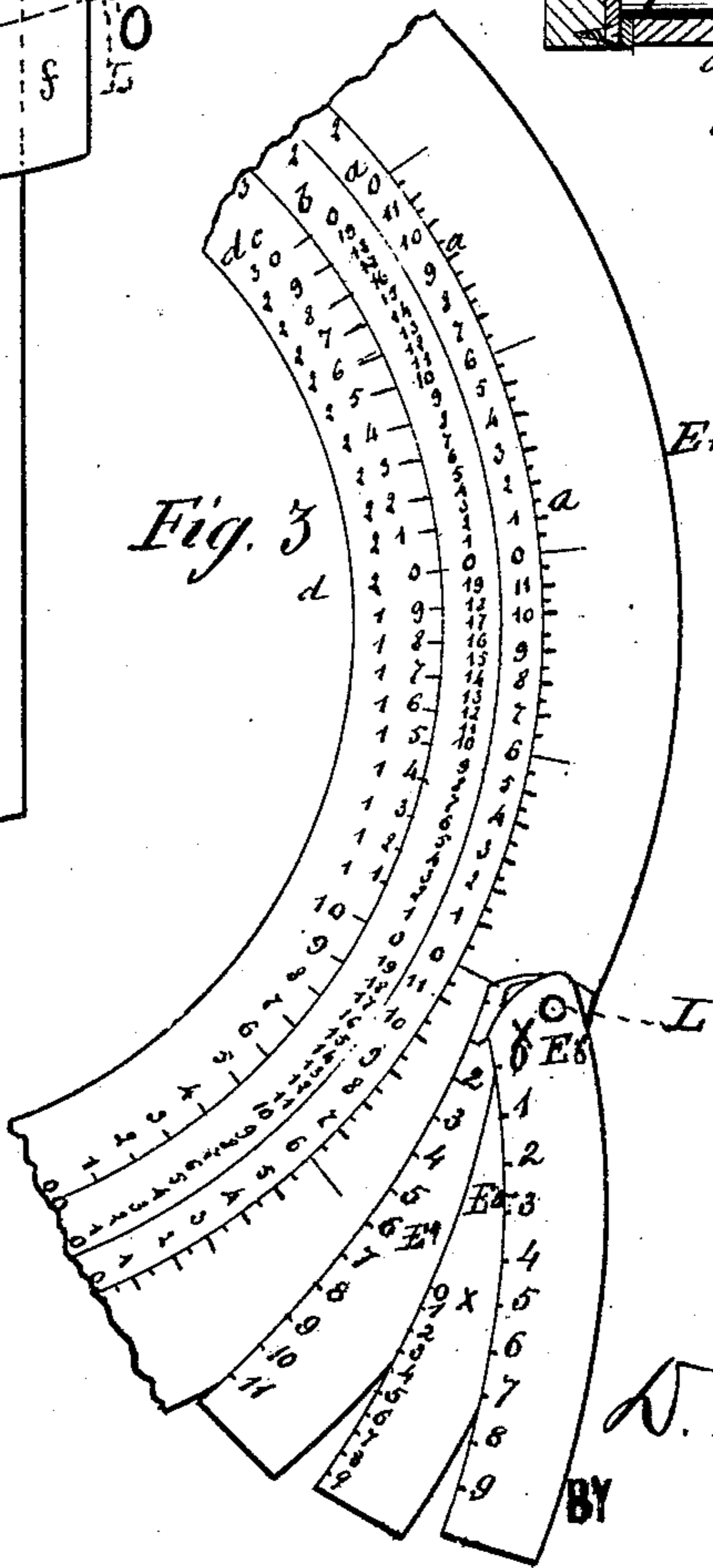
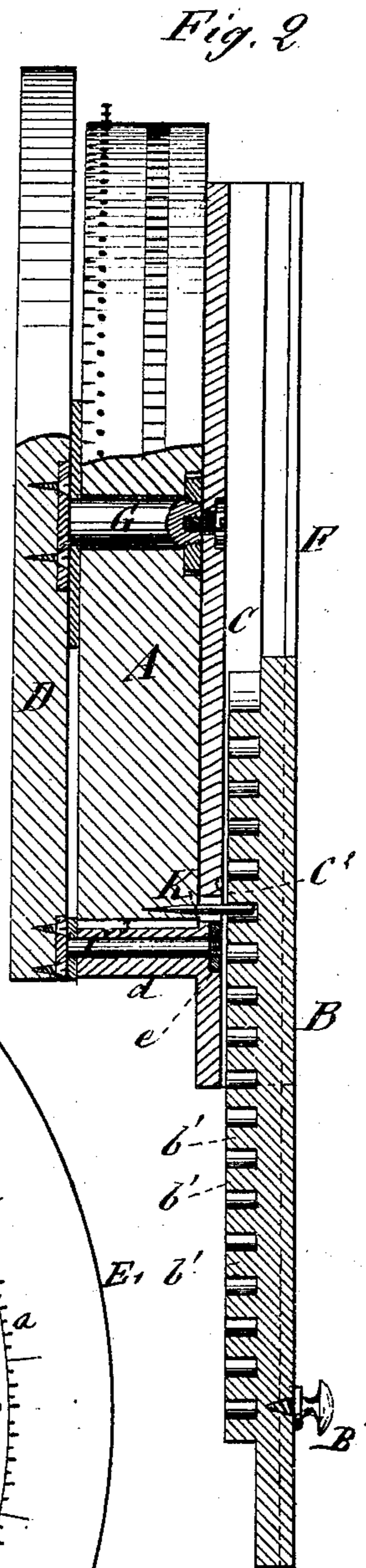
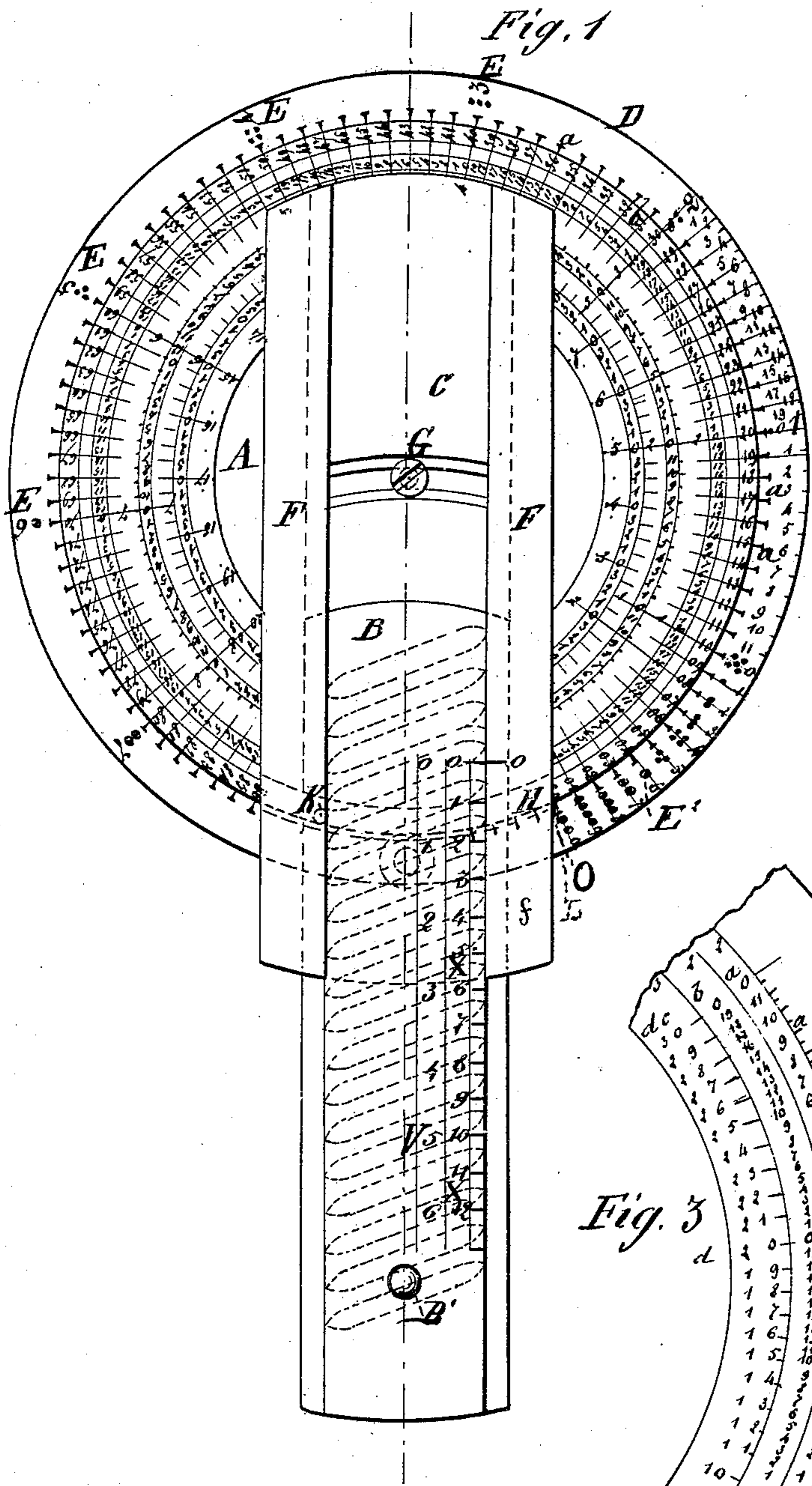


# ADDING-MACHINE.

No. 170,708.

Patented Dec. 7, 1875.



**WITNESSES:**

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**BY**

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## IMPROVEMENT IN ADDING-MACHINES.

Specification forming part of Letters Patent No. **170,708**, dated December 7, 1875; application filed November 30, 1874.

*To all whom it may concern:*

Be it known that I, DENNIS L. R. BUTT, of Pilot Point, in the county of Denton and State of Texas, have invented a new and Improved Adding-Machine, of which the following is a specification:

Figure 1 is a plan view of my improved adding-machine. Fig. 2 is a sectional elevation taken on the line *xx* of Fig. 1. Fig. 3 is a plan of a portion of the machine, showing a modified arrangement.

Similar letters of reference indicate corresponding parts.

The simplest form of the machine consists, essentially, of the wheel A, Fig. 1, say sixteen inches in diameter, with one hundred teeth or projections, *a*, on the rim, a half inch apart. On the surface of the wheel, near the rim, at *b*, are the numbers, from 1 to 100, inclusive, opposite the projections. This wheel turns on a pivot, G, underneath the bottom C of the frame F and slide B.

Around the wheel is a circular stationary rim, D, upon which are raised figures or characters E, representing the numbers from 0 to 10, inclusive—one for every ten of the teeth or projections of wheel A. Opposite the first ten, or from 0 to 10, are the same raised figures or characters in reversed order, one at each projection marked E<sup>2</sup>.

F is a grooved bar, in which the slide B reciprocates. Upon the latter are inscribed the numbers *f*, from 0 to any number desired. On the under side, and corresponding with the numbers on top, are the cleats or ribs *b'*, which are set at such an angle with B that the pin K on the wheel A moves the slide B one number each revolution, or one hundred, on A.

The edges of B on the underside are rounded, making it convex, so that the top of the pin K will raise the slide B above the catch C<sup>2</sup> before moving it one space. This catch is set at the same angle with the cleats *b'*, and should be about half the height of those pieces. It is intended to prevent the slide B from moving except when actuated by the pin K. Through the bottom C, and in the block *d*, is a pivot, C<sup>3</sup>, by which the slide B and frame F C can be removed, so as to raise the wheel A above the pivot G, having first removed the fastening-nut *e*.

To add one column according to a regular scale of tens, set the point 0 of column *b* on wheel A to H, and slide the 0 on B to H; then move the projection *a* opposite 0 of E<sup>2</sup> toward H till it reaches the figure or character representing the first number to be added. Leaving it there, go back to 0 and move the projection then opposite it toward H till it reaches the second number to be added, and so on till the column is finished, when the units will be found in the outside line of column *b* on A, the tens in the inside line opposite the point 0 of E<sup>2</sup>, the hundreds in the line *f* on B. Set down the units, say 8, and keeping the hundreds, say 27, in mind, with the left hand take hold of the pin B', and, raising a little, push the slide back till 0 reaches H. At the same time with the right hand set the wheel A so that 27 will be at H; then proceed with the next column in the same manner.

To add two columns by a regular scale of tens, set the machine as before. Say 37 is the first number, find the tens, third section E on D, above 0 of E<sup>2</sup>, and move the projection of wheel that is opposite it toward H till it reaches the units 7 on E<sup>2</sup> below D, when 37 will appear at H. If 86 be the next number, find the tens in the eighth section E on D, above X' of E<sup>2</sup>, and move the projection to right toward H till it reaches the units 6 below 0 in E<sup>2</sup>, when 23 will appear at H, and 1 on the slide B. Continue the operation till the two columns are finished, when the units will be found in the outside line of column *b*, the tens in the inside line, the hundreds in *f* on B, and the thousands in line V on B. Set down the units and tens, say 54, and, while resetting the slide B, set the hundreds and thousands, say 14, on A at H. Add the next two columns as before, setting down the units and tens to the left of the 54.

To add one or two columns according to a varying scale, say 10 £, s., 12 *d.*, (pounds, shillings, pence,) a wheel, of which a fragment is shown in Fig. 3, is used having two rows of teeth or projections, *a*, the lower containing twelves, and the upper tens and twenties. The surface of the wheel has three concentric rows of figures, *a*<sup>2</sup>, *b*<sup>2</sup>, and *d* *c*, the outer of twelves, the middle of twenties, and the inner of tens—that is, ten tens, or one hundred, ten twelves,

or one hundred and twenty, and ten twenties, or two hundred.

The stationary rim D has raised figures or characters at each ten, as in Fig. 1. It has also the three pieces  $E^4$   $E^5$   $E^6$ , say of tin, with raised figures or characters, pivoted at L, corresponding in position with 0 on  $E^2$ , the bottom piece,  $E^4$ , containing the numbers from X to 12, the next,  $E^5$ , from X to 10, the top,  $E^6$ , from 0 to 10, on a scale double that of  $E^4$ . Other parts are the same as Fig. 1, having one pin, K, working the slide B.

Set 0 to H, as before. Move the tooth or projection which is opposite X 0 toward H till it reaches the first number of pence to be added, say 10, 1 X; then go back to X 0, and move the projection then opposite X 0 toward H till it reaches the second number to be added, and so on till the column is finished, when the pence will be found in the line  $a^2$ , the units of the shillings in the line  $d$ , and the tens of shillings in the line  $f$  B. Set down the pence, and in resetting B set the shillings, say 23, on  $b^2$  at H; then bring  $E^5$  to cover  $E^4$ , and the machine is ready for the shillings. If the first

number is less than ten, or if one figure, move the projection opposite X  $E^5$  toward H till it reaches the number to be added. If more than ten, or of two figures, move the projection opposite 11  $E^5$  or X 0  $E^4$  toward H till it reaches the units of the number, continuing the operation till the shillings are all added, when the odd shillings will be found in the line  $b^2$ , the units of pounds in the line  $d$ , the tens and hundreds of pounds on  $f$  B.

Set down the shillings and set B 0 to H, and set line  $d$  so that the tens and hundreds of pounds will be at H; then bring down  $E^6$  to cover  $E^5$ , and add the pounds like simple numbers.

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

The combination of the pieces  $E^4$ ,  $E^5$ , and  $E^6$  with the disk D, wheel A, frame F, and slide B, substantially as specified.

DENNIS L. R. BUTT.

Witnesses:

J. B. BIFFLE,

THOS. J. BELCHOR.