D. E. FELT.

KEY FOR KEYBOARD MACHINES.

APPLICATION FILED AUG. 22, 1910.

982,417. Patented Jan. 24, 1911.

2 SHEETS—SHEET 1.

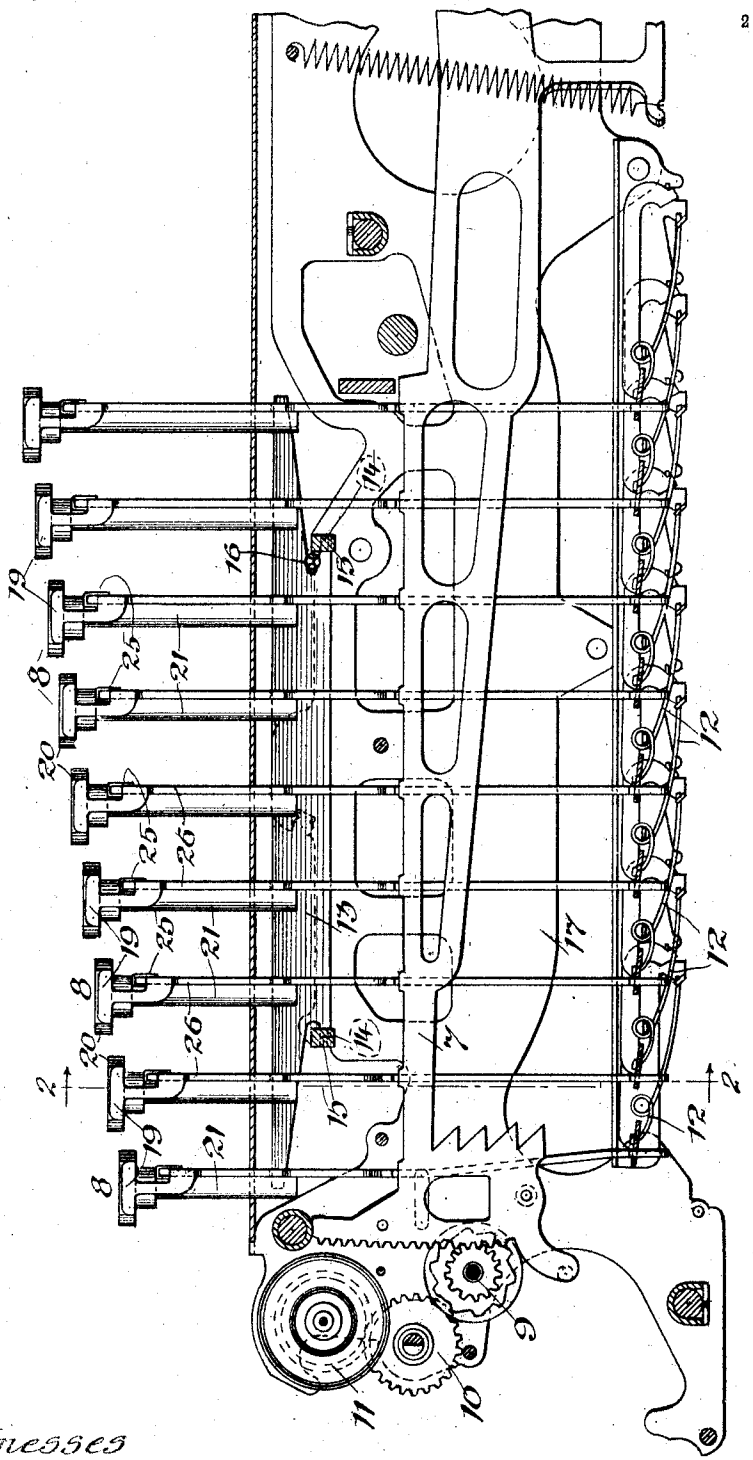

Fig. 1

Witnesses

Wm. Geiger

Esther Abrams.

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2 SHEETS—SHEET 2.

Fig. 2

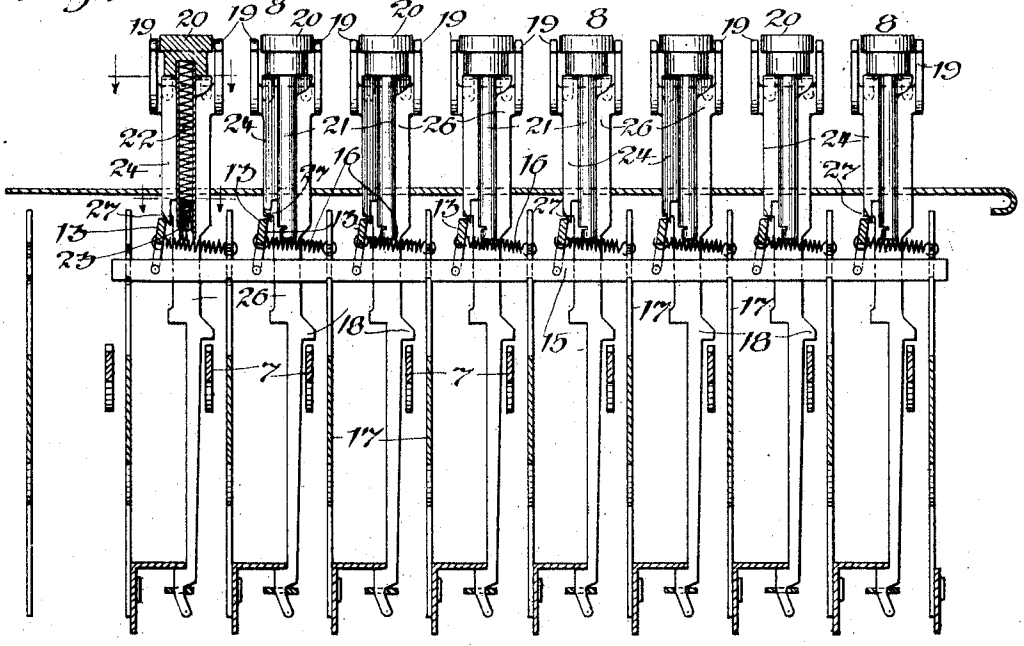


Fig. 3

Fig. 4

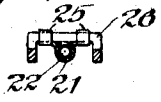


Fig. 5.

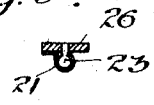


Fig. 6.

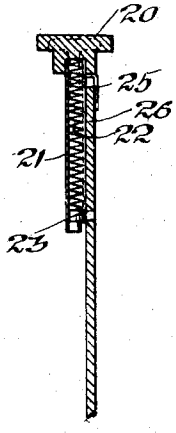
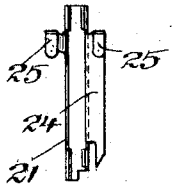


Fig. 7.



Witnesses:

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UNITED STATES PATENT OFFICE.

DORR EUGENE FELT, OF CHICAGO, ILLINOIS.

KEY FOR KEYBOARD-MACHINES.

982,417. Specification of Letters Patent. Patented Jan. 24, 1911.

Application filed August 22, 1910. Serial No. 578,305.

To all whom it may concern:

Be it known that I, DORR E. FELT, a citizen of the United States, residing in Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Keys for Keyboard-Machines, of which the following is a specification.

This invention relates to the construction of the keys of calculating or other machines having keyboards whereby they are operated or controlled. It is desirable in operating such machines that the operator shall avoid depressing adjacent keys with the key he wishes to operate, and to avoid mistakes of that kind has been the object of the present invention, which is an improvement upon the construction disclosed in my pending application No. 553,364, filed April 4, 1910.

The nature of my present improvement is fully disclosed below and also shown in the accompanying drawing in which—

Figure 1 is a partial longitudinal vertical section of a comptometer having the improvement embodied therein. Fig. 2 is a section on the line 2—2 of Fig. 1. Fig. 3 is a top view of one of the keys. Figs. 4 and 5 are sections on the lines 4—4 and 5—5 respectively of Fig. 2. Fig. 6 is a vertical section of a key and Fig. 7 is a partial view of the releasing device detached.

I have shown the invention as applied to a comptometer constructed in accordance with my Patent No. 960,528 issued June 7, 1910.

In said drawing 7 represents one of the series of segment levers each of which is adapted to be depressed by a series of keys such as those shown at 8, belonging to the same denomination as the lever. The lever shown operates a pinion 9 and through the intermediate pinion 10 transmits motion to the numeral wheel 11 in the customary way. The stems of the keys extend to the bottom of the machine and are there provided with lifting springs 12 by which they are returned to normal position after each actuation. At 13 is a locking bar extending longitudinally of the keys embraced in the same denomination with the segment lever. Said bar is supported by pivots 14 formed upon it and entered in cross bars 15, and it swings upon its pivots and normally locks the keys in the same denomination with it against operating. It is pressed toward its operating position by a spring 16 secured to the adjacent division plate 17. The bars 15 are supported by the same division plates. There is one of these lock bars for each denomination embraced in the machine as will be understood from Fig. 2, and they are adapted to be forced from their acting position by the releasing device of the keys.

The keys are all alike in construction and the description of one will answer as a description of all. The stems are each provided with lateral projections 18 whereby they operate the corresponding segment lever to which they belong, and at the top they are provided with two outstanding wings 19 the tops of which form a part of the top of the key and are arranged at a level slightly below that of the depressible button 20 of the key releasing device which is positioned between them. The button is secured upon the top end of a tube 21 containing a coiled spring 22 which is confined in said tube between the button at the top and a projection 23 on the front of the key stem. The tube is open on one side and has on one edge of its open side a projecting flange 24, the lower end of which is beveled and acts as a cam to swing the locking bar 13 from its operating position, and when it does this of course the key is released and may be operated. The depressible button has only a limited independent movement, the tube being furnished with hooks 25 which pass over and engage the top of the body 26 of the key stem. The button is preferably cast upon the top of the spring holding tube. It will be understood that the spring 22 will return the tube and the button to normal position after each operation. The key stem is also provided with a right angle shoulder at 27 which is adapted to engage the top of the locking bar when that bar is not swung outward by the releasing device, and of course when this occurs, the key cannot be operated.

The operation of the device is as follows:—When the operator presses on the key with his finger on the button, he depresses the button and the tube, compressing the spring in the tube, and causing the beveled cam 24 of the tube to swing the locking bar outward from its acting position so that the key is released and free to be operated. If, however, the operator fails to depress the button, his pressure on the wings at either side will simply cause the key to descend until the shoulder 27 engages the lock bar as above stated.

It will be noted that the depressing button

of the devices in this invention is not entirely surrounded by an unyielding part of the key top, the top and bottom being open. I have been led to adopt this feature as the mistakes which the invention is intended to remedy occur more frequently at the sides of the keys than they do at the top or bottom. By this change too I render the releasing of the key somewhat more sensitive than it is in the construction of my previous application. I have also substituted locking devices which are common to all the keys of a denomination for the separate and individual locking devices with which each key was provided in the previous application. It will also be noted, that the button 20 instead of being depressed below the wings 19, is elevated above those parts and is the most prominent part of the top, so that the operator's finger if it touches the key at all can hardly fail to operate the button. This feature reduces the danger of the strokes being non-effective through failure to effect the release of the keys.

I claim:—

1. The combination in the keyboard of a calculating or other machine of a denominational series of keys, a denominational locking device for normally locking said keys and a device within each key operable by the finger of the operator when it strikes the key and acting to release said locking device.

2. The combination in a keyboard machine, of a series of keys, means common to the series for normally locking them, and a depressible device within each key adapted to be actuated with the key and acting to release the locking means.

3. The combination in a keyboard machine, of a series of keys, means common to the series for normally locking them, and a depressible releasing device within each key for releasing the lock on the key, said device projecting above the other parts of the key top.

4. The combination in the keyboard of a calculating or other machine, of a series of keys and means for normally locking the same, each key having at its top non-releasing side wings and a depressible releasing button between said wings, adapted to effect the release of the key.

5. The combination in the keyboard of a calculating or other machine, of a series of keys and means for normally locking the same, each key having at its top unyielding side wings and a depressible releasing button between said wings, adapted to effect the release of the key, said button being located at a higher level than the side wings.

6. The combination in the keyboard of a calculating or other machine, of a series of keys and means for normally locking the same, each key having at its top side wings which are unyielding, and a button between said wings adapted to be depressed independently of the wings and acting to effect the release of the key.

DORR EUGENE FELT.

Witnesses:
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