

(No Model.)

J. N. SMITH.

DEVICE TO AID IN TEACHING ARITHMETIC.

No. 389,415.

Patented Sept. 11, 1888.

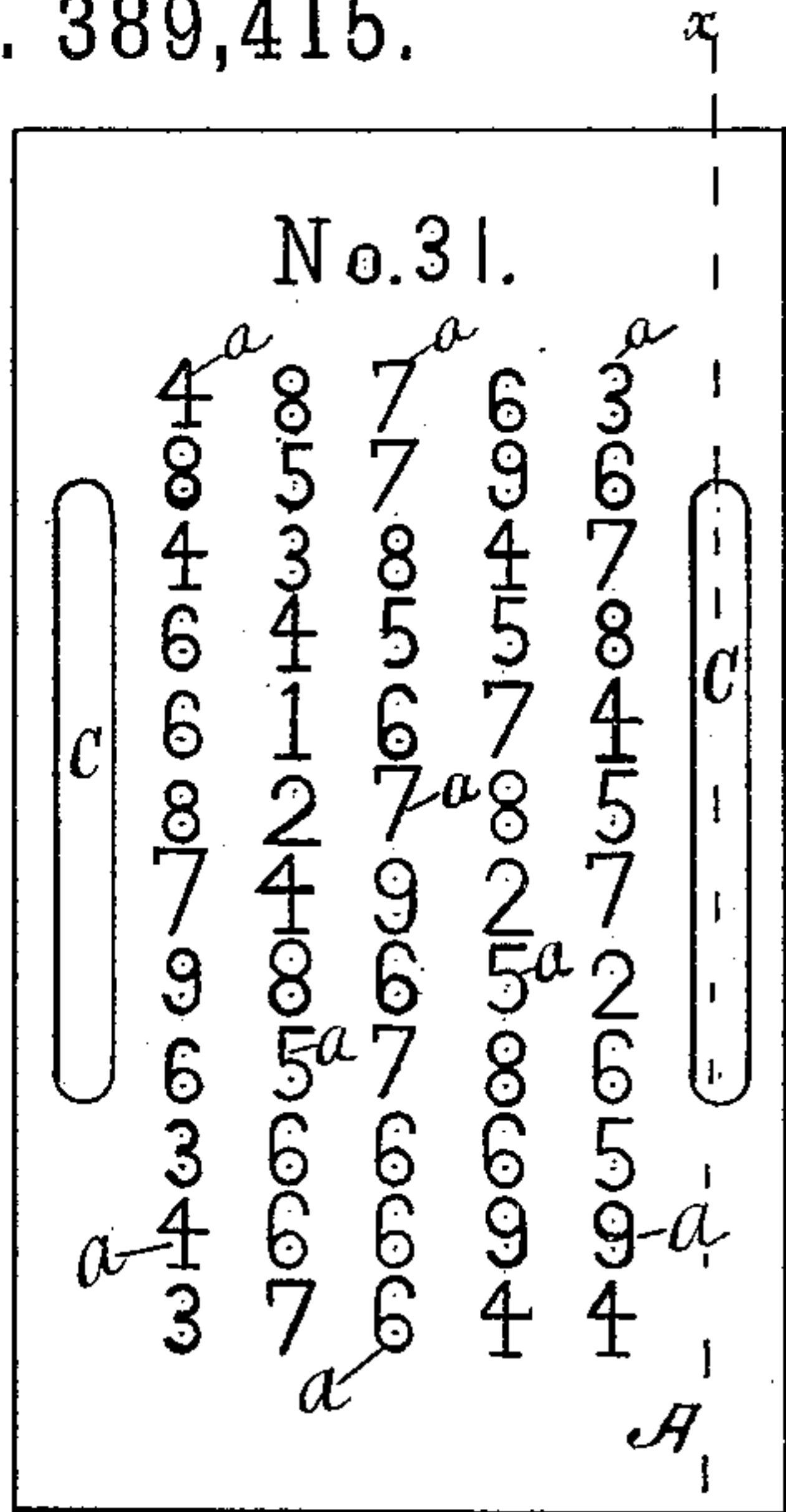


Fig. 1.

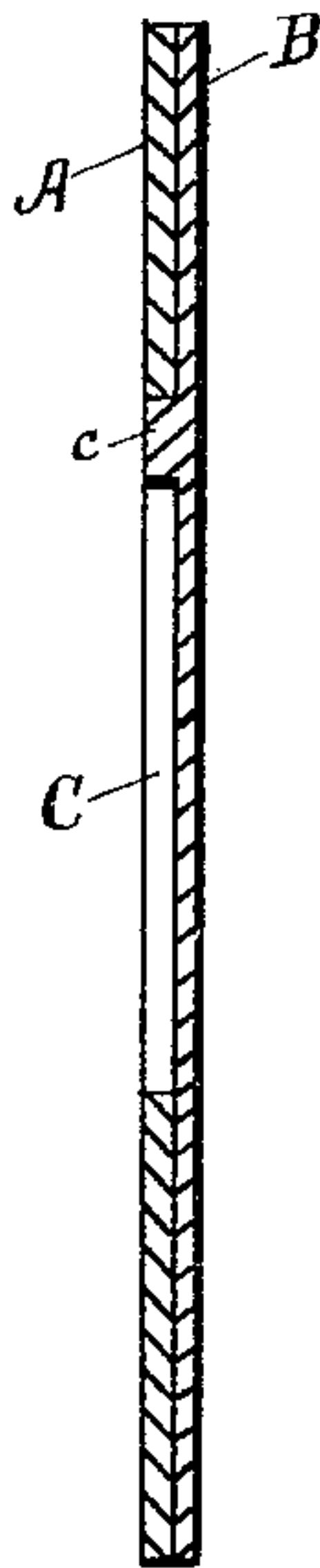


Fig. 3.

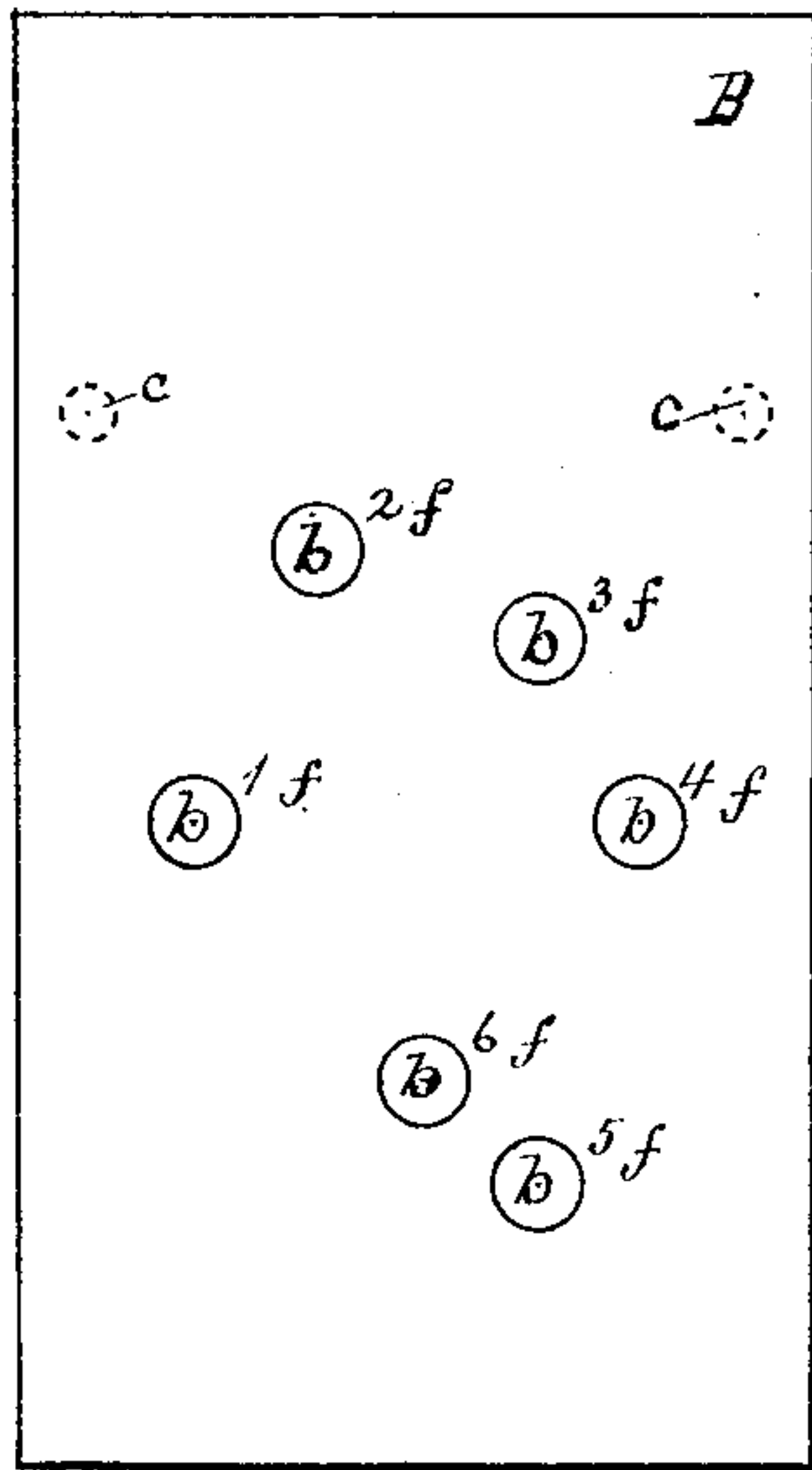


Fig. 2.

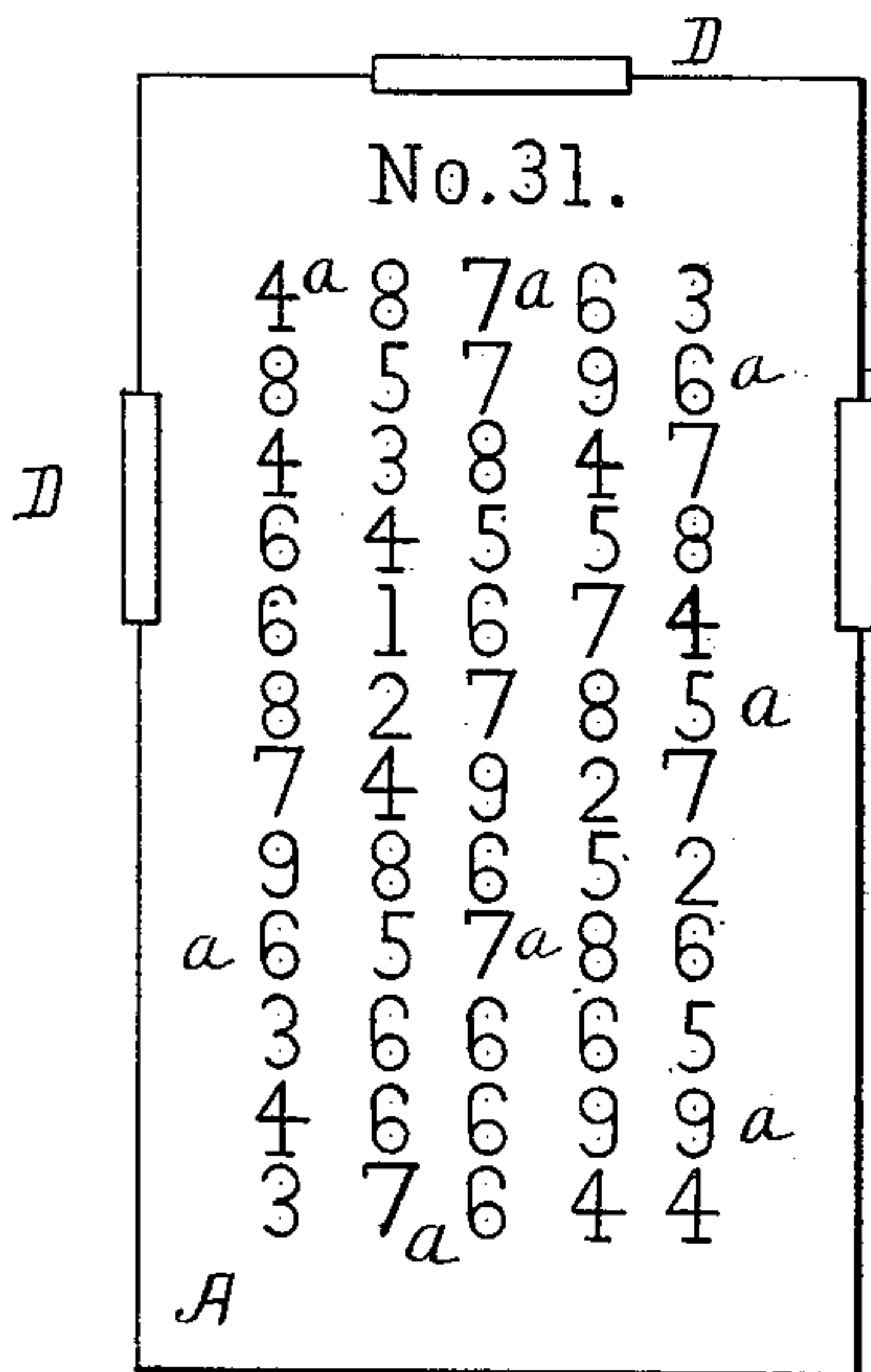


Fig. 4.

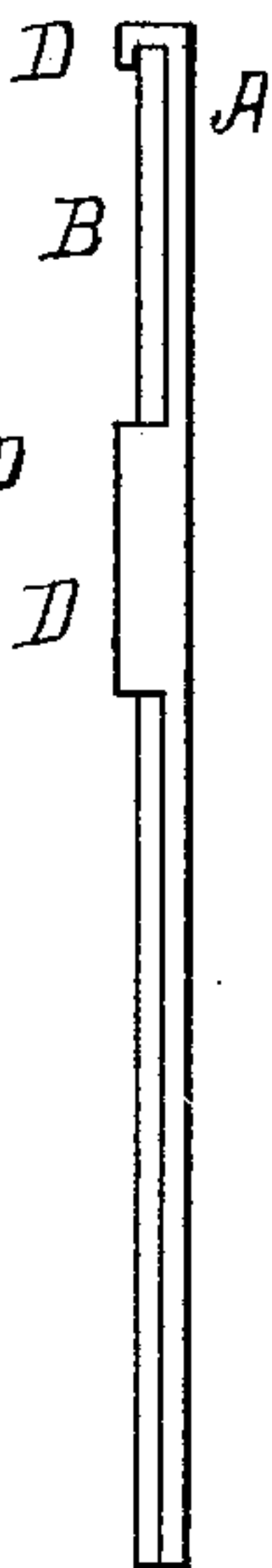


Fig. 5.

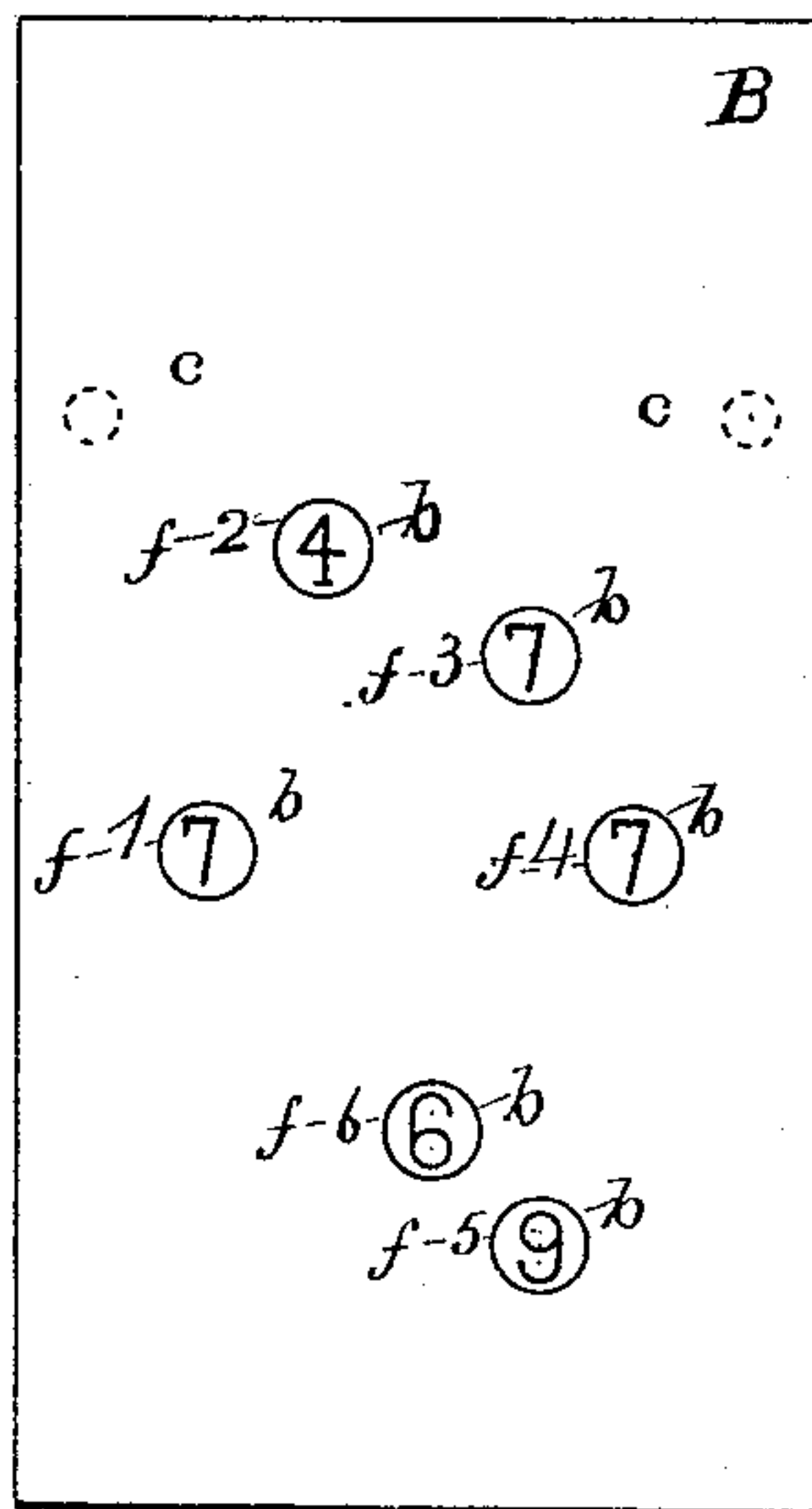


Fig. 7.

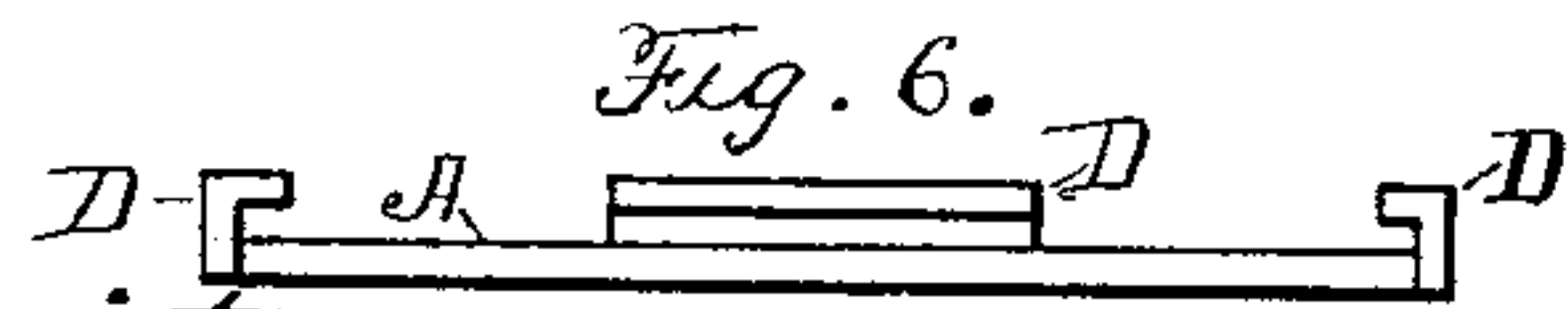


Fig. 6.

witnesses.
Joseph M. Crane
Emilie J. Cunningham.

Inventor.
J. Newton Smith
by his Atty.
Charles F. Dane

UNITED STATES PATENT OFFICE.

J. NEWTON SMITH, OF METUCHEN, NEW JERSEY.

DEVICE TO AID IN TEACHING ARITHMETIC.

SPECIFICATION forming part of Letters Patent No. 389,415, dated September 11, 1888.

Application filed October 21, 1887. Serial No. 252,969. (No model.)

To all whom it may concern:

Be it known that I, J. NEWTON SMITH, a citizen of the United States, residing at Metuchen, Middlesex county, and State of New Jersey, have invented a new and useful Improvement in Mathematical Tablets consisting of a Numeral-Plate and Key-Plate, of which the following, taken in connection with the drawings furnished, is a specification.

My invention consists in the combination, with a card or plate provided with rows of numerals or figures arranged on the face thereof, of a detachable perforated key-plate, which, when the two are properly united, will disclose the precise sum of the several columns from the figures enumerated.

The object of my invention is to provide means whereby teachers or prompters may dictate exercises in addition to other calculations to pupils or others, or may hand out one or more cards containing rows or columns of numerals to be added, subtracted, or otherwise by such pupils, &c., and the teacher or prompter prove the accuracy of the results determined by the pupil instantaneously by the application of the key to the numeral-plate, and thereby save much time and the avoidance of the necessity of a careful consideration of the columns as followed by the party to whom the task was given.

Referring to the drawings, Figure 1 represents the face view of a card or plate provided with numerals. Fig. 2 represents a key-plate provided with a series of perforations with numerals located adjacent to such. Fig. 3 represents a sectional view of the combination of the key-plate and numeral-card in line *x x*, as shown in Fig. 1, showing a guide projection; and Figs. 4 and 5 represent modified views of the parts hereinbefore mentioned. Fig. 4 represents the said numeral plate or card provided with overhanging flanges serving as guideways for the key-plate, and Fig. 5 represents an edge view of the key and numeral plates in their relative positions to each other. Fig. 6 represents an end view of the key or card plate's overhanging flanges; and Fig. 7 represents the tablet with key in position, exposing the sum total of the several columns.

A represents a card or plate provided with

numerals (represented at *a a a*) arranged in columns thereon. It is obvious, however, that the card-surface may be made of any suitable material, although the most convenient is the ordinary card-board.

B represents a key-plate provided with perforations (represented at *h h h*) of a number to correspond to the number of figures contained in the sum total or result of the calculation of the numerals on the said card or plate A, and are numbered as represented at *fff* in Fig. 2, to enable the numerals exposed through them to be read consecutively in their order.

C C represent slits located at or near the side of the card, serving as guideways in the said numeral plate or card A, which receives the projections with which the said plate B is provided, thereby serving as guides, the projections being represented at *c c*, the details of which are more clearly shown in Fig. 3 of the drawings at C and *c*. It is obvious, however, that the slits and projections may be reversed and the said card or plate A be provided with lugs or projections and the key-plate B provided with the slits or guideways. The numeral-card A (represented in Fig. 4) is in the present instance provided with flanges, (represented at D D D,) bent and made to overhang in a manner to form guides for the key-plate B. The key-plate B may be provided with the flanges, which we deem better for practical purposes, the object being to have one or the other of the said numeral and key plate guided or held in its relative position to the other, so as to expose the proper figures representing the sum or amount. It is again obvious that the proper combination of the numeral-card and key-plate may be made without the employment of the special means described by having them of equal size and place the key-plate on the numeral-card flush at the edges, the perforations being located in their proper position to expose or present the correct sum or amount.

The card or plate illustrated in the drawings represents five columns of numerals, each column containing twelve figures. The correct sum total amounts to seven hundred and forty-seven thousand seven hundred and ninety-six. The perforations with which the key-plate is provided are so located as to expose the neces-

sary figures representing the correct sum total, and in the present instance such openings are numbered from 1 to 6, consecutively, which numerals serve to direct the teacher or reader to commence with a figure exposed at the opening at No. 1, following with the figures exposed at Nos. 2, 3, 4, 5, and 6, which discloses 7 4 7 7 9 6.

It will be understood that the number of columns, as well as the numerals contained in such, may be varied more or less, and the figures selected therefrom over which the perforations with which the key-plate is to be provided may be located, it being more desirable to have the perforations made so as to form a circle as near as possible, or some other arrangement that will enable the reader to follow a direct path rather than an irregular one.

In subtracting, the teacher or prompter may pass or hand out a card containing the same figures, with which the card already described and shown is provided, instructing the pupil or other person to deduct therefrom any sum—as from the card shown, for instance, deduct 36665, which is the third row of figures from the bottom thereof. The result or remainder would be 711131. A perforated key disclosing the figures constituting the remainder would immediately show the beholder the answer to the problem.

Having thus set forth my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. A mathematical tablet consisting of a card or plate provided with columns of numerals and slots or guideways, and a perforated key-plate or counterpart, through which the sum total of the said columns may be read, provided also with numerals adjacent to said perforations, and with projections or arms for entering the said slots or guideways, substantially as described, and for the purpose set forth.

2. The combination, in a mathematical tablet, of a card or plate, A, provided with columns of numerals, a perforated key-plate, B, and flanges D, secured to one of the said plates, all arranged and operated substantially as described, and for the purpose set forth.

3. A mathematical tablet consisting of a card or plate provided with columns or lines of numerals, and a key-plate adapted to cover the former, provided with perforations so arranged thereon as to expose certain of the numerals forming part of the said columns when placed in proper position thereon, said key-plate being also provided with the proper numeral located adjacent to each of the said perforations, thereby serving to indicate the direction for reading the sum total, substantially as described.

J. NEWTON SMITH.

Witnesses:

JOHN DANE, Jr.,
CHARLES F. DANE.