

R. H. MARCHANT.
 CALCULATING MACHINE.
 APPLICATION FILED FEB. 23, 1911.

994,414.

Patented June 6, 1911.

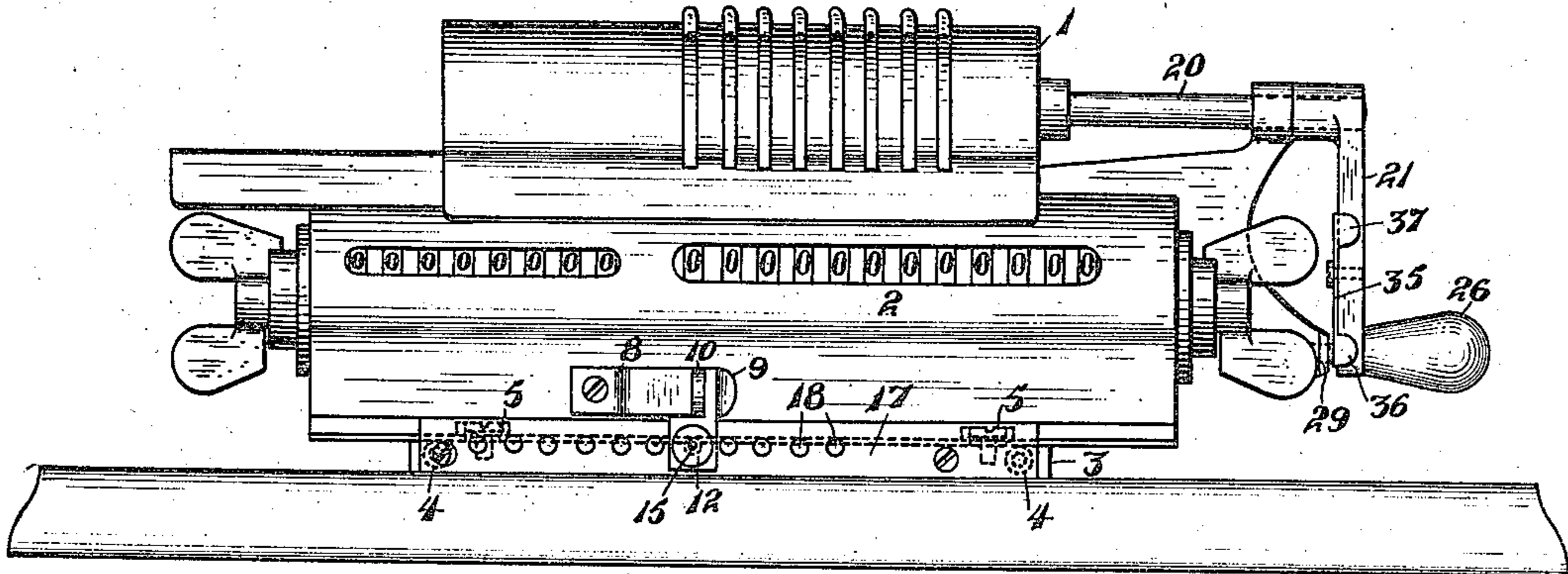


Fig. 1.

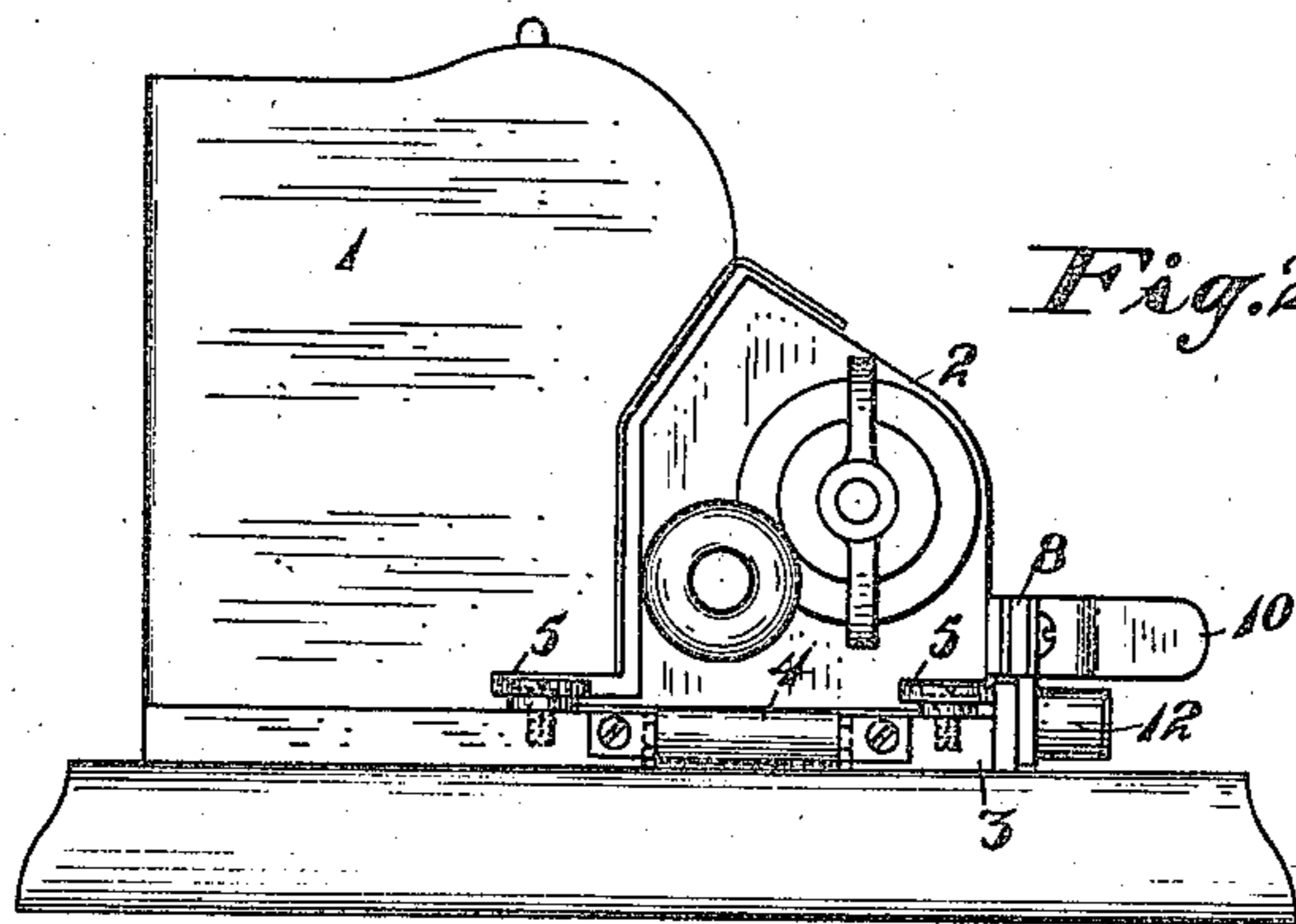


Fig. 2.

Fig. 3.

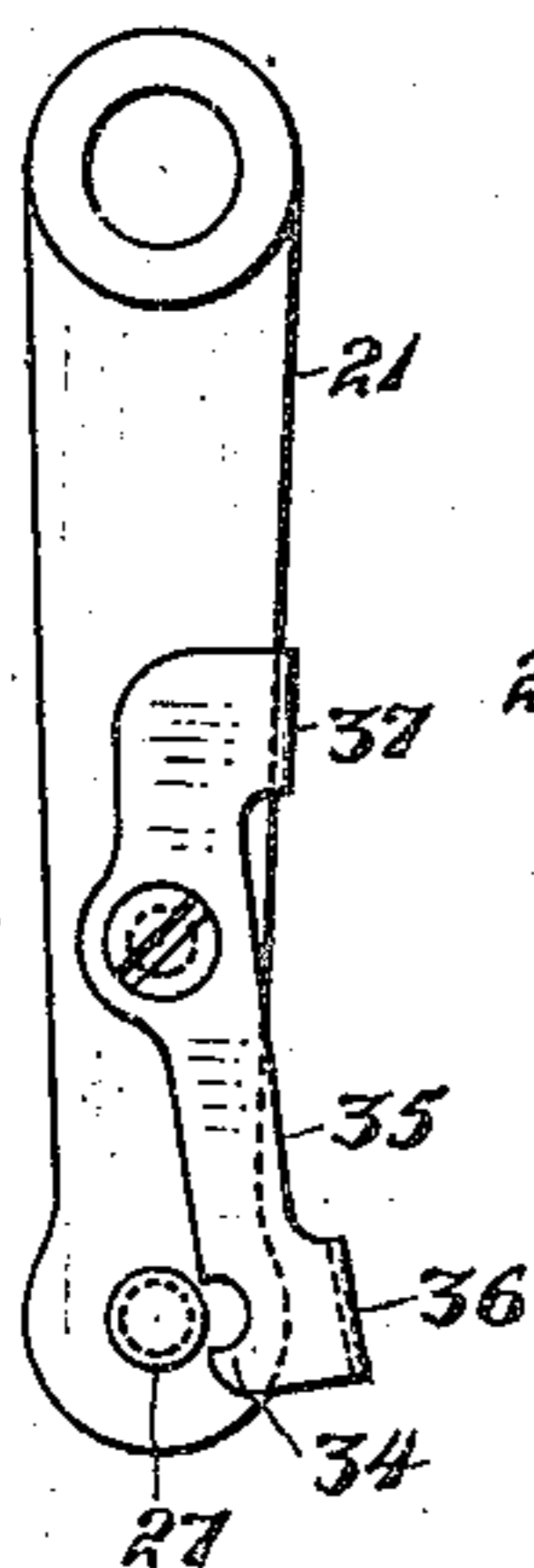


Fig. 4.

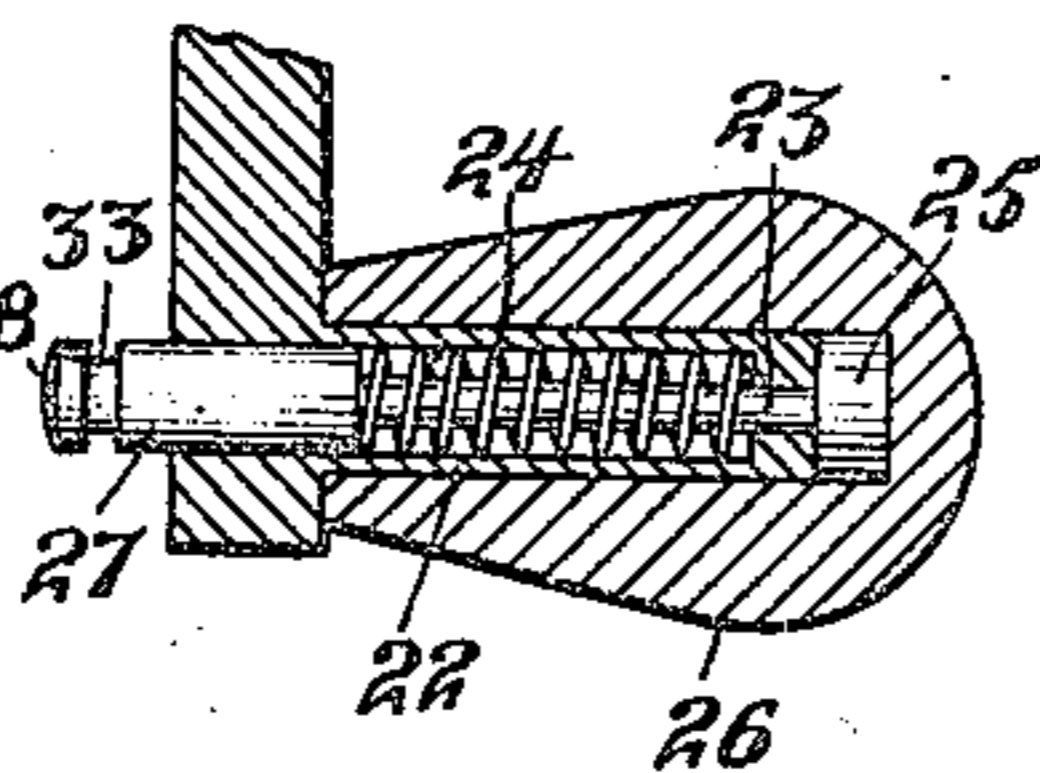
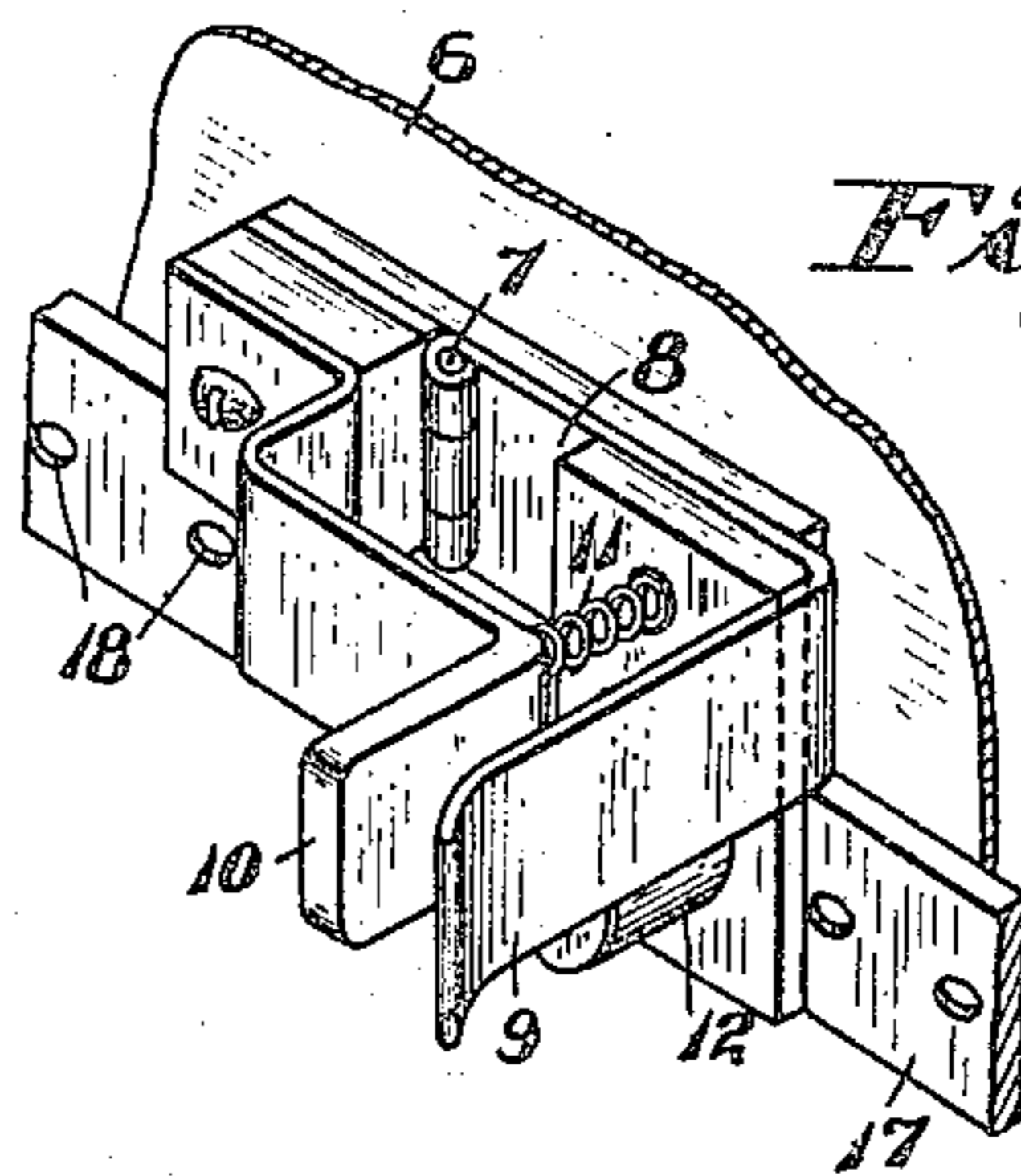


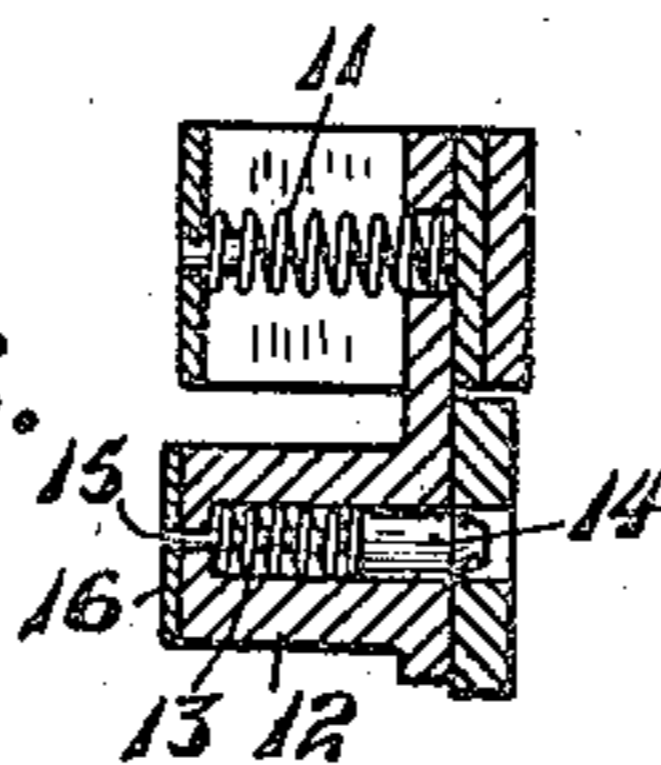
Fig. 5.



Witnesses:

J. C. Fiedner
 W. D. Keating

Fig. 6.



Inventor

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UNITED STATES PATENT OFFICE.

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CALCULATING-MACHINE.

994,414.

Specification of Letters Patent.

Patented June 6, 1911.

Application filed February 23, 1911. Serial No. 610,171.

To all whom it may concern:

Be it known that I, RODNEY H. MARCHANT, a citizen of the United States, residing at Oakland, in the county of Alameda and State of California, have invented new and useful Improvements in Calculating-Machines, of which the following is a specification.

The present invention relates to improvements in calculating machines, especially used for multiplication and division, and especially to the class of calculating apparatus such as that for which Letters Patent of the United States were issued to W. T. Odhner, No. 514,725, Feb. 13, 1894.

Such machines, as at present constructed, are defective in features of construction which, although minor in character, are of great importance as affecting the ease, rapidity and convenience with which the machine may be operated. Among these defects are the difficulty with which the carriage is moved in front of the main stationary portion of the machine and the difficulty with which said carriage is locked in its successive positions. The mechanism that is at present used for so locking said carriage in general involves the simultaneous employment of three fingers, although it is possible with much practice to operate the locking device by the simultaneous use of a thumb and a finger. Moreover, unless the operator be very careful in withdrawing the locking key at precisely the proper moment, the carriage will go past the point desired and will have to be returned to the proper position. This is all the more important because, under the old construction, the power necessary to move the carriage longitudinally is very considerable, and when, to this considerable exertion of power, is added the great care and labor necessary for operating the locking device, the work of using the machine becomes so burdensome as to render it objectionable to many persons, thereby greatly restricting its sale and use.

Another defect tending in the same direction is that in turning the handle in the use of this machine, as explained in said patent above referred to, it is necessary not only to exert power for rotating the handle, but also to exert a continual pressure on said handle in a longitudinal direction of the shaft, in order to permit the handle to pass the stop which holds it in the normal position. The exertion of this unusual amount of power is also trying and burdensome to

the operator, especially when first learning the machine, and to ladies or people with weak wrists. When this operation has to be repeated at short intervals during the course of a whole day, it becomes so fatiguing as to render the machine practically useless for certain persons.

The object of the present invention is to remedy these defects.

In the accompanying drawing, Figure 1 is a front view of the machine; Fig. 2 is an end view thereof; Fig. 3 is a side view of the handle; Fig. 4 is an enlarged sectional view of the handle; Fig. 5 is a perspective view of the locking mechanism of said carriage, detached; Fig. 6 is a sectional view through said locking device.

Referring to the drawing, 1 represents a calculating machine, the main parts of which are constructed as in said Letters Patent above referred to.

2 indicates the carriage of said machine and 3 the base above which the carriage moves longitudinally.

In the form of the machine heretofore constructed, the carriage merely rested on said base and moved directly in contact therewith. It was found with this construction that the carriage would often bind, and even when not doing so, the labor involved in frequently repeated movements of the carriage was exceedingly wearisome.

In my present invention the base of the carriage rests or moves on rollers 4 rotating on horizontal axes mounted at the ends of the base of the machine. To guide said carriage in its movement there are also provided rollers 5 which rotate on vertical axes on said base.

On the lower portion of the front wall 6 of the carriage is pivoted, as shown at 7, a carrier 8, bent outward at right angles to form a finger piece 9, which extends adjacent to an angular finger piece 10 secured upon said front plate. A coiled spring 11 between said finger pieces presses the finger piece 9 against the front plate of the carriage. In the lower portion of said carrier 8 is supported a cylindrical box 12 in which is a coiled spring 13 pressing against a bolt 14 attached to a stem 15 secured to a collar 16. As the carriage moves over the base, said box moves adjacent to a guide plate 17 on the base of the machine which guide plate is formed with a series of equidistant holes 18, spaced at the proper distance

apart corresponding to the several positions of rest of the carriage. Into any one of these holes the bolt 14 is adapted to enter and lock the carriage in the proper position.

5 To move it from one position to another, the finger pieces are pressed together, thereby withdrawing the bolt out of the corresponding aperture. When arriving at the new position, the spring 13 will automatically
10 press the bolt into the corresponding aperture. In moving the carriage in the direction opposite to that in which the finger piece 9 extends from its pivot, it is only necessary to use one finger or the thumb, as the
15 same pressure which presses the finger piece 9 against the finger piece 10 will also move the carriage longitudinally.

The rollers 5 are very important, because they permit the locking device to be operated with one finger without the carriage
20 binding in its movement.

A further improvement relates to the mechanism for rotating the shaft 20 which actuates the calculating wheels. In the old
25 construction this shaft has secured thereon a crank arm 21, at the end of which is a sleeve 22, in which can slide a rod 23 pressed by a spring 24, said rod having a head 25 engaged by a handle 26, so that the rod can
30 be withdrawn against the pressure of said spring. The rod has an enlarged end 27 projecting from said sleeve, which is formed with the reduced portion 28, which entered a stationary socket 29. In operating the
35 machine as formerly constructed, it was therefore necessary for the operator, not only to rotate said crank arm, but, while rotating it, to press the actuating handle therefrom to maintain the end 27 out of
40 said socket 29. This proved fatiguing in constant use. In my improvement I form said projecting terminal portion with a circular groove 33, which, when the stem is withdrawn, is adapted to be engaged by an
45 edge 34 of a lever 35, pivoted upon the handle, and bent at the ends as shown at

36, 37, to provide thumb portions for operating said lever. With this construction all that is now necessary is to withdraw the rod 23 by means of said handle, and then by
50 means of the pressure on the thumb piece 36 to press inward said lever, so that said edge 34 engages said groove 33. The rod is then held permanently out of the socket and the shaft can be freely rotated. At the
55 end of the rotation the operator presses with his thumb upon the other thumb piece, whereupon the rod is released.

I claim:—

1. In a calculating machine, a carriage, 60 and means for locking said carriage in any one of a series of positions of rest, comprising a vertical plate having apertures and a locking device carried on said carriage, comprising a hinged apertured carrier, a device
65 in said carrier adapted to engage any one of said apertures in the plate, a spring for pressing said device into said aperture in said carrier, and a spring for pressing said carrier toward said plate, substantially as
70 described.

2. In a device of the character described, the combination of a support for a shaft, a shaft therein, a crank arm secured upon
75 said shaft, a sleeve carried by said crank arm, a stem movable longitudinally in said sleeve, a handle secured to said stem around said sleeve, a spring for pressing the head of said stem toward said support, said support having a socket adapted to receive
80 said stem, said stem having a groove in its head and a lever pivoted on said crank arm, and having a lip to engage said groove, and formed with thumb pieces for turning said lever, substantially as described. 85

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

RODNEY H. MARCHANT.

Witnesses:

H. M. WRIGHT,
D. B. RICHARDS.