G. M. FRITZ.

CALCULATOR.

APPLICATION FILED NOV. 30, 1914.

1,156,770. Patented Oct. 12, 1915.

Fig. 1.

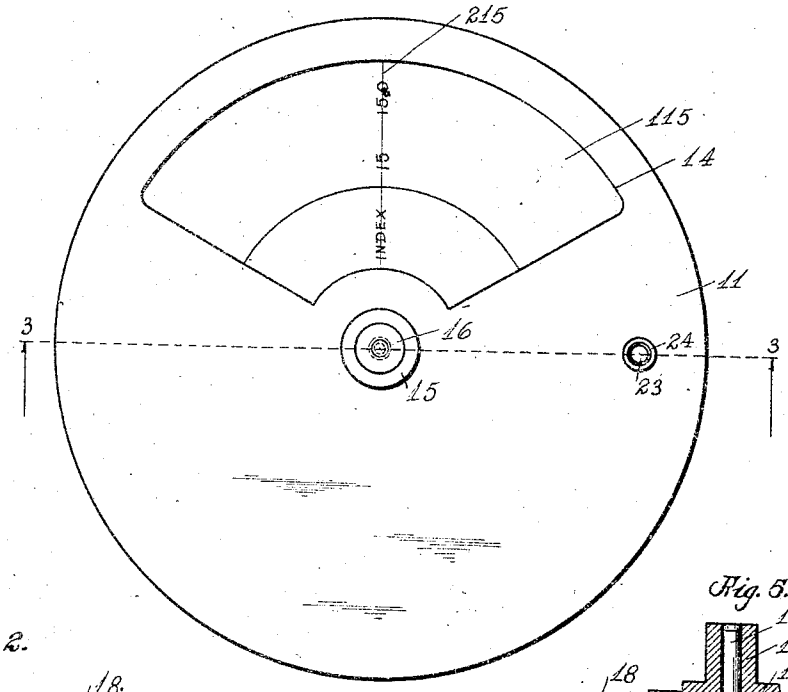


Fig. 2.

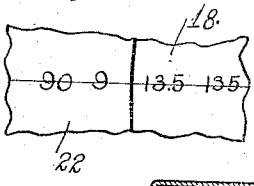


Fig. 3.

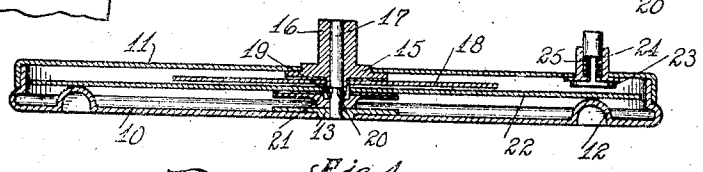


Fig. 5.

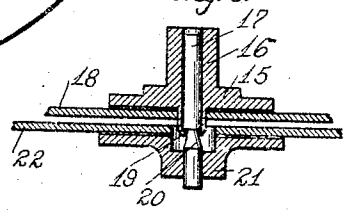
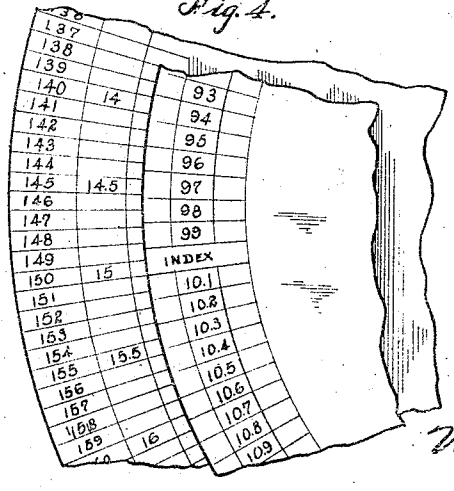


Fig. 4.



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CALCULATOR.

1,156,770. Specification of Letters Patent. Patented Oct. 12, 1915.

Application filed November 30, 1914. Serial No. 874,734.

To all whom it may concern:

Be it known that I, GEORGE M. FRITZ, a citizen of the United States, and a resident of Indianapolis, county of Marion, and State of Indiana, have invented a certain new and useful Calculator; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, in which like letters refer to like parts.

The object of this invention is to improve the construction and operations of simple and rapid calculating devices adapted for use by bookkeepers, merchants and others.

The invention consists chiefly in providing a pair of disks adjacent each other and one being of less diameter than the other and each having a series of numerals thereon like a scale, substantially, frictional means for simultaneously turning the two disks, and means for holding the larger disk when desired so as to bring the two disks into the desired position with relation to each other, and then turn both of them. The means on which the disks are mounted is arranged so that when in one position, say the normal position, it will turn only the smaller disk, but when in another position, it will turn both disks. This result is accomplished by a single means on which the two disks are mounted.

The full nature of the invention will be understood from the accompanying drawings and the following description and claims.

In the drawings, Figure 1 is a front elevation of the device showing the disks in one position. Fig. 2 is an elevation of a portion of Fig. 1, showing the disks in another position. Fig. 3 is a section on the line 3—3 of Fig. 1. Fig. 4 is a front elevation of a portion of two disks showing the numeral and graduation arrangement. Fig. 5 is the same as the central portion of Fig. 3, on a larger scale and with parts in altered position.

There is a cylindrical casing formed of a rear member 10 and a front member 11 with their rims arranged to frictionally engage each other and hold together substantially as shown in Fig. 3. For that purpose the rim of member 11 is contracted somewhat. The rear member 10 of the casing has an annular inwardly extending bead 12; and to the central portion of the rear member a bearing plate 13 is secured with a central bearing opening therein.

The front casing member 11 has a fan-shaped opening 14 therein which contains a glass plate 115 having on it a hair line 215 through which the readings may be made. Said front plate also has a central opening in it to furnish a bearing for a shoulder 15 of a finger piece 16. Slidable and centrally of said finger piece there is an arbor 17 which extends inward beyond the finger piece and has bearing and is rotatable in the bearing piece 13. Said arbor is attached to a large disk 22. To the inner surface of the shoulder portion 15 of the finger piece 16 a small disk 18 is rigidly secured and inward beyond it a sleeve 19 extends with its inner ends normally bent toward each other somewhat and adapted when in the position shown in Fig. 5, to lie within a recessed portion 20 of the arbor 17. Said portion of the arbor is tapered forwardly so as to enlarge rearwardly to normal diameter. Immediately to the rear of the inclined portion 20 of the arbor there is a hub portion 21 rotatably mounted in the bearing, and secured to the disk 22. The large disk 22 at its rear side almost touches the bead 12 and at some point in the front member 11 of the casing a push button 23 is mounted so as to engage the front surface of the disk 22 over the bead 12 and hold said disk. This push button 23 is in a barrel 24 secured to the member 11 of the casing and has a spring 25 which tends to withdraw the push button away from the disk 22.

On the inner disk 18 there are shown two series of numerals, the outer series being units from "1" up to "9" and the inner series being ten times as high, and there is an index point at 26. The portion of the outer disk which extends beyond the inner disk has on it two series of numerals, the latter ten times greater than the former. The invention is not limited to the exact numerals placed on these disks or to the number of series of numerals. The numerals of either series of the two disks may be used as multipliers and multiplicands or as divisors and dividends, as desired.

The mode of operation of the device is as follows: When it is desired to simultaneously rotate both disks, the finger piece 16 is forced inward so as to spread the inner end of the split sleeve and wedges it on the

enlarged portion of the arbor 17 and brings, in the form herein shown, the two disks frictionally together. In this manner the large disk is turned. That is, the large disk cannot be turned independently of the small disk. The small disk is turned independently of the large disk by drawing outward the finger piece 16 so as to bring the inner end of the split sleeve into recess 19 of the arbor 17 and also disengage the two disks from each other frictionally. When it is desired to turn the small disk only, the large disk can be locked or held by forcing in the push button 23. By this means any numeral on the two disks can be brought into alinement or into registry with the index.

The invention claimed is:

1. A mechanical calculator including a pair of concentrically arranged disks and one of greater diameter than the other, and a single means for centrally engaging and rotating said disks simultaneously or the smaller disk independently of the larger disk, as desired.

2. A mechanical calculator including a pair of concentrically arranged disks and one of greater diameter than the other, an arbor on which the large disk is secured, a finger piece to which the small disk is secured, and means for frictionally combining said finger piece with the arbor when forced inward so that said finger piece will cause rotation of both disks.

3. A mechanical calculator including a casing, a finger piece rotatably mounted in one side of the casing, a small disk secured thereto, an arbor slidably mounted in said finger piece, a large disk secured to said arbor, and means for frictionally locking said finger piece and arbor together when desired.

4. A mechanical calculator including a casing, a finger piece rotatably mounted in one side of the casing, a small disk secured thereto, an arbor slidably mounted in said finger piece, a large disk secured to said arbor, said arbor having an inclined surface, and a split sleeve extending inward from said finger piece so that when the finger piece is pushed inward, the split sleeve will frictionally grasp the arbor and enable the finger piece to rotate both disks.

5. A mechanical calculator including a casing, a finger piece rotatably mounted in one side of the casing, a small disk secured thereto, an arbor slidably mounted in said finger piece, a large disk secured to said arbor, said arbor having an inclined surface, a recess in said arbor with sloping surfaces, and a split sleeve extending inward from said finger piece with its inner end normally lying in said recess and adapted when pressed inward to frictionally engage the large portion of said arbor and cause the simultaneous rotation of both disks.

In witness whereof, I have hereunto affixed my signature in the presence of the witnesses herein named.

GEORGE M. FRITZ.

Witnesses:
J. H. WELLS,
R. G. LOCKWOOD.