G. A. SEIB.

TYPE WRITING MACHINE.

APPLICATION FILED JAN. 6, 1910.

988,147. Patented Mar. 28, 1911.

4 SHEETS—SHEET 1.

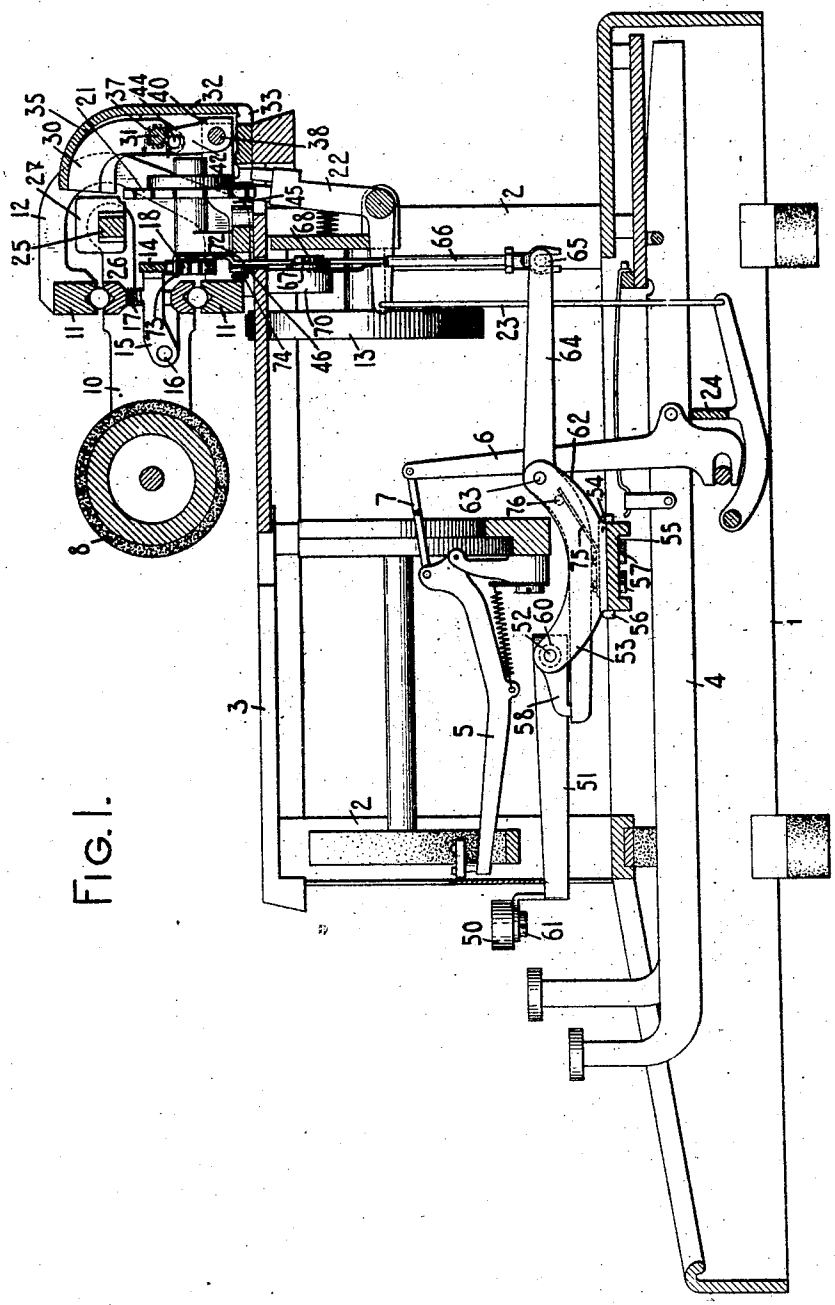


FIG. 1.

WITNESSES:

J. B. Reeves

R. H. Strother.

INVENTOR:

George A. Seib

By James Tillett

HIS ATTORNEY

G. A. SEIB.

TYPE WRITING MACHINE.

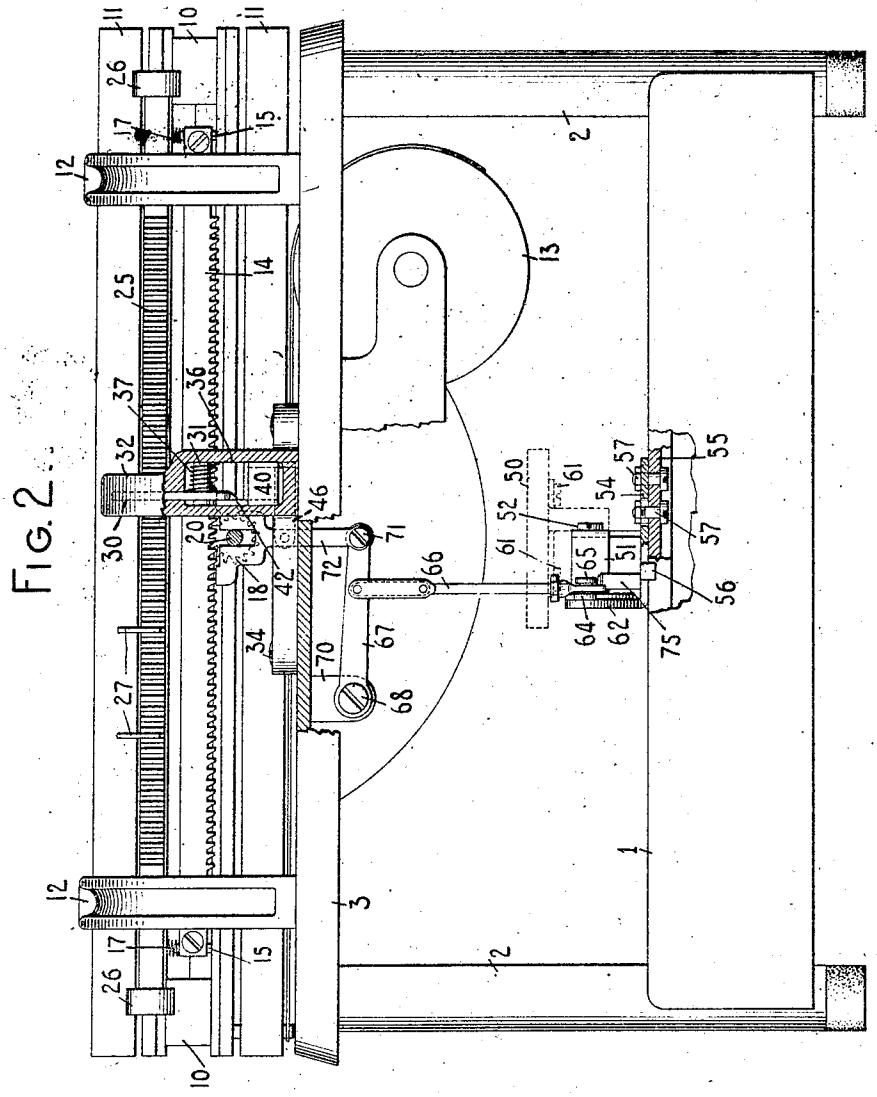
APPLICATION FILED JAN. 6, 1910.

988,147.

Patented Mar. 28, 1911.

4 SHEETS—SHEET 2.

FIG. 2.



WITNESSES:

J. B. Nevers

R. H. Strother.

INVENTOR:

George A. Seib

By James Tilden

HIS ATTORNEY

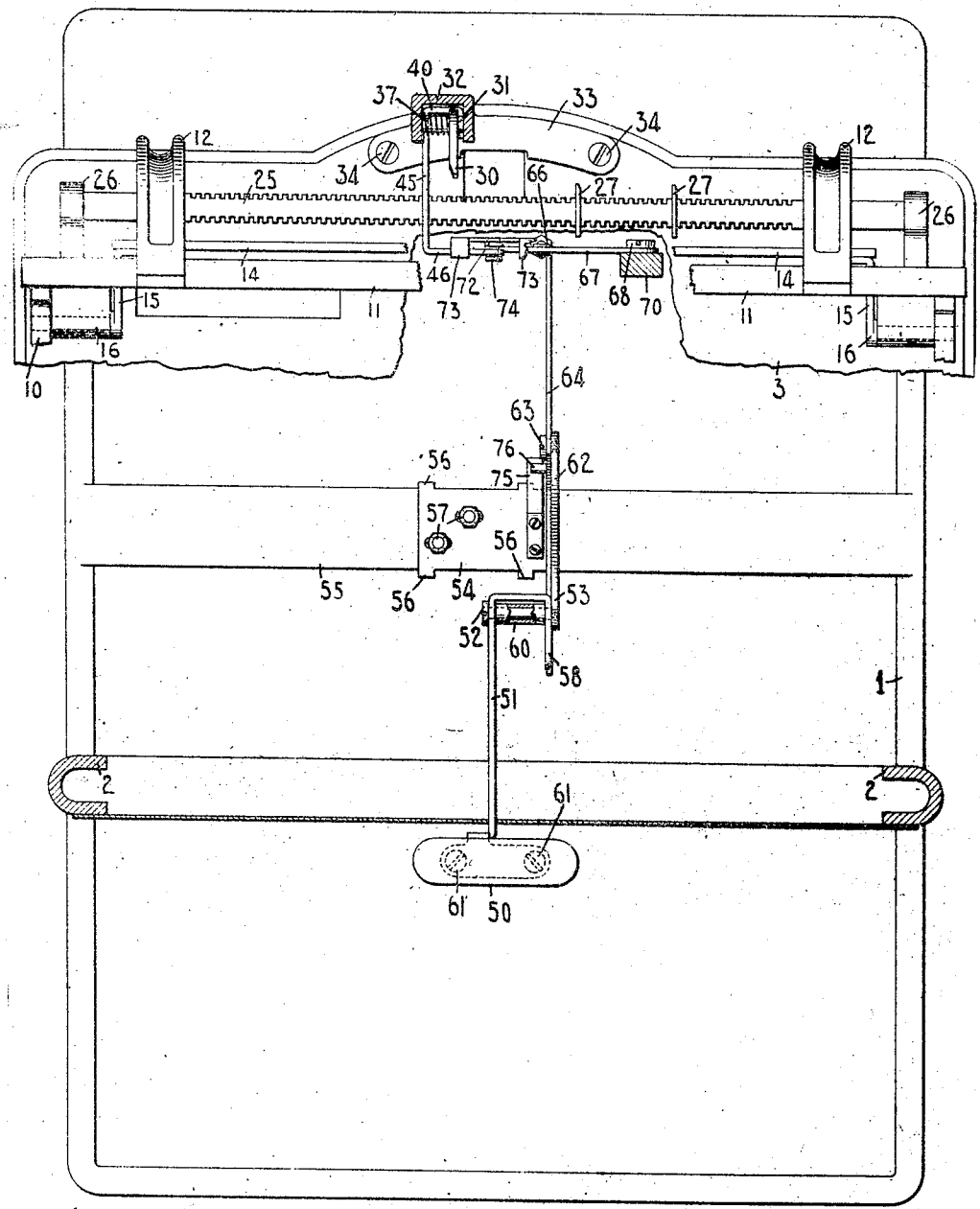
G. A. SEIB.

TYPE WRITING MACHINE.

APPLICATION FILED JAN. 6, 1910.

988,147. **Patented Mar. 28, 1911.**

4 SHEETS—SHEET 3.



WITNESSES:

J. B. Reeves

R. H. Strother

FIG. 3.

INVENTOR:

George A. Seib

By James Field

HIS ATTORNEY

G. A. SEIB.

TYPE WRITING MACHINE.

APPLICATION FILED JAN. 6, 1910.

988,147. Patented Mar. 28, 1911.

4 SHEETS—SHEET 4.

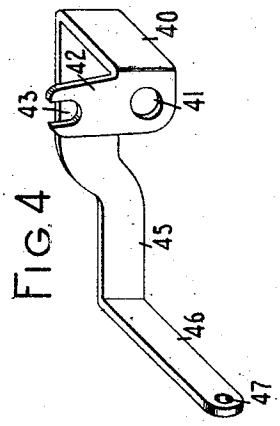


FIG. 4

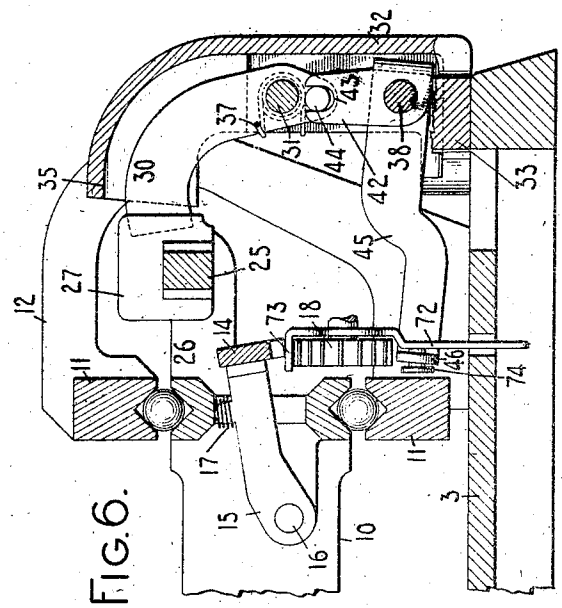


FIG. 6.

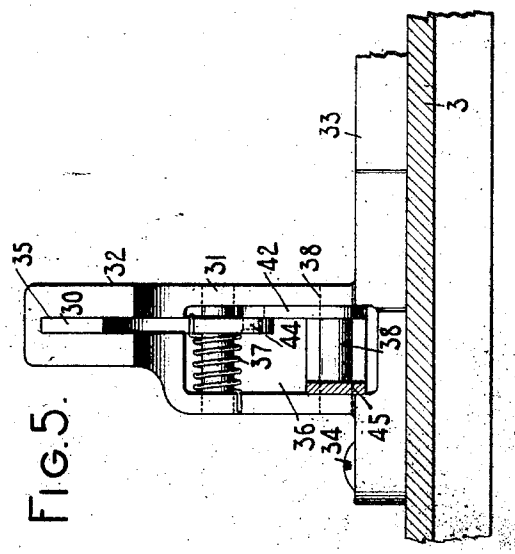


FIG. 5.

WITNESSES:

J. B. Reeves

R. H. Strother.

INVENTOR:

George A. Seib

By Jacob Seibel

HIS ATTORNEY

UNITED STATES PATENT OFFICE.

GEORGE A. SEIB, OF ILION, NEW YORK, ASSIGNOR TO THE MONARCH TYPEWRITER COMPANY, OF SYRACUSE, NEW YORK, A CORPORATION OF NEW YORK.

TYPE-WRITING MACHINE.

988,147. Specification of Letters Patent. Patented Mar. 28, 1911.

Application filed January 6, 1910. Serial No. 536,749.

To all whom it may concern:

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

My invention relates to typewriting machines and more particularly to tabulator mechanism.

My invention has for its principal object to produce a simple and efficient tabulator in the nature of an attachment to an ordinary typewriting machine.

My tabulator is designed to be attached to those machines where a denominational tabulator is not required.

My invention consists in certain features of construction and combinations and arrangements of parts, all of which will be fully set forth herein and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a front to rear vertical sectional view of a typewriter having my invention embodied therein. Fig. 2 is a rear elevation of the same, parts being shown broken away or in section. Fig. 3 is a top plan view of the same with parts broken away and parts in section and with all of the type-writer mechanism omitted except the tabulator and part of the carriage. Fig. 4 is an isometric view of a certain lever or rocking frame. Fig. 5 is a front view of the key-operated stop and some of the associated parts, the rocking frame shown in Fig. 4 being here shown partly in section. Fig. 6 is a fragmentary view in section like part of Fig. 1, but showing the parts in operated position. Figs. 1, 2 and 3 are on a reduced scale and Figs. 4, 5 and 6 are on an enlarged scale.

My invention is applicable to typewriting machines generally, but it is here shown applied to a Monarch typewriter.

The embodiment of my invention shown in the drawing consists of a Monarch No. 3 typewriter with a single tabulator key and key operated stop substituted for the denominational stop mechanism of that machine.

The Monarch machine comprises a base 1, from which rise posts 2 that support a top plate 3. Printing key levers 4 operate front strike type bars 5 through upright sub-levers 6 and links 7. The platen 8 is mounted in a carriage 10 which is supported by stationary rails 11 mounted on standards 12 rising from the top plate 3. The carriage is drawn across the machine by a spring drum 13 and its motion is controlled by mechanism comprising a rack 14 which is mounted on arms 15 each pivoted at 16 to the carriage 10. Springs 17 press the rack 14 into engagement with a pinion 18 which is mounted on a shaft 20, which near its rear end carries an escapement wheel 21 which is engaged by feed dogs mounted on a dog rocker 22 which is operated by a link 23 connected with a universal bar 24.

The standards 12 are arched toward the back of the machine as shown to admit of the travel therethrough of a column stop bar 25 which is mounted on the carriage 10 by means of arms 26. This stop bar is of approximately square cross section and has the usual notches cut in two opposite faces thereof for the reception of bifurcated column stops 27 which are mounted on the bar and are adjustable along it in the usual manner.

The parts thus far described are or may be of the ordinary Monarch No. 3 construction and, as far as my invention is concerned, they may be of any other suitable construction.

My tabulator stop mechanism comprises a key operated stop 30 which is in the nature of a lever pivoted on a pin 31 that extends transversely of a frame or bracket 32 which is attached to and is detachable from the top plate 3. Said bracket comprises a base-part 33 which lies flat on the rear part of the top plate 3, to which it is secured by screws 34 which may be threaded into the same holes in the top plate that would be used for the frame of the denominational stops if a denominational tabulator were employed; and, in case the column stop bar 25 is graduated, it may be preferable to locate my single key-operated stop 30 as shown in the drawing, that is to say, in the position that would be occupied by the denominational stop corresponding to the decimal point. The stop lever 30 at its upper part plays in a guide slot 35, (Fig. 6) in the bracket 32, said slot being only wide enough to prevent binding of the stop. The lower part of said bracket is formed with a wider opening 36 and it is through this

opening that the pin 31 extends. The stop lever 30 is returned to normal position by means of a spring 37 coiled about the pin 31 within the opening 36. Another pin 38 secured in the bracket 32, has pivoted thereto a lever or rocking frame 40, the rear part of which is bent into the form of a yoke-frame having two holes 41 through which the pin 38 passes. One arm 42 of the yoke-frame extends upward and has at its upper end a notch or open slot 43 in which lies a pin 44 projecting from the side of the stop lever 30 below its pivot 31. The rocking frame 40 has its left-hand arm 45 extending approximately horizontally to the front of the machine at the left of the escapement wheel 21. This arm 45 has its forward end bent toward the right, forming a transverse arm 46 (Fig. 4) having a hole 47 therein, said hole standing in front of the escapement wheel 21. The part of the stop mechanism thus far described can be removed from the machine by removing the two screws 34 and another screw that enters the hole 47.

My tabulator is operated by means of a single key 50 which is here shown in the keyboard of a machine just back of the last row of printing keys and at the middle of the machine. The key 50 is mounted on the forward end of a depressible key lever 51 which at its rear end is pivoted on a screw 52 threaded into an arm 53 of a bracket 54 which is secured to a cross bar 55 forming part of the base 1 of the main frame of the machine. The bracket 54 lies on top of the cross bar 55 and has ears 56 bent down and embracing the forward and rear edges of said cross bar, to which bar the bracket is secured by bolts 57.

The key lever 51 is of U-shape at its rear end and comprises a forwardly extending lever arm 58. The two branches 51 and 58 of this lever are connected by a sleeve or tube 60 through which the screw 52 passes, thus giving the lever a wide bearing. The entire key lever 51 is stamped up out of a single piece of sheet metal cut and bent in the form shown and having the key 50 secured thereto by screws 61. The bracket 54 has a rearwardly directed arm 62 on which, at 63, is pivoted a lever 64 of the first order. The forward end of this lever 64 lies beneath the lever arm 58 of the key lever 51 and the rear end of said lever has a headed pin 65 projecting therefrom and having pivoted thereon the lower end of a link 66, the upper end of which is pivoted to a lever 67 of the third order. Said lever 67 is pivoted at 68 to a bracket 70 depending from the top plate of the machine and at its free end said lever carries a pivot screw 71 to which is pivoted the stem of a rack lifter 72 which passes up through a suitable opening in the top plate of the machine and at its upper end is bifurcated as shown in Fig. 2 to straddle the shaft 20. Each branch of this lifter has its upper end bent horizontally forward to form a shoe 73 that lies beneath the rack 14. A shouldered and headed screw 74, threaded into the rack lifter 72 beneath the pinion 18, passes loosely through the hole 47 in the rocking frame 40. The construction is such that when the key 50 is depressed, the forward end of the lever 64 is depressed and the rear end of said lever is elevated, which, through the link 66 and lever 67, raises the rack lifter to the position shown in Fig. 6, thus lifting the feed rack 14 out of engagement with the pinion 18 and releasing the carriage from the escapement mechanism. The upward motion of the lifter 72 elevates the forward arm of the frame 40 and rocks the stop lever 30 to the position shown in Fig. 6 where the blade of the stop is in the path of the column stops 27.

In order to assist in restoring the key 50 and the associated parts to normal position, a plate spring 75 is mounted on the bracket 54 and said spring presses upward and forward on a pin 76 projecting from the lever 64.

It will be perceived that the key-lever system consists essentially of a compound lever 51, 64, the lever 51 being in effect a lever of the second order and the lever 64 being a lever of the first order. It will also be perceived that this key lever system can be removed from the machine as an entirety by removing the nuts from the bolts 57.

It will be seen that my tabulator is of a sort that can be easily and quickly placed on a machine where a more expensive denominational tabulator is not required, and that a denominational tabulator can be easily substituted for it at any time.

It will also be perceived that the mechanism is inexpensive and simple, but that it is convenient and efficient.

Various changes can be made in the details of construction and arrangement without departing from my invention.

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

1. In a typewriting machine and in tabulator mechanism, the combination with the top plate and the paper carriage, of a bracket detachably mounted on said top plate, a pivoted stop and an operating lever therefor mounted in said bracket, a tabulator key, connections from said key to said operating lever, and a coöperating stop adjustably mounted on said carriage.

2. In a typewriting machine and in tabulator mechanism, the combination of a carriage, a column stop bar mounted on said carriage, a feed rack mounted on said carriage, a feed pinion meshing with said rack, escapement mechanism controlling said pin-

ion, a bracket detachably mounted on the top plate of the machine, a stop-lever and an operating lever therefor pivoted in said bracket, a tabulator key, a rack-lifter operated by said key to lift said rack out of engagement with said pinion, and means whereby said rack-lifter operates said operating lever.

3. In a typewriting machine and in tabulator mechanism, the combination with a carriage and coöperating tabulator stops, of a tabulator key-action comprising a support detachably mounted on the framework of the machine and a compound lever mounted in said support, and said compound lever including a key lever of the second order and another lever of the first order operated by said key lever, and operating connections from said other lever to one of said coöperating stops.

4. In a typewriting machine and in tabulator mechanism, the combination with a carriage and coöperating tabulator stops, of a tabulator key action comprising a detachable support and a compound lever mounted thereon, and including a key lever of the second order and another lever of the first order operated by said key lever, and operating connections from said other lever to one of said coöperating stops, said detachable support being mounted on the base of the machine, and said key lever carrying a depressible key in the keyboard of the machine.

5. In a typewriting machine and in tabulator mechanism, the combination of a carriage, escapement mechanism including an escapement wheel, a stop carried by said carriage, a coöperating stop mounted on the stationary framework back of said escapement wheel, an operating lever for said coöperating stop, said lever having an arm bent around said escapement wheel, a feed rack, a rack-lifter in front of said escapement wheel and operatively connected with said lever arm, and a tabulator key and connections for operating said rack lifter.

6. In a typewriting machine, the combination of a paper carriage, a plurality of column stops thereon, a coöperating lever stop therefor, a separate lever connected to said lever stop to actuate it, an actuating connection connected to said separate lever, and a compound lever arranged fore and aft of the machine, one of the levers of the compound lever being of the first order and connected to said actuating connection and the other of said levers being a key lever of the second order and operatively connected to the forward arm of its associated lever of the first order.

7. In a typewriting machine, the combination of a paper carriage, a plurality of column stops thereon, an escapement mechanism including a feed rack and a pinion, a coöperating lever stop adapted to coöperate with said column stops, a separate lever connected to said lever stop to actuate it, a feed rack lifter, connections between said rack lifter and said separate lever, and key actuated means for operating said rack lifter.

8. In a typewriting machine, the combination of a paper carriage, a plurality of column stops thereon, an escapement mechanism including a feed rack and a pinion, a coöperating lever stop adapted to coöperate with said column stops, a separate lever connected to said lever stop to actuate it, a feed rack lifter, connections between said rack lifter and said separate lever, and means for actuating said rack lifter comprising a lever of the first order arranged longitudinally of the machine, and a lever of the second order also arranged longitudinally thereof and engaging said lever of the first order and provided at its forward end with a finger key.

Signed at Ilion, in the county of Herkimer, and State of New York this 3rd day of January A. D. 1910.

GEORGE A. SEIB.

Witnesses:
LIDA THORNELEY,
BESSIE JOCHMUS.