No. 839,908. PATENTED JAN. 1, 1907.

H. L. WAGNER.

TYPE WRITING MACHINE.

APPLICATION FILED JUNE 7, 1906.

2 SHEETS—SHEET 1.

Fig. 1.

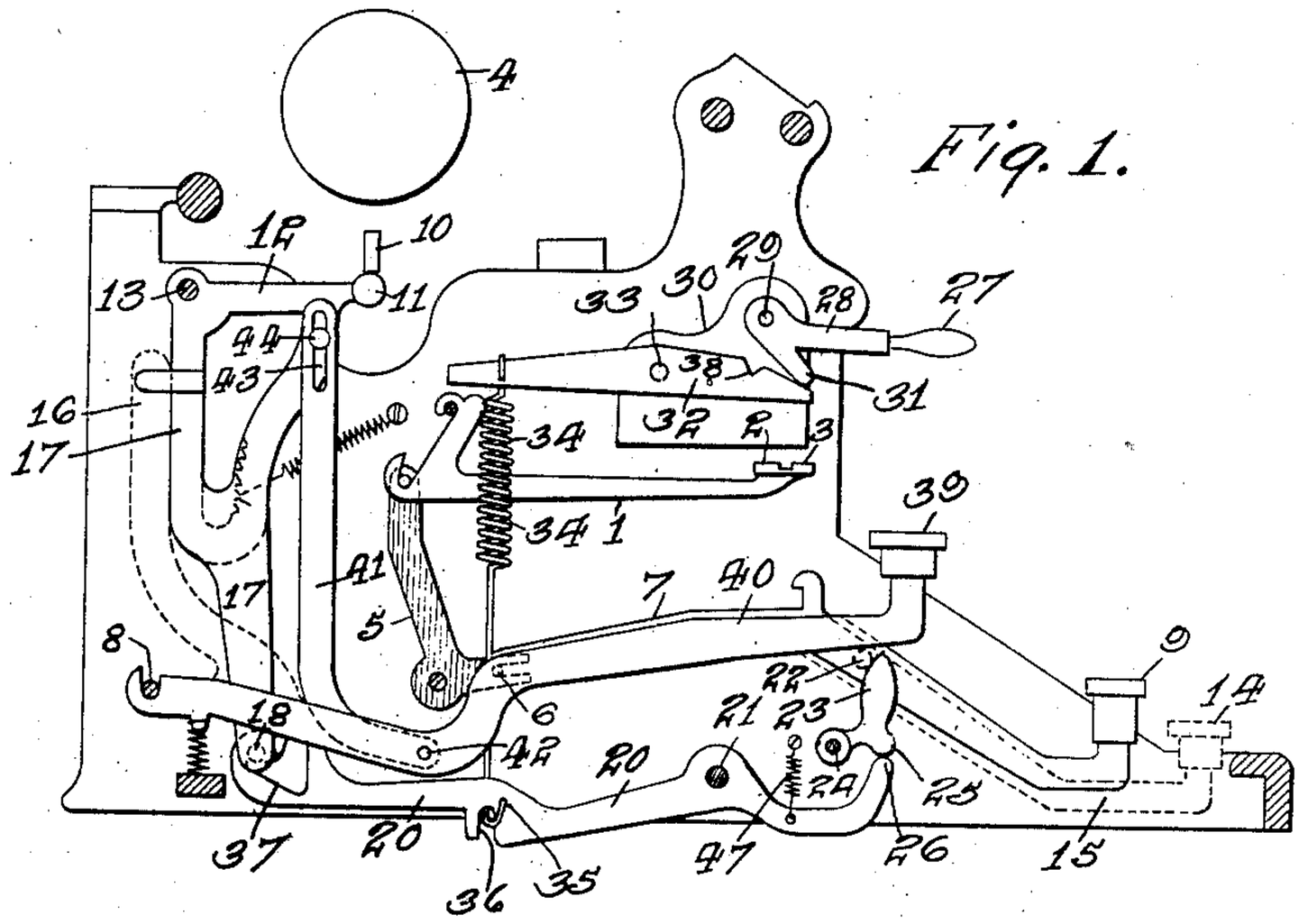


Fig. 2.

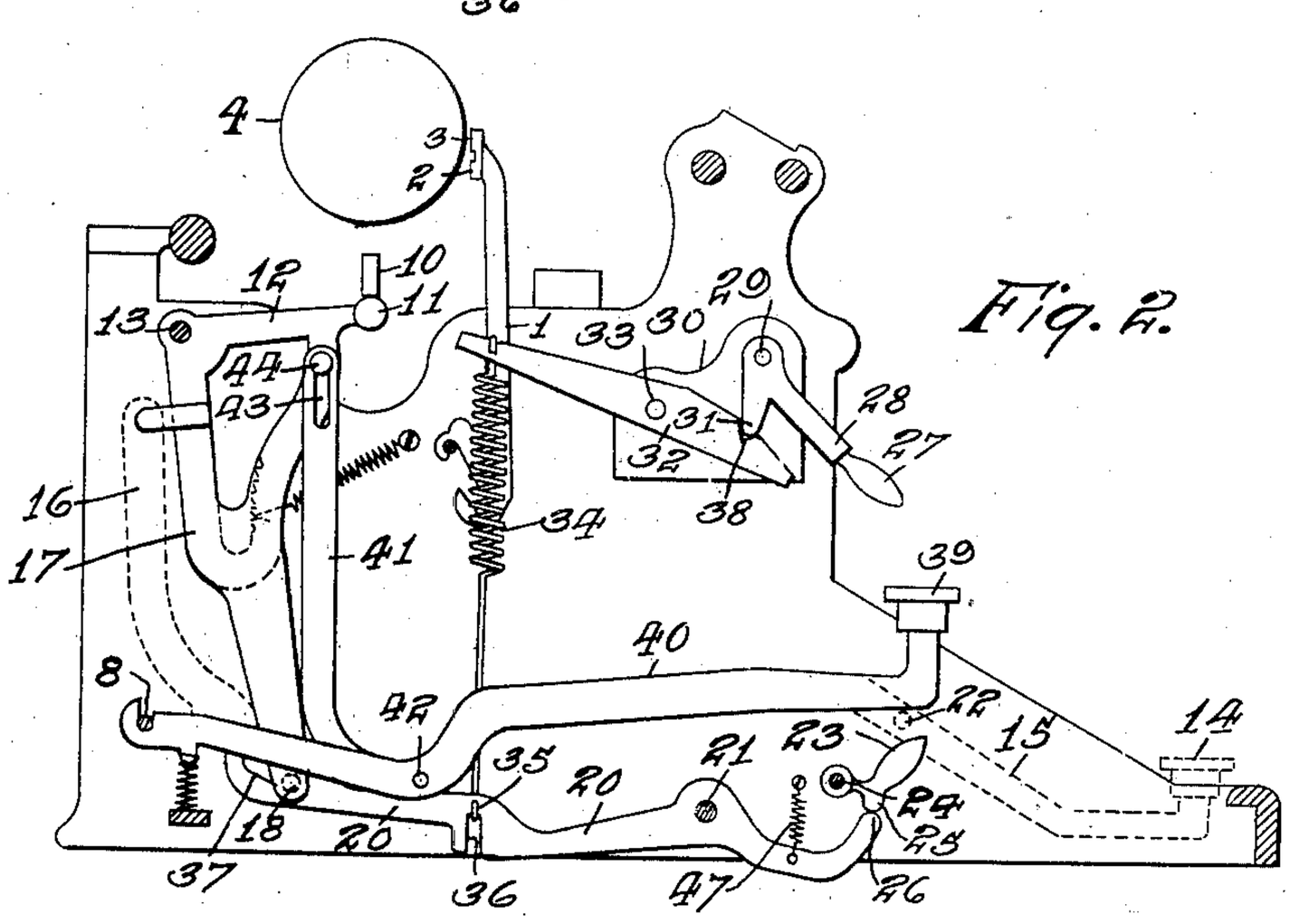


Fig. 5.

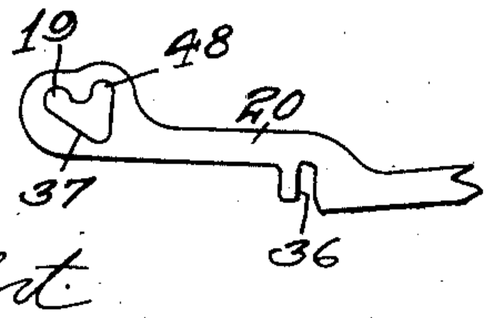
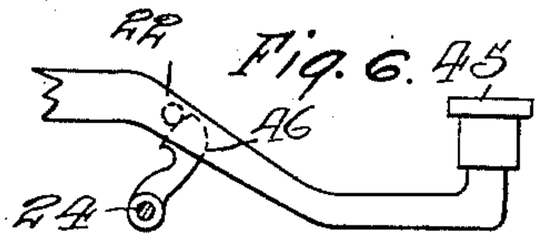


Fig. 6.



Witnesses

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2 SHEETS—SHEET 2.

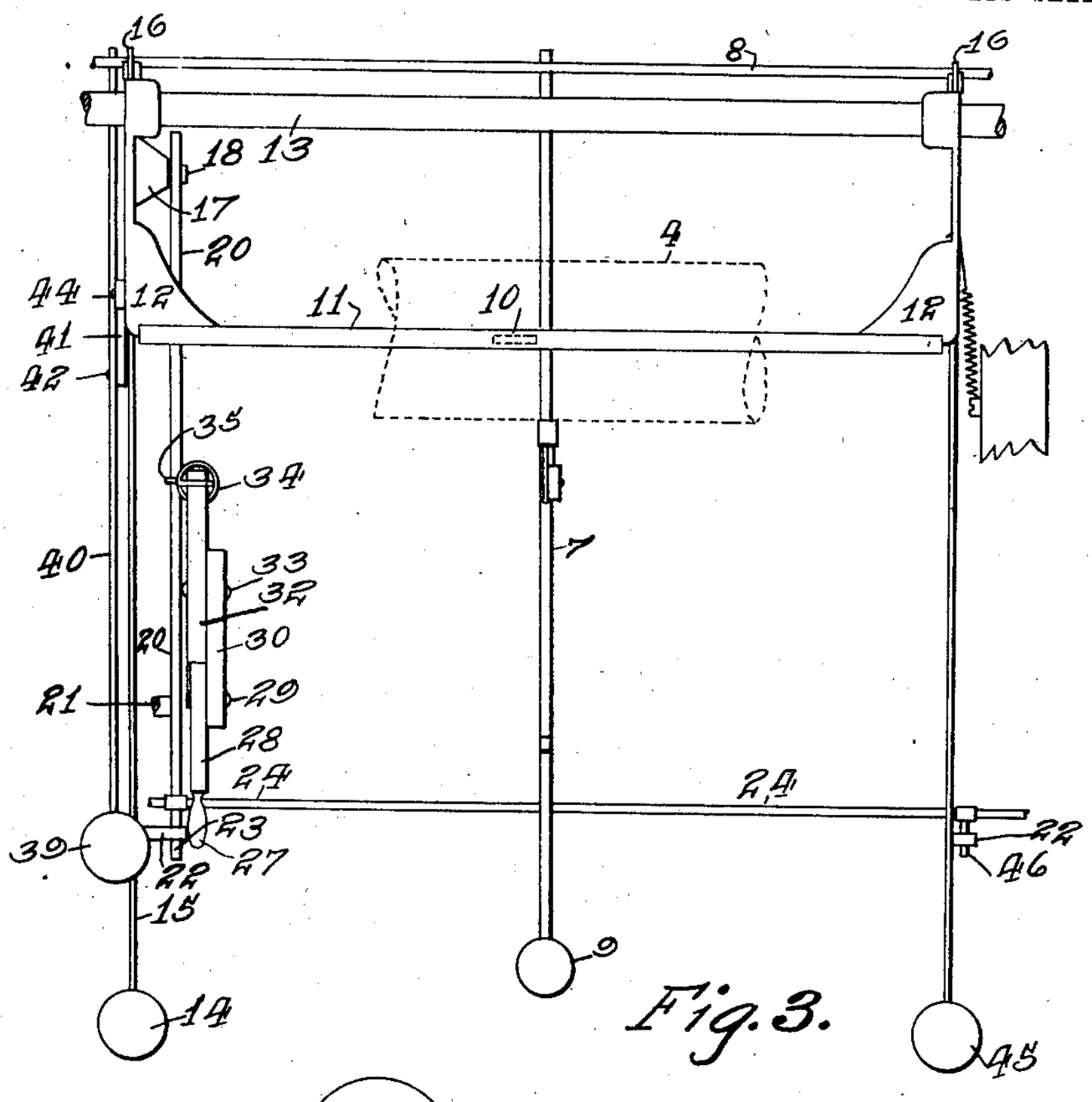

Fig. 3.

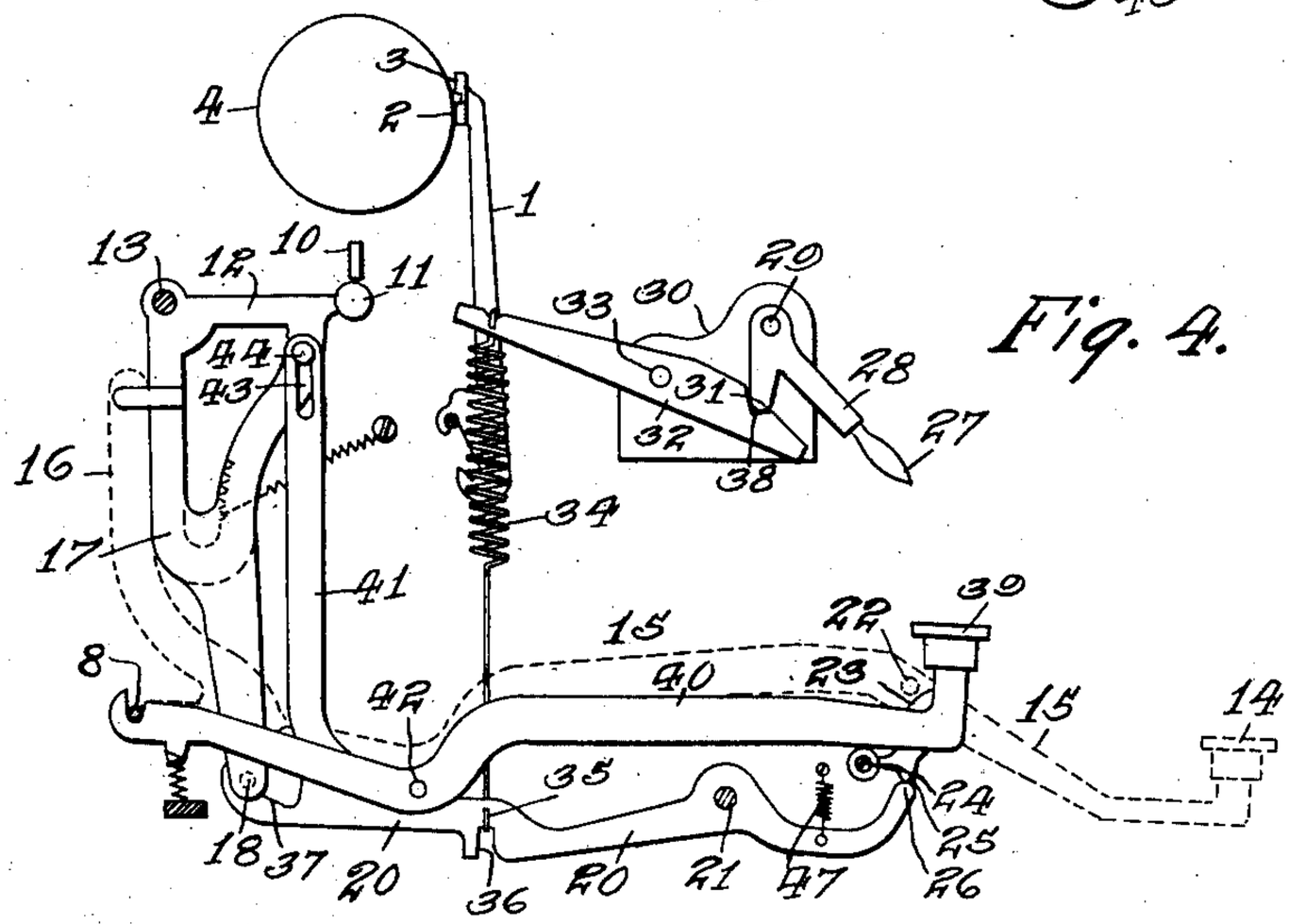

Fig. 4.

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UNITED STATES PATENT OFFICE.

HERMAN L. WAGNER, OF MOUNT VERNON, NEW YORK, ASSIGNOR TO UNDERWOOD TYPEWRITER COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW JERSEY.

TYPE-WRITING MACHINE.

No. 839,908. Specification of Letters Patent. Patented Jan. 1, 1907.

Application filed June 7, 1906. Serial No. 320,582.

To all whom it may concern:

Be it known that I, HERMAN L. WAGNER, a citizen of the United States, residing in Mount Vernon, in the county of Westchester and State of New York, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a specification.

This invention relates to the case-shift mechanism of type-writing machines, whereby a relative shifting movement is effected between the type system and the platen, so as to cause either the lower-case or capital types to print at will. In such mechanisms it is usual to provide means for setting the case-shift mechanism for writing capitals exclusively, thereby leaving both hands of the operator free to manipulate the keys, as in writing headings.

The principal object of my invention is to provide simple and effective means which may be readily adapted to existing types of machines for setting the case-shift mechanism for writing capitals and improved means for temporarily returning the case-shift mechanism to its initial or lower-case position for writing a few characters in the line of capitals.

In addition to the finger-key, which is usually provided for shifting the platen or other shiftable part of a type-writing machine, I provide a finger-lever by which the platen may be shifted and mechanically detained in its shifted position, and I also provide a second key which may be operated to return the platen to normal position, where it stays so long as said second key is held depressed by the operator. This is a convenience in inserting punctuation-marks and occasional lower-case characters in a line of capital letters. Other objects and advantages will hereinafter appear.

In the accompanying drawings, Figure 1 is a sectional elevation taken from front to rear of an "Underwood" front-strike writing-machine, showing my improvements applied thereto, all of the parts being shown in normal positions. Fig. 2 is a similar view showing the platen-shifting frame mechanically detained in shifted or upper-case position and also showing a type-bar in printing position. Fig. 3 is a plan of the principal portion of the case-shifting mechanism and also showing a key-lever and type-bar. Fig. 4 is a view similar to Fig. 2, but showing the platen-frame returned to lower-case position by means of a second shifting-key provided for that purpose and a lower-case type striking against the platen. Fig. 5 shows a fragment of a locking and shifting lever. Fig. 6 shows the normal position of the shift-key at the right-hand side of the keyboard.

Types 1 bearing lower-case and capital types 2 3 strike rearwardly against the front side of a platen 4. The types are operated by elbow-levers 5, connected by pins 6 to levers 7, fulcrumed upon a rod 8 and bearing keys 9 on their forward ends. The platen 4 is mounted upon a frame, whereof a roll 10 runs upon a rail 11. Said rail forms part of the shifting frame 12, which is hinged to the framework by means of a rod 13, whereby the rail 11 and the platen may be shifted up and down. When the platen is in its lower or normal position, the lower-case types 2 upon the type-bars strike the same. When it is desired to write a single capital letter, a shift-key 14 is depressed, thereby forcing down a lever 15, fulcrumed upon the rod 8 and having an arm 16, extending upwardly over said fulcrum to bear against the rear edge of the shifting frame. Upon relieving the key 14 from pressure the platen returns by gravity to normal position, together with the shifting frame.

Upon the lower end of the arm 17 is provided a projecting pin 18 to engage a notch 19, formed in the rear end of a lever 20, fulcrumed at 21 upon the framework, whereby the shifting frame is locked against accidental movement from lower-case position. Said shift-key 14 has means, however, to release this lock, said releasing means comprising a pin 22 on the lever 15 and a cam 23, fixed upon a rock-shaft 24, having a part 25 to depress the forward end 26 of the lever 20, thereby lifting the notch 19 up from the locking-pin 18 at the initial part of the depression of the shift-key 14, thus permitting the arm 17 to be rocked forward by the arm 16.

A finger-piece 27 is in the preferred form of my invention mounted upon the forward end of a bell-crank or lever 28, pivoted at 29 upon a fixed bracket 30, said bell-crank having an arm 31 to bear down upon the

forward end of a lever 32, pivoted between its ends at 33 and carrying at its rear end a pull-spring 34. The lower end thereof is hooked at 35 in a notch 36, formed in the rear portion of said locking-lever 20. Said spring 34 is normally untensioned or silenced and hangs loosely in the notch 36, but upon depressing the finger-piece 27 the upper end of the spring is drawn up, thereby tensioning the same and causing it to pull up the lever 20, Fig. 2. The latter lever is provided at its rear end with a cam edge 37, which engages the pin 18 on the shifting frame and cams the same forwardly, thereby elevating the rail 11 on the platen, as shown at said Fig. 2. A notch 38 is provided in said lever 32 to receive the tip of the arm 31, whereby the members are mechanically maintained in the Fig. 2 position, the spring 34 holding the arm 31 in the notch 38. Thus both hands of the operator are free to manipulate the keys for writing a line or heading of capital letters.

If while the case-shifting mechanism is set to the Fig. 2 position it is desired to lower the platen to print one or more lower-case characters, a key 39 is pressed down, said key being preferably at the rear of the keyboard and mounted upon a lever 40, fulcrumed upon the rod 8 and having a link 41 to connect it to the shifting frame 12, the link being pivoted to the lever at 42 and having at its upper end a slot 43 to engage a pin 44 upon the shifting frame. The slot 43 forms a loose connection of the link to the shifting frame so that the latter may rise from the Fig. 1 position independently of the link, while a depression of the lever 40 enables the link to pull the shifting frame back to lower-case position, Fig. 4, thus forcing the arm 17 backwardly and causing the pin 18 thereon to slide rearwardly along the cam 37, thereby forcing down the lever 20 against the tension of the spring 34, as seen at Fig. 4, the parts remaining in this position as long as the key 39 is held down by the operator, and upon relieving said key from pressure the spring 34 pulls up the lever 20 and returns the parts to the Fig. 2 position. While the platen is held down, as at Fig. 4, lower-case characters may be printed.

In said Underwood machine there is usually provided a special shift-key 45 to cooperate with a hook 46, which is fixed upon the rock-shaft 24, so that when said key 45 is pressed down the lever 20 is first vibrated to release the pin 18 and is then released and restored to normal position by a spring 47, thereby causing a notch 48 in said lever 20 to engage the pin 18 and lock the shifting frame in upper-case position, this lock being released by merely depressing the key 14, which again vibrates the lever 20. If it is desired, this key 45 may be retained in the machine for occasional use when writing capitals without printing occasional lower-case characters, or the finger-piece 27 may be solely depended upon for setting the case-shift mechanism to capital position, and the key 45 may be made to operate in all respects like the key 14 or may be omitted altogether.

Variations may be resorted to within the scope of the invention and portions of the improvements may be used without others.

Having thus described my invention, I claim—

1. In a case-shifting mechanism for a typewriting machine, the combination of a frame to be shifted, a projection upon said frame, a lever having locks to engage said projection to lock said frame in either of its shift positions, a key at the keyboard having means to release the locks and throw said shifting frame, a normally idle spring connected to said lever, a handle provided with means to tensioning said spring, so that it vibrates said locking-lever, the latter having a cam to engage said projection and throw said shifting frame during the action of said spring, and means being provided for mechanically latching said handle to maintain said spring in a tensioned position.

2. In a case-shifting mechanism for a typewriting machine, the combination of a frame to be shifted, a projection upon said frame, a lever having locks to engage said projection to lock said frame in either of its shift positions, a key at the keyboard having means to release the locks and throw said shifting frame, a normally idle spring connected to said lever, a handle provided with means for tensioning said spring, so that it vibrates said locking-lever, the latter having a cam to engage said projection and throw said shifting frame during the action of said spring, means being provided for mechanically latching said handle to maintain said spring in a tensioned position, and a second shift-key at the keyboard provided with means whereby it may return said shifting frame to initial position against the tension of said spring.

3. In a case-shifting mechanism for a typewriting machine, the combination of a frame to be shifted, a projection upon said frame, a lever having locks to engage said projection to lock said frame in either of its shift positions, a key at the keyboard having means to release the locks and throw said shifting frame, a normally idle spring connected to said lever, a handle provided with means for tensioning said spring, so that it vibrates said locking-lever, the latter having a cam to engage said projection and throw said shifting frame during the action of said spring, means being provided for mechanically latching said handle to maintain said spring in a tensioned position, and a second shift-key at the keyboard provided with means whereby it may return said shifting frame to initial position

against the tension of said spring; said frame being shiftable by said spring while the first-mentioned key remains stationary; and the frame being also shiftable by the first-mentioned key while the second key remains stationary.

4. In a case-shifting mechanism for a type-writing machine, the combination of a frame to be shifted, a key at the keyboard provided with means for shifting said frame, a normally idle and relaxed spring connected to said frame, and a handle at the keyboard for tensioning said spring and causing it to throw said shifting frame.

5. In a case-shifting mechanism for a type-writing machine, the combination of a frame to be shifted, a key at the keyboard provided with means for shifting said frame, a normally idle spring connected to said frame, a handle at the keyboad for causing said spring to throw said shifting frame, and a key at the keyboard, which is normally silenced, but which is provided with means for returning said shifting frame to normal position against the tension of said spring.

6. In a case-shifting mechanism for a type-writing machine, the combination of a frame to be shifted, a key at the keyboard having means to shift said frame, a handle at the keyboard having means to shift said frame independently of said key, means mechanically detaining said handle in working position, and a second key at the keyboard having means for returning said shifting frame to initial position, while said handle remains in working position.

7. In a case-shifting mechanism for a type-writing machine, the combination of a frame to be shifted, a projection upon said frame, a lever having locks to engage said projection to lock said frame in either of its shift positions, a key at the keyboard having means to vibrate said lever to release the locks, and also having means to throw said shifting frame, a normally idle spring connected to said lever, a lever for tensioning said spring, a handle at the keyboard having a projection to engage said tensioning-lever for vibrating the same to tension said spring, said tensioning-lever having a notch to engage the projection on said handle for detaining it in working position, a second key at the keyboard mounted upon a lever, and a link extending from the last-mentioned lever to said shifting frame for returning the same to normal position against the tension of said spring; said link having a loose connection to said shifting frame to enable the latter to be thrown independently of the link.

8. In a case-shifting mechanism for a type-writing machine, the combination of a frame to be shifted, a key for shifting said frame, a spring which is normally silenced, means for causing said spring to shift said frame in the same manner in which the frame is shiftable by said key, and a second key having means for returning the frame to initial position against the tension of said spring.

9. In a case-shifting mechanism for a type-writing machine, the combination of a frame to be shifted, a key for shifting said frame, a spring which is normally silenced, means for causing said spring to shift said frame in the same manner in which the frame is shiftable by said key, and a second key having means for returning the frame to initial position against the tension of said spring; the latter being effective upon the release of said second key from pressure to return said frame to its shifted position.

10. In a case-shifting mechanism for a type-writing machine, the combination of a frame to be shifted, a key for shifting said frame, a spring connected to said frame, but normally ineffective to shift the latter, a finger-piece having means for rendering said spring effective to shift said frame, a latch for holding said spring in effective condition, and a second key having means for returning the frame to initial position against the tension of said spring.

11. In a case-shifting mechanism for a type-writing machine, the combination of a frame to be shifted, a spring normally silenced during the shifting of said frame, a finger-piece having means to put said spring under tension, and means being provided for enabling the spring to detain the finger-piece in its depressed position, means for enabling the spring when tensioned by said finger-piece to shift said shifting frame, and a key for returning said shifting frame to initial position against the tension of said spring.

12. In a case-shifting mechanism for a type-writing machine, the combination of a frame to be shifted, a spring normally silenced during the shifting of said frame, a finger-piece having means to put said spring under tension, and means being provided for enabling the spring to detain the finger-piece in its depressed position, means for enabling the spring when tensioned by said finger-piece to shift said shifting frame, and a key-lever having a link which has a connection to said shifting frame to enable the lever to return the latter to initial position.

13. In a case-shifting mechanism for a type-writing machine, the combination of a frame to be shifted, a key-operated lever having means to shift said frame, a spring connected to said frame but normally silenced and relaxed during the operations of said lever, and a finger-piece having means to put said spring under tension, and cause the spring to operate said lever to shift said frame.

14. In a case-shifting mechanism for a type-writing machine, the combination of a frame to be shifted, a key-operated lever having means to shift said frame, a spring con-

nected to said frame but normally silenced during the operations of said lever, a finger-piece having means to put said spring under tension, and thereby cause the spring to operate said lever to shift said frame, and a second key having means to shift said frame against the tension of said spring.

15. In a case-shifting mechanism for a type-writing machine, the combination of a frame to be shifted, a key-operated lever having means to shift said frame, a finger-piece, a second lever controlled by said finger-piece, a spring extending from one of said levers to the other and extensible by means of the operation of said finger-piece, so as to shift said frame.

16. In a case-shifting mechanism for a type-writing machine, the combination of a frame to be shifted, a key-operated lever having means to shift said frame, a finger-piece, a second lever controlled by said finger-piece, a spring extending from one of said levers to the other and extensible by means of the operation of said finger-piece, so as to shift said frame, and a second key having means to shift said frame against the tension of said spring.

17. In a case-shifting mechanism for a type-writing machine, the combination of a frame to be shifted, a key-operated lever having means to shift said frame, a finger-piece, a second lever controlled by said finger-piece, a spring extending from one of said levers to the other and extensible by means of the operation of said finger-piece, so as to shift said frame, and a second key having means to shift said frame against the tension of said spring; means being controlled by said finger-piece for mechanically maintaining said spring in a tensioned condition.

18. In a case-shifting mechanism for a type-writing machine, the combination with a frame to be shifted, a lever having means for locking said frame against accidental shifting, a key for operating said lever to release the locking means, means independent of said lever and operated by said key for shifting said frame, a normally silenced spring loosely connected to said lever, a finger-piece having means to put said spring under tension, and a cam upon said lever for enabling said spring to shift said frame.

19. In a case-shifting mechanism for a type-writing machine, the combination with a frame to be shifted, a lever having means for locking said frame against accidental shifting, a key for operating said lever to release the locking means, means independent of said lever and operated by said key for shifting said frame, a normally silenced spring loosely connected to said lever, a finger-piece having means to put said spring under tension, a cam upon said lever for enabling said spring to shift said frame, and a second key having means for returning said shifting frame against the tension of said spring.

20. In a case-shifting mechanism for a type-writing machine, the combination of a frame to be shifted, a lever formed with locking-notches and also with a cam, said frame having an arm provided with a projection for coöperating with said notches and said cam, a key having means to operate said lever to release the frame from one of said locking-notches, and also having means independent of said lever for shifting said frame, a spring connected to said frame but normally silenced, a finger-piece having means for putting said spring under tension and causing the same to operate said lever to shift said frame by means of said cam, means operated by said finger-piece for mechanically maintaining said spring in a tensioned condition, and a second key having means for returning said frame to normal position, and causing it to cam said lever against the tension of said spring.

21. In a case-shifting mechanism for a type-writing machine, the combination with a frame to be shifted, of a key, means operated thereby for shifting said frame from lower-case to capital position and holding the frame in its shifted position, a separate finger-piece, means controlled by said finger-piece for setting said frame to capital position and mechanically detaining it there, a second key normally silenced, and means rendered effective by the frame-setting operation of said finger-piece, for enabling the second key to return the frame to normal position.

22. In a case-shifting mechanism for a type-writing machine, the combination of a finger-piece, means operated thereby for shifting said frame to capital position, means rendered effective by the operation of said finger-piece for mechanically detaining the frame in capital position, a normally silenced key, and means rendered effective by the frame-shifting movement of said finger-piece, for enabling said key to return said frame to normal position.

23. In a case-shifting mechanism for a type-writing machine, the combination with a frame to be shifted, of a finger-piece, means for enabling said finger-piece to shift said frame to capital position, means rendered effective by the frame-shifting operation of said finger-piece for mechanically detaining the frame in capital position, a normally silenced key, and means also rendered effective by the frame-shifting movement of said finger-piece, for enabling said key to return said frame to normal position.

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