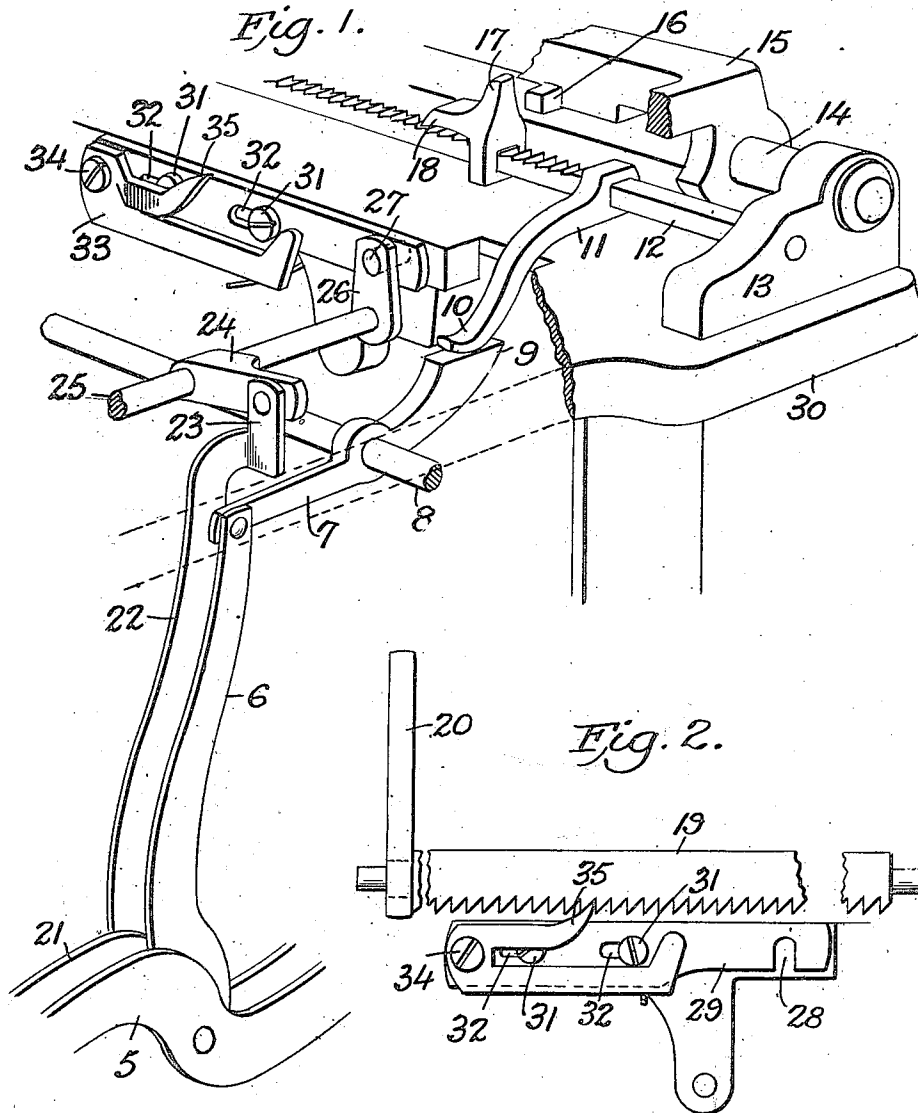


G. A. SMITH.
 BACK SPACING DEVICE FOR TYPE WRITERS.
 APPLICATION FILED DEC. 17, 1906.

961,546.

Patented June 14, 1910.

2 SHEETS—SHEET 1.



WITNESSES

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H. B. Schroeder

INVENTOR
 George A. Smith
 BY
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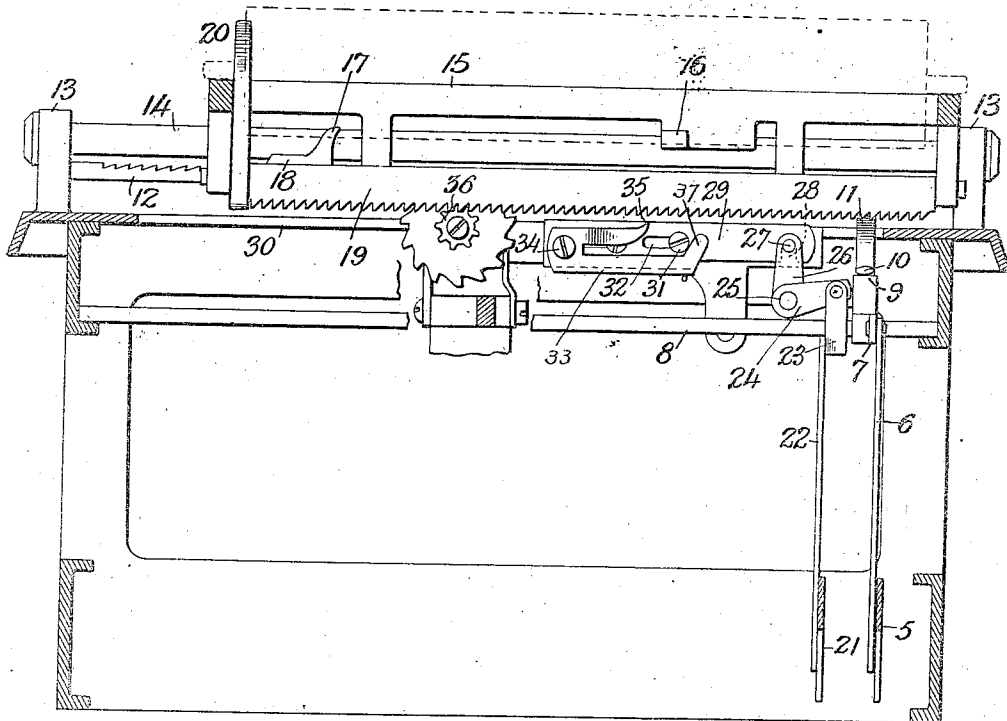
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Fig. 3.



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UNITED STATES PATENT OFFICE.

GEORGE A. SMITH, OF NEW YORK, N. Y., ASSIGNOR OF SIXTEEN ONE-HUNDRED-AND-FOURTHS TO JAMES W. HENNESSEY, OF RICHMOND, NEW YORK, FORTY-SIX ONE-HUNDRED-AND-FOURTHS TO ARTHUR LETTS, OF LOS ANGELES, CALIFORNIA, AND TWENTY-ONE ONE-HUNDRED-AND-FOURTHS TO FREDERICK H. WARD, OF BROOKLYN, NEW YORK.

BACK-SPACING DEVICE FOR TYPE-WRITERS.

961,546.

Specification of Letters Patent. Patented June 14, 1910.

Application filed December 17, 1906. Serial No. 348,294.

To all whom it may concern:

Be it known that I, GEORGE A. SMITH, a citizen of the United States of America, and a resident of the city, county, and State of New York, have invented certain new and useful Improvements in Back-Spacing Devices for Type-Writers, of which the following is a specification.

My invention relates to typewriters and more particularly to back spacing devices or mechanism therefor. These and other objects and details of the invention are more fully described in the following specification and pointed out in the appended claim.

In the drawings forming a part of this application and accompanying same, like reference characters are used to designate the same parts in the several figures.

Figure 1 is a perspective view of one end of a typewriter, partly broken away to more clearly illustrate the invention. Fig. 2 is a face view of a detail of Fig. 1. Fig. 3 is a vertical section illustrating those parts of the machine in which are embodied the present invention in front elevation.

In the improvements illustrated and which are now about to be described, certain mechanism is employed to release the carriage and have it checked at a certain point which will uniformly position certain numerals or letters of the lines beneath each other, and in accomplishing this end it is further necessary that means be provided to again set forward the carriage with its platen so many spaces as there may be digits or letters in the line. To accomplish this object I provide a keybar 5 of ordinary construction and mounted in the base of the machine in any desired manner, the mounting of this key lever not being shown but only a fragment of the same is illustrated. To the lever 5 is pivoted a link 6 which is attached at its upper end to a lever 7 mounted on one of the cross-bars 8 of the machine or otherwise fulcrumed to the frame. The opposite end of this lever 7 is provided with a flat-face 9 upon which plays the toe 10 of an arm 11 which is secured to the rack-bar 12, loosely journaled in the standards 13 which standards also carry the way-rod 14 for the carriage. The carriage 15 is slidably mounted on this rod 14 and is provided

with an off-set 16, which normally is free to pass an adjustable stop 17 which is adapted to be placed at any point along the rack-bar 12 and whose end 18 is held in the teeth of the rack-bar when locked.

By depressing the key-bar 5 the lever 7 by means of the link 6 is thrown upward at its rear end thus elevating the end of arm 11 and tipping the stop 17 backward, when it is thrown in the path of the projection 16. At the same time the rack-bar 19 of the carriage feed is released from the pinion 36 of the escapement mechanism by means of the lever 20, shown in Figs. 2 and 3, and the propelling spring of the carriage then moves the same forward until it is arrested by the projection 16 coming in contact with the stop 17. The lever 20 may be operated by hand or through suitable mechanism as may be preferred. The carriage is now brought to a position which permits the printing of the last numerals of the predetermined column and it now becomes necessary to return the carriage with its platen to the position necessary for the printing of the first numeral of the line of figures, and this is accomplished by means of mechanism operated by the key-bar 21 which is also suitably pivoted in the frame of the machine and carries a pivoted link 22 having at its upper end an angular off-set 23, pivoted to an outer end of an arm 24 secured to a shaft 25 which is journaled in the frame of the machine. This shaft 25 also carries arm 26 having at its upper end the stud 27 adapted to engage the slot 28, shown in Fig. 2, in one end of a bar 29 secured to one side of the opening in the top plate 30 of the machine by means of set screws 31, which pass through slots 32 in the bar 29 and permit the same to move longitudinally. At the end of the bar 29 opposite to the slot 28 is pivoted a pawl 35 by means of a pivot 34, the point of the pawl 35 being adapted to play in the teeth of the space-bar 19.

Connected with the pawl 35 is an arm 33 provided at its free end with a cam 37 so positioned as to engage with the head of one of the screws 31 when the slide bar 29 is in its position of rest. This engagement of the cam with the head of the screw operates to depress the pawl 35 so that it will not be

in position to engage with the rack 19. Whenever the key lever 21 is depressed and the bar 29 thereby moved the pawl and arm 33 will be at the same time moved so as to
 5 carry the cam 37 away from the screw head 31 whereupon the pawl will immediately come into position to engage with the rack 19. This space or rack-bar, however, is only thrown into engagement with the pawl
 10 35 when it is rocked on its pivots in the carriage so as to throw it out of engagement with the escapement pinion, the release of the carriage being immediately after the rack-bar leaves the pinion, but before it
 15 engages the pawl 35, the carriage then being in a position to receive the last letter of the group of numerals to be tabulated. The key lever 21 is now depressed as many times as there are numerals in this group
 20 of figures, and the pawl 35 with each depression moves the carriage backward toward its starting point, when it is then left in the position to receive the first character of the group of letters or numerals.
 25 It will be seen that the connections between the lever 7 and the arm 11 are not permanent, although they are so related that the lever properly actuates the arm to accomplish its function, and the arm is free
 30 to be lifted temporarily from its position on the face 9 of the lever and may readily return to the said position without interfering with the operative connection. Likewise the connection between the arm 26 and
 35 the slide 29 may be temporarily destroyed as when the top plate of the machine is removed, but when it is desired to return the plate the stud 27 readily fits within the slot

28 and the parts are again connected for operation. These features are of decided
 40 importance in a typewriter as it is often necessary to remove the top plate of a machine for cleaning or repairing, and my improvement permits all this removal without requiring the disconnection of positively
 45 united parts, but they are readily relieved of their cooperating functions which are instantly restored when the top plate is returned to its position on the frame.

It is obvious that certain modifications
 50 may be adopted in carrying out the objects of this invention without departing from the essential features as above described.

Having thus described my invention what I claim as new and desire to secure by Letters-Patent, is:—
 55

In a typewriter, the combination with a sliding carriage having a rack bar movable relative to the carriage and escapement mechanism cooperating with the rack bar,
 60 of back-spacing means comprising a pawl adapted to engage with the said rack bar when it is moved to disengage the escapement mechanism, means for operating the pawl and means for moving the rack bar
 65 from a position to be engaged by the escapement mechanism to one where it may be engaged by the pawl, substantially as and for the purposes set forth.

Signed at New York city this 13th day of
 70 December 1906.

GEORGE A. SMITH.

Witnesses:

JOHN H. HAZELTON,
 C. B. SCHROEDER.