

W. M. BRIGGS.  
 Calculator.

No. 222,126.

Patented Dec. 2, 1879.

Fig. 1.

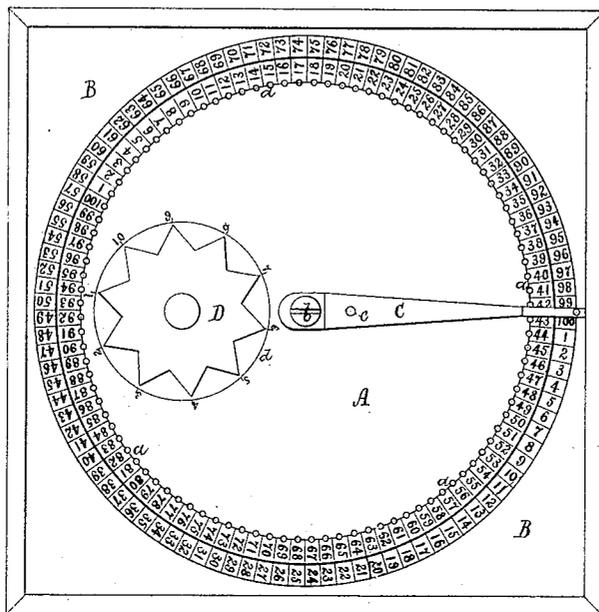
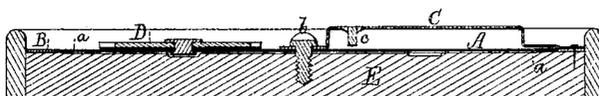


Fig. 2.



Witnesses  
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# UNITED STATES PATENT OFFICE.

WILLIAM M. BRIGGS, OF STOUGHTON, ASSIGNOR TO HIMSELF AND JOSIAH TISDALE, OF NORWOOD, MASSACHUSETTS.

## IMPROVEMENT IN CALCULATORS.

Specification forming part of Letters Patent No. **222,126**, dated December 2, 1879; application filed August 14, 1879.

*To all whom it may concern:*

Be it known that I, WILLIAM M. BRIGGS, of Stoughton, of the county of Norfolk and State of Massachusetts, have invented a new and useful Improvement in Arithmetical Calculators; and I do hereby declare the same to be described in the following specification and represented in the accompanying drawings, of which—

Figure 1 is a top view, and Fig. 2 a transverse section, of a mechanical calculator embracing my invention, the nature of which I have duly defined in the claim hereinafter presented.

In such drawings, A denotes a rotary disk or limb, pivoted at its center to a base-plate, E, on which it rests flatwise. On the upper surface of the said base-plate, and surrounding the limb or circular disk A, is a stationary divided limb or annular scale, B, which, at and near its inner periphery, is centesimally divided and numbered as represented—that is to say, it is divided into one hundred parts, and there is upon each division a number indicative of it.

The rotary limb or disk A is also similarly centesimally divided and numbered at and near its periphery in manner as represented, the number indicative of each centesimal sectoral division being placed on it.

Furthermore, the disk is centesimally punctured or perforated with holes, there being one hole to each division of the range of hundred holes shown at *a*.

A stationary flat arch, C, is extended from the pivot *b* of the rotary disk A to and partly over the ninety-ninth and one-hundredth divisions of the stationary limb B, and there projects down from such arch a small tooth or stud, *c*.

There is on the rotary disk a stellated wheel, D, which at its center is pivoted to the disk, and revolves within a circle, *d*, which, as shown, is divided into ten equal parts, and has the numbers from one to ten arranged therewith, as represented, the stellated wheel having ten teeth.

The above-described calculator may be employed in manner as follows: For adding a column of two figures to each number—that is

to say, should we desire to find the sum of the addition of the numbers 18, 24, and 36—we first, by a pin or awl inserted in the hole at the division 18 on the rotary limb, turn the said limb around on its pivot until the pin may bring up against the arch C, and thus carry the division 18 of the limb A against the division 100 of the stationary limb. The next number being 24, we insert the pin in that hole of the disk which is opposite the twenty-fourth division of the stationary limb and move the limb A, as before, until the pin may again bring up against the arch. Now opposite 36 on the scale of the stationary limb we shall find the number 78 of the movable limb, such number being the sum of the said numbers 18, 24, and 36.

The stellated wheel is to indicate on its scale each hundred in the sum of the numbers, as the said wheel should be so made and arranged that at the proper time in each entire revolution of the limb A it, (the said stellated wheel,) by being borne against the stud or tooth *c*, shall be revolved the necessary extent or arc of a circle to move each tooth of such wheel from one division to the next one on the circular scale immediately about the stellated wheel.

With an arithmetical calculator made as described a person may soon become very expert in effecting the addition of various numbers, and also can perform subtraction of one number from another, the result in either case being correct.

The stellated wheel may gear into another such wheel in a manner to revolve the latter one-tenth of a revolution during each entire revolution of the stellated wheel, the second stellated wheel being thus used to indicate the number of thousands in the sum of the numbers added together.

I am aware of the calculating-machines described and shown in the United States Patents Nos. 45,829, 74,170, and 99,226.

My calculator differs from these in having the stationary arch or bridge and stud projecting therefrom, and also in having the stellated wheel pivoted to the rotary disk, so as to have, when the latter is revolved, an orbital

movement about the axis of such disk, all of which is productive of advantage, particularly in respect to cheapness of construction and ease of operation. Therefore,

I claim as my invention as follows:

The improved calculating - machine constructed and to operate substantially as described, consisting of the rotary stellated wheel D, and centesimally numbered, punctured, and

divided disk A, and the stationary bridge or arch C and stud *c*, and centesimally divided and numbered limb B, arranged and adapted in manner and to operate essentially as set forth.

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Witnesses:

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