

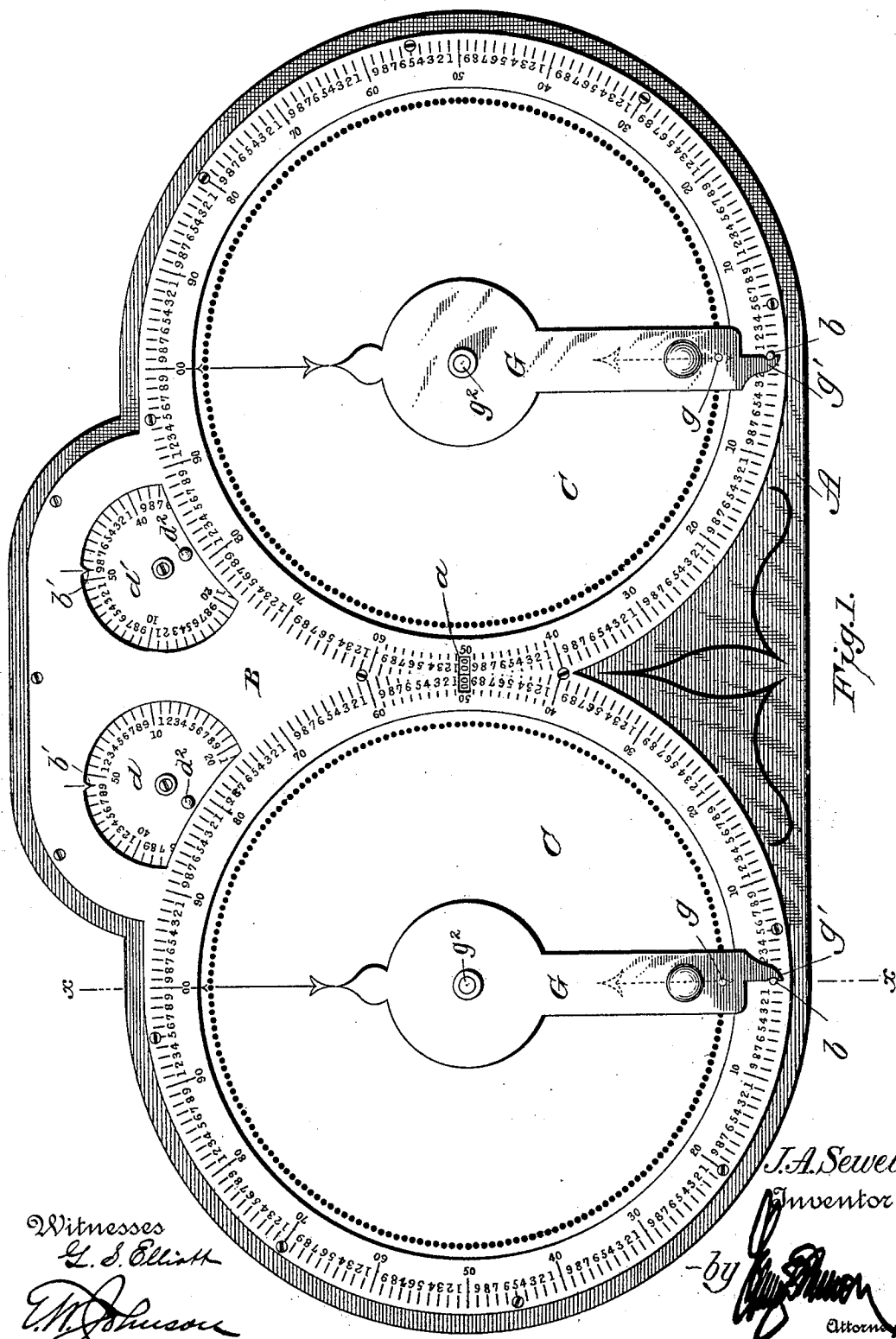
(No Model.)

2 Sheets—Sheet 1.

J. A. SEWELL.
CALCULATING MACHINE.

No. 519,973.

Patented May 15, 1894.



Witnesses

L. S. Ellish

W. M. Johnson

(No Model.)

2 Sheets—Sheet 2.

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Fig. 2.

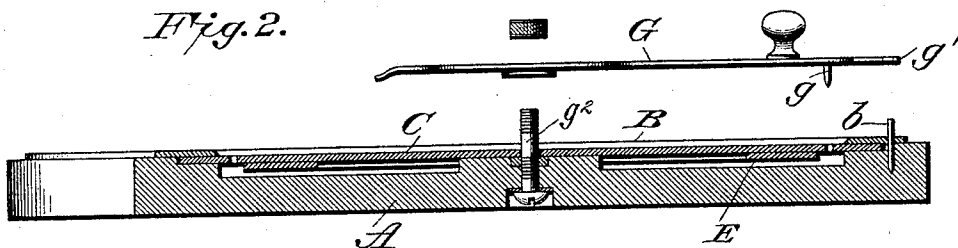


Fig. 3.

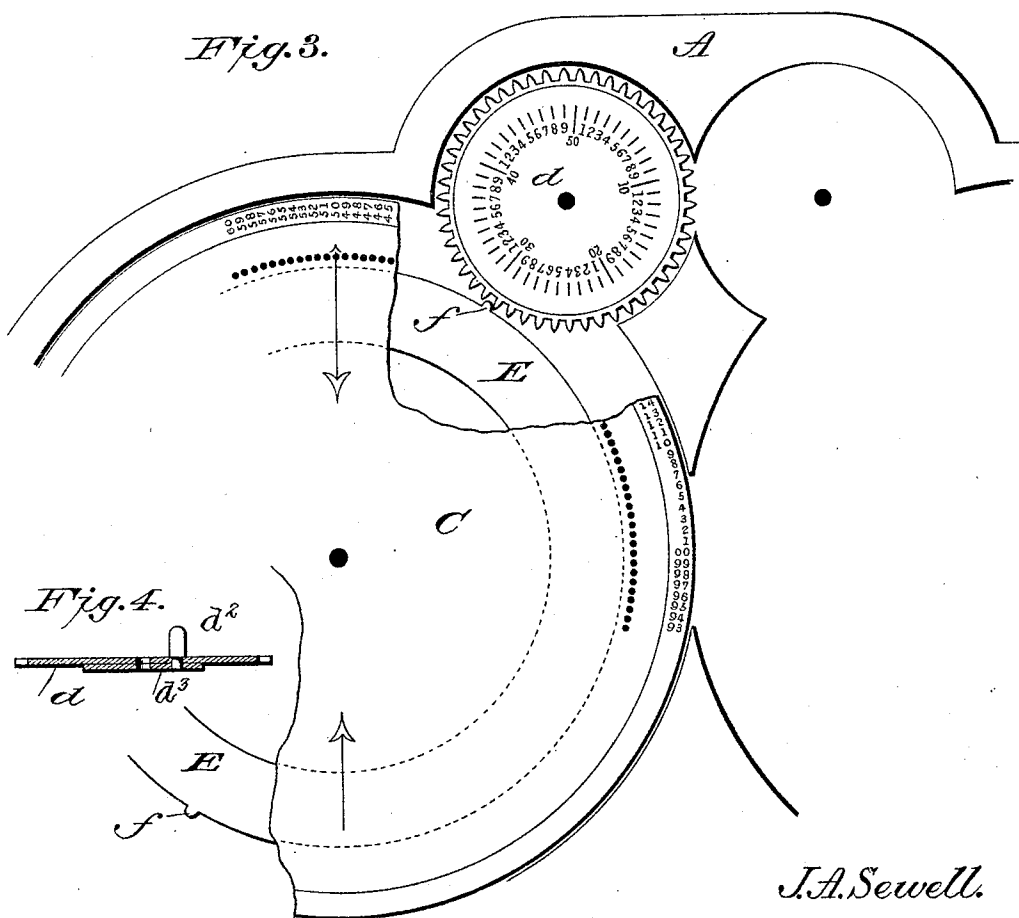
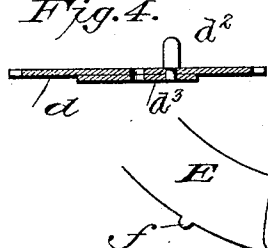


Fig. 4.

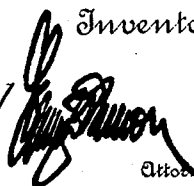


J. A. Sewell.

Inventor

Witnesses L. S. Elliott

E. M. Johnson

by  Attorney

UNITED STATES PATENT OFFICE.

JAMES A. SEWELL, OF CAMPTON, KENTUCKY.

CALCULATING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 519,973, dated May 15, 1894.

Application filed January 12, 1893. Serial No. 458,149. (No model.)

To all whom it may concern:

Be it known that I, JAMES A. SEWELL, a citizen of the United States of America, residing at Campton, in the county of Wolfe and State of Kentucky, have invented certain new and useful Improvements in Calculating-Machines; 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 of reference marked thereon, which form a part of this specification.

15 This invention relates to improvements in calculating machines; the object of the same being to provide a machine by means of which sums in both addition and subtraction can be readily computed.

20 In the accompanying drawings forming part of this specification: Figure 1 is a plan view of a calculating machine constructed in accordance with my invention, showing the same arranged for adding. Fig. 2 is a sectional view through the line $x-x$ of Fig. 1. Fig. 3 is a plan view of the calculating machine, with the covering plate removed and two of the disks in position, the larger disk being partially broken away to better show the construction of the same. Fig. 4 is a detail view of one of the registering disks.

30 A designates a suitable base, which is provided with recesses and with a covering plate B, said covering plate being apertured to only lie over the outer edges of the disks which are pivoted to the base, and it is also provided with a small aperture, a , through which the result of the computations may be seen.

40 C C designate disks or wheels, which are pivoted in the recesses in the base so that their adjoining edges will lie beneath the aperture a in the cover plate. These disks are each provided on its under side with an annular plate E, which is rigidly secured thereto and has outwardly projecting nibs f which engage with toothed wheels or registering disks, d d' so that said registering disks will be advanced one tooth upon each half rotation of the larger disks. The annular plates E are secured to the under side of the disks C to provide the projecting nibs f , and it is obvious that these nibs could be

formed or welded to the disks irrespective of the annular plates.

The outer edge of each disk C, which lies 55 under the cover plate B, is graduated on each side of a central line into one hundred equal spaces, said spaces being numbered from 1 to 100, extending half way around the disk, and then continued from 1 to 100 to extend 60 around the other half of the disk (as shown in Fig. 3). The cover plate, surrounding each aperture beneath which the disks lie, is also divided into a corresponding number of spaces, but said spaces are numbered from 1 to 100 65 commencing at the stop pin b and running in opposite directions therefrom, said stop pin being preferably located at the lower part of the device.

The disks C C are provided with perfora- 70 tions corresponding with the number of divisions thereon, and with said perforations engage pins g carried by the levers, G, mounted on the screws or spindles g^2 upon which the disks are pivoted, and beyond the pins g 75 the levers are provided with pointers g' which travel over the divisions on the cover plate.

The registering disks d and d' , located adjacent to each disk and operated thereby, as hereinbefore described, are each divided into 80 a proper number of spaces running from a starting point continuously around the disk, and these disks are set by moving them with the knob d^2 until the nib b' on the plate B points to the zero mark on said disks. 85

On the under side of each registering disk is placed a washer d^3 so as to bring the teeth of the disk on a line with the nibs f formed on the annular plates on the under side of the disks C. 90

The machine is set to zero prior to adding or subtracting by moving the disks C C until the zero marks appear through the aperture a , and the levers G are against the stop pins and on the inner side thereof as shown 95 in Fig. 1; now in adding together the numbers 70, 81, and 7, for instance, the lever G on the right hand side of the machine giving the units and tens is moved until the pointer g' points to the number 70 on the cover plate, 100 the pin g carried by the lever is then inserted in the perforation on a line with said number and the disk and lever turned back until the lever strikes the stop pin, the same oper-

ation is repeated with the numbers 81 and 7, when it will be noted that the registering disk d' has been moved one step by a half rotation of the disk C and will show 1, and the operator by moving the disk C on the left which indicates the hundreds and thousands a corresponding distance, or one step, will expose the figures 158 through the aperture a , which gives the sum total.

10 In subtracting numbers the levers are changed so as to locate the pointers on the outer side of the pins; now should it be desired to subtract 2536 from 2836, the disks should be turned until the minuend, or 2836, appears through the aperture a ; the lever G on the left is then moved to 25 on the plate B, and the lever on the right to 36, the pins g are inserted and both levers turned until they strike the stop pin b , which operation
20 moves the disk on the right, giving the units and tens, back thirty-six spaces—or to the zero mark—and the disk on the left, giving the hundreds and thousands, back twenty-five spaces showing the figure 3 in the hundredth
25 place, thus giving the result—300.

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

1. In a calculating machine, the combination, of two disks pivoted upon a base side by side and having their outer edges divided into equal spaces which are provided with holes and numbered from 1 to 100 extending half way round each disk and continued around the other half from 1 to 100, and a cover plate B attached to the base and provided with openings the edges of which overlap the edges of the disks, the overlapping portions being divided into spaces corresponding with the
40 spaces on the disks and numbered from 1 to 100 on each side of a point or pin, as b , the numbers commencing at said point or pin and extending therefrom in both directions, substantially as shown, and for the purpose set
45 forth.

2. In a calculating machine, the combination, of two disks C C pivoted upon a base side by side and having their edges divided into equal spaces which are provided with

holes and numbered from 1 to 100 extending
50 half way around each disk and continued around the other half of each disk from 1 to 100, said disks also having nibs $f f$ located diametrically opposite each other as shown, a cover plate B attached to the base and hav-
55 ing openings the edges of which overlap the edges of the disks, the overlapping portions of the plate being divided into equal spaces corresponding with the spaces on the disks and numbered from 1 to 100 on each side of
60 a point or pin, as b , the numbers commencing at said point or pin and extending therefrom in opposite directions, and disks or dials d and d' having numbered spaces and toothed peripheries which are engaged by the nibs $f f$
65 on the disks C C, substantially as shown, and for the purpose set forth.

3. In a calculating machine, the combination, of two disks C C pivoted upon a base side by side and having their edges divided
70 into equal spaces which are provided with holes and numbered from 1 to 100 extending half way around each disk and continued around the other half of each disk from 1 to 100, said disks also having nibs $f f$ located
75 diametrically opposite each other as shown, a cover plate B attached to the base and having openings the edges of which overlap the edges of the disks, the overlapping portions of the plate being divided into equal spaces
80 corresponding with the spaces on the disks and numbered from 1 to 100 on each side of a pin or point, as b , the numbers commencing at said pin or point and extending therefrom in opposite directions, and disks or dials d
85 and d' having numbered spaces and toothed peripheries which are engaged by the nibs $f f$ on the disks C C, together with levers G G removably mounted on the pivot pins of the disks C C and having a pointer g' and a pin
90 g , substantially as shown, and for the purpose set forth.

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

JAMES A. SEWELL.

Witnesses:

ROBT. TAYLOR,
ELI FARMER.