

Feb. 13, 1934.

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1,946,942

CALCULATING MACHINE

Filed March 9, 1931

FIG. 4.

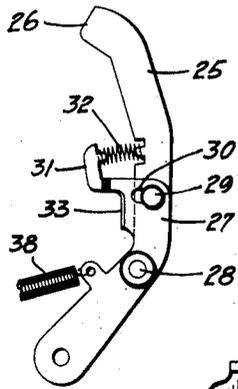


FIG. 1.

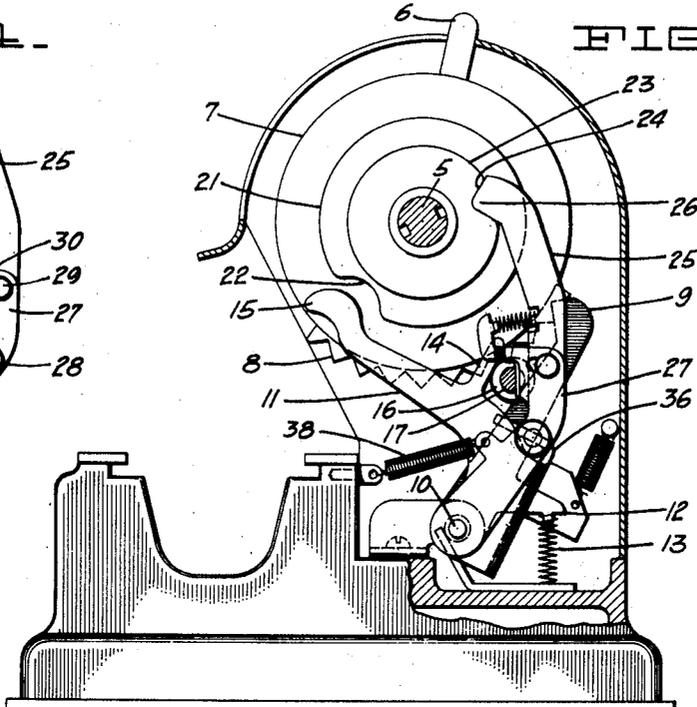


FIG. 2.

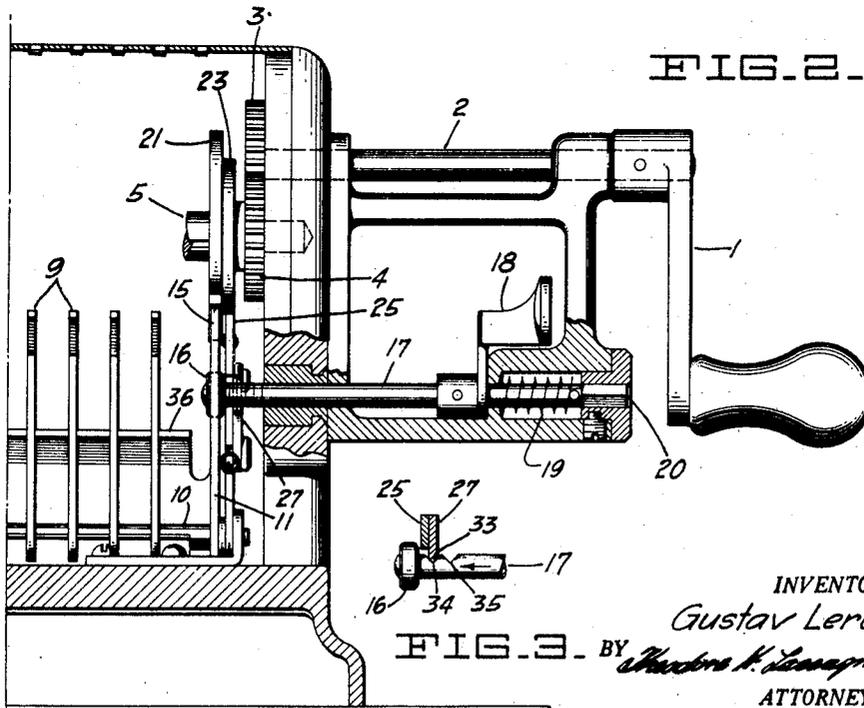


FIG. 3.

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1,946,942

CALCULATING MACHINE

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Application March 9, 1931. Serial No. 521,077

2 Claims. (Cl. 235—130)

The invention relates to calculating machines of the type embodying a rotatable actuator upon which the values to be calculated are set, rotation of the actuator being effected by a crank handle which projects from the outside frame of the machine. The values adjusted on the actuator are transmitted upon the rotation of the crank handle through intermediate gears to the numeral wheels of the accumulating mechanism. Mechanism is provided to positively lock the selecting mechanism in its adjusted position during rotation of the actuator. Calculating machines of this type are shown in the British patent to Friden, Number 307,858 issued December 4th, 1923, to which reference is made for a disclosure of such mechanisms as are not described herein.

It is an object of the invention to provide a locking mechanism for the selecting mechanism which will become effective upon rotation of the actuator from full cycle position.

Another object of the invention is to provide a locking mechanism for the selecting mechanism which will become effective upon rotation of the actuator from full cycle position and which will remain effective until manually released by the operator.

Still another object of the invention is to provide a locking mechanism for the selecting mechanism which will remain effective at all times during successive rotations of the actuator and which is adapted to be manually released when it is desired to set another value in said actuator by mechanism independent of the crank handle.

Other objects will appear as the description progresses.

The invention possesses a plurality of advantageous features, some of which will be set forth at length in the following description, where that form of the invention which has been selected for illustration in the drawing accompanying and forming part of the present specification, shall be outlined in full.

In said drawing one form of apparatus embodying the invention has been shown, but it is to be understood that the invention is not limited to that particular form, since the invention, as set forth in the claims, may be embodied in a plurality of other forms. It is evident that the invention may be embodied in a calculating machine having any suitable form of selecting mechanism and which is provided with locking mechanism for said selecting mechanism.

In the accompanying drawing the invention is shown embodied in a calculating machine of the

general type disclosed in the patent to Friden referred to above to which reference is hereby made for a disclosure of a complete calculating machine.

The machine comprises an actuator having adjustable elements into which the values to be calculated are introduced by any suitable means, and which are normally locked to retain any value set therein. The machine also embodies a centralizing lever which is adapted to center the actuator in full cycle position at the conclusion of any operation.

In the accompanying drawing forming a part of this specification:

Figure 1 is a longitudinal section taken through the actuator showing the means for locking the adjustable element of the actuators in their adjusted position and the means for controlling said locking means.

Figure 2 is a lateral section showing the driving means and the means for manually disabling the selector locking mechanism.

Figure 3 is a detail view of the means for resiliently latching the manual control member in either of its two positions.

Figure 4 is a detail of the means for centralizing the actuator in full cycle position and of the latching means carried thereby for the manually controllable locking member.

The driving means, the selecting mechanism and the locking means therefor will be briefly described insofar as is necessary to an understanding of the invention and their relation thereto.

The actuating shaft 5 is driven from crank 1 through shaft 2 journaled in the handle bracket and the side wall of the frame, gear 3 secured to shaft 2, and gear 4 secured to shaft 5. Loosely mounted on shaft 5 is a series of disks 7 provided with levers 6 serving to adjust them to any desired position, there being one of these disks 7 for each order of the selecting mechanism. The manner in which the disk 7 serves to determine the number to be transmitted to the numeral wheel is fully disclosed in the patent to Friden referred to above. Each disk 7 is provided with a rack 8 which is engaged by a spring pressed dog 9. The series of dogs 9 are loosely mounted on a shaft 10, each of them being spring pressed into engagement by a compression spring which engages an arm 12 on each dog 9 and the base plate.

Mounted on shaft 10 is a comb 36 which serves to keep the dogs 9 securely in alignment with their respective racks 8. On the right hand end

of this comb is an arm 11 having a nose 15 and an extension 14, the purpose of which will be presently described. The nose 15 of arm 11 is adapted to register with depression 22 in a cam disk 21 securely mounted on actuator shaft 5 when the actuator is in full cycle position. During rotation the periphery of cam disk 21 serves to hold comb 36 rocked in its left hand position, said comb serving to hold the dogs 9 in engagement with the racks 8, thereby locking disks 7 in their adjusted positions; but when the actuator is in full cycle position, as shown in Figure 1, nose 15 of arm 11 is alined with depression 22.

Means are provided to normally maintain the locking assembly in locking position, the said means being manually adjustable to unlock the selecting mechanism and permit adjustment thereof.

Slidably mounted in the handle bracket and the side frame of the machine is a shaft 17 which is spring pressed to its right hand position by compression spring 19. This shaft has a square end 20 which fits into a corresponding opening in the handle bracket so that shaft 17 is capable of lateral sliding movement only. On the left hand end of shaft 17 is a disk 16 which, in its normal position as shown in Figure 2, lies back of extension 14 on arm 11 of the comb 36. This disk 16 serves to prevent clockwise oscillation of the assembly mounted on shaft 10 and thus holds the dogs 9 in locking engagement with the selecting disks 7. Securely mounted on the shaft 17 is a handle 18 which is used to move the shaft 17 to the left, thus releasing the extension 14 from disk 16 and unlocking the disks 7 so that another adjustment thereof may be made when the operator so desires.

Means are provided to latch the lock controlling rod resiliently in both operative and inoperative position and to release this latch when the actuator is moved from full cycle position to insure the lock controlling rod moving to operative locking position.

Loosely mounted on shaft 10 is a lever 25 having a nose 26 adapted to engage a depression 24 in a cam disk 23 when the actuator is in full cycle position. The lever 25 is held in engagement with cam disk 23 by means of a spring 38. Thus, on rotation of the actuator, the nose 26 of lever 25 will be cammed out of the depression 24 and engage the periphery of disk 23. When the actuator returns to full cycle position nose 26 will enter depression 24 thus tending to centralize the actuator in full cycle position. Pivotaly mounted on lever 25 at 28 is a member 27 having a knife edge 33 and an upwardly extending arm 31. Member 27 is mounted for a limited oscillating movement due to a pin and slot connection 29, 30, with lever 25. It is held

normally with the right hand end of slot 30 engaged with pin 29 due to compression spring 32 mounted between arm 31 and lever 25. The knife edge 33 is adapted to engage with either of two V-notches 34, 35, provided in the shaft 17 as clearly shown in Figure 3. Knife edge 33 normally engages notch 34 resiliently latching the shaft 17 with disk 16 behind extension 14 of arm 11, thus holding the dogs 9 in locking position. When shaft 17 is moved to the left knife edge 33 rides out of notch 34, enters notch 35 and will latch shaft 17 with member 16 in inoperative position, permitting adjustment of disks 7.

The operation of the mechanism is as follows. When a setting is to be made handle 18 is used to move shaft 17 to the left. Knife edge 33 will latch the shaft in this position by engaging notch 35. The dogs 9 are held resiliently into engagement with racks 8 by the spring 13 and upon movement of disks 7 will ride over the teeth of said racks, since the nose 15 of arm 11 is in registering position with the depression 22 of cam disk 21, and comb 36 is not locked by disk 16. Upon rotation of the crank, nose 26 of lever 25 will ride out of depression 24 moving member 27 to the right and disengaging knife edge 33 from notch 35 allowing spring 19 to move shaft 17 to the right and carry member 16 behind extension 14 of arm 11 so that the locking dogs 9 will be securely held in locking engagement with the racks 8 of the disks 7. When the actuator returns to full cycle position, nose 26 of lever 25 will again engage depression 24 moving member 27 to the left and its knife edge 33 into engagement with notch 34, thus latching disk 16 in its blocking position. This condition will obtain until it is desired to make another setting and shaft 17 is moved to the left by means of handle 18.

I claim:

1. In a calculating machine, having an actuator and settable selectors therefor; latching means engaging therewith, a member spring urged into blocking relation with said latching means, a manipulable element for moving said member into and out of operative position, frictional means for retaining said member in inoperative position, and means operable in time with the actuator for disabling said retaining means.

2. In a calculating machine, having an actuator and settable selectors therefor; latching means engaging therewith, a member spring urged into blocking relation with said latching means, means for retaining said member in its ineffective position, a manipulable element for moving said member into and out of its effective position, and means operable in time with the actuator for disabling said retaining means.

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