

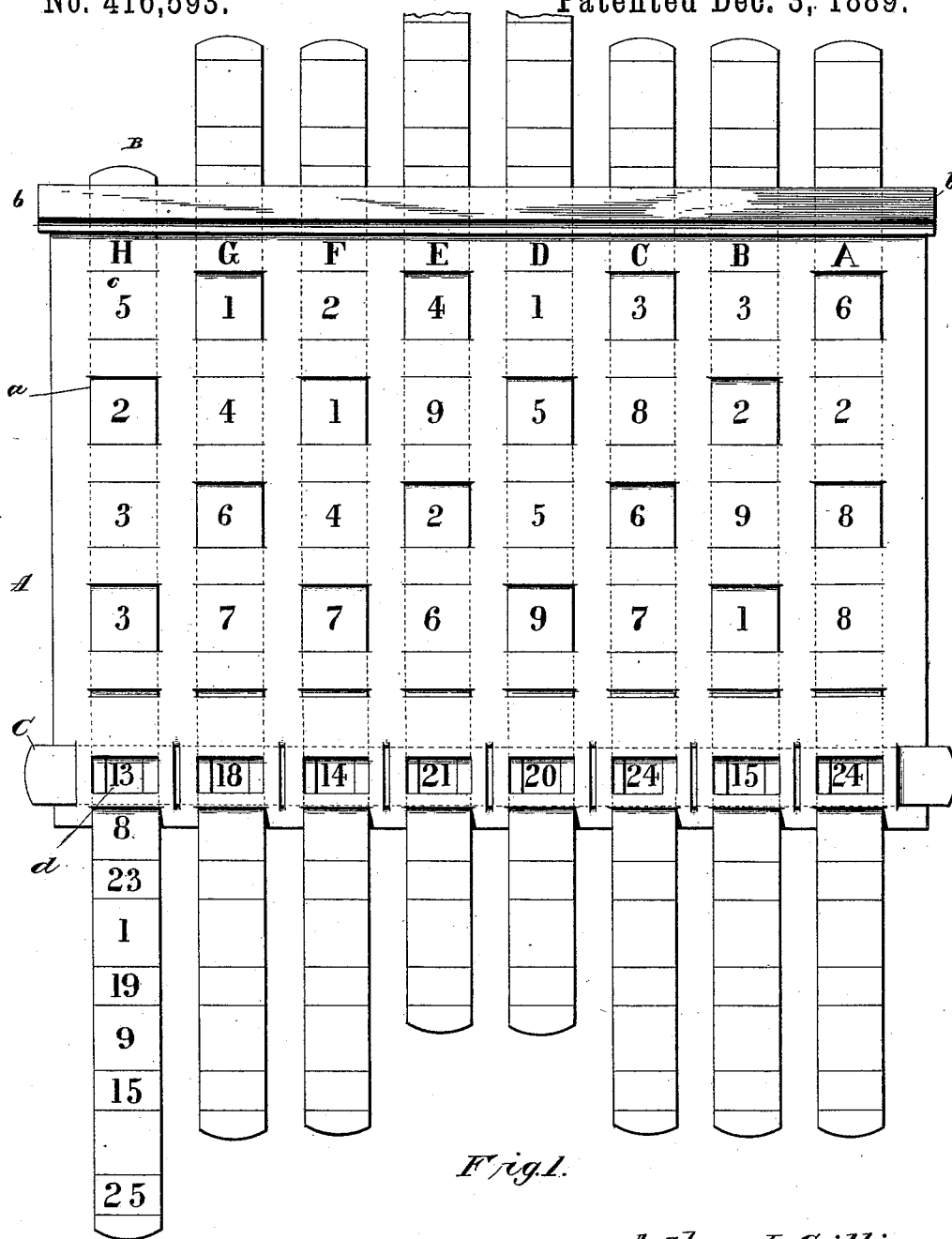
(No Model.)

2 Sheets—Sheet 1.

A. L. GILLIS.
CHART FOR TEACHING ADDITION.

No. 416,593.

Patented Dec. 3, 1889.



Arthur L. Gillis.

Witnesses

G. S. Elliott.
E. Johnson

Inventor

By his Attorney

[Signature]

(No Model.)

2 Sheets—Sheet 2.

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Fig. 2.

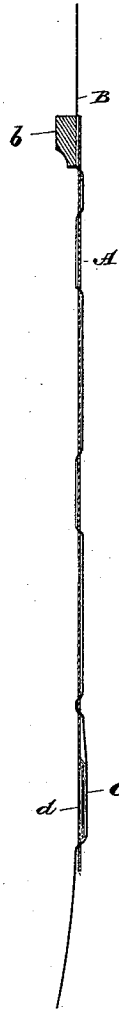
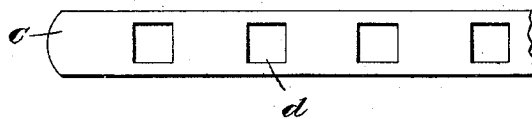


Fig. 3.



Witnesses

G. S. Elliott.
E. M. Johnson

Arthur L. Gillis.
Inventor

By *MS* Attorney

[Signature]

UNITED STATES PATENT OFFICE.

ARTHUR L. GILLIS, OF MOUNT PLEASANT, IOWA.

CHART FOR TEACHING ADDITION.

SPECIFICATION forming part of Letters Patent No. 416,593, dated December 3, 1889.

Application filed September 19, 1889. Serial No. 324,390. (No model.)

To all whom it may concern:

Be it known that I, ARTHUR L. GILLIS, a citizen of the United States of America, residing at Mount Pleasant, in the county of Henry and State of Iowa, have invented certain new and useful Improvements in Addition-Charts; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

My invention relates to charts for teaching addition; and it consists in the improved device hereinafter described and set forth, whereby a simple and efficient arrangement is provided for the purpose stated.

In the accompanying drawings, forming a part of this specification, Figure 1 is a front view of a chart embodying my improvements. Fig. 2 is a vertical longitudinal section of said chart. Fig. 3 is a detail view of a section of the slide for concealing the sum of the several columns.

The body of the chart consists of the main rectangular section A, which is provided with a series of openings *a*. At the top of said chart a transverse wooden strip *b* is located, which serves to stiffen and brace the chart at such point, and may be arranged to present an ornamental molding and serve as a means for strengthening or suspending the chart. A series of vertical strips B are inserted through the bottom of the section A, so that each of a series of numerals on each strip may be displayed or exhibited through one of the openings of the section. The strips B are each of such length that they extend beyond the bottom and top edges of said section A to enable them to be readily drawn in either direction by hand to shift or change the display of numerals through the openings *a* in the section A. It will be noted that the openings *a* in each horizontal series alternate with those of the next series above and below. The intermediate or dead spaces *c* on the face of the section A are provided with certain numerals, as indicated in the drawings. The

alternating feature of the openings *a* does not occur in the matter of the bottom series of openings, where they are extended continuously across the section, so that an opening is provided for each vertical column or strip. Between each pair of openings of the bottom series the main section A is provided with a pair of vertical slots to enable the transverse slide C to be looped therethrough, the said slide being most clearly shown in Fig. 3, and contains a series of openings *d*, thus enabling the slide to be shifted transversely in either direction to either display or conceal the figures of the several strips in said bottom series of openings.

To designate the several vertical columns or series the section A has upon its face, beneath the strip *b*, a number of alphabetical characters, which, as shown, extend from A to H, inclusive, and each individually designates one of the several columns. It will be noted by reference to Fig. 1, and more particularly by the lower exposed portion of the strip in the column H, that each of said strips in its several divisions throughout is provided alternately with numerals of greater and less value, the arrangement being such that when any one of the strips is so adjusted in its column that two of its figures of less value are displayed through the opening *a* of that column said displayed figures, in connection with the figures in the dead-spaces C of the section, will represent a total indicated by the number of the strip exhibited through the lower opening of the section. Thus it will be seen in Fig. 1 that figures 5 and 3 appear on the respective dead-spaces of the section, while the figures 2 and 3 on the strip are exhibited through the openings *a* therein, which collectively amount to the sum of 13, exposed through the lower opening of the section.

In use the teacher may adjust the several strips to obtain a different total in each column, and before exposing the same to the pupils or scholars shift the transverse slide C, so that the totals are all concealed, and different scholars may be required to compute the total number of the individual columns by selecting said columns with reference to their alphabetical designation. Two or more columns may be used for a single ex-

ample, and the product can be ascertained by simply adding the two products of each column, which are indicated together. It will therefore be seen that the device is very
5 simple and inexpensive and highly serviceable in teaching scholars to rapidly add or calculate the sum total of a series of numbers.

I claim—

10 1. The combination, with a main section A, having a number of vertical openings and dead-spaces intermediate of the same provided with numerals, of a series of vertical strips looped through said section and provided with numerals of alternating greater
15 and less value to expose the same through the opening in the section and indicate at the bottom opening in the section the total number of figures in the openings and dead-spaces above, substantially as set forth.

20 2. The combination, with the main section provided with a number of openings arranged in vertical series and relatively alternating, as described, of a number of strips looped

through said section and provided with alternating numbers of greater and less value and
25 adapted to be exposed through the openings in said section, numerals or figures located in the dead-spaces of the section, and a transverse slide adapted to conceal the figures of greater value exposed through the bottom series of openings, substantially as set forth. 30

3. The combination, with a main section having alternating openings and numbered dead-spaces, of a continued bottom series of openings, as described, strips B, having alternating numbers of greater and less value
35 looped through said section, and a strengthening or re-enforcing strip arranged transversely at the top of said section, substantially as set forth. 40

In testimony whereof I affix my signature in presence of two witnesses.

ARTHUR L. GILLIS.

Witnesses:

JAMES R. GILLIS,

EDWARD S. HOWARD.