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(No Model.)

L. MAYBAUM.
CALCULATING DEVICE.

No. 605,000.

Patented May 31, 1898.

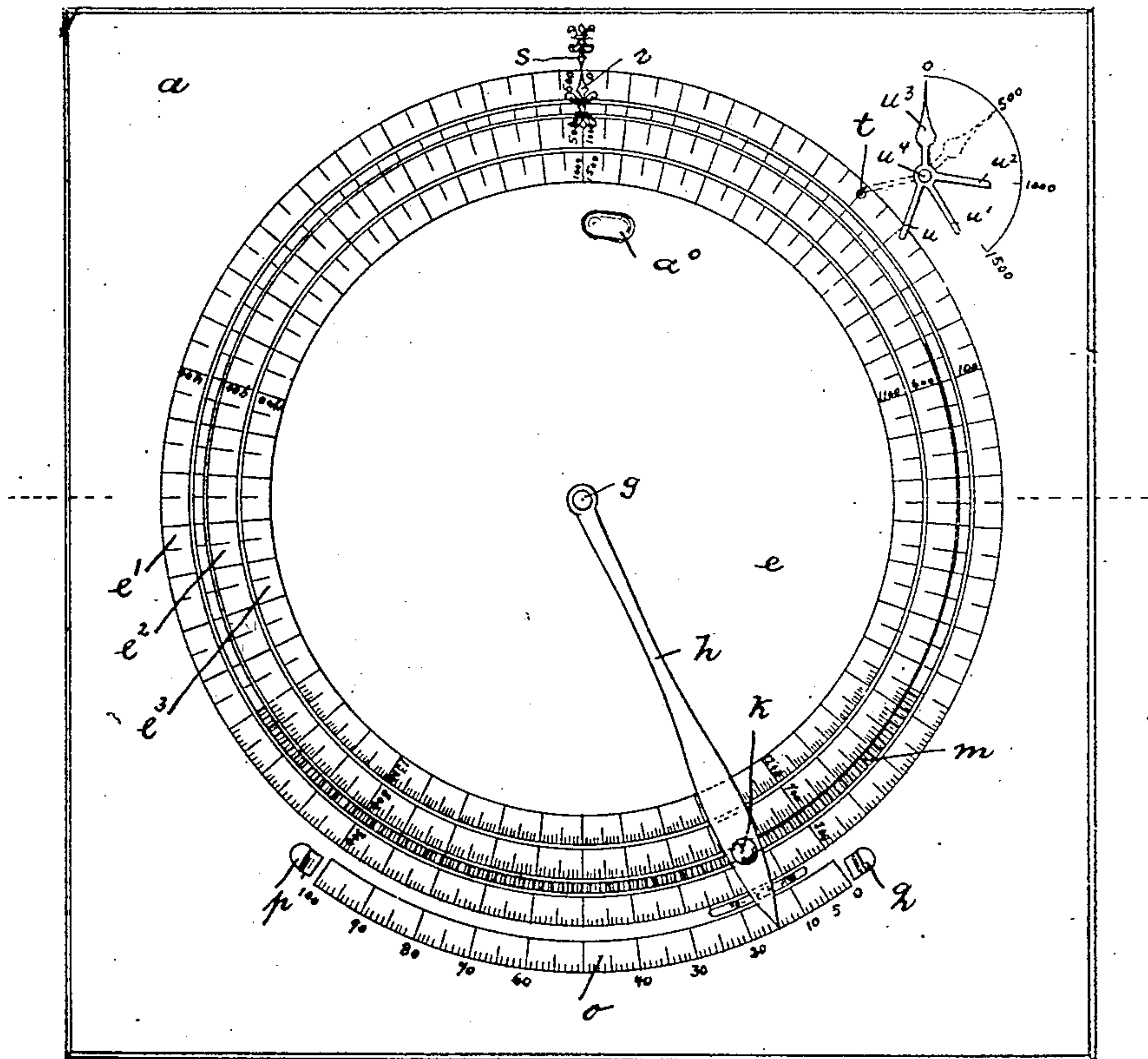


Fig. 1.

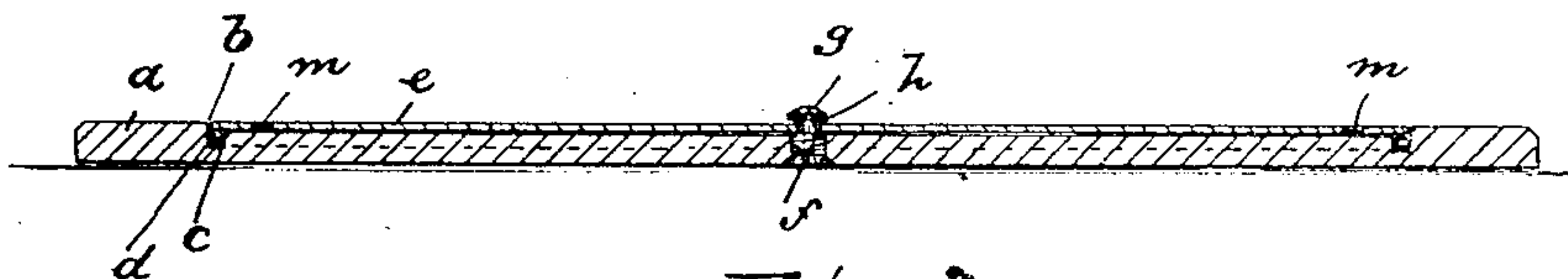


Fig. 2.

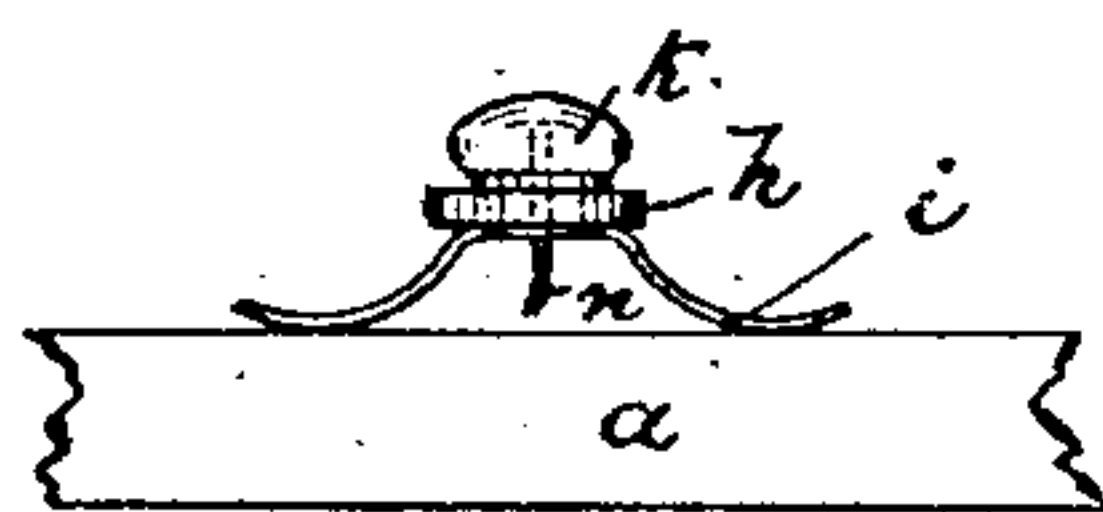


Fig. 3.

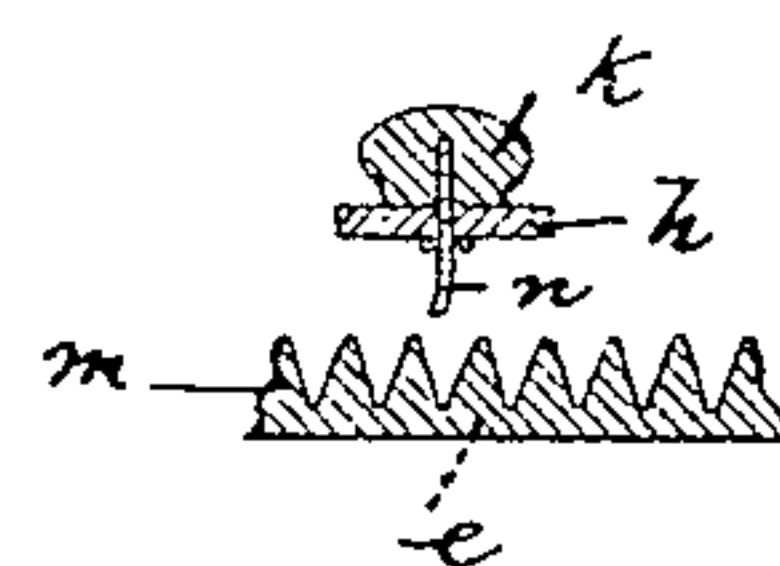


Fig. 4.

WITNESSES: _____ INVENTOR :

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UNITED STATES PATENT OFFICE.

LEVY MAYBAUM, OF NEWARK, NEW JERSEY.

CALCULATING DEVICE.

SPECIFICATION forming part of Letters Patent No. 605,000, dated May 31, 1898.

Application filed July 2, 1897. Serial No. 643,195. (No model.)

To all whom it may concern:

Be it known that I, LEVY MAYBAUM, a citizen of the United States, residing in Newark, county of Essex, and State of New Jersey, 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, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

The object of my present invention is to provide a simple, reliable, and efficient device for adding, subtracting, and multiplying, &c., of any number of figures, which device will be found of great advantage and utility in schools, stores, accountants' offices, and in general wherever extensive calculations have to be made.

The invention consists in the improved calculator, in its revolving graduated disk cooperating with a stationary scale and pivoted pointer, and in the combination and arrangements of the various parts, substantially as will be hereinafter more fully described, and finally embodied in the clauses of the claim.

Referring to the accompanying drawings, in which like letters of reference indicate corresponding parts in each of the several views, Figure 1 is a top plan view of my improved calculating device; Fig. 2, a sectional view on the line $x x$ of Fig. 1; Fig. 3, an enlarged front elevation of the spring-controlled pointer; and Fig. 4, a cross-sectional view through the latter, illustrating its engaging means with the teeth of the revolving disk.

In said drawings, a represents a frame-plate or bed provided with a circular recess b , having at or near its outer periphery an annular groove or channel c , in which are arranged a series of balls d , adapted to form a suitable bearing for the disk e . Said disk is revolvably mounted on the central vertical pin or stud f , provided with a head g , and also serving as a fulcrum for the hand or pointer h , which latter can be operated and turned independent of the revolving disk e .

The disk e is provided with a series of

concentrically-arranged rings $e^1 e^2 e^3$, containing graduation-marks from "1" to "500," from "500" to "1000," and from "1000" to "1500," respectively, and is also provided with an annular rack-bar m , concentrically arranged with the annular rings $e^1 e^2 e^3$ and having its teeth conforming to and in alignment with the graduation-marks on said rings. The teeth of said rack-bar are adapted to be engaged by a slightly curved or bent pin n , carried by and projecting downwardly from the hand or pointer h , which latter is provided with a knob or handle k and is kept, with its pin n , out of engagement with the rack-bar m by means of a spring i , carried by said hand or pointer h and slidingly arranged on the frame-plate or bed a , as clearly illustrated in the drawings. On one side of said frame-plate or bed is arranged a scale o , provided with graduation-marks from "0" to "100" and on each end of said scale is a stop p and q of any suitable construction and adapted to limit the motion of the hand or pointer h , as will be hereinafter described. Diametrically opposite the center of said scale o and arranged on the frame-plate or bed a in any desired manner is a pointer or arrow s , forming the starting or zero point when calculations are to be made, and for that purpose the pointer or arrow r on the disk e is to be brought in alignment with said pointer or arrow s , as will be manifest.

On the disk e is arranged in any desired manner an upwardly-extending pin or stud t , adapted to engage the arms $u^1 u^2 u^3$, respectively, which arms project from a hand or pointer u^3 , pivotally secured, as at u^1 , to the frame-plate or bed a and adapted to indicate the figures "500," "1000," and "1500"—that is to say, that the disk e has been rotated once, twice, and three times, respectively. The disk e is also provided at a suitable place with a depression v for conveniently returning said disk to its normal position, and it will be manifest that more than one of said depressions (or slight projections) can be arranged on said disk, if so desired.

It is very essential for the accurate working of the device that the pin n be slightly curved or bent at its lower end, so that said pin is bound to engage the center of its re-

spective notch, (formed on the rack-bar *n*,) especially when the device is being rapidly operated.

In operation when a series of columns of figures are to be added the disk *e* is first returned to its normal position—that is to say, the pointer or arrow *r* is brought in alignment with the arrow or pointer *s*. The indicator or pointer *u*³ is also returned to its normal position—that is to say, is set to point at zero—the position indicated in Fig. 1 of the drawings. Supposing now the following column is to be added:

15	6713
	2776
	3999

Said column is divided up into two columns, each containing two figures, of which the right-hand column thus formed is added first in the following manner: The pointer *h* is moved to graduation-mark "99" on scale *o* and is then pressed downward until its pin *n* firmly engages the respective notch in the rack-bar *m* of disk *e*. The pointer is kept in depressed position and moved backward—that is to say, from left to right—until it is stopped by the stop *q*. The arrow *s* will at that moment point at "99" on the outer ring *e'* of said disk *e*. The pointer is then released from its engagement with the rack-bar *m* and is moved from right to left to the graduation-mark "76," (on the scale *o*,) when it is again brought into engagement with the disk *e* and moved backward to the stop *q*. The arrow *s* will point at graduation-mark "175" of the outer ring *e'*. By again moving the pointer *h* to mark "13" on scale *o*, bringing said pointer into engagement with the disk *e* and turning the latter backward until the pointer is stopped by the stop *q*, the arrow *s* will point at graduation-mark "188"—that is to say, at the sum of the double column just added. The disk *e* is now returned to its normal position and the operation as above described regarding the right-hand column is now repeated with the left-hand column; but it must be remarked that in setting the pointer *h* for the first figure "39" one is added—that is to say, the pointer is set at graduation-mark "40" on the scale, and corresponds to the so-called "carrying" of figures in the ordinary adding of columns. However, should, for instance, the figure to be carried be a double figure (like "69") and the first figure of the second double column will in addition to that double figure amount to more than one hundred, then the pointer *h* is moved to that last-mentioned double figure on the scale *o*, and is then brought into engagement with the disk *e*

and turned backward to the stop *q*. The arrow *s* will indicate said last-mentioned double figure on one of the rings of the disk *e*. The further operation of adding is then the same as heretofore described. Whenever the disk *e* has made one complete revolution, the pin *t* has engaged the arms *u* and moved the pointer *u*³ to mark "500," and a second and third revolution of said disk *e* will bring said pointer *u*³ to the marks "1000" and "1500," respectively, as will be manifest.

When the device is to be used for subtracting, the operation heretofore described is reversed, and it may also be remarked that the same device can be used for multiplying by operating the pointer and disk in a manner similar to that of adding.

I do not intend to limit myself to the precise construction as shown and described, as various alterations can be made without changing the scope of my invention; but

What I claim as new, and desire to secure by Letters Patent, is—

1. In a calculator, the combination with a movable indicating element provided with a rack, of a pointer pivotally movable with reference to a fixed scale and provided with laterally-projecting supporting-arms secured at its free end and with a pin *n* having a deflected end and adapted to engage the teeth of said rack, substantially as described.
2. In a calculator, the combination with the frame or bed plate, of a revoluble disk provided with graduated indices and having ball-bearings arranged in said frame, a stationary scale arranged concentrically to said disk on said frame, an operating hand or pointer for said disk pivoted on the pivot thereof and movable independently thereof, flexible supporting-arms for the free end of said pointer, an annular rack-bar carried by said disk, a pin secured to the free end of said hand or pointer and having a deflected end adapted to engage the rack-rod, stops for said pointer, a pointer *s* arranged on the frame at a point remote from the stationary scale, a depression *a*⁰ in said plate, a pin *t* carried by said disk, and an auxiliary indicating mechanism adapted to be operated by said disk and consisting of a dial and a pointer therefor having a series of arms adapted to be successively engaged by said pin *t*, substantially as described.

In testimony that I claim the foregoing I have hereunto set my hand this 30th day of June, 1897.

LEVY MAYBAUM.

Witnesses:

ALFRED GARTNER,
N. PARKER.