T. J. FALVEY.

ATTACHMENT FOR CALCULATING MACHINES.

APPLICATION FILED MAY 5, 1906.

910,806.

Patented Jan. 26, 1909.

5 SHEETS—SHEET 1.

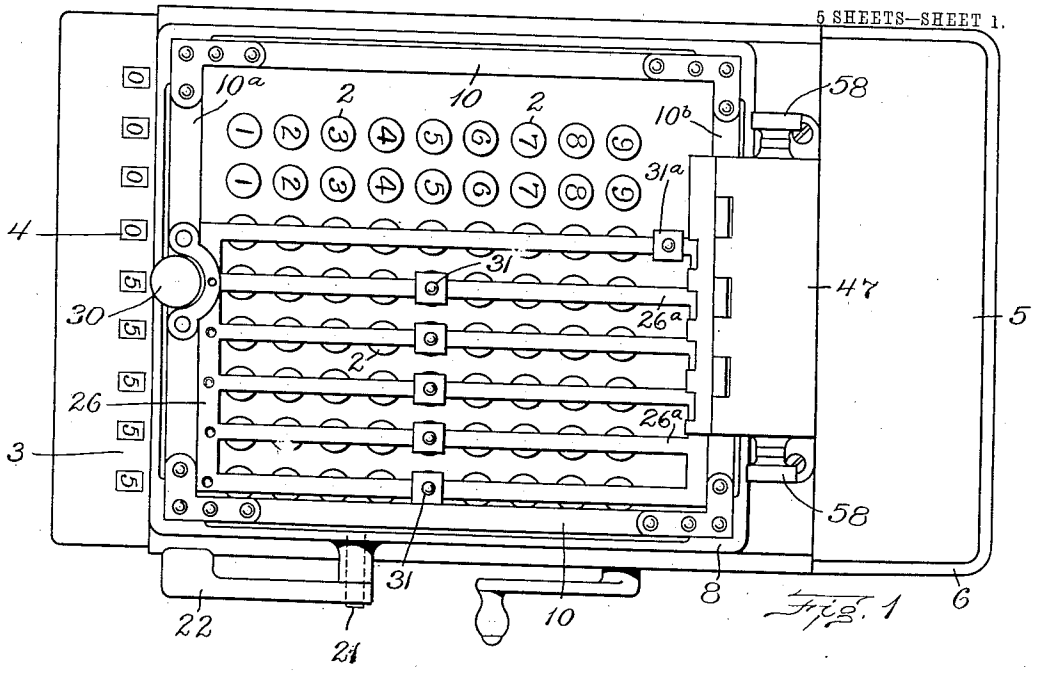


Fig. 1

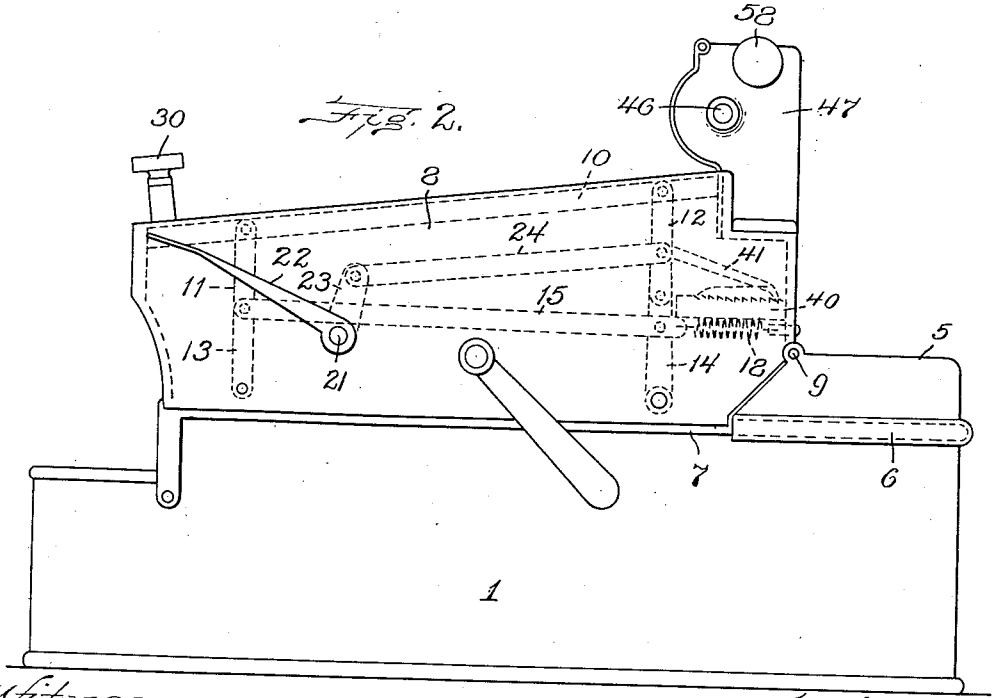


Fig. 2.

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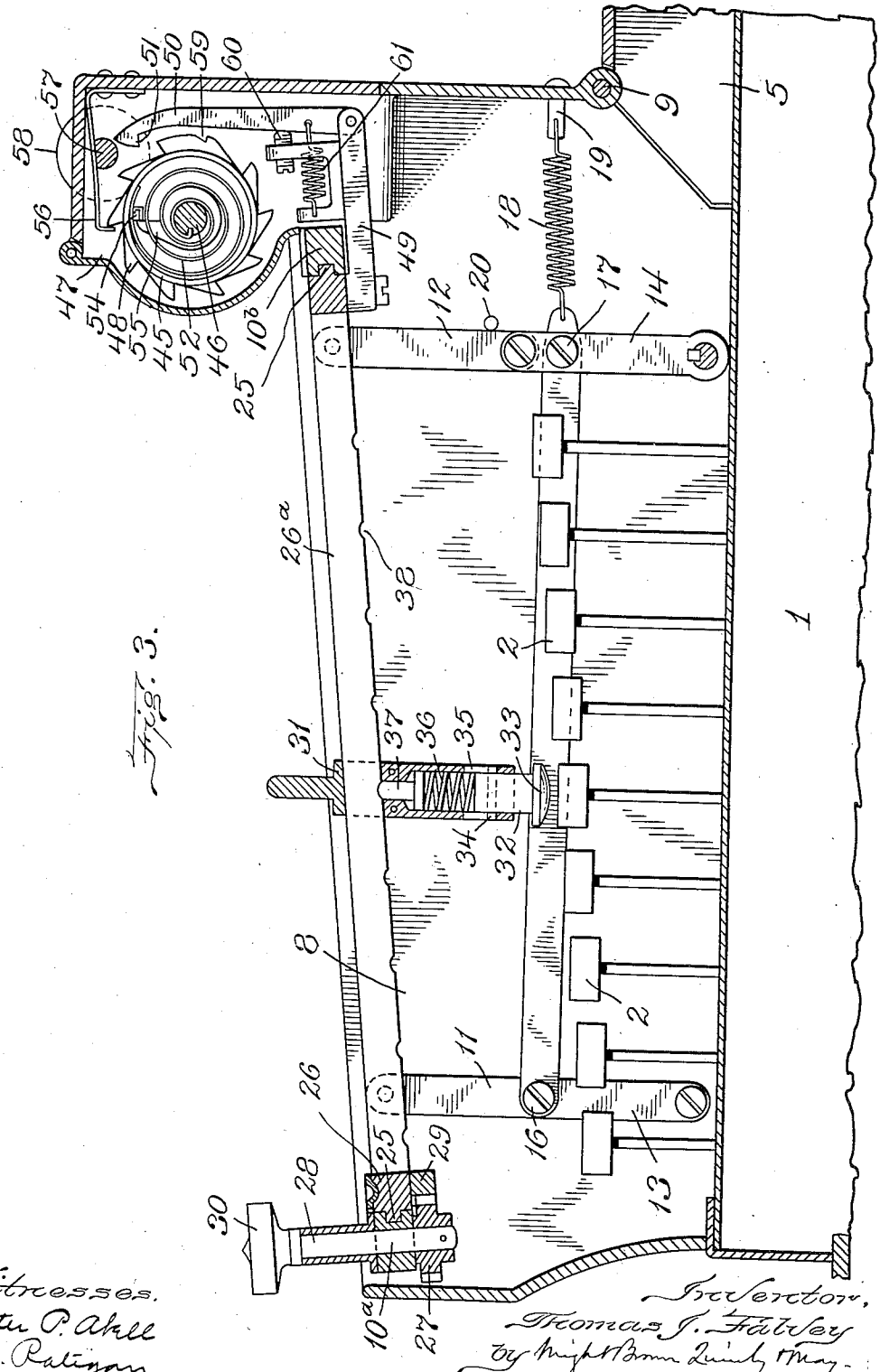


Fig. 3.

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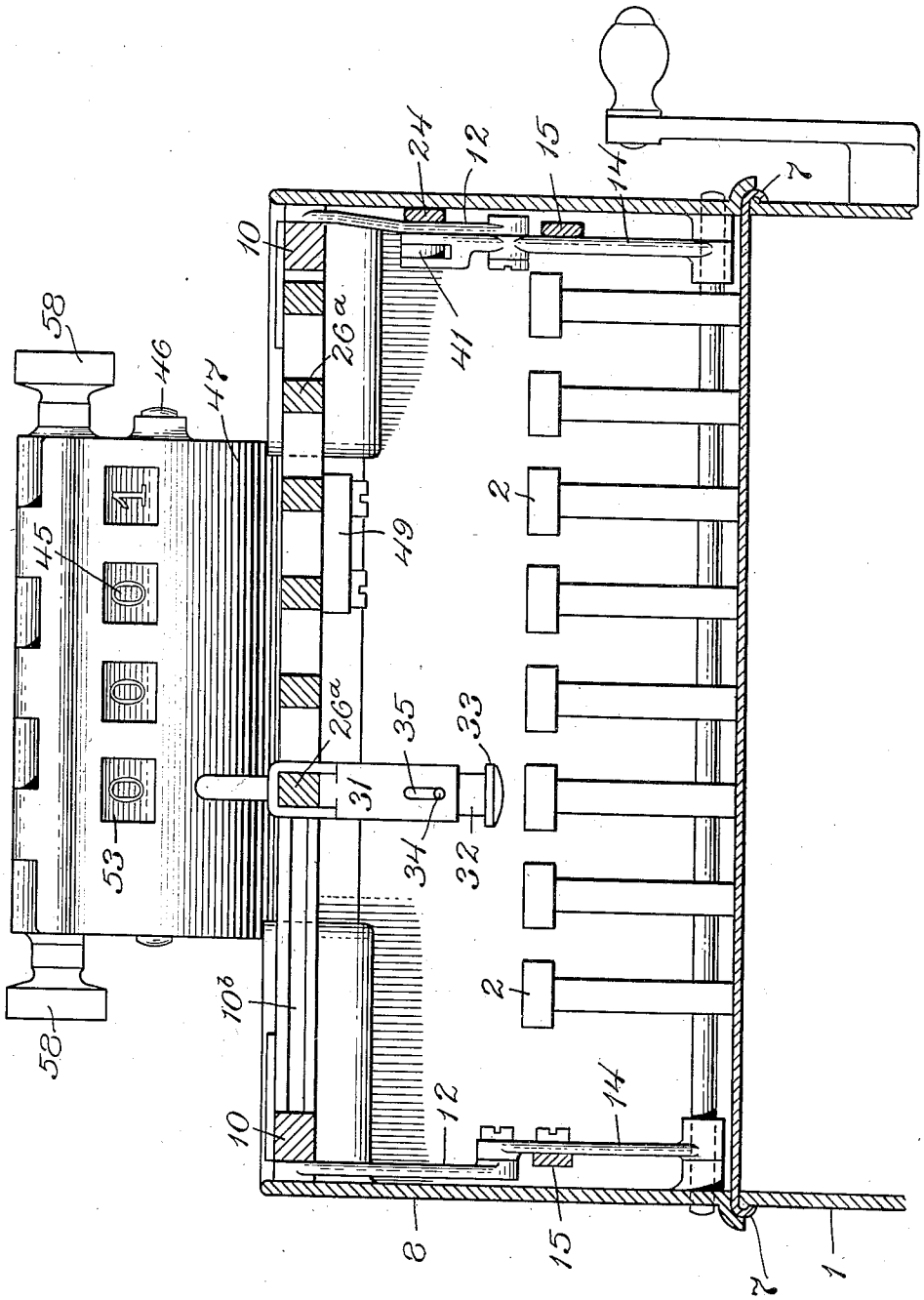


Fig. 4.

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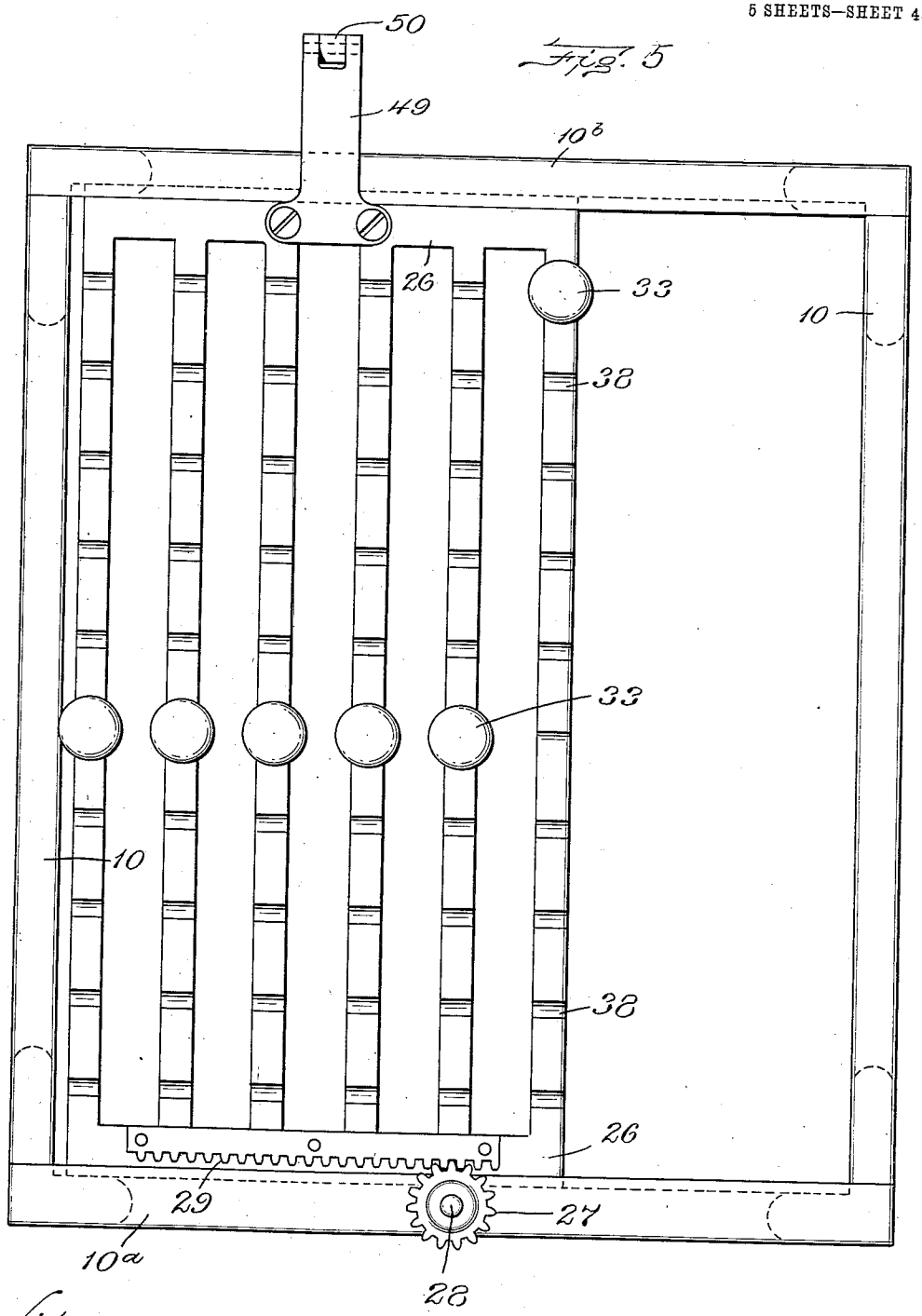
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5 SHEETS—SHEET 4.

Fig. 5



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5 SHEETS—SHEET 5.

Fig. 6.

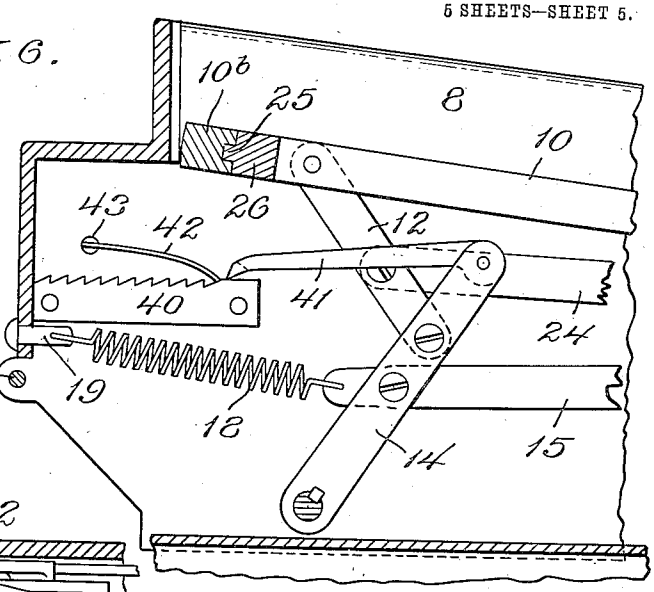


Fig. 10.

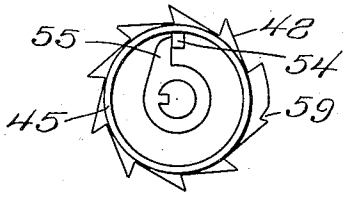


Fig. 7.

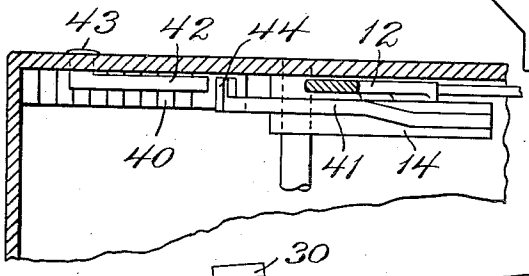


Fig. 8.

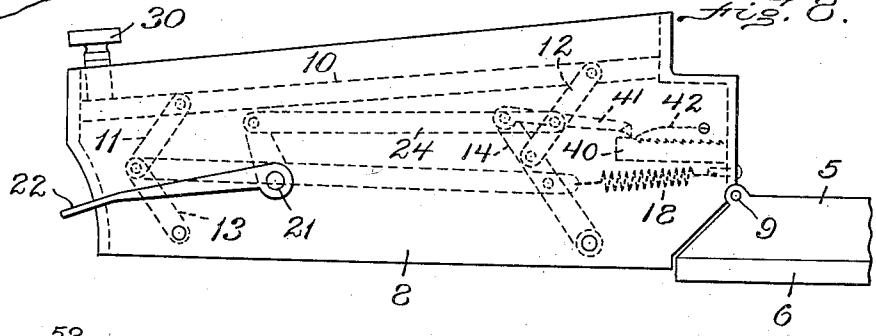
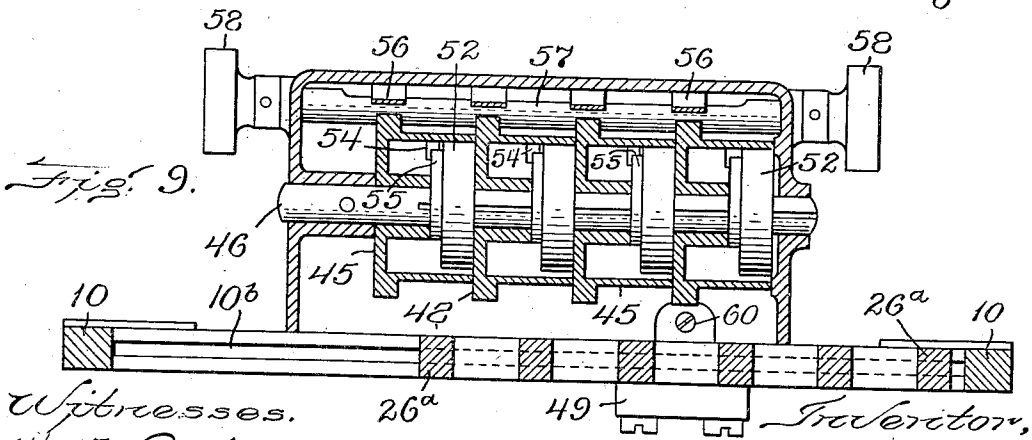


Fig. 9.



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UNITED STATES PATENT OFFICE.

THOMAS J. FALVEY, OF NEEDHAM, MASSACHUSETTS.

ATTACHMENT FOR CALCULATING-MACHINES.

No. 910,806. Specification of Letters Patent. Patented Jan. 26, 1909.

Application filed May 5, 1906. Serial No. 315,374.

To all whom it may concern:

Be it known that I, THOMAS J. FALVEY, of Needham, in the county of Norfolk and State of Massachusetts, have invented certain new and useful Improvements in Attachments for Calculating-Machines, of which the following is a specification.

The object of this invention is to provide an appliance which may be easily attached to and removed from adding machines of known construction, so that multiplication and division can be performed on such machines with absolute accuracy and great rapidity.

The appliance constituting the present invention is intended to be applied to adding machines which have key-boards provided with a number of operating finger-keys arranged in parallel columns, each column having nine keys for adding numbers between 1 and 9. It is particularly adapted for use with the adding machine known as the "comptometer" which is one of that class of machines technically called "key-operated", in which carrying takes place between adjacent number wheels when several of the keys are depressed at once. It is known by users of this class of machine that multiplication, which is simply an operation in which the same number is added a number of times, can be performed by the operator placing his fingers upon the keys representing the digits of the multiplicand and depressing them the number of times represented by the multiplier. Division also can be performed in a somewhat similar manner. This manual operation, however, is inaccurate, particularly when a number having many digits is multiplied, for the reason that it is difficult for the operator to press equally upon all of the keys with his fingers, and secure an actuation of the calculating mechanisms controlled by all of the keys. The operator must also keep account mentally of the number of times he depresses the keys in performing the multiplication, and there is danger of his losing count. These sources of possible inaccuracy are increased with increased rapidity of operation. It is my aim therefore, to provide a mechanical device by which the same results, but unvitiated by inaccuracy, may be obtained. To this end the attachment which I provide has devices which may be placed over any of the number keys and depressed to engage and cause operation of the latter, and of the calculating mechanism. It is so constructed that all of the keys engaged will be depressed the full amount necessary to operate the adding mechanisms, and has a lock for preventing return of the keys or of the pressing devices until the stroke has been carried to its completion. I also provide counters which indicate the number of times that the pressing devices have been actuated in performing the multiplication, these counters at the conclusion of the operation showing the multiplier, and thus automatically checking the work and showing at once whether it has been completed or correctly performed.

The accompanying drawings illustrate a preferred embodiment of my invention, and of these drawings,—Figure 1 represents a plan view of an adding machine having my attachment applied thereto. Fig. 2 represents a side elevation of the same. Fig. 3 represents a longitudinal section of the attachment showing its relation to the operating keys of the adding machine. Fig. 4 represents a cross-sectional elevation of the same. Fig. 5 represents a plan view of the under side of the frame carrying the pressing devices which actuate the number keys. Fig. 6 represents a sectional elevation showing in detail the devices for preventing return of the pressers and number keys before the completion of the operating stroke of the latter. Fig. 7 represents a sectional plan view of the same. Fig. 8 represents a view similar to Fig. 2, showing the pressing devices in depressed position. Fig. 9 represents an axial section of the counting device. Fig. 10 represents a detail elevation of one of said counting devices.

The same reference characters indicate the same parts in all the figures.

Referring to Figs. 1 and 2, 1 represents an adding machine such as the comptometer or any other having a number of duplicate finger keys which may be simultaneously actuated to cause registration of several digits at once, and which also has carrying mechanism capable of carrying from several places at once. The adding machine of the type illustrated here has a number of finger keys 2 which are arranged in parallel columns, there being eight of such columns shown here. There are nine keys in each column numbered consecutively from 1 to 9, and each adapted to actuate mechanism for recording numbers corresponding to those which they bear. The corresponding keys of the several columns are

arranged in parallel rows. At the front of the machine is an indicator 3 through which appear the number - bearing wheels 4, of which there is one more than the number of columns of keys. The keys of each column are adapted to operate one of the number-bearing disks and the extreme left-hand disk is operated by the left-hand keys to carry over when the numbers added by these keys have a result greater than 9.

The attachment constituting my invention consists of a casing or outer frame made in two parts, of which the part 5 is provided on the rear and sides with a flange 6 adapted to fit over the bead 7 which is formed around the upper edge of the adding machine. The other part 8 of the outer frame of the attachment is hinged at 9 to the part 5 so that it can be swung away from or toward the top of the adding machine. When in the latter position it rests upon the top of the machine and surrounds the finger keys 2. Fitting within the casing 8 and slidable up and down therein is a presser carrier or frame 10 to which adjacent the opposite sides of the casing are pivoted links 11 12. These links are pivotally connected to links 13 14, respectively, which latter are pivoted to the sides of the casing. Joined to these links is a connecting link or bar 15 which is attached to the links 11 13 at the pivot 16 of the latter, and is pivoted at 17 to link 14. Elastic means, such as a spring 18, is connected to the link and to a fixed abutment 19 secured to the casing, and tends to hold the connecting link 15 in the position shown in Figs. 2 and 3, wherein the links 11 12 and 13 14 are in line with each other. The link 12 is held against a stop 20 which prevents these links being carried out of line by the spring. In one side of the casing 8 is pivoted a rock-shaft 21 to which outside of the casing is secured an operating handle 22, and to which on the inside of the casing is attached an arm 23. This arm is joined by a connecting rod 24 with one of the links 12. When the lever 22 is depressed, the links 11 12 and 13 14 are carried out of line with each other, as shown in Figs. 6 and 8, and the presser carrier 10 is accordingly depressed. Upon pressure being removed from lever 22, spring 18 restores the links to their rectilinear position and elevates the said carrier.

The end members 10^a 10^b of the carrier 10 are grooved to form guideways for tongues or projecting ribs 25 on an inner frame 26. This inner frame is of less width than the carrier 10 and is made in the form of a grid having a number of bars 26^a which extend longitudinally of the apparatus and are normally parallel to the columns of number keys. The spacing between the bars 26^a is the same as that between the columns of keys and the inner frame is adapted to be placed so that the bars lie over a number of adjacent columns. It is also movable so as to place the several bars over other of the columns. The means for so moving the frame 26 consists of a pinion 27 fixed to a shaft 28 journaled in the outer carrier frame 10 and engaging a rack 29 fixed to the adjacent end member of the inner frame 26. A handle 30 is attached to the shaft 28 so that it and the pinion may be turned manually.

It is to be understood that, for the purpose of effecting the operative downward movements of the pressers, the frame 26 constitutes a part of the carrier 10. In other words, the frames 10 and 26 constitute the presser carrier; but for purposes of description and not of limitations, the number 10 is herein very frequently referred to as the carrier and the number 26 as a frame.

On each side of the bars 26^a is mounted a pressing device consisting of a slide 31 having a slot through which the bar passes and being tubular at its lower end. In the tubular portion is mounted a plunger 32 having a head 33, and being retained in the slide by means of a pin 34 carried by the plunger, the ends of which extend through slots 35 in the sides of the tubular part of the slide. Within the tube above and bearing on the plunger is a spring 36, the upper end of which presses against a headed pin 37 which extends from the tubular part of the slide into the transverse slot thereof and bears against the under side of the bar 26. The reaction of spring 36, as will be evident, presses in opposite direction against the pin 37 and the plunger 32, holding the former in contact with the bar 26^a, and the latter in its most extended position projecting from the slide. Each of the bars 26^a has on its under side notches 38 spaced correspondingly to the keys 2 into which the pin 37 is adapted to project and hold the presser directly over and in line with one of the keys. By slipping the presser along the bar on which it is mounted, it may be placed over any one of the keys of the column adjacent the bar, or it may be moved entirely beyond the column into the position occupied by the presser 31^a, shown in Fig. 1. When in this position, the presser will not engage any of the keys upon depression of the movable carrier. Besides retaining the holding pin 37 elevated, the spring 36 permits the presser to act yieldingly upon the number key so that a somewhat greater depression of the carrier than that required to cause actuation of the keys may be provided for. This is done on account of the fact that the number keys of the machine may be arranged at different heights and that therefore a greater motion of the pressers than of the keys is necessary to enable each presser to actuate any of the keys over which it may be set. By depressing the handle 22, the pressers are brought into engagement with the keys over which

they are set, and press them down to actuate the calculating mechanism.

In order to insure operation of the calculating mechanism at each depression of the pressing devices, I provide a lock which prohibits return of the pressing devices until after they have completed their operative stroke. This lock consists of a toothed bar 40 fixed to the outer frame or casing, and a pawl or locking dog 41 pivoted to one of the links 14. A spring 42 of less width than the toothed bar 40 (see Fig. 7) is secured to a stud 43 in the wall of the casing, and its end extends over the last tooth of the bar. These teeth are inclined toward the direction in which the links are deflected for depressing the carrier so that the pawl may slip over them, but will engage them and be locked if the links are drawn in the other direction. The pawl 41 as a whole lies beside the spring 42, as shown in Fig. 7, but it has a lateral projection 44 in the same vertical plane as the spring. When the pawl is being moved as the pressers are depressed, the toe 44 slips along beneath the spring 42 until the end of the stroke is reached, when the toe raises the end of the spring and slips out from under it. On the return of the links and pressers the toe 44 rides up on the spring and is held away from the toothed bar so that its passage is entirely unobstructed. When normal position of these parts is reached, the toe of the pawl passes over the fixed end of the spring and drops down into engagement again with the toothed bar. From the foregoing it will be understood that at all times before the completion of the operative movement of the pressers, the locking dog 41 is in engagement with the locking teeth, and prevents return of the pressers, but that when the operating movement has been carried to its completion and the calculating mechanism is operated, the lock is disengaged and free return is permitted. Thus it is impossible for the operator to make an incomplete actuation of the mechanism and imagine he has operated it.

For indicating the number of times that the pressing devices are operated, I provide number wheels 45 which are loosely mounted upon a shaft 46, and inclosed in an auxiliary casing 47. Each of the number wheels has a ratchet 48 formed upon or attached to it, having nine teeth, and the laterally-movable frame 26 carries an arm 49 to which is attached a pawl 50 having a tooth 51 adapted to engage the teeth of one of the ratchets. Each of the number wheels has connected to it one end of a spring 52 of which the other end is secured to the shaft 46. This spring tends to return and hold the number wheels with their zero characters showing through slots 53 in the casing 47. The wheels are retained in this zero position by stops 54 engaging arms 55 secured to the shaft 46. After each actuation by the pawl 50 the number wheels are held and prevented from returning to zero position by spring pawls 56. Each of these pawls passes over a flattened or recessed portion of an eccentric shaft 57 which has handles 58 at its ends. When the shaft is turned, it raises the pawls and releases the number wheels which are then returned by springs 52 until their stops 54 engage the arms 55.

The number wheels 45 are spaced from each other according to the spacing of the columns of keys, and the pawl 50 is so arranged that when the movable frame 26 is in the position at the right of the machine, shown in Fig. 1, the pawl is in position to engage the right-hand ratchet. When, however, the laterally movable frame 26 is shifted into positions over the other columns, the pawl is carried into engagement with the other wheels in succession. Thereby the number of times which the carrier is actuated to depress the keys in each of its several positions is indicated. In order to prevent the number wheel 45 from being rotated beyond the point at which its number 9 shows at the indicator, one of its teeth is made of double width, and has a shallow notch 59 of only enough depth to permit engagement by the holding pawl 56, but not enough to receive the toe 51 of the operating pawl. The operating pawl is held against an adjustable stop 60 by a spring 61 so that it will engage the teeth of the ratchets when moved downward, and yield to pass over them when returned.

The manner of operation of the device will now be described. In performing multiplication, the pressing devices 31 on the several bars 26^a are set over the keys representing the digits of the multiplicand, and the handle 22 is then depressed the number of times represented by the multiplier. The result appears on the number wheels 4 at the front of the machine, and the number of times that the pressers have been actuated appears on the wheels 45. Thus at the end of a multiplying operation, the answer appears on one set of wheels and the multiplier on the other, the multiplicand being shown by the pressers, whereby the work can be checked and any errors at once discovered. When the multiplication is by a number of units, the movable frame 26 is placed in its extreme right-hand position and depressed the number of times required. When, however, the multiplication is by tens or hundreds, the movable frame 26 is placed one or two spaces, as the case may be, to the left, thus making the multiplicand 10 or 100 times as great and the pressers are depressed the required number of times. To illustrate, suppose the number 547,821 is to be multiplied by 765. First the pressers on the several bars 26^a are placed over the numbers in the several columns of keys representing the digits of the multipli-

cand. The movable frame 26 is then put in its extreme right-hand position and depressed five times. This multiplies the first number by 5 and shows the number 5 on the right-hand wheel 45. The frame 26 is then moved one space to the left so that each of the pressers is over the corresponding key in the next column to the left. Every depression of the carrier in this position adds ten times the multiplicand to the result previously secured, and six depressions thereof add sixty times the multiplicand. The numeral 6 appears after this operation on the second wheel 45, showing that multiplication by 65 has been performed. For completing the operation, the frame 26 is moved a further distance to the left so as to multiply by hundreds, and is depressed seven times, giving the required result and showing the number 7 on the third wheel 45. In the corresponding manner a multiplicand of five digits may be multiplied by a number of four digits, the presser on the left-hand bar 26[a] being then moved out of the way, as shown in Fig. 1 at 31[a]. In performing this operation the movable frame 26 is shifted into four instead of three different positions.

My invention may also be embodied in machines of different proportions, wherein higher numbers may be multiplied, and also it may be arranged to multiply numbers of seven digits by those of two, by simply adding another bar 26[a] and increasing the width of frame 26.

For performing division, the number to be divided, or dividend, is caused to appear on the number wheels 4 by first manipulating the keys 2. Then the frame 26 is set in its left-hand position, and the pressers respectively set over keys which represent the difference between the divisor and the next higher integral power of 10. That is, if the divisor is a unit, the number over which the presser is set is the difference between that unit and 10. If the divisor is of two digits, the number used is the difference between the divisor and 100; if of three digits, the difference between the divisor and 1000, and so on. The carrier is then actuated to add these numbers successively to the dividend, this addition being carried on until the number on the left-hand wheel is the same as the number of times the pressers have been actuated, and the next wheels represent a number less than the divisor. That is, until the numbers shown by the left-hand wheel 4 and the left-hand wheel 45 are the same, and the number shown by the next few of the wheels 4, having as many digits as the divisor, is less than the divisor. Then the frame 26 is shifted one space to the right, and actuated until the second wheel 4 and second wheel 45 show the same number, and the following wheels 4 show a number less than the divisor. This is repeated until the end of the operation, when the wheels 45 and the first few left-hand wheels 4 both show the quotient. Suppose for instance, a number, 421,673, is to be divided by 681. The dividend is made to appear on the six left-hand wheels 4, and the pressers 31 on the three left-hand bars 26[a] are set over the keys 3, 1 and 9 respectively, of the left-hand three columns, these digits representing the number 319, which is the difference between 1000 and 681. The handle 22 is depressed six times, when the number shown on the left-hand wheel 4 will be increased from 4 to 6, (that indicated by the next three wheels being 130, which is less than the divisor) and the left-hand wheel 45 will also show the number 6, this being the first number of the quotient. Then the frame 26 is moved to the right and depressed once, when the second of the wheels 4 will show the number 1, which will also appear on the second wheel 45, and the third, fourth and fifth of the wheels 4 will show 626, another number which is less than the divisor. Again, the frame 26 is shifted and depressed nine times, whereupon the third of the wheels 4 shows the number 9. Wheels 45 and the left-hand three of the wheels 4 both show 619, which is the quotient, and the next three wheels of the series 4 show the number 134, which is the remainder.

Both of the operations of multiplication and division may be performed with great rapidity, and without danger of defective actuation of the keys, and with no danger of error from the operator's losing count of the number of times which he has depressed the keys.

I claim:—

1. A device for performing multiplication and division on calculating machines, comprising a frame adapted for attachment to such machines, a plurality of pressers adapted to be set in various operative positions, a movable carrier for said pressers, and provisions whereby all of said pressers may be moved bodily simultaneously through substantially equal distances from whatever position they may occupy.

2. A device comprising a detachable frame adapted for attachment to calculating machines having operating keys, a presser carrier, a plurality of pressers supported by said carrier and adapted to be set in various operative positions, provisions for bodily moving the carrier whereby said pressers may be actuated simultaneously and substantially equally in any position, and indicating devices for showing the number of actuations of said pressers.

3. A device adapted for attachment to calculating machines, comprising a presser carrier, a plurality of pressers longitudinally adjustable and laterally shiftable on said carrier so as to be placed in various operative positions, and provisions for bodily moving

the carrier whereby said pressers may be actuated simultaneously and substantially equally.

4. An attachment for calculating machines comprising a carrier, a holder frame supported thereby, a plurality of pressers each adjustable on said holder frame, said holder frame being movable bodily to shift the pressers laterally, and provisions whereby the carrier and holder frame may be moved bodily through substantially the same distance to actuate the pressers.

5. An attachment for calculating machines, comprising a carrier, a holder frame supported thereby, a plurality of pressers each adjustable on said holder frame in a line parallel with the sides of the said frame, said holder frame being movable to shift the pressers laterally, and means for bodily moving all parts of the holder by substantially the same amount to actuate the pressers.

6. An attachment for calculating machines, comprising a carrier, a holder frame supported thereby, a plurality of pressers each adjustable on said holder frame in a line parallel with the sides of the frame, said holder frame being movable to shift the pressers laterally, means for bodily moving all parts of the holder through substantially the same distance to actuate the pressers, and indicators for showing the number of actuating movements of the holder.

7. A device for attachment to calculating machines, comprising a carrier, pressers adjustably mounted thereon, provisions for shifting the pressers into different lateral positions, means for moving all parts of the carrier bodily to cause the pressers to actuate the calculating mechanism, and a plurality of indicators, each operated during the actuating movement of the carrier in one of its different positions for showing the number of such movements in each position.

8. A device for attachment to calculating machines, comprising a carrier, pressers adjustably mounted thereon, provisions for shifting the pressers into different lateral positions, means for bodily moving all parts of the carrier through substantially the same distance to cause the pressers to actuate the calculating mechanism, a plurality of indicators, and connections for operating the indicators separately to cause them to show the number of actuating movements of the carrier in each of its different positions.

9. A device for attachment to calculating machines, comprising a frame or casing, a carrier, pressers adjustably mounted thereon, provisions for shifting the pressers into different lateral positions, means for bodily moving the carrier to cause the pressers to actuate the calculating mechanism, a plurality of indicators mounted in the frame of the attachment, and driving means movable into position for direct connection with different indicators as the carrier is shifted into different positions, for operating said indicators during actuating movements of the carrier to show the number of such movements in each position.

10. An attachment for calculating machines comprising a presser carrier movable laterally, pressers adjustable thereon and movable therewith, and means operative in all positions of the carrier for preventing return thereof and of the pressers before completion of the operative movement of said carrier and pressers.

11. An attachment for calculating machines comprising a laterally movable presser frame, pressers mounted thereon, means for actuating the frame and pressers, means for returning the frame and pressers, and means operable always in one location for preventing return of the frame in any location until after the completion of its operative movements.

12. An attachment for calculating machines comprising a bodily movable carrier, pressers mounted thereon, means for moving the carrier and pressers, means for returning the carrier and pressers, and a lock for preventing return of the carrier and pressers before, and inoperative for this purpose after, the completion of their operative movement.

13. An attachment for calculating machines comprising a bodily movable carrier, pressers mounted thereon, means for moving the carrier and pressers, means for returning the carrier and pressers, a lock for preventing return of the carrier and pressers before, and inoperative for this purpose after, the completion of their operative movement, and means rendering said lock inoperative after the completion of such movement.

14. An attachment for performing multiplication and division on adding machines, comprising a holder having a number of guides, pressers adjustable on such guides, and actuating devices connected with the holder at separated points, simultaneously operable to move all parts of the holder and the pressers carried thereby through substantially equal distances.

15. An attachment for performing multiplication and division on adding machines, comprising a holder having a number of guides, pressers adjustable on such guides, and actuating devices connected with the holder at separated points supporting the same and adapted to be simultaneously deflected to move all parts of the holder and the pressers carried thereby through substantially equal distances.

16. An attachment for performing multiplication and division on adding machines, comprising a holder having a number of guides, pressers adjustable on such guides, a frame in which said holder is held so as to be laterally adjustable, and actuating means

connected with the frame for reciprocating the same in a direction transverse to the adjustments of the pressers and holder.

17. An attachment for performing multiplication and division on adding machines, comprising a holder having a number of guides, pressers adjustable on such guides, a frame in which said holder is held so as to be laterally adjustable, a coöperating rack and pinion held by the holder and frame for adjusting the former, and actuating means connected with the frame for reciprocating the same in a direction transverse to the adjustments of the pressers and holder.

18. An attachment of the character described comprising a supporting frame, a movable frame, pressers mounted thereon, jointed links connected to the movable and supporting frames, and means for deflecting the links, whereby the pressers are moved.

19. An attachment of the character described comprising a supporting frame, a movable frame, pressers mounted thereon, jointed links connected to the movable and supporting frames, means for deflecting the links, whereby the pressers are moved, and yielding means tending to extend the links, for restoring the movable frame and pressers to normal position.

20. An attachment of the character described comprising a supporting frame, a movable frame, pressers mounted thereon, jointed links connected to the movable and supporting frames, means for deflecting the links, whereby the pressers are moved, and a relatively movable interengaging toothed member and dog for preventing premature return of the frame.

21. An attachment of the character described comprising a supporting frame, a movable frame, pressers mounted thereon, jointed links connected to the movable and supporting frames, means for deflecting the links, whereby the pressers are moved, and a relatively movable interengaging toothed member and dog attached to the supporting frame and links respectively, for preventing premature return of the frame.

22. An attachment of the character described comprising an exterior frame or casing, a movable frame laterally and longitudinally adjustable, pressing devices carried thereby, means connected between the exterior casing and movable frame for moving the latter, a stationary toothed bar, a relatively movable locking dog connected to and movable with said frame-moving means adapted to engage the bar, and a deflector for separating the dog from the bar upon completion of a movement of the frame.

23. An attachment of the character described comprising an exterior frame or casing, a movable frame, pressing devices mounted thereon, means connected between the exterior casing and movable frame for moving the latter, a stationary toothed bar, a relatively movable locking dog connected to said frame-moving means adapted to engage the bar, and a deflector distinct from the dog extending over the bar with its yielding end close to the end tooth of the bar in position to separate the dog therefrom on return of the frame after completion of an operating movement.

24. An attachment of the character described comprising an exterior frame or casing, a movable frame, pressing devices mounted thereon, means connected between the exterior casing and movable frame for moving the latter, toothed indicator members having a series of numbers, and an actuator pawl carried by the frame for directly engaging and moving said members upon movement of the frame.

25. An attachment of the character described comprising an exterior frame or casing, a movable frame, pressing devices mounted thereon, means connected between the exterior casing and movable frame for moving the latter, a series of indicators having numbers, and an actuator carried by the frame for directly engaging and moving one of said indicators upon movement of the frame; the frame being shiftable and thereby bringing said actuator into operative relation with different indicators.

26. An attachment of the character described comprising an exterior frame or casing, a movable frame, pressing devices mounted thereon, means connected between the exterior casing and movable frame for moving the latter, a series of indicators having numbers and mounted in the frame or casing of the attachment, an actuator carried by the movable frame for moving the indicators, and retaining devices for holding the indicators in the positions given them by the actuator.

27. An attachment of the character described comprising an exterior frame or casing, a movable frame, pressing devices mounted thereon, means connected between the exterior casing and movable frame for moving the latter, a series of toothed indicators having numbers and mounted in the frame or casing of the attachment, an actuator pawl carried by the movable frame for engaging and moving the indicators, retaining devices for holding the indicators in the positions given them by the actuator, and means for disengaging said retaining devices to permit return of the indicators.

28. An attachment of the character described comprising an exterior frame or casing, a movable frame, pressing devices mounted thereon, means connected between the exterior casing and movable frame for moving the latter, a series of indicators having numbers, a fixed shaft on which they are rotarily mounted, coöperating stops on the

indicators and shaft, springs tending to bring and retain said stops in contact, an actuator carried by the frame for moving the indicators upon movement of the frame, pawls engaging the indicators for retaining them in the positions to which they are moved by the actuator, and an eccentric rotary detent for disengaging the pawls from the indicators.

29. In a device of the character described, a pressing member having a transverse passage whereby it may be mounted on a guide, and including a relatively movable pressing portion, a detent extending into the transverse passage, and a spring interposed between the pressing portion and detent for yieldingly projecting the pressing portion outward and forcing the detent against the guide.

In testimony whereof I have affixed my signature, in presence of two witnesses.

THOMAS J. FALVEY.

Witnesses:

A. C. RATIGAN,

L. E. KENNEDY.