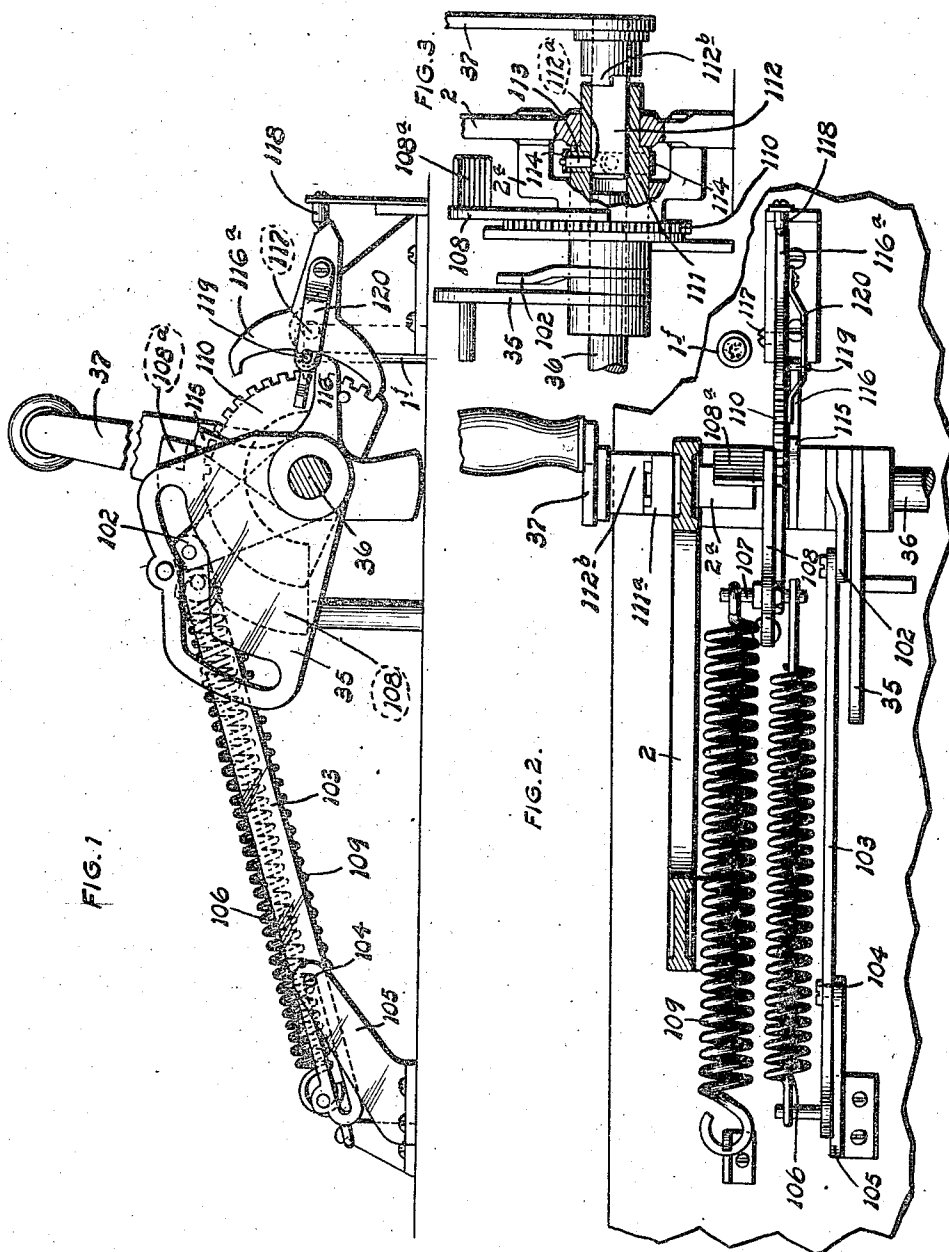


O. THIEME.
 FULL STROKE MECHANISM FOR CALCULATING MACHINES.
 APPLICATION FILED APR. 10, 1911.

995,816.

Patented June 20, 1911.



WITNESSES

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UNITED STATES PATENT OFFICE.

OTTO THIEME, OF ST. LOUIS, MISSOURI, ASSIGNOR TO MOON-HOPKINS BILLING MACHINE COMPANY, OF ST. LOUIS, MISSOURI, A CORPORATION.

FULL-STROKE MECHANISM FOR CALCULATING-MACHINES.

995,816.

Specification of Letters Patent. Patented June 20, 1911.

Original application filed February 7, 1911, Serial No. 607,084. Divided and this application filed April 10, 1911. Serial No. 620,185.

To all whom it may concern:

Be it known that I, OTTO THIEME, a citizen of the United States, residing at 3730 Wyoming street, St. Louis, Missouri, have invented a certain new and useful Improvement in Full-Stroke Mechanism for Calculating-Machines, of which the following is a full, clear, and exact description, 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, forming part of this specification, in which—

Figure 1 is a side elevational view of my improved full stroke mechanism. Fig. 2 is a top plan view of the same. Fig. 3 is a front elevational view partly in section.

This invention relates to a full stroke mechanism for calculating machines, the object being to construct mechanism of the character described, so that the operating handle when once started on its stroke in either direction will be locked against any return movement before said stroke is completed.

One of the features of my invention is the provision of means whereby the double pawl which coöperates with the notches in the rocking element will not ratch it over said element, being held free therefrom by means of a friction device, which friction device is so related to the double pawl that it will, upon the reverse movement of said rocking element move the active pawl into engagement with the rocking element and prevent such reverse movement.

This present application is a division of an application serially numbered 607,084, filed by me February 7th, 1911.

The shaft 36 on which the cams 35 are mounted has a rock-arm 102 pinned thereto (see Fig. 3), to which is connected a link 103 (see Fig. 2), the rear end of said link being slotted and guided upon a screw 104 carried by a bracket 105 (see Fig. 1).

106 indicates a spring arranged upon a pin at the rear end of link 103, the forward end of said spring being connected to a pin 107 mounted in the quadrant plate 108, which pin 107 extends through said quadrant plate and provides a mount for a spring 109. The quadrant 108 is connected to a notched segment 110 constituting a part of the full-stroke mechanism to be hereinafter

described, which notched segment is secured to a sleeve or head 111 mounted in one of the side frames 2 and in a bracket-bearing 2^a secured thereto as shown in Fig. 3. The shaft 36 finds a loose bearing in this sleeve 111.

112 indicates a short stud-shaft extending from the hub of the handle 37, said shaft having a V-shaped notch 112^a formed near its inner end in which fits a plunger 113 held inwardly by a spring 114. The outer end of sleeve 111 is provided with two projections 111^a, whose edges are beveled slightly, these projections coöperating with projections 112^b on the hub of the handle. The inner end of the stud-shaft of the handle is slightly beveled, as shown, so that when it is placed in position it will force the pin 113 upwardly, said pin finding a seat in the recess 112^a when the handle is home, and tending to hold the same against outward displacement.

The projections 111^a and 112^b coöperate with each other so that, when the handle is pulled forward, it is instantly locked to the sleeve 111, but when the handle is moved rearwardly, if it should be carried beyond its intended stroke, the cam faces of the projections 111^a and 112^b will force the handle outwardly so as to disengage it from the sleeve 111. In this manner, no injury can be done to the machine by too quick a return of the handle. It will be noticed that the lugs 111^a and 112^b are spaced apart sufficiently to give the handle a slight movement rearwardly before the lugs contact with each other, and this slight movement is sufficient to enable the pin 113 to ride out of its notch so as to permit the disengaging movement of the handle.

The handle is positively locked to the sleeve 111 on its forward stroke, the quadrant plate 108 is positively rocked at each movement of the handle, and the springs 106, 109 placed in tension. If anything should happen to the mechanism so as to prevent the shaft 36 from being rocked, it is obvious that spring 106 will be extended without communicating motion to the machine. A lug 108^a on the quadrant plate strikes a rubber or leather plug in the upper end of a post 1^a and limits the forward movement of the handle.

The full stroke mechanism.—The notched

segment hereinbefore referred to as constituting a part of the full-stroke mechanism, is positively operated by the handle at each stroke. There are mounted upon the shaft
5 36 so as to move with this notched segment in the normal operation of the machine, two arms 115 and 116. These arms normally co-operate with a double pawl 116^a pivoted at 117 and whose forward extension is beveled
10 so as to coöperate with a spring-pressed holding plug 118. This plug is mounted upon a leaf spring, as shown, and when the parts are in the position shown in Fig. 1 and the handle is ready to be pulled forward,
15 the double pawl 116^a will be held in a position to fall into the notches of the notched segment and prevent any backward movement of the handle until the handle has completed its forward stroke. As the
20 handle completes its forward stroke, the arm 115 strikes a pin 119 carried by the double pawl and reverses the position of said pawl so that the apex of its forward end will be placed above the plug 118, and the upper
25 end of the pawl will now be in a position to drop into the notches of the plate 110 in the event that it should be attempted to pull the handle forward before it has completed its rearward stroke.
30 To avoid the rattling noise of the double pawl riding over the notched periphery of the plate 110, I mount a spring 120 on the double pawl whose free end engages the side face of the segment 110 whereby sufficient
35 friction is produced on the spring to tend to rock the double pawl and hold it out of contact with the periphery of the plate 110. If, however, the movement of the handle should be reversed, this friction throws the double
40 pawl into engagement. This friction spring

acts in both positions of the double pawl to hold either the upper or the lower pawl out of contact with the edge or plate 110, and thus the rattling of the pawls riding over the notches is prevented. When the
45 handle is returned to its home position, the arm 116 strikes the pin 119 and reverses the position of the double pawl.

What I claim is:

1. In a full stroke mechanism calculating
50 machine, the combination of an operating handle, a notched segment carried thereby, a double pawl coöperating therewith, means operated by the handle for reversing the position of said pawl, means for holding
55 the pawl in its reversed position, and a frictional element carried by the pawl and co-operating with said segment to hold the active pawl out of engagement with said
60 notched segment.

2. In a calculating machine, the combination of an operating handle, a notched segment carried thereby, a double pawl co-operating with said segment, means for reversing the position of said segment, and a
65 friction device carried by said double pawl and coöperating with said segment.

3. In a calculating machine, the combination of a handle, a notched segment carried thereby, a double pawl coöperating there-
70 with, and a yielding friction element carried by said double pawl and coöperating with said segment.

In testimony whereof I hereunto affix my signature in the presence of two witnesses,
75 this 8th day of April, 1911.

OTTO THIEME.

Witnesses:

M. P. SMITH,
E. M. HARRINGTON.