

No. 827,041.

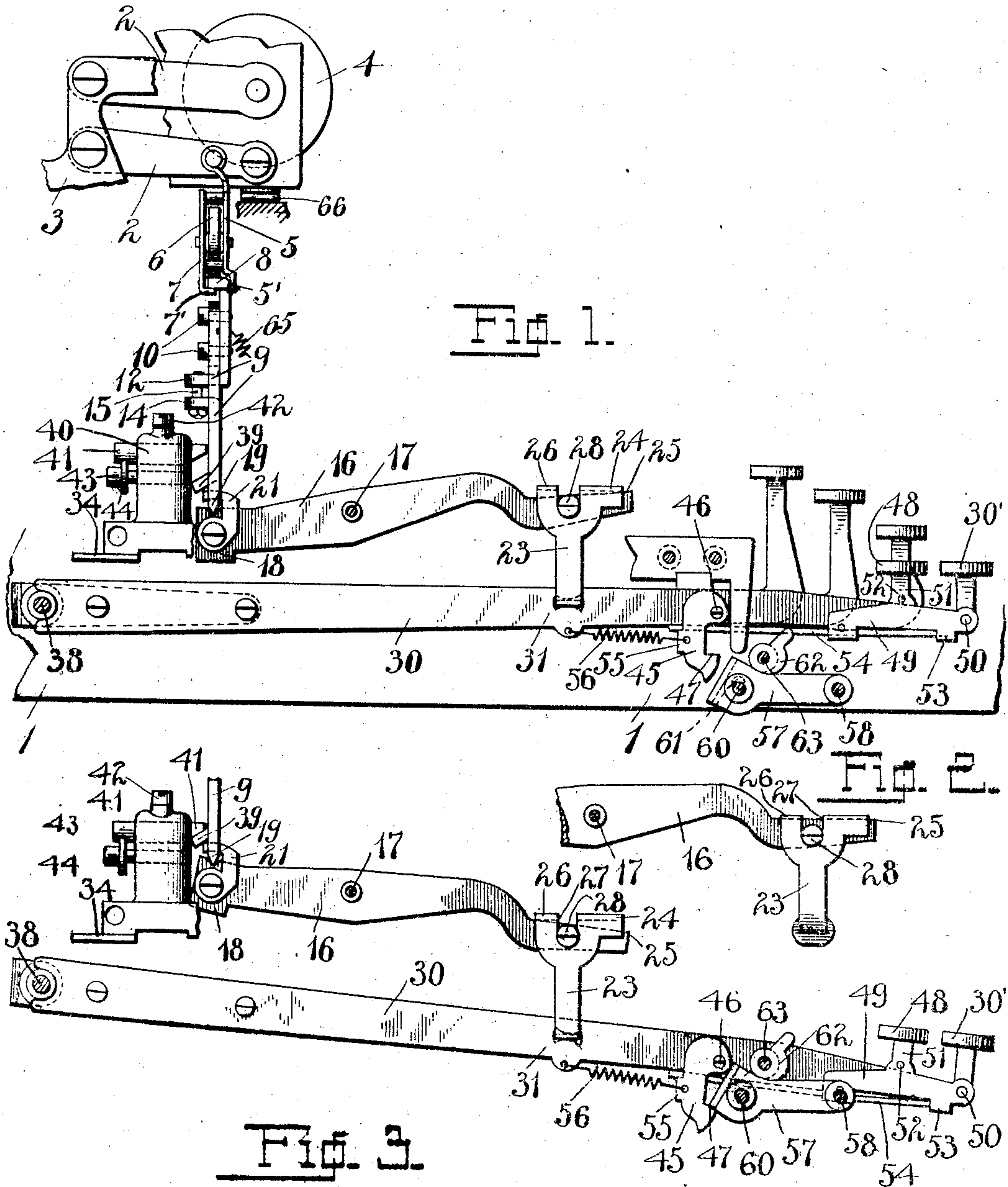
PATENTED JULY 24, 1906.

J. B. SECOR.

PLATEN SHIFTING MECHANISM FOR TYPE WRITING MACHINES.

APPLICATION FILED NOV. 10, 1904.

2 SHEETS—SHEET 1.



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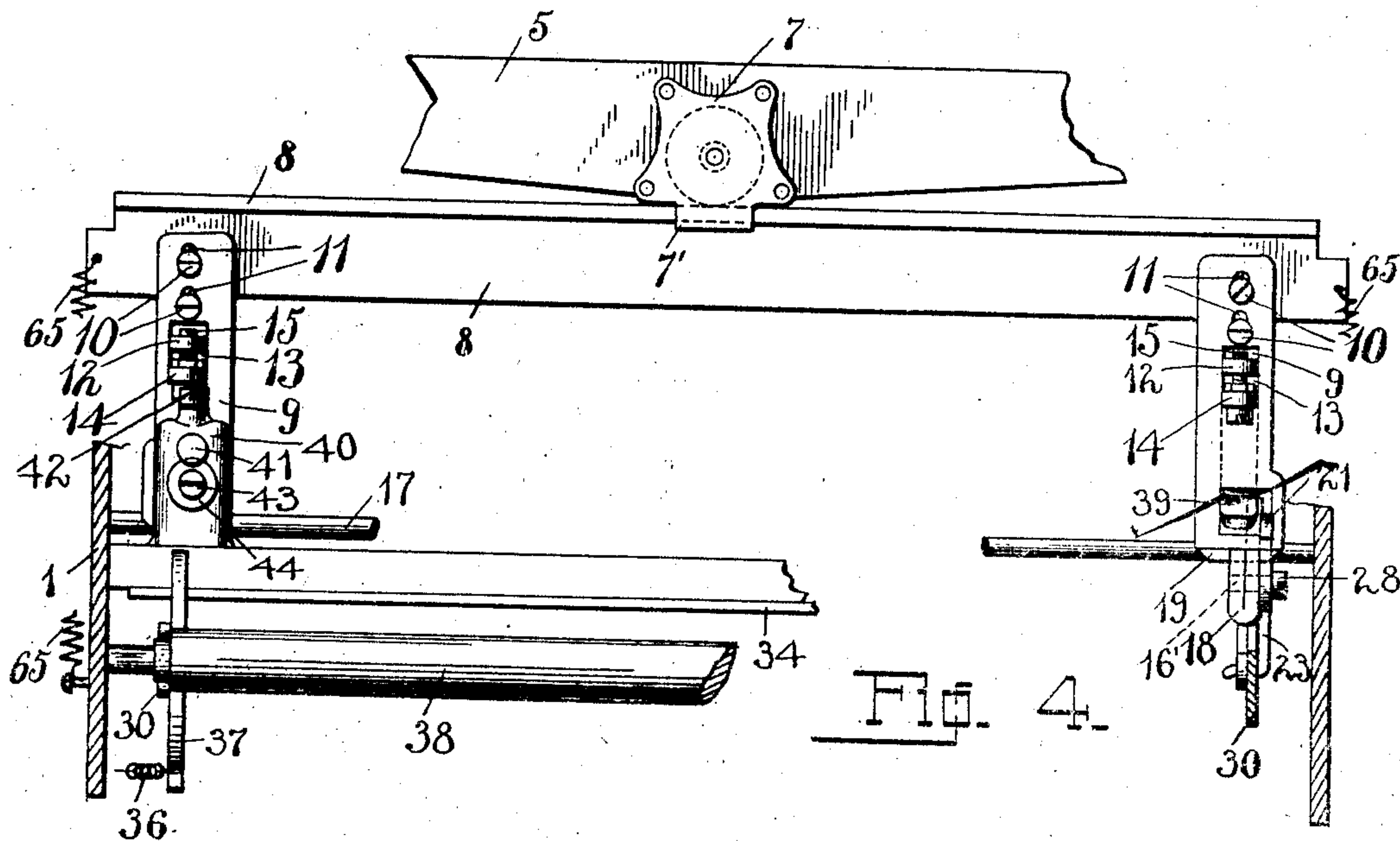


Fig. 4.

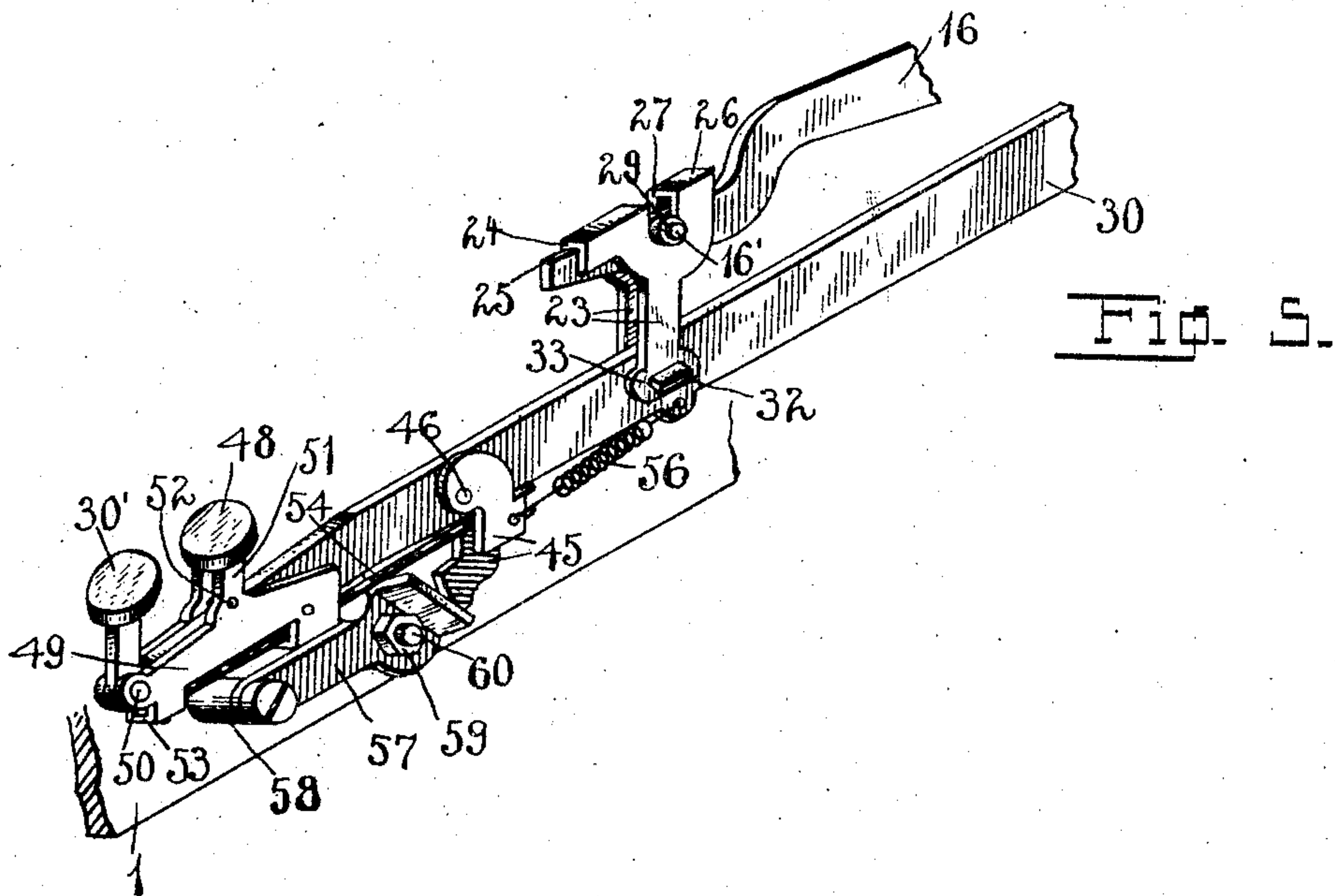


Fig. 5.

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UNITED STATES PATENT OFFICE.

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PLATEN-SHIFTING MECHANISM FOR TYPE-WRITING MACHINES.

No. 827,041.

Specification of Letters Patent.

Patented July 24, 1906.

Application filed November 10, 1904. Serial No. 232,190.

To all whom it may concern:

Be it known that I, JEROME B. SECOR, a citizen of the United States, residing at Derby, in the county of New Haven and State of Connecticut, have invented certain new and useful Improvements in Platen-Shifting Mechanism for Type-Writing Machines, of which the following is a specification.

My present invention relates to platen-shifting mechanism for type-writing machines, and has for its object to provide an improved mechanism of this character in which the movement of the platen may be regulated through the adjustment of parts hereinafter described and in which a constant and easy touch on the shift-key levers is produced.

Another object of my invention is to provide an improved locking device for holding the platen in its shifted position.

Further objects of my invention are to provide improved details of structure clearly hereinafter described, and shown in the accompanying drawings, in which like reference characters refer to like parts, and in which—

Figure 1 is a side elevation of my improved mechanism, showing so much of the structure of a type-writing machine as is necessary for purposes of illustration. Fig. 2 is a detail side elevation of a portion of the same, showing intermediate positions of parts. Fig. 3 is a detail side elevation of a portion of the structure shown in Fig. 1, showing the parts in shifted positions. Fig. 4 is a rear elevation of a portion of the structure shown in Fig. 1, and Fig. 5 is a detail perspective of the locking device forming part of my improved shifting mechanism.

Referring in detail to the drawings, 1 is the frame of a front-strike type-writing machine, having mounted thereon, on parallel links 2 on carriage 3, a platen 4. Links 2 have suspended therefrom a swinging frame 5, carrying an antifriction-roller 6 in its housing 7. Roller 6 travels upon the flanged track-bar 8 of an elevating-frame comprising track-bar 8 and legs or supports 9. Housing 7 is provided with a lug or projection 7', bent to engage the under side of the flange of the track-bar 8 to prevent automatic vertical disengagement between the track-bar 8 and swinging frame 5. Frame 5 is also provided

with a lug or projection 5' opposite to lug 7', which engages the opposite face of the track-bar 8 to that engaged by projection 7' and, together with projection 7', prevents lateral displacement of roller 6 from track-bar 8. Legs or supports 9 are adjustably connected to track-bar 8 through means of screws 10, seated in bar 8 and passing through slots 11 in legs 9, so that by loosening screws 10 legs or supports 9 may be adjusted on bar 8, after which screws 10 are again tightened. Such adjustment is desirable for a purpose described hereinafter. In order to facilitate such adjustment, I have provided bar 8 with a pair of eye-lugs 12, projecting at right angles to bar 8 and one passing through a perforation 13 in each leg or support 9. Legs or supports 9 are also provided with eye-lugs 14, one on each leg, corresponding with eye-lugs 12 and registering therewith. 15 represents screws passing through lugs 12 14 and through means of which by turning when screws 10 are loosened the legs or supports 9 are adjusted on bar 8, after which such adjustment-screws 10 are again tightened.

At their lower ends legs or supports 9 rest on the rear ends of shifting-sublevers 16, pivoted at 17 to the machine-frame and bent upon themselves at 18 to form a wide bearing-surface for legs or supports 9. The edges of legs or supports 9, which engage sub-levers 16, are sharpened at 19 and are seated in notches 20 in said levers 16 to form a knife-edge bearing to avoid friction.

21 is a latch on each of the sublevers 16, which engages a suitable perforation in the leg or support 9 to prevent automatic displacement of said leg or support 9 from the lever 16. The engaging surface of the latch 21 is struck in an arc whose center is in the same vertical plane with the leg or support 9, the object of thus shaping the latch 21 being to avoid friction between said latch and sub-lever 16 during operation.

Engaging the forward end of sublevers 16 are accelerating-links 23. Link 23 is formed of a single piece of metal or a blank bent to straddle the lever 16 and to form a nose 24, engaging the forward end of said lever, the forward end of the lever having an angular engaging surface 25, so that while the nose 24 of link 23 is in engagement with lever 16 when the parts are at rest, the heel 26 of link 23 being on the horizontal, and hence at a

angle to the engaging surface 25 of the lever 16, will be out of contact with said lever. In order to retain link 23 on lever 16, a retaining-screw 16' is passed through the lever 16 and through a slot 27 in link 23, the head 28 and nut 29 on screw 16' seating in the ends of the slot 27 or at the base of the recess formed by slot 27 upon bending link 23 into shape. The ends of link 23 extend down to the main shift-lever 30, one of said ends being bent and passing through a perforation 31 in said lever at an angle to the other end of link 23, there being a tongue 32 on the bent end, which is inserted in a transverse slot 33 in the unbent end of said link 23 and then bent downward to secure said ends together and lock the link 23 to the lever 30. Perforation 31 is formed with opposing convex edges, which approach each other to a point which allows of a free movement of link 23 in said perforation, but which permit of but a very small amount of lost motion. Since the edges 31' are convex, the ends of the perforation 31 are wider than the center, so that a rocking movement of the bent end of the link 23 is permitted when the shift-lever 30 is depressed and the link 23 maintains a vertical. The head 28 and nut 29, engaging the ends of slot 27, form a center about which the link 23 is capable of limited oscillation, such oscillation taking place as the link 23 is drawn down and depresses lever 16 and being limited by the lever 30 in its upper and lower positions.

In the passive positions of the parts, Fig. 1, the nose 24 is in engagement with surface 25. In the shifted positions of the parts, Fig. 3, heel 26 is in engagement with surface 25. In intermediate positions of the parts, Fig. 2, both nose 24 and heel 26 are in engagement with surface 25, which is then on a horizontal.

The nose 24 being a greater distance from pivot 17 of lever 16 than heel 26, it will be observed that greater leverage on lever 16 is obtained at the start of a depression of the shift-lever 30, since nose 24 is in engagement with surface 25 at the initial movement of lever 16, and that as the lever 30 gathers momentum in its downward movement the leverage on lever 16 decreases by reason of the change of application of power from nose 24 to heel 26. In this way and through these means the touch of the shift-lever key is made easy to start.

Levers 30 are connected by a pivot-bar or rock-shaft 38 at their rear ends to make said levers move in unison upon depression of the key of either lever 30. The pivot-bar or rock-shaft 38 is pivoted in the machine-frame.

The weight of the platen is excessive for purpose of returning shift-levers 30 to their normal positions, so that springs 65 66 are provided, one tending to draw the platen down and the other tending to force the platen upward. 66 (shown in Fig. 1) repre-

sents simple plate-springs bearing upward under the cheek-plates, in which the platen is pivoted at each end. By this means the apparent weight of the platen is reduced and an easy touch provided.

To limit the upward movement of the elevating-frame 8 9, a lug or projection 39 is formed on legs or supports 9 by punching out the metal or otherwise at an angle to the plane of said legs or supports 9. Adjacent each leg or support 9 is a post 40, forming a part of the machine-frame 1 and in which is slidably seated an adjustable stop-pin 41. 42 is a set-screw seated in post 40 and impinging pin 41 and by which pin 41 is held in adjusted position. Pin 41 has a beveled engaging face and projects into the path of lug or projection 39. For the purpose of obtaining a fine adjustment of pin 41 a feed-screw 43 is provided, seated in a screw-threaded socket in post 40 and having an annular flange 44 engaging a notch or recess in pin 41, so that as screw 43 is rotated the pin 41 is moved in either direction in its socket to extend or retract the same.

By the adjustment of the stop-pin 41 the vertical movement of the legs 9, forming part of the elevating-frame, may be regulated, and therefore the shifted position of the platen may be properly adjusted to maintain the platen in the proper plane of type-head impact in the upper-case position. The adjustment of the legs 9 upon the track-bar 8 permits of the regulation of the initial or lower-case position of the platen through the lengthening or shortening of said legs—that is, by increasing or decreasing the distance between the sublevers 16 and the platen 4.

I have now described the means for shifting the platen to change the case of the type. As is well known, it is frequently desirable to lock the platen in its shifted or upper-case position. For this purpose I have provided an improved shift-lever-locking device, which I will now proceed to describe.

Each of the shift-levers 30 is provided with the usual shift-key 30'. Positioned on each of the shift-levers 30 is a latch 45, formed of a single piece of metal or blank bent to straddle the lever 30 and depending from a pivot 46, seated in said lever. The latch 45 has a suitable engaging nose 47. Positioned on the forward end of the shift-lever 30, between the main shift-key 30' and the accelerating-link 23, is an auxiliary or shift-lock key 48. Key 48 is positioned on a U-shaped shank 49, formed of a single piece of metal or a blank bent into U shape to straddle the shift-lever 30 and pivoted at 50 to said shift-lever. The key 48 is mounted upon a pair of upwardly-projecting lugs 51 on said shank 49. Connecting the lugs 51 above the upper edge or surface of the shift-lever 30 is a pin 52, adapted upon depression of the key 48, after a limited motion of said key, to communicate

downward motion to the shift-lever 30. Carried by the shank 49, beneath the shift-lever 30 and secured to cross-webs 53 on said shank 49, is a rod or bar 54, preferably of spring metal, extending rearwardly and engaging the upper surface of the web 55, connecting the two arms of the latch 45, so that upon downward pressure of the shank 49 by the key 48 said shank 49 turning upon its pivot 50, the rod or bar 54 of spring metal, will be depressed, turning the latch 45 on its pivot 46 forward in opposition to spring 56, secured at one end to the shift-lever 30 and at its other end to the web 55 of the latch 45. Upon pressure being exerted on the key 48 latch 45 is, as stated, thrown forward on its pivot 46.

57 is an adjustable keeper pivoted at 58 to the machine-frame and vertically adjustable through means of a nut 59 on a bolt 60, engaging a slot 61 in said keeper 57. Bolt 60 is seated in the machine-frame, and by loosening the nut 59 on the bolt 60 the keeper 57 may be moved on its pivot 58 to increase or decrease the relative distance between said keeper 57 and the latch 45. The engaging face of the keeper 57 is bent at an angle to the path of reciprocation of the latch 45 when forced into its forward position by the bar or rod 54. For the purpose of procuring a fine adjustment of the keeper 57 a cam 62 is provided, which is pivoted to the machine-frame at 63. Through means of the cam 62 upon loosening the nut 59 keeper 57 may be forced further into the path of reciprocation of the latch 45 in its forward position.

In operation of the shift-lock the shift-lock key 48 is depressed, turning the shank 49 on its pivot 50 until the pin 52 strikes the upper edge of the shift-lever 30. In the meantime the rod or bar 54, carried by the shank 49, has exerted a pressure on the latch 45 in opposition to the spring 56, forcing said latch 45 forward in the direction of the keeper 57, which has been adjusted to suitable position through means of the cam 61. The pin 52, striking the upper edge of the shift-lever 30, carries said lever down in the same manner as the main shift-key 30', bringing the nose 47 of the latch 45 into contact with the cam-surface of the keeper 57, whereupon, by reason of the flexibility of the rod or bar 54, the latch 47 is allowed to slide over the edge of the keeper 57 and to continue for a limited space below said keeper. Still under pressure of the finger the lever 30 is allowed to rise until the nose 47 of the latch 45 engages the under edge of the keeper 57 and engagement with the said latch is held in opposition to spring 56 through friction, so that the shift-lever 30 is locked in its lower position and the platen in elevated position.

The spring 56 is not strong enough to draw the latch 45 from engagement with the keeper 57. When it is desired to release the locking

device, the main shift-key 30' is struck by the finger of the operator, causing a slight depression of the shift-lever 30 long enough to allow the spring 56 to draw the latch 45 back out of the vertical plane of the keeper 57, whereupon the shift-lever 30 is permitted to rise.

I do not wish to be limited to the exact details of structure herein shown and described, since the same may be varied without departing from the spirit of my invention.

Having thus described my invention, the following is what I claim as new therein, and desire to secure by Letters Patent:

1. In a platen-shift mechanism for type-writing machines, the combination with a platen and an elevating-frame connected thereto, of a movable stop-pin mounted on the machine-frame and adapted to engage said elevating-frame, a feed-screw engaging said stop-pin to adjust the same and a set-screw for holding said pin in adjusted position.

2. In a platen-shift device for type-writing machines, the combination of a vertically-shiftable platen, a main horizontal key-lever for shifting said platen, a sublever through which the shifting movement is communicated to the platen, and a connecting-link between the key-lever and sublever having a rocking connection with the key-lever and an elongated bearing engaging with the sublever at progressively less distance from its fulcrum whereby the key-lever operates with progressively-decreasing leverage in shifting the platen.

3. In a platen-shift mechanism for type-writing machines, the combination with a platen, a sublever, a main lever, suitable connection between the sublever and platen; an accelerating-link straddling said sublever connected to said main lever and adapted to exert pressure upon said sublever first at a point farthest from the pivot of said sublever and then at a point nearer said pivot.

4. In a platen-shift mechanism for type-writing machines, the combination with a platen, a sublever, suitable connection between the platen and sublever and a main lever, of an accelerating-link comprising a bent piece of metal secured to said main lever straddling said sublever, and adapted to exert pressure first on the outer end of said sublever and then at a point between said outer end and the pivot of said sublever.

5. In a platen-shift mechanism for type-writing machines, the combination of the platen, a sublever, suitable connection between the sublever and platen, and a main shift-lever, of a pin seated in said sublever and an accelerating-link connected to the main lever straddling said sublever oscillating about said pin to exert pressure first on said sublever at one point, and then at another point nearer the pivot of said lever.

6. In a platen-shift mechanism for type-writing machines, the combination of a vertically-shifting platen-frame, a horizontal shift-lever connected to said frame to raise it from lower to elevated position, a latch mounted on said lever, and a keeper mounted in the machine-frame in position to be engaged by said latch to maintain the platen in elevated position, and vertically adjustable so as to accurately regulate the height at which the platen is so held as explained.

7. In a platen-shift mechanism for type-writing machines, the combination of a ver-

tically-shifting platen-frame, a horizontal shift-lever connected to said frame to raise it from lower to elevated position, a latch mounted on said lever, a keeper engaged by said latch pivoted in the machine-frame, and a cam device bearing on said keeper to adjust the height of its engaging surface and accurately regulate the elevation at which the platen is sustained.

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