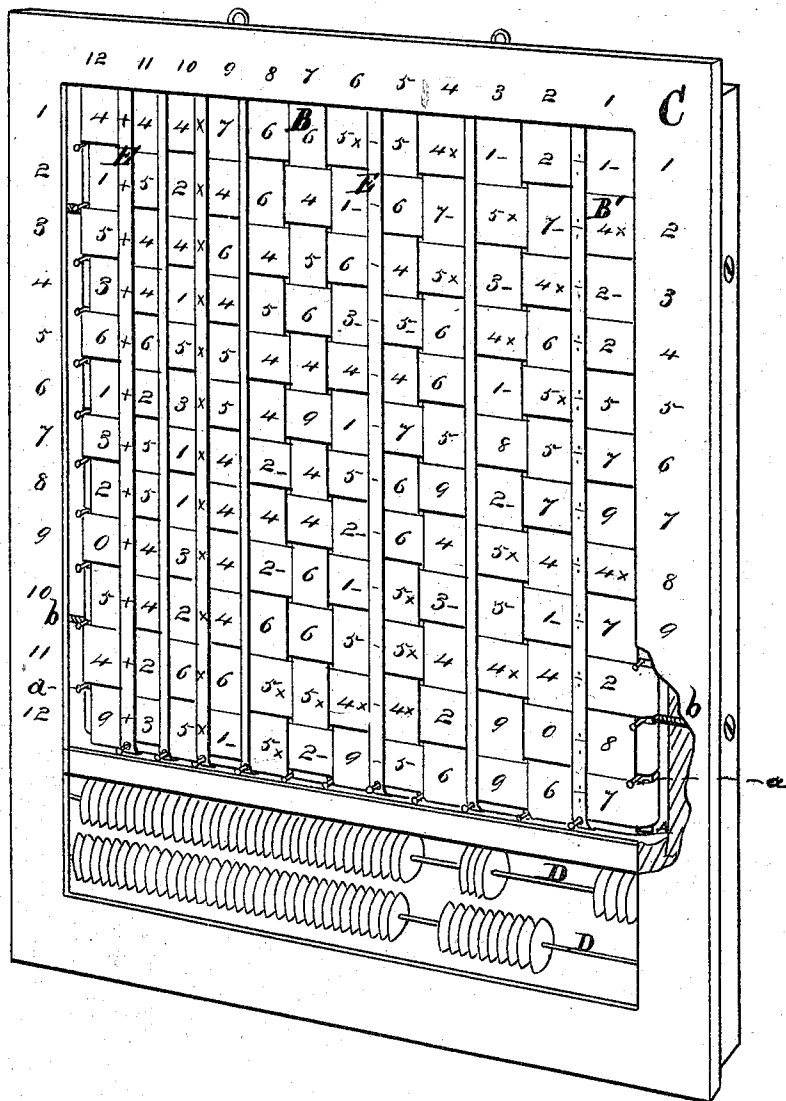


E. T. CURTIS.
Arithmetical Frames.

No. 142,151.

Patented August 26, 1873.



ATTEST:

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UNITED STATES PATENT OFFICE.

EDWIN T. CURTIS, OF CALUMET, MICHIGAN.

IMPROVEMENT IN ARITHMETICAL FRAMES.

Specification forming part of Letters Patent No. **142,151**, dated August 26, 1873; application filed May 17, 1873.

To all whom it may concern:

Be it known that I, EDWIN T. CURTIS, of Calumet, in the county of Houghton and State of Michigan, have invented a new and useful Improvement in a Number Lattice for Arithmetical Exercises; and I do declare that the following is a true and accurate description thereof, reference being had to the accompanying drawings and to the letters of reference marked thereon, and being a part of this specification, in which my invention is shown in perspective, one corner of the lattice-frame being broken away to more clearly show the arrangement of the bands.

This improved number-lattice consists in the arrangement of twenty-four bands or endless tapes upon a rectangular frame, each band having twenty-five numerals upon it. One-half of the bands are arranged vertically, and the remainder horizontally, on the frame, and are interwoven on the front side, so that each row or column exhibits twelve figures, the whole being of such dimensions as to enable the figures to be easily seen across a large school-room. At the right of certain figures are dashes, dots, or crosses, by means of which the positions of the bands can be so regulated that figures denoting the smaller or larger numbers may be made to appear—thus any digit shown may be less than 4, less than 7, or greater than 6. The numbers may also be represented in alternate columns or rows of large and small terms. By drawing the bands in the direction of their length new combinations of numbers can be formed to any extent desired, since the figures in any column or row can be instantaneously changed.

In the drawing, A represents a square lattice-frame whose bars are or should be rounded at their outer edges, each bar having eleven projecting studs, *a*, driven in its face, dividing it into twelve equal spaces. B are twelve endless bands placed vertically around the upper and lower bars of the frame, and B' are twelve other bands horizontally placed around the sides of the frame, all being kept in place by the studs *a*. On each band are printed twenty-five numeral figures, so that each band exhibits twelve figures; they are, however, interwoven at the front side of the frame, so that each vertical column or horizontal row of figures may have every second figure changed by moving either band. C is

an external frame, in which the frame A is secured by the screws *b* in such a manner as not to interfere with the free movement of the bands. Upon this frame the columns and rows of figures in the lattice-frame are designated by numerals at the top and sides; and in its lower part, below the lattice-frame, are stretched two wires, D, carrying one hundred beads in tens, of one color, for purpose of illustration. The lattice is accompanied by twenty-three flexible strips, E, upon part of which are printed the arithmetical signs for examples in addition, subtraction, multiplication, and division, the others being left blank, and serve to separate the examples. When the strips E are used they are hung or stretched over the studs *a*, to separate the columns of figures, being provided with rings or eyelets in their ends to hook over the said studs. When not in use they may be hung over a hook on the outer frame.

With this apparatus the teacher can accomplish far more in a given time than by any other method, the pupils becoming rapid, accurate, and reliable in their arithmetical work by its use. The apparatus will also furnish unlimited employment of the most interesting character to young pupils, thus at once benefiting them and relieving the teacher. It gives slate-work in endless variety and with very little trouble. For class-drill in rapid exercises it is specially adapted.

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

1. The means described for combining numbers for arithmetical instruction, consisting of the endless movable bands interwoven to form a lattice, upon which the said numbers appear, substantially as set forth.

2. In a number-lattice, constructed substantially in the manner described, the movable strips E, either blank or having the arithmetical signs upon them, for separating said numbers into arithmetical examples, substantially as described and shown.

3. The combination of the wires D, carrying the movable beads, with the frame C and number-lattice, as and for the purpose set forth.

EDWIN T. CURTIS.

Witnesses:

D. T. MACDONALD,
W. W. STOCKLY.