

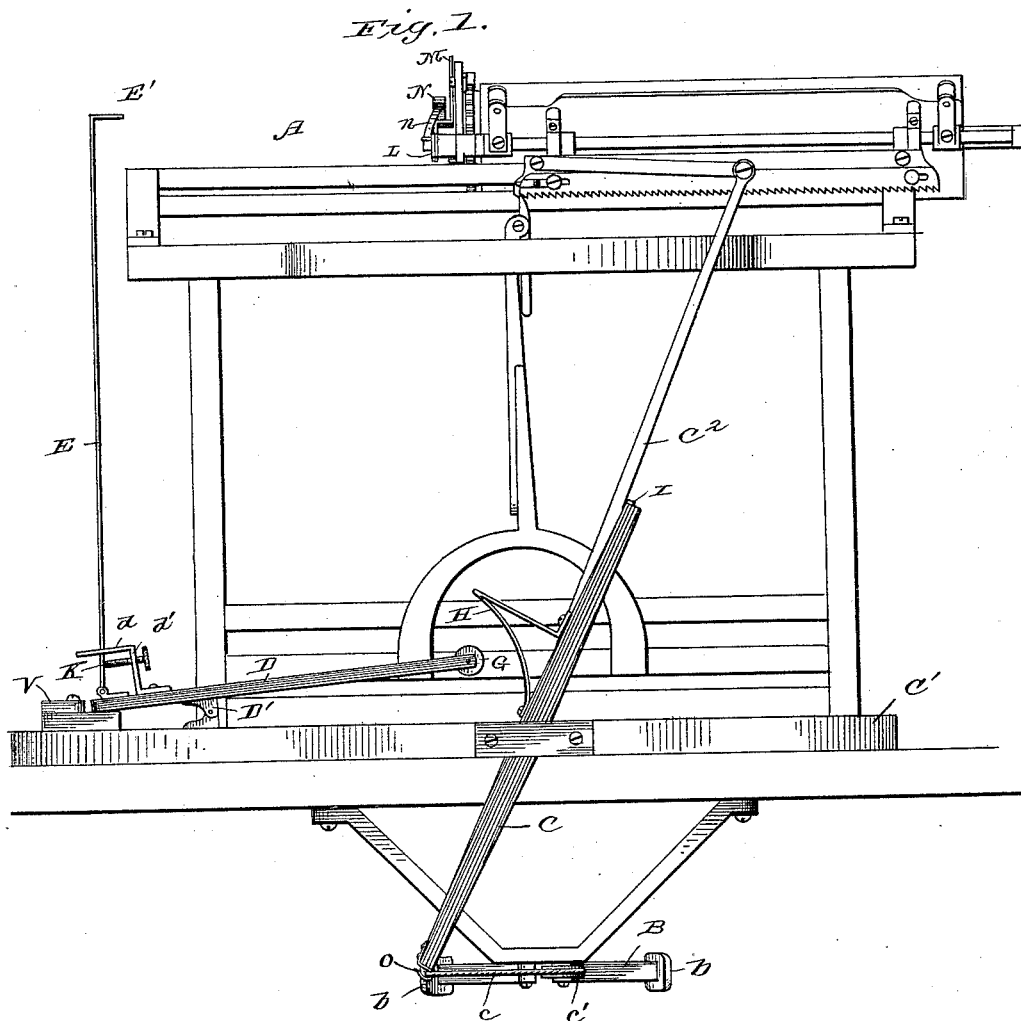
(No Model.)

3 Sheets—Sheet 1.

J. F. FRANKEY.
TYPE WRITER.

No. 421,921.

Patented Feb. 25, 1890.



Witnesses

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By his Attorneys

Church & Church

(No Model.)

3 Sheets—Sheet 2.

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Fig. 2.

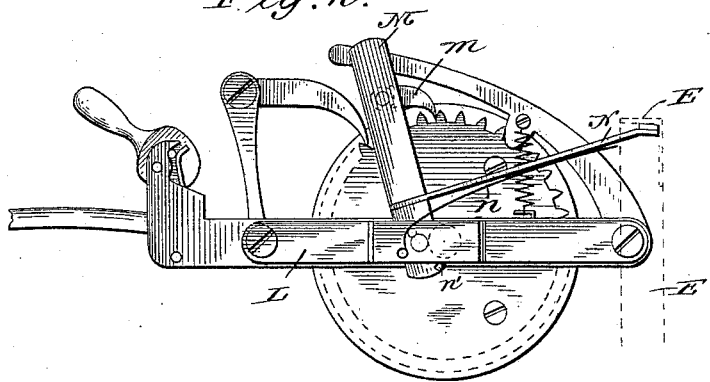


Fig. 3.

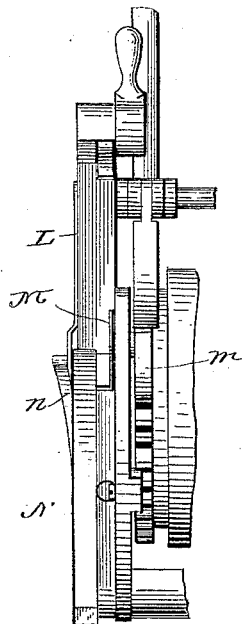
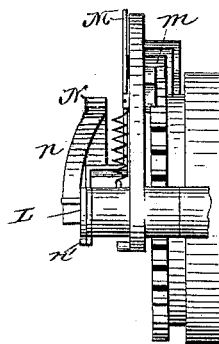


Fig. 4.



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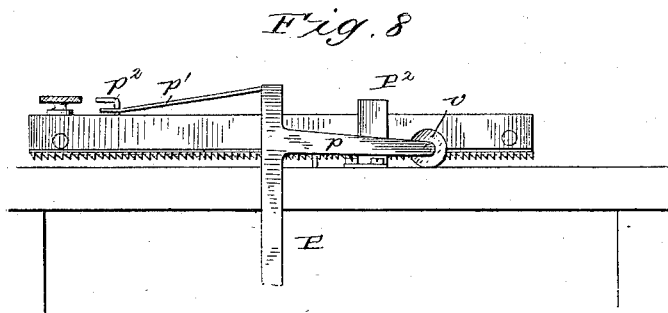
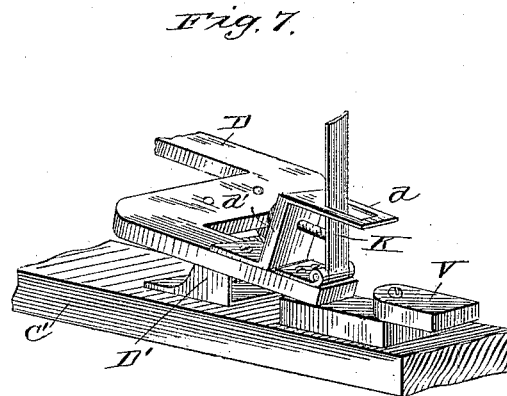
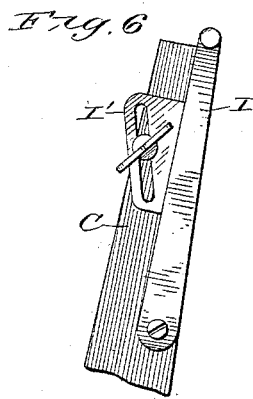
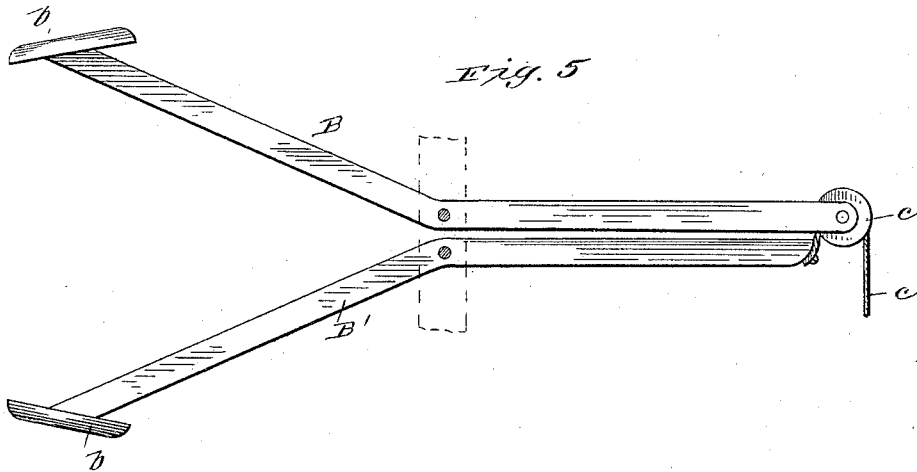
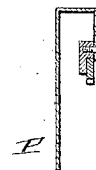


Fig. 9.



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UNITED STATES PATENT OFFICE.

JAMES F. FRANKEY, OF DODGE CITY, KANSAS.

TYPE-WRITER.

SPECIFICATION forming part of Letters Patent No. 421,921, dated February 25, 1890.

Application filed May 29, 1889. Serial No. 312,528. (No model.)

To all whom it may concern:

Be it known that I, JAMES F. FRANKEY, of Dodge City, in the county of Ford and State of Kansas, 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 same, reference being had to the accompanying drawings, forming a part of this specification, and to the letters of reference marked thereon.

This invention relates to certain improvements in type-writers, and more particularly to the mechanisms employed to return the carriage to the starting-point and to feed the paper forward for the next line of printing, the object of the invention being to improve the efficiency and simplify the construction of said mechanisms, adapting the same for application to type-writers now in use without alteration.

The invention consists, primarily, in operating the returning mechanism by means of two levers moved by the operator's knees in opposite directions to reduce the extent of movement of each and obtain a wide range of movement.

It consists, secondly, in operating the paper-feeding mechanism by means of the carriage-returning mechanism independent of the movement of the carriage itself, whereby the paper may be fed when the carriage is in first position.

It consists, finally, in certain novel details of construction and combinations and arrangements of parts, to be hereinafter described, and pointed out particularly in the claims at the end of this specification.

In the accompanying drawings, Figure 1 is a rear elevation of a type-writer of the Caligraph style having my invention applied thereto. Fig. 2 is an elevation of the end of the paper-carriage. Fig. 3 is a top plan view of the end of the carriage-retaining mechanism. Fig. 4 is a rear elevation of the same. Fig. 5 is a plan view of the knee-levers. Fig. 6 is a front elevation of the upper end of the operating-lever. Fig. 7 is a perspective view of one end of the lever for operating the paper-carriage. Figs. 8 and 9 are views of an attachment for application to the Remington type-writer.

Similar letters of reference in the several figures indicate the same parts.

In the class of type-writers to which my present invention is particularly adapted the paper-carriage, as is well known, is fed forward by the action of a spring, and when the end of the line is reached is returned to first position by the operator, usually by grasping a forwardly-projecting handle, which carries a pawl engaging the ratchet-wheel on the end of the paper-roller for turning said roller, thus enabling the operator to simultaneously feed the paper forward and return the carriage to first position. To accomplish this result, however, the operator's hands have to be removed from position above the key-board, to say nothing of the labor of the operation, and although attempts have been made and various mechanisms devised for accomplishing the desired end by means of foot-levers, &c., such attempts have met with only partial success.

The desired result I accomplish in the following manner, which will be found practical and highly efficient.

Beneath the type-writer A are pivoted two knee-levers B B', having at the lower end suitable enlargements—as flattened portions b—against which the operator's knees rest, said levers being, preferably, slightly bent or bell-cranked and adapted to work simultaneously toward and away from each other, such motion being imparted by the operator's knees, as will be readily understood.

Above the knee-levers B, at the back of the machine, and preferably pivoted to a strip C', is an operating-lever C, the upper end of which engages the spring-arm C² of the Caligraph, and the lower end of which carries cord c, which passes around the friction-pulley c' on the upper end of lever B and is connected to the end of lever B'. Thus when the lower ends of the knee-levers are pressed together the upper ends will be separated and the operating-lever moved in the proper direction to return the carriage to first position.

In order now to feed the paper at the proper moment, a lever D is mounted on the strip C' by means of a spring-hinge D' tending to keep the short arm of the lever depressed at all times, and on this shorter arm is mounted the

upright or rod E, carrying at the upper end an arm or projection E', which engages an arm on the carriage, to be presently described, for rotating the paper-roll and feeding the paper. The long arm of the lever is slotted and carries the friction-roller G, with which the cam-surface H on the operating-lever engages as the carriage is being returned to first position, elevating the rod E, and when the operating-lever is released permitting the spring to draw the rod down and feed the paper forward. Thus by operating the knee-levers when the carriage is in first position the paper may be fed without moving the carriage at all—a feature which will be found to be of great assistance in starting the sheets of paper into the machine when it is desired to hold the same with both hands.

As it is always desirable that the operating-lever should move clear to the end of its stroke to cause the proper feed of the paper, and as the carriage may be arrested before the end is reached to form a margin, provision is made therefor by connecting the operating-lever to the spring-arm by means of an intermediate arm or link I, pivoted to the lever at one end and in engagement with or making contact with the spring-arm at the opposite end, an adjustable stop being provided for this link I, preferably in the form of a wedge-shaped cam I', mounted on the lever. This arrangement also permits the levers to immediately return to normal position when the carriage has been returned.

The upright rod E is preferably pivotally connected to the short arm of the substantially horizontal lever D, being held in upright position by the plate d, carried by the upright d' on the lever, and permitted a limited lateral movement, the extent of which is regulated by the set-screw K, for a purpose which will presently appear.

Referring now more particularly to Figs. 2, 3, and 4, it will be seen that the devices mounted on the carriage for rotating the roller are very simple, consisting of a side piece L, fastened by screws to the end of the carriage, with the central portion bent outward and provided with a pivot for the arm M, carrying the pawl m, which engages the ratchet-wheel on the end of the roller. Extending out at substantially right angles to the arm M is the arm N, with the end of which the projection on the upright rod engages, said arms being returned to normal position by the action of spring n and arrested by the stop n' engaging the under side of the side piece. The center on which the arm M works, it will be noted, is not in line with the center of the roll, but is slightly forward of the same, in order to give a better hold for the pawl in the ratchet-teeth in the well-understood manner. These parts are of course in addition to the usual retaining-pawl, &c., at present employed on the machines, and the operation will be readily understood when it is remembered that the up-

right bar is moved down by the action of its spring after the arm N has been brought under the same by the movement of the carriage. When desired, the arms may be held by the bar until the movement of the carriage away from the bar releases it; but in many instances it is desirable to release the same after the paper is fed, when the thumb-screw K, before referred to, may be adjusted to give the bar a sidewise motion while being depressed, sufficient to carry the same beyond the end of the arm N; or, if desired, other well-known forms of tripping mechanism may be employed.

As is well known in machines of this character, the paper is fed along by regular steps, two of which constitute a full space between lines, and in order that the feed may be in exact accordance with these steps, and to enable the same to be regulated at will for either one or two steps, I provide a pivoted block V under the end of the substantially horizontal lever D, which block may be swung under the lever to reduce the feed just the distance required for a one-half space. Other well-known forms of adjusting mechanism may be employed; but this is preferred, inasmuch as the feed will of necessity be absolutely uniform for any one adjustment.

A convenient and secure means for fastening the cord to the lower end of the operating-lever is shown in the drawings, and consists of a hook O, having a V or other shaped slot therein, into which the end of the cord fits, a knot serving to prevent the cord from being drawn through.

To adapt the mechanism for application to a Remington type-writer, in which the rack-bar controlling the movement of the carriage has to be raised during the return movement, a lever P is pivoted to the rack-bar, as shown, the end being preferably extended over the top of the same to escape the stop P², and on each side of said lever are mounted arms p p', respectively, the one p being provided with a roller v, engaging a track on the frame of the machine, the other p' being connected to the rack-bar by a loose connection, preferably formed by the hook p² passing through an opening in the end of the arm. The end of the operating lever or link engages the lower end of the lever P, and by moving the same causes it to first lift the rack-bar by the engagement of the roller with its track and the arm p' with the hook, and then to move the carriage laterally back to first position.

From this description it will be seen that I have produced a mechanism at once simple and effective, the parts of which may be struck up without great trouble, and a mechanism which may be readily applied or removed from machines now in use without alteration, and while I have described the various parts specifically it is obvious that the form of the mechanism may be greatly modified without departing from the spirit of my invention.

Having thus described my invention, what I claim as new is—

1. In a carriage-returning mechanism for type-writers, the combination, with the two pivoted knee-levers movable simultaneously in opposite directions, of the cord connected to one of said levers and passing around the other, and connections between said cord and the carriage, substantially as described.

2. In a carriage-returning mechanism for type-writers, the combination, with the two pivoted knee-levers movable simultaneously in opposite directions and the cord moved thereby, of the operating-lever for moving the carriage connected to said cord, substantially as described.

3. In a carriage-returning mechanism for type-writers, the combination, with the two pivoted knee-levers movable simultaneously in opposite directions and the cord operated thereby, of the pivoted operating-lever connected to said cord, and the arm pivoted to said lever for engaging the carriage, substantially as described.

4. In a carriage-returning mechanism for type-writers, the combination, with the knee-levers, operating-lever, and connections between said levers, of the arm pivoted on the operating-lever for moving the carriage, and the adjustable stop for said arm, substantially as described.

5. In a carriage-returning mechanism for type-writers, the combination, with the knee-levers, operating-lever, and connections between said levers, of the arm pivoted to the operating-lever for moving the carriage, and the adjustable wedge-shaped stop for limiting the movement of said arm, substantially as described.

6. In a carriage-returning mechanism for type-writers, the combination, with the operating-lever for moving the carriage, of the two oppositely-arranged bell-crank knee-levers and connections between said levers and the operating-lever, substantially as described.

7. In a carriage-returning mechanism for type-writers, the combination, with the operating-lever for moving the carriage, of the pivoted oppositely-arranged knee-levers movable simultaneously in opposite directions, the cord between said operating-lever and knee-levers, and the anti-friction wheel on one of said knee-levers around which the cord passes, substantially as described.

8. In a type-writer, the combination, with the laterally-movable carriage and a shifting-lever below the table for returning the carriage to first position, of the paper-feeding mechanism on the carriage, and the operating-rod therefor independent of the carriage and operated by the carriage-shifting lever, substantially as described.

9. In a type-writer, the combination, with the carriage and a lever for returning the same to first position, of the paper-feeding mechanism on the carriage, and its operating-rod independent of the carrier moved

into position by said lever, and a spring for returning the same and feeding the paper, substantially as described.

10. In a type-writer, the combination, with the carriage carrying the projecting arm having the pawl in engagement with the ratchet-wheel on the paper-roller, of the reciprocating rod independent of the carriage engaging said arm when the carriage is brought to first position to rotate the paper-roller and feed the paper, substantially as described.

11. In a type-writer, the combination, with the carriage carrying the projecting arm having the pawl in engagement with the ratchet-wheel on the paper-roller, of the rod engaging said arm to feed the paper, the knee-levers, and a connection between said levers and rod whereby the latter may be reciprocated, substantially as described.

12. In a type-writer, the combination, with the carriage carrying the projecting arm having the pawl for rotating the paper-roller, and the rod engaging said arm mounted on a substantially horizontal lever, of the operating-lever having the cam-surface engaging said horizontal lever, substantially as described.

13. In a type-writer, the combination, with the paper-roll and projecting arm for rotating the same, of the substantially horizontal lever, the rod engaging the projecting arm mounted on said lever, and the set-screw for adjusting the angle of said rod, whereby the same may be made to release the arm when depressed, substantially as described.

14. In a type-writer, the combination, with the paper-roll and projecting arm for rotating the same, of the rod engaging said arm, the lever on which said rod is mounted, and the movable stop beneath said lever for limiting the motion of the rod and lever, substantially as described.

15. In a type-writer, the combination, with the carriage, the operating-lever for returning the same to first position having the cam-surface thereon, and the knee-levers, as described, of the projecting arm for rotating the paper-roll, the rod engaging said arm, and the lever on which said rod is mounted engaging the cam-surface on the operating-lever, substantially as described.

16. In a type-writer, the combination, with the carriage, the operating-lever having the cam-surface thereon, and the oppositely-arranged knee-levers connected thereto, of the pivoted projecting arm on the carriage carrying the pawl engaging the paper-roller, the spring for returning said arm, the rod engaging said arm to feed the paper, the substantially horizontal lever on which the rod is pivotally mounted engaging the cam-surface on the operating-lever, and the set-screw for adjusting the angle of the rod, substantially as described.

17. In a type-writer, the combination, with the carriage and paper-roller, of the piece removably secured to the end of the carriage,

the arm pivoted on said piece in horizontal bearings and having the pawl thereon for moving the paper-roll, and the rod for moving said arm, substantially as described.

- 5 18. In a type-writer, the combination, with the carriage and paper-roller, of the piece removably secured to the end of the carriage having the central portion bent outward, the arm pivoted in said outwardly-bent portion
10 in horizontal bearings and having the pawl thereon for engaging the paper-roll to rotate the same, and the rod for moving said arm, substantially as described.

- 15 19. In a type-writer, the combination, with the carriage and pivoted rack-bar, of the lever pivoted on the rack-bar with the arm engaging the track to elevate the rack-bar, and the operating-lever engaging said first-mentioned

lever to elevate the rack-bar and return the carriage to first position, substantially as described. 20

20. In a type-writer, the combination, with the carriage and pivoted rack-bar, of the lever pivotally connected to said rack-bar and having the oppositely-extending arms, one loosely
25 connected to the bar and the other engaging a track on the machine-frame, and the operating-lever engaging said first-mentioned lever to elevate the rack-bar and return the carriage to first position, substantially as described. 30

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