J. WILLIAMSON.

COMPUTING DEVICE.

APPLICATION FILED APR. 16, 1912.

1,076,929.

Patented Oct. 28, 1913.

Fig. 1.

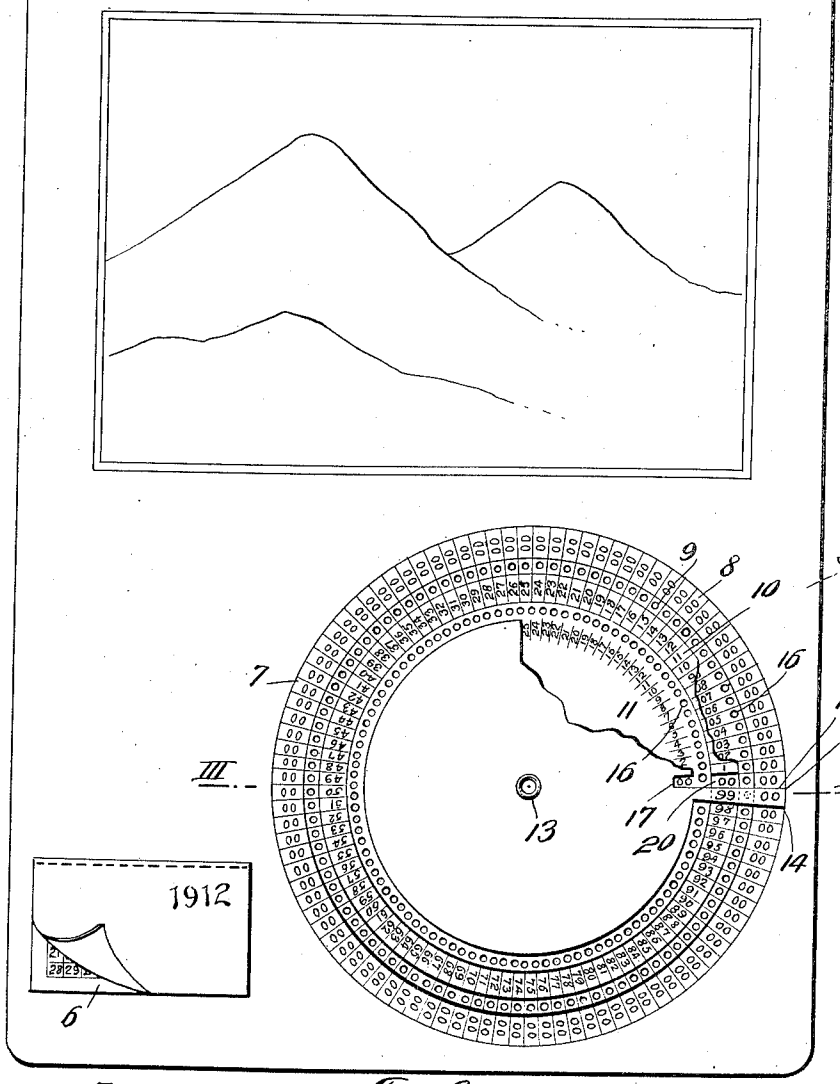


Fig. 2.

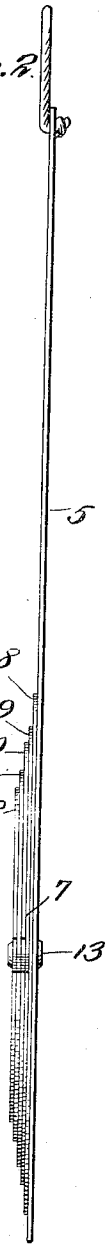


Fig. 3.

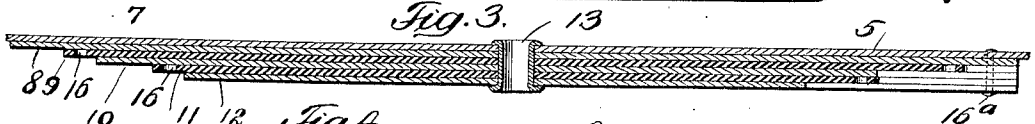
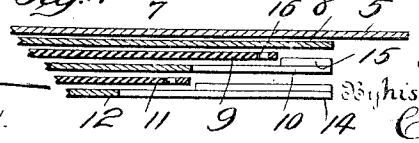


Fig. 4.



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UNITED STATES PATENT OFFICE.

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COMPUTING DEVICE.

1,076,929. Specification of Letters Patent. Patented Oct. 28, 1913.

Application filed April 16, 1912. Serial No. 691,087.

To all whom it may concern:

Be it known that I, JOHN WILLIAMSON, a citizen of the United States, and a resident of New York, borough of Brooklyn, county of Kings, and State of New York, have invented certain new and useful Improvements in Computing Devices, of which the following is a full, clear, and exact description.

This invention relates more particularly to an adding or subtracting device which may be used with a calendar or other advertising matter.

One of the principal objects of the invention is to provide a simple and efficient device or means for adding or subtracting figures in connection with calendars or other advertising matter and which may be used as an independent device after the advertising matter has served its purpose, or the calendar has become useless or exhausted.

Another object of the invention is to provide a simple and efficient device which may be sold and used entirely independent of the calendar or any other article either for office or household use, or in any other connection where such a device may be applicable.

A further object of the invention is to provide a simple and efficient device which may be used for educational purposes for children by having characters either numerals or letters arranged in a certain way thereon; and to provide a device which has a large range of usefulness and which is convenient to use.

A still further object of the invention is to provide a device which is inexpensive to manufacture.

With these and other objects in view, the invention will be hereinafter more particularly described with reference to the accompanying drawings, which form a part of this specification, and will then be pointed out in the claims at the end of the description.

In the drawings, Figure 1 is a front elevation, partly broken away and partly diagrammatic, of one form of device embodying my invention. Fig. 2 is a side elevation. Fig. 3 is a sectional plan taken on the line III—III of Fig. 1; and Fig. 4 is a fragmentary view, partly diagrammatic, showing the ends of the rotatable disks or members separated for the purpose of better illustrating the same.

The support or member 5 may form the usual backing for a calendar having the calendar sheets, as at 6, separable in the usual way, and on the support illustrations or other advertising matter may be placed, as is usual in articles or devices of this kind, and which may be of any suitable character.

A device 7 may be attached at any convenient position to the support 5 and held thereto in any desired way. As shown, this device comprises a plurality of disks or members 8, 9, 10, 11 and 12, although this number may be varied and either increased or diminished according to the purpose for which the invention is used. The disks or members 8 and 10 serve as partition disks or separating members, the disk 12 as a retaining member, while the disks or members 9 and 11 are rotatable about the stationary disks. The disks or members are held to the support 5 by an eyelet or element 13 which passes centrally through the disks or members and serves as a pivot about which the disks 9 and 11 may rotate. The disk 12, which serves as a retaining member or element, is provided with an extended integral tongue or arm 14, and the member 10 is provided with an integral tongue or arm 15 both of which project as far as the periphery of the disk 8, and each tongue is increased in thickness according to the thickness of the disks 9 and 11. The disks 10 and 12 are joined to the disk 8 and support 5 by a pin or rivet 16ª or otherwise to adapt said disk or members to be rigidly held against movement on the support, and are so spaced and arranged as to hold and position the disks or members 9 and 11 to rotate around the eyelet 13. The disks or members are of relatively different diameters decreasing in size from the largest member 8 to the smallest member or retaining disk 12, and the stationary or partition disks are so arranged that either of the disks 9 or 11 may be independently moved without frictionally or otherwise disturbing the position of each other, it being understood that any or all of the parts may be made of cardboard to adapt the same to be cheaply and readily constructed, or the same may be made of any other suitable material.

The device as shown is particularly designed and arranged for adding purposes, though it may be also used for subtracting. As shown, the disk 8 is divided to provide a number of spaces which are radially ar-

ranged about the outer edge thereof, and in these spaces or divisions are placed ciphers. The disk 10 is divided into one hundred spaces and the rotatable disk 9 is also divided into one hundred spaces or divisions radially arranged and coincident with the divisions of the stationary disk 8. The disks 9 and 11 have numbers from 00 to 99 in the spaces or divisions. The numbers on the disk 9 indicate units and tens while the movable disk 11 which is similarly divided and numbered is for hundreds and thousands, so that the device is adapted to compute numbers which when added together will not exceed nine thousand nine hundred and ninety-nine, though if additional disks were added this number may be increased to tens of thousands and hundreds of thousands and so on, but for ordinary purposes the number of disks shown is sufficient. Each of the disks 9 and 11 are provided with openings 16 one for each division or space to adapt an instrument, as a pin, to be inserted in said openings in order that the disks or members 9 and 11 may be readily rotated.

In the arrangement shown, the retaining disk or member 12 overlaps the greater part of the disk 11 and covers the numbers on said disk 11 except at one point where it is cut-away, as at 17, adjacent to the tongue 14 which together with the tongue 15 forms an indicator, stop or guide 18. The indicator 18 has a straight surface or abutment 19 along one edge which is a starting point for each of the movable disks 9 and 11. The stationary disk or member 10 is large enough to cover the numbers of the rotatable disk 9 except at one point where it is cut-away, as at 20, to permit any one of the numerals on the disk 10 to be exposed to view when positioned within such cut-away portion.

If it is desired to add a number of figures, it is necessary to bring the disks so that the ciphers or zero will be indicated at the open or cut-away parts 17 and 20 which will be adjacent to the abutment 19 of the guide 18. If a series of numbers are to be added the total of which is less than 100, this can be done by shifting the disk 9 successively according to the numbers indicated by inserting the instrument in the corresponding opening 16 which is opposite the numeral indicated in one of the divisions of the stationary disk 10, which divisions are coincident with the divisions of both of the rotatable disks 9 and 11. If the numbers to be added exceed 100, as for example 55 and 60, the instrument for moving the disks 9 and 11 is inserted in the opening 16 on the disk 9 opposite the number 55 of the disk 10 and said disk 9 moved until the instrument engages the abutment surface 19 of the indicator or guide 18. If the instrument is now inserted in the opening 16 of the disk 9 opposite the numeral 60 of the disk 10 and said disk 9 rotated until the abutment 19 is again engaged by the instrument, it will be found that the numeral fifteen is located within the cut-away portion or space 20. In this instance as the total of the numbers is one hundred and fifteen, the disk 11 is then moved one space by inserting the instrument in the opening 16 of the disk 11 opposite the number one of the stationary disk 10, and said disk 11 moved until the instrument engages the abutment 19 when it will be found that the numeral one will be exposed in the open space 17 of the disk 12 making the number 115 which corresponds to the sum of 55 and 60. Additional numbers may be added to this either on the disk 9 or by rotating the disk 11 if the numbers correspond to units and tens and by the movement of the disk 11 if the numbers correspond to hundreds and thousands, and, as before stated, does not extend beyond the total number of nine thousand nine hundred and ninety-nine. If it is desired to subtract numbers, this can be accomplished by reversing the operation in which case the disks 9 and 11 are moved in the opposite direction according to the numbers to be subtracted. That is, if you want to subtract 20 from 65, for example, the instrument will be inserted in the opening 16 of the disk 9 opposite the number 65 of the stationary disk 10 and brought to a point so as to be exposed within the opening 20. If then the instrument is inserted in the opening 16 of the disk 9 and in the division twenty spaces away on the opposite side of the number 65 and the disk reversed and brought to a point so that the number will be exposed within the open space 20, the numeral 45 will in this case be seen which indicates the amount represented by subtracting 20 from 65. It will be evident that various numerals and combinations may be likewise added or subtracted in a very ready and easy manner and as a further means to simplify and to assist in finding the proper numbers every fifth number of the stationary disks, as for example 5, 10, 15, etc., of the stationary disk 10 may be indicated in red which will materially assist in helping to locate the desired numeral either for adding or subtracting purposes.

It will be understood that the number of disks or members may be multiplied to any desired extent and operated by hand instead of by an instrument, and that if desired, a suitable surface may be provided either on the support 5 or in any convenient location upon which figures could be written and erased, especially in case it is desired to add extended columns of figures and such surface may be located at any convenient point. It will be further understood that instead of using figures on the device other characters may be employed and combined for in-

structive purposes. The openings 16 in the disk 11 may be used as periods for indicating cents or decimals, &c.

From the foregoing, it will be seen that a simple and efficient means is provided which is particularly adapted for use in connection with a calendar or for other advertising purposes; that said device may be used and sold independently of the calendar feature and may have advertising or other matter placed thereon; that said device is simple and inexpensive to manufacture; and that said device is not only useful for practical purposes but may be also employed as a pastime or as a means of amusement, and in such case may be made useful when used in connection with a calendar or similar purpose after the calendar has become exhausted.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:—

1. In a device of the character described, a plurality of stationary disks having radially arranged divisions and characters thereon increasing from zero to ninety-nine, a plurality of movable disks each movable independently of the other and each provided with divisions coincident with the divisions of the other disks and each provided with an aperture for each division by which each disk may be moved, said movable disks being provided with characters increasing in succession with the divisions, the said disks being of different diameters and the characters of the movable disks being covered by the other disks except at one point, an indicator formed by integral tongues projecting from the stationary disks, and means for fastening the stationary disks together.

2. In a device of the character described, a plurality of stationary disks having radially arranged divisions and characters thereon increasing from zero to ninety-nine, and a plurality of movable disks each movable independently of the other and each provided with divisions coincident with the divisions of the other disks and each provided with an aperture for each division by which each disk may be moved, said movable disks being provided with characters increasing in succession with the divisions, the said disks being of gradually increasing diameters from the top to the bottom disk and the characters of the movable disks being covered by the stationary disks arranged respectively just above them except at one point.

3. In a device of the character described, a plurality of stationary disks having radially arranged divisions and characters thereon, a plurality of movable disks arranged alternately of the stationary disks and each movable independently of the other and each provided with divisions coincident with the divisions of the other disks and each provided with an aperture for each division by which each disk may be moved, said movable disks being provided with characters in the divisions, the said disks being of gradually increasing diameters from the top to the bottom disk and the characters of the movable disks being covered by the stationary disks arranged respectively just above them except at one point, and an indicator formed by integral tongues projecting from the stationary disks.

4. A device of the character described, comprising supporting means, a plurality of rotatable disks superimposed on the supporting means and gradually decreasing in diameter, the disks having divisions and corresponding lines of characters thereon and certain of the disks provided with apertures at the lines of division for rotating the same, partition disks interposed between a part of the rotatable disks, a retaining disk applied over all of the disks, the partition and retaining disks having tongues extending therefrom and all secured at their ends to the supporting means, and fastening means extending centrally through the supporting means, rotatable disks, partition disks and retaining disk.

5. A device of the character described comprising supporting means, a plurality of concentric rotatable disks of different diameters, the peripheral portion of each lower disk projecting beyond the next upper one and provided with a series of radial divisions and corresponding lines of characters spaced inwardly from the edge, each of said rotatable disks also having apertures at the lines of division and arranged between the lines of characters and the edge, and stationary disks interposed between the rotatable disks and superposed upon the upper one of said latter disks, said stationary disks being also of different diameters, the one arranged immediately over each rotatable disk covering all but one of the characters on the same but leaving all of the apertures exposed.

6. A device of the character described comprising supporting means, a plurality of concentric rotatable disks of different diameters, the peripheral portion of each lower disk projecting beyond the next upper one and provided with a series of radial divisions and corresponding lines of characters spaced inwardly from the edge, each of said rotatable disks also having apertures at the lines of division and arranged between the lines of characters and the edge, and stationary disks interposed between the rotatable disks and superposed upon the upper one of said latter disks, said stationary disks being also of different diameters and arranged to cover the character of the rotatable disks next below them but to leave

the apertures in said disks exposed, said stationary disks having cut-away portions arranged in radial alinement with one another and adapted to respectively expose one of the characters on each of said rotatable disks.

7. A device of the character described comprising supporting means, a plurality of concentric rotatable disks of different diameters, the peripheral portion of each lower disk projecting beyond the next upper one and provided with a series of radial divisions and corresponding lines of characters spaced inwardly from the edge, each of said rotatable disks also having apertures at the lines of division and arranged between the lines of characters and the edge, and stationary disks interposed between the rotatable disks and superposed upon the upper one of said latter disks, said stationary disks being also of different diameters and arranged to cover the character of the rotatable disks next below them but to leave the apertures in said disks exposed, said stationary disks having cut-away portions arranged in radial alinement with one another and adapted to respectively expose one of the characters on each of said rotatable disks, one of the apertures in each rotatable disk appearing in the same radial line with the exposed characters and serving as periods or decimal points.

8. A device of the character described comprising supporting means, a plurality of concentric rotatable disks of different diameters, the peripheral portion of each lower disk projecting beyond the next upper one and provided with a series of radial divisions and corresponding lines of characters spaced inwardly from the edge, each of said rotatable disks also having apertures at the lines of division and arranged between the lines of characters and the edge, and stationary disks interposed between the rotatable disks and superposed upon the upper one of said latter disks, said stationary disks being also of different diameters and arranged to cover the characters of the rotatable disks next below them but to leave the apertures in said disks exposed, one of the stationary disks which is interposed between said rotatable disks having its peripheral portion exposed and bearing characters and divisions corresponding to those on the rotatable disks both above and below it, and said stationary disks having cut-away portions arranged in radial alinement with one another and adapted to respectively expose one of the characters on each of the rotatable disks.

This specification signed and witnessed this 15th day of April A. D. 1912.

JOHN WILLIAMSON.

Witnesses:
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L. I. MAYER.