

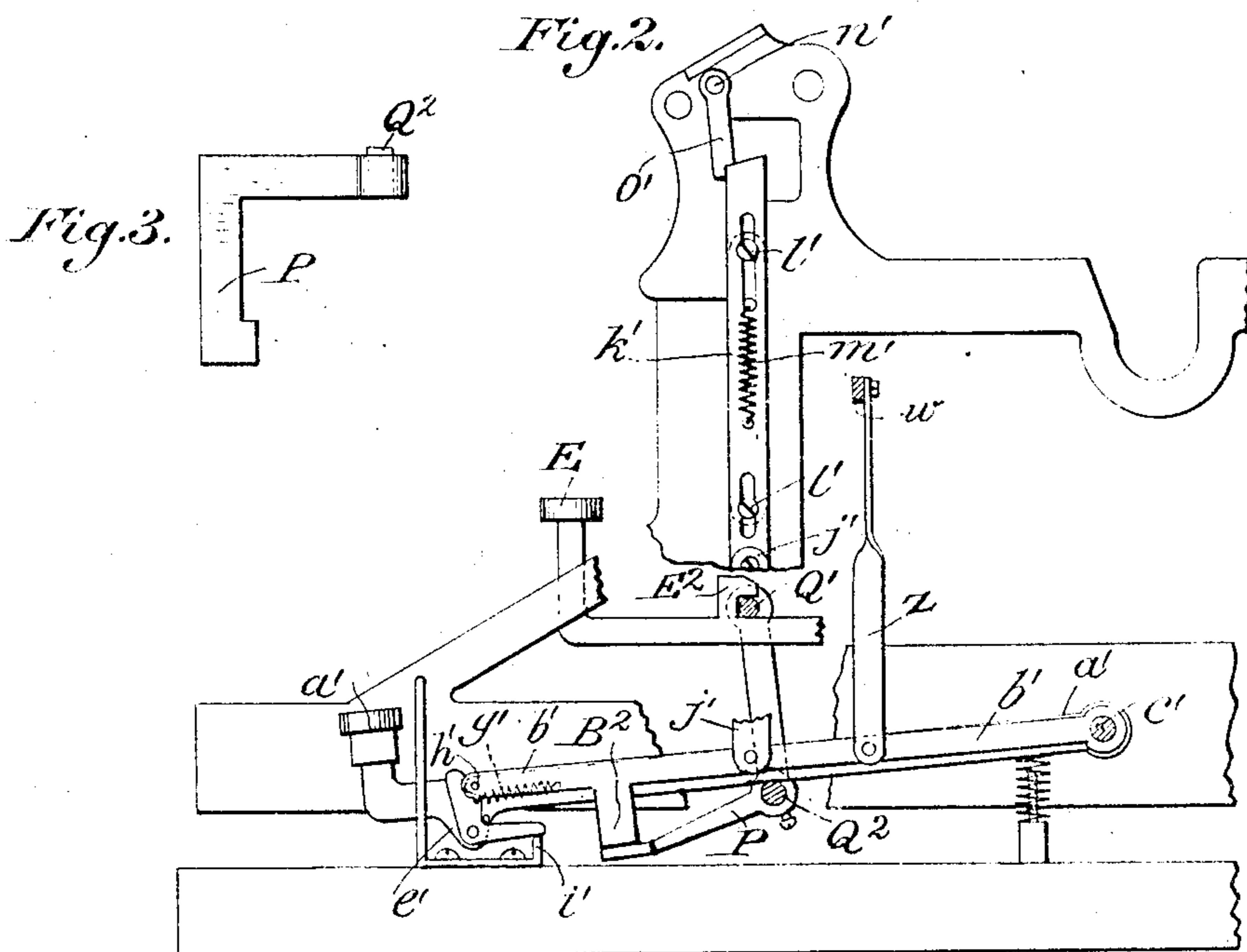
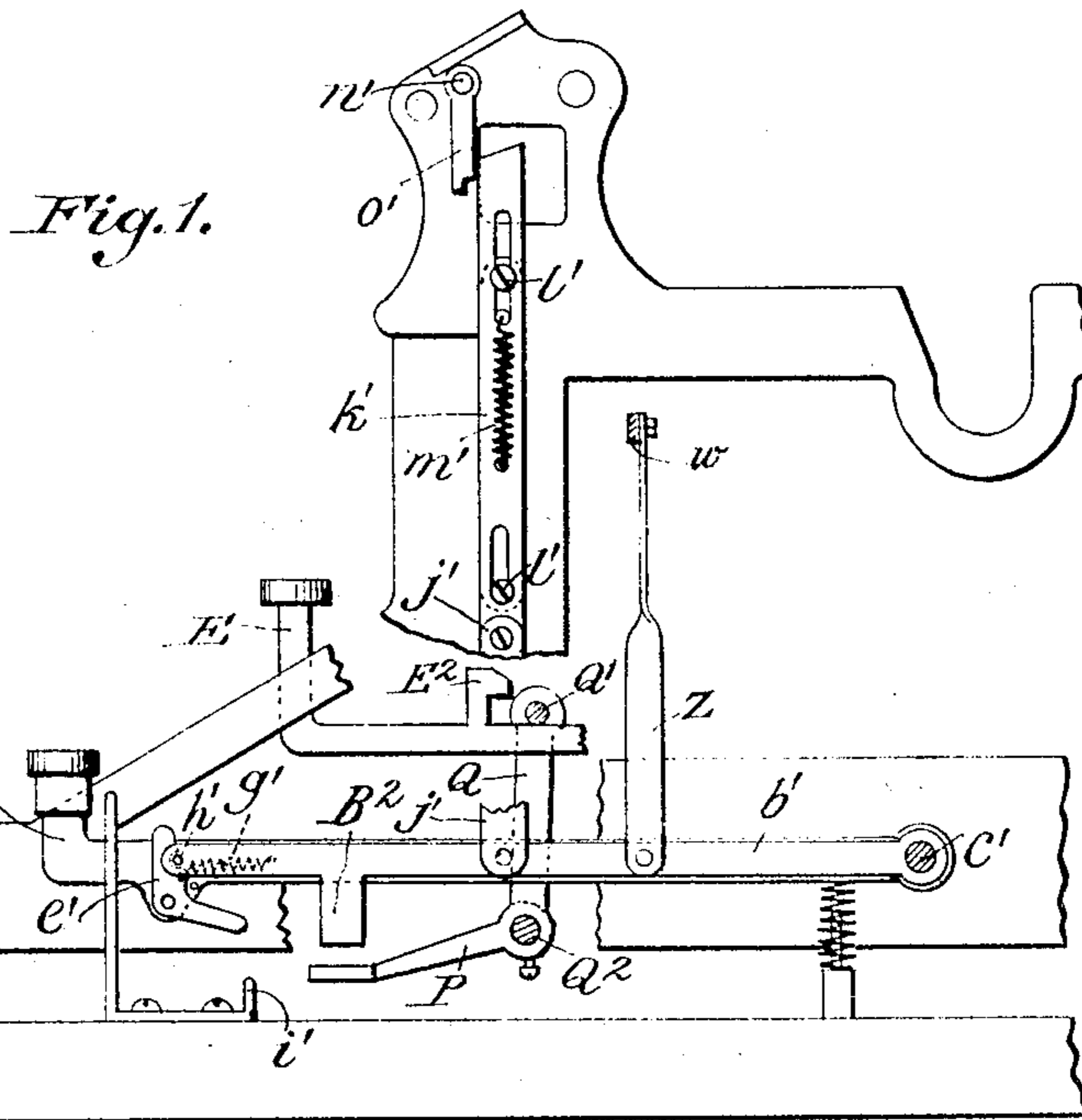
N. L. ANDERSON.
TYPE WRITER.

APPLICATION FILED FEB. 23, 1906.

906,600.

Patented Dec. 15, 1908.

3 SHEETS—SHEET 1.



Witnesses:

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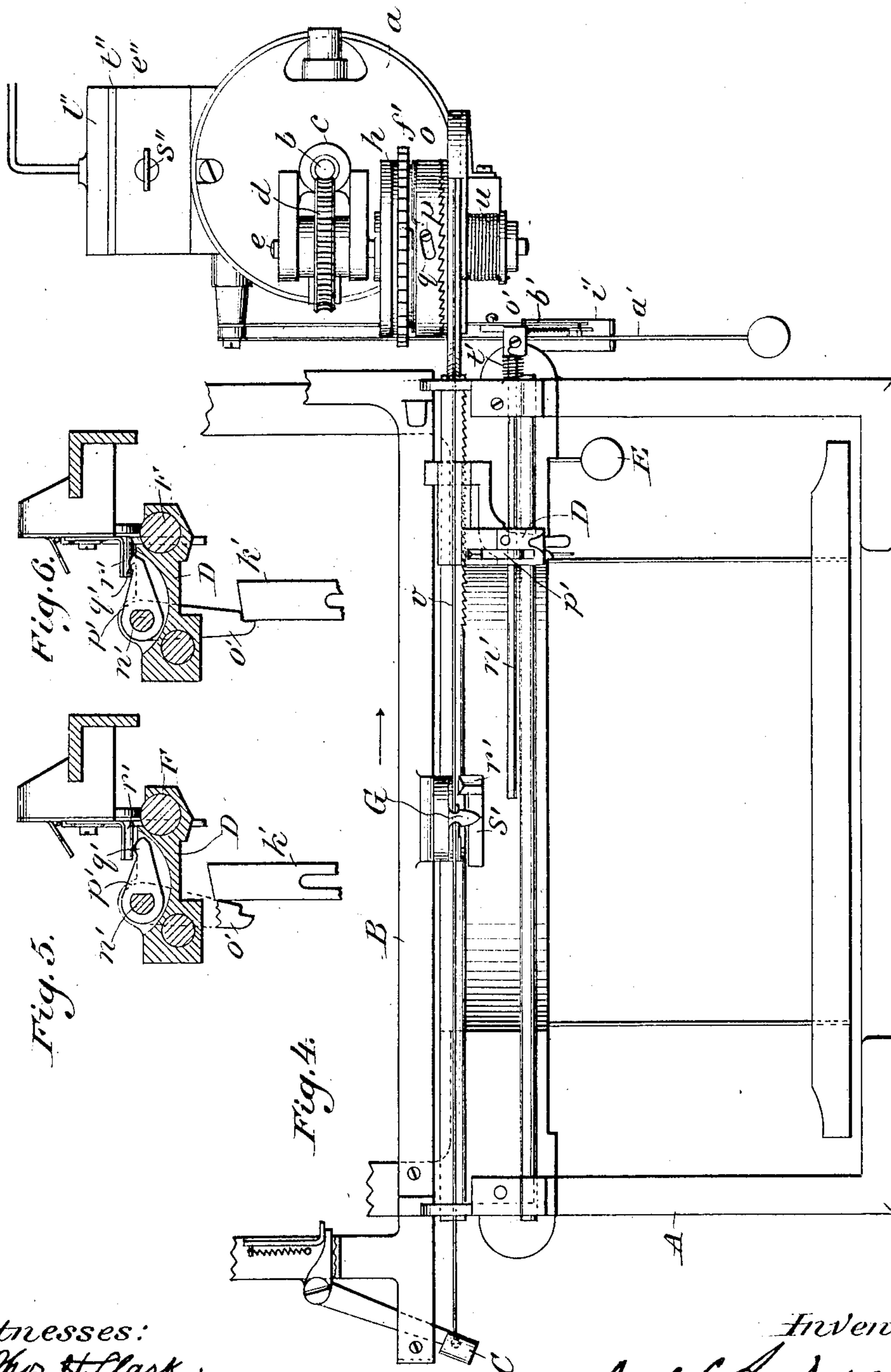
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906,600.



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3 SHEETS—SHEET 3.

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TYPE-WRITER.

No. 906,600.

Specification of Letters Patent.

Patented Dec. 15, 1908.

Application filed February 23, 1906. Serial No. 302,629.

To all whom it may concern:

Be it known that I, NEAL LARKIN ANDERSON, a citizen of the United States, residing at Montgomery, Montgomery county, State of Alabama, have invented certain new and useful Improvements in Type-Writers; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to typewriters, and more particularly to typewriters having mechanism for effecting the return of the paper carriage to the beginning of a new line of print.

In my former patent, No. 788012, issued April 12th, 1905, I have fully described and claimed one type of such mechanism for returning the carriage and simultaneously spacing the platen. One of the special advantages claimed for the mechanical return of the paper carriage, is the increased speed of the operator, who is relieved from the interruption of his work by the necessity of returning the carriage by hand, and thus is practically writing one continuous line. In the actual use of the special form of return carriage device described and claimed in my patent referred to above, this claim for additional convenience and utility of the mechanical carriage return has been fully justified, as operators using this machine in a little while become so accustomed to the use of the return key that they discount the return of the carriage altogether, regarding the return key as merely an additional letter to be struck. Very rapid operators, however, after becoming accustomed to the new method of returning the carriage seem to overlook the fact that the carriage must be returned to the beginning of the new line of print before they again continue writing, and without giving the mechanism time to effect such return, these operators attempt to go on with their work, consequently, the newly spaced line is marred by a letter printed during such return. While this is an exceptionally fine illustration of the relief afforded to the operator by the mechanical return of the carriage, it is an annoying thing to a rapid operator to have a new line thus marred, and the object of the present invention is to provide mechanical means for automatically locking the key levers of the typewriter during the return of the carriage,

and automatically unlocking said levers when the carriage has reached the beginning of the new line of print. Thus the most rapid operator will be relieved from any anxiety concerning the marring of his work, as it will not be possible for him to strike a letter during the return of the carriage. As a necessity for some such key lever lock obtains in all forms of devices for mechanical return of the paper carriage, it will be understood that the present invention is not to be limited by its application to the special form of return carriage mechanism described herewith, but embraces all means whereby in typewriters whose carriage is mechanically returned to the beginning of the line of print, the key levers are locked by the operation of the return key which brings into play the mechanism for returning the carriage to the beginning of a new line and said key levers are unlocked upon the release of said return key at the completion of the return movement of the carriage.

Referring to the drawings: Figure 1 is a fragmentary side elevation of a standard Underwood typewriter, showing the carriage return key and its appurtenant mechanism, as described in my Patent No. 788012, dated April 25, 1905. The auxiliary spring motor and electric motor for the return of the paper carriage are not shown in detail, as they are not essential to an understanding of the operation of the present mechanism. A portion of the side elevation has been removed in order to show the special means for locking and unlocking the key levers. Fig. 2 is a view corresponding to Fig. 1, showing return key and its appurtenant mechanism in depressed, or operative position and the key levers locked so that they cannot be struck by the operator. Fig. 3 is a detail horizontal section of the means by which the key lever locking mechanism is operatively connected with the return carriage key and motor stop mechanism. Fig. 4 is a plan view of the forward part of the typewriter, illustrating the electric motor used to maintain energy in the return, spring-drum, and accompanying parts for effecting the return of the carriage, and further illustrating the relation of the carriage-return mechanism and the platen-spacing means, certain portions of the typewriter mechanism being omitted for the sake of clearness. Fig. 5 is a detail view, in transverse section,

showing the means for locking and releasing the return-key. Fig. 6 is a corresponding view showing said means in locked position. Fig. 7 is a side elevation showing the spring-motor and the electric motor in position. Fig. 8 is a fragmentary sectional rear elevation showing the relation of the motors to the machine-frame.

Referring to the drawings, a' , Fig. 1, is the return carriage key; b' is a lever cooperating therewith, and connected by a rod, z , with a stop lever w by means of which the spring for returning the paper carriage is thrown into and out of operative connection with the paper carriage, as described fully in my former patent referred to above.

k'' and o' exhibit portions of the mechanism by which the lever b' is held down in the position shown in Fig. 2 during the return of the paper carriage, and automatically released when the carriage has been returned to the beginning of a new line.

Mounted upon the machine-frame, adjacent the right-hand end thereof, is a small electric motor a , having a vertical shaft b , upon the end of which is secured a worm-gear c , which meshes with and drives a worm-wheel d , which is secured to a shaft e , journaled in suitable bracket-bearings on the motor-casing. Loosely mounted upon the shaft e is a spring-drum f , having an annular rim f' , provided with ratchet-teeth. The actuating-spring of said drum is connected at one end to the shaft e and at the other to the interior of the drum f , as is shown in my former patent No. 788,012, dated April 12, 1905. Loosely journaled on the shaft e adjacent to the drum f is a band-wheel to which is connected one end of a flexible traction band or strip, the other end of which is secured to the platen-spacing lever C.

Mounted upon the outer periphery of the drum f is an annular clutch-ring o , provided with a series of diagonal slots p , which are engaged by screws or studs q , set in the periphery of the drum f . The edge of said clutch-ring is provided with teeth or serrations t , adapted to be brought into mesh with a similar set of teeth or serrations s on the adjacent face of the band-wheel r . A spiral spring u , secured at one end to the band-wheel and at the other to a stationary part of the motor-frame, serves to rotate said band-wheel in a direction to take up the slack of the traction-band when the carriage is returned or moved backward by hand.

Pivoted on the upper end of the casing of the electric motor a is a stop-lever w , having thereon a pawl adapted to engage the ratchet-teeth f' on the spring drum f . To the forward end of the lever w is connected a rod z , which in turn has a pivotal connection with the lever b' , mounted upon a pivot-pin c' on the side of the motor-frame.

Pivoted on the pin c' aforesaid is a key or key-lever a' midway the length of which is pivoted an angular latch e' , having a notch or recess in its upper end adapted to normally engage a laterally-projecting pin h' on the lever b' , so that the key-lever a' and the lever b' are normally connected by and caused to move together through the interposed latch e' . A spring g' , connecting said latch with the key-lever a' , holds said latch in position to engage the pin h' , and a detent i' on the base of the machine lies in the path of the horizontal arm of the latch e' and rocks said latch against the tension of spring g' , so as to disengage said latch from the pin h' and permit the key a' and the lever b' to move independently of each other. The detent i' is formed by the upturned end of an L-shaped guide-bracket, the forward end of which is slotted to provide a guide for the key-lever a' . Pivoted on the said pin is a key or key-lever a' adapted to engage the lever b' so that the key-lever a' and the lever b' are normally connected and caused to move together.

Mounted upon the machine-frame above the levers a' and b' is a sliding bar k' , which is connected to and guided upon the standard of the machine-frame by screws or studs l' , engaging suitable slots in said bar. A spring m' , connected at one end to the machine-frame and at the other end to said bar, tends to lift said bar and the lever b' , connected thereto by a link j' , so that they normally occupy the relative positions illustrated in Fig. 2. Journaled in the upper forward portion of the machine-frame, and substantially parallel to the carriage-way F, is a horizontal rod n' , upon the outer end of which is rigidly secured a depending pawl o' , having a notch in its lower end adapted to receive the upper end of the bar k' when said bar is pulled down to the position shown in Fig. 4. A short helical spring t' , secured at one end to the machine-frame and at the other end to the rod n' serves to rock said rod, so that the depending pawl o' on the end thereof is normally in position to engage the bar k' , as hereinbefore described. The rod n' also passes through the body of the adjustable margin-stop D, which in this machine is adapted to be moved backward and forward upon its supporting-rod, so as to stop the carriage in its return movement at any predetermined margin-defining point, as will be understood by those familiar with this machine. Rigidly connected to the rod n' is a generally horizontal finger or stop p' , having a boss or extension q' on its upper forward end, which lies in the path of movement of a detent or abutment r' , mounted on the carriage-frame adjacent to the usual scale-pointer. The forward edge of the detent r' is beveled or inclined to provide for a gradual but definite depression of the stop

p' as the parts aforesaid come in contact upon the return of the carriage. The rear side of the detent r' is provided with an extension s' , lying in the plane of movement of said detent and substantially equal in length to ten printing-spaces or equivalent to the usual space provided at the beginning of a paragraph. It will be seen, therefore, that the stop p' is engaged by the detent r' and the rear projection thereof, while the paper-carriage moves over the usual paragraphing-space both at the end of the return and initial forward movement of said carriage.

The operation of the apparatus, as above described, is as follows: The margin-stop D is adjusted to the desired position and the operator proceeds as in the usual course of writing. Upon reaching the end of the line the return-key a' is struck with substantially the same movement required to operate one of the printing-keys. The downward movement of the key a' carries with it lever b' by reason of the connection of key a' with lever b' by means of latch e' . As key a' reaches the downward limit of its movement latch e' strikes detent i' , and is rocked to disengage the notch in said latch from the pin on the end of lever b' . The downward movement of lever b' by means of the locking-lever w releases the pawl attached to w from engagement with the ratchet f' . The drum f being now free to move under the tension of its spring revolves toward the right and carries with it clutch-ring o , which is forced toward the band-wheel r by virtue of the inclined slots p engaging the pins q in the periphery of the drum f , thereby causing the teeth on said clutch-ring to engage the corresponding teeth on the band-wheel and causing said band-wheel to revolve with the spring-drum and wind up the flexible band v . The winding up of said band draws the paper-carriage to the right—viz., returns said carriage to its initial position and also moves the platen-spacing lever C against the tension of its spring to revolve the platen, and thereby space the paper for a new line. The descent of lever b' draws down the bar k' against the tension of spring m' and permits pawl o' to slip over the end of said bar and hold the latter and the lever b' in depressed position. The pawl o' , as hereinbefore described, is moved into engaging position by the partial rotation of rod n' under the influence of spring t' . This movement of rod n' also throws the end q' of the stop p' upward and into the path of movement of the detent r' on the paper-carriage. The several parts, as above described, occupy the positions shown in Figs. 2 and 6 until the carriage reaches the end of its return movement—that is to say, until it reaches the point where it is about to be arrested by the margin-stop. This move-

ment of the carriage causes the detent r' to strike the end q' of stop p' and rock rod n' to move pawl o' out of the engagement with bar k' and return the lever b' to its horizontal position, which also causes lever w' to move upward, and through its pawl engagement with the ratchet f' and arrest the movement of the spring-drum f .

Having now described and illustrated the means for releasing the lever b' I will now set forth the mechanism by which the key-levers are automatically locked and unlocked through the action of the key-lever a' and lever b' for the purposes set forth in this invention.

E represents any key lever of the keyboard, and has on it an angular fixed latch, E^2 . All of the key levers are equipped with a similar latch.

Q is a lever which is fastened at its lower end to a rod, Q^2 , said rod running horizontally across the typewriter frame and pivoted at each end to a projection on the frame of the machine. At the upper end of Q is shown the end of a rod Q' which is fastened to Q and runs horizontally across the frame of the machine parallel with rod Q^2 , said rod Q^2 lies in the same relative position to the projection on all the key levers that it does with reference to the projection E^2 on key lever E.

The mechanism above described belongs to the standard Underwood typewriter, and its function, as will be understood by those acquainted with the art, is to lock all the key levers of the typewriter at or near the end of the line of print, in order to prevent the blurring of the line by the piling up of letters after the end of the line has been reached. I make use of this key lever locking device for an entirely different purpose, but as its operation is so far precisely similar to that for locking the key levers at the end of the line of print, it will not be necessary to describe it further than to say that when the key levers are locked the rod Q' lies under the projections E^2 , thus preventing said key levers from being depressed.

I will now describe the special mechanism by which I make use of the above device for locking the key levers on the beginning of the return movement and unlocking same when the return has been completed.

An L-shaped lever P is fastened to lever Q and pivoted at Q^2 as shown Fig. 1 and detail Fig. 3. One end of this L-lever, P' , projects underneath a lug B^2 on lever b' . It will thus be seen that when lever b' is depressed by key lever a' it will carry down with it lever P, which in turn will cause Q to turn upon its pivot Q^2 , at the same time bringing rod Q' underneath projection E^2 , thus locking the key levers so long as the lever b' is depressed, that is, during the return of the carriage; when, however, the be-

ginning of the line of print is reached, lever 5
 6' is automatically released from its depressed position by mechanism fully described in my former patent referred to, and lug B² no longer holding down lever P, Q is allowed to resume its normal position, Fig. 1, thus releasing the key levers from the locked position.

It will be distinctly understood that I do 10
 not limit my invention to the particular detailed form described above, as it applies to all means for automatically locking the key levers of a typewriter upon the beginning of the return of the carriage and automatically 15
 unlocking same when the return movement has been completed.

Having thus described my invention, what I claim is:

1. In a typewriter having key levers and 20
 a paper carriage, with mechanically operated mechanism for returning said carriage to the beginning of a line of print, means for bringing into play said carriage return mechanism at any point on the line of print, 25
 and means for locking all the key levers of the typewriter when said carriage return means is operated.

2. In a typewriter having key levers and a paper carriage with mechanically operated 30
 mechanism for returning said carriage to the beginning of a line of print, means for bringing into play said carriage return mechanism, and means connected with said last named means for locking all the key 35
 levers of the typewriter when said carriage return means is operated.

3. In a typewriter having key levers and a paper carriage with mechanically operated means for returning said carriage to 40
 the beginning of the line of print, a special return key for bringing into play the said carriage return mechanism, and means connected with said special return key whereby when said key is depressed all the key levers 45
 of the typewriter are locked, and when said return key is released, all the key levers of the typewriter are unlocked.

4. A typewriter having paper carriage with power driven means for returning said

carriage to the beginning of the line of 50
 print, a key lever operatively connected with a lever for disengaging said return power to effect a return of the carriage and releasing same from operative action on completion of the return of the carriage, with means for 55
 holding this lever in depressed position during the return of the carriage; means for releasing said lever on the completion of the return of the carriage to the beginning of the line of print; means for locking the 60
 key levers during the return of the carriage and automatically releasing the key levers on the completion of the return of the carriage to the beginning of the line of print, said means consisting of a locking device 65
 adapted to lock the key levers of the typewriter, said device being in operative relation to said lever for disengaging the power mechanism.

5. A typewriter having paper carriage 70
 with power driven means for returning said carriage to the beginning of the line of print; a key lever operatively connected with a lever for disengaging said return 75
 power to effect a return of the carriage and releasing same from operative action on completion of the return of the carriage, with means for holding this lever in depressed position during the return of the 80
 carriage; means for releasing said lever on the completion of the return of the carriage to the beginning of the line of print; means for locking the key levers during the return of the carriage and automatically releasing the key levers on the completion of 85
 the return of the carriage to the beginning of the line of print, said means consisting of a locking device adapted to lock the key levers of the typewriter, said device being in operative relation to said lever for dis- 90
 engaging the power mechanism, whereby when said lever is depressed the key levers are locked, and when said lever is released the key levers are automatically unlocked.

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Witnesses:

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