S. S. FRY.

CALCULATOR.

APPLICATION FILED MAR. 27, 1905.

Fig. 1.

Fig. 2.

Fig. 3.

Fig. 4.
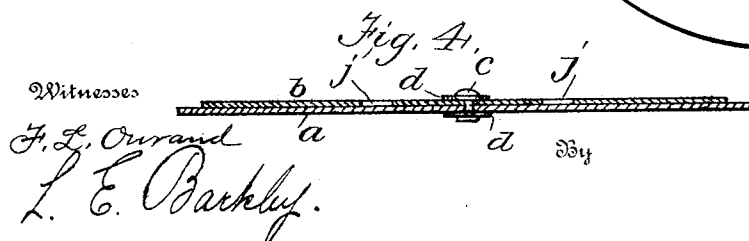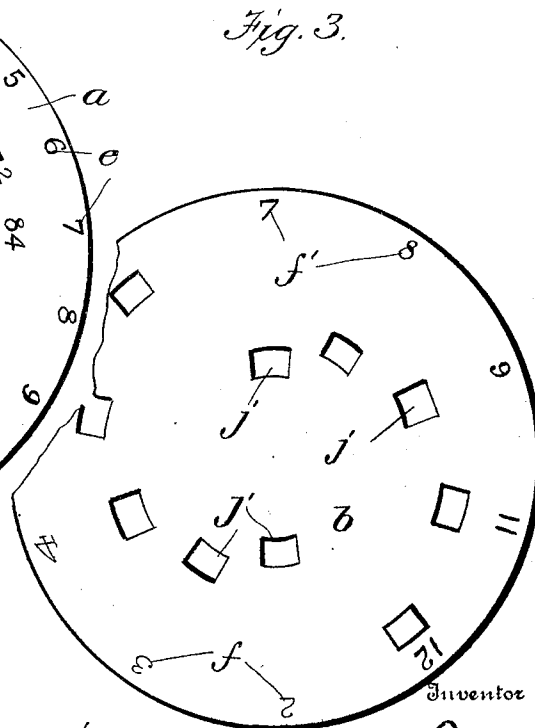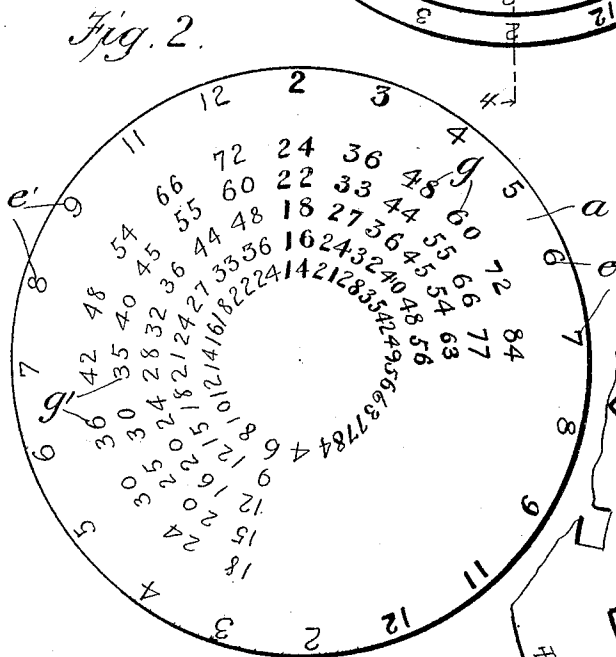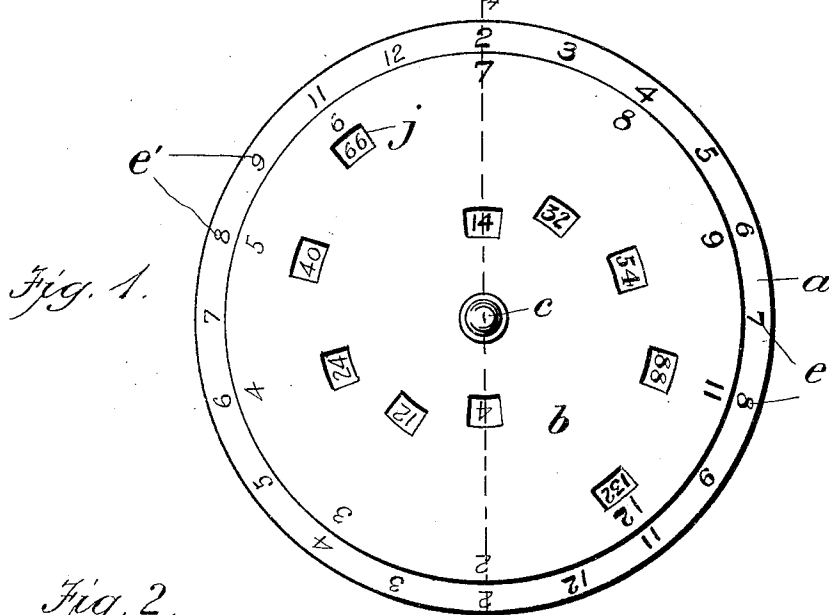
Witnesses

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UNITED STATES PATENT OFFICE.

SPEED S. FRY, OF BRECKENRIDGE, COLORADO.

CALCULATOR.

To all whom it may concern:

Be it known that I, SPEED S. FRY, a citizen of the United States of America, residing at Breckenridge, in the county of Summit and State of Colorado, have invented certain new and useful Improvements in Calculators, of which the following is a specification.

This invention relates to calculators, and more particularly to that class employed in multiplying.

It has for an object the provision of novel arrangement of parts whereby the "result" of two numbers of constant or frequent use can be easily and readily obtained.

It is also an object of this invention to produce a device of this kind in which two disks are employed, one of said disks carrying the "multiplicand" and result, while the other disk carries the "multiplier" and means whereby the result is identified.

With the foregoing and other objects in view the invention consists in the details of construction and in the arrangement and combination of parts, to be hereinafter more fully set forth and claimed.

In describing the invention in detail reference will be had to the accompanying drawings, forming part of this specification, wherein like characters denote like and corresponding parts in the several views, in which—

Figure 1 is a top plan view of the invention. Fig. 2 is a top plan view of the multiplicand-disk, a portion of the results being omitted. Fig. 3 is a plan view in fragment of the multipler-disk. Fig. 4 is a sectional view taken on the line 4 4 of Fig. 1.

In the drawings, *a* indicates a bottom disk of suitable diameter, and *b* a second disk of less diameter. The two disks are centrally pivoted one to the other by means of the pin *c* or the like. The two disks are free to rotate independently, and to guard them against wear caused by the pin *c* suitable protecting-plates *d* are interposed between the heads of the pin and the disks.

Around the edge of the disk *a* are positioned series of numbers *e* and *e'* to be multiplied, (the multiplicand,) and around the edge of the disk *b* are arranged the numbers to be multiplied, as the multiplier. Each of the series of multiplicands is in duplicate, and one series is distinguished from the other by different coloring or formation of the figures. The multipliers are also divided into two series *f* and *f'*, preferably of equal number, but not in duplicate. These are distinguished either by suitable coloring or formation, but the identity of the multiplier series must coincide with the identity of the multiplicand series. Arranged beneath each multiplicand on a radial line therewith is a series of numbers *g* and *g'*, which are the same in color or formation as the multiplicands. These numbers, the results of the multiplicand and of all the multipliers of the same identity, are arranged in such a manner that all the results of one multiplier are in a segment concentric with the multiplicands.

The disk *b* is provided with a plurality of apertures *j*, which are arranged beneath each multiplier and so positioned that the aperture of each multiplier coincides with the circle of results of that multiplier. These apertures are divided into series reversely and spirally arranged, one series of apertures acting in conjunction with coinciding series of numbers. By this arrangement advantageous results can be obtained by making the device comparatively small, while the numbers thereon do not have to be reduced in size. Thus it can be seen that when it is desired to multiply two numbers on the disk it is but necessary to turn one or both of the disks on the pivot until the numbers to be multiplied are in radial alinement, when the aperture of the multiplier-disk will register with the result of the two numbers.

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

In a device of the character described, a disk having a series of numbers in duplicate around its edge, of different identities, each number having arranged therebeneath on a radial line, series of numbers of the same identity, a second disk pivoted to the first-named disk, said disks having series of reversely and spirally arranged apertures, said

disk having series of numbers around its edge of different identities but coinciding with the identities of the series of the first-named disk, said series of the second-named 5 disk not being in duplicate, coinciding series of the disks and one of the series of the apertures all acting in conjunction one with the other.

In testimony whereof I affix my signature, in the presence of two witnesses, this 22d day 10 of March, 1905.

SPEED S. FRY.

Witnesses:
GEO. F. FORMAN,
W. W. WHARTON.