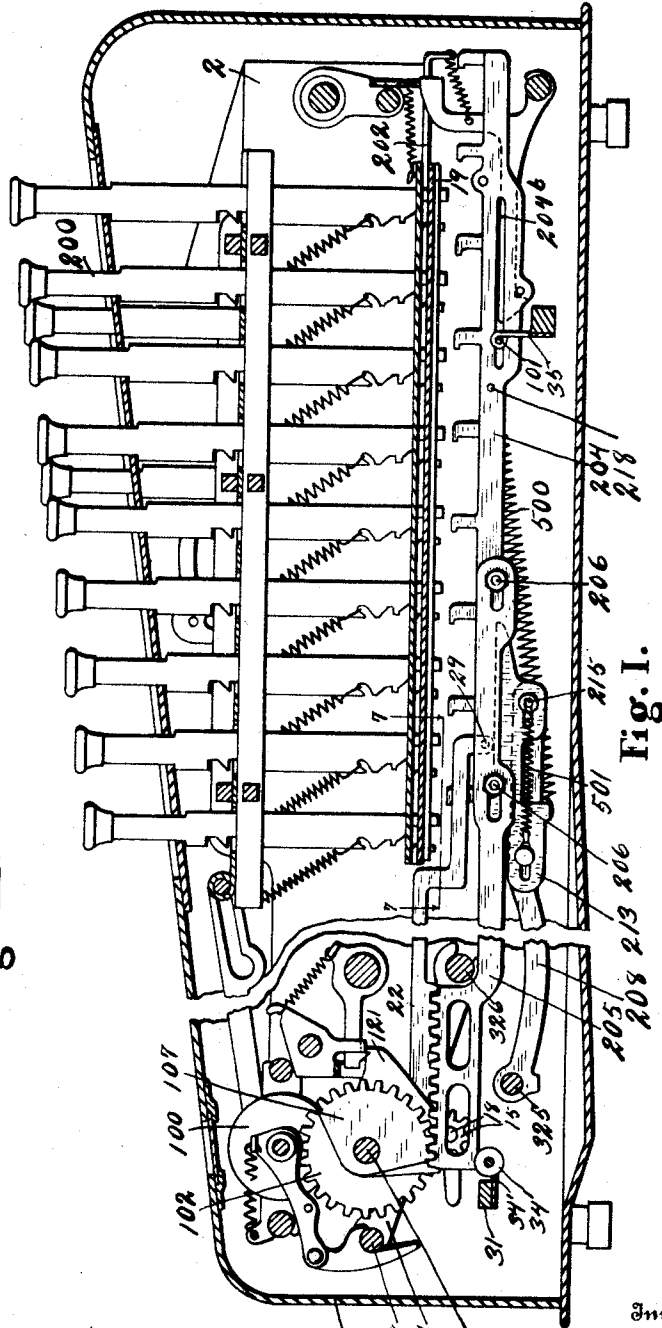
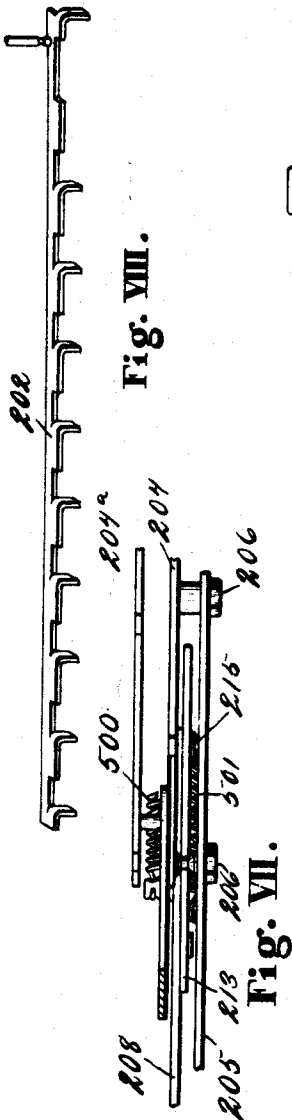


Patented Apr. 16, 1912.

3 SHEETS-SHEET 1.

1,023,235.



Inventor

Witnesses
 M. L. Glasgow
 L. G. Greenfield

384

G. J. Barrett
 Charles D. Reid
 Attorneys

G. J. BARRETT.
CALCULATING MACHINE.
APPLICATION FILED JUNE 24, 1911.

Patented Apr. 16, 1912.

3 SHEETS—SHEET 2.

1,023,235.

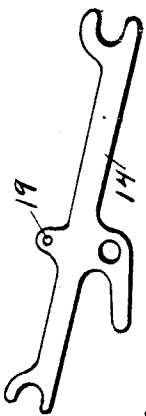
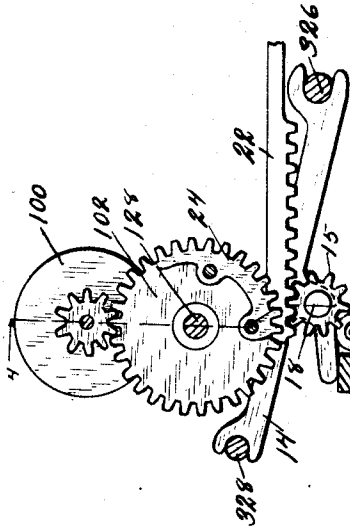


Fig. VI.



Fi. 6. III.

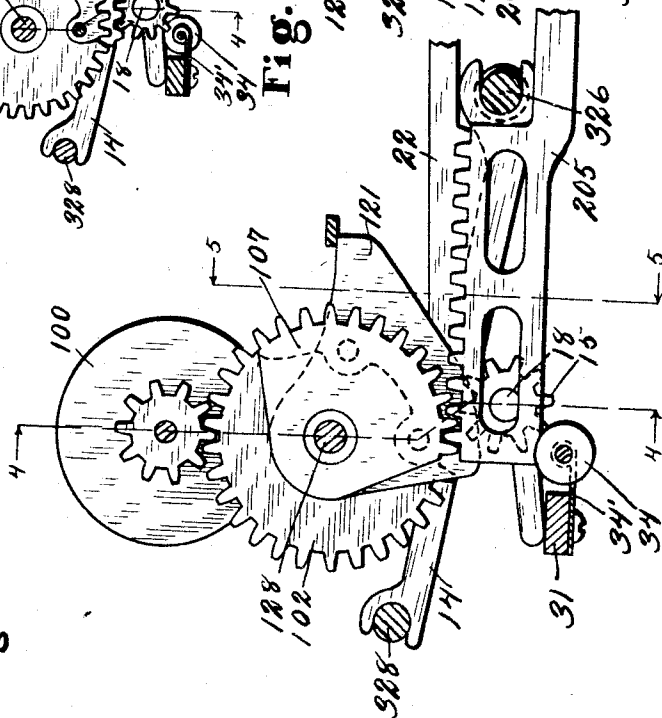


Fig. II.

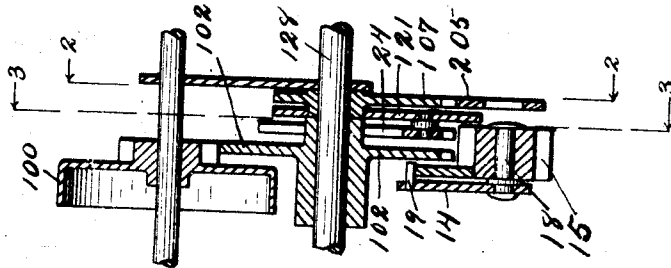


Fig. IV.

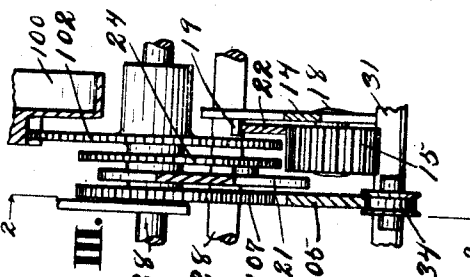


Fig. V

Inventor

Witnesses
M. L. Glasgow
L. G. Greenfield

364
Glenn Barrett
Chaffell & Earl
Attorneys

1,023,235.

G. J. BARRETT.
CALCULATING MACHINE.
APPLICATION FILED JUNE 24, 1911.

Patented Apr. 16, 1912.

3 SHEETS—SHEET 3.

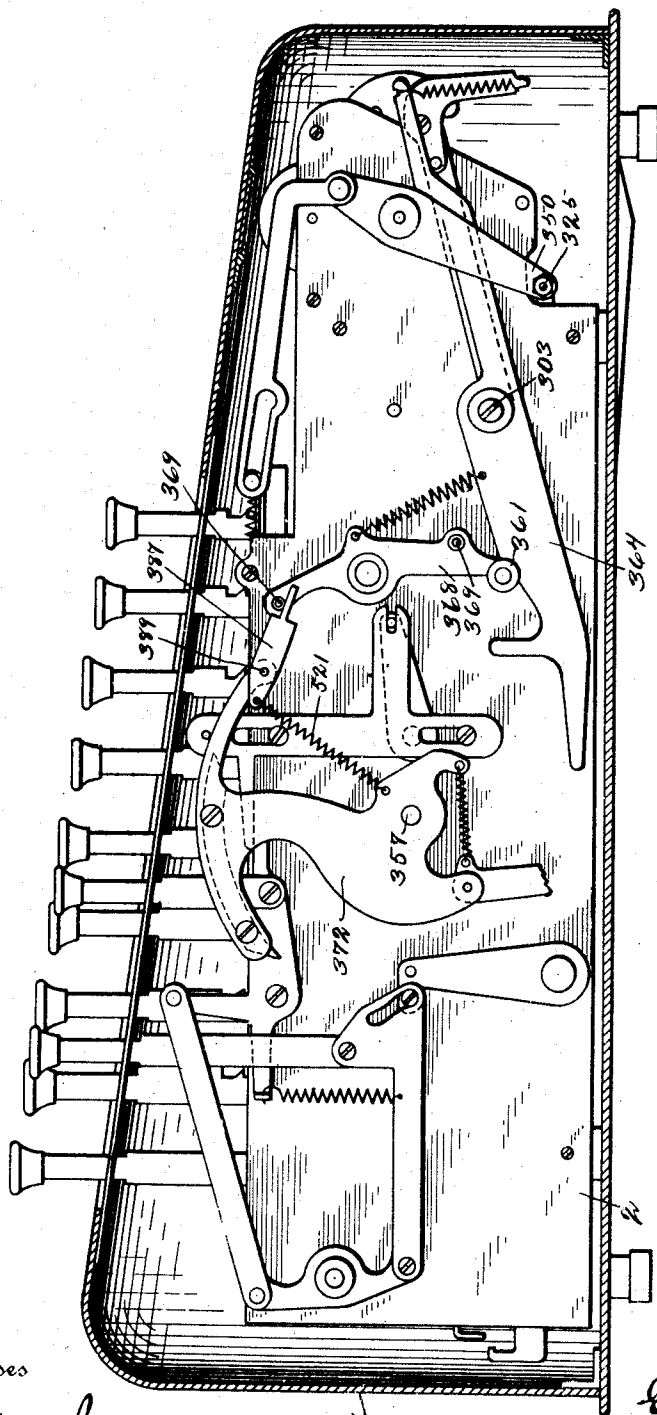


Fig. IX.

Witnesses

L. G. Greenfield
M. P. Woodruff.

Inventor

Glen J. Barrett
Chapman & Deane
Attorneys

UNITED STATES PATENT OFFICE.

GLENN J. BARRETT, OF GRAND RAPIDS, MICHIGAN, ASSIGNOR TO BARRETT ADDING MACHINE COMPANY, OF GRAND RAPIDS, MICHIGAN.

CALCULATING-MACHINE.

1,023,235.

Specification of Letters Patent.

Patented Apr. 16, 1912.

Application filed June 24, 1911. Serial No. 635,061.

To all whom it may concern:

Be it known that I, GLENN J. BARRETT, a citizen of the United States, residing at Grand Rapids, Michigan, have invented certain new and useful Improvements in Calculating-Machines, of which the following is a specification.

This invention relates to improvements in calculating machines of the key set type, and is especially adapted to the machine illustrated and described in my United States Patent No. 976,336, of November 22, 1910.

The prime object of my invention is to provide a practical locking and unlocking means between the reciprocating digit setting mechanism and the accumulating dials, which means will be external to any of the reciprocating members, and independent thereof.

Further objects and objects relating to details of operation and economies of construction will appear from the detailed description to follow.

I accomplish the objects of my invention by the devices and means described in the following specification.

The invention is clearly defined and pointed out in the claims.

A structure which is sufficiently illustrative of a preferred embodiment of my invention is shown in the accompanying drawings, forming a part of this specification, in which:

Figure I is a longitudinal sectional side elevation view of the digit setting and accumulating portion of a calculating machine to which my invention is applied. Fig. II is an enlarged detail sectional elevation view taken from the right of the particular portion of said calculating machine to which my invention is applied, taken on a line corresponding to line 2—2 of Fig. IV. Fig. III is an enlarged detail sectional elevation view of a portion of the parts shown in Fig. II, taken on a line corresponding to line 3—3 of Fig. IV. Fig. IV is a front sectional elevation view taken on a line corresponding to line 4—4 of Figs. II and III. Fig. V is a rear sectional elevation view taken on a line corresponding to line 5—5 of Fig. II. Fig. VI is a detail view of the swing locking arm which carries the locking pinion 15. Fig. VII is a sectional plan view of a portion of the digit setting mechanism of the calculating machine, showing the point

where the restoring or pick-up parts abut said digit setting members, and where locking pinion locking rack 22 is pivoted to said digit mechanism, taken on a line corresponding to line 7—7 of Fig. I. Fig. VIII is a detail perspective view of the keystone trip plate or bar 202. Fig. IX is an elevation view of the left side of a calculating machine to which my invention is applied, showing a form of control for actuating the parts to which my invention particularly relates.

In the drawing similar numerals of reference refer to similar parts throughout the several views and the sectional views are taken looking in the direction of the little arrows at the ends of the section lines.

I have shown my invention in connection with such a calculating machine as that covered by my said Patent No. 976,336. In machines of this class, keystems are depressed and latched down, interposing stop members in the path of travel of cooperating stop members on the reciprocating digit setting slides or parts, thus limiting the forward movement of said reciprocating parts. A bail rod adapted to swing back and forth on suitable bearings operates the dials. Push bars connect the bail and slide members, a transfer spring for storing transfer power being interposed and a compensating spring being provided. A rack rigidly secured to the digit setting slide cooperates with a sector gear. My invention particularly relates to mechanism and means cooperating in this relation. In a machine such as that shown in my said patent, it is necessary to disengage the dials from the reciprocating digit setting mechanism, just referred to, while said digit parts go forward until arrested by the depressed keystems, and then to reengage the same before said digit setting parts return to normal position, during which return the cooperating dials record the digit to be accumulated. This engaging and disengaging is sometimes accomplished by moving the dial gear in and out of mesh with the reciprocating digit members, or as in my said patent, by means of a locking dog or some part carried by some member of the reciprocating digit parts. I have here provided improved cooperating means and mechanism for such purpose.

That my structure here may be very

readily understood, I have numbered the same with numerals of reference exactly in accordance with the numerals of reference of my said prior patent, so far as the parts correspond.

The framework 2 is incased by the casing 1. The keystems 200 suitably formed extend downward through suitable guiding slots in the casing, and a keystone trip plate or bar 202 (see Fig. VIII) is provided, having downwardly extending lugs, to cooperate with the supporting bar 19 beneath. This plate or bar 202 is a common bar for each column of numerals, which is actuated by any one of the keystems of any particular column. Latch means are provided for holding the keystems in the depressed position, and the keystone trip plate or bar 202 is for releasing the same.

Under the guide plates for the keystems are the digit slides, one for each row or column of keystems, and adapted to cooperate with said keystems. The stopping portion of these slides is made up of two side portions 204 and 204^a suitably secured together. A slot 204^b is in the rear portion of these stop pieces through which pass the supporting and guiding rods 101. A guiding frame 35 supports said slides in the rear and their guiding rod 101, as shown. Upon the left side of this reciprocating digit slide is rigidly attached a toothed rack bar 205 by means of the bolts 206, in such a manner as to leave a narrow guiding space between the said bars 204 and 205 (see Fig. VII). The forward portion of the rack bar 205 is supported and guided by the guide pulleys 34 (see Fig. II) at the front of the machine, which pulleys are carried by the cross bar 31. A little bracket 34', secured to said bar 31, is provided for each grooved guiding pulley 34.

A bail rod 325 extends between the arms 350 on each side of the machine (see Figs. I and IX) and impart to it a swinging motion from the rear toward the front and return, as the machine is operated by the actuation of the shaft 357. Freely mounted on this bail rod are the push bars 208. Slidably mounted upon each of said push bars 208 are the slide pieces 213 which are supported on the studs 214 and 215, upon the said push bar 208, arranged in the slotted holes in said pieces 213. A carrying spring 501 extends between the stud 215 on bar 208 and said slide 213, exerting a tension upon slide 213 toward the rear of the machine.

A compensating spring 500 extends between the digit slide frame side 204, being connected at 218, and slide 213, as will be seen. As push bar 208 of any slide advances by reason of the swinging bail 325, which is actuated from the actuating shaft 257, as will be later shown, if the movable

part has been released, the slide 213 is forced away from its normal position. The bail 325 always has the same movement every time the operating shaft 257 is actuated. If a number "1" keystone has been depressed, the digit slide moves forward a distance sufficient to rotate the dials one space. When the bail 325 is returned, it through the push bar forces said slide back to normal position. The number "1" keystone cooperating with the forward ear of the digit slide prevents any further movement of said slide, and thus the correct amount is registered. Further movement of the bail 325 after contact with the number "1" stopping ear on 204^a on the number "1" keystone causes the slide 213 to leave the normal position.

It will be noted that the springs 500 are extended only after the slides reach their respective limits, as described in my said former patent.

The purpose of the slotted connection between slides 213 supported on studs 214 and 215 and push bar 208 is for the purpose of storing power for the carrying operation, as described in my said former patent. The transfer mechanism in this present structure is the same as that appearing in my said former patent, and will not need to be described here in detail.

A swinging locking arm 14 corresponding to the locking arm 337 in the former patent, is here provided. This locking arm 14 carries a pinion for coupling an actuating segment to the dial gear. The operating shaft 357 is connected so that during its movement the digit setting reciprocating members are drawn forward and returned.

By referring to Fig. IX it will be noted that a little in advance of the actuating shaft 357 is pivotally mounted the arm 368 carrying the pins 369. At the lower extremity of this swinging arm is the roller 361 adapted to cooperate with the cam lever 364. An arm 372 is mounted on shaft 357. Pivotally mounted upon a forward projection from the arm 372 at pivot 389 is the tongued pawl 387 held in a central normal position by the spring 521. As the arm 372 advances toward the front of the machine, this pawl 387 contacts with pin 369 at the upper extremity of the arm 368, which in turn forces the roller 361 backwardly, allowing the forward end of the lever 364 to drop suddenly. As this pawl 387 advances toward the limit of its forward motion, the under side of the same engages the lower pin 369, so that the early portion of the return movement of the arm 372 again forces the roller 361 back to position shown in Fig. IX. The arm or lever 364 is loosely mounted upon the shaft 326 and is held in position by the screw 303.

The locking arms 14, as stated, are pivoted

on rock shaft 326. A cross rod 328 controls the movement thereof. There is one of these locking arms for each dial section arranged in relative position shown in Figs. 5 II, III, IV and V. Attached to the stop arm 121 is a segment 24, the teeth of which align with those of the sector 107, and the three parts, segment 24, arm 121 and sector 107, move in synchrony on the shaft 128. 10 Thus it will be seen that the segment 24 swings in proximity to the gear 102.

Upon the locking arm 14 the locking pinion 15 is suitably journaled at 18. The teeth of the pinion 15 are broad enough to mesh with both the segment 24 and the gear 102, as shown in Figs. IV and V. It will be very readily understood that when pinion 15 is in mesh with segment 24 and gear 102, it forms a lock between the sector 107 with 20 cooperating parts and gear 102, and that when so locked any movement of the racks and digit setting slide will produce a like movement of the gear 102 and hence of the dial 100 which is geared thereto.

It will be understood from the description herein and by reference to my said patent that when operating means common to such machines and herein described start, the locking arm 14 is allowed to drop, drawing 30 the locking pinion 15 out of locking mesh with gear 102 and segment 24, and that when operating mechanism starts to return, locking pinion 15 is again thrown into mesh with gear 102 and segment 24, and by reason 35 of proper timing of parts, this is accomplished before the digit setting slide starts toward normal position. Fig. IV shows a structure for swinging the locking arm 14, and has already been sufficiently described. 40 To understand the new features which I have here produced, I will say that the pinion 15 and its related parts are the essential thing.

22 is a locating rack always in mesh 45 with the pinion 15, being held in such mesh by the pin 19 and of course adapted to swing with pinion 15 and arm 14. The other end of said rack 22 is attached to the digit setting slide at 29. The object of this 50 rack is to force an alinement of the teeth of pinion 15 with segment 24. If this is not done, it might be possible for the points of the gear teeth of pinion 15 and segment 24 and gear 102 to come together and not 55 mesh, thereby locking up the machine and preventing its operation.

From what I have said it is clear that many modifications of my improved calculating machine are possible without departing 60 from my invention. The invention is adapted to various styles of calculating machines. Various devices and mechanisms may be provided for throwing my improved locking pinion into and out of mesh. 65 I have shown a preferred form of such

means. I desire to claim the device broadly and also specifically, as indicated by the appended claims.

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

1. In a calculating machine, the combination of reciprocating digit setting members carrying racks, keystems to limit the movement of said reciprocating members in 75 one direction, sectors meshing with said racks, gear segments carried by said sectors, dial gears mounted axially with said sectors and in proximity to said segments, swinging locking pinions adapted to mesh simultaneously with both said segments and 80 said dial gears and lock the same against relative movement, means for moving said locking pinions in and out of mesh with said gears and segments, and locating racks 85 always in mesh with said locking pinions and connected to said reciprocating digit members, substantially as described.

2. In a calculating machine, the combination of reciprocating members having teeth, 90 dial gears corresponding to said reciprocating members, locking pinions adapted to mesh simultaneously with said reciprocating members and said dial gears, means for 95 throwing said locking pinions into and out of mesh with said reciprocating member and said dial gears, and means for alining the teeth of said locking pinions with the teeth of said reciprocating members, sub- 100 stantially as described.

3. In a calculating machine, the combination of reciprocating members having teeth, accumulating dials, dial actuating 105 members having teeth, locking pinions adapted to mesh simultaneously with said reciprocating and said dial actuating members, means for throwing said locking pinions into and out of mesh with said reciprocating and said dial actuating members, 110 and means for alining the teeth of said locking pinions with the teeth of said reciprocating members, substantially as described.

4. In a calculating machine, the combination of reciprocating members, dial actuating 115 members and means for locking and unlocking said reciprocating members and said dial actuating members, consisting of locking pinions mounted on swinging arms and adapted to swing independently of the 120 movement of said reciprocating members.

5. In a calculating machine, the combination of reciprocating members, dial actuating members, means for locking and 125 unlocking said reciprocating members and said dial actuating members consisting of locking pinions mounted on swinging arms and adapted to swing independently of the movement of said reciprocating members, 130 and a locating rack meshing with said pinion

and pivotally connected to said reciprocating members.

6. In a calculating machine, the combination of reciprocating members, dial actuating members, and means for locking and unlocking said reciprocating members and said dial actuating members consisting of rotary locking members mounted independently of said reciprocating members.

10 7. In a calculating machine of the key set type, the combination of key-stems, means of latching the same in depressed position, reciprocating members cooperating with said

key-stems, dial actuating members, means for locking and unlocking the same and means for carrying said locking and unlocking means independent of said reciprocating members. 15

In witness whereof, I have hereunto set my hand and seal in the presence of two witnesses. 20

GLENN J. BARRETT. [L. S.]

Witnesses:

HELEN M. NEWTON,
MABEL F. HOLLWAY.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."