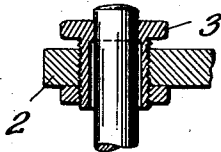


SEGMENT SHIFT FOR TYPEWRITING MACHINES.

1,387,940.

Patented Aug. 16, 1921.



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SEGMENT-SHIFT FOR TYPEWRITING-MACHINES.

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To all whom it may concern:

Be it known that I, OTTO PETERMANN, a citizen of the United States, and a resident of Groton, county of Tompkins, and State of New York, have invented certain new and useful Improvements in Segment-Shifts for Typewriting-Machines, of which the following is a specification.

The principal object of the invention is to provide simple and efficient means whereby the type bar segment may be vertically shifted with respect to the platen to permit the use of type heads carrying a plurality of characters.

Another important object of the invention is to normally lock the type bar segment in its upper position, and to provide key-operated means for releasing the said lock and lowering the type bar segment to its several case positions.

Another object of the invention is to provide key actuated means for lowering the type bar segment to its intermediate case position, the said means also moving into the path of the type bar segment a properly positioned stop, means being provided to automatically remove said stop from the path of the type bar segment when said segment is returned to its normal upper position.

Another object of the invention is to provide a type bar segment shift mechanism simple in construction, and which may be readily assembled.

With these and other objects in view, the invention will be hereinafter more particularly described with reference to the accompanying drawing, which forms a part of this application, and will then be pointed out in the claims at the end of the description.

In the drawing, Figure 1 is a side elevation of the shift mechanism in its normal position, the type bar segment being shown in sectional view;

Fig. 2 is a similar view, showing the type bar segment lowered to its intermediate position;

Fig. 3 is a similar view, showing the type bar segment in its lowermost position; and

Fig. 4 is a detail vertical sectional view on an enlarged scale, of the stop for limiting the upward movement of the segment.

Referring to the various parts by numerals, 1 designates the type bar segment

which, of course, may be of any suitable construction, and may be mounted in the machine frame in any desired manner. The segment bar is provided with an upwardly extending guide pin which is adapted to operate through a transverse bar 2. Threaded through the bar 2 is a guide and stop sleeve 3, the lower end of which forms a stop to limit the upward movement of the segment. The stop sleeve is secured to the bar 2 in its adjusted position by a lock nut, and the upper end thereof is in the form of an adjusting nut. Formed on the segment bar and extending rearwardly therefrom is a stop lug 4, and connected to said stop is an upwardly extending spring 5, the upper end of said spring being suitably secured in the machine frame. This spring normally holds the segment bar in its upper position and against the stop sleeve 3. Pivoted in the machine frame below the forward edge of the segment bar and at any suitable point therealong is an upwardly extending locking pawl 6, said pawl being pivoted at its lower end. The upper end of this pawl is beveled rearwardly and downwardly, and is adapted to fit under the forward edge of the segment bar when the segment bar is in its uppermost position, as shown in Fig. 1. A spring 7, is connected to the pawl 6 and yieldingly holds it in its locking position under the segment bar.

Pivoted in the machine frame are two shift levers 8 and 9, lever 8 being the figure shift, and lever 9 being the cap shift. These levers are mounted on a common pivot 10, directly below the segment bar. The figure shift lever 8 is provided at its rear end, closely adjoining its pivotal point, with an upwardly extending arm 11, said arm being provided at its upper end with a forwardly projecting dog 12, which is adapted to engage the locking pawl 6 on the rear edge thereof, a suitable distance below the segment bar. A spring 13 normally maintains the figure shift lever 8 in its normal at-rest position; and formed on said lever is an upwardly extending arm 14, whose upper end is bent inwardly over a link 15. This link is pivoted at its front end at a point forward of the arm 14, and its rear end is pivoted to the lower end of a lug 16 extending downwardly from the segment bar. A stop 17 is suitably mounted in the machine below the lug 4, said stop 17 being

vertically adjustable and limiting the downward movement of the segment bar. It is manifest that by depressing the figure shift lever 8, the locking pawl 6 will be moved forwardly out of engagement with the segment bar, and the arm 14 will then engage the link 15 and move the segment bar downwardly until its stop lug 4 engages the stop 17. This is the lowermost position of the segment bar and is shown clearly in Fig. 3 of the drawing. Upon the release of the shift lever 8 the segment bar will be returned to its upper normal position by the spring 5 and the locking and supporting dog 6 will be drawn rearwardly into engagement with the segment bar by the spring 7. The spring 13 will return the shift lever 8 to its normal at-rest position.

The shift lever 9 is provided with a rearwardly extending arm 18, which is adapted to engage the rearwardly extending lower arm 19 of the bell-crank stop lever 20. The other arm of said stop lever extends upwardly, and is provided with a stop screw 21 which is adapted to be swung forwardly into the path of the stop lug 4 of the segment bar. A spring 22 normally holds the upper arm of the bell-crank lever against a rigid stop pin 23. A spring 24 returns the shift lever 9 to its normal at-rest position; and this lever is provided with an upwardly extending arm 25 whose upper end is bent laterally over the link 15, as shown at 26. The lever 9 is provided at a point closely adjoining its pivot with an upwardly extending release arm 27, whose upper end is provided with a releasing dog 28, adapted to engage the rear edge of the locking pawl 6 to move said pawl forwardly out of locking engagement with the type bar segment.

It is manifest that on depressing the cap shift lever 9, the extension 18 thereof will first engage the lower arm of the bell-crank lever 20 and swing the stop screw 21 forwardly into the path of the stop lug 4. The releasing arm 27 will swing forwardly and release the locking pawl 6 from the type bar segment. The arm 25 will move the link 15 downwardly, and thereby move the type bar segment until the stop lug 4 engages the stop screw 21. This is the intermediate position of the type bar segment, and is clearly shown in Fig. 2 of the drawing. Upon the release of either one of the shift levers the spring 5 will return the segment to its upper normal position, and the locking pawl 6 will be moved into locking engagement therewith. It is manifest that if desired, any suitable form of locking means may be provided to lock the shift levers in their depressed positions to thereby lock the segment bar in either one of its case shift positions.

From the foregoing, it will be evident

that simple and efficient shift mechanism is provided; that said shift mechanism adapts the type segment to be moved with comparatively little force; that said shift mechanism is adapted for use in various forms and constructions of typewriting machines; and that said shift mechanism may be readily made and assembled. By adjusting the stop sleeve 3 the upper or normal position of the segment may be nicely determined to set the segment at any desired point.

Claims:—

1. Case shift mechanism for typewriting machines comprising a type bar segment, an adjustable stop for determining the normal position of the segment, a spring for normally moving said segment upwardly into engagement with said stop, a locking dog having a cam surface adapted to engage the under side of the segment to wedge and hold said segment in its normal upper position, a case shift lever, and means operated by said lever to release the locking dog and move the segment downwardly to a different case position.

2. In a segment shift for typewriting machines, the combination of a type bar segment, a spring for holding said segment in its upper position, a locking pawl yieldingly engaging the segment and holding it in its upper position, a case shift lever provided with an arm adapted to engage the locking dog to release said dog from the segment and provided with a second arm adapted to lower the segment to a predetermined stop.

3. In a segment shift for typewriting machines, the combination of a type bar segment, a spring normally holding said segment in its upper position, a locking dog engaging said segment to hold it in its upper position, a case shift lever provided with an arm adapted to engage said locking dog to release it from the segment, an arm formed on said case shift lever, and a lowering means connected to the segment and adapted to be operated by said latter arm to move said segment downwardly to a predetermined stop.

4. Double case shift mechanism comprising a type segment, spring means for moving said segment to a normal upper position, a pair of swinging abutments supported different distances above the bottom of the machine adapted to prevent downward movement of the segment when the segment is in its upper and intermediate positions, spring means for normally moving the upper abutment to segment arresting position and the lower abutment out of segment-arresting position, means for arresting the segment in its lower position, a pair of shift levers, a rigid member pivotally supported on a stationary part of the machine and connected with the segment

adapted to be engaged and rocked downwardly by either shift lever to lower the segment, means carried by one of said shift levers for moving the upper abutment out of segment-arresting position, and means carried by the other shift lever for swinging the upper abutment out of segment-arresting position and the lower abutment into segment-arresting position.

5 5. Case shift mechanism for typewriting machines, comprising a type bar segment, a vertical guide post held to the segment, a key lever, means operated by depressing said key lever to lower the segment from its normal position to a different case position, means connected to the segment adapted to return the segment to its normal position upon the release of said key lever, and an adjustable guide and stop sleeve surrounding said post and adapted to be engaged by the segment to determine the normal position of said segment.

6. Case shift mechanism comprising a type segment, means for moving the segment upwardly to a normal case position, a rigid member pivotally supported on a stationary part of the machine and connected with the segment, a swinging latch adapted to hold the segment in its normal elevated position, a shift key, a lever operable by said key, means for pivotally supporting said lever, rigid upwardly extending means carried by said lever adjacent its pivot adapted to trip said latch, and rigid means carried by said lever forward of its pivot overlying a part of said rigid member between its pivot and point of connection with the segment and adapted to rock said member downwardly when the shift key is depressed.

7. In a segment shift for typewriting machines, the combination of a type bar segment, a case shift lever, a locking pawl holding the segment in its normal upper position, means on the case shift lever to release said pawl from said segment, a rigid lower stop, a movable intermediate stop, means operated by the case shift lever to move the intermediate stop into the path of the segment, and means for returning the segment to its upper normal position upon the release of the case shift lever.

8. Case shift mechanism comprising a type segment, spring means for moving the segment to a normal upper position, a swinging abutment for holding the segment in its upper position, means for normally moving said abutment to holding position, a rigid member extending transversely of the plane of the segment and connected therewith at one end, means for pivotally supporting said member at its other end, a shift-key, a lever operable by said key, and means for pivotally supporting said lever adjacent its rear end, said lever being formed with an integral upwardly extending abutment-tripping arm

adjacent its pivot and with an integral upwardly extending hook portion forward of its pivot overhanging said rigid member.

9. Case shift mechanism for typewriting machines comprising a type segment, stationary means for limiting the upward movement of the segment, spring means for normally moving the segment to its uppermost position, a swinging abutment for holding the segment in its uppermost position, spring means for moving said abutment to segment-holding position, a rigid member pivotally connected at its opposite ends with the segment and a stationary part of the machine, a shift key, and a lever carrying said key provided with two rigid portions one of which is adapted to engage and swing said abutment out of segment-holding position and the other of which is adapted to engage said rigid member intermediate its ends and rock said rigid member downwardly about its fixed pivot when the key is depressed.

10. A segment shift for typewriting machines, comprising a type bar segment, a spring for holding said segment in its normal upper position, a locking dog engaging said segment and holding it in its normal upper position, two case shift levers, a link connected to the segment and adapted to be engaged by each of said levers to lower the segment to case shift positions, a rigid lower stop for the segment, an intermediate movable stop for the segment, and means operated by one of the case shift levers to move said intermediate stop into the path of the segment.

11. Case shift mechanism for typewriting machines, comprising a type bar segment, a vertical guide post held thereto, an adjustable guide and stop sleeve embracing said post, means for moving said segment to its normal position in engagement with one end of said sleeve, a locking dog having a beveled face adapted to engage the segment to hold said segment in its normal position in engagement with said sleeve, a key lever, and means operated by said lever to release the locking dog and move the segment away from said sleeve to a different case position.

12. Case shift mechanism for typewriting machines comprising a type segment. stationary means for limiting the upward movement of the segment, spring means for normally moving the segment to its uppermost position, a swinging abutment for holding the segment in its uppermost position, spring means for moving said abutment to segment-holding position, a rigid member pivotally connected at its opposite ends with the segment and a stationary part of the machine, stationary means for determining the maximum downward movement of the segment, a movable stop adapted to arrest the segment in an intermediate position, spring means

normally holding said stop out of segment arresting position, and a pair of key-operated levers both of which are provided with arms for engaging and rocking the swinging abutment and the rigid member to release and lower the segment and one of which is provided with an arm for engaging and shifting the movable stop into segment-arresting position.

13. Case shift mechanism for typewriting machines, comprising a vertically shiftable member for varying the relation between the type and platen, a spring-held latch for holding said member in its normal case position, a link connected at one end to said member and pivotally supported at its other end, a pair of key levers each having an arm adapted to engage said link to move said member from its normal position relatively different distances, a fixed stop for determining the maximum movement of said member, a movable intermediate stop normally out of the path of said member, means carried by one of said levers for moving the intermediate stop into the path of said member, and means carried by each of said levers for releasing said latch.

14. A segment shift for typewriting machines, comprising a type bar segment, a spring normally returning said segment to its upper normal position, a locking pawl holding said segment in its upper position, a forwardly extending link connected to said segment, a pair of shift levers, each of said levers being provided with an arm adapted to engage said link and to move said link downwardly different distances, a rigid lower stop, a movable intermediate stop normally out of the path of the segment, and means carried by one of the shift levers for moving the intermediate stop into the path of the segment.

15. A segment-shift for typewriting machines, comprising a segment normally raised, a non-movable lower stop, a movable intermediate stop, a pair of key-levers and associated devices for bringing the segment down into contact with one or the other of said stops, and a locking member for locking the segment in its up position, each of said levers being provided with an arm adapted to shift said locking members to unlocking position when the lever is operated to bring the segment down.

16. Double case-shift mechanism for typewriting machines, comprising a type segment movable downwardly from a normal position to either of two different lower positions, two swinging abutments supported different distances from the base of the machine for preventing downward movement of the segment when the segment is in its upper and intermediate positions, means for normally holding the upper abutment in segment-arresting position and the other

abutment out of segment-arresting position, means for normally moving the segment to its uppermost position, a pair of key levers, a pair of shift keys carried by said levers, connections between said levers and the segment for shifting the segment downwardly when either shift key is depressed, means carried by one of said levers for shifting the upper abutment out of segment-holding position, and means carried by the other lever for simultaneously swinging said abutments to move the upper abutment out of segment-holding position and the other abutment into segment-arresting position.

17. Case shift mechanism for typewriting machines, comprising a normally elevated member shiftable downwardly for varying the relation between the type and platen, an adjustable stop for determining the normal elevated position of said member, a spring for normally moving said member upwardly toward said stop, a locking device having a cam surface adapted to engage and wedge said shiftable member against the adjustable stop, a key lever, means operable by depressing the key-carrying end of said lever for shifting said locking device out of engagement with said member, a spring acting directly on the locking device for forcing the cam surface of the device against the member, and connections between said key lever and said member for shifting the member downwardly when the key-carrying end of the lever is depressed.

18. Case shift mechanism for typewriting machines, comprising a normally elevated type-bar segment, a pivoted abutment for holding the segment in its normal elevated position movable in a plane fore and aft of the machine, a spring normally forcing said abutment to segment-holding position, a key lever operatively connected to lower the segment when its key-carrying end is depressed, an arm carried by said lever extending upwardly to a point in the rear of said abutment and adapted to rock said abutment out of segment-holding position when the lever is operated to lower the segment, and spring means for restoring the segment to its normal elevated position when the key lever is released.

19. Case shift mechanism for typewriting machines, comprising a vertically shiftable member for varying the relation between the type and platen, a forwardly extending element movable with said member, spring means for moving said member to a normal elevated position, a spring-held latch for locking said member in its normal position, and a key-operated lever provided with an upwardly extending arm adapted to engage and release said latch and an upwardly extending arm having a laterally extending projection at its upper end overlying said forwardly extending element intermediate

the ends of said element and adapted to depress the same to shift the member downwardly when the latch is released.

20. In a double segment shift for typewriting machines, the combination of a normally elevated type segment, a rigid member having a rocking connection at one end with the segment and having a fixed fulcrum at its other end, a pair of key levers, upwardly extending arms rigidly held to said levers having upper end portions adapted to engage the upper side of said rigid member at different distances from its fulcrum and pull the segment downward different distances, a movable segment-arresting device normally out of segment-arresting position, and an arm rigidly held to one of said key levers adapted to engage and shift said device into position to arrest the segment in its intermediate case-shift position.

21. In a double case shift for typewriting machines, the combination of a normally elevated member movable downwardly different distances to vary the relation between the type and platen, a normally vertically extending device pivoted on an axis extending transversely of the machine for locking

said member in its normal elevated position, a pair of shift key levers operatively connected with said member to shift the member downward different distances, each of said levers carrying a rigid arm extending upwardly to a point at the rear of said device and adapted to engage and trip said device, and spring means for restoring said device to its normal locking position.

22. Case shift mechanism for typewriting machines comprising a support shiftable to vary the relation between printing means and a platen, minimum and maximum shift keys operatively connected with the support to shift the support different distances in one direction from its normal position, a latch for holding the support in normal position, a stop for arresting the support in its minimum shifted position, means operable by the minimum shift key for releasing the latch and moving the stop into support arresting position, and means operable by the maximum shift key for releasing the latch without rendering the stop effective.

This specification signed this 24th day of May A. D. 1917.

OTTO PETERMANN.