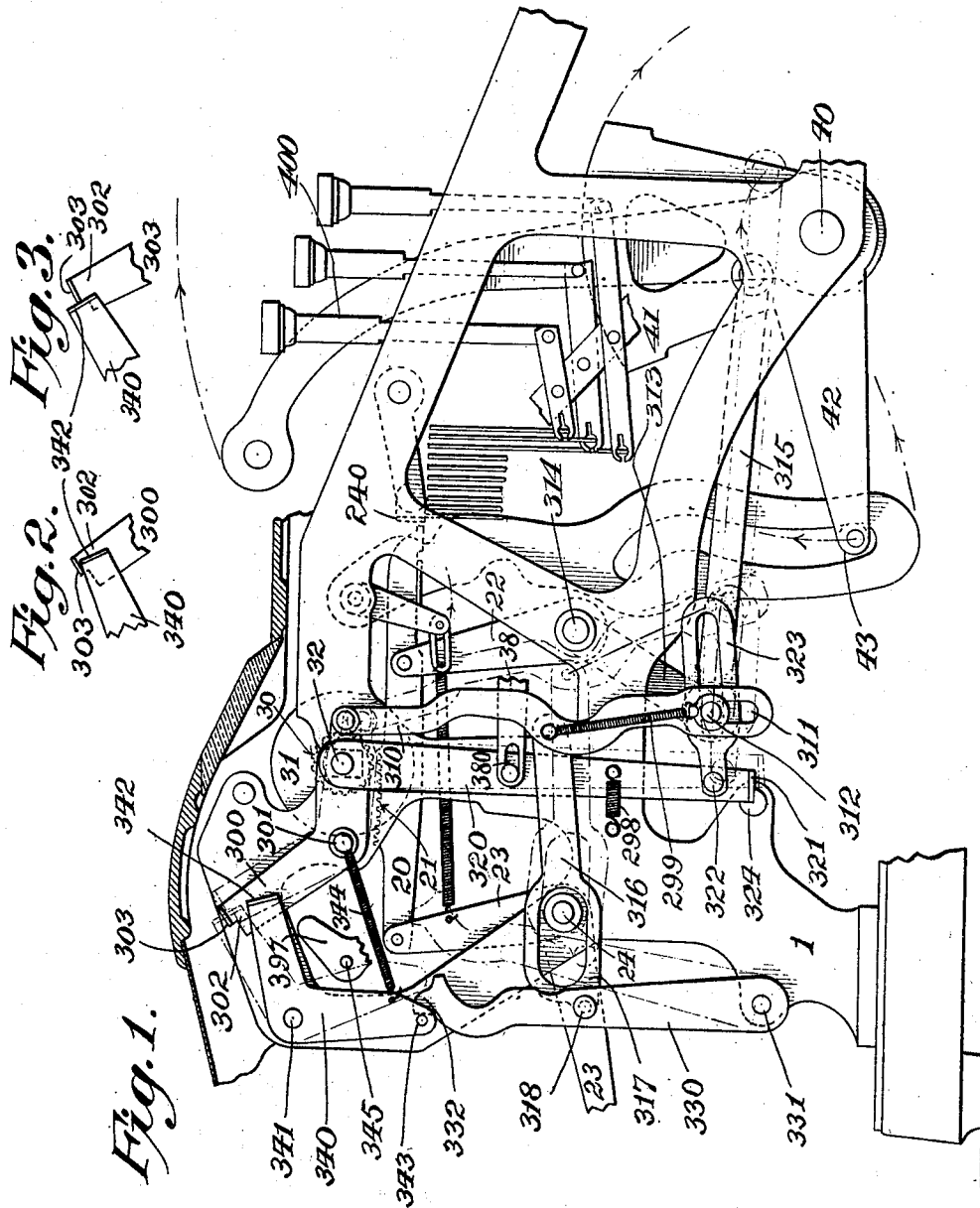


N. WHITE.
 LOOK FOR NUMERAL WHEELS FOR ADDING MACHINES.
 APPLICATION FILED MAR. 11, 1908.

940,766.

Patented Nov. 23, 1909.
 4 SHEETS—SHEET 1.



Attest:
Edgar M. McNeill
 Alan C. McNeill.

Nelson White, Inventor;
 by William R. Baird
 his Att'y.

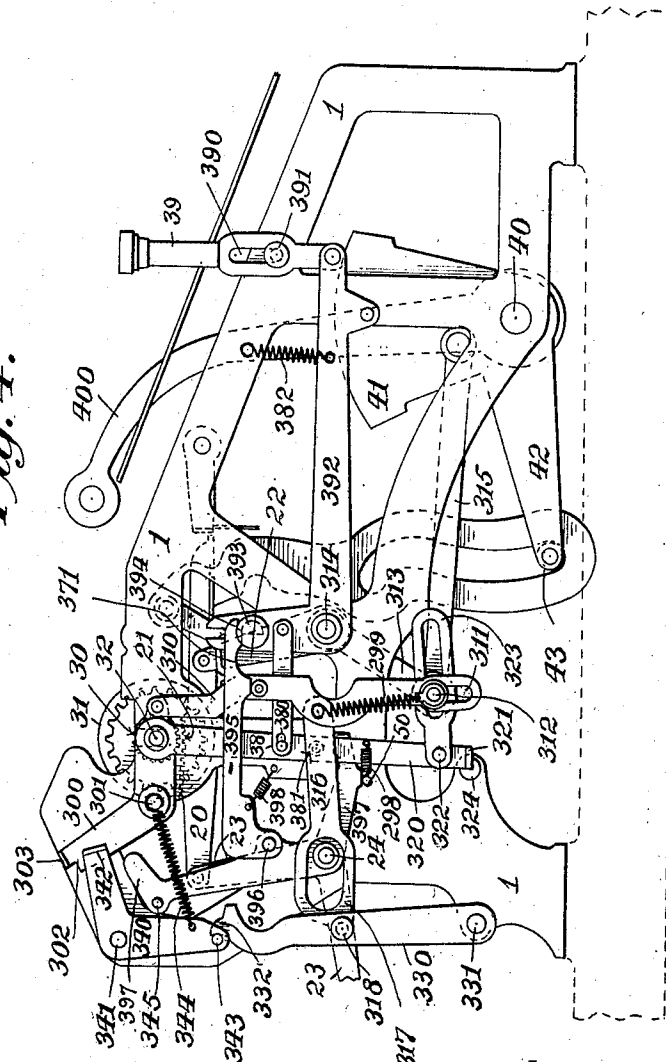
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Fig. 4.



Attest:
 May Hughes
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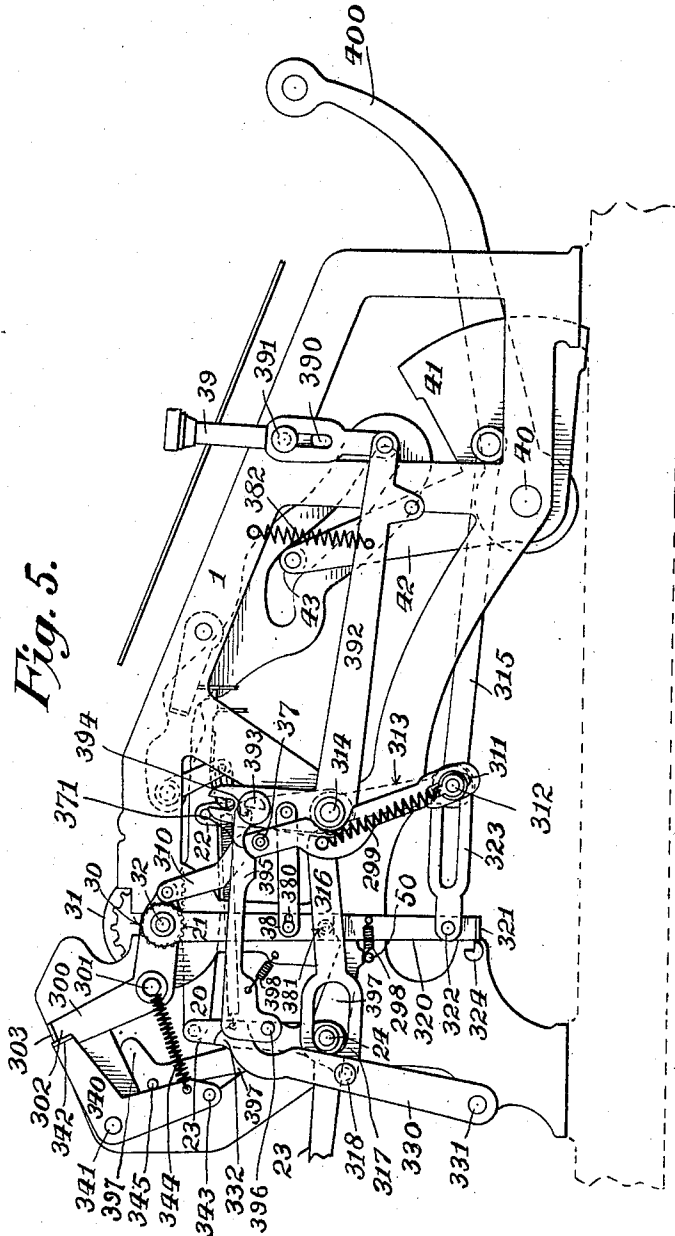
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4 SHEETS—SHEET 3.



Attest:
May Hughes
Alon C. McDonnell

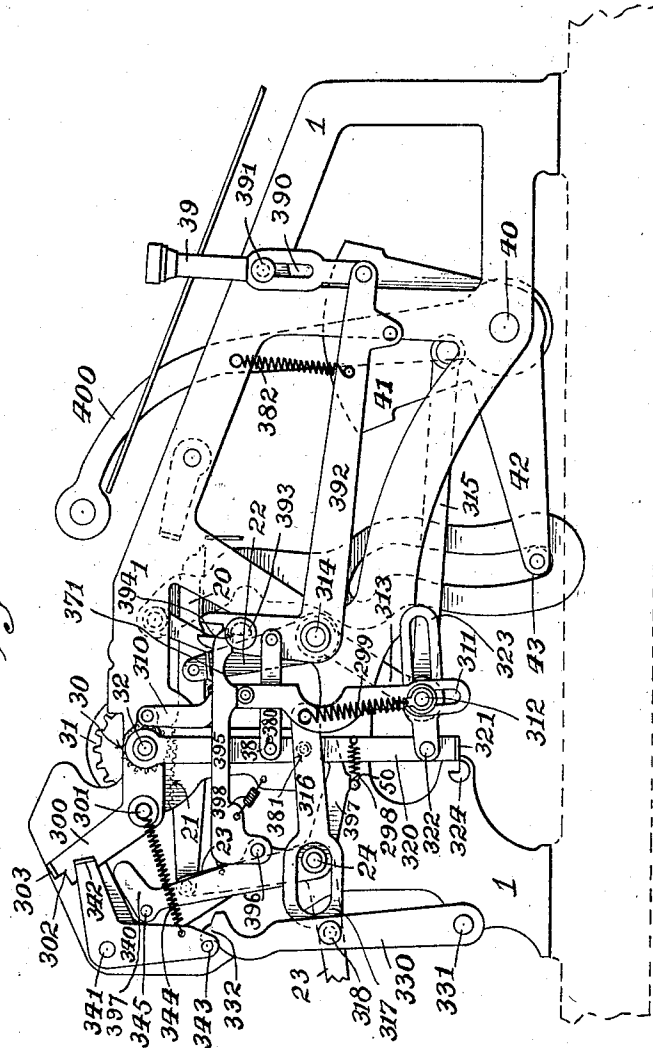
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 4 SHEETS—SHEET 4.

Fig. 6.



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 by *William R. Baird*
 his Atty.

UNITED STATES PATENT OFFICE.

NELSON WHITE, OF DETROIT, MICHIGAN, ASSIGNOR TO THE ADDER MACHINE COMPANY, OF KINGSTON, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

LOCK FOR NUMERAL-WHEELS FOR ADDING-MACHINES.

940,766.

Specification of Letters Patent.

Patented Nov. 23, 1909.

Application filed March 11, 1908. Serial No. 420,428.

To all whom it may concern:

Be it known that I, NELSON WHITE, a citizen of the United States, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Locks for Numeral-Wheels for Adding-Machines, of which the following is a specification.

This invention relates to adding machines and particularly to the well known Wales adding machine shown and described in U. S. Letters Patent, #797,032; and its novelty consists in the construction and adaptation of the parts as will be more fully hereinafter pointed out.

This machine comprises in all of its forms a bank of keys arranged in denominational series, each key provided with a stem by the depression of which a stop corresponding to the numeral value of the key depressed is interposed in the paths of rack bars, one for each numeral wheel and one for each denominational series. These rack bars are suitably mounted to oscillate in proper supports, and are each provided with toothed racks on their upper edges in order that they may engage with pinions, one on each numeral wheel, to actuate the latter. The numeral wheels are all mounted upon

a common shaft and their movement takes place only while the main handle of the machine or the main shaft of the machine (if no handle is employed) is being oscillated. In order to insure that proper engagement shall take place between the numeral wheel pinions and their respective racks it is necessary positively to hold these parts in engagement and to that end the present invention is directed and consists in providing the machine with means whereby the numeral wheel shaft is locked against movement during the actuation of the handle and while the pinions are engaged with the racks.

The machine is commonly provided with a printing mechanism comprising a series of type bars arranged in appropriate carriers and so connected with the rack bars that when the handle is actuated and the rack bars are moved, the proper types corresponding to the extent of the movement of the rack bars are elevated to a point of print and are there subsequently actuated

to make a record upon a paper strip of the number set up on the numeral wheels, or key board.

When it is desired to enumerate an item upon the numeral wheels such item is first set up on the keys. This raises the stops in the paths of the rack bars above referred to. In the actuation of the machine the main handle or shaft is first moved forward and then backward. The numeral wheel pinions are not engaged with the racks upon the forward stroke of the handle but only upon the backward stroke, and it is only necessary therefor in the enumeration of an item that the racks and pinions should be locked during the rear stroke of the handle.

The recording of a total requires a mode of operation of the parts which is in effect the reverse of that above stated, that is, that the item already set up on the numeral wheels and which is that the total of all of the several items which have been enumerated during the actuation of the machine, shall be transferred to the printing mechanism. It is, therefore, necessary to provide means by which the numeral wheel pinions and the rack bars are brought into engagement at the forward stroke of the handle, so that when the rack bars are moved to operate upon the printing mechanism the types moved to the point of print by the latter shall correspond to the number which has been already accumulated upon the numeral wheels. This immediate engagement of the numeral wheels and rack bars is accomplished through the medium of a totalizing key which, when it is depressed, serves, through intermediate mechanism, to remove the normal support upholding the numeral wheel shaft and thereby bring the pinions mounted on such shaft down into engagement with the rack bars.

When it is desired to clear the machine after recording a total, or in other words, to restore the numeral wheels to zero, it is necessary that on the backward stroke of the handle the numeral wheel pinions and rack bars shall be disengaged and this is accomplished by permitting the totalizing key to move upward, or to release it from the downward tension caused by the hand of the operator.

When it is desired to take what is called a sub-total, that is, to record upon the paper

strip the amount which has been accumulated in the machine without clearing the machine and yet to permit such amount to remain upon the numeral wheels and to be added into the items subsequently enumerated, the totalizing key is held depressed during both movements of the handle, so that at the end of the backward stroke the wheels are in the same position as they were at the beginning of the forward stroke. It is, therefore, necessary in taking a sub-total that the numeral wheel pinions and racks should remain engaged during the entire stroke of the handle, both backward and forward.

It is the purpose of this invention to provide means for locking the numeral wheel shaft against any movement during any of these operations while it is necessary that the numeral wheel pinions shall be in engagement with the rack bars.

In the drawings, Figure 1 is a general side elevation and partial vertical section of that portion of an adding machine of the kind described, embodying my invention; Fig. 2 is a detail showing the second position of the latch and catch and Fig. 3 is a similar detail showing their third position when an item is being enumerated on the machine. Fig. 4 is a side elevation of the parts on a slightly smaller scale showing the connection of the latch and catch with the totalizing key and the position of the parts when that key is undepressed and before the handle has been actuated. Fig. 5 is a view similar to Fig. 4 and on the same scale showing the positions of the same parts when the totalizing key is depressed and the shaft is at the end of its forward stroke, and Fig. 6 is a view similar to Fig. 4 on the same scale showing the position of the parts when the totalizing key has been kept depressed and the shaft is at the completion of its rearward stroke.

In the drawings, 1 is the frame of the machine which is provided with a bank of keys arranged in denominational series, each key having a stem by the depression of which of the key depressed is interposed in the paths of rack bars 20, one for each numeral wheel. These rack bars are each provided with toothed racks 21 on their upper edges and are supported at their front ends on links 22 suitably pivoted, on a shaft 314 to which is secured a frame 313 pivotally connected at its lower end, with the main shaft, 40, through the sector 411 and link 315 at their rear ends upon the extremities of bell crank levers 23 mounted to oscillate upon a shaft 24. The other ends of these levers 23 are pivotally connected to the printing mechanism not shown. The rack bars 20 are adapted to mesh with the pinions 30 with which the numeral wheels 31 are provided.

These numeral wheels display in proper order on their edges (not shown) the numbers from 1 through 9 to 0, and are all mounted on a common shaft 32.

When the rack bars are moved the extent of their movement and consequently the extent of the rotation of the numeral wheels when their pinions are in mesh with such bars is governed by the position of the key stops above referred to and the forward movement of the racks to any extent is controlled by a series of other stops 240 provided for that purpose.

The main shaft 40 of the machine is actuated by a handle 400, or by any other suitable means. 41 is a sector secured to the shaft and 42 is an arm therefor provided at its outer extremity with a roller 43 adapted to engage with a train of mechanism whereby the racks 20 are caused to be reciprocated.

The keys and their connections and the printing section of the machine are fully described in Letters Patent of the United States No. 797,032, issued to Charles Wales, August 15, 1905, and reference is prayed to that patent for a detailed description of such parts.

The numeral wheel shaft 32 is supported in bearings in the frame made up of two bent arms 300, one on each side of the machine. Each arm is adapted to swing on a pivot 301 and is provided with an elbow 302 at the end of which is a catch 303. To the other end of each arm 300 is pivoted a link 310 provided at its lower end with a slot 311 secured to a swinging shaft 312 mounted in a frame 313 pivoted at 314 to the main frame. A link 315 is loosely secured to the shaft 312 and is pivoted at its opposite end to the sector 41.

Depending from the shaft 32 are two legs 320, each provided with a foot 321 and with a pivot 322 on which is mounted a slotted link 323 which engages the shaft 312. The legs 320 normally rest on a recessed support 324 mounted at a suitable point on the frame 1.

About half way down the link 310 there is pivoted to it a link 316 which is provided at its other end 317 with a pivot 318 which in turn is secured to a lever 330. This lever is mounted to swing on a shaft 331 and is provided at its upper end with an ear 332, so that moving the link 310 oscillates the lever 330.

Mounted to swing at 341 on each side of the machine are two bell crank levers 340, the upper arms of which are each provided with a latch 342 adapted to engage with the catch 303 on the elbow 302. The lower arms of these levers are each provided with inwardly projecting pins 343 which are adapted to engage with the ear 332 on the lever 330. A spring 344 serves normally to pull the lower arm of the bell crank 340 toward

the numeral wheel shaft and a stop pin 345 serves to limit such movement. This stop pin is mounted on and projects from a bell crank lever 397 pivoted on the shaft 24 and the lower end of which moves under a roll 381 on the leg 320 and the movement of which is limited by a pin 50 on the frame of the machine.

The operation of the parts above referred to is as follows: Suppose that a number has been set up on the keys. The numeral wheel pinions are normally out of engagement with the rack bars 20 and the legs 320 and links 310 are keeping the numeral wheel shaft arms 300 and shaft 32 in such a position as to prevent such engagement. After the keys have been set, when the actuating shaft 40 is vibrated, the sector 41 is thereby moved and the link 315 swings the frame 313 on the pivot 314 and the shaft 312 then starts to move to the right along the slot of the link 323 (see Fig. 1). Simultaneously with this movement, the link 310 is swung (because of the engagement of the shaft 312 with its link 311) and it in turn pulls on the link 316 which oscillates the lever 330 and consequently moves its ear 332 to the right away from the pin 343 on the latter and allows the lever 340, under the tension of its spring 344, to move toward the right (see Fig. 1) thus bringing the top of the latch 342 immediately under the catch on the elbow 300, as shown in Fig. 2. The movement of the shaft 312, however, is continued until it strikes the end of the slot in the link 323, after which it moves the link 323 itself and thus pulls each leg 320 away from the support 324. This allows arms 300 and the shaft 32 to move downwardly, so that the numeral wheel pinions will engage with the racks 21. This movement is assisted by the tension of a spring 299 suitably mounted for that purpose and which is stretched and charged with energy as the shaft 312 is swung around the pivot 314 as a center. When the shaft 32 moves downwardly, however, it causes the elbow 302 to move upward and to the right into the position indicated in dotted lines in Fig. 1 and moves the catch 303 off of the latch 342, so that the lever 340 under the influence of its spring 344 moves the latch to its final, or third, position, as shown in Fig. 3. In this position its lower arm is seated against the stop pin 345 and the arm 302 and the shaft 32 is firmly locked into position. This final result is obtained simultaneously with the extreme limit of the forward stroke of the main shaft. The position of the latch and catch at this time is shown in Fig. 5. The reverse movement of the shaft is then commenced, in order that the rack bars shall rotate the numeral wheels the proper distance. The shaft 312 is first moved along the slots of the links 323 and 310, to

the left. When it reaches the upper wall of the slot in the link 310 it lifts that link. This in turn moves the two bent arms 300 and raises the shaft 32, so that the numeral wheel pinions are disengaged from their respective rack bars. The foot 321 is also caused to move over and above the support 324. This movement being assisted by suitable springs 298 provided for that purpose. In the meantime, the links 316, moving with the links 310, have caused the oscillation of the levers 330 so that the ears 332 engage with the pins 343 and move the levers 340 back to their second position, as shown in Fig. 2, which takes place just before the final lifting of the shaft 32 is effected, and this latter movement then completely restores the parts to their original positions, as it lifts the catch 303 away from the latch 342.

The arrangement of the totalizing key and its use in connection with the latch and catch above described will now be considered. 39 is a totalizing key suitably mounted in the frame 1 of the machine and slotted at 390 to engage with a guide pin 391 secured at any convenient place. At its lower end it is pivoted to a bell crank lever 392 adapted to oscillate on the pivot 314 and which bell crank is also provided with a latch pin 393 adapted to engage with a notch 394 in a latch lever 395 pivoted at 396 to the bell crank 397. A spring 398 serves to retract the lever 392 to a position after it has been moved and a spring 398 serves to hold the lever 395 in engagement with the latch pin 393.

A link 38 couples the bell crank lever 392 to the leg 320 and is provided with a slot 380 giving it a slight freedom of motion with respect to such leg. This leg is also provided with a roller 381 which is adapted to engage with the upper side of the bell crank 397.

When a total is to be recorded it is necessary for the numeral wheel pinions to be in engagement with their racks at the beginning of the forward actuation of the main shaft. The totalizing key is depressed after the series of items have been enumerated on the wheels. This depression in turn oscillates the bell crank 392 which moves the link 38 and unseats the leg 320 from the support 324 moving its foot 321 away therefrom. Even if this action occurs it will be noted (as shown in Fig. 6) that the link 310 will yet be supporting the numeral wheel shaft arms 300. The handle 400 of the machine is then moved to the position shown in Fig. 5. At the beginning of this stroke of the handle the link 310 is lowered in the manner previously described and the numeral wheel pinions are consequently brought into engagement with the racks, but at the same time the levers 300 have been

oscillated on the pivots 301 to the position shown in Fig. 5. Simultaneously with this motion the movement of the links 310 has been communicated to the link 316 which in turn has moved the arm 330 to the right and out of engagement with the pin 343 on the bell crank 340 and has permitted the latter (under tension of the spring 344) to move to the position shown in Figs. 5 and 3, thus preventing any movement of the arms 300 and any disengagement of the numeral wheel pinions and their racks. This has all occurred during the first part of the oscillation of the main shaft which if continued oscillates the rack bars through the appropriate intermediate mechanism to the extent determined by the positions to which the numeral wheels have been brought during the accumulation of the items set up thereon. During the latter part of the oscillation of the shaft, as the link 310 moves downwardly, it permits the latch lever 395 to come into engagement with the latch pin 393 on the lever 392, because this lever rests upon a roller support 37 projecting from the side of the link 310 and which moves downwardly with the link. This latch lever 395 is restored to a disengaging position with the latch pin 393 by the reverse movement of the link 310 when the shaft is moved in the reverse direction, because of the contact of the roller pin 37 with a cam surface 371 formed on the lower part of the latch lever 395. If now it is desired to clear the machine and permit the numeral wheels to be returned to zero, the totalizing key 39 is permitted to rise. Under the tension of the spring 382 the lever 392 is pulled upward and oscillated. The latch pin 393 which is then in engagement with the notch 394 of the lever 395 (see Figs. 5 and 6) moves this lever 392 toward the left and rocks the bell crank 397 on its pivot 24 and lifts the numeral wheel leg 320 through its roller 381. Just prior to this latter movement the upper part of the bell crank 397, through its pin 345, has moved the lever 340 out of engagement with the arms 300 so that the numeral wheel shaft 32 is no longer locked by the engagement of the latch 342 and the catch 303 and is permitted to rise when lifted by the upward motion of the leg 320 above referred to. The parts are, therefore, in their initial positions.

If it is desired to take a sub-total and to keep the numeral wheel pinions in mesh with the racks during the rearward as well as during the forward stroke of the handle, the totalizing key 39 instead of being permitted to rise at the end of the forward stroke of the handle is held down by the operator. In such case the lever 392 remains down. The latch pin 393 remains in engagement with the latch lever 395 and consequently the lever 397 is not oscillated

and the stop pin 345 remains in position and the latch 342 remains engaged with the catch 303 until the backward stroke of the handle has moved the frame 313 and through it the shaft 312 until the latter has cooperated with the top of the slot 311 to lift and oscillate the link 310 to restore the numeral wheel shaft to its original position. In the meantime the link 310 in its oscillation has moved the link 316 to the left (as seen in Figs. 1 and 4), and this, in turn, has moved the arm 330 against the pin 343 and thus moved the lever 340 and its latch 342 out of its locking position against the catch 303 of the arms 300.

It will be seen, from the above description, that the latch 342 and catch 303 are in a locking position whenever, during the actuation of the machine, it is necessary that the numeral wheel pinions shall be in engagement with the rack bars, whether it is during the enumeration of an item, the taking of a total or the taking of a sub-total. This is a great advantage and assists materially in insuring the accuracy and certainty of operation of the parts.

What I claim as new is:—

1. In a machine of the class described, embodying a main shaft, racks actuated from said main shaft, numeral wheels adapted to be actuated by the racks but normally raised and disengaged therefrom during the forward stroke of the main shaft, means for automatically lowering the numeral wheels into engagement with the racks, a support for the numeral wheels in their raised positions, an arm connected to and moving with said support, a latch adapted automatically to engage the arm and hold it against movement during a part of the movement of the main shaft and means adapted automatically to disengage said latch during another part of said movement of the main shaft.

2. In a machine of the class described, embodying a main shaft, racks actuated from said main shaft, numeral wheels adapted to be actuated by the racks but normally raised and disengaged therefrom during the forward stroke of the main shaft, means for automatically lowering the numeral wheels into engagement with the racks, a support for the numeral wheels in their raised positions, an arm connected to and moving with said support, a latch adapted automatically to engage the arm and hold it against movement during a part of the movement of the main shaft and means adapted automatically to disengage said latch during another part of said movement of the main shaft, comprising a member actuated from the main shaft.

3. In a machine of the class described, embodying numeral wheels, actuating racks adapted to engage therewith, a main shaft from which the racks are moved, a support

for the numeral wheels, an arm connected to and moving with said support, a totalizing key by the depression of which the numeral wheels and actuating racks are permitted to engage during the forward actuation of the shaft, a latch adapted automatically to engage the arm and hold it during such engagement of the racks and wheels, and means adapted automatically to move the latch out of engagement with the arm controlled by the upward movement of the totalizing key.

4. In a machine of the class described, embodying numeral wheels, actuating racks adapted to engage therewith, a main shaft from which the racks are moved, a support for the numeral wheels, an arm connected to and moving with said support, a totalizing key by the depression of which the numeral wheels and actuating racks are permitted to engage during the forward actuation of the shaft, a latch adapted automatically to engage the arm and hold it during such engagement of the racks and wheels, and means adapted automatically to move the latch out of engagement with the arm controlled by the upward movement of the totalizing key, said means comprising a bell crank lever.

5. In a machine of the class described, embodying numeral wheels, actuating racks adapted to engage therewith a main shaft from which the racks are moved, a support for the numeral wheels, comprising a shaft on which they may turn, an arm connected to and moving with said support, a catch on the arm, a latch adapted to engage said catch to hold the arm against movement, means for moving the arm from the main shaft and means whereby the latch is simultaneously moved into engagement with the catch.

6. In a machine of the class described, embodying numeral wheels, actuating racks adapted to engage therewith, a main shaft from which the racks are moved, a support for the numeral wheels, comprising a shaft on which they may turn, an arm connected to and moving with said support, a catch on the arm, a latch adapted to engage said catch to hold the arm against movement, means for moving the arm from the main shaft and means whereby the latch is simultaneously moved into engagement with the catch, in combination with means for restoring the arm to its original position and means for simultaneously disengaging the latch from the catch.

7. In a machine of the class described, embodying numeral wheels, actuating racks adapted to engage therewith, and a main shaft from which said racks are moved, a shaft on which the numeral wheels are mounted to revolve, a movable supporting frame for said shaft, means adapted to move

said frame to bring the wheels into engagement with the racks, a catch on the frame, a latch adapted to engage the catch but normally prevented from so doing and means connected to the frame moving means permitting such engagement when the frame has been moved.

8. In a machine of the class described, embodying numeral wheels, actuating racks adapted to engage therewith, and a main shaft from which said racks are moved, a shaft on which the numeral wheels are mounted to revolve, a movable supporting frame for said shaft, means adapted to move said frame to bring the wheels into engagement with the racks, a catch on the frame, a latch normally under tension tending to bring about the engagement of the latch with the catch and means for preventing such engagement until after the frame has been moved.

9. In a machine of the class described, embodying numeral wheels, actuating racks adapted to engage therewith, and a main shaft from which said racks are moved, a shaft on which the numeral wheels are mounted to revolve, a movable supporting frame for said shaft, means adapted to move said frame to bring the wheels into engagement with the racks, a catch on the frame, a latch normally under tension tending to bring about the engagement of the latch with the catch, a movable stop adapted to prevent such engagement and means for moving the stop to permit such engagement after the frame has been moved.

10. In a machine of the class described, embodying numeral wheels, actuating racks adapted to engage therewith, and a main shaft from which said racks are moved, a shaft on which the numeral wheels are mounted to revolve, a movable supporting frame for said shaft, means adapted to move said frame to bring the wheels into engagement with the racks, a catch on the frame, a latch normally under tension tending to bring about the engagement of the latch with the catch, and means for preventing such engagement until after the frame has been moved, consisting of a pivoted arm, and intermediate connections between it and the main shaft of the machine.

11. In a machine of the class described, embodying numeral wheels, actuating racks adapted to engage therewith and a main shaft from which said racks are moved, a shaft on which the numeral wheels are mounted to revolve, a movable supporting frame for said shaft, means adapted to move said frame to bring the wheels into engagement with the racks, a catch on the frame, a latch normally under tension tending to bring about the engagement of the latch with the catch, a movable stop adapted to prevent such engagement and means for moving the

stop to permit such engagement after the frame has been moved, consisting of intermediate mechanism connected to the stop and the main shaft of the machine.

12. In a machine of the class described, embodying numeral wheels, actuating racks adapted to engage therewith, a main shaft from which the racks are moved, a support for the numeral wheels, means for moving said support to secure the engagement of the wheels and racks, a catch on the support, a latch adjacent thereto, means constantly tending to move the latch into engagement with the catch and positive means preventing such engagement connected to the means for moving the numeral wheel support.

13. In a machine of the class described, embodying numeral wheels, actuating racks adapted to engage therewith, a main shaft from which the racks are moved, a support for the numeral wheels, means for moving said support to secure the engagement of the wheels and racks, and to subsequently secure their disengagement, a catch on the support, a latch adjacent thereto, means constantly tending to move the latch into engagement with the catch and means for preventing such engagement and producing such disengagement connected to the means for moving the numeral wheel supports.

14. In a machine of the class described, embodying numeral wheels, actuating racks adapted to engage therewith, a main shaft from which the racks are moved, a support for the numeral wheels, means for moving said support to secure the engagement of the wheels and racks, a catch on the support, a latch adjacent thereto, means constantly tending to move the latch into engagement with the catch, positive means preventing such engagement, a totalizing key, a connection between the same and the means for moving the numeral wheel support and a further connection from the latter means to the means preventing the movement of the latch, whereby the depression of the totalizing key moves the wheels into engagement with the racks and simultaneously disengages the latch and catch.

15. In a machine of the class described, embodying numeral wheels, actuating racks adapted to engage therewith, a main shaft from which the racks are moved, a support for the numeral wheels, means actuated from the main shaft for moving said support to secure the engagement of the wheels and racks, a catch on the support, a latch adjacent thereto and means adapted automatically to cause the locking of the latch and catch as soon as the engagement takes place.

16. In a machine of the class described, embodying numeral wheels, actuating racks adapted to engage therewith, a main shaft from which the racks are moved, a support for the numeral wheels, means actuated from

the main shaft for moving said support to secure the engagement of the wheels and racks, a catch on the support, a latch adjacent thereto and means adapted automatically to cause the locking of the latch and catch as soon as the engagement takes place, in combination with means actuated from the main shaft to unlock the latch and catch after the movement of the racks and wheels has ended.

17. In a machine of the class described, embodying numeral wheels, actuating racks adapted to engage therewith, a main shaft from which the racks are moved, a support for the numeral wheels, means actuated from the main shaft for moving said support to secure the engagement of the wheels and racks, a catch on the support, a latch adjacent thereto and means adapted automatically to cause the locking of the latch and catch as soon as the engagement takes place, comprising a spring normally tending to move the latch toward the catch, a stop arm adapted to hold the latch against such movement and connections between the main shaft and the stop arm.

18. In a machine of the class described, embodying numeral wheels, actuating racks adapted to engage therewith, a main shaft from which the racks are moved, a support for the numeral wheels, means actuated from the main shaft for moving said support to secure the engagement of the wheels and racks, a catch on the support, a latch adjacent thereto and means adapted automatically to cause the locking of the latch and catch as soon as the engagement takes place, in combination with means actuated from the main shaft to unlock the latch and catch after the movement of the racks and wheels has ended, comprising a stop arm actuated from the main shaft to move the latch away from the catch.

19. In a machine of the class described, embodying numeral wheels, actuating racks adapted to engage therewith, a main shaft from which the racks are moved, a support for the numeral wheels, means actuated from the main shaft for moving said support to secure the engagement of the wheels and racks, a catch on the support, a latch adjacent thereto and means adapted automatically to cause the locking of the latch and catch as soon as the engagement takes place, comprising a spring normally tending to move the latch toward the catch, a stop arm adapted to hold the latch against such movement and connections between the main shaft and the stop arm, in combination with means actuated from the main shaft to unlock the latch and catch after the movement of the racks and wheels has ended, comprising a stop arm actuated from the main shaft to move the latch away from the catch.

20. In a machine of the class described,

embodying numeral wheels, actuating racks adapted to engage therewith, a main shaft from which the racks are moved, a support for the numeral wheels, means actuated from the main shaft for moving said support to secure the engagement of the wheels and racks, means normally retarding said movement until the end of the forward stroke of the main shaft, a totalizing key by the depression of which such retarding means are moved out of an operative position.

21. In a machine of the class described, embodying numeral wheels, actuating racks adapted to engage therewith, a main shaft from which the racks are moved, a support for the numeral wheels, means actuated from the main shaft for moving said support to secure the engagement of the wheels and racks, means normally retarding said movement until the end of the forward stroke of the main shaft, a totalizing key by the depression of which such retarding means are moved out of an operative position, a catch on the support, a latch adjacent thereto and means adapted automatically to cause the locking of the latch and catch as soon as the engagement takes place.

22. In a machine of the class described, embodying numeral wheels, actuating racks adapted to engage therewith, a main shaft from which the racks are moved, a support for the numeral wheels, means actuated from the main shaft for moving said support to secure the engagement of the wheels and racks, means normally retarding said movement until the end of the forward stroke of the main shaft, a totalizing key by the depression of which such retarding means are moved out of an operative position, a catch on the support, a latch adjacent thereto and means adapted automatically to cause the locking of the latch and catch as soon as the engagement takes place, in combination with means actuated from the main shaft to unlock the latch and catch after the movement of the racks and wheels has ended.

23. In a machine of the class described, embodying numeral wheels, actuating racks adapted to engage therewith, a main shaft from which the racks are moved, a support for the numeral wheels, means actuated from the main shaft for moving said support to secure the engagement of the wheels and racks, means normally retarding said movement until the end of the forward stroke of the main shaft, a totalizing key by the depression of which such retarding means are moved out of an operative position, a catch on the support, a latch adjacent thereto and means adapted automatically to cause the locking of the latch and catch as soon as the engagement takes place,

comprising a spring normally tending to move the latch toward the catch, a stop arm adapted to hold the latch against such movement and connections between the main shaft and the stop arm.

24. In a machine of the class described, embodying numeral wheels, actuating racks adapted to engage therewith, a main shaft from which the racks are moved, a support for the numeral wheels, means actuated from the main shaft for moving said support to secure the engagement of the wheels and racks, means normally retarding said movement until the end of the forward stroke of the main shaft, a totalizing key by the depression of which such retarding means are moved out of an operative position, a catch on the support, a latch adjacent thereto and means adapted automatically to cause the locking of the latch and catch as soon as the engagement takes place, comprising a spring normally tending to move the latch toward the catch, a stop arm adapted to hold the latch against such movement and connections between the main shaft and the stop arm, comprising a stop arm actuated from the main shaft to move the latch away from the catch.

25. In a machine of the class described, embodying numeral wheels, actuating racks adapted to engage therewith, a main shaft from which the racks are moved, a support for the numeral wheels, means actuated from the main shaft for moving said support to secure the engagement of the wheels and racks, means normally retarding said movement until the end of the forward stroke of the main shaft, a totalizing key by the depression of which such retarding means are moved out of an operative position, a catch on the support, a latch adjacent thereto and means adapted automatically to cause the locking of the latch and catch as soon as the engagement takes place, comprising a spring normally tending to move the latch toward the catch, a stop arm adapted to hold the latch against such movement and connections between the main shaft and the stop arm, in combination with means actuated from the main shaft to unlock the latch and catch after the movement of the racks and wheels has ended, comprising a stop arm actuated from the main shaft to move the latch away from the catch.

26. In a machine of the class described, embodying numeral wheels, actuating racks adapted to engage therewith, a main shaft from which the racks are moved, a support for the numeral wheels, means actuated from the main shaft for moving said support to secure the engagement of the wheels and racks, means normally retarding said movement until the end of the forward stroke of the main shaft, a totalizing key and a con-

nection between the retarding means and said key whereby so long as the key is held depressed the actuation of the main shaft causes the engagement of the racks and wheels.

27. In a machine of the class described, embodying numeral wheels, actuating racks adapted to engage therewith, a main shaft from which the racks are moved, a support for the numeral wheels, means actuated from the main shaft for moving said support to secure the engagement of the wheels and racks, means normally retarding said movement until the end of the forward stroke of the main shaft, a totalizing key and a connection between the retarding means and said key whereby so long as the key is held depressed the actuation of the main shaft causes the engagement of the racks and wheels, a catch on the support, a latch adjacent thereto and means adapted automatically to cause the locking of the latch and catch as soon as the engagement takes place.

28. In a machine of the class described, embodying numeral wheels, actuating racks adapted to engage therewith, a main shaft from which the racks are moved, a support for the numeral wheels, means actuated from the main shaft for moving said support to secure the engagement of the wheels and racks, means normally retarding said movement until the end of the forward stroke of the main shaft, a totalizing key and a connection between the retarding means and said key whereby so long as the key is held depressed the actuation of the main shaft causes the engagement of the racks and wheels, a catch on the support, a latch adjacent thereto and means adapted automatically to cause the locking of the latch and catch as soon as the engagement takes place, in combination with means actuated from the main shaft to unlock the latch and catch after the movement of the racks and wheels has been ended.

29. In a machine of the class described, embodying numeral wheels, actuating racks adapted to engage therewith, a main shaft from which the racks are moved, a support for the numeral wheels, means actuated from the main shaft for moving said support to secure the engagement of the wheels and racks, means normally retarding said movement until the end of the forward stroke of the main shaft, a totalizing key and a connection between the retarding means and said key whereby so long as the key is held depressed the actuation of the main shaft causes the engagement of the racks and wheels, a catch on the support, a latch adjacent thereto and means adapted automatically to cause the locking of the latch and catch as soon as the engagement takes place, comprising a spring normally tending to

move the latch toward the catch, a stop arm adapted to hold the latch against such movement and connections between the main shaft and the stop arm.

30. In a machine of the class described, embodying numeral wheels, actuating racks adapted to engage therewith, a main shaft from which the racks are moved, a support for the numeral wheels, means actuated from the main shaft for moving said support to secure the engagement of the wheels and racks, means normally retarding said movement until the end of the forward stroke of the main shaft, a totalizing key and a connection between the retarding means and said key whereby so long as the key is held depressed the actuation of the main shaft causes the engagement of the racks and wheels, a catch on the support, a latch adjacent thereto and means adapted automatically to cause the locking of the latch and catch as soon as the engagement takes place, comprising a spring normally tending to move the latch toward the catch, a stop arm adapted to hold the latch against such movement and connections between the main shaft and the stop arm, comprising a stop arm actuated from the main shaft to move the latch away from the catch.

31. In a machine of the class described, embodying numeral wheels, actuating racks adapted to engage therewith, a main shaft from which the racks are moved, a support for the numeral wheels, means actuated from the main shaft for moving said support to secure the engagement of the wheels and racks, means normally retarding said movement until the end of the forward stroke of the main shaft, a totalizing key and a connection between the retarding means and said key whereby so long as the key is held depressed the actuation of the main shaft causes the engagement of the racks and wheels, a catch on the support, a latch adjacent thereto and means adapted automatically to cause the locking of the latch and catch as soon as the engagement takes place, comprising a spring normally tending to move the latch toward the catch, a stop arm adapted to hold the latch against such movement and connections between the main shaft and the stop arm, in combination with means actuated from the main shaft to unlock the latch and catch after the movement of the racks and wheels has ended, comprising a stop arm actuated from the main shaft to move the latch away from the catch.

32. In a machine of the class described, embodying numeral wheels, each wheel provided with a pinion, actuating racks adapted to engage said pinions, a main shaft from which said racks are moved, a movable support for the numeral wheels, a catch thereon,

a leg adapted to prevent the displacement of said support, a link connected directly to said support, a connection between the main shaft and the link whereby the movement of the latter will move the link and leg to move the support, a latch adjacent to the catch, means tending constantly to move it toward the same, a stop arm adapted to prevent such movement, and a connection between the link and stop arm whereby the latter is moved to permit the engagement of the latch and catch when the support is moved.

33. In a machine of the class described, embodying numeral wheels, each wheel provided with a pinion, actuating racks adapted to engage said pinions, a main shaft from which said racks are moved, a movable support for the numeral wheels, a catch thereon, a leg adapted to prevent the displacement of said support, a link connected directly to said support, a connection between the main shaft and the link whereby the movement of the latter will move the link and leg to move the support, a latch adjacent to the catch, means tending constantly to move it toward the same, a stop arm adapted to prevent such movement, and a connection between the link and stop arm whereby the latter is moved to permit the engagement of the latch and catch when the

support is moved, in combination with means for limiting the movement of the latch.

34. In a machine of the class described, embodying numeral wheels, each wheel provided with a pinion, actuating racks adapted to engage said pinions, a main shaft from which said racks are moved, a movable support for the numeral wheels, a catch thereon, a leg apertured to prevent the displacement of said support, a link connected directly to said support, a connection between the main shaft and the link, a totalizing key, a connection between it and the leg, a latch adjacent to the catch, means tending constantly to move it toward the same, a stop arm adapted to prevent such movement, a connection between the link and the arm, whereby when the totalizing key is depressed the leg is moved to permit the immediate displacement of the numeral wheel support through the movement of the link when the main handle is actuated and simultaneously permits the engagement of the latch and catch.

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

NELSON WHITE.

Witnesses:

J. G. VINCENT,
EDW. R. BARRETT.