E. E. PHINNEY.

KEY LOCK FOR CALCULATING MACHINES

APPLICATION FILED FEB. 25, 1920.

1,384,632.

Patented July 12, 1921.

2 SHEETS—SHEET 1.

Fig. 1.

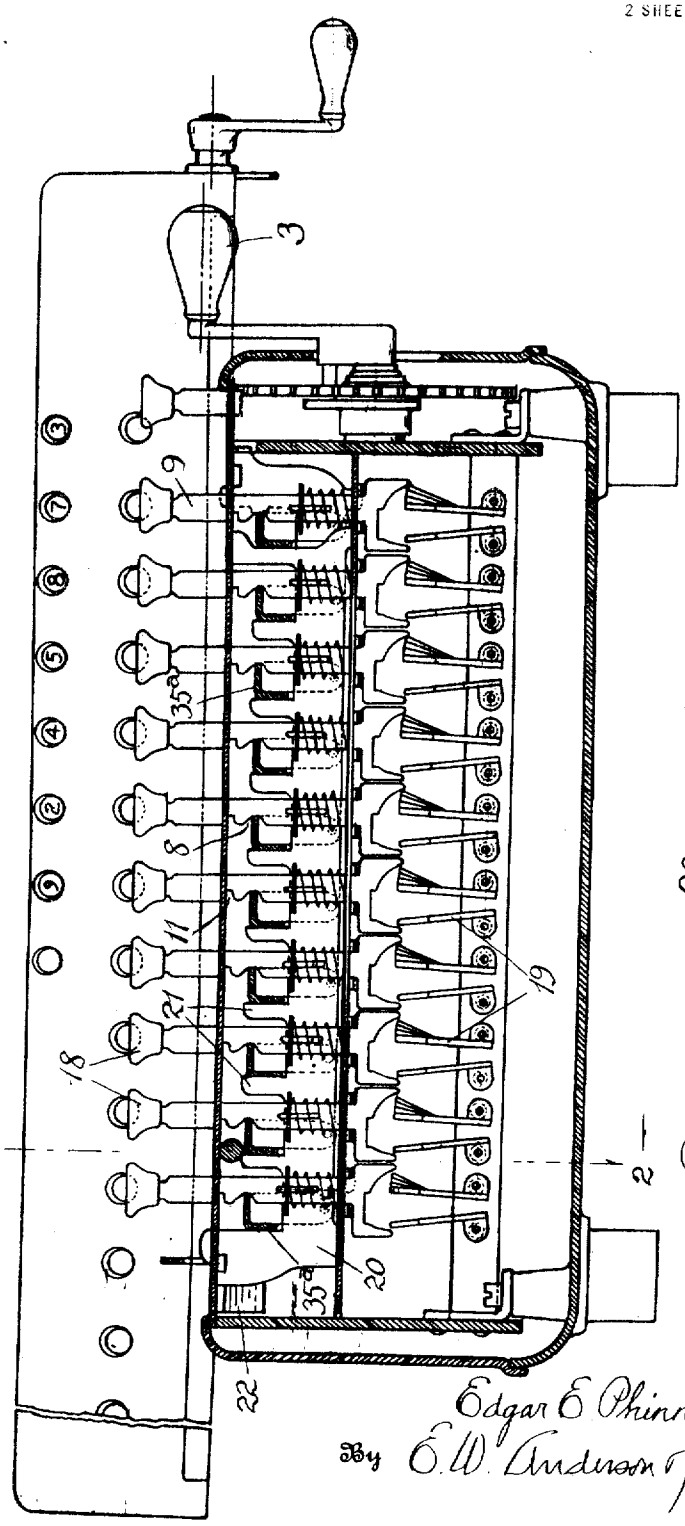
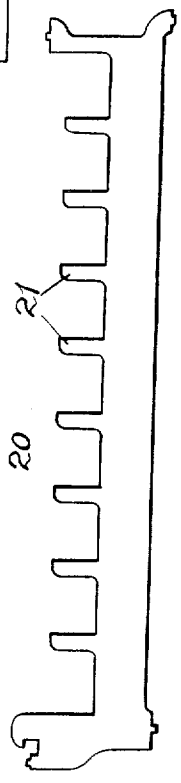


Fig. 5.



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2 SHEETS—SHEET 2.

Fig. 3.

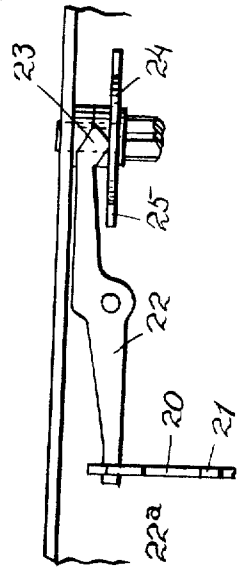


Fig. 2.

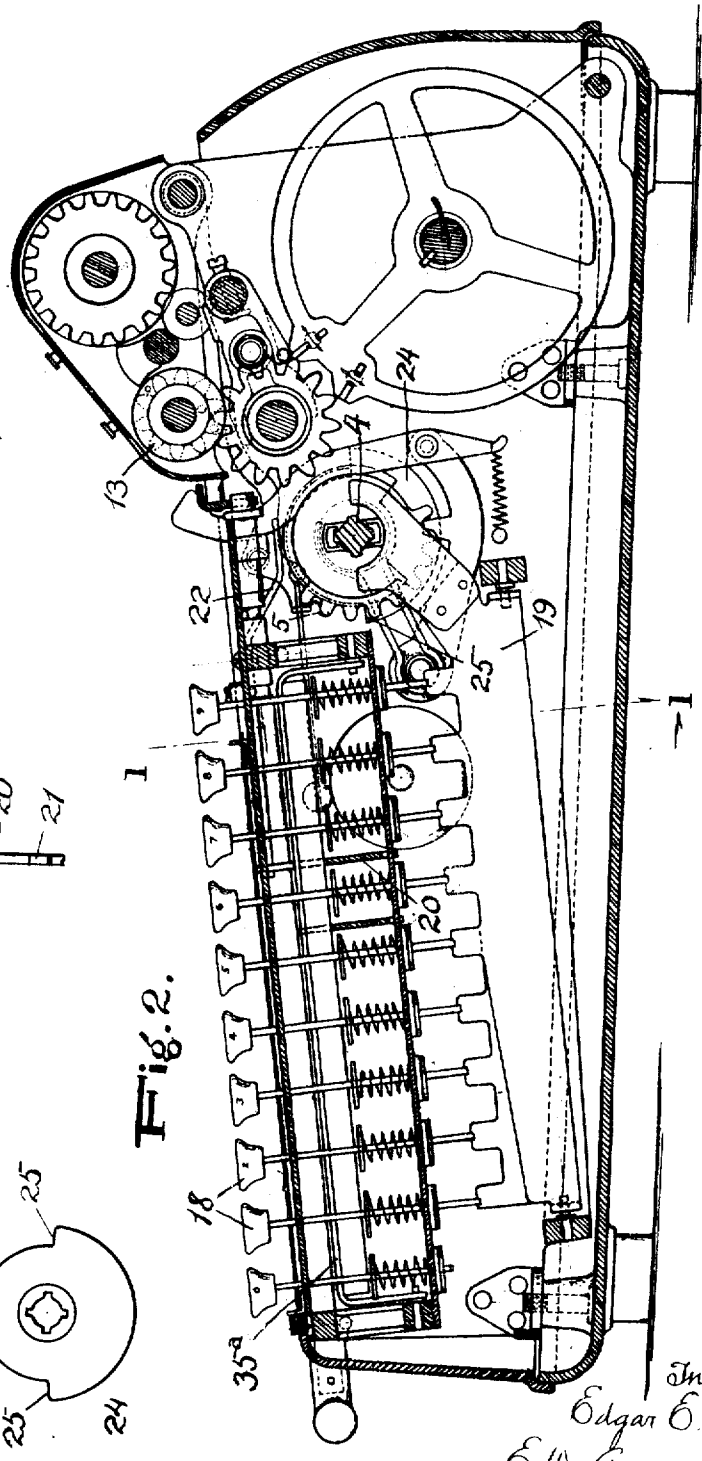


Fig. 4.

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UNITED STATES PATENT OFFICE.

EDGAR E. PHINNEY, OF WEST ORANGE, NEW JERSEY, ASSIGNOR TO MONROE CALCULATING MACHINE COMPANY, OF ORANGE, NEW JERSEY, A CORPORATION OF NEW YORK.

KEY-LOCK FOR CALCULATING-MACHINES.

1,384,632. Specification of Letters Patent. Patented July 12, 1921.

Application filed February 25, 1920. Serial No. 361,178.

To all whom it may concern:

Be it known that I, EDGAR E. PHINNEY, a citizen of the United States of America, and resident of West Orange, in the county of Essex and State of New Jersey, have made a certain new and useful Invention in Key-Locks for Calculating-Machines; and I declare the following to be a full, clear, and exact description of the same, such as will enable others skilled in the art to which it appertains to make and use the invention, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

Figure 1 is a sectional view of a machine embodying the invention, taken on the line 1—1, Fig. 2.

Fig. 2 is a section on the line 2—2, Fig. 1.

Fig. 3 is a detail plan view of the lever 22 and connections.

Fig. 4 is a detail face view of the disk 24.

Fig. 5 is a detail front view of toothed bar 20.

The invention has relation to means for locking the denominational keys of calculating machines in position after an amount has been set up on the keyboard, thereby preventing the alteration of said amount so set up, after the operation of the registering mechanism is initiated and prior to the completion thereof.

The invention is shown as applied to a machine of the type disclosed in the reissue patent to Baldwin No. 13,841, as modified in the patent to Monroe No. 1,306,606, and is adapted to operate as stated during the rotation of the crank handle or differential actuating elements in either direction as required in performing problems of different nature.

The invention consists in the novel construction and combinations of parts, as hereinafter set forth.

In the accompanying drawings illustrating an embodiment of the invention, the numeral 4, designates a rotary shaft, upon which are mounted the primary selecting or differential actuating elements 5, adapted to be laterally moved or positioned by actuation of the keys 18, through the medium of rock bars 19. Rotation of the shaft 4 by operation of the crank handle 3, effects transference of the amount set up on the keyboard to the register wheels 13 in either direction of rotation of said shaft, the direction of rotation being determined by the nature of the problem to be performed.

A train of gears shown in said patents serve as a medium of connection between the crank handle and shaft 4 to rotate said shaft in either direction according to the movement of said handle.

The denominational keys 18 are arranged in a plurality of series, the stems 9 of said keys having upper notches 11, and lower notches 8. A spring-pressed rock bar 35^a extends parallel to each bank of keys, a lateral edge of said rock-bar having normal engagement with the lower notches and being adapted to engage the upper notches to retain the keys actuated in setting up a problem in set up or depressed position.

Extending at right angles to the rock-bars 35^a is an endwise slidable or reciprocatory lock-bar 20, common to all of the rock bars and having upstanding teeth 21, normally engaging laterally all of said bars.

The shaft 4 is provided with a mutilated disk 24, fast thereon and having an upper semi-circular cut-out portion providing diametrically opposite radial shoulders 25, a lever 22 being pivoted intermediately of its length to the framing and having at its tail end actuating engagement or connection at 22^a with the lock bar 20, and at its other end having a double beveled cam head 23, normally located midway of said cut-out portion of the disk 24, midway of said shoulders.

A problem being set up on the keyboard of the machine, those of the rock bars 35^a that have been actuated by depression of the keys used in setting up the problem, will be engaged with the upper notches of the key stems owing to their spring action and will retain the said keys in actuated or depressed position, and the lock bar 20 will be moved endwise to actuate the lever 22, and move the cam head of the lever into the plane of the disk 24.

The shaft 4 being now rotated in either direction, by operation of the crank handle 3, in the registering operation, the disk 24 will be rotated therewith, and a shoulder 25 of said disk will after a quarter rotation of the disk in the embodiment shown engage a beveled surface of the cam head of the lever 22 and restore said lever to normal

position with the point of its cam head just out of the plane of the disk, and the lower semi-circular portion of said disk will pass into engagement with the point of said cam head of said lever and lock the lever in the position shown in Fig. 3, or in normal position, with the lock bar in normal position as shown in Fig. 1 thereby preventing any alteration of the positions of the key stems of all of the series of keys until a further half rotation of the shaft 4, or until the amount set up on the key board has been transferred to the register wheels, when the disk 24 will have passed out of engagement with said cam head of said lever, the upper semi-circular cut-out portion of said disk then coming again into position opposite said cam head, a further quarter rotation of the shaft 4 and disk 24 serving to restore the parts to normal position and the carrying operation being performed in this last quarter rotation of said shaft.

The invention is of simple nature, operates positively, and the locking of the keys in position is effected automatically by operation of the registering mechanism.

Reference is made to the aforesaid patents for any mechanism that may be needed to carry out the complete operation of the invention.

I claim:—

1. In a key-set calculating machine, setting-up means including a series of keys, numeral wheels, drive mechanism for said wheels movable in either of two directions, and means operable by said drive mechanism in either direction of movement thereof for locking said keys in position.

2. In a key-set calculating machine, setting-up means including a plurality of series of keys, rock bars engaging the keys of each series, numeral wheels, drive mechanism for said wheels including a shaft rotatable in either of two directions, and means operated by said shaft in either direction of movement thereof for locking said keys in position, including a lock member common to all of said rock bars, a member fast on said shaft, and a lever intermediate of said members.

3. In a key-set calculating machine, setting-up means including a plurality of series of keys, rock bars engaging the keys of each series, numeral wheels, drive mechanism for said wheels including a shaft, and means operated by said shaft for locking said keys in position, including a lock member common to all of said rock bars, a mutilated disk fast on said shaft, and a lever having an operating engagement with said lock bar and a cam head adapted for operation by said disk.

4. In a key-set calculating machine, setting-up means including a plurality of series of keys, rock bars engaging the keys of each series, numeral wheels, drive mechanism for said wheels including a shaft rotatable in either of two directions, and means operated by said shaft in either direction of movement thereof for locking said keys in position, including a lock member common to all of said rock bars, a mutilated disk fast on said shaft and having a cut-out portion and shoulders, and a lever having an operating engagement with said lock bar and a double cam head adapted for operation by either of said shoulders.

5. In a key-set calculating machine, setting-up means including a plurality of series of keys having stems provided with upper and lower notches, a rock bar for each series engaging normally the lower notches and adapted to engage the upper notches to retain the keys in position, numeral wheels, drive mechanism for said wheels including a shaft rotatable in either of two directions, and means operable by said shaft in either direction of movement thereof to engage said rock bars and lock said keys in position.

6. In a key-set calculating machine, setting-up means including a plurality of series of keys having stems provided with upper and lower notches, a rock bar for each series engaging normally the lower notches and adapted to engage the upper notches to retain the keys in position, numeral wheels, drive mechanism for said wheels including a shaft rotatable in either of two directions, and means operable by said shaft in either direction of movement thereof to engage said rock bars and lock said keys in position, including a lock bar common to said rock bars, a mutilated disk fast on said shaft and having shoulders, and a lever having operating engagement with said lock bar and a double cam head adapted for operation by either of said shoulders.

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

EDGAR E. PHINNEY.

Witnesses:

L. D. TAGGART,

E. F. BRITTEN, JR.