F. L. PRESCOTT.

CALCULATING DEVICE.

APPLICATION FILED JAN. 17, 1919.

1,338,588. **Patented Apr. 27, 1920.**

Fig. 1.

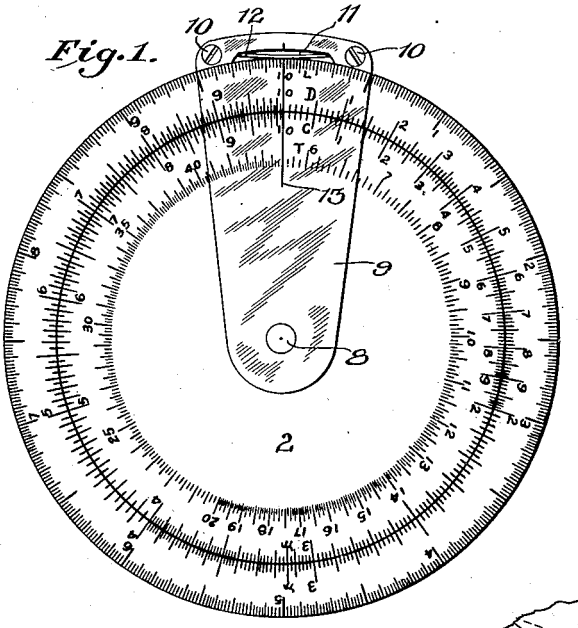


Fig. 3

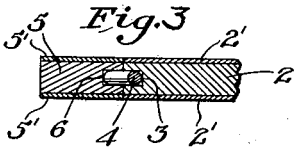


Fig. 4.

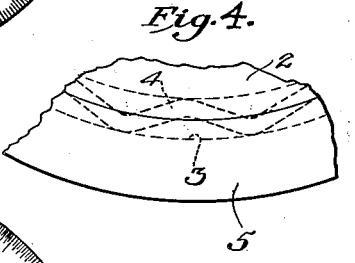
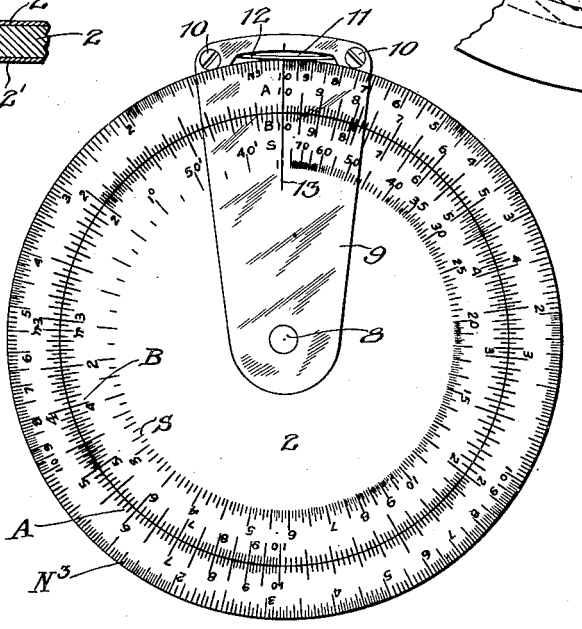


Fig. 2.



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UNITED STATES PATENT OFFICE.

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CALCULATING DEVICE.

1,338,588. Specification of Letters Patent. Patented Apr. 27, 1920.

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To all whom it may concern:

Be it known that I, FORD L. PRESCOTT, a citizen of the United States, residing at Elmira, in the county of Chemung and State of New York, have invented certain new and useful Improvements in Calculating Devices; 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.

This invention relates to calculating devices and more particularly to devices of the character of the well known "slide rule."

It is one of the objects of the present invention to provide a simple, practical, durable, inexpensive and readily actuated device for the computation of various mathematical problems, and it is a further object of the invention to provide a device of this type which is of extremely compact form and neat and attractive in appearance, and which is devoid of cumbersome structural details and which enables the user to comfortably carry the same in his pocket, or readily pack it in a tool kit.

It is another object of the invention to provide a device which is of such structure that it enables the formation and maximum display of suitable and desired or appropriate scales with a minimum size of body structure.

With the above and other objects in view as will be readily apparent to those versed in the art, the invention consists of the construction, the combination, and in details and arrangements of the parts as more particularly described hereinafter relative to the embodiment of the invention illustrated in the accompanying drawing wherein:

Figure 1 is an obverse view of the instrument;

Fig. 2 is a reverse view of the instrument;

Fig. 3 is an enlarged section on a radial line of a portion of the scale elements.

Fig. 4 is a side elevation on the same scale or size as Fig. 3.

A feature of the present invention is that the parts are so constructed, assembled and designed that both side faces of a circular disk and a closely fitting surrounding annulus may be utilized as a calculating instrument when suitable and desired scales are applied thereto. A radially disposed runner having arms extending down on each face of the disk and annulus is used, the runner preferably being of transparent material and provided with hair lines to be coördinate with radial gradation lines of scales formed on the faces of the disk and annulus.

In the preferred embodiment of my invention I have shown a disk 2 which may be of any suitable material, proportions and dimensions and may if desired, be provided with dials or faces 2′ applied or formed thereto in any suitable manner and on which are suitably produced the desired gradations or concentric scales which, obviously may be suitably made or produced directly on the surface of the disk 2 without the application of any facing or layer on the face or faces of the disk. The perimeter of the disk 2 is shown as being provided with a groove 3 of suitable depth, Figs. 3 and 4 in which there is laid a resilient and preferably corrugated spring wire or band 4, the lateral deflections of which are of such width that the hoops project beyond the edge of the disk and are designed to enter the internal edge of the annulus 5 which is provided with groove 6 designed to receive the lock member 4. This annulus 5 is of the same thickness preferably as the thickness of the disk 2 and has its faces similarly provided with facing 5′ coördinate with the facing of the disk 2, or is otherwise made consistent with the construction of the disk 2. The faces or the facing of the annulus 5 are also provided with suitable gradations or scales correlative with those formed on the disk 2.

Mounted on a pivot 8 in the disk 2 is a runner structure comprising radial and parallel side arms 9 of thin and transparent material, one arm being disposed on each side of the disk and annulus and the arms being connected across the perimeter of the annulus 5 and rigidly secured as by rivets 10, the arms being spaced by a suitable intermediate body portion which is recessed internally and opposite to the rim of the annulus 5 as indicated at 11 to receive a resilient or friction member 12 disposed so as to bear upon the perimeter of the annulus 5 and frictionally holding the runner 9 at any desired position temporarily on the annulus.

Each side arm of the runner 9 is provided with a hair line 13 designed to be registered with a given factor in one or another of a series of scales.

From the above it will be seen that I have provided an extremely simple, practical and easily operated and very compactly arranged and shaped calculating device, giving an extremely large range for mathematical computation, and it is obvious that the scales herein illustrated may be substituted by other scales of desired character for the given formula.

It will be understood from the preceding description that the crimped spring ring 4 affords an efficient means for temporarily holding the several parts in their relative given positions owing to the friction exerted by this particular spring or retaining device.

What is claimed is:

1. An annulus, a disk in said annulus, indices on the periphery of said disk, cooperative indices on the internal face of said annulus, and means interposed between the meeting surfaces of the disk and annulus for alining said indices and for keeping the said disk and annulus in assembled relation and frictionally holding the said parts in given angular relation, the said means being a groove in the peripheral face of the said disk and an internal groove in the said annulus and a resilient member comprising a crimped resilient wire simultaneously engaging said grooves at a sufficient number of points to hold the annulus and disk from separating.

2. In a circular slide rule a central disk having a groove in the peripheral edge thereof, an annulus circumferentially encircling said disk and having an internal groove and a member simultaneously engaging said groove, whereby said annulus is rotatable upon said disk but unremovable therefrom, the said member which engages the said groove being a crimped resilient member engaging said grooves at a sufficient number of points to hold the said disk and annulus from becoming separated.

3. In a circular slide rule, a solid central disk having a groove in the central edge thereof, a solid annulus circumferentially encircling said disk and having an internal groove and a member simultaneously engaging said grooves whereby said annulus is rotatable upon the disk but unremovable therefrom, the said member engaging said grooves slidable in both said grooves.

4. In a calculating device, a solid disk having a groove in the peripheral face thereof, an annulus encircling said disk, and having an internal groove and a resilient member simultaneously engaging said grooves and frictionally engaging said disk and annulus, the said member engaging said disk and annulus slidable in either of said grooves.

5. In a calculating device, a central disk having a groove in the peripheral face thereof, an annulus encircling said disk, and having an internal groove and a resilient member comprising a crimped resilient wire simultaneously engaging said grooves and frictionally engaging said disk and annulus and slidable on both said grooves.

6. In a calculating device, a solid disk having a groove in the peripheral face thereof, an annulus encircling said disk and having an internal groove, and a resilient member comprising a crimped resilient wire simultaneously engaging said grooves and frictionally engaging said disk and annulus at a sufficient number of points to prevent the said disk and annulus from separating.

7. A disk, an annulus, a groove on the peripheral face of said disk, a groove on the internal face of said annulus, said grooves extending the full circumference of said members, a crimped resilient member mounted in said grooves and performing the triple function of holding said disk and annulus coplanar, inseparable and frictionally holding said annulus and disk from relative turning.

In testimony whereof I affix my signature.

FORD L. PRESCOTT.