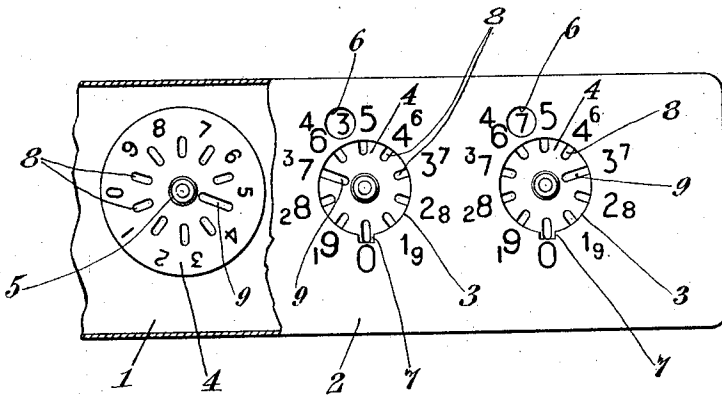


W. T. RAY.
CALCULATING MACHINE.
APPLICATION FILED JAN. 27, 1917.

1,410,507.

Patented Mar. 21, 1922.



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By his Attorney
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UNITED STATES PATENT OFFICE.

WALTER T. RAY, OF VIRGINIA BEACH, VIRGINIA.

CALCULATING MACHINE.

1,410,507.

Specification of Letters Patent. Patented Mar. 21, 1922.

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To all whom it may concern:

Be it known that I, WALTER T. RAY, a citizen of the United States, and a resident of Virginia Beach, in the county of Princess Anne and State of Virginia, have invented certain new and useful Improvements in Calculating Machines, of which the following is a specification.

The invention relates to calculating machines, and may be embodied, for example, in non-listing adding and subtracting machines, in which a rotatable or a reversible computer or indicator member is acted upon by a suitable stylus, pencil or the like to actuate the computing mechanism. It will be understood that, where such reversal of the motion or rotation of an indicator dial or member is effected, the means at the end or limiting position for determining the proper extent of movement for the desired number to be added or subtracted must be such as to properly accommodate the actuating stylus, which is of appreciable width, or else it must have a negative value. A projection or finger is, therefore, not suitable for this purpose; and it is the object of the present invention to determine this position accurately and positively by providing a suitable notch or slot into which the actuating tool naturally falls and positively engages with. A further object of the invention is to enable the zero position to be quickly and readily obtained in resetting the mechanism and with practically no mental effort on the part of the operator.

The accompanying drawing illustrates the invention, for example as embodied in connection with an adding and subtracting machine of the type set forth in a co-pending application filed by me the 19th day of November, 1915, Serial No. 62264, and of which the present application is a division.

Referring to the drawing, 1 designates the base plate upon which the mechanism is mounted, and 2 a suitable casing secured thereto and provided with a plurality of openings 3 in its upper surface, the same being herein described and shown as circular. The calculating mechanism (not shown) may be of any well-known or special construction, for example as set forth in the aforesaid co-pending application, Serial No. 62264, and is provided with reversible, movable computer members or indicator disks

4 through which additions are performed by motion in one direction and subtractions by motion in the reverse direction, all of which is well understood and forms no part of the present invention. The number of openings 3 and disks 4 employed correspond to the desired number of columns for which the machine is designed; and the said member 4 is herein described and shown in the nature of a rotary disk suitably mounted upon a hub 5, being visible in part through a corresponding opening 3 in the top of the casing. Further apertures 6 are provided in said casing at the top at convenient points near each of the openings 3 and through which the result may be read. A notch 7, moreover, is provided conveniently, for example, in the lowermost portion of the circumference of each of the openings 3 and is arranged radially with respect to depressions 8 of the upper surface of said disk. The said depressions are arranged radially on a disk so as to be readily accessible through an opening 3 for engagement with a suitable operating tool, such as a pencil, stylus or the like, for the purpose of moving or rotating the disk. Notch 7 will act as a suitable stop for positively determining the calculating position of the tool or stylus in either direction of its movement, falling naturally therein and engaging positively therewith and allowing of a perfectly free rotation or movement of a said member 4 in either direction.

For convenience in resetting the number wheels to the "0" position, a particular depression 9 of each wheel is made of greater length than the remaining ones; and is so placed that when it is alined with the notch 7, the number "0" is displayed through the corresponding aperture 6. Thus, any column may be quickly reset to the "0" position without any mental effort on the part of the operator, simply by inserting the operating tool into the longest depression 9, wherever it may be located, and rotating the wheel in the shortest way—in either direction—to the notch 7. As herein set forth and shown in the drawing, each number wheel is provided with ten depressions as the machine is designed for use with the decimal system; but the invention is not restricted to this particular system, being equally applicable to other systems, as will



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