Jan. 2, 1962 G. E. SLAMB ETAL 3,015,434

REPEAT CYCLING CONTROL MECHANISM FOR CASH REGISTERS AND ACCOUNTING MACHINES

Filed May 19, 1960

FIG. 1

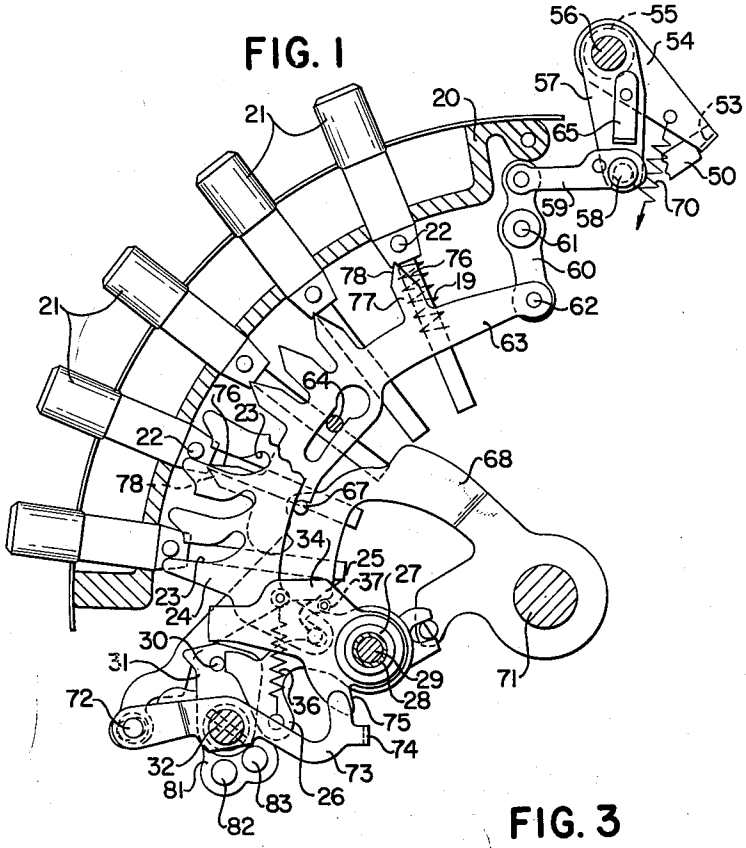


FIG. 2

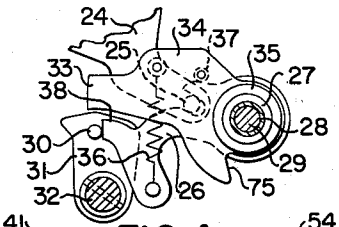


FIG. 3

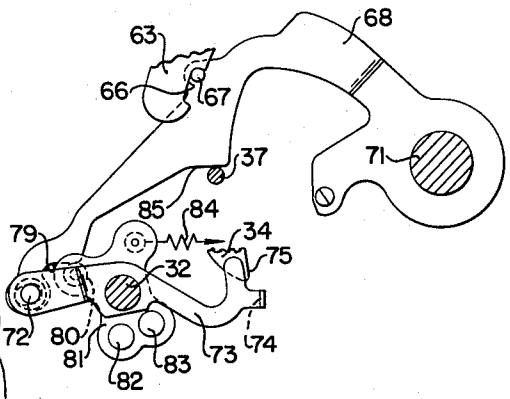
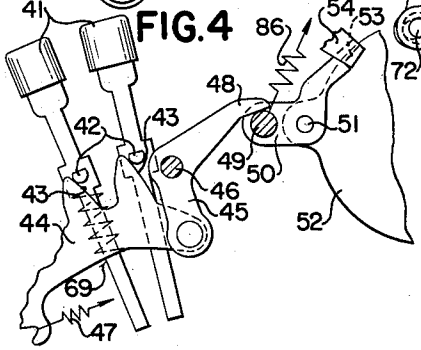


FIG. 4



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3,015,434

REPEAT CYCLING CONTROL MECHANISM FOR CASH REGISTERS AND ACCOUNTING MACHINES

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6 Claims. (Cl. 235—11)

This invention relates to cash registers and accounting machines and is particularly directed to means for controlling the operating or cycling mechanism of such machines.

It is a general object of the present invention to provide means to control the cycling of the operating mechanism of machines of the type referred to above.

Another object is the provision of means to cause the operating mechanism of machines of the type referred to above to perform any desired number of continuous and uninterrupted cycles of operation.

A further object is to provide means effective only in operations in which no amount is set up on the amount keys to cause the machine to perform uninterrupted cycles of operation to repeat the amount set up on said amount keys in a preceding item-entering operation.

A still further object is the provision of means controlled by the amount or value keys and operated by the control keys to cause a value set up on said value keys in a previous machine operation to be repeated in succeeding continuous and uninterrupted cycles of machine operation.

With these and incidental objects in view, the invention includes certain novel features of construction and combinations of parts, a preferred form or embodiment of which is hereinafter described with reference to the drawing which accompanies and forms a part of this specification.

In the drawing:

FIG. 1 is a right side elevation of the control bank of keys of the machine embodying the present invention, showing in detail the mechanism operated by said control keys for disabling the non-repeat mechanism of the machine.

FIG. 2 is a detail view of the machine-releasing mechanism and the non-repeat pawl associated therewith.

FIG. 3 is a detail view of the mechanism operated by the control keys for rendering the non-repeat pawl inoperative to effect repeat operating cycles of the machine.

FIG. 4 is a detail view showing two amount keys and the mechanism associated therewith for rendering the repeat cycling mechanism inoperative when any one of said amount keys is depressed.

Description

The machine chosen to illustrate the present invention is similar in appearance and construction to, and has many of the basic principles, features, and operating characteristics of, a well-known type of cash register or accounting machine fully disclosed in United States Patent No. 2,880,930, issued April 7, 1959, to Frank R. Werner et al., and application for Letters Patent of the United States Serial No. 548,165, filed November 21, 1955, now United States Patent No. 2,941,714, issued June 21, 1960, to Frank R. Werner and Louis E. Zurbuchen, to which patents reference may be had for a complete disclosure of mechanism and features of operation which are not pertinent to the present invention and which for that reason will be treated only in a general way herein.

In the ensuing pages, mechanism pertinent to the present invention will be described in detail with reference to the drawing, in the different views of which like reference numerals refer to like parts.

The machine disclosed in the above-referred-to patent application, now Patent No. 2,941,174, comprises a novel type of repeat mechanism which may be used for repeating an amount set up on the amount keys in a preceding operation in succeeding operations, without the operator's knowing beforehand that such amount is to be repeated. To repeat the amount of a preceding item-entering operation, all that is required is the depression of any one of several control keys, which initiates a repeat cycle of operation of the machine, during which the amount of the preceding operation is repeated without having to again set up said amount on the amount keys. In the above machine, the amount may be repeated in as many succeeding machine operations as required; however, the machine would come to rest at the end of each machine operation, and it was necessary to initiate each succeeding repeat operation by again depressing one of the control keys.

Where machines of the above type are used for checkout purposes, in connection with super-markets, for example, there are many cases in which it is desirable to repeat an amount several times, and it is a slow process and rather inconvenient for the operator to have to depress a control key for each successive repeat operation. To eliminate the abovementioned inconvenience, applicants have devised mechanism which operates in conjunction with the control keys to cause the machine to perform continuous and uninterrupted cycles of operation as long as any one of said control keys is retained depressed, to repeat the amount set up on the amount keys in a preceding item-entering operation as many times as required in a quick, convenient, and efficient manner.

The control bank mechanism shown in FIG. 1 of the present application is similar in every respect to the control bank disclosed in FIG. 2 of the co-pending application Serial No. 548,165, now Patent No. 2,941,714, and comprises a key frame **20** removably assembled in the machine framework by means of rods (not shown) which engage corresponding slots (not shown) in the lower and upper ends of said key frame **20**. The frame **20** is slotted to receive five depressible control keys **21**, normally urged upwardly to undepressed positions by corresponding compressible springs **19**, which fit around the reduced lower ends of the stems of said keys and engage shoulders formed by said reduced portion and a finished surface (not shown) formed in the key frame **20**. Each of the keys **21** carries a pin **22**, which pins coact with corresponding curved cam slots **23** (FIG. 1) formed in a machine release plate **24** rockably mounted in the key frame **20** by means of similar links (not shown) which pivotally connect said plate **24** to said frame **20**.

The manner in which the release plate **24** is rockably supported in the frame **20** is fully disclosed in FIG. 12 of the United States Patent No. 2,880,930, referred to above.

An inward extension on the lower end of the plate **24** (FIGS. 1 and 2) carries a stud **25**, which engages a slot in a release pawl **26** having a hub **27**, which is pivotally supported on the outer circumference of a trunnion bushing **28**, secured in the right main frame which, with a similar bushing (not shown), secured in the left main frame, forms a rotatable support for a differential clutch pinion shaft **29**. A forward extension of the pawl **26** (FIGS. 1 and 2) coacts with a stud **30** in a machine trip arm **31** secured on a key lock and release shaft **32** journaled in the main frames. The shaft **32** (FIG. 2) is spring-urged clockwise, in the manner disclosed in FIGS. 15 and 16 of the United States Patent No. 2,880,930, to initiate operation of the machine in the manner explained in said patent,

but is normally held against any such action by the machine release pawl **26** coacting with the stud **30**, as shown here.

Coacting with the machine release pawl **26** (FIGS. 1 and 2), to prevent unintentional repeat operations of the machine in case one of the control keys **21** is retained depressed at the end of machine operation, is a non-repeat pawl **34** carrying a hub **35**, which rotatably engages the outer circumference of the hub **27** in said release pawl **26**. A spring **36**, tensioned between the release pawl **26** and the non-repeat pawl **34**, urges said pawls toward each other to normally maintain a stud **37**, carried by said non-repeat pawl **34**, in yielding engagement with the upper edge of said release pawl **26**.

Depression of one of the control keys **21** (FIG. 1) causes the pin **22** therein, in cooperation with the corresponding curved slot **23**, to rock the release plate **24** downwardly, which in turn rocks the release pawl **26** (FIG 2) counter-clockwise until the outer end of said pawl moves beyond the stud **30** to free the arm **31** and the shaft **32** for clockwise releasing movement, to initiate operation of the machine in the well-known manner. Clockwise movement of the arm **31** moves the stud **30** over an arcuate surface **38** (FIG. 2), formed on the upper edge of the release pawl **26**, to hold said release pawl in its operated condition until the shaft **32** and said arm **31** are restored counter-clockwise near the end of machine operation, as will be explained presently. The spring **36** carries the non-repeat pawl **34** counter-clockwise in unison with the release pawl **26** until the bottom surface of the extension **33** thereof comes into yielding contact with the stud **30** to terminate such movement of said non-repeat pawl. Near the end of machine operation, the key lock and release shaft **32** and the arm **31** are restored counter-clockwise beyond the position shown in FIG. 2, until the stud **30** is beyond the extension **33** of the non-repeat pawl **34**. The stud **30**, coacting with the surface **38** on the release pawl **26**, retains said pawl and the plate **24** in their downward, or operated, positions, and the slot **23**, in said plate, coacting with the corresponding pin **22** in the depressed key **21**, likewise retains said key depressed against the action of its spring **19**. When the stud **30** moves beyond the end of the release pawl **26**, during its restoring movement counter-clockwise, the pin **22** in the depressed key **21**, under influence of the spring **19** and coacting with the corresponding slot **23**, urges the plate **24** upwardly, or clockwise. This restores the pawl **26** to its untripped position, as shown in FIG. 2, in which the end of said pawl is in the path of, and is engaged by, the stud **30** as the arm **31** and the shaft **32** are moved clockwise from their fully-restored position to their untripped position, as shown here, which is determined by said stud engaging said pawl. During its clockwise restoring movement, the pawl **26** engages the stud **37** and carries the non-repeat pawl **34** clockwise, in unison therewith, to its normal position, as shown here.

If at the end of machine operation the depressed control key **21** is inadvertently retained depressed, the release pawl **26** would then be retained in its counter-clockwise tripped position out of register with the stud **30**, and, as a result, the arm **31** and the shaft **32** would not be held in their untripped position, as shown here, but instead would be free to move clockwise under spring action to initiate an unintentional operation of the machine. However, this is prevented by the non-repeat pawl **34**, which at this time is under added tension of the spring **36** due to retention of the release pawl **26** in its counter-clockwise operated position, and, when the shaft **32**, the arm **31**, and the stud **30** are restored counter-clockwise, near the end of machine operation, the outward extension **33** of the non-repeat pawl **34** drops downwardly into the path of said stud **30** to retain it, the arm **31**, and the shaft **32** in their restored position, thus preventing an unintentional repeat operation of the machine. When pressure is removed from the depressed control key **21**, the pin **22** in said key, coacting with the corresponding slot **23**, and under influence of its corresponding spring **19**, restores the control plate **24** upwardly, which in turn restores the release pawl **26** clockwise. During its restoring movement, the pawl **26** engages the stud **37** and restores the non-repeat pawl **34** clockwise in unison therewith to disengage the extension **33** of said pawl from the stud **30**, whereupon said stud, under spring action, moves into yielding engagement with the outer end of said release pawl **26**.

The present machine is arranged to perform repeat cycles of operation to repeat an amount of a previous item-entering operation without any foreknowledge on the part of the operator that such amounts are to be repeated. Such repeat operations are effected by depression of one of the control keys **21** (FIG. 1), whereupon the machine performs a repeat cycle of operation to repeat the amount of the preceding item-entering operation. In the present machine, the repeat mechanism operates under control of the amount keys, and, when any amount key is depressed, it is impossible to initiate a repeat operation. In other words, the repeat mechanism is normally effective and operates automatically when no amount key is depressed, to cause the amount of the preceding operation to be repeated. However, depression of an amount key renders the repeat mechanism inoperative, in the manner fully explained in the co-pending United States patent application Serial No. 548, 165, now Patent No. 2,941,714.

Under certain circumstances, it is desirable that the amount of the previous operation be repeated several times in successive repeat operations, and, to facilitate such operations, it is desirable that the machine cycle without interruption or without coming to a stop at the end of each full cycle during such operations. This desirable condition has been accomplished in the present instance by the provision of mechanism which functions only in repeat operations when one of the control keys **21** (FIG. 1) is intentionally retained depressed to hold the non-repeat pawl **34** in its ineffective, or upward, position, as shown in FIG. 2, so that it will not move into the path of the stud **30** and thus obstruct continued releasing movement of the arm **31** and the shaft **32**. This permits the machine to perform uninterrupted and continuous repeat cycles as long as said control key **21** is retained depressed. The continuous cycling mechanism functions only in repeat operations and is rendered inoperative when an amount key is depressed to set up an amount to be entered into the machine.

The machine embodying the present invention has several denominational rows of amount keys **41** (FIG. 4), only two of such keys of one particular row being shown, depressibly mounted in a key frame (not shown) similar to the frame **20** for the control keys **21**. Each of the keys **41** is provided with an open coil spring **69**, compressed between a shoulder formed on said key and a finished surface in the amount key frame, to normally urge and maintain the amount keys in their upward, or undepressed, positions, as shown here. Each amount key carries a key pin **42**, which coacts with a corresponding angular camming surface **43**, formed on upward projections on an amount control plate **44**, rockably mounted in the amount key frame by its upper end being pivotally connected to the downward end of a link **45** pivoted on a stud **46** secured in said amount key frame and by a similar link (not shown) which pivotally supports the downward end of said plate **44**. A spring **47** urges the plate **44** upwardly, or toward the right (FIG. 4), to normally maintain the camming surfaces **43** in yielding contact with the corresponding pins **42** in the amount keys **41**.

A rearward finger **48** of the link **45** coacts with a rod **49** supported between an arm **50**, pivoted on a stud **51** secured in a disc **52** in turn mounted in the machine framework, and a similar arm (not shown) also mounted on a disc (not shown) similar to the disc **52**. A shoulder formed on an upward extension of the arm **50** (FIG. 4) is normally engaged by a bent-over ear **53** formed

on an arm 54 secured on a sleeve 55 (FIG. 1) free on a shaft 56 supported in the machine framework. Also secured on the sleeve 55 is a crank 57 carrying a stud 58 engaged by a hook formed on the inner end of a link 59, which is pivotally connected to an upward extension of a link 60, in turn fulcrumed on a stud 61 secured in the control key frame 20. The downward end of the link 60 carries a stud 62, which pivotally supports the inner end of a control plate 63, having, near its outer end, a slot which slidably engages a stud 64, secured in the frame 20, to support said plate 63 for back-and-forth shifting movement.

A clip 65 (FIG. 1) is turnably connected to the crank 57 and has a bent-over ear which extends downwardly and coacts with the upper edge of the link 59 to normally maintain the slot in the hook-shaped inner end of said link 59 in engagement with the stud 58. To engage the link 59 with or disengage it from the stud 58, the clip 65 is turned ninety degrees, in either direction, to move the bent-over ear in its downward end out of the path of said link 59, thus providing the required room for engaging and disengaging the slot in said link with and from the stud 58, for assembly and disassembly purposes. The plate 63 (FIGS. 1 and 3) has a notch 66 formed in the inner surface of its downward end, opposite walls of which notch coact with a stud 67 secured in a lever 68 pivoted on a shaft 71 supported in the machine framework. A forward extension of the lever 68 (FIG. 3) has a slot which engages a stud 72 secured in a hub carried by the forward end of an arm 73 pivoted on the shaft 32. A rearward extension of the arm 73 has a bent-over ear 74, which coacts with a surface 75 formed on a downward projection of the non-repeat pawl 34 (FIG. 2).

When no amount key 41 is depressed, the plate 63 (FIGS. 1, 3, and 4) is in the position shown here, in which angular camming surfaces 76, formed on the upper ends of projections 77 of said plate 63, are in coacting relationship with the corresponding pins 22 in the corresponding control keys 21. Under this condition, depression of any one of the control keys 21 causes the pin 22 therein, in cooperation with the corresponding surface 76 to shift the plate 63 downwardly, or counter-clockwise, against the action of the spring 70. This movement of the plate 63 causes the upper wall of the notch 66 in its forward end, in cooperation with the stud 67, to rock the lever 68 counter-clockwise against the action of a spring (not shown). Counter-clockwise movement of the lever 68 rocks the arm 73 also counter-clockwise to move its ear 74 into the path of the surface 75 on the downward projection of the non-repeat pawl 34 to retain said pawl against movement into the path of the stud 30 (FIG. 2) as long as the operated control key 21 is retained in depressed position, to cause continuous and uninterrupted cycles of operation of the machine.

Inasmuch as no amount keys are depressed in repeat operations, it is necessary to release the zero stop mechanism for each amount bank in some other manner, and this is accomplished by counter-clockwise movement of the lever 68, as explained above, which movement causes a downward finish surface 79 (FIG. 3) near its forward extension to engage a stud 80 in an arm 81 free on the shaft 32 and rock said arm 81 counter-clockwise against the tension of a spring 84. The arm 81 is connected to a similar companion arm (not shown) by two rods 82 and 83, and counter-clockwise movement of said arm moves the rod 83 into position to retain the zero stop mechanism for each amount bank in ineffective position, so that the amount set up on the amount keys 41 and entered in the machine in a previous item-entering operation may be repeated, in the manner described in the co-pending United States patent application Serial No. 548,165, now Patent No. 2,941,714.

A suitable counting device (not shown) may be provided for counting the number of cycles of operation

of the machine, and, upon performance of the required number of cycles, to repeat the amount as many times as required, release of pressure on the depressed control key 21 (FIGS. 1 and 3) permits said key to be spring-restored upwardly, at the end of the cycle of operation, to undepressed position. Simultaneously, the plate 63, the lever 68, and the arm 73 are spring-restored to normal position to move the ear 74 beneath and out of the downward path of the downward projection 75 of the non-repeat pawl 34, so that said repeat pawl may become effective to prevent unintentional repeat operations of the machine.

Under ordinary conditions, retention of the key 21 fully depressed would, through the corresponding slot 23 (FIG. 1) in the plate 24, hold the release pawl 26 beneath the stud 30 in the arm 31 to insure continuous repeat cycles of operation. However, any easing of pressure on the depressed key 21, combined with lost motion in the parts, could possibly create a condition that would permit the pawl 26 to be restored clockwise sufficiently to interfere with the stud 30 and thus terminate machine operation. The possibility of such an occurrence is eliminated by a downward surface 85 (FIGS. 1 and 3) on the lever 68, which, upon counter-clockwise movement of said lever, when one of the control keys 21 is depressed, coacts with the stud 37 in the non-repeat pawl 34 to retain said pawl and the release pawl 26 against clockwise movement to hold the forward end of said release pawl 26 safely beneath the stud 30, so that the machine may make continuous and uninterrupted repeat cycles of operation.

The repeat mechanism and the continuous cycling mechanism are rendered inoperable upon depression of any one of the amount keys 41. Depression of an amount key 41 (FIG. 4) causes the pin 42 therein, in cooperation with the corresponding camming surface 43, to shift the control plate 44 forwardly, or counter-clockwise, against the action of the spring 47, to rock the link 45 clockwise. The finger 48 of the link 45, cooperating with the rod 49, rocks the arm 50 counter-clockwise to disengage the shoulder, formed on its rearward extension, from the ear 53 on the arm 54 (FIG. 1). This frees the arm 54 to the action of the spring 70, which immediately rocks said arm clockwise to move the ear 53 thereon beneath the rearward extension of the arm 50 to retain said arm 50 in its moved, or counter-clockwise, position, against the action of a spring 86, which is tensioned to urge said arm and the rod 49 clockwise to normally maintain the shoulder on said arm in the path of the ear 53. Clockwise movement of the arm 54 (FIG. 1), through the sleeve 55, rocks the crank 57 also clockwise, which, through the link 59, rocks the link 60 counter-clockwise to shift the plate 63 rearwardly, or toward the right (FIG. 1). This moves the cam surfaces 76, on the projections 77, out of coacting relationship with the pins 22 in the control keys 21 and simultaneously moves cam surfaces 78, formed on said projections 77, into coacting relationship with said pins 22. Subsequent depression of one of the control keys 21, to initiate machine operation, causes the pin 22 therein, in cooperation with the corresponding cam surface 78, to shift the plate 63 a further extent rearwardly, or toward the right, to bring the downward wall of the notch 66 (FIG. 3) therein into engagement with the stud 67 to obstruct counter-clockwise movement of the lever 68 to retain the arm 73 in ineffective position, as shown here. This permits normal functioning of the non-repeat pawl 34 and the machine release pawl 26 to prevent unintentional repeat operations.

Automatic release of the depressed amount key 41 and the depressed control key 21, at the end of an amount-entering operation, permits the arm 54 (FIG. 1), the crank 57, and the plate 63 to be restored to normal position, as shown here, whereupon the latch arm 50 (FIG. 4), under influence of the spring 86, again engages its shoulder with the ear 53 of the restored arm 54 to retain

said arm and connected parts, including the plate 63, in normal positions, as shown here.

In view of the rather simple nature of the mechanism of this application, it is believed that a full understanding of the operation of said mechanism will have been obtained from a perusal of the preceding description, and that further description of operation is therefore unnecessary.

While the form of mechanism shown and described herein is admirably adapted to fulfill the objects primarily stated, it is to be understood that it is not intended to confine the invention to the one form or embodiment disclosed herein, for it is susceptible of embodiment in various other forms all coming within the scope and spirit of the invention.

What is claimed is:

1. In a machine of the class described constructed and arranged to perform value-repeating operations, the combination of releasable means to initiate cycles of machine operation, said releasable means arranged to be restored to unreleased position at the end of each cycle of machine operation; means normally effective to retain the releasable means against releasing movements; manipulative means to render the retaining means ineffective to initiate a cycle of machine operation; means operable in conjunction with the retaining means to hold the releasable means in restored position in case the retaining means is retained in ineffective position by the manipulative means; and means operable by a subsequent operation of the manipulative means when no new value is set up in value-repeating operations to render the holding means inoperable to cause the machine to perform multiple uninterrupted cycles of operation.

2. In a machine of the class described having depressible value keys to set up values to be registered and recorded, the combination of releasable means to initiate a cycle of machine operation; means normally effective to retain the releasable means against releasing movement; depressible elements to move the retaining means to ineffective position to free the releasable means to initiate a cycle of machine operation, said releasable means arranged to be restored to unreleased position at the end of each cycle of machine operation; means operable in conjunction with the retaining means to hold the releasable means in restored position at the end of a cycle of machine operation, in case said retaining means is held in ineffective position by the depressed element, to prevent repeat cycles of machine operation; and means controlled by the value keys and operable by the depressed element when no value key is depressed to render the holding means inoperable to cause the machine to perform successive and uninterrupted cycles of operation as long as said element is retained depressed.

3. In a machine of the character described capable of performing value-repeating operations and having depressible value keys to set up values to be repeated, the combination of releasable means to initiate a cycle of machine operation; means normally effective to retain the releasable means against releasing movements; depressible elements to move the retaining means to ineffective position to free the releasable means to initiate a cycle of machine operation, said releasable means arranged to be restored to unreleased position at the end of each cycle of machine operation; means operable in conjunction with the retaining means to hold the releasable means in restored position at the end of each cycle of machine operation to prevent repeat cycles of machine operations; and means including a member positionable by the value keys and operable by the depressed element to render the holding means ineffective in operations in which no value key is depressed and effective in operations in which a value key is depressed, in the first instance to cause the machine to perform successive and uninterrupted cycles of operation as long as said element is retained depressed to repeat the value set up on the value key in a previous operation, and in the second instance to cause operation of the machine to be terminated at the end of a single cycle of operation in which a value is set up on the value keys and the depressed element is retained depressed at the end of said single cycle of operation.

4. In a machine of the class described capable of performing value-repeating operations and having depressible value keys to set up values to be repeated, the combination of releasable means to initiate a cycle of machine operation, said releasable means arranged to be restored to unreleased position at the end of each cycle of machine operation; means normally effective to retain the releasable means against releasing movement; depressible elements to move the retaining means to ineffective position to initiate a cycle of machine operation; means operable in conjunction with the retaining means to hold the releasable means in restored position at the end of each cycle of machine operation to prevent repeat cycles of machine operation; and means including a member positioned by the value keys and operated by the depressed element to render the holding means effective in operations in which a value key is depressed and ineffective in operations in which no value key is depressed, in the first instance to cause operation of the machine to be terminated at the end of a single cycle of operation in which a value is set up on the value keys and the depressed element is retained depressed at the end of said operation, and in the second instance to cause the machine to perform successive and uninterrupted cycles of operation as long as said element is retained depressed to repeat the value set up on the value keys in a preceding operation in each of said uninterrupted cycles of operation.

5. In a machine of the character described capable of performing value-repeating operations and having depressible keys to set up values to be repeated, the combination of releasable means to initiate a cycle of machine operation; means normally effective to retain the releasable means against releasing movement; depressible elements to move the retaining means to ineffective position to free the releasable means to initiate a cycle of machine operation, said releasable means arranged to be restored to unreleased position at the end of each cycle of machine operation; means operable in conjunction with the retaining means to hold the releasable means in restored position at the end of each cycle of machine operation to normally prevent repeat cycles of machine operation; normally ineffective means to latch the holding means in ineffective position; and means comprising a member controlled by the value keys and operable by the depressed element to render the latch means effective in operations in which no value key is depressed to cause the machine to perform multiple uninterrupted cycles of operation as long as said element is depressed to repeat the value set up on the value keys and entered in the machine in a preceding operation, in each of said uninterrupted cycles of operation.

6. In a machine of the class described having depressible value keys to set up values to be registered and recorded in an item-entering operation and repeated in subsequent repeat operations, the combination of releasable means to initiate cycles of machine operation; normally effective means to retain the releasable means against releasing movements; depressible elements to move the retaining means to ineffective position to free the releasable means to initiate a cycle of machine operation, said releasable means arranged to be restored to unreleased position at the end of each cycle of the machine operation; means operable in conjunction with the retaining means to hold the releasable means in restored position at the end of each cycle of machine operation, in case said retaining means is held in ineffective position by the depressed element, to prevent unintentional repeat cycles of machine operation; normally ineffective means to latch the holding means in ineffective position; and means comprising a member controlled by the value keys and oper-

able by the depressed element to render the latch means effective in operations in which no value key is depressed and to render said latch means ineffective in operations in which a value key is depressed, in the first instance to cause the machine to perform multiple uninterrupted cycles of operation as long as said depressed element is retained depressed to repeat the amount of the item-entering operation in each of said multiple cycles, and in the second instance to cause operation of the machine to be terminated at the end of a single cycle item-entering operation, when the depressed element is retained depressed at the end of said single cycle of operation.

No references cited.