

May 15, 1923.

L. R. ROBERTS

1,455,030

TYPEWRITER

Filed May 22, 1920

2 Sheets-Sheet 1

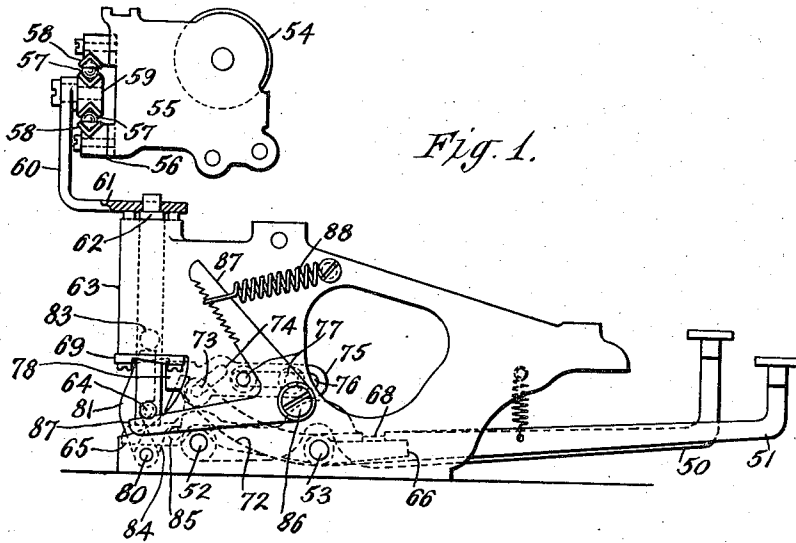


Fig. 1.

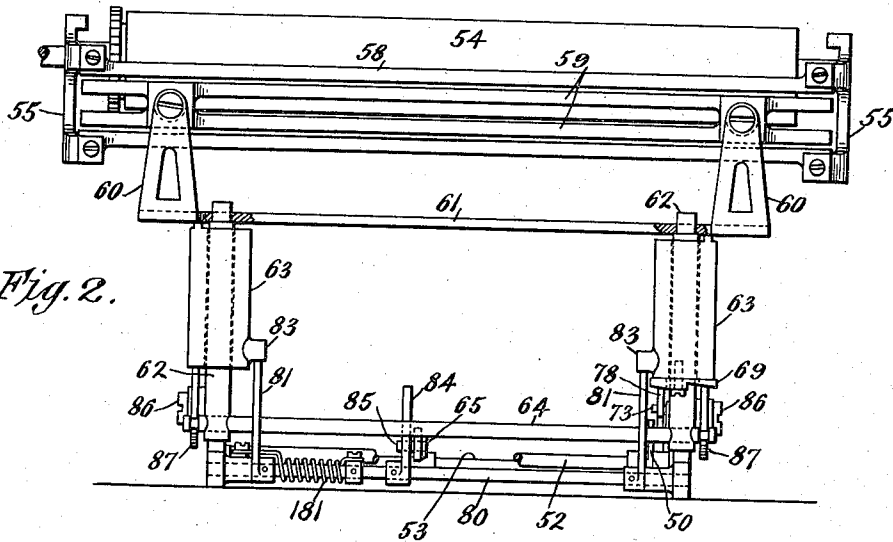


Fig. 2.

Inventor
Lepman R. Roberts
By his Attorneys
Phillips, Sawyer & Kimball

May 15, 1923.

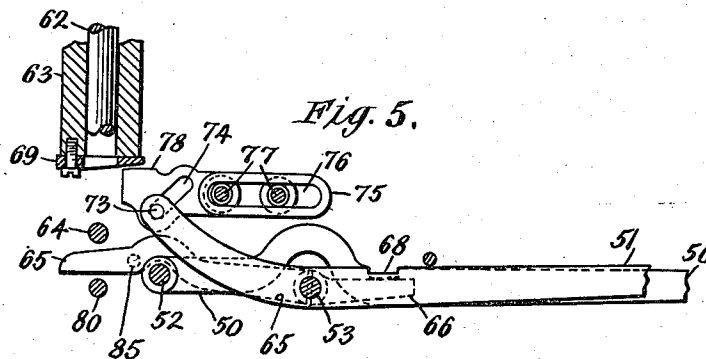
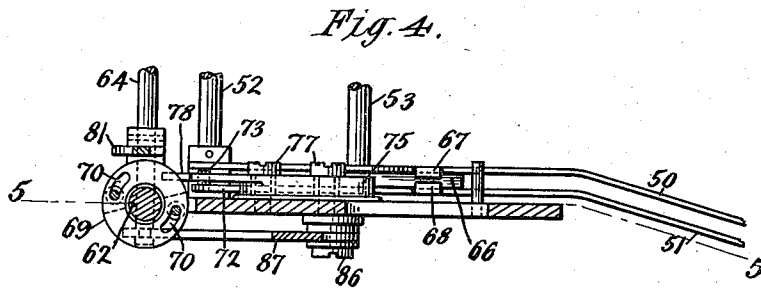
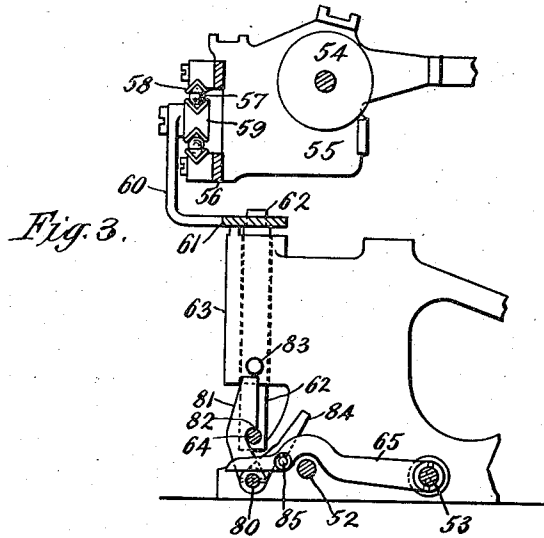
L. R. ROBERTS

TYPEWRITER

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1,455,030

2 Sheets-Sheet 2



Inventor
Lyman R. Roberts
By his Attorneys
Philip S. Brown Rice & Kimball

Patented May 15, 1923.

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UNITED STATES PATENT OFFICE.

LYMAN R. ROBERTS, OF RUTHERFORD, NEW JERSEY, ASSIGNOR TO L. R. ROBERTS TYPEWRITER COMPANY, OF STAMFORD, CONNECTICUT, A CORPORATION OF DELAWARE.

TYPEWRITER.

Application filed May 22, 1920. Serial No. 383,397.

To all whom it may concern:

Be it known that I, LYMAN R. ROBERTS, a citizen of the United States, residing at Rutherford, county of Bergen and State of New Jersey, have invented certain new and useful Improvements in Typewriters, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

This invention relates to typewriters and particularly to case-shift mechanism.

It is the principal object of the invention to provide a typewriter of the type having a shifting platen carriage such that "bouncing" of the carriage is prevented.

With this general object in view the invention consists in the combinations, arrangements of parts and details of construction which will first be described in connection with the accompanying drawings and then more particularly pointed out.

In the drawings—

Fig. 1 is a view in side elevation of a typewriter constructed in accordance with the invention;

Fig. 2 is a view of the same in rear elevation with parts broken away;

Fig. 3 is a view in vertical section;

Fig. 4 is a view in horizontal section;

Fig. 5 is a cross sectional view taken on the line 5—5 of Fig. 4.

Referring to the drawings—

In the embodiment of the invention here illustrated each type bar carries three type characters and there is provision for a double case-shift to shift the platen and its carriage into an extreme or an intermediate position in accordance with the type character to be used. To this end, forming part of the key board, are two case-shift levers 50, 51. The lever 50 for the extreme case-shift is pivotally mounted on a tie rod 52 near the rear of the machine and the intermediate case shift lever 51 is mounted to swing on a rock shaft 53.

The platen 54 has its shaft journaled in the end pieces 55 of a carriage 56, which is mounted to have the usual reciprocating movement, by means of two sets of ball bearings 57 riding in grooved rails 58 on the carriage and a doubly grooved guide 59. This carriage guide 59 is supported by upwardly extending arms 60 formed on a carriage truck in the form of a rigid plate 61. To give the plate carriage case shift move-

ment, this truck is mounted on two vertically reciprocating plungers 62 sliding in cylindrical bearing members 63 cast on the frame at the rear corners. In order that operation of the case shift levers may cause the plungers to raise the platen carriage, the plungers are connected by a cross bar 64, beneath which extends a lifting lever 65. This lifting lever is keyed or otherwise secured to the rock shaft 53. Also secured to the rock shaft is an operating lever 66 over which extends a lug 67 formed on the case-shift lever 50 and a similar lug 68 formed on the case-shift lever 51. It will be seen that on the depressing of either case-shift lever, its lug will engage the operating lever 66 thus rocking shaft 53, and this in turn causes the lifting lever 65 to engage the cross bar 64 and raise the plungers 62, thus shifting the vertical position of the platen carriage. The limit of movement for the extreme case shift is fixed by the engagement of the cross bar 64 with a washer or ring 69 secured to the frame. To make this limit of movement adjustable, the washer 69 is wedge shaped and is secured to the frame by screws passing through arcuate slots 70. By shifting the washer 69 on its centers a greater or less amount of metal is interposed in the path of the cross bar and the movement allowed is decreased or increased accordingly.

For the intermediate case-shift, a spacing lug is interposed between the cross bar and the washer to fix the movement of the plungers. To this end, in the present embodiment, the case shift lever 51 has a rearwardly extending arm 72 carrying a pin 73 which rides in a slot 74 formed in a movable plate 75. This plate has a second slot 76 which rides over two aligned pins 77. With this construction, operation of the case-shift lever causes a rearward, horizontal movement of the plate 75. This plate carries a spacing lug 78, so arranged as to be interposed between the cross bar and the washer 69 when the plate is moved by operation of the case-shift lever. It will be seen, therefore, that the case-shift lever 51 will cause the carriage to be moved to an intermediate position only, as it is limited by the engagement of the cross bar with the spacing lug. Adjustment may be made also for this case-shift by movement of the washer 69 as above described.

In order to prevent "bouncing" of the platen carriage during operation of the machine, the invention includes means for locking the carriage against raising movement, and in structures embodying the invention to the best advantage, a locking member is normally interposed between the carriage raising mechanism and a fixed abutment. Although capable of various constructions, as here shown, on a cross shaft 80 are mounted locking plates 81 provided with shoulders 82 which normally take over the cross bar 64. The upper end of each locking plate is in close proximity to a fixed abutment 83 formed on the frame of the machine. The locking plates 81 are normally held in locking position by means of a spring 181 secured at one end to the shaft 80 and at the other end to the frame of the machine. With these locking plates interposed between the fixed abutment and the movable cross bar, the carriage is made substantially solid with the frame and any "bouncing" of the carriage is prevented.

Means is provided for removing the locking plates to permit case-shift movement of the platen carriage, and in structures embodying the invention to the best advantage, the locking plates are caused to be removed from locking position upon operation of either of the case-shift levers. As here shown, as an example, on the pivotal shaft 80 of the locking plates, is mounted a rocker arm 84 having a rounded shoulder taking over a pin 85 on the operating lever 65. When the rock shaft is operated by the action of either case-shift lever, the consequent movement of operating lever 65 causes pin 85 to swing the rocker arm 84 rearwardly. This movement of the rocker arm, through shaft 80, causes the locking plates to swing out of the way, thereby permitting elevation of the plungers and the platen carriage. Upon return of the carriage to normal position the locking plate again moves into locking position by means of its spring 181.

In structures embodying the invention in its entirety, the cross bar 64 which connects the two plungers 62 serves as an assembling member for connecting the platen carriage with the frame, and is readily removable to permit removal of the carriage. Means is also provided for holding the cross bar in place without interfering with its ready removal. Although capable of various constructions, as here shown, the cross bar 64 passes through holes formed in the plungers 62 of a size to permit its ready removal and insertion. The cross bar, when in place, extends out some distance beyond the plungers, as appears in Fig. 2. Near each end, it is provided with a circumferential groove to receive a spring pressed securing member. In the present embodi-

ment this securing member also serves as a balancing member for the carriage. As shown, pivoted on a pin 86, at each side of the machine, is a bell crank lever 87, the lower arm of which extends below the cross bar 64 and takes into the groove above mentioned. The upper arm of the bell crank 87 is notched to adjustably receive the end of a coiled balance spring 88, the other end of which is secured to the machine frame. With the construction described, the cross bar is held in place by the balancing members and to remove the cross bar it is only necessary to swing down the bell cranks away from the cross bar. Furthermore, this construction, with a balancing mechanism at each side, provides a more even balance, as the weight shifts with the travel of the carriage.

What I claim is:

1. In a typewriter, and in combination, a frame, a case-shift unit movable in the frame and including a cross bar, a lifting lever for engaging said cross bar to case-shift said unit, a locking member anchored to said frame and normally hooking over said cross bar to hold the case-shift unit from movement out of normal position, and an actuating element having an operable connection with said locking hook and operable upon operation of the lifting lever to cause the removal of said locking member from locking position.

2. In a typewriter, and in combination, a frame, a case-shift unit movable in the frame and including a cross bar, a lifting lever for engaging said cross bar to case-shift said unit, a rock shaft journaled in the frame, a locking member mounted on said rock shaft and normally hooking over said cross bar to hold the case-shift unit from movement out of normal position, and a rocker arm mounted on said rock shaft and operable upon operation of the lifting lever to cause the removal of said locking member from locking position.

3. In a typewriter, and in combination, a frame, a case-shift unit movable in the frame and including a cross bar, a case-shift lever, a lifting lever having an operative connection with said case-shift lever and engaging said cross bar to case-shift said unit, a rock shaft journaled in the frame, a locking member mounted on said rock shaft and normally hooking over said cross rod to hold the case-shift unit against movement out of normal position, a rocker arm mounted on said rock shaft, and a pin on said lifting lever for engaging said rocker arm, whereby the locking member is removed from locking position upon operation of the case-shift lever.

4. In a typewriter, and in combination, a frame, a case-shifting unit including a plurality of plungers reciprocating in said

frame and a cross bar connecting said plungers, case shifting means including a lifting lever for engaging said cross bar, and a locking member anchored to said frame and normally hooked over said cross bar to hold said unit against movement out of normal position.

5. In a typewriter, and in combination, a frame, a platen carriage, a plurality of plungers supporting said carriage and slidable in said frame, a cross bar connecting said plungers, and means acting on said cross bar to cause the plungers to be raised, said cross bar being readily removable to permit removal of the carriage and its plungers from the frame.

6. In a typewriter, and in combination, a frame, a platen carriage, a plurality of plungers supporting said carriage and slidable in said frame, a cross bar connecting said plungers, said cross bar being readily removable to permit removal of the carriage and its plungers, and means normally tending to hold said cross bar in place.

7. In a typewriter, and in combination, a frame, a platen carriage, a plurality of plungers supporting said carriage and slidable in said frame, a removable cross bar connecting said plungers, and a pair of spring-pressed balancing members bearing against said cross bar.

8. In a typewriter, and in combination, a frame, a platen carriage, a plurality of plungers supporting said carriage and slid-

able in said frame, a cross bar connecting said plungers, means acting on said cross bar to cause said plungers to be raised, and a pair of spring-pressed balancing bell-crank levers pivoted on the frame and bearing against said cross bar, the cross bar being removable, upon release of the pressure of the bell crank levers, to permit the removal of the carriage and its plungers from the frame.

9. In a typewriter, and in combination, a platen carriage truck, a reciprocating plunger on which said truck is mounted, a frame bearing in which said plunger reciprocates, and a member removably connected with said plunger below said frame bearing, said carriage truck and its plungers being removable from the frame upon removal of said member.

10. In a typewriter, and in combination, a frame bearing, a case-shift unit, including a platen carriage truck, a plunger reciprocating in said bearing and on which said truck is mounted, and a member removably connected with said plunger below said bearing and cooperating in limiting the case-shift movement of said unit, and means, including a lifting lever separably engaging a portion of said unit, for case shifting the unit, the truck and plungers being removable from the frame upon removal of said member.

In testimony whereof, I have hereunto set my hand.

LYMAN R. ROBERTS.