

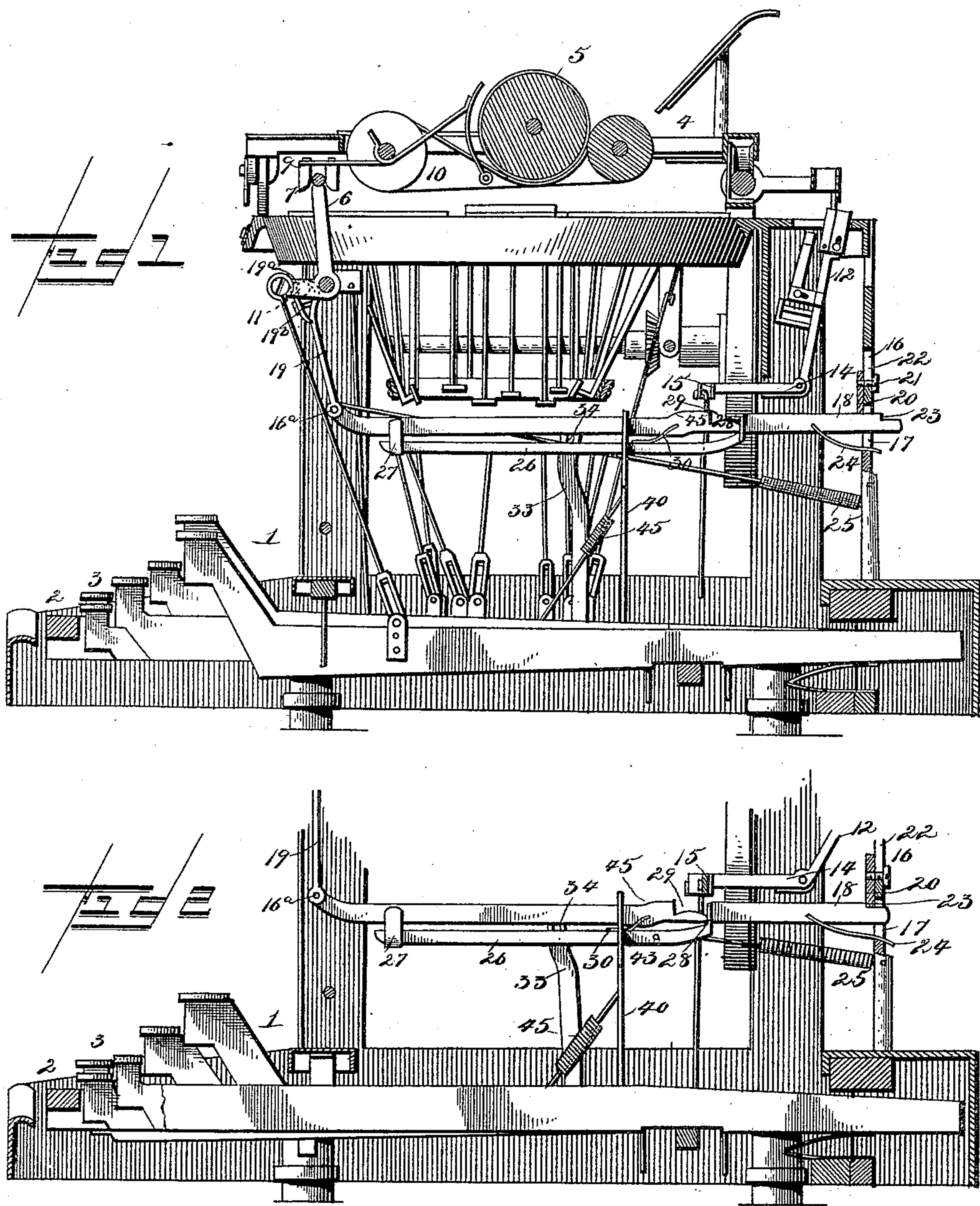
(No Model.)

2 Sheets—Sheet 1.

T. J. DOWNING.  
TYPE WRITING MACHINE.

No. 529,522.

Patented Nov. 20, 1894.



Inventor  
*Thomas J. Downing*

Witnesses

*W. O. Schneider*  
*O. E. Wyle*

By *his* Attorneys,

*C. A. Snow & Co.*

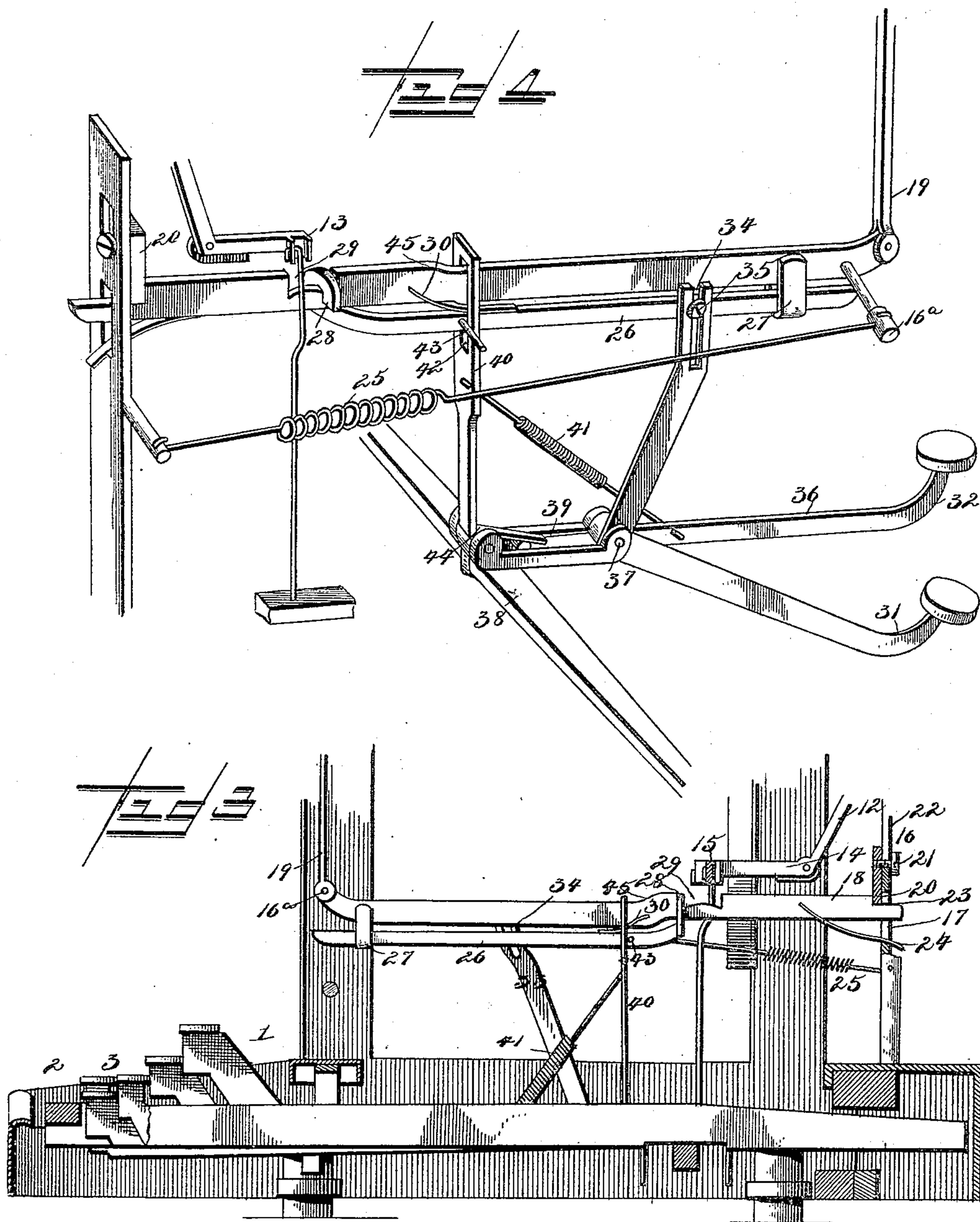
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# UNITED STATES PATENT OFFICE.

THOMAS J. DOWNING, OF LINCOLN, ILLINOIS.

## TYPE-WRITING MACHINE.

SPECIFICATION forming part of Letters Patent No. 529,522, dated November 20, 1894.

Application filed July 22, 1893. Serial No. 481,204. (No model.)

*To all whom it may concern:*

Be it known that I, THOMAS J. DOWNING, a citizen of the United States, residing at Lincoln, in the county of Logan and State of Illinois, have invented a new and useful Attachment for Type-Writing Machines, of which the following is a specification.

My invention relates to a trip mechanism for controlling the use of the upper and lower cases in type-writing machines provided with type-bars carrying a plurality of type-faces, and in which the change from one case to the other is accomplished by the depression of a case key to alter the position of the platen carriage.

My invention is especially designed for application to machines of the Remington type, and it consists in an improvement upon the device set forth in my prior patent, No. 504,713, dated September 12, 1893.

My present invention contemplates the provision of means whereby the carriage can be locked permanently in either position (namely, upper or lower case) by the depression of a key-lever which is adapted to be arranged upon the key-board in proximity to the usual keys; one shifting key being arranged to throw the carriage from the lower case to the upper case position, and the other key being adapted to return the carriage to the first-named position.

My invention contemplates furthermore the combination with the above shifting mechanism of trip mechanism similar to that described in the said prior application, which is so constructed that the carriage is locked temporarily in the upper case position upon the depression of the upper-case key, and is released upon the depression of any key or the space-bar.

Further objects and advantages of this invention will appear in the following description and the novel features thereof will be particularly pointed out in the appended claims.

In the drawings: Figure 1 is a vertical central section of a type-writing machine, showing the improved shifting and trip mechanisms applied thereto in the operative position, the parts being shown in the lower-case position. Fig. 2 is a similar view, a portion of the machine being broken away, showing

the parts locked temporarily in the upper-case position. Fig. 3 is a similar view, showing the parts locked permanently in the upper-case position. Fig. 4 is a detail view in perspective of the mechanism embodying my invention detached from the machine.

Similar numerals of reference indicate corresponding parts in all the figures of the drawings.

1 designates the frame; 2, the key-board; 3, the upper case key; 4, the carriage; 5, the platen; 6, the bell-crank levers which are connected to the carriage guide-bar 7, said guide-bar being capable of forward and rearward vibration and being straddled by the guide-fingers 9 of the carriage; 10, the link by which the bell-crank lever is connected to the upper-case key lever; 11, the rock-shaft which extends transversely across the front of the machine and supports the bell-crank levers; 12, the feed mechanism, and 13 the feed-operating bar which is connected to the feed lever 14, and to the cross-bar 15 located beneath the key-levers and adapted to be depressed by each key-lever as it is operated; all of which parts are old and common to machines now in general use.

The construction involving my invention, although shown in connection with the above-mentioned parts of an ordinary type-writing machine, is not necessarily inseparably connected therewith, but may be used and arranged to co-operate with the corresponding parts of any machine having the general characteristics hereinbefore pointed out, namely: a vibrating carriage controlled by a case-key.

16 represents a vertical guide-bar arranged at the rear of the machine and provided with a vertical guide-slot 17, in which fits and operates the rear end of the slide-bar 18. The front end of this slide-bar is pivotally connected to the lower end of a swinging arm or hanger 19, the upper end of the latter being firmly attached to the rock-shaft 11, and being provided with adjustable clamping-jaws 19<sup>a</sup>, connected by a bolt 19<sup>b</sup>, whereby the arm or hanger may be adjusted angularly for a purpose to be hereinafter explained. An adjustable detent 20, is arranged at the upper end of the guide-slot 17, being secured to the guide-bar by means of a set-screw 21 engaging a slot 22 in the guide-bar, and the slide-



bar is provided in its upper edge, near its rear end, with a shoulder or notch 23, which is adapted to engage the lower end of said detent, the slide-bar being actuated to cause such engagement and being held in the engaged position by a leaf-spring 24, which is attached to the slide-bar, extends through the guide-slot 17, and bears against the lower end thereof. A coiled spring 25, attached at its rear end to the vertical guide-bar and connected at its front end to a lateral pin 16<sup>a</sup>, near the front end of the slide-bar, serves to draw said slide-bar to the rear or return it to its normal position when the shoulder or notch 23 is disengaged from the detent.

As will be seen by reference to the drawings, the slide-bar extends beneath the transverse depressible feed-bar 13, the interval being such that when the slide-bar is caused to ascend by the engagement of its shoulder or notch with the detent, the upper edge thereof is in the path of the feed-bar in position to be engaged by the latter when depressed by the operation of a key-lever or the space-bar.

26 represents a trip-slide arranged beneath the slide-bar, fitting at its front end in a keeper 27, depending from the slide-bar, and provided at its rear end with a loop or yoke 28, which extends over the upper edge of the slide-bar and is adapted to operate slidably in a notch 29 of the slide-bar. Said notch is provided with a convexly-curved floor, whereby as the loop or yoke is moved from one end thereof to the other, it is caused to ascend; and a pressure spring 30, carried by the slide-bar, bears upon the upper edge of the trip-slide to normally hold the loop or yoke 28 in engagement with the depressed terminal portions of the notch. When the trip-slide is in its normal position, as shown in Figs. 1 and 2, the loop or yoke 28 is located at the rear end of the notch 29, directly beneath and in the path of the depressible bar 13, upon the elevation of the slide-bar to the locked position shown in Fig. 2, whereby, upon the depression of the bar 13 by the manipulation of a key or the space-bar, it contacts with the loop or yoke and hence depresses and disengages the slide-bar, thus allowing the latter to be returned by the spring 25 to its normal position.

From the above description it will be understood that upon the depression of the upper-case key the rocking movement imparted to the shaft 11 by the bell-crank lever, is communicated through the hanger 19 to the slide-bar, thus drawing the latter forwardly and causing its shoulder to engage the detent, and at the same time disposing the yoke of the trip-slide (the relative positions of the slide-bar and trip-slide remaining unchanged) in the path of the depressible bar 13, whereby, when a key is struck an upper-case letter is printed and simultaneously the slide-bar is disengaged from the detent and returns to the lower-case position.

The above-described portion of my inven-

tion comprises the means for temporarily locking the carriage in the upper-case position, and is adapted for use when only a single upper-case letter, figure, or punctuation mark is required at a time; but when it is necessary to write continuously in the upper-case characters, a permanent means for locking the carriage in the upper-case position must be employed.

To accomplish the above I employ shifting-levers 31 and 32, the former being a simple lever of angular or bell-crank form and being provided at the upper end of its shorter arm 33 with an open slot 34 to engage a lateral stud 35 upon the trip-slide 26; and the lever 32 being compound in its construction and connected to the slide-bar and trip-slide in such a manner that when such parts are in the permanently locked position produced by the operation of the lever 31, they may be returned to their normal positions by a depression of said lever 32. The key-bearing member 36, of the lever 32, is fulcrumed, by means of a pin 37, to a suitable transversely-disposed supporting-bar 38, such pin also forming the pivot of the lever 31, and extends in rear of its pivotal point, as shown at 39.

40 represents the tripping member of the shifting-lever 32, which is fulcrumed upon the bar 38, in rear of the extension 39 of the key-bearing member of the lever, and is connected to said key-bearing member by means of a retracting spring 41. The tripping member 40 is provided with a vertical closed slot 42, through which pass the slide-bar and trip-slide, the latter being provided contiguous to the tripping member with a lateral pin 43, and connection between the key-bearing member 36 and the tripping member 40 is effected by means of an arm 44, carried by the latter and extending forwardly over the free end of the extension 39. The depression of the front end of the compound lever causes the tripping member to tip rearwardly, the retracting spring 41 returning the parts to their normal positions upon the release of the key-bearing member. It will be noted that motion is communicated from the upper-case key, through the described operating connections, directly to the slide-bar, whereby the forward motion thereof is accomplished without disturbing the relative positions of the slide-bar and trip-slide, but the shifting-lever 31 is connected to the trip-slide, and through the latter to the slide-bar, and hence, upon the depression of the upper-case shifting-lever 31, the trip-slide and slide-bar are moved forwardly until the latter is checked and locked, when the former moves independently of the latter and the loop or yoke 28 engages the front end of the notch 29, as shown in Fig. 3. With the parts in this position, the loop or yoke 28 is out of alignment with the depressible feed-bar 13, and hence upon the depression of such bar by the manipulation of a key-lever or space-bar, it will descend into the rear portion of the notch,



and will not affect the adjustment of the trip mechanism. Thus, by the manipulation of the upper case shifting-lever the carriage is locked permanently in the upper-case position.

Reference to Fig. 3 will show that when the parts are locked permanently in the upper-case position, the trip-pin 43 is contiguous to the rear side of the trip member 40 of the compound lever or lower-case shifting-lever 32, and hence upon the depression of such lever the tripping member will force the trip-slide rearwardly until the loop or yoke 28 engages the rear end of the notch 29, and at the same time the upper end of the slot 42 in the tripping member will engage a beveled shoulder 45, upon the upper edge of the slide-bar or the straight upper edge of the slide-bar, thereby depressing the latter sufficiently to disengage it from the detent 20, thereby allowing the slide-bar to be returned by the spring 25 to its normal position.

It should be understood that the slide-bar must be so adjusted to the shifting mechanism that it will move from one position to another to accommodate itself to the upper and lower case letters, figures, and punctuation marks, &c., permanently or temporarily without hindering the operation of the other portions of the machine, and the extent of movement of the slide-bar, or the points at which it is stopped, must be such as to agree accurately with the placement of the upper and lower case characters, in order to preserve an accurate alignment. The lost motion caused by the wearing of the shoulder or the detent 20 may be compensated in various ways; a simple arrangement being the angular adjustment of the hanger 19 upon the rock-shaft. Furthermore, the slide-bar may be formed of relatively-adjustable sections of any preferred construction which, however, I have not illustrated in the drawings. It should be understood, furthermore, that while I have described the operation of the slide-bar as being horizontally reciprocated by the manipulation of the case key, shifting-levers, &c., the disposition of the parts may be varied to suit the type of machine to which the mechanism is applied, and hence I do not desire to limit myself to the specific construction and arrangement shown and described.

In the drawings the slide-bar and trip-slide have been shown disposed at a considerable interval, but in practice such interval may be reduced to an extent consistent with free manipulation. That portion of the mechanism by which the key-levers 31 and 32 are connected to the slide-bar and trip-slide may be, and preferably is, arranged beneath the basket instead of in rear of the same, as shown in the drawings, although the latter arrangement may be adopted without detracting in any way from the operativeness of the device. It will be understood, furthermore, that the mechanism is capable of operating

as described without the use of the shoulder 45, the only advantage in the latter being that a more positive depression of the slide-bar is attained.

Having described my invention, what I claim is—

1. In a machine of the class described, the combination with shifting mechanism for controlling the position of the carriage, automatic locking devices to secure said shifting mechanism temporarily in the upper-case position, tripping mechanism connected to the key-levers and arranged in operative relation with said locking devices, and an adjustable part or member adapted, when in its normal position, to coact with the tripping mechanism to disengage the members of the locking devices and release the shifting mechanism to enable the latter to return to the lower-case position, of shifting levers connected to said adjustable part or member and adapted respectively to move the same out of its normal position to enable the shifting mechanism to be locked permanently in the upper-case position and into said normal position to enable the shifting mechanism to be locked temporarily in the upper-case position, said shifting levers being provided with key-bearing terminals, substantially as specified.

2. In a machine of the class described, the combination with shifting mechanism for controlling the carriage, a slide-bar connected to said shifting mechanism and provided with automatic locking devices, and a trip-slide slidably mounted upon the slide-bar, of a simple upper-case shifting-lever operatively connected to the trip-slide, the latter being capable of limited movement upon the slide-bar, and a compound lower-case shifting-lever operatively connected to the slide-bar and trip-slide whereby the former is disengaged from the locking devices and the latter is returned to its normal position with relation to the former, substantially as specified.

3. The combination with shifting mechanism, of a slide-bar connected to the shifting mechanism and provided with automatic locking devices, and an elongated notch having depressed terminals a trip-slide carried by the slide-bar and provided with a yoke which operates in a notch of the slide-bar, said depressible bar operatively connected to the key-levers and adapted to engage said yoke when the latter is in its normal position, an upper-case shifting-lever operatively connected to the trip-slide, a spring for returning the slide-bar to its normal position when released, and a lower-case shifting-lever having a tripping member connected to the slide-bar and trip-slide to disengage the former and return the latter to its normal position with relation thereto, substantially as specified.

4. The combination with shifting mechanism, of a slide-bar connected to the shifting mechanism and provided with a notch 29 and a shoulder 45, a retraction spring to re-



turn the slide-bar to its normal position, a locking device to engage the slide-bar in its upper position, a trip-slide carried by the slide-bar and having a loop or yoke fitting in said notch 29, the slide-bar being provided with a pressure spring 30, an upper-case shifting-lever operatively connected to the trip-slide, and a lower-case shifting-lever provided with a tripping member having a slot which embraces the slide-bar and trip-slide, said tripping member being adapted when operated to engage the shoulder 45, and a trip-pin carried by the trip-slide to return the parts to their normal positions, substantially as specified.

5. The combination with shifting mechanism, a slide-bar provided with automatic locking devices, a trip-slide carried by the

slide-bar and capable of limited movement thereupon, and tripping mechanism, of an upper-case shifting-lever operatively connected to the trip-slide, and a lower-case shifting-lever comprising a tripping member provided with means to engage said slide-bar and trip-slide, a key-bearing member provided with an extension which engages an arm of said tripping member, and a retraction spring connecting said members, substantially as specified.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

THOS. J. DOWNING.

Witnesses:

E. C. MOOS,

L. H. ZETER.