

Dec. 5, 1939.

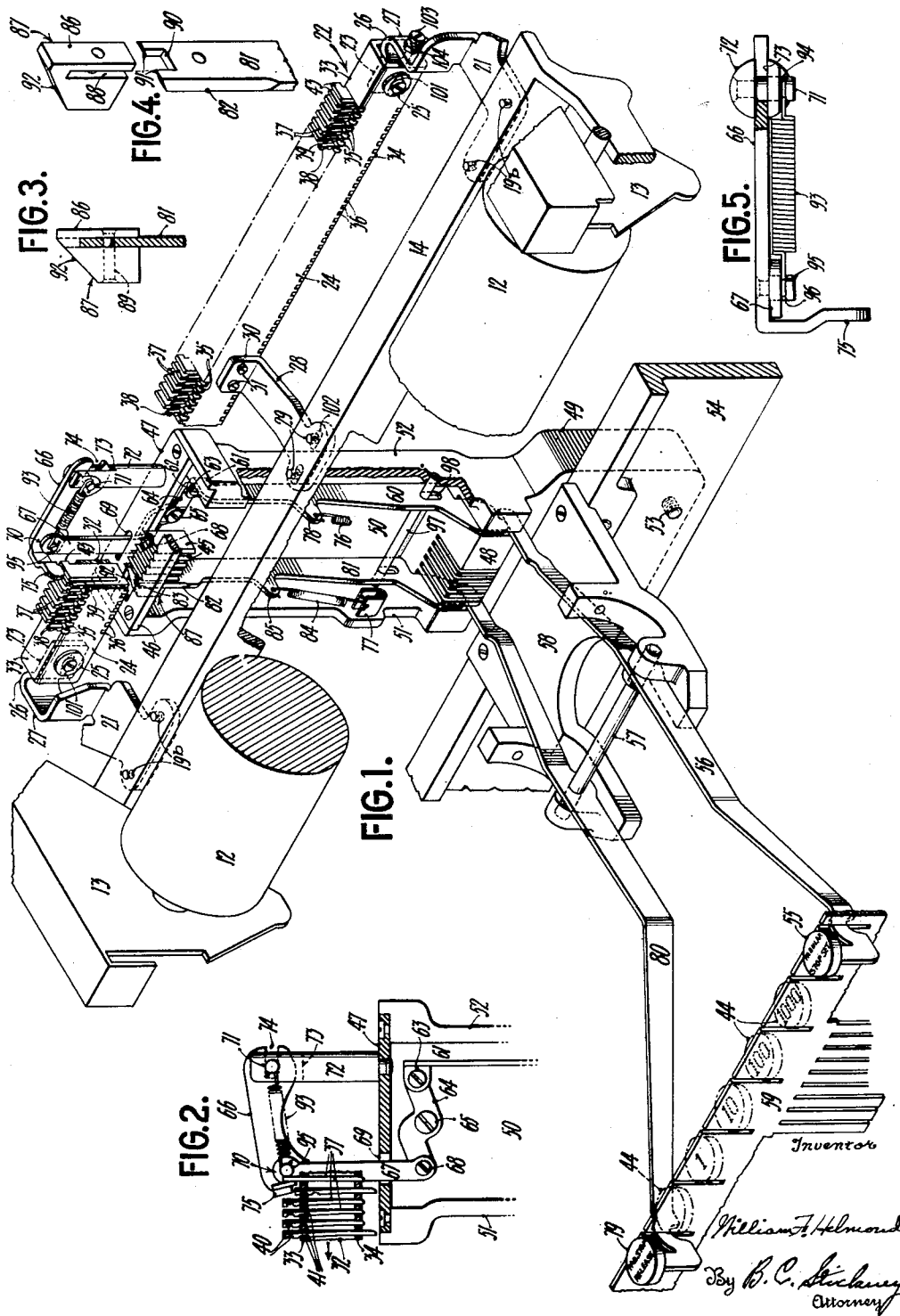
W. F. HELMOND

2,182,125

TYPEWRITING MACHINE

Original Filed Feb. 12, 1932

2 Sheets-Sheet 1



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TYPEWRITING MACHINE

Original Filed Feb. 12, 1932 2 Sheets-Sheet 2

FIG. 8.

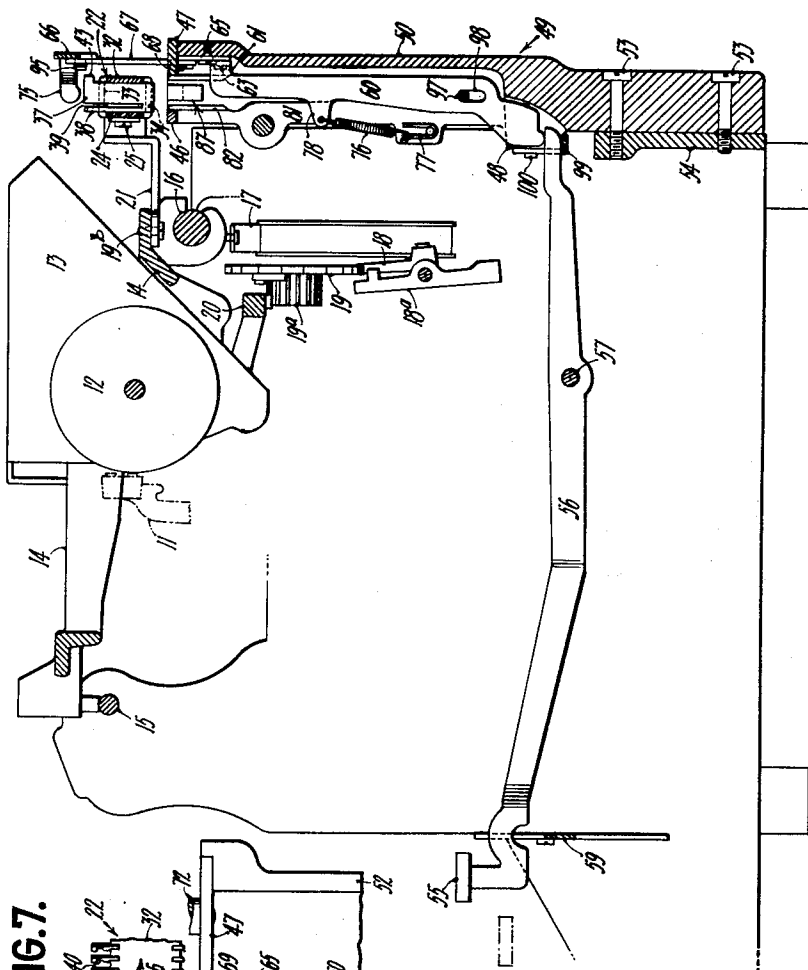


FIG. 7.

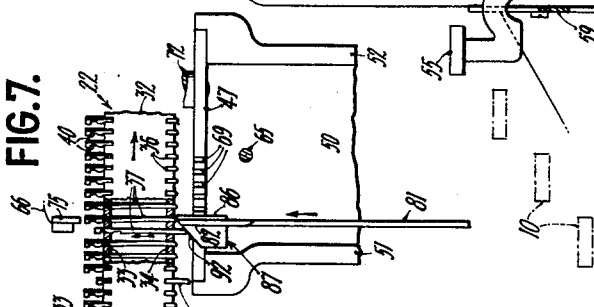
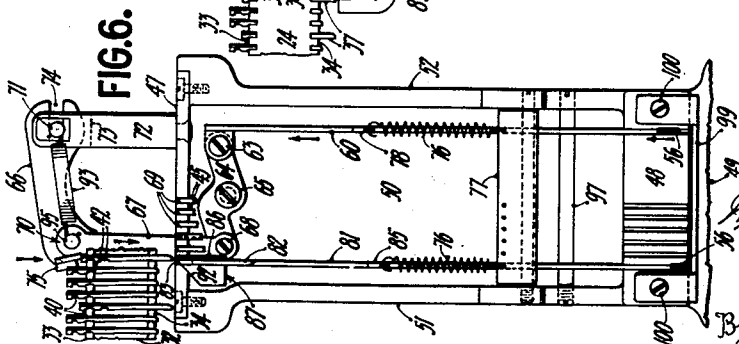


FIG. 6.



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2,182,125

TYPEWRITING MACHINE

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Original application February 12, 1932, Serial No. 592,454. Divided and this application June 23, 1936, Serial No. 86,707

14 Claims. (Cl. 197—179)

This invention relates mainly to key-set tabulator-stop mechanism for typewriting machines. There is used a rack with a key-set stop which is in the form of a square or rectangular metal tube, having cross-slots for the stops cut in its top and bottom sides; each key-settable column-stop being insertible down through the top and bottom slots; and a spring-detent being formed upon the front edge of each stop.

The rack is mounted upon the rear of the paper-carriage of the typewriter, and its path of travel overlies a set of decimal-stops. These decimal-stops are in the form of upstanding blades, each having a key, whereby the stop may be thrust up into the path of a key-set column-stop.

Said decimal-stops are mounted in a bracket which stands in rear of the carriage-escapement mechanism of the typewriter; and in order to afford accessibility to the carriage-escapement mechanism, for inspection, adjustment and repair, it is a feature of the invention that the bracket and the set of decimal-stops are made detachable, together with the key-controlled mechanism which is used for setting the column-stops; a principal portion of said setting mechanism being mounted upon said detachable bracket, and forming a unit therewith, and extending up from the bracket in rear of the key-set stop-rack, with the stop-setting arm projecting over the top of said rack. When the lower end of the bracket is detached from the base of the machine-frame, said bracket may be lifted back and off from the machine, together with its decimal-stops and its key-controlled stop-setting mechanism, thus affording access to the carriage-feeding mechanism.

The stop-setting mechanism is entirely clear of the carriage, and therefore the same unit may be used with carriages and racks of all lengths.

This mounting of the stop-setting mechanism is further advantageous in that it is clear of the arms which support the stop-rack upon the carriage, including not only the arms at the ends of the rack, but also a third arm which is provided to connect the midway portion of a long rack with the carriage, to afford adequate rack-support.

Each of the two arms, which extend rearwardly from the carriage, is fixed to the ends of the tubular rack for supporting the same. Each arm has a tongue which is inserted within the end of the rack, and is secured thereto by a screw. The shank of the screw passes through a slot which extends longitudinally of the rack, so as

to permit endwise adjustment of the latter. Each tongue is joined to its arm by a reflex bend, which serves to cover over the open end of the tube, and also carries a screw, which bears against the end of the rack, for effecting fine endwise adjustment of the latter. Said tongue is fastened to the front side of the rack, thus avoiding any tendency of the arrested carriage to give the rack a thrust in an up or down direction, or to raise or lower the carriage at either end, or to bind the carriage.

Each key-set stop is provided with a top ear, which overhangs the rear side of the rack, and serves as a stop to prevent excessive downward movement of the stop, and to prevent any stop from being thrust bodily into the tubular rack. These ears overhang the rear side of the rack; and the integral detents are formed upon the front edges of the stops.

Alongside of the set of decimal-stops there is placed an additional blade, which may perform the function of a stop-blade, but which is also formed with a cam-shoulder. During the return of the carriage, this shoulder is struck by any key-set stop that is in depressed position. The stop rides up on the cam, and is thereby restored to normal idle position. This cam-blade may be operated by a stop-returning key at the end of the row of decimal-keys at the keyboard. Upon the other side of the set of decimal-stop blades, there may be provided another extra blade, to be operated by another key, and constituting a part of the stop-setting mechanism.

In operating key-set tabulator-mechanism, there is liability that, after the operation of the stop-setting key, and while said key is still held down, the paper-carriage may become released by the actuation of any escapement-actuating key, and may be propelled by its spring until it is arrested by striking the stop-setting tooth. This is liable to bend the tooth, or to bend a stop, or to bend the stop-setting arm and bind the stop-setting mechanism, or otherwise to injure the mechanism, so that its parts will not become restored to normal position.

It is a feature of the present improvements to provide means for preventing such accidents, and to this end the stop-setting tooth is mounted upon a special carrier, which is capable of limited bodily yielding movement in the direction of the carriage-travel. This tooth or projection-carrier may be in the form of a lever, which is pulled down by the stop-setting key, thus causing the tooth on the end of the lever to force a stop to descend. If now the carriage should be

released by operating an escapement-actuating key, a stop would engage said setting-tooth, and would force both the tooth and the lever to slide endwise, or in the direction of the carriage-travel, without effecting any damage. The lever is thereafter drawn back to its normal position by means of a spring, when the stop-setting key is released.

This application is a division of my pending application Serial No. 592,454, filed February 12, 1932 (now Patent No. 2,053,079, dated September 1, 1936).

Other features and advantages will hereinafter appear.

In the accompanying drawings,

Figure 1 is a perspective front view of the tabulator-stop setting and restoring mechanism, in normal position.

Figure 2 is a sectional elevation, showing the position of the parts when the carriage is letter-spaced while the stop-setting finger is held depressed.

Figure 3 is a sectional side elevation, showing the restoring slide and block.

Figure 4 is a perspective view of the parts shown in Figure 3 before being assembled.

Figure 5 is an enlarged plan, showing the stop-setting arm and mounting, together with the retaining spring.

Figure 6 is a sectional elevation, taken from front to rear, of the stop setting and restoring mechanism, and showing the stop-setting mechanism in operated position.

Figure 7 is a view similar to Figure 6, with parts omitted, and showing the stop-restoring mechanism in operative position.

Figure 8 is a sectional side elevation, taken about centrally of the machine, with parts omitted, and showing the present invention in normal position.

The depression of keys 10 causes types 11 to strike rearwardly against a revoluble platen 12 supported for case-shift movement in the platen-frame 13 that has a carriage 14 supported for letter-feed movement on a front rail 15 and a rear rail 16.

The carriage is pulled in letter-feeding direction by means of the usual spring band 17 and is fed at letter-space intervals, by operation of the keys 10 or space-bar 10a, through the usual escapement-mechanism that includes a loose dog 18 and a fixed dog 18a meshing with an escapement-wheel 19 carrying a pinion 19a engaging a carriage-letter-space rack 20.

Fixed at 19b to the ends of the carriage-frame 14 are brackets 21 which support a rack 22. This rack is made of a rectangular tube having open ends in which flanges 23 forming the outer ends of the brackets 21 are inserted and are fastened to the front or inner side 24 of the rack by means of screws and washers 25. The flanges 23 and the rear portion of the brackets are about the same length as the distance between the top and the bottom sides of the rack, so that the flanges just fit into the ends of the rack while the brackets 21 adjacent their flanges extend rearwardly and are bent at 26 to form vertical plates 27, which act as cover or end plates to conceal the open ends of the tubular rack 22.

The rack 22 is made of different lengths to fit various size carriages and according to its length may be supported by one or more intermediate brackets 28 fixed by screws 29 to the carriage frame 14, and having flanges 30 at its outer end

to which the rack 22 is rigidly attached by screws 31.

The tubular rack is of oblong rectangular cross-section and includes inner side 24 and opposite outer side 32, the top 33 and bottom 34. The top and bottom sides have thin slots 35, 36 cut therein at letter-space intervals. The slots 35 are directly in a line with the slots 36, so as to receive the column-stops 37 in the form of thin rectangular blades loosely fitting in said slots for an easy up-and-down movement when setting or restoring said stops. The width of the stops 37 is substantially the same as the width of the inner face of the front and the rear sides 24 and 32 of the rack 22, so that these sides will act as guides for the stops during their up-and-down movements and will also prevent any excessive forward or rearward play of the stops in the rack 22.

Each stop 37 has a spring detent 38 formed by cutting a slit 39 near one side of the stop 37. The detent lies normally slightly to the front of the stop and has a pair of notches 40, 41 to enable the detent to cooperate with the edge of the upper slots 35 for holding the stops in their ineffective or effective positions.

The upward movement of a stop 37 is limited by the straight horizontal edge 42 forming the lower part of the notch 41 and catching on the inner face of its upper slot 35 in the rack 22. The downward movement of a stop 37 is limited by a rearward extension 43 at the top of the stop 37. This extension overlies the rear side 32 of the rack, so that the depression of a stop 37 causes the lower edge of extension 43 to engage the top edge of the rack's rear side 32. The stops, therefore, if inadvertently given a quick heavy blow, are positively prevented from being depressed too far and from being thrust out of their upper slots 35.

The stops 37 when in projected or set position cooperate with a decimal-stop-selecting mechanism that includes tabulating keys 44 forming the top row in the keyboard. The depression of any one of these keys releases the carriage in any known manner (not shown) and raises its respective plunger 45 into the path of a projected stop 37 to arrest the released carriage in the selected position. The plungers 45 are guided in upper plates 46, 47 and in a lower wall 48 forming part of a frame 49 having a rear wall 50 and side walls 51 and 52. The frame is detachably mounted by four screws 53 on the rear plate of the machine-frame 54 and directly in the rear of the escapement-mechanism.

To selectively set the stops 37 from the front of the machine, a novel stop-setting mechanism is provided, and includes a key 55, positioned adjacent and at the right side of the tabulator-keys 44. The stop-setting key is fixed to the front end of a key-lever 56 pivotally supported on a shaft 57 carried by escapement-base plate 58 fixed to the machine-frame 54. The key-lever 56 is guided at its forward end in a slot in the upper portion of the usual key-lever comb-plate 59 and its rear end is guided in a slot in the wall 48 of the frame 49.

On top of the rear portion of the key-lever 56 rests the lower end of a vertical link 60. This link is mounted inside of the frame 49 and at the right side thereof. The lower end of said link is guided in the same slot in the wall 48 as the rear part of the key-lever 56. The upper end of said link extends to the rear at 61 and is bent over at right angles to form flange 62 to pivotally

connect the link 60 by means of a screw 63 to one end of a lever 64 lying in rear and out of the path of the plungers 45 and swingably mounted by screw 65 on the rear wall 50 of the frame 49. The other end of the lever 64 is connected by a link 67 to a stop-setting arm 66 supported on the outside of the frame 49 at the rear and above the rack 22. The link 67 is pivotally connected at 68 to one end of the lever 64 and extends upwardly in rear of the rack 22 through a slot 69 in the plate 47 to be loosely connected at 70 to the outer end of the arm 66 which is rockable about a pivot-stud 71 carried by a vertical post 72 riveted on the right side of the plate 47 to form a vertical extension of the frame 49 in rear of the rack 22.

The post 72 has a slot 73 cut in its upper end through which the stud 71 extends. The end of the arm 66 fits into the slot 73 constraining all movement of said arm in a single plane and is pivotally mounted on the post by means of an open end slot 74 in the arm 66 straddling the stud 71. The other end of the arm 66 is bent over at right angles to form a tabulator-stop setting finger 75 normally overlying the stops 37 where it is supported by the link 67 and its fulcrum-pin 71.

When a tabulator-stop 37 is to be set, the carriage is positioned to the desired printing point which places a corresponding stop 37 under the setting finger 75. The stop-setting key 55 is then depressed to rock its key-lever 56 which raises the link 60 and rocks the lever 64 to pull the link 67 downwardly, and thereby swings the arm 66 downwardly about its pivot 71 to cause the finger 75 to move in a stop setting path transverse to the row of stops 37 to engage and depress the underlying tabulator-stop 37. This stop 37 will be held in its depressed position by its spring detent 38, while, upon releasing the stop-setting key 55, a returning spring 76, connected at one end to a fixed plate 77 of the frame 49 and its other end to an ear 78 of the link 60, will return all the operated parts 75, 66, 67, 64, 60, 56 and 55 of the stop-setting mechanism to their normal positions. The carriage may be then fed in letter-space direction to a position where it is desired to set another tabulator-stop. The stop corresponding to the position of the carriage will be under the setting finger 75 and upon depression of the stop-setting key 55 the finger will be pulled down to set said stop. The operation of positioning the carriage and setting the stops may be repeated until all of the desired tabulator-stops are in their effective or set positions.

To restore any one of the stops thus set, there is provided a restoring mechanism that includes a stop-restoring key 79 positioned adjacent and at the left side of the tabulator-keys 44 and fixed to the outer end of a key-lever 80 swingably mounted on the left side of the shaft 57 and guided at the front end in the comb-plate 59 and at the rear end in the wall 48. A stop-restoring slide 81 is mounted in and at the left side of the frame 49 and is guided for vertical movement at its upper and lower ends. The sides of the slide 81 at its top portion are beveled at 82, which bevels fit into opposite notches 83 in the top guide-plates 46 and 47 and in which the slide 81 is free to move up and down.

The lower end of the slide 81 is guided in the same slot in wall 48 of the frame 49 as the stop-releasing lever 80 and rests upon the rear end of said lever 80 to be loosely connected to the operating key 79.

To restore a set stop 37 the carriage is tabulated into position by depressing the extreme left or decimal-point key which releases the carriage-rack from its escapement-mechanism and permits the band 17 to pull the carriage to the left. The depression of the decimal-point tabulator-key also simultaneously raises the extreme left plunger 45 to engage a side of the set tabulator-stop that is to be restored. Although this plunger is located one space to the right of the restoring slide 81, and therefore engages the set stop one letter-space to the right of the slide 81, it will be noted that there occurs the usual extra space feeding of the carriage to the left after the decimal-tabulator key is released, thereby positioning the set stop over and slightly in rear of the restoring slide 81. This extra feeding is due to the plunger disengaging the tabulator-stop in returning to normal position while the carriage-rack re-engages the escapement-mechanism, at which time the spring band 17 will feed the carriage one letter-space distance in taking up the free motion of the loose dog 18.

The set stop is now in the proper position to be restored and the key 79 is depressed to rock its lever 80 and thrust the slide 81 upwardly to engage the set stop and raise the same to its restoring or ineffective position where it will be held by means of its detent 38. A return spring 84, fixed at one end to the bracket 77 and at its other end to an ear 85 on the slide 81, returns the operated stop-restoring train 79, 80 and 81 to its normal position upon the release of the depressed stop-restoring key.

To assure the slide 81 engaging the set stop, said slide is provided at its upper end with an offset portion or extension 86 forming part of a block 87. This block is narrower than the slide 81 and fits between the guide-plates 46, 47. The block has a slot 88 cut upwardly from its lower side to receive the slide 81 which has a cutout 90 to form a pair of side fingers 91, between which the block 87 is set to prevent any possible rotation and to securely mount the block 87 on the slide 81, which block and slide are rigidly fixed together by a rivet 89. It will be noted that since the tabulating plunger engages the side face of a set stop, the extra space movement upon release of said plunger brings the stop just at the right side of the slide 81 but directly over the extension 86 which will engage and restore the stop by depression of the key 79 raising the slide 81.

When it is desired to restore all of the depressed stops, the carriage is first fed to the left to bring all of the stops to the left of the restoring slide 81. The operator then depresses the restoring key 79 and holds it depressed to retain the slide 81 together with the block 87 in raised position while the carriage is suitably returned. This return movement of the carriage causes all of the depressed stops to pass over the block 87 and thereby be returned to their normal ineffective positions. This is accomplished by inclining the top portion of the block 87 at the left side of the slide 81. This inclined portion forms a cam 92 on the block 87 that is engaged by all of the set stops during the return movement of the carriage, and as a stop rides up on the cam it is forced upwardly to ineffective position in its carrying rack 22 when its detent 38 will be effective to hold the stop in its restored position.

The stop-setting key 55 is depressed to swing 75

the finger 75 down in a stop setting path transverse to the row of stops about its fulcrum 71, to depress the underlying stop 37. It sometimes occurs that while the finger 75 is in its lowered position, a space-key or any other carriage-feeding key might inadvertently be operated, thereby causing the carriage to escape and bring the top portion of the adjacent unset stop against a setting finger 75. Heretofore such a feeding movement of the carriage would jam the adjacent stop against the setting member and under the strong tension of the carriage-feeding spring 17 the setting member would be prevented from returning from normal position after its operating key had been released, and the carriage would be jammed until the operator moved it in the opposite direction to move the stop away from the setting member and permit said member to return to its normal position.

According to the present invention, the above trouble is eliminated by slidably or extensibly mounting the stop-setting finger on its support. If the carriage is fed while the finger 75 is held depressed, the adjacent stop will abut against the finger, but, since the latter, together with its arm 66, is slidably mounted on the fulcrum 71 through the slot 74, the finger will merely move along with the carriage for the letter-space distance. If the operator now lets go of the stop-setting key 55, the finger will be released from the adjacent stop in the usual manner, namely, through the spring 76 restoring the operated stop-setting train to normal position. The slot 69 through which the link 67 extends is made long enough to permit said link to swing forwardly together with the arm 66 when the carriage is fed while the finger 75 is held depressed. According to the present construction, the pull of the carriage-spring drum on the stop which is contacting with the depressed finger 75 (Figure 2) actually aids in returning said finger to its normal position, since the finger is swingably mounted around the pin 71 and said pin is positioned above the stops 37 so that when said finger returns to normal position, it is swung upwardly and forwardly away from the stop 37, in which direction the stop tends to push the finger 75.

A spring 93 then pulls the finger 75 and arm 66 back to normal position where the fulcrum pin 71 will be at the inner or closed end of the slot 74 in the arm 66. This spring 93 is mounted at one end on an extension of the fulcrum-pin 71 (Figure 5) that is rigidly carried by the post 72. The pin has a groove 94 to permit the end of the spring 93 to fit therein and prevent the possibility of the spring slipping off of the pin. The other end of the spring is secured to a pin 95 rigidly mounted on the arm 66. This pin 95 is utilized for loosely connecting the link 67 to the arm 66. The pin extends through a hole in the link 67, and said link is retained on said pin by means of the spring 93 fitting in a groove 96 in the pin 95, thereby preventing the spring 93 or the link 67 from slipping off of the pin 95. In this manner the spring 93 acts to return the arm 66 and finger 75 to normal position when they are inadvertently pulled to the left and also to retain the connection between the link 67 and the arm 66.

To prevent the arm 66 from being accidentally disconnected from its fulcrum-stud 71, the slot 69 in the plate 47 is shorter than the slot 74 in the arm 66, so that the movement of the arm

in letter-feeding direction is limited by the link 67 abutting the end of its slot 69.

The stop setting and restoring mechanisms with the exception of the key-levers 56 and 80 are entirely mounted in the rear frame 49. When it is desired to gain access to the inside of the machine from the rear, such as for adjusting or otherwise fixing the escapement-mechanism, the four screws 53 are removed to permit the frame 49 together with the present stop setting and restoring mechanisms to be entirely removed from the machine. The parts are held in proper position within the frame 49 by a rod 97 threaded through slots 98 in the link 60 and slide 81, which rod also acts at all times to hold all of the parts within the frame in their aligned normal positions. The slots 98 are of sufficient length to permit the desired vertical movement of their respective parts when operated by their respective key-levers.

The stop-setting finger 75, the stop-restoring slide 81, 86 and an intermediate stop 37 are all in an aligned vertical position. This is advantageous as it often occurs that an operator sets a stop and then notices that the carriage is not in the proper position and the stop should not have been set. With the construction of the present invention it is a simple matter to rectify this mistake by merely operating the stop-restoring key to operate the restoring slide and reset the stop having just been set by the setting finger. The operator may now space the carriage to the proper position and operate the stop-setting finger to set the correct stop.

The present stop setting and restoring mechanisms being entirely separate and in the rear of the machine and out of the path of the carriage permit the latter to be readily removed from the machine which is often desired for shipping or repair purposes.

The upward movement of the keys 55 and 79 is limited by a plate 99 fixed by screws 100 to the frame 49 and underlying the rear ends of the levers 56 and 80.

The rack 22 carrying the stops 37 is adjustably mounted lengthwise on the carriage 14, to align the stops 37 in proper position with respect to the tabulator-plungers 45, the stop-setting finger 75 and the stop-restoring slide 81, 86, by providing slots 101 near the ends of the rack 22, and through which the screws 25 extend into the flanges 23 of the brackets 21. The center bracket 28 has slots 102 through which the screws 29 extend, so that by loosening the screws 25, 29, the rack 22 may be given a fine endwise adjustment by means of an adjustment screw 103 mounted in the plate 27 of the bracket 21. After the desired adjustment has been made, the rack is rigidly attached to the carriage 14 by tightening the screws 25 and 29 while the adjustment screw is locked in position on the plate 27 by a locking nut 104.

Variations may be resorted to within the scope of the invention, and portions of the improvements may be used without others.

Having thus described my invention, I claim:

1. In a typewriting machine of the class described, having a frame, the combination with a paper-carriage traveling in said frame, and a series of individually settable and restorable stops carried by said carriage and overhanging the rear side of said frame, of a series of tabulating key-levers of the first order extending from front to rear of said frame and substantially below said carriage, and a self-contained structure detach-

ably supported on the rear of said frame, forming complete co-operative connections between said stops and the key-levers below, said structure including a nest of decimal-stops, a vertical link 5 operatively connected at its lower end to one of said key-levers, a movable member having a finger, said finger overlying the carriage-stops to individually engage and by movement of said member to depress any stop on said carriage, said 10 movable member being arranged to otherwise clear said carriage and stops, operating connections between said movable member and said vertical link, and a vertical slide connected at its lower end to another one of said key-levers 15 and projectable upwardly by said key-lever to engage and restore a set stop on said carriage.

2. In a tabulating mechanism of the class described, the combination with a traveling carriage and a series of stops individually settable, 20 of a stop-setting member including a lever, movable to set said stops, extending substantially parallel to and outside the path of travel of said stops, said lever including a transverse finger overlying said stops and formed to engage said 25 stops individually and move therebetween, and a mounting for said lever, said lever and mounting having a pin-and-slot connection serving as a lever-fulcrum, said mounting also including resilient means to keep said pin and one end of the slot normally in abutment, said slot extending 30 in the direction of carriage travel to thereby permit endwise movement of said lever to prevent interlocking of said finger and carriage by inadvertent release and movement of the carriage during actuation of said lever. 35

3. In combination, a carriage, a stop-setter and a stop-restorer opposed to each other in the same plane to act in opposite directions directly upon a key-set stop, first for setting the stop and 40 then for restoring the stop without affecting adjacent key-set stops while the carriage remains motionless, and means for maintaining said stop-restorer in operative position for camming all of the set stops back to normal positions at a run 45 of the carriage, said stop-restorer having a stop-restoring cam effective during said carriage run, said cam being arranged to avoid restoring said adjacent stops when the stop-restorer is actuated while the carriage is motionless.

4. In a tabulating mechanism, the combination with a letter-feeding carriage and a series of individually-settable stops for said carriage, of a row of key-operated blades, all but one of said 50 blades serving as a complement of denominational stops individually operable to engage a set carriage-stop, said one blade being at the end of said row and adjoining the denominational-stop 55 blade of lowest denomination and serving while the carriage is stationary to engage and selectively restore any set stop that has been tabulated to said denominational-stop blade of lowest denomination, and a key for operating 60 said restorer to restore any presented stop, without moving the carriage, said restorer-blade having at its stop-engaging end a cam effective, when said restorer-blade is in actuated position, to cam and thereby also restore the set stops by a run of the carriage when more than one stop 65 is to be restored.

5. In a tabulating mechanism, the combination with a letter-feeding carriage, a series of individually-settable carriage stops, and key-operated means for setting said stops, of a pair of 70 key-operated blades, one blade serving as a counterstop to engage any set carriage-stop, 75

the other blade serving as a restorer while the carriage is stationary, to selectively engage and restore any set stop on said carriage, said blades being mounted side by side, whereby the counter-stop-blade locates the carriage by means of a set 5 stop, and thereby causes said set stop to be presented individually to said restoring blade, to be restored individually thereby without movement of the carriage, the stop-engaging ends of said blades working in guiding means disposed 10 close to the path of the carriage-arresting ends of the set stops, the restoring blade, like the counterstop-blade, being normally retracted so that its stop-engaging end is drawn sufficiently into said guiding means to clear said stop path. 15

6. In a tabulating mechanism, the combination with a letter-feeding carriage, a series of individually-settable carriage-stops, and key-operated means for setting said stops, of a pair of 20 key-operated blades, one blade serving as a counterstop to engage any set carriage-stop, the other blade serving as a restorer while the carriage is stationary to selectively engage and restore any set stop on said carriage, said blades being mounted side by side, whereby the counter-stop blade locates the carriage by means of a 25 set stop, and thereby causes said set stop to be presented individually to said restoring blade, to be restored individually thereby without movement of the carriage, the stop-engaging ends of said blades working in guiding means disposed 30 close to the path of the carriage-arresting ends of the set stops, the restoring blade, like the counter-stop blade, being normally retracted so that its stop-engaging end is drawn sufficiently into said guiding means to clear said stop path, said restoring blade having at its stop-engaging 35 end a cam effective when said restoring blade is in actuated position to cam and thereby also restore the set stops by a run of the carriage when more than one stop is to be restored, said cam and guiding means being arranged so that in the retracted position of the restoring blade its cam is retracted substantially within said guiding 40 means. 45

7. In a carriage-tabulating mechanism employing a series of key-settable stops on the carriage; a stop-setting, stop-restoring, and counterstop organization including an upstanding housing under the path of said stops, three up- 50 standing, movable and laterally distributed blades mounted within said housing and operatively connectible at their lower ends to key-levers, the middle or second blade being operable as a counterstop for said settable stops, and a stop-setting 55 finger movably supported on said housing, and operating connections extending from said finger to the third blade within said housing, the first blade closely adjoining the counterstop-blade and effective while the carriage is stationary to engage and restore individually any set stop that has been tabulated to the counter-stop-blade.

8. A stop-restorer for moving a slidably mounted carriage-stop from operative position to inoperative position and which is mounted on 65 the frame of a typewriter including a plunger block mounted for reciprocatory movement in a plane transverse to the path of movement of the carriage, said block having two stop-engaging surfaces, one surface being substantially transverse to the path of movement of the restorer 70 and having a width less than that of a letter-space and the other surface being inclined both to the path of movement of the carriage and to the path of movement of the block. 75

9. A stop-restorer for moving a slidably mounted carriage-stop from operative position to inoperative position and which is mounted on the frame of a typewriter including a plunger block mounted for reciprocatory movement in a plane transverse to the path of movement of the carriage, said block having two stop-engaging surfaces, one surface being substantially transverse to the path of movement of the restorer and having a width less than that of a letter-space and the other surface being inclined both to the path of movement of the carriage and to the path of movement of the block, the two surfaces being of such size and form that the transverse surface of the block moves one carriage-stop only.

10. In combination, a stop-restorer for moving a slidably mounted carriage-stop from operative position to inoperative position and which is mounted on the frame of a typewriter, including a plunger block mounted for reciprocatory movement in a plane transverse to the path of movement of the carriage, said block having two stop-engaging surfaces, one surface being substantially transverse to the path of movement of the restorer and having a width less than that of a letter-space and the other surface being inclined both to the path of movement of the carriage and to the path of movement of the block, and means for actuating the restorer.

11. In combination, a stop-restorer for moving a slidably mounted carriage-stop from operative position to inoperative position and which is mounted on the frame of a typewriter, including a plunger block mounted for reciprocatory movement in a plane transverse to the path of movement of the carriage, said block having two stop-engaging surfaces, one surface being substantially transverse to the path of movement of the restorer and having a width less than that of a letter-space and the other surface being inclined both to the path of movement of the carriage and to the path of movement of the block, and key-actuated means for actuating the restorer.

12. A stop-restorer for moving a slidably mounted carriage-stop from operative position to inoperative position and which is mounted on the frame of a typewriter, including a plunger block mounted for reciprocatory movement in a

plane transverse to the path of movement of the carriage, said block having two stop-engaging surfaces, one surface being substantially transverse to the path of movement of the restorer and having a width less than that of a letter-space, whereby the block may move one carriage-stop only to inoperative position, and the other surface being inclined both to the path of movement of the carriage and to the path of movement of the block, whereby a movement of the carriage may restore a plurality of carriage-stops to inoperative position.

13. In a key-operated tabulating mechanism, the combination with a traveling carriage, a row of letter-spaced key-settable stops on said carriage and a nest of tabulating blades operatively mounted within a casing and underlying said row of stops, of a stop-setting device including an arm disposed alongside said row of stops and having a finger extending transversely therefrom to overlie one of said stops, a support on the tabulating-blade casing, presenting a pivotal and endwise movable mounting for said arm, a spring yieldably retaining said arm in normal position, a link articulated to said arm adjacent the free end thereof, and means actuating said link including one of said blades; whereby said finger may move along the path of carriage travel to thereby permit release of said finger to normal position should same become engaged with the side of a stop.

14. In a key-operated tabulating mechanism, the combination with a traveling carriage and a row of upstanding key-settable stops on said carriage, of a nest of upstanding blades operatively mounted beneath said row of stops, a stop-setting device including an arm disposed alongside of said row of stops and having a finger extending transversely therefrom to overlie a stop, all but the two outermost said blades presenting a complement of counter-stops operable individually to engage a set carriage-stop, one of the outer blades serving to restore a set stop and underlying said finger, the other outer blade presenting an actuator for said stop-setting arm, said actuator including a lever articulated to the latter said outer blade and said arm.

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