

April 18, 1944.

C. M. FRIDEN ET AL

2,346,834

CALCULATING MACHINE

Filed March 9, 1942

2 Sheets-Sheet 1

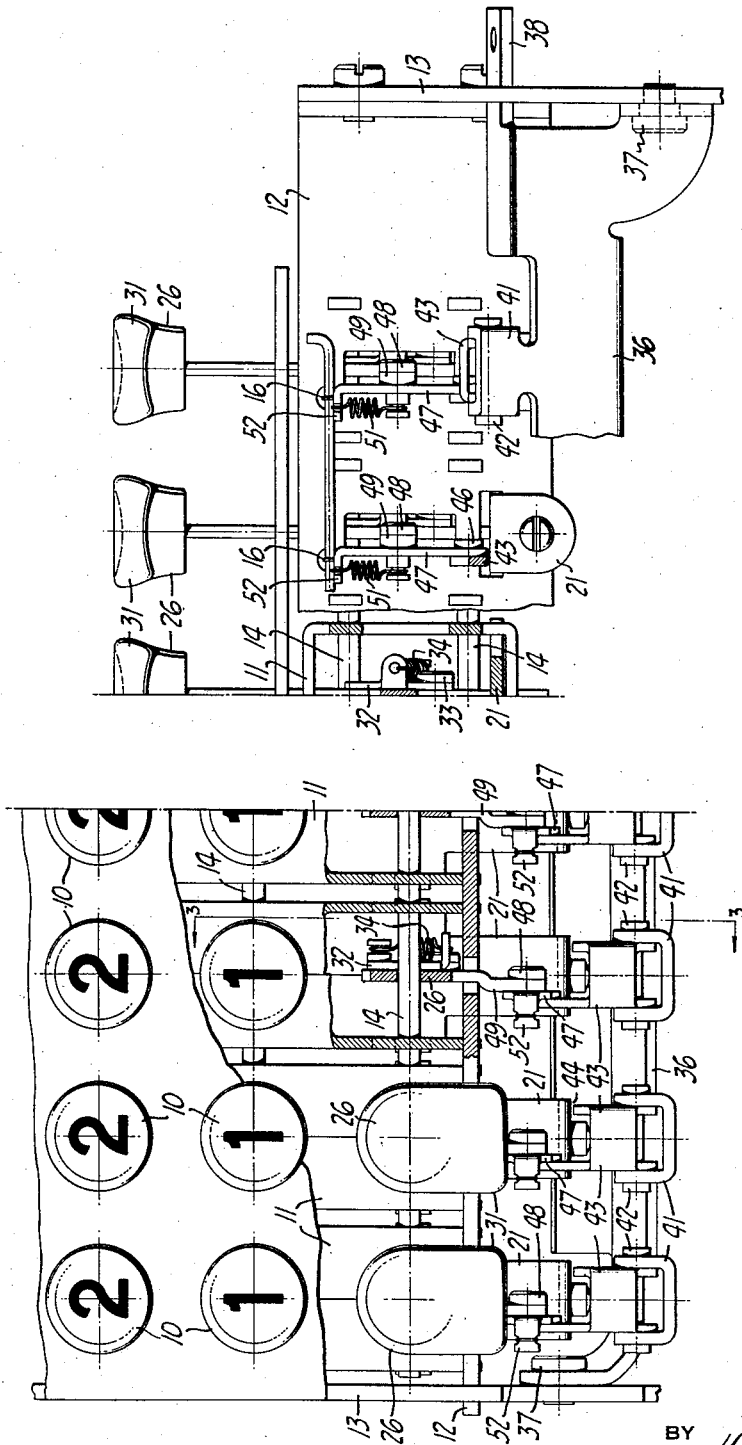


FIG. 2

FIG. 1

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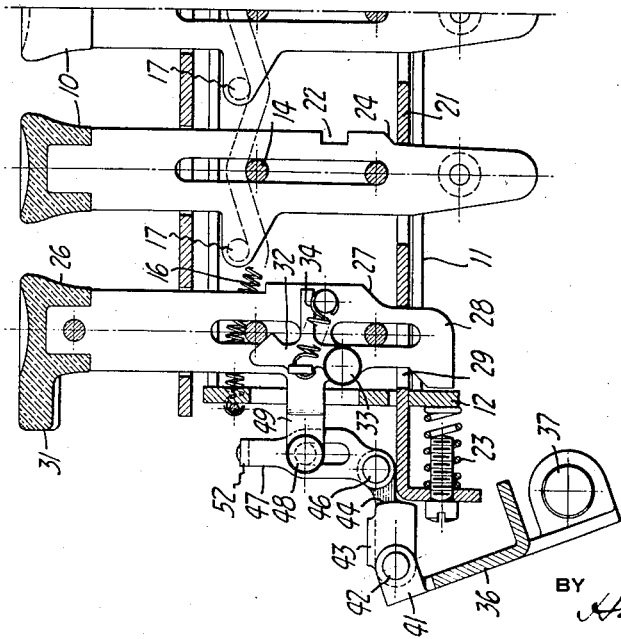
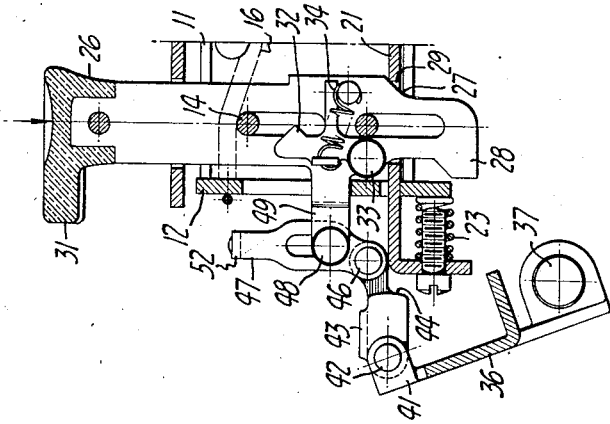
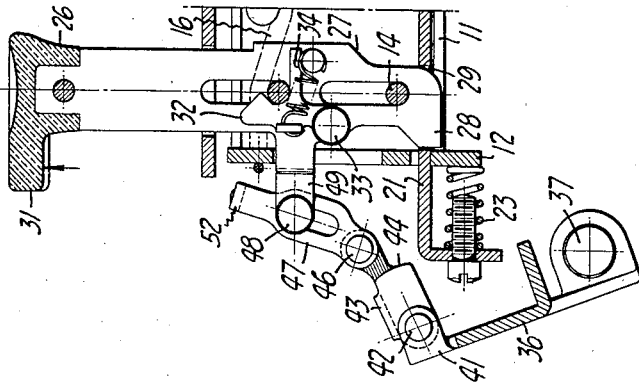


FIG. 3
FIG. 4
FIG. 5

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2,346,834

CALCULATING MACHINE

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5 Claims. (Cl. 235—145)

This invention relates to calculating and adding machines and is concerned more particularly with the provision of improved means for controlling the release or clearing of depressed numeral keys of the keyboard.

It is a general object of the invention to provide selective clearing means for the various banks of keys of a keyboard for a machine of the character referred to.

Another object of the invention is to provide a keyboard in which various banks can be adjusted to clearing or non-clearing positions.

Other objects and advantages of the invention will be apparent from the following description of a preferred embodiment of the invention as illustrated in the accompanying drawings, in which:

Figure 1 is a fragmentary plan view of the keyboard of a calculating machine embodying the instant invention.

Figure 2 is a front elevational view of the right hand portion of the keyboard.

Figure 3 is a fragmentary sectional view of the keyboard taken as indicated by the line 3—3 in Figure 1.

Figure 4 is a view similar to Figure 3 but showing an ordinal clear key in depressed position.

Figure 5 is a view similar to Figures 3 and 4 but showing the ordinal clear key in its adjusted position to prevent clearing of the associated bank of keys.

The instant invention is designed to provide a selective means for controlling the clearing or releasing of set keys in the banks of the keyboard of the so-called "eighty-one" key type. In this type of keyboard, as shown for example in Friden Patent 2,229,889, a plurality of rows or orders of value keys from "1" to "9" are used to set the values into the machine through suitable selecting mechanism of a character not pertinent to the instant invention. In many operations it is desirable to maintain the values in certain rows of the keyboard while clearing the values in other rows of the keyboard so that in effect a split keyboard is provided. In other instances, the value of the factor set in the keyboard may be constant in certain orders while other orders of the value will vary from calculation to calculation.

To provide a keyboard enabling the accomplishment of the above objects, we have employed the use of selectively settable elements, one for each row of keys, for determining whether or not the associated row of keys will be cleared upon operation of the general keyboard clearing means, this selectively settable means preferably taking

the form of the usual zero key or clear key which is associated with each row or bank of value keys.

Referring to the drawings, a plurality of rows of value keys 10 are provided which are mounted for endwise sliding movement in respective banks including frames 11 which are suitably mounted in the machine, for example by similar end plates 12, only one of which is shown. End plates 12 extend between respective side plates 13 of the machine. The keybanks are held together by transverse tie rods 14 which also pass through elongated slots in the key stems, as seen in Figure 3. The keys 10 of each bank are all urged to their raised positions by a spring 16 which alternately passes under pins 17 of the keys and over the upper set of tie rods 14. The lower ends of the numeral keys 10 are associated with a suitable form of selecting mechanism (not shown) so that such mechanism is set to represent the value of the depressed key.

A depressed key is held in depressed position by a latching slide 21 which is adapted to engage in a latching notch 22 of the key stem upon depression of the key under the influence of an associated spring 23. The key is also provided with a cam surface 24 for moving the latching slide to inactive position upon depressing the key, so that the formerly depressed latched key will be released upon depression of another key in the same row.

Each order of numeral keys 10 is provided with an ordinal zero or clear key 26 which is also mounted for endwise sliding movements by slots engaging the associated tie rods 14. The key 26 is provided with a cam surface 27 adjacent its lower end so that upon depression of the key the latching slide 21 will be moved to release any depressed value key 10.

In accordance with the instant invention, each ordinal clear key 26 is also provided with a locking foot or portion 28. Upon lifting of the key 26 to a position above its normal position (Figure 3) foot 28 is disposed within the associated slot 29 of the cooperating latching slide 21, as seen in Figure 5, to lock the slide against endwise movement. In this position, depression of another numeral key 10 is blocked by the slide 21 so that the value set by the depressed key is locked in the machine. To facilitate lifting of a clear key, the top of each key 26 is provided with an extension 31. To hold the key releasably in either raised or normal position, a latching pawl 32 (Figure 3) is pivoted on the key at 33 and urged in a clockwise direction as viewed in Figure 3 by spring 34. The latching pawl 32 is pro-

vided with a V-shaped nose which is normally positioned below the rod 14 (Figure 3), but upon raising the key to its upper position (Figure 5) is positioned above the rod 14.

In addition to the individual clearance of the orders of the keyboard by the marginal clear key 26, a simultaneous clearing means is provided in the form of a clear bail 36 which is pivotally mounted at 37 on the respective plates 13. The bail 36 is provided with an end 38 (Figure 2) which extends through the adjacent plate 13 and is connected in a suitable manner for operation by a key or by power from the machine, for example as shown in said patent.

In front of each row of keys, the clear bail 36 is provided with a pair of opposed bent ears 41 which are apertured to receive pivot pins 42 of a clearing element or link 43. Element 43 is U-shaped and has a shoulder 44 formed in the opposed flanges thereof and disposed to engage the adjacent end of the latching slide 21. Thus with the parts positioned as shown in Figure 3, rocking movement of bail 36 in a clockwise direction serves through the clearing element 43 to move the latch slide 21 to release any depressed key in the associated bank or row of keys.

To disable the clearing function of the clear bail 36 when an order of the keyboard is adjusted to lock in the setting of its keys, the clearing element 43 is pivotally connected at 46 with a slotted link 47 engaging a pin 48 carried by an extension 49 of the adjacent clear key 26. Normally pin 48 occupies the upper end of the slot as viewed in Figure 3, the slot being of sufficient length to permit depression of the associated clear key 26 as shown in Figure 4. Depression of the clear key serves to tension spring 51 which extends between pin 48 and an ear 52 formed at the upper end of link 47. However, upon lifting of a key 26 to its key latch locking position, the link 47 is lifted and also moves the key slide operating element 43 so that its shoulder 44 is above the bent end of the associated slide 21. Thus, upon clockwise rocking movement of the bail or gate 36, as viewed in Figure 5, the key releasing element 43 is disabled and will not release the aligned key latching slide 21.

We claim:

1. In a calculating machine, a set of value keys, latching means for retaining an adjusted key in adjusted position, means for moving said latching means to inactive position, means for rendering said moving means ineffective with respect to said latching means, said last named means including a key operable in one direction to effect a key releasing movement of said latching means and in another direction to render said moving means ineffective, and means on said key for

blocking movement of said latching means when said key is adjusted in said another direction.

2. In a calculating machine, a row of value keys, a spring-urged latching member for said keys, each key having a cam surface for moving said member and a latching notch to receive said member in a depressed position of the key, and a clear key operable in one direction for moving said member to release a depressed key, said clear key having a portion movable into locking relation with said latching member to prevent movement thereof upon operation of said clear key in another direction, whereby to lock a depressed value key in depressed position and to lock other value keys in raised position.

3. In a calculating machine, a row of value keys, a spring-urged latching member for said keys, each key having a cam surface for moving said member and a latching notch to receive said member in a depressed position of the key, a clear key operable in one direction for moving said member to release a depressed key, said clear key having a portion movable into locking relation with said latching member to prevent movement thereof upon operation of said clear key in another direction, whereby to lock a depressed value key in depressed position and to lock other value keys in raised position, a control member for operating said latching member to release a depressed value key, and means controlled by said clear key for rendering said control member ineffective when said key portion is in said locking relation.

4. In a calculating machine having a row of value keys, a slidable latch for said keys, a clear key having a cam and a protuberance formed on the stem thereof, said cam serving to impart movement to said latch for unlatching a depressed value key when said clear key is moved to one position, said protuberance serving, when said clear key is in another position, to prevent movement of said latch to thereby lock a depressed value key and to prevent depression of any undepressed value keys in the row.

5. In a calculating machine having a row of value keys, a slidable latch for said keys, a clear key having a cam and a protuberance formed on the stem thereof, said cam serving to impart movement to said latch for unlatching a depressed value key when said clear key is depressed below its normal position, said protuberance serving, when said clear key is elevated above its normal position, to prevent movement of said latch to thereby lock a depressed value key and to prevent depression of any undepressed value keys in the row.

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