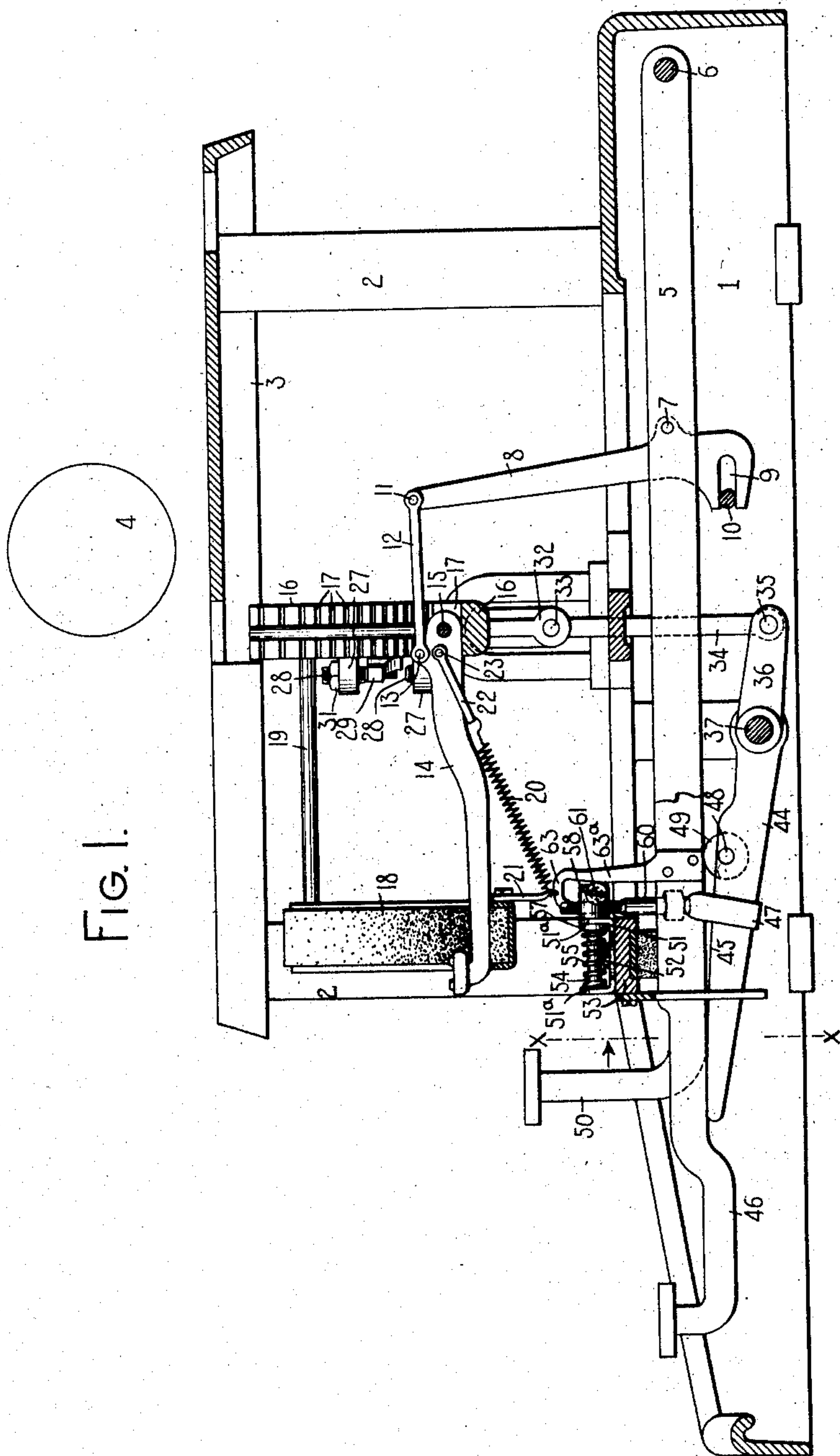


No. 864,350.

PATENTED AUG. 27, 1907.

F. A. YOUNG.  
TYPE WRITING MACHINE.  
APPLICATION FILED MAR. 11, 1904.

2 SHEETS—SHEET 1.



WITNESSES.

K. V. Konovan.

Charles E. Smith

INVENTOR=

Frank A. Young

By Jacob Felber

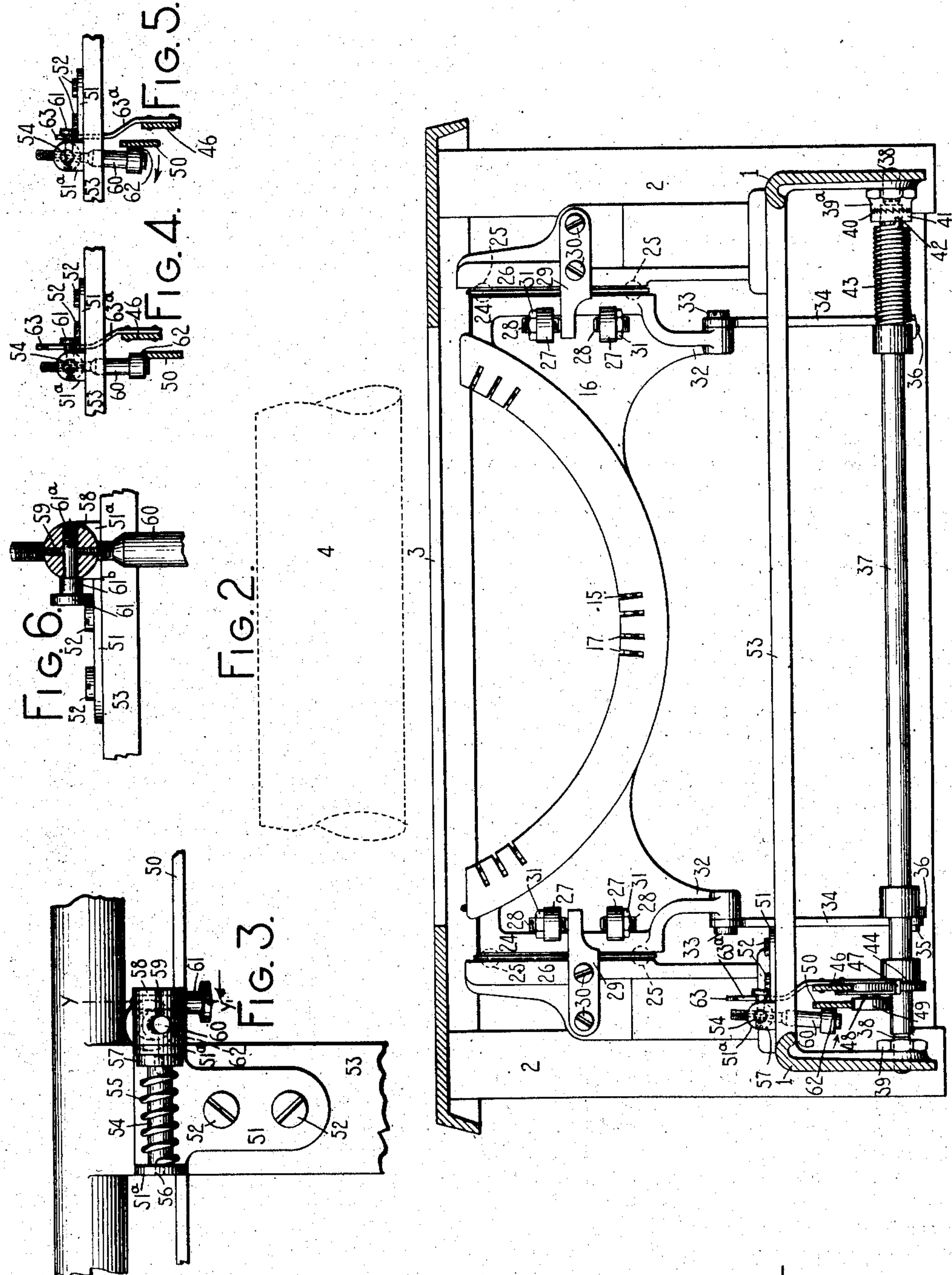
HIS ATTORNEY

No. 864,350.

PATENTED AUG. 27, 1907.

F. A. YOUNG.  
TYPE WRITING MACHINE.  
APPLICATION FILED MAR. 11, 1904.

2 SHEETS—SHEET 2.



WITNESSES.

*R. V. Donovan*  
*Charles Smith*

INVENTOR.

*Frank A. Young*  
By *Jacob Telbel*  
HIS ATTORNEY



# UNITED STATES PATENT OFFICE.

FRANK A. YOUNG, OF SYRACUSE, NEW YORK, ASSIGNOR TO THE MONARCH TYPEWRITER COMPANY, OF SYRACUSE, NEW YORK, A CORPORATION OF NEW YORK.

## TYPE-WRITING MACHINE.

No. 864,350.

Specification of Letters Patent.

Patented Aug. 27, 1907.

Application filed March 11, 1904. Serial No. 197,658.

*To all whom it may concern:*

Be it known that I, FRANK A. YOUNG, a citizen of the United States, and a resident of Syracuse, in the county of Onondaga and State of New York, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a specification.

My invention relates to means for effecting a relative shift between the printing instrumentalities and the platen for upper and lower case writing, and the object of said invention is to provide simple and efficient means of the character specified and in which there is little liability of the parts being accidentally displaced from the shifted position.

To the above and other ends which will hereinafter appear, my invention consists in the features of construction, arrangements of parts and combinations of devices to be hereinafter described and particularly pointed out in the appended claims.

In the accompanying drawings, wherein like reference characters designate like parts in the various views, Figure 1 is a vertical front to rear sectional view of one form of typewriting machine embodying my invention. Fig. 2 is a vertical transverse sectional view of the same taken on the line  $x-x$  of Fig. 1 and looking in the direction of the arrow at said line, and with certain of the parts omitted. Fig. 3 is an enlarged detail plan view of a portion of the shifting and locking mechanism to be hereinafter more fully described.

Fig. 4 is a detail vertical transverse sectional view of portions of the shifting and locking mechanisms, the section corresponding to that shown in Fig. 2, and the view illustrating the disposition of the parts when they are locked in the shifted position. Fig. 5 is a like view of the same showing the parts in the positions they assume when the temporary shift key is depressed, and Fig. 6 is a transverse sectional view of the parts shown in Fig. 3, the section being taken on the line  $y-y$  in said figure and looking in the direction of the arrow at said line.

The frame of the machine comprises a base 1, corner posts 2 and a top plate 3 which is surmounted by a suitable carriage (not shown) that supports a platen 4 diagrammatically illustrated in Figs. 1 and 2. Key levers 5 are pivoted at 6 in the base of the machine and are each pivotally connected at 7 to an upright sub-lever 8 that is slotted at its lower end portion, as indicated at 9, for the reception of a fixed transverse fulcrum bar 10 that extends beneath the key levers and is secured to the frame of the machine. The upper end of each sub-lever is pivoted at 11 to a forwardly extending link 12 which has its forward end pivoted at 13 to a type bar 14. The type bars are seg-

mentally arranged and supported at their rear ends on a pivot wire 15 in the type bar segment 16; the type bars working in slots 17 in the segment. The forward ends of the type bars are supported upon a pad 18 which receives its support from arms 19 that extend forwardly from the type bar segment. Type bar restoring springs 20 are each connected at one end to a depending finger 21 which projects from the support for the pad 18. The opposite end of each spring is connected to a link 22 that in turn is pivotally connected at 23 to the associated type bar.

The type bar segment has a grooved guide 24 at each side thereof which receives cooperating anti-friction balls 25 that are likewise received in a grooved guide 26 secured to the frame of the machine so that the segment may receive a vertical movement for upper and lower case writing. The segment has ears or lugs 27 that project forwardly therefrom and have threaded openings therethrough for cooperation with set screws 28, the oppositely disposed inwardly extending ends of each pair of which constitute abutments for cooperation with a fixed abutment or bracket 29 that is secured by screws 30 to a fixed guide 26. A lock-nut 31 may be employed on each screw to secure it in its adjusted position. It will be understood that this construction determines the proper position of the segment in both the upper and lower case position thereof and that screws 28 may be adjusted to afford the proper positioning of the segment in either of such positions. The segment 16 has depending arms 32 which have threaded openings extending therethrough for the reception of screw pivots 33 that connect the segment to upwardly extending links 34, the lower ends of said links being pivotally connected at 35 to rearwardly extending crank arms 36 which project from a rock shaft 37 which extends beneath the key levers and is mounted at its ends on cone bearing screws 38 that are received in threaded openings in the base 1 of the machine and are secured in their adjusted positions by lock nuts 39, 39\*. The lock nut 39\* has ratchet teeth 40 on the inner end or face thereof that cooperate with corresponding ratchet teeth on a sleeve 41 that is loosely mounted on the rock shaft 37 and is connected to one end 42 of a coiled spring 43 that surrounds the rock shaft and has its opposite end connected to the rock shaft or to one of the rearwardly-projecting arms 36 thereof.

Extending forwardly from the shaft is a crank arm 44 that has an upper curved face 45 which cooperates with the lower edge of a so-called temporary shift key lever 46 which is fulcrumed on the pivot rod 6. The crank arm 44 has a yoke 47 secured thereto and the arms of which are located on opposite sides of the lever 46 to insure the cooperation of the key lever with the crank



arm 44. Projecting laterally from the crank arm 44 is a pintle 48 which carries an anti-friction roller 49 that is located beneath a so-called permanent shift key lever 50 arranged beside the key lever 46 and fulcrumed on the pivot rod 6.

From the foregoing description it will be understood that the coiled spring 43 acts as a counter-balance spring for the segment and the parts connected thereto so that it will require but a slight pressure upon either shift key lever to shift the parts from lower to upper case position. The collar 40 and its adjustment relatively to the lock-nut 39<sup>a</sup> enables this tension of the spring 43 to be varied at will.

Should the operator desire to shift the type bar segment and to allow it to be restored to normal position after one or more upper case characters have been written, it is merely necessary to depress the so-called temporary shift key lever 46 which will cause the rock shaft 37 to be turned, thereby elevating the segment and the parts carried thereby. When pressure of the finger on the key lever 46 is released, the segment will drop of its own weight to the normal or lower case position and the key lever and associated parts will be restored to their normal positions. A depression of the key lever 50 will cause a corresponding depression of the lever 44 through the pintle and anti-friction roller 49 which are connected to the lever 44 and project beneath the lever 50, so that the segment may likewise be shifted by a depression of the permanent shift key lever in the manner hereinbefore described.

In order to secure the parts in their shifted positions when the permanent shift key lever is depressed, I have provided a locking latch which coöperates with the lever 50. Thus, a bracket 51 is secured by screws 52 to a cross bar 53 that constitutes a part of the frame or base of the machine. This bracket has upwardly projecting arms 51<sup>a</sup> in which a rock shaft 54 is journaled. The rock shaft is surrounded by a coiled spring 55 secured to one of the bracket arms 51<sup>a</sup>, as indicated at 56, and at its other end is secured to a collar 57 fixed to the rock shaft on the inner side of the other arm 51<sup>a</sup> of the bracket. The rock shaft 54 is enlarged at 58 where it extends beyond the rear bracket arm 51<sup>a</sup>, and said enlarged portion is split or bifurcated at 59. A threaded opening passes transversely through an enlarged portion at the termination of the bifurcated part thereof for the reception of the stem of a so-called locking latch 60. A headed screw 61, which is threaded only near the end thereof as indicated at 61<sup>a</sup> extends transversely through an opening in the enlarged portion 58 at the bifurcated end thereof and at right angles to the stem of the locking latch 60 and to the slot 59. The threaded end of the screw coöperates with the threads at one side of the slot 59 and the unthreaded portion of the screw is loosely received through the opening at the other side of the slot 59 and a shoulder 61<sup>b</sup> on the screw bears against the enlargement 58 at the outer side thereof so as to draw the parts together in order to secure the locking latch in its adjusted position. When the screw 61 is partly unscrewed to relieve the pressure on the bifurcated portion 58 of the shaft, the locking latch may be turned in its threaded opening, thereby effecting a longitudinal adjustment of the locking member, thus slightly elevating or lowering the locking head or abutment 62. This locking head is adapted

to coöperate with the top of the permanent shift key lever and to maintain it depressed as indicated in Fig. 4 and the tension of the spring 55 is exerted to turn the lower end of the locking latch in the direction of the arrow in Fig. 1 so that when the permanent shift key lever is depressed, the head of the locking latch will be forced over the top of the key lever and prevent its return to normal position.

An upwardly extending hook 63 or releasing device is secured to the temporary shift key lever 46 and has its stem bent at 63<sup>a</sup> so that the hook proper may be brought to a position where it will coöperate with the outwardly extending portion of the stem of the screw 61 when the key lever 46 is depressed. When the parts are in the positions represented in Fig. 4, the type segment is locked in its shifted position. A depression of the temporary shift key lever at this time will, at the last portion of the movement thereof, bring the hook 63 into coöperation with the screw 61 and turn the locking latch around its pivotal center, thus moving the lower end, or the head 62, of the locking latch in the direction of the arrow in Fig. 5, thereby releasing the permanent shift key from its depressed position and allowing the segment to drop to its normal or lower case position and the key lever 50 to be restored to its normal position.

From the foregoing description it will be seen that I have provided simple and efficient means for effecting a relative shift between the printing instrumentalities and the platen and have provided a construction in which there is little liability of the shifted parts being accidentally displaced from their shifted position when locked in such position. It will likewise be seen that a depression of the temporary shift key is effective to positively actuate the locking latch and to release the shifted segment from its locked position.

An adjustment of the locking latch 60 regulates the locking engagement with the permanent shift key lever 50 so as to compensate for any adjustment of the set screws 28 which determine the position of the segment in both the upper and lower case position thereof, and the locking latch can thus be rendered effective under the different adjustments of the set screws 28 and the different positions of the segment in both its upper and lower case positions.

Various changes may be made without departing from the spirit of my invention.

What I claim as new and desire to secure by Letters Patent, is:—

1. In a typewriting machine, the combination of a platen; a series of type bars; and means for effecting a relative shift between said type bars and platen for upper and lower case writing, said means comprising a shift key lever, a spring actuated latch that is pivoted to a fixed portion of the machine and which is adapted to engage said key lever and maintain it depressed, and a shift key lever arranged beside and adjacent to said first mentioned shift key lever and carrying an engaging piece that is adapted to be brought into direct engagement with said latch to move it to one side and thereby release the depressed shift key lever.

2. In a typewriting machine, the combination of a platen; a series of type bars; and means for effecting a relative shift between said type bars and platen for upper and lower case writing, said means comprising a shift key lever, a spring actuated latch that is pivoted to a fixed portion of the machine and which is adapted to engage the top of said shift key lever and maintain it depressed, and a



second shift key lever arranged beside and adjacent to said first mentioned key lever and which operates directly on the latch for releasing said latch from the first mentioned key lever.

5 3. In a typewriting machine, the combination of a platen, a series of type bars, and means for effecting a relative shift between said type bars and platen for upper and lower case writing, adjustable means for regulating the extent of shift, said shifting means comprising a key lever, and a spring actuated latch that is pivoted to a fixed portion of the machine and which is adapted to engage said key lever and maintain it depressed, and having an adjustable locking abutment for regulating the engagement of the latch to correspond to the adjustment of the extent of shift.

10 4. In a typewriting machine, the combination of a platen; a series of type bars; and means for effecting a relative shift between said type bars and platen for upper and lower case writing, said means comprising two key levers arranged side by side, a spring actuated locking latch that is pivoted above said key levers to a fixed part of the machine and coöperates with one of said key levers to maintain it depressed, and a releasing device carried by the other lever and adapted to contact with and move said locking latch to releasing position.

15 5. In a typewriting machine, the combination of a platen, a series of type bars, and means for effecting a relative shift between said type bars and platen for upper and lower case writing, said means comprising two key levers arranged side by side, a spring actuated locking latch that is pivoted to a fixed part of the machine and coöperates with one of said key levers to maintain it depressed, a releasing device carried by the other lever and adapted to contact with and move said locking latch to the releasing position, and means for effecting a relative adjustment between said locking latch and the key lever with which it coöperates.

20 6. In a typewriting machine, the combination of a platen; a series of type bars; and means for effecting a relative shift between said type bars and platen for upper and lower case writing, said means comprising two key levers, a spring actuated locking latch that is movably mounted on a fixed part of the machine and contacts with one of said key levers and maintains it depressed, said locking latch moving into and out of locking engagement with its associated key lever in a plane substantially at right angles to the plane of movement of said associated key lever, and a releasing device carried by the other lever and adapted to contact with and move said locking latch to releasing position.

25 7. In a typewriting machine, the combination of a platen; a series of type bars; and means for effecting a relative shift between said type bars and platen for upper and lower case writing, said means comprising a rock shaft, connections from said rock shaft to the part to be shifted, a single crank arm extending from said rock shaft, a key lever coöperating with said crank arm to rock said shaft, a locking latch, a second key lever operative to depress said crank arm and with which said locking latch coöperates to maintain the key lever depressed, and a releasing device carried by said first mentioned key lever and coöperating directly with said locking latch to release it.

30 8. In a typewriting machine, the combination of a platen, a series of type bars, and means for effecting a relative shift between said type bars and platen for upper and lower case writing, said shifting means comprising two key levers either of which is effective to bring about a relative shift between the type bars and platen and which are arranged side by side, a locking latch pivoted to a fixed portion of the machine and coöperating with one of said key levers to maintain it depressed, a releasing device carried by the other key lever and operating directly on the locking latch to release it, a rock shaft, a crank arm that extends from said rock shaft and with which one of said key levers coöperates, and connections between said rock shaft and the part to be shifted.

35 9. In a typewriting machine, the combination of a platen, a series of type bars, and means for effecting a relative shift between said type bars and platen for upper and lower case writing, said shifting means comprising two

key levers either of which is effective to bring about a relative shift between the type bars and platen and which are arranged side by side, a locking latch pivoted to a fixed portion of the machine and having an adjustable part that coöperates with one of said key levers to maintain it depressed, a releasing device carried by the other key lever and adapted to contact with the locking latch and move it to the releasing position, a rock shaft, a crank arm that extends from said rock shaft and with which both of said key levers coöperates, and connections between said rock shaft and the part to be shifted.

40 10. In a typewriting machine, the combination of a platen; a series of type bars; and means for effecting a relative shift between said type bars and platen for upper and lower case writing, said means comprising a key lever, a locking latch comprising a spring actuated rock shaft carrying an abutment that contacts with said key lever and maintains it depressed, means for effecting a relative adjustment between said abutment and key lever, a releasing device that contacts with said locking latch and moves it to releasing position, and a second key lever that controls said releasing device.

45 11. In a typewriting machine, the combination of a platen; a series of type bars; and means for effecting a relative shift between the type bars and platen for upper and lower case writing, said means comprising a rock shaft, connections from said rock shaft to the part to be shifted, a single crank arm extending from said rock shaft, a key lever coöperating with said crank arm to rock the shaft, a spring pressed locking latch carried by a fixed portion of the machine, a second key lever operative to actuate said crank arm and with which the locking latch coöperates to maintain the key lever depressed, and means carried by the first mentioned key lever and coöperating directly with said locking latch to release it.

50 12. In a typewriting machine, the combination of a platen; a series of type bars; and means for effecting a relative shift between said type bars and platen for upper and lower case writing, said means comprising a rock shaft, connections from the rock shaft to the part to be shifted, a single crank arm extending from said rock shaft, a key lever coöperating with said crank arm to rock the shaft, a spring pressed locking latch pivoted to a fixed portion of the machine, a second key lever arranged beside the first mentioned key lever and operative to actuate said crank arm and with which the latch coöperates to maintain the key lever depressed, and a releasing device carried by said first mentioned key lever and coöperating directly with said locking latch to release it.

55 13. In a typewriting machine, the combination of a platen; a series of type bars; and means for effecting a relative shift between said type bars and platen for upper and lower case writing; said means comprising a rock shaft, connections from the rock shaft to the part to be shifted, a single crank arm extending from said rock shaft, a key lever coöperating with said crank arm to rock the shaft, a spring pressed locking latch pivoted to a fixed portion of the machine, a second key lever arranged beside the first mentioned key lever and operative to actuate said crank arm and with which the latch coöperates to maintain the key lever depressed, a releasing device carried by said first mentioned key lever and coöperating directly with said locking latch to release it, and means for effecting a relative adjustment between said locking latch and the key lever which is maintained depressed thereby.

60 14. In a typewriting machine, the combination of a platen; a series of type bars; and means for effecting a relative shift between said type bars and platen for upper and lower case writing, said means comprising a rock shaft, connections from said rock shaft to the part to be shifted, a single crank arm extending from said rock shaft, a pair of key levers arranged side by side and coöperating with said crank arm to rock the shaft, a spring pressed locking latch pivoted above said key levers to a fixed portion of the machine, said locking latch contacting with one of said key levers to maintain it depressed, means carried by the other of said key levers and coöperating directly with said locking device to release it, and means for effecting a relative adjustment between said locking latch and the key lever which is maintained depressed thereby.



15. In a typewriting machine, the combination with a platen and a series of type bars, of means for effecting a relative shift of said platen and series of type bars, said shifting means comprising two shift key levers arranged side by side; a locking latch pivoted to swing on an axis parallel to said key levers and having a depending part adapted to contact with one of said levers and to lock it in depressed position, said locking latch having also a horizontally projecting part; and the other of said key levers having a part adapted, when said key lever is depressed, to contact with the horizontally projecting part of said locking latch, and to rock said locking latch about its pivot to release the first mentioned key lever.

16. In a typewriting machine, the combination of a rock-shaft having a split end; a latching arm threaded through the split end of said rock shaft so as to be adjustable; a shouldered binding screw threaded through said rock shaft and adapted to tighten the split end of said rock shaft about said latching arm to secure said latching arm in adjusted position, said binding screw having an elongated shank; a shift key lever adapted to be locked in depressed position by said latching arm; and a second shift key lever having a part adapted to engage the elongated shank of said binding screw to rock said rock shaft and release the first mentioned key lever.

17. In a typewriting machine, the combination of two shift key levers mounted side by side, a locking latch adapted to lock one of said key levers in depressed position, a pivoted member to which said locking latch is adjustably secured, a binding screw for securing said latch in adjusted position, and a part carried by the other of said key levers adapted to engage said binding screw and to rock said rocking member to release the first mentioned key lever.

18. In a typewriting machine and in a case shifting mechanism, the combination of two shift key levers, a pivoted locking device for one of said key levers and having its pivot arranged substantially parallel with said key lever, said locking device having a part adapted to swing transversely of the key levers to engage and lock one of said key levers and having also another part adapted to be engaged by the other one of said key levers and to cause the unlocking of the locked key lever upon the depression of the unlocked key lever.

Signed at Syracuse, in the county of Onondaga, and State of New York, this 9th day of March A. D. 1904.

FRANK A. YOUNG.

Witnesses:

PERCY RIDINGS,  
CHAS. H. COOKE.