

(No Model.)

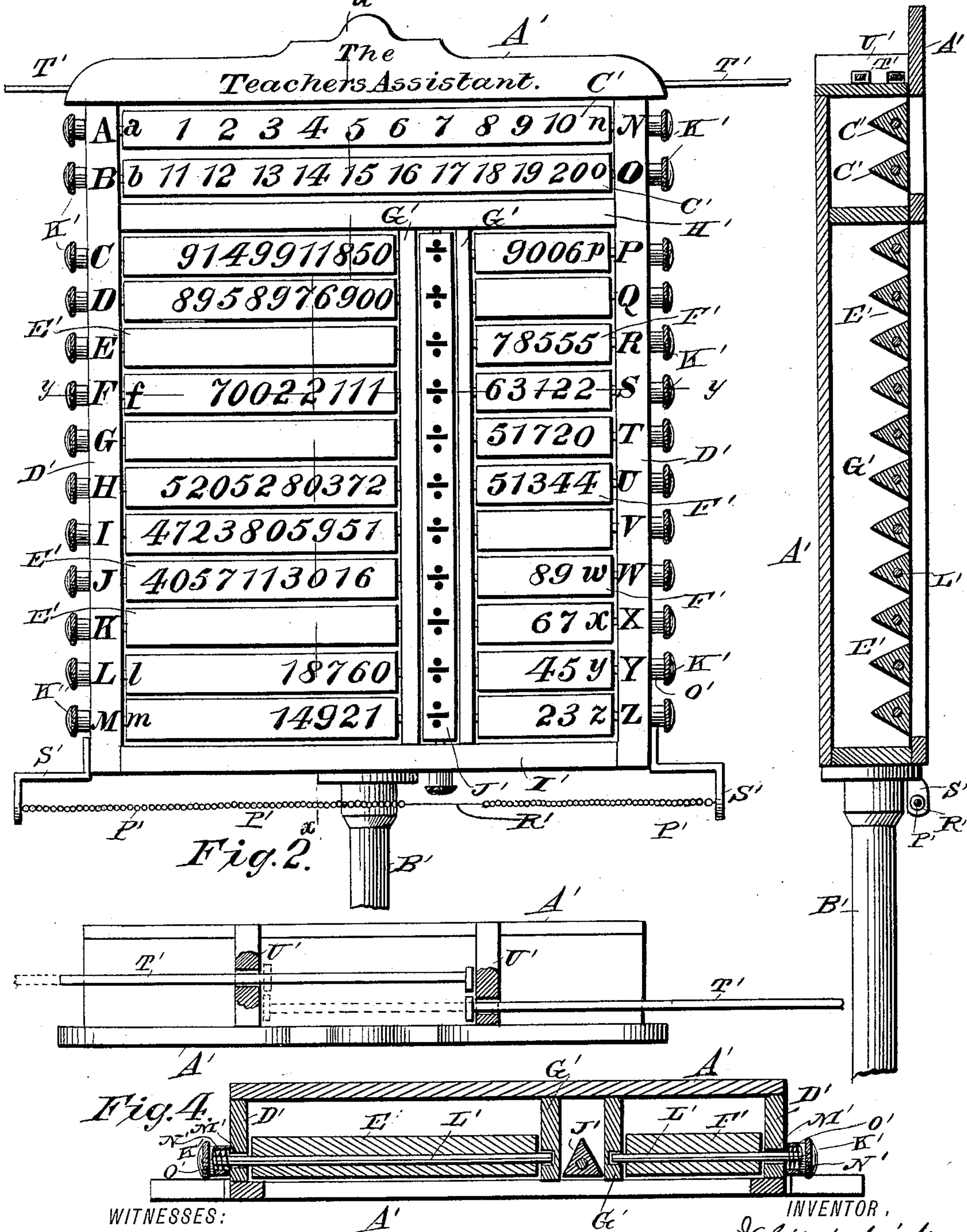
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APPARATUS FOR TEACHING ARITHMETIC.

No. 390,824.

Patented Oct. 9, 1888.

Fig. 1.

Fig. 3.



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APPARATUS FOR TEACHING ARITHMETIC.

SPECIFICATION forming part of Letters Patent No. 390,824, dated October 9, 1888.

Application filed May 26, 1888. Serial No. 275,186. (No model.)

To all whom it may concern:

Be it known that we, IGNATIUS L. UNTERBRINK, of St. Rosa, in the county of Mercer and State of Ohio, and ALBERT G. VANDENBROCK, of Cassella, in the county of Mercer and State of Ohio, have invented a new and Improved Apparatus for Teaching Arithmetic, of which the following is a full, clear, and exact description.

10 This invention relates to an apparatus for teaching arithmetic, and has for its objects to dispense with elementary text-books, to facilitate the forming and solution of problems and the teaching of notation and numeration, and
15 the saving of time and labor for both teacher and pupil.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate
20 corresponding parts in all the figures.

Figure 1 is a front view of the invention. Fig. 2 is a plan view thereof, partly in section. Fig. 3 is a vertical section thereof on the line
25 $x x$, Fig. 1; and Fig. 4 is a horizontal section on the line $y y$, Fig. 1.

In the construction of this apparatus a casing, A' , is employed, mounted on a standard, B' , or other suitable support. The casing A' is provided at its top with a pair of three-cornered rollers, C' , extending across from side to side thereof and having their pivotal bearings
30 in the sides D' of casing A' . Beneath the rollers C' are located two series of three-cornered rollers E' and F' , and having their pivotal bearings in the sides D' and in the vertical strips G' , extending from the horizontal strip H' to the bottom strip I' . Between the vertical strips G' is located a vertical three-cornered roller, J' , having its bearings in cross-strips H' and I' . Each series of rollers E' and
40 F' number eleven rollers, the former being longer than the latter in order to contain larger numbers. The upper roller, C' , is provided on one side with the numbers 1 to 10, inclusive, as shown, and on another side (not shown) the Roman figures VII, VI, V, IV, III, II, I, and the decimal mark. The lower roller, C' , is provided with the numbers 11 to 20, inclusive, on one side, as shown, and on another
50 side (not shown) with the numbers 100, 200,

300, 400, 500, 600, 700, 800, and 900. The Roman figures above mentioned are so arranged on the upper roller, C' , that VII will be located above 100, VI above 200, &c., on the lower roller, C' .

Each of the rollers E' and F' has two sides with numbers and a third side blank, some of the rollers in the drawings being turned to indicate the blank side. The vertical roller J' has one side provided with division-signs, as
55 shown, and another side (not shown) with multiplication-signs, while the third side is blank.

The larger numbers on the several rollers are indicated by the capital letters of the alphabet arranged on the sides D' , as shown, from top to bottom, beginning on the left side, each capital letter being opposite the end of a roller, and indicating by its name the larger numbers when the rollers are turned to bring
65 the number opposite to the latter. The smaller numbers on the rollers are similarly indicated and named by the small letters of the alphabet, the rollers C' having the letters "a n" on the upper roller and the letters "b o" on the lower
70 roller. In this way each number is named, which is immensely valuable to the teacher, who has the answers of all the problems in addition, subtraction, multiplication, and division in a manual, which accompanies the appa-
80 ratus.

By having each number named, as above described, it is possible for the teacher to assign problems easily. For instance, there are eleven pupils in a class in multiplication or
85 division. Pupil "C" copies the number indicated by that letter, pupil "D" the number indicated by that letter, and so on. Each pupil thus has a different multiplicand or dividend. Now, for example, let each pupil multiply or
90 divide his number by the number indicated by "P." In this way problems in multiplication or division may be performed. As the numbers on the series of rollers decrease from top to bottom, an immense variety of problems in
95 subtraction is possible. In addition problems can be given from the smallest to very large ones.

The several rollers are operated by buttons K' on the ends of the spindles L' of the rollers 100

projecting through holes M' in the sides D', and are frictionally held in adjusted position by means of springs N', inclosed in casings O', secured to the sides D', and pressing against the buttons K' and the side of the casing. The casing A' is provided at its bottom with a hundred beads, P', strung on a wire, R', mounted in brackets S', secured to the casing. The device is useful in connection with the rest of the apparatus, and more convenient than the old frame of ten wires with ten beads each.

The top of the casing A' is provided with extensible rods T', mounted in brackets U', on which rods, when drawn out, charts may be suspended. By having triangular rollers, with two sides containing numbers and a third side blank a variety of problems may be given with any arrangement of numbers desired.

By means of an apparatus constructed and arranged as hereinbefore set forth arithmetic may easily be taught and made plain, and labor and time saved both for teacher and pupil.

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. An arithmetical apparatus consisting in a casing, two vertical series of horizontally-aligned polygonal rollers having numerals on their faces, and an intermediate vertical polygonal roller separating the said series and having algebraic signs on its faces, substantially as set forth.

2. An arithmetical apparatus consisting of a casing having a number of three-cornered rollers at its top extending from side to side of the casing, with a series of numbers arranged on their sides, a number or series of long and short rollers with an intervening vertical roller located below the first-named rollers, and having numbers on two sides and the third side blank, the vertical roller having multiplica-

tion signs on one side, division signs on another, and the third side blank, and signs arranged on the casing at the ends of the rollers and on the rollers, by means of which the different-numbered rollers are named and indicated, substantially as described.

3. An arithmetical apparatus consisting of a casing having a number of three cornered rollers at its top extending from side to side of the casing, with a series of numbers arranged on their sides, a number or series of long and short rollers located below the first-named rollers, and having numbers on two sides and the third side blank, and signs arranged on the casing at the ends of the rollers and on the rollers, by means of which the different-numbered rollers are named and indicated, substantially as described.

4. An arithmetical apparatus consisting of casing A', having the three-sided rollers C' at its top, with their bearings in the sides D' of the casing, the two series of long three-sided rollers E' and short three sided rollers F', the long and short rollers having numbers on two sides and the third side blank, and the sides D', having the capital letters "A" to "Z" opposite the ends of the rollers to indicate large numbers, and the rollers having the small letters "a" to "z" to indicate small numbers, the vertical three-sided roller J', with multiplication-signs on one side, division-signs on the other, and the third side blank, the several rollers being provided with spindles L', having buttons K', and frictional adjusting-springs N' inclosed in casings O', substantially as described.

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Witnesses:

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