

No. 841,413.

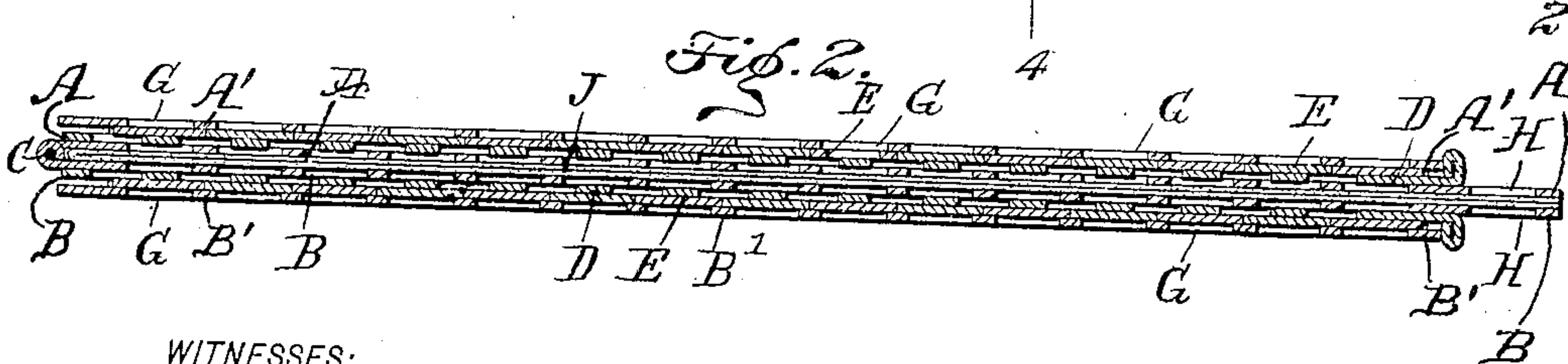
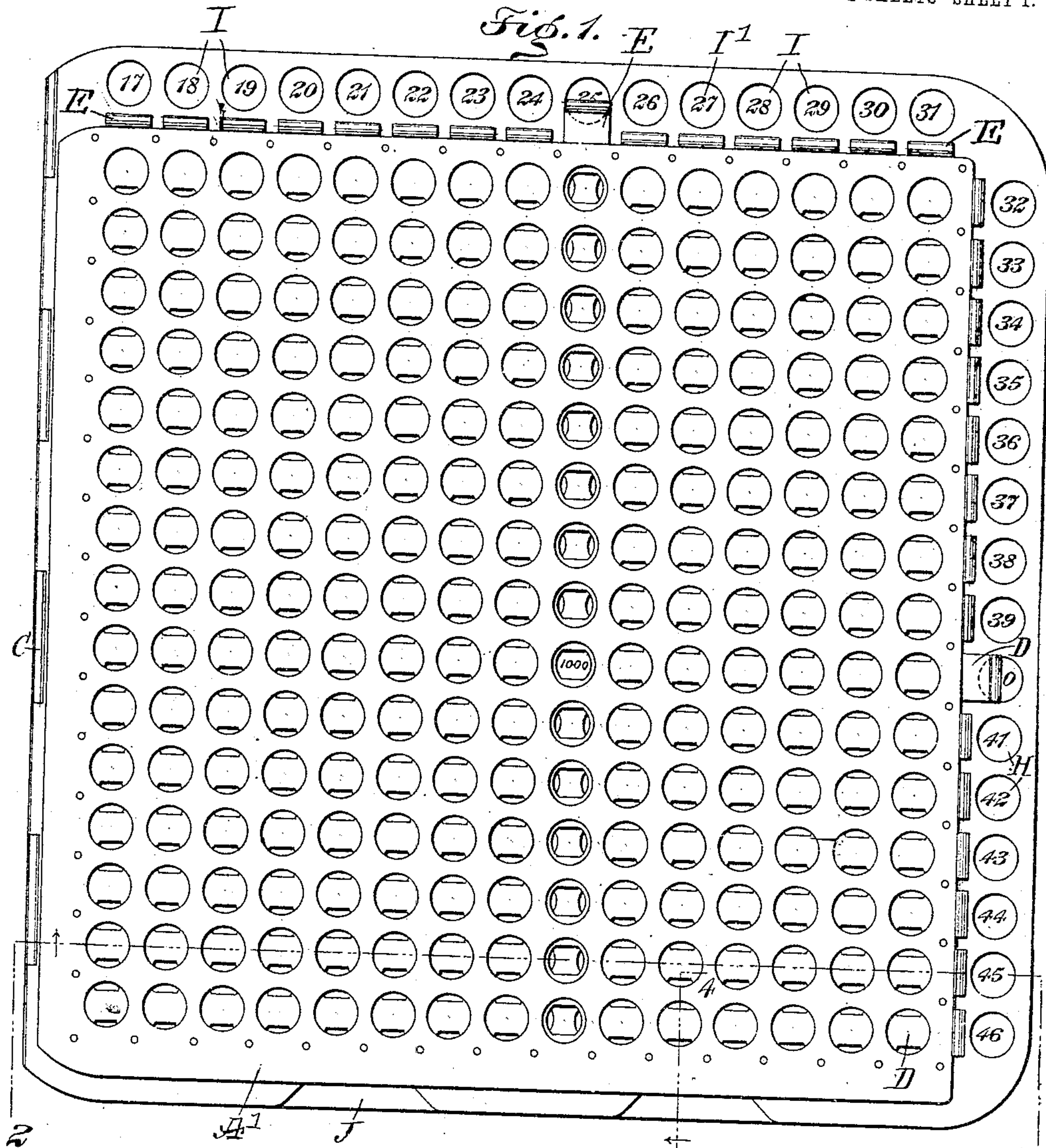
PATENTED JAN. 15, 1907.

K. H. J. MARCKWORDT.

CALCULATOR.

APPLICATION FILED DEC. 16, 1905.

2 SHEETS—SHEET 1.



WITNESSES:

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2 SHEETS—SHEET 2.

Fig. 3.

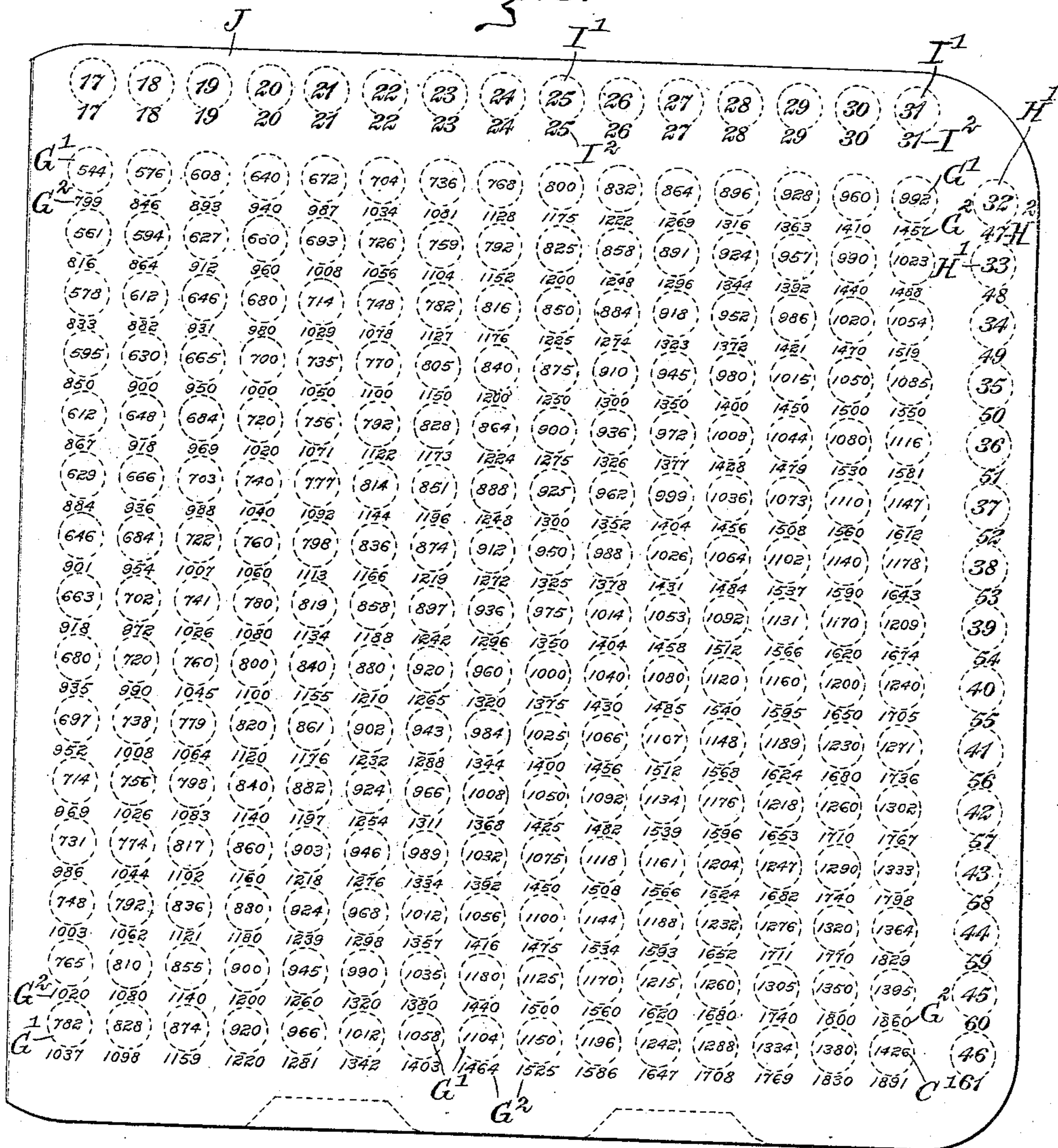
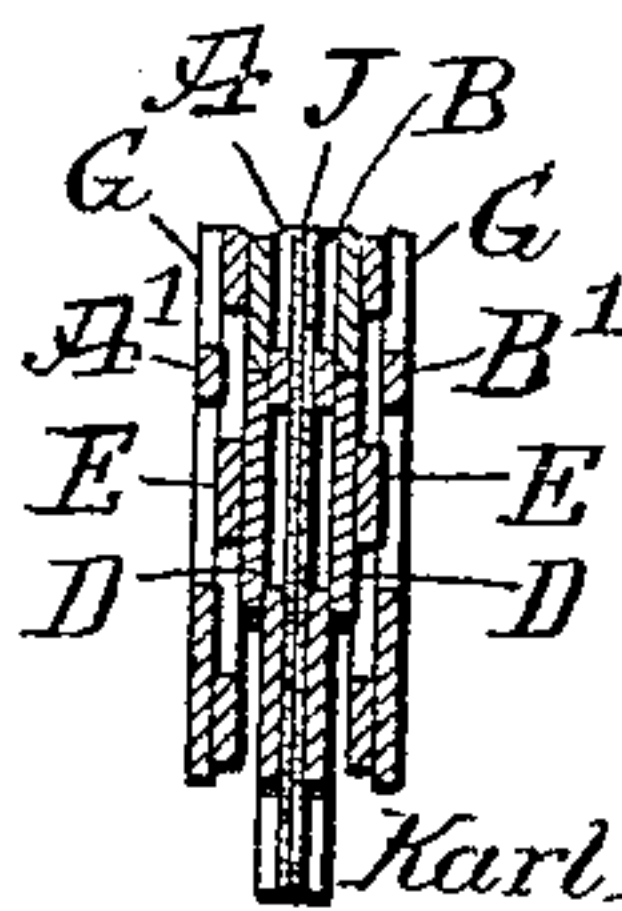


Fig. 4.



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KARL HEINRICH JOHANN MARCKWORDT, OF GUATEMALA, GUATEMALA.

CALCULATOR.

No. 841,413.

Specification of Letters Patent.

Patented Jan. 15, 1907.

Application filed December 16, 1905. Serial No. 292,023.

To all whom it may concern:

Be it known that I, KARL HEINRICH JOHANN MARCKWORDT, a subject of the German Emperor, and a resident of Guatemala, Guatemala, Central America, have invented a new and Improved Calculator, of which the following is a full, clear, and exact description.

The invention relates to calculators, such as shown and described in the application for Letters Patent of the United States, Serial No. 282,072, filed by me October 9, 1905.

The object of the present invention is to provide a new and improved calculator designed for quickly and accurately carrying out a large number of arithmetical calculations, such as calculating wages, volumes, multiplication, degrees of alcohol, lumber measurements, degrees of sugar pulverization, and the like.

The invention consists of novel features and parts and combinations of the same, which will be more fully described hereinafter and then pointed out in the claim.

A practical embodiment of the invention is represented in the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a plan view of the improvement. Fig. 2 is a sectional side elevation of the same on the line 2 2 of Fig. 1. Fig. 3 is a face view of one of the tables, and Fig. 4 is a cross-section of the same on the line 4 4 of Fig. 1.

In the construction of the calculator presently to be described in detail use is made of plates or leaves A and B and slides D and E, similar in construction to the same parts shown and described in the application above referred to, the main improvement being in the tables J, each arranged to accommodate a large number of calculations, as hereinafter more fully explained. The plates or leaves A and B are provided with face-plates A' and B' and are connected with each other at one side by a hinge C to allow of swinging the plates A and B into an open position for the convenient insertion or removal of the desired table J.

Between the face-plates A' and B' and their plates A and B are mounted to slide sets of transverse slides D and sets of longitudinal slides E, the slides being superimposed and provided with apertures adapted to register with calculating-apertures G, formed in transverse and longitudinal rows

in the plates A and B and their face-plates A' and B'. Now when the slides D and E are drawn into an outermost position their apertures register with the corresponding calculating-apertures G. Each of the plates A and B is also provided with rows of factor-apertures H and I, located near the margins of the plates A and B, as plainly indicated in the drawings. The slides D and E have a limited sliding movement, the same as the slides shown and described in the application above referred to, so that further description of the limiting-stops is not deemed necessary.

Each of the calculating-tables J to be used in connection with the apparatus contains sets of marginal rows of numerals H' H² and I' I², adapted to register with the apertures H and I whenever a table J is placed on the inner face of the corresponding plate A or B and is shifted on the said plate to bring one of each set of numerals H' or H² and I' or I² in register with the corresponding apertures H and I. Each of the tables J is also provided with calculations G' and G², indicating the product of the factors contained in the corresponding rows of numerals H' I' and H² I², and other of the said calculations G' and G² are adapted to register with the apertures G when the calculating-table J is shifted, as above explained, it being understood that the apertures in the slides D and E disclose the calculations when the proper slides are drawn out. As shown in Fig. 3, the row of marginal numerals H' contains the consecutive numerals from "32" to "46," and the row of marginal numerals H² contains the following numerals—that is, from "47" to "61." Both marginal rows of numerals I' and I² are shown alike—that is, disclose the consecutive numerals from "17" to "31;" but it is evident that this may be varied—that is, one of the rows may contain the numerals from "1" to "16" and the other from "17" to "31." The calculation-numerals G' are the product of the corresponding marginal numerals H' and I', while the calculation-numerals G² are the product of the marginal numerals H² and I². If this multiplication-table J is placed in position on the main face of the plate A, so that the numerals H', I', and G' register with the apertures H, I, and G, and it is desired to obtain, for instance, the product of the factors "40" and "25," then the slide D opposite the numeral "40" of the numeral H' is drawn out, and in a like manner the slide E of the numeral "25" is

drawn out, so that the product is disclosed at the intersection of the two slides by "1000," as plainly shown in Fig. 1. When it is desired to make use of the numerals H^2 and I^2 , it is only necessary to shift the table J under the plate A until the numerals H^2 and I^2 register with the apertures H and I.

Although I have shown but one table J for multiplication purposes, it is evident that other tables may be used containing the necessary factors and products for carrying on other calculations than the ones mentioned.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

A calculating device, comprising a plate having calculation-apertures arranged in transverse and longitudinal rows for disclosing the product of the calculation, the plate

also having marginal rows of factor-apertures for disclosing factors, sets of transverse and longitudinal slides for opening and closing the said apertures, the slides having apertures adapted to register with the calculation-apertures, and a table adapted to be placed and shifted on the rear face of the said plate and having sets of marginal factors, either of which is adapted to appear through the factor-apertures and sets of product calculations, either of which is adapted to register with the said calculation-apertures.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

KARL HEINRICH JOHANN MARCKWORDT.

Witnesses:

FRIEDRICH WILHELM KURL BILLET,
JULIO ESCAMILLA.