R. L. FLOYD.

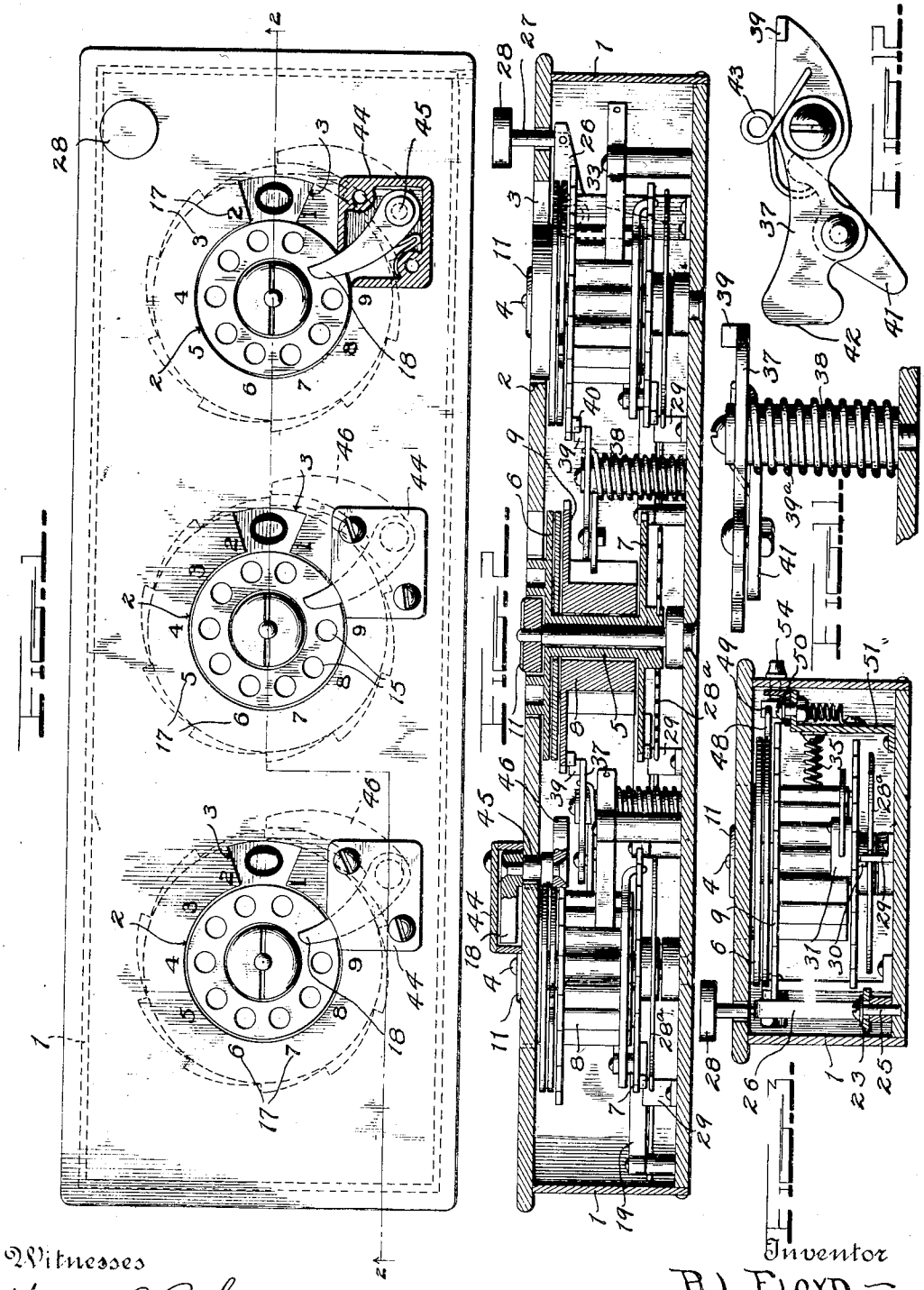
ADDING MACHINE.

APPLICATION FILED MAR. 20, 1915.

1,283,488.

Patented Nov. 5, 1918.

4 SHEETS—SHEET 1.



Witnesses

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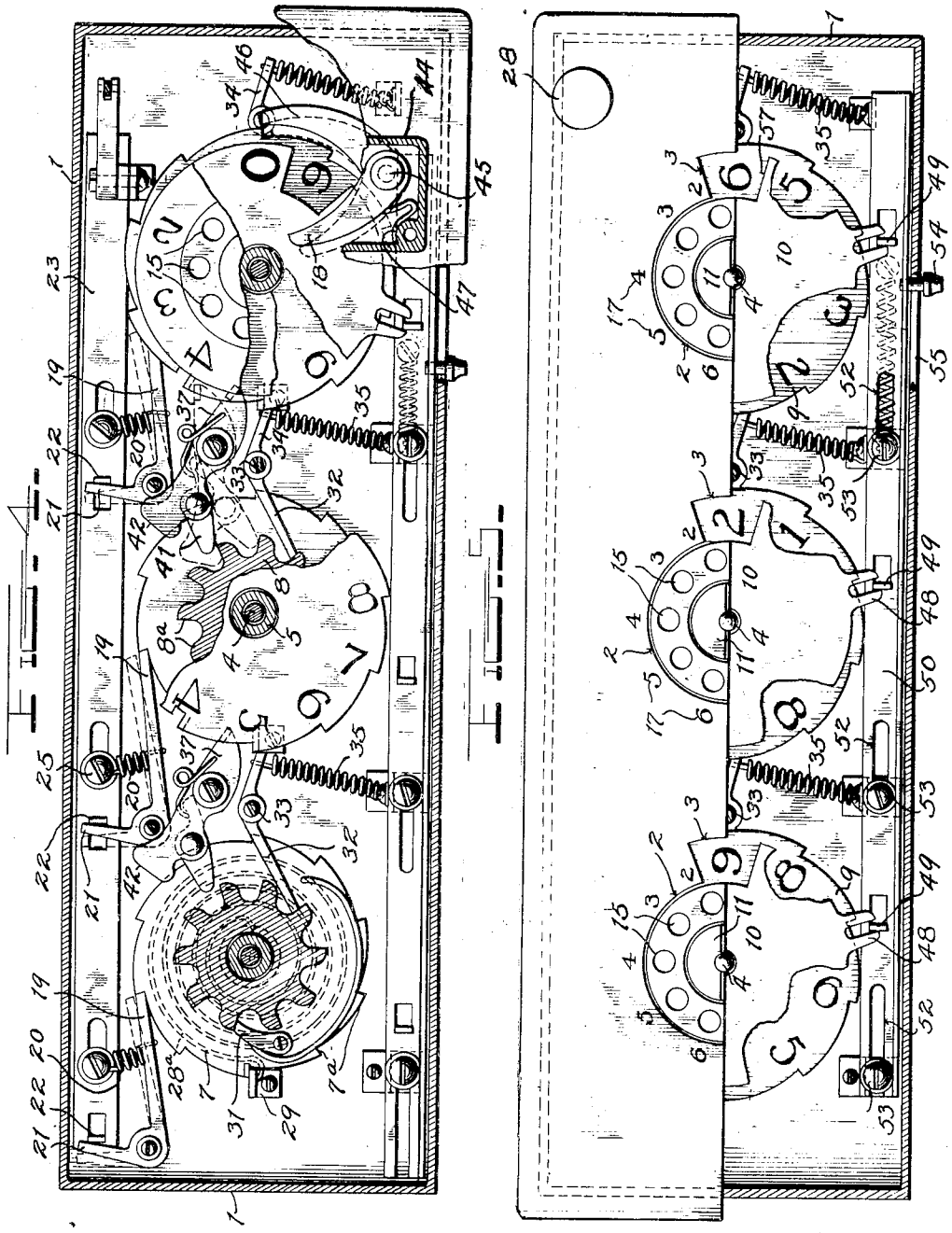
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4 SHEETS—SHEET 2.



Witnesses

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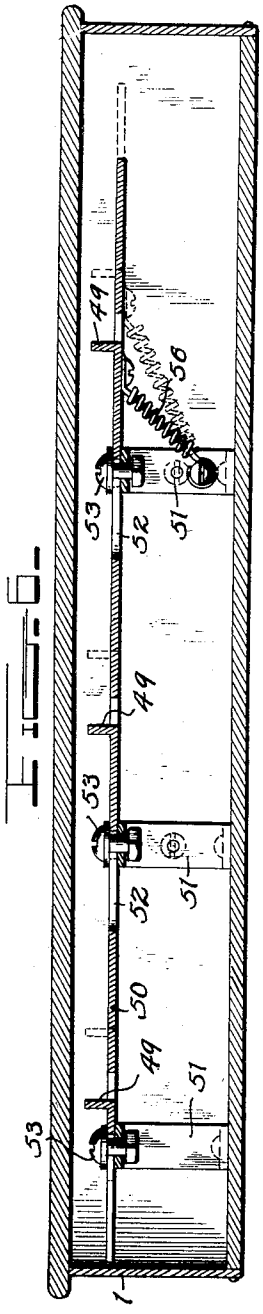
ADDING MACHINE.

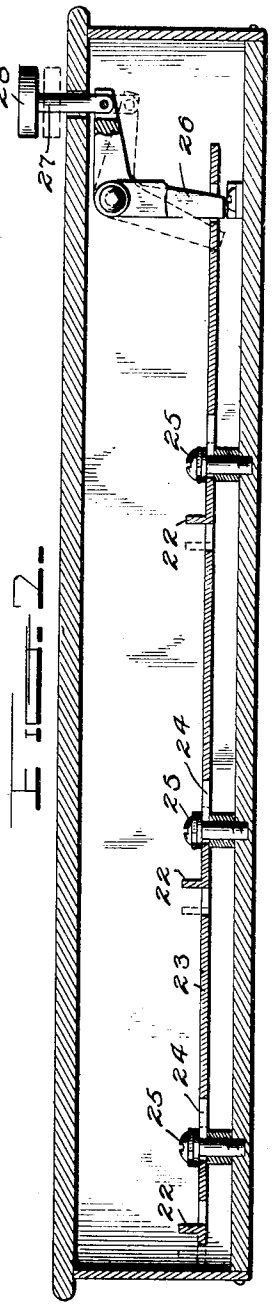
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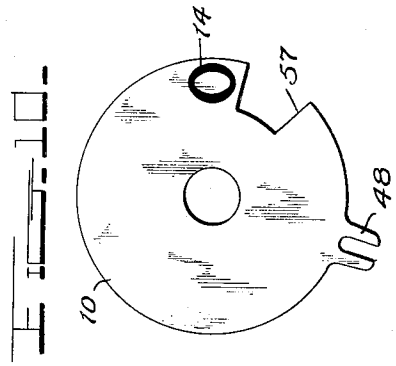
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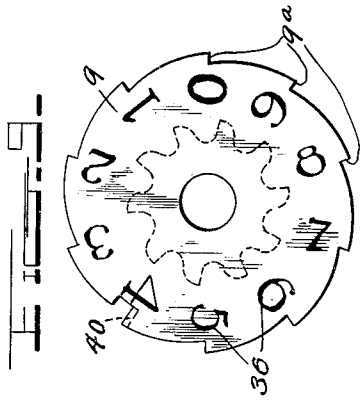
Patented Nov. 5, 1918.

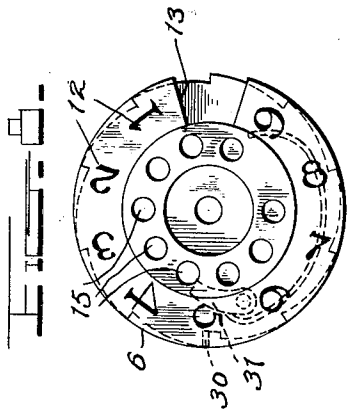
4 SHEETS—SHEET 3.











Witnesses

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4 SHEETS—SHEET 4.

FIG. 13

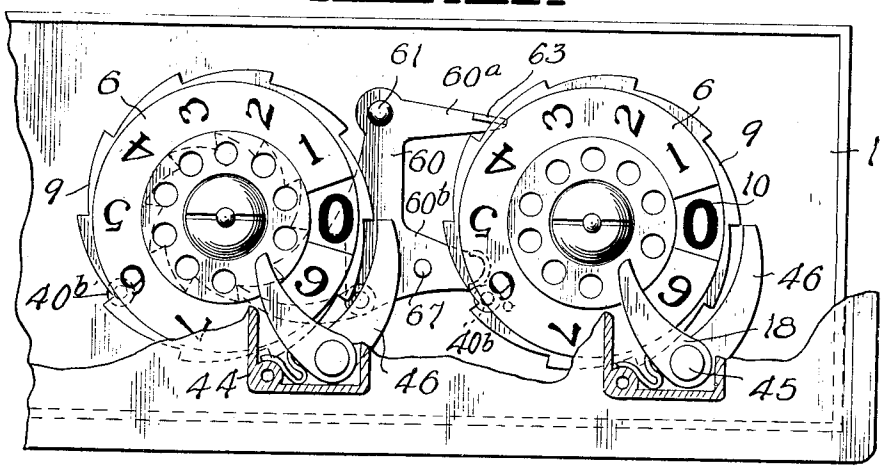


FIG. 14

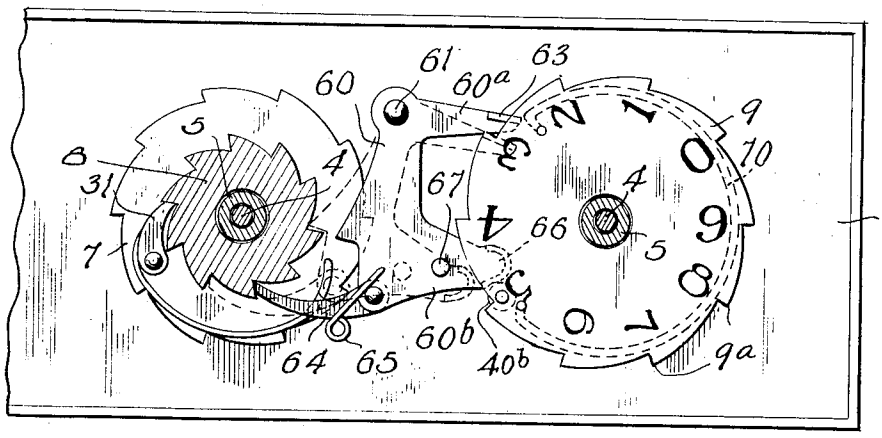
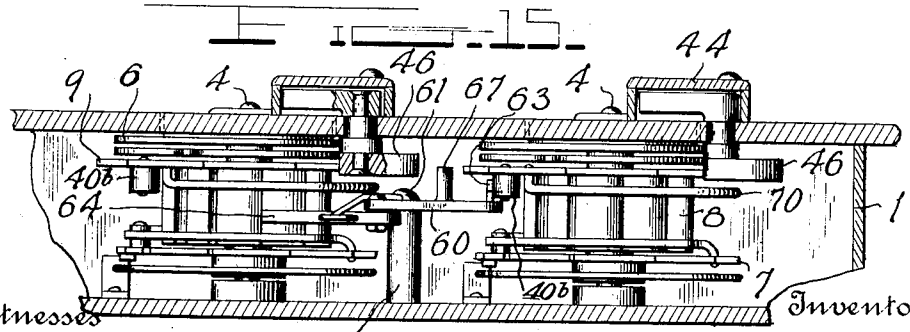


FIG. 15



Witnesses

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UNITED STATES PATENT OFFICE.

ROBERT L. FLOYD, OF LITTLE ROCK, ARKANSAS.

ADDING-MACHINE.

1,283,488. Specification of Letters Patent. Patented Nov. 5, 1918.

Application filed March 20, 1915. Serial No. 15,778.

To all whom it may concern:

Be it known that I, ROBERT L. FLOYD, a citizen of the United States, residing at Little Rock, in the county of Pulaski and State of Arkansas, have invented certain new and useful Improvements in Adding-Machines, of which the following is a specification.

The present invention relates to certain new and useful improvements in the construction of adding machines such as are adapted to be placed upon the desks of bookkeepers, accountants and the like to enable long columns of figures to be accurately and quickly added with slight mental effort, the object of the invention being to provide a device of this character which embodies novel features of construction whereby each number charged into the machine is visible as an entirety before the next number is charged into the machine so that any errors in manipulating the machine can be readily detected and corrected.

A further object of the invention is to provide an adding machine which is comparatively simple and inexpensive in its construction, which is compact in form and light in weight so as to be readily moved from place to place, and which automatically locks the various dials as they are moved step by step in the manipulation of the machine so as to prevent errors due to lost motion and excess movement caused by momentum when the machine is quickly operated.

With these and other objects in view, the invention consists in certain novel combinations and arrangements of the parts as will more fully appear as the description proceeds, the novel features thereof being pointed out in the appended claims.

For a full understanding of the invention, reference is to be had to the following description and accompanying drawing, in which:—

Figure 1 is a top plan view of an adding machine constructed in accordance with the invention, one of the housings for the stop triggers being shown in section.

Fig. 2 is a longitudinal sectional view on the line 2—2 of Fig. 1.

Fig. 3 is a transverse sectional view through the machine.

Fig. 4 is a plan view of the machine with portions broken away and shown in section to more clearly illustrate the details of construction.

Fig. 5 is a plan view of the machine with the various dials in the position assumed when reading the total, one-half of the casing being broken away and the corresponding half of the item dials being also removed to show the means for moving the zero dials, portions of the latter being broken away to show the total dials which are disposed immediately below the same.

Fig. 6 is a longitudinal sectional view through one side of the machine, showing the zero dial controlling slide.

Fig. 7 is a similar view through the opposite side of the machine, showing the resetting slide for the item dials.

Fig. 8 is a plan view of the item dial removed from the machine.

Fig. 9 is a similar view of the total dial.

Fig. 10 is a similar view of the zero dial which is interposed between the item dial and the total dial.

Fig. 11 is an enlarged side elevation of one of the carrying levers and the post upon which it is mounted.

Fig. 12 is an enlarged plan view of the carrying lever.

Figs. 13, 14 and 15 are detail views showing a slightly modified construction of carrying mechanism adapted to be placed between adjacent sets of dials.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawings by the same reference characters.

Specifically describing the present embodiment of the invention, the numeral 1 designates the casing which may be of any suitable size and shape, depending very largely upon the capacity of the particular machine. The top of the casing is provided with a series of circular openings 2, there being one of these openings for each set of numeral dials and one set of numeral dials being necessary for each digit of the number representing the capacity of the machine. In the present instance three sets of numeral dials have been shown for the purpose of illustration, so that no number of more than three digits could be charged into the machine and the total sum of all numbers charged into the machine must not exceed

a number of three digits, although it will be perfectly obvious that the number of sets of numeral dials can be multiplied indefinitely so that a machine of any desired capacity can be constructed on the same principle.

A notch or cut away portion 3 providing a view opening is formed on one side of each of the main openings 2, the characters upon the sets of dials being visible through the openings 3, as will be hereinafter described. Projecting upwardly from the bottom of the casing is a series of posts 4, one post being provided for each of the main openings 2 and the posts being disposed at the centers of the respective openings. Loosely mounted upon each of the posts 4 is a sleeve 5 and rigid with the upper end of each of the sleeves is an item dial 6 (see Fig. 8). In a similar manner an annular flange 7 is rigid with the lower end of the sleeve, the said flange being provided at its periphery with ratchet teeth 7^a. This flange will be hereafter referred to as a ratchet flange.

Fitted loosely upon the sleeve 5 is a hub 8 which is provided at its periphery with ratchet teeth 8^a and will be hereafter referred to as a ratchet hub. Rigid with the upper end of the ratchet hub is a total dial 9 (see Fig. 9), the periphery of this dial being formed with ratchet teeth 9^a. Interposed between the item dial 6 and the total dial 9 of each set of dials is a zero dial 10 (see Fig. 10) which is loose upon the sleeve 5 and is adapted to be rotated independently of the other dials. The various dials are all arranged to rotate about the post 4 as a pivot center, and are shown as retained in position upon the post by means of a retaining nut 11 fitted upon the reduced upper end thereof.

The upper face of the item dial 6 is provided with a peripheral row of numbers 12 which range from 1 to 9 and are normally covered by the top of the casing so as to be invisible. The space between the characters 1 and 9 at the two ends of the series is sufficient to provide for the character 0, although the portion of the disk which would otherwise receive the 0 character is notched or cut away at 13 so as to display a 0 character 14 on the zero disk 10. The notch 13 of the item dial 6 is normally under the view opening 3 of the casing so that all of the numerals on the item dial are covered and the 0 character 14 on the zero disk 10 is visible through the view opening. It will be obvious, however, that by rotating the item dial 6 in a clockwise direction the various numerals thereon ranging from 1 to 9 will be successively brought under the view opening, the 0 character 14 on the zero dial being simultaneously covered up.

For the purpose of manipulating the item dial 6, a series of pockets or seats 15 corresponding to the series of numbers 12 is provided thereon, the said seats being shown in the present instance as formed within an annular rib or enlargement which extends upwardly into the main opening 2. Numerals 17 also corresponding to the numerals 12 on the item dial are provided on the top of the casing around the main opening 2, the said openings being located opposite the respective seats or pockets 15. In order to rotate the item dial 6 to bring any particular numeral thereon under the view opening 3, the point of a pencil or other like implement is inserted in that one of the seats or pockets 15 opposite the corresponding numeral of the series of numbers 17 on the top of the casing and the dial then rotated in a clockwise direction until the point of the pencil is brought into engagement with a trigger 18 which projects into the path thereof. For instance, should it be desired to charge the numeral 4 into a set of dials, the point of a pencil would be inserted in that pocket 15 opposite the numeral 4 of the series of numerals 17 and the dial moved in a clockwise direction until the point of the pencil engages the trigger 18. The numeral 4 of the series of numerals 12 on the item dial 6 would then be under the view opening 3 and visible therethrough.

A series of pawls 19 (see Fig. 4) are provided for engagement with the ratchet flanges 7 of the various item dials to hold the same against backward movement when released. These pawls 19 are normally held in operative position by the compression springs 20, and are provided at the pivot ends thereof with lateral arms 21 adapted to be engaged by projections 22 on a resetting slide 23 to simultaneously release all of the item dials after one number has been charged into the machine and preparatory to charging another number into the machine. This resetting slide 23 (see Fig. 7) is slotted at 24 to receive the guide pins 25 and is engaged at one end thereof by one arm of a bell crank lever 26, the opposite arm of the bell crank lever being connected to a plunger 27 which extends upwardly through the top of the casing and terminates in a button or finger piece 28. It will thus be obvious that by pressing downwardly upon the button 28 the resetting slide 23 will be moved and all of the pawls 19 simultaneously retracted into inoperative position so as to release all of the item dials.

Arranged under the ratchet flange 7 of each item dial is a spiral spring 28^a (see Fig. 2), one end thereof being connected to the lower end of the sleeve 5, while the opposite end thereof is connected to some stationary member such as a stop 29 projecting upwardly from the bottom of the casing. This stop 29 is engaged by a projection 30 upon

the ratchet flange 7 when the item dial is at zero position with the notch 13 thereof under the view opening 3. When the item dial is revolved, as previously described, to charge a numeral therein, the spiral spring 28ª is placed under tension, although the item dial is held against backward movement by means of the pawl 19. As soon, however, as the pawl 19 is released, the spiral spring 28ª again returns the item dial to zero position.

Provision is made for locking the total dial 9 with the item dial 6 on the forward or charging movement of the latter, and for this purpose a pawl 31 (see Fig. 4) is mounted upon the ratchet flange 7 so as to engage the ratchet hub 8 when the item dial is moved in a clockwise direction. In order to lock the total dials against backward or counter-clockwise rotation when the item dial is swung back to zero position, a series of detents 32 are provided, said detents being pivoted upon the posts 33 and provided with rearward extensions 34 which are engaged by coil springs 35 to hold the detents normally in operative position. It will thus be obvious that as successive numerals are charged into any particular set of the dials, the item dial is brought back to zero position after each numeral is charged into the machine, whereas the total dial revolves with the item dial an amount corresponding to each numeral, although it is held by the detent 32 against any backward movement. By reference to Fig. 9, it will be seen that the periphery of the total dial 9 is provided with a series of numerals 36 ranging from 0 to 9 and corresponding to the numerals on the item dial and zero dial.

Inasmuch as one set of dials is provided for each digit of the numbers to be added and the total, it will be obvious that some means is necessary for carrying from the units dials to the tens dials and from the tens dials to the hundreds dials when the total amount charged into any particular set of dials amounts to ten. For this purpose a carrying lever 37 is interposed between each two sets of the dials, the said carrying levers being mounted on posts 38 and normally held in an inoperative position by coil springs 39ª surrounding the posts. One end of the carrying lever 37 is shown as provided with a wing 39 adapted to engage a lug or projection 40 upon the total dial 9, while the opposite end of the carrying lever has a pawl 41 pivoted thereon and terminates in a nose 42. A spring 43 normally holds the pawl 41 in operative position, and this spring may be conveniently provided, as in the present instance, by extending the upper end of the spring 39ª upwardly through an opening in the carrying lever and suitably bending the same to bring it into engagement with the pawl 41. The inoperative position of the carrying levers 37 is indicated by full lines on Fig. 4, while the carrying lever between the units dials and tens dials is indicated by dotted lines in an operative position. As the total dial revolves to move the numeral 9 from under the view opening 3 and replace the same by the 0 character, the lug 40 on the total dial engages the wing 39 of the carrying lever and moves the same against the action of the spring 39ª to bring the pawl 41 into engagement with the ratchet hub 8 of the adjacent set of dials so as to advance the total dial of the said adjacent set of dials one step. The nose 42 at the end of the carrying lever is then brought into engagement with the ratchet hub 8 so as to lock the same against further rotation and prevent the momentum of the ratchet hub spinning the total dial more than one step when the machine is operated rapidly. As soon as the lug 40 has been moved beyond the wing 39, the carrying lever 37 will be released and brought back to inoperative position by the action of the spring 39ª.

The triggers 18 which serve as stops for engagement with the pencil point as the item dials are revolved in charging numerals into the machine have the pivot ends thereof arranged in housings 44 which are applied to the top of the casing adjacent the main openings 2. The pivot ends of the triggers 18 are rigid with short shafts 45 which project downwardly into the interior of the casing and have the detents 46 rigidly applied to the lower ends thereof. A spring 47 arranged within the housing 44 engages the trigger 18 to hold the same normally at the forward limit of its movement, as indicated by full lines on Fig. 4. However, when the trigger 18 is engaged by the point of the pencil, it is moved against the action of the spring 47 into the position indicated by dotted lines, and the detent 46 thereby swung inwardly so as to engage the ratchet teeth 9ª at the periphery of the total dial 9. The dials are thus automatically checked and prevented from being carried by momentum beyond the desired point when the machine is operated rapidly. The detent 46 checks the total dial, and the pawl 31 between the total dial and the item dial serves to check the latter.

Each of the zero dials 10 is provided at the periphery thereof with a forked arm 48, the said arms loosely engaging lugs 49 on a slide 50 which is arranged at one side of the machine. In the present instance this slide 50 is shown as formed of angle iron and mounted upon brackets 51, one flange of the angle iron carrying the lug 49 and being formed with guide slots 52 which receive the pins 53, while the opposite flange of the angle iron is provided with a finger piece 54 which projects through a

slot 55 in one side of the casing. A spring 56 (see Fig. 6) is connected to the slide 50 and normally holds the same at one limit of its movement, in which position of the slide the 0 characters 14 on the several zero dials 10 are positioned under the view openings 3. The numerals on the total dials 9 are then covered up, and in order to read the total it is necessary to move the slide 50 against the action of the spring 56 and rotate all of the zero dials 10 a sufficient amount to bring the notches 57 therein into registry with the notches 13 of the item dials 6 and under the view openings 4 of the casing. This position of the dials is shown by Fig. 5.

For the purpose of illustrating the operation of the machine, let it be assumed that the two numbers 79 and 135 are to be added. In charging the number 79 into the machine, a pencil point is placed in the seat 15 of the tens item dial 6 and the item dial revolved as previously described until the character 7 thereon is displayed through the view opening 3. The tens total dial would be correspondingly rotated so that the numeral 7 thereon would be under the view opening 3, although the numerals on the total dial are covered up and not visible. The operator would next place the pencil point in that seat 15 of the units item dial 6 opposite the numeral 9 on the casing and revolve the dial until the pencil point was stopped by engagement with the trigger 13. The numeral 9 on the item dial would then be displayed through the view opening 3 and the total dial 9 would have been correspondingly rotated. The number now displayed by the top of the casing is 0—7—9, indicating that 79 has been charged into the machine. Preparatory to charging the second number into the machine the finger piece 28 is depressed so as to release all of the pawls 19 and reset the item dials, the total dials being held against backward rotation and remaining in a charged position. The second number 135 would be charged into the machine in substantially the same manner as the first number. In charging the digit 1 into the hundreds dial, both the item dial and total dial thereof would be moved one step so as to bring the characters 1 thereon under the view opening 3.

In charging the digit 3 into the tens dial, the character 3 on the item dial would be brought under the view opening 3, while the total dial would be advanced three steps, or a sufficient amount to replace the character 7 previously under the view opening 3 by the character 0. As previously explained, the total dial in rotating from the 9 position to the 0 position would actuate the carrying lever 37 between the tens dials and the hundreds dials and thereby advance the total dial of the hundreds dials one step so that the numeral 2 of the hundreds total dial would be under the view opening 3 instead of the numeral 1. In charging the digit 5 of the second number into the units dials, the character 5 of the item dial would be brought under the view opening 3 and the units total dial advanced five steps. The character 9 of the total dial was previously under the view opening 9 so that the advance of five steps would swing it through the zero position and bring the character 4 under the view opening 3. However, as the total dial passed from the 9 position to the 0 position the carrying lever 37 between the units dials and the tens dials would be operated to advance the tens total dial one step so as to bring the character 1 thereon under the view opening. The characters visible through the top of the machine would now be 1—3—5, indicating that the number 135 has just been charged into the machine. The button 28 would now be depressed so as to reset all of the item dials and bring them back to the zero position. In order to read the total the operator would grasp the finger piece 54 and move the slide 50 so as to revolve all of the zero dials 10 and move the notches 57 thereof into registry with the notches 13 of the item dials and the view openings. The numerals on the total dials displayed through the view openings 3 would read 2—1—4, indicating that the sum of the two numbers 79 and 135 charged into the machine is 214. In order to reset the total dials preparatory to adding another series of numbers, a sufficiently large number is charged into the machine to bring all of the total dials back to a zero position.

An important feature of the invention resides in the fact that each individual number charged into the machine is visible as an entirety before the item dials are reset and brought back to a zero position preparatory to charging the next number into the machine, thereby enabling any errors in charging numbers into the machine to be readily detected and corrected. The dials are also automatically locked against further rotation as soon as they have been turned the proper amount, thereby eliminating the possibility of errors due to lost motion and the spinning of the dials beyond the proper point when the machine is operated rapidly. As previously mentioned the number of sets of dials can be multiplied indefinitely so as to increase the capacity of the machine to any desired extent, and a long column of numbers can be charged into the machine before reading the total.

A slight modification is shown by Figs. 13, 14 and 15, in which a different form of carrying lever is substituted for the carrying lever 37. The modified construction of carrying lever, indicated by the numeral 60,

is arranged between adjacent sets of the dials and pivotally mounted at 61 upon the upper end of a post 62. The pivot end of the carrying lever is formed with a lateral arm 60^a terminating in an upstanding wing or lug 63 which is adapted to be engaged by the roller 40^b of one of the total dials for the purpose of swinging the carrying lever back into inoperative position after a unit has been carried from one total dial to the adjacent total dial at the left thereof. The swinging end of the carrying lever 60 is provided with a pawl 64 which is pivotally mounted thereon and is yieldably held by means of a spring 65 in engagement with the teeth of the ratchet hub 8. The swinging end of the carrying lever 60 is also provided with an enlargement or lateral extension 60^b terminating in an upstanding wing 66 which normally projects into the path of the lug or roller 40^b. When the character 9 upon the total dial 9 is brought under the view opening 3, the roller 40^b is in position to engage the projection 66 upon the next movement of the total dial. The next number charged into the particular set of dials will rotate the total dial 9 one step and possibly several steps. The initial rotation of the total dial, however, will cause the roller 40^b to engage the wing or projection 66 and swing the carrying lever 60 about its pivot a sufficient amount to cause the pawl 64 to rotate the total dial at the left one step.

As the carrying lever 60 is swung about its pivot 61 into and out of operative position the carrying wing or lug 66 and retracting lug 63 are alternately moved into and out of the path of the trip member or roller 40^b. When the carrying lever 60 is in operative position, as indicated by dotted lines on Fig. 14, the carrying lug 66 is swung out of the path of the trip roller 40^b, while the retracting lug 63 is moved into the path of the said roller. With the carrying lever in this position it will be obvious that a continued rotation of the total dial will bring the trip roller 40^b into engagement with the retracting lug 63 and again swing the carrying lever into inoperative position, as indicated by full lines upon Fig. 14. The carrying lever will remain in this position until the zero character upon the dial 9 is again brought under the view opening 3, when the trip lever 40^b will coöperate with the carrying lug 66 to forcibly swing the carrying lever 60 into operative position. When the carrying lever 60 is actuated, a lug 67 projecting upwardly from the enlarged end portion 60^b thereof will engage the pawl or detent 46 of the adjacent set of dials and swing the same into engagement with the ratchet teeth 9^a of the total dial 9, thereby preventing the total dial from being carried by momentum beyond the desired point when the machine is operated rapidly.

As previously explained, the stylus of the operator will engage the trip finger 18 at the limit of its movement and thereby move the detent 46 of the set of dials being operated upon into operative position so as to automatically check all of said dials and prevent any over rotation thereof which might be caused by momentum. This, however, would not check the rotation of the total dial of the next adjacent set of dials at the left when the operation included a carrying movement. This, however, is accomplished by the lug 67 of the carrying lever which engages the detent 46 of the adjacent set of dials and automatically moves the same into operative position upon each carrying movement of the lever. Over spinning of the dials due to the momentum thereof when the machine is operated rapidly is thus automatically prevented both in connection with the particular set of dials being charged and the adjacent set of dials at the left thereof when a unit is carried thereto.

Carried by the total dial 9 and projecting downwardly therefrom so as to have a substantially spaced and parallel relation thereto is a segmental wire 70, one end of the wire being secured to the dial adjacent the roller 40^b while the opposite end thereof is secured to the dial at a distance from the roller substantially equal to the distance between the lugs 63 and 66 of the carrying lever. This segmental wire 70 is concentric with the pivot post 4 and normally engages the lug 63 of the carrying lever to hold the same in an inoperative position. However, just before the roller 40^b comes into engagement with the projection 66 the wire 70 clears the lug 63 so as to release the same for the carrying movement. As the total dial 9 moves from the "9" position to the "0" position, the roller 40^b acts upon the carrying lug or projection 66 to swing the carrying lever. A continued rotation of the total dial 9 brings the roller 40^b into engagement with the retracting lug 63 so as to swing the carrying lever back into inoperative position. The segmental wire 70 then follows in the path of the roller 40^b and remains in engagement with the edge of the lug 63 so as to lock the carrying lever 60 in a retracted or inoperative position until another unit is to be carried to the total dial at the left. In this connection it may be noted that the carrying lug or projection 66 does not project up as high as the retracting lug 63 so that the segmental wire 70 passes over and clears the top of the carrying lug 66 without engaging the same. The carrying lever is thus securely locked against movement until the time comes for operating the same and accidental carrying from one set of dials to the next set of dials effectively prevented.

Having thus described the invention,

what I claim as new and desire to secure by Letters Patent, is:—

1. An adding machine including an item dial provided with a peripheral series of numbers and having a cut-away portion between the ends of the series of numbers, means for rotating the item dial an amount corresponding to the number being charged into the machine, means for bringing the item dial back to its original position after each number has been charged into the machine, a total dial arranged under the item dial and mounted concentric therewith, said total dial being operatively connected to the item dial and provided with a peripheral series of numbers adapted to be brought successively under the cut-away portion of the item dial, and a casing projecting over the item dial and formed with a cut-away portion through which the numbers on the item dial are successively displayed as the item dial is turned.

2. An adding machine including an item dial having a peripheral series of numbers thereon and provided with a cut away portion between the ends of the series of numbers, manual means for rotating the item dial an amount corresponding to the number being charged into the machine, means for bringing the item dial back to its original position after each number has been charged into the machine, a total dial arranged under the item dial and mounted concentric therewith, said total dial being operatively connected to the item dial and provided with a peripheral series of numbers which are brought successively under the cut away portion of the item dial, and a movable plate interposed between the item dial and the total dial, said plate being provided with a character which is normally displayed through the cut away portion of the item dial and being formed with a cut-away portion adapted to be moved into registry with the cut away portion of the item dial when it is desired to read the total.

3. An adding machine including an item dial provided with a peripheral series of numbers and having a cut away portion between the ends of the series of numbers, means for rotating the item dial an amount corresponding to the number being charged into the machine, means for bringing the item dial back to its original position after each number has been charged into the machine, a total dial arranged under the item dial and mounted concentric therewith, said total dial being operatively connected to the item dial and provided with a peripheral row of numbers which are brought successively under the cut away portion of the item dial, and a third dial interposed between the item dial and total dial and mounted concentric therewith, the third dial being provided with a character which is normally displayed through the cut away portion of the item dial, and having a cut away portion which is adapted to be brought into registry with the cut away portion of the item dial when it is desired to read the total.

4. An adding machine including an item dial adapted to be rotated an amount corresponding to the number being charged into the machine, said item dial being provided with a peripheral series of numbers ranging from 1 to 9 and having a cut away portion between opposite ends of the said series of numbers, a total dial mounted concentric with the item dial and arranged under the latter, said total dial being provided with a peripheral series of numbers disposed directly under the peripheral series of numbers of the item dial and adapted to be brought successively under the cut away portion of the item dial, means for locking the total dial with the item dial on the forward movement of the latter and permitting the item dial to return independently of the total dial, and a third dial interposed between the item dial and the total dial and provided with a 0 character normally displayed through the cut away portion of the item dial, said third dial being also provided with a cut away portion adapted to be brought into registry with the cut away portion of the item dial when it is desired to read the total dial.

5. An adding machine including a series of operatively connected dials, one of which is constructed to be selectively engaged by a removable stylus for rotating it an amount corresponding to the number being charged into the machine, and means arranged in the path of the stylus for actuation thereby to lock the dials against spinning when they have been rotated a proper amount.

6. An adding machine including an item dial provided with a peripheral series of seats any selected one of which is adapted to be engaged by a pencil to rotate the dial an amount corresponding to the number to be charged into the machine, a trigger projecting into the path of the pencil for engagement therewith when the dial has been rotated the proper amount, a total dial mounted concentric with the item dial and having an operative connection therewith, and means actuated by the trigger for locking the total dial against spinning.

7. An adding machine including a casing having an opening therein, an item dial mounted within the casing and arranged under the opening, the said opening being surrounded by a series of index numerals and the item dial being provided with a series of seats corresponding to the index nu-

merals and adapted to be engaged by a pencil for rotating the item dial an amount corresponding to the number to be charged into the machine, a yieldably mounted trigger projecting into the path of the pencil for engagement with the latter when the dial has been rotated the proper amount, a total dial mounted concentric with the item dial and having an operative connection therewith, said total dial being formed with an annular series of teeth and a detent actuated by the trigger for engaging the total dial to prevent spinning.

8. An adding machine including a casing having an opening therein surrounded by a series of index numerals, an item dial mounted within the casing and arranged under the opening thereof, said item dial being provided with an annular series of seats corresponding to the index numerals and adapted to be engaged by a pencil to rotate the item dial an amount corresponding to the number to be charged into the machine, a yieldably mounted trigger projecting into the path of the pencil for engagement with the latter when the item dial has been rotated the proper amount, a shaft rigid with the trigger and projecting into the casing, a total dial mounted concentric with the item dial and having an operative connection therewith, and a detent rigid with the shaft, the total dial being provided with ratchet teeth adapted to be engaged by the detent to lock the dial against spinning when the trigger is engaged by the pencil.

9. An adding machine including a series of operatively connected dials, one of which is provided with a peripheral series of seats, any selected one of which is adapted to be engaged by a removable stylus to rotate the dial an amount corresponding to the number to be charged into the machine, a trigger projecting into the path of the stylus for engagement therewith when the dial has been rotated the proper amount, and means actuated by the trigger for locking the dials against spinning.

10. An adding machine including an item dial provided with a peripheral series of seats any selected one of which is adapted to be engaged by a stylus to rotate the dial an amount corresponding to the number to be charged into the machine, a trigger projecting into the path of the stylus for engagement therewith when the dial has been rotated the proper amount, a total dial operatively connected to the item dial, and a detent actuated by the trigger and engaging the total dial to prevent spinning thereof.

11. An adding machine including an item dial provided with a peripheral series of numbers ranging from 1 to 9 and having a cut away portion between opposite ends of said series of numbers, means for rotating the item dial an amount corresponding to the number being charged into the machine, means for bringing the item dial back to a 0 position when it is released, a casing projecting over the item dial and formed with a cut away portion which normally registers with the cut away portion of the item dial and through which the numbers on the item dial are successively displayed as the item dial is rotated, a total dial mounted under the item dial and having an operative connection therewith, said total dial being provided with an annular series of numbers which are brought successively under the cut away portion of the casing, and a third dial interposed between the item dial and the total dial, said third dial being provided with a 0 character which is normally visible through the cut away portions of the item dial and casing, and also having a cut away portion which can be brought into registry with the cut away portions of the item dial and casing when it is desired to read the total.

12. An adding machine including an item dial provided with an outer peripheral series of numbers and an inner annular series of corresponding seats, said item dial having a cut away portion between opposite ends of the series of numbers, a casing projecting over the item dial and provided with an opening through which the annular series of seats is exposed, the edge of the opening being provided with numbers corresponding to the numbers on the item dial and the casing having a cut away portion through which the numbers on the item dial are successively displayed as the dial is rotated, the seats upon the dial being adapted to be selectively engaged by a stylus to rotate the dial an amount corresponding to the number being charged into the machine, means for bringing the item dial back to its original position after each number has been charged into the machine, and a total dial arranged under the item dial and mounted concentric therewith, said total dial being operatively connected to the item dial and provided with a series of numbers which are brought successively under the cut away portion of the casing as the total dial is rotated.

13. An adding machine including a casing having an opening therein, a post projecting within the casing, a sleeve loose upon the post, an item dial rigid with one end of the sleeve and arranged within the opening of the casing, said item dial being adapted to be rotated an amount corresponding to the number to be charged into the machine, a ratchet flange rigid with the opposite end of the sleeve and spaced from the item dial, a spring normally tending to return the item dial to its original position, a pawl engaging the ratchet flange to hold the item dial

against backward movement, a total dial loose upon the sleeve under the item dial and provided with a ratchet hub, a pawl upon the ratchet flange for engaging the ratchet hub to lock the total dial with the item dial during the forward movement of the latter, and a third pawl engaging the ratchet hub to hold the total dial against backward movement.

14. An adding machine including a casing having an opening therein, a post projecting from the casing, a sleeve loose upon the post, an item dial rigid with one end of the sleeve and arranged within the opening of the casing, said item dial being provided with a peripheral row of characters and also with a cut away portion, a spring for returning the item dial to its original position after each number has been charged into the machine, a ratchet flange rigid with the opposite end of the sleeve and spaced from the item dial, a pawl engaging the ratchet flange to hold the item dial against backward rotation, a total dial loose upon the sleeve and arranged under the item dial, said total dial being formed with a ratchet hub and carrying a peripheral row of characters adapted to be brought successively under the cut away portion of the item dial, a pawl upon the ratchet flange for engaging the ratchet hub to lock the total dial with the item dial upon the forward movement of the latter, and a third pawl engaging the ratchet hub to hold the total dial against backward movement.

15. An adding machine including a post, a sleeve loose upon the post, an item dial rigid with the sleeve and carrying a peripheral series of numbers ranging from 1 to 9 and having a cut away portion between opposite ends of the said series of numbers, the item dial being adapted to be rotated an amount corresponding to the number to be charged into the machine, a ratchet flange rigid with the sleeve, a pawl engaging the ratchet flange to hold the item dial against backward rotation, a spring for returning the item dial to its original position when the said pawl is released, a total dial loose upon the sleeve under the item dial, said total dial being formed with a ratchet hub and carrying a peripheral series of numbers arranged directly under the numbers of the item dial and adapted to be brought successively under the cut away portion of the item dial, a pawl on the ratchet flange for engaging the ratchet hub to lock the total dial with the item dial upon the forward rotation of the latter, a third pawl engaging the ratchet hub to lock the total dial against backward movement, and a third dial interposed between the item dial and the total dial and loose upon the sleeve, said third dial having a 0 character thereon which is normally displayed through the cut away portion of the item dial, and being also provided with a cut away portion adapted to be brought into registry with the cut away portion of the item dial when it is desired to read the total dial.

16. An adding machine including spaced sets of dials provided respectively with a ratchet and a trip member, a carrying lever pivotally mounted between the two sets of dials and provided with means for engagement with the ratchet to advance the corresponding set of dials one step each time the carrying lever is operated, means upon the carrying lever for coöperation with the trip member of the other set of dials to actuate the carrying lever, and means controlled by the last mentioned set of dials for positively locking the carrying lever in an inoperative position until the dials are rotated into position for carrying.

17. An adding machine including spaced sets of dials provided respectively with a ratchet and a trip member, a carrying lever pivotally mounted between the two sets of dials and provided with means for engagement with the ratchet to advance the corresponding set of dials one step each time the carrying lever is operated, means upon the carrying lever for coöperation with the before mentioned trip member of the other set of dials to actuate the carrying lever, and means including a segmental locking strip upon the last mentioned set of dials for positively locking the carrying lever in an inoperative position until the dials are rotated into position for carrying.

18. An adding machine including spaced sets of dials provided respectively with a ratchet and a trip member, a carrying lever pivotally mounted between the two sets of dials and provided with means for engagement with the ratchet to advance the corresponding set of dials one step each time the carrying lever is operated, independent carrying and retracting lugs upon the carrying lever for successive engagement with the before mentioned trip member to successively swing the carrying lever into operative position and then retract it into inoperative position, and means controlled by the dials for positively locking the carrying lever in an inoperative position until the dials are again rotated into position for carrying.

19. An adding machine including spaced sets of dials adapted to have numbers charged into the same, detents to prevent spinning of the dials, a carrying lever operatively mounted between the two sets of dials, and means upon the carrying lever for automatically operating the detent of that set of dials to which the unit is carried.

20. An adding machine including spaced sets of dials adapted to have numbers charged into the same, detents to prevent spinning of the dials, means actuated by the charging of the number into either set of dials to move

the particular detent into operative position, carrying means between the two sets of dials, and means actuated by the carrying means for automatically operating the detent of the set of dials to which the unit is carried.

21. An adding machine including spaced sets of dials, one dial of each set being formed of seats adapted to be selectively engaged by a stylus when charging a number into the machine, detents to prevent spinning of the dials, a stop trigger projecting over each set of dials into the path of the stylus, each of said triggers being operatively connected to the corresponding detent for moving it into operative position when the stylus engages the trigger, carrying means between the sets of dials, and means actuated by the carrying means for automatically operating the detent of that set of dials to which the unit is carried.

22. An adding machine including spaced sets of dials each including an item dial and a total dial operatively connected to the item dial, the item dials being each provided with a series of seats adapted to be selectively engaged by a stylus when charging a number into the machine, detents to prevent spinning of the dials, a stop trigger projecting over each item dial into the path of the stylus, said triggers being operatively connected to the corresponding detents for moving the same into operative position, carrying means between the sets of dials, and means actuated by the carrying means for automatically operating the detent of that set of dials to which the unit is carried.

In testimony whereof I affix my signature in presence of two witnesses.

ROBERT L. FLOYD.

Witnesses:

FRANK M. BETTS,

JOHN P. KERBY.