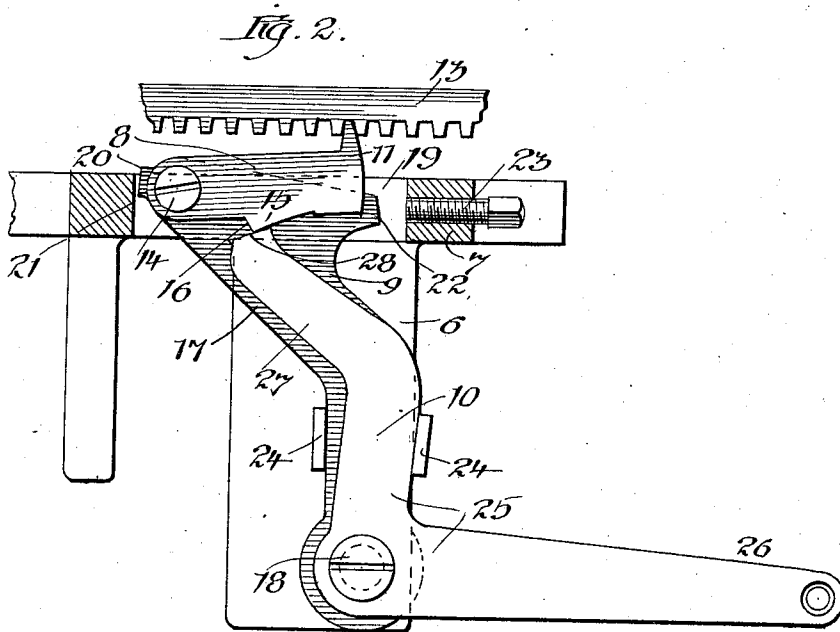
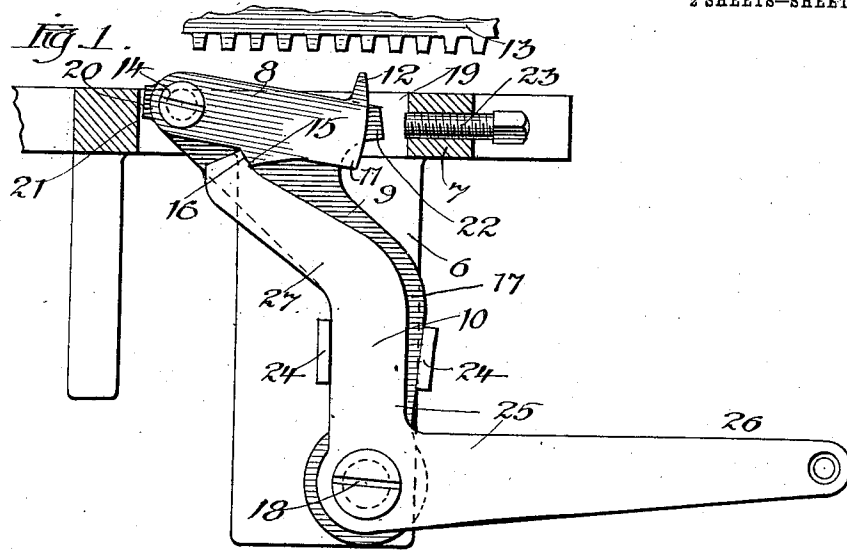


A. STIEG.
 BACK FEED MECHANISM FOR TYPE WRITERS.
 APPLICATION FILED MAR. 17, 1911.

1,018,995.

Patented Feb. 27, 1912.

2 SHEETS—SHEET 1.



Witnesses
 Frank Blanchard
 J. M. Bond

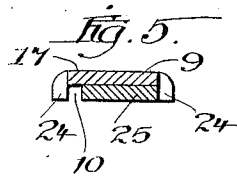
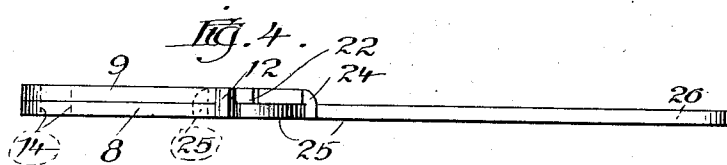
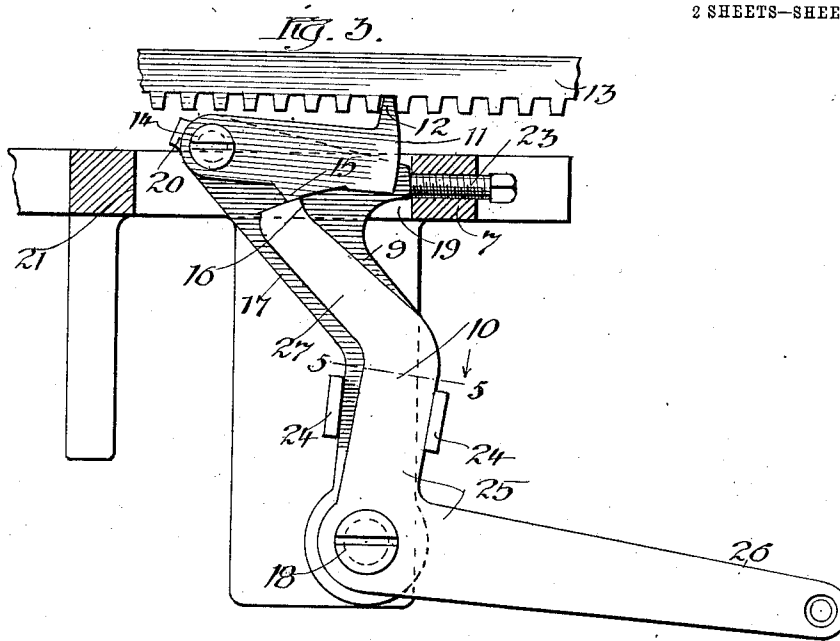
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UNITED STATES PATENT OFFICE.

AUGUST STIEG, OF WOODSTOCK, ILLINOIS, ASSIGNOR TO THE EMERSON TYPEWRITER CO., OF WOODSTOCK, ILLINOIS, A CORPORATION OF ILLINOIS.

BACK-FEED MECHANISM FOR TYPE-WRITERS.

1,018,995.

Specification of Letters Patent.

Patented Feb. 27, 1912.

Application filed March 17, 1911. Serial No. 615,109.

To all whom it may concern:

Be it known that I, AUGUST STIEG, a citizen of the United States, residing at Woodstock, in the county of McHenry and State of Illinois, have invented certain new and useful Improvements in Back-Feed Mechanism for Type-Writers, of which the following is a specification.

The present invention relates to a mechanism adapted to move the carriage of a typewriter in a backward direction, that is, in a direction the reverse from that to which it is moved during the ordinary writing operation, and is commonly termed a back feed mechanism.

The objects of the present invention are, to provide a mechanism which will be positive in its action and will not permit of any slippage of the carriage during the back feeding operation, and which will operate in a manner to insure the movement of the carriage the same distance at each operation of the back feeding mechanism.

Another object of the invention is to provide a device which is simple of operation and cheap of manufacture.

A further object of the invention is to provide means for limiting the throw of the back feeding mechanism and to adjust said limiting means so as to make the throw of the back feeding mechanism the correct distance to insure a proper actuation of the device. And a still further object of the invention is to provide means for actuating the dog which engages the rack to effect the back feed with an initiatory movement, which will throw it into engagement with the teeth of said rack so that before the forward movement of the dog to feed the carriage is effected, a positive engagement will have been made between the teeth of the rack member and the dog.

The invention further relates to the features of construction and the combination of parts hereinafter described and claimed.

In the drawings, Figure 1 is a view showing the mechanism of the present invention in normal position; Fig. 2, a view similar to Fig. 1, showing the parts in the position they assume when the dog is initially moved into position to engage the teeth of the rack bar; Fig. 3, a view showing the position the parts assume when the dog has been thrown forward to its limit of movement and accomplishes the operation of feeding the carriage;

Fig. 4, a plan view of the dog, the member on which it is mounted, and the member which actuates the dog; and Fig. 5, a section on line 5—5 of Fig. 3, looking in the direction of the arrow.

In typewriting machines there is usually provided some form of mechanism for the purpose of imparting a backward movement to the carriage. This is known as the back feed mechanism. Difficulty has been experienced with these back feeding devices in making them positive of action, it sometimes happening that the dogs which form a portion of the mechanism will not properly engage with the teeth of the rack bar attached to the carriage, and hence the carriage will slip during the back feeding operation, which is detrimental to the proper operation of the device. It is one of the primary objects of the present invention to overcome this defect in operation.

Since the present invention can be used with any form of typewriter, it is not deemed necessary to show any more of the typewriter construction than is necessary to properly describe and illustrate the features of this invention.

The mechanism of the present invention, as shown, is mounted upon a lug 6, depending from the body 7 of a typewriter frame. The particular form of mounting, however, may be varied to meet the requirements of the particular type of machine to which the present invention may be applied. The back feeding mechanism comprises what may be termed an acting member 8, a support for the acting member 9, and an actuating member 10. The acting member is in the form of a dog 11, provided with a fingered portion 12 of suitable size and formation to engage with the teeth 13 of a rack bar secured to the carriage. The dog is pivoted at 14 and is provided along its lower face with a projection 15 provided with sloping faces 16, and this projection constitutes what may be termed a cam surface on the dog. The dog is secured to and mounted upon a supporting member, which, in the form shown, comprises an arm-like member 17, which is pivoted at 18 to the lug 6; and the arm has a movement about the center of this latter pivotal point.

The dog, as shown, lies within a slot 19 formed in the typewriter frame, and the arm 17 is provided with a protuberance 20

adapted, when the parts are in the position shown in Fig. 1, to abut against a wall 21 of the slot 19, and thus said protuberance acts as a stop member to limit the movement of the arm 17 in one direction. The arm 17 is further provided with a fingered portion in the form of a protuberance 22, which, when the parts are thrown into the position shown in Fig. 3, is engaged by the end of a screw-threaded member 23, and thus the protuberance 22 serves to limit the movement of the supporting member 17 in the opposite direction. The employment of this screw-threaded member 23 is deemed to be of importance, since it provides a simple and easy manner of effecting an adjustment in movement of the arm 17. By receding or advancing this screw-threaded member, the arm 17 may have a longer or shorter throw, as desired, and thus permit it to have the necessary movement to properly perform the back feeding operation. The arm 17 is further provided with oppositely disposed lugs 24, the function of which will be more fully hereinafter stated.

Pivoted at 18 is a bell-crank lever 25, one arm 26 of which is attached to suitable lever mechanism operated by the back feed key; but since this lever mechanism and feed key may be of any suitable construction, neither is shown in detail. The other arm 27 of the bell-crank lever lies adjacent to the arm 17, and, as will be seen from a study of the drawings, lies intermediate the lugs 24. The free end 28 of the arm 27 lies adjacent to the dog 11, and in the operation of the device, this acting end serves to impart the initiatory movement to the dog 11, which brings its toothed end into engagement with the teeth 13 of the rack bar. It will be noted that the arm 27 of the bell-crank lever is of a width somewhat less than the distance between the lugs 24. This is in order to permit the bell-crank lever to have a certain amount of initiatory movement prior to the engagement of the body of the arm 27 with the lugs 24 of the arm 17. This initiatory movement will be utilized in raising the dog 11 into engagement with the teeth 13, so that this engagement is, to all practical purposes, complete before the arm 27 engages the lug 24 to swing the arm 17 and force the dog 11 forward to impart movement to the rack bar and effect the back feed of the carriage.

The operation of the device is as follows: Upon the initiatory movement of the bell-crank lever 25, the acting end 28 of the arm 27 forces itself against the cam surface 16 of the protuberance 15 of the dog 11 and raises said dog into the position shown in Fig. 2, bringing the fingered end of said dog into positive engagement with the teeth 13 of the rack bar. By this arrangement, prior to each feeding of the carriage, the actuat-

ing member for effecting such feeding, which in the present construction is the dog 11, is brought into a position to positively and accurately effect such feeding, thus eliminating any danger of the dog being but partially engaged with the rack bar and so allowing a slippage between the rack bar and the dog, which would permit of a greater than desired movement of the carriage. After the parts have been moved into the position shown in Fig. 2, a further movement of the bell-crank lever will cause the body portion of the arm 27 to engage one of the lugs 24 of the arm 17 and force the arm 17 and the dog 11 in the direction in which the carriage is to be moved, this forward movement being around the pivotal center 18. Thus an initiatory movement is first imparted to the mechanism to aline the various parts in proper position to perform the feeding operation, and after such alignment, the continued movement of the parts forces them in a direction and in a manner to effect the proper feeding operation. The reason for providing two of the lugs 24 is so as to give a surface for the arm 27 to engage when it is moving the mechanism to perform the feeding operation, and to give a surface for said arm to engage to return the parts to normal position. When the parts are being returned to normal position, the acting end 28 will first disengage itself from the cam surfaces, allowing the dog to fall. A continued movement of the arm 27 will bring it into engagement with the other of the lugs 24 and so swing the arm 17 and the dog 11 around the pivotal center 18 and again back to normal position. By this arrangement, the dog is brought out of engagement with the teeth 13 prior to the returning of the parts to normal position, which, of course, is essential to the correct operation of the device.

I claim:

1. In a back feed mechanism for typewriters, the combination of two levers superimposed upon one another, one of said levers having an operative connection to a key lever, a dog pivotally mounted on the other lever, a cam surface on the dog, the upper end of the connected lever engaging said cam to elevate the dog into engagement with a rack bar, and means for moving said levers in unison after the initial movement of the connected levers, whereby said dog is moved to effect the back spacing operation, substantially as described.

2. In a back feed mechanism for typewriters, the combination of two levers superimposed upon one another and having a common pivotal center, one of said levers having an operative connection to a key lever, a dog pivotally mounted on the other lever, a cam surface on the dog, the upper end of the connected lever engaging said

cam to elevate the dog into engagement with a rack bar, and means for moving said levers in unison after the initial movement of the connected levers, whereby said dog is moved to effect the back spacing operation, substantially as described.

3. In a back feed mechanism for typewriters, the combination of two levers superimposed upon one another, one of said levers having an operative connection to a key lever, a dog pivotally mounted on the other lever, a cam surface on the dog, the upper end of the connected lever engaging said cam to elevate the dog into engagement with the rack bar, lugs on the dog carrying lever adapted to be engaged by the connected lever after the initial movement thereof, whereby said levers are moved in unison after such engagement to actuate the dog and effect the back spacing operation, substantially as described.

4. In a back feed mechanism for typewriters, the combination of two levers superimposed upon one another and having a common pivotal center, one of said levers having an operative connection to a key lever, a dog pivotally mounted on the other lever, a cam surface on the dog, the upper end of the connected lever engaging said cam to elevate the dog into engagement with the rack bar, lugs on the dog carrying lever adapted to be engaged by the connected lever after the initial movement thereof, whereby said levers are moved in unison after such engagement to actuate the dog and effect the back spacing operation, substantially as described.

5. In a back feed mechanism for typewriters, the combination of two levers superimposed upon one another, one of said levers having an operative connection to a

key lever, a dog pivotally mounted on the other lever, a cam surface on the dog, the upper end of the connected lever engaging said cam to elevate the dog into engagement with a rack bar, means for moving said levers in unison after the initial movement of the connected levers, whereby said dog is moved to effect the back spacing operation, the frame of the typewriter having a slot in which said dog lies, the dog carrying lever extending beyond the dog, and an adjustable stem projecting into the slot and engaging the end of said lever to limit the movement of the mechanism, substantially as described.

6. In a back feed mechanism for typewriters, the combination of two levers superimposed upon one another and having a common pivotal center, one of said levers having an operative connection to a key lever, a dog pivotally mounted on the other lever, a cam surface on the dog, the upper end of the connected lever engaging said cam to elevate the dog into engagement with the rack bar, lugs on the dog carrying lever adapted to be engaged by the connected lever after the initial movement thereof, whereby said levers are moved in unison after such engagement to actuate the dog and effect the back spacing operation, the frame of the typewriter having a slot in which said dog lies, the dog carrying lever extending beyond the dog, and an adjustable stem projecting into the slot and engaging the end of said lever to limit the movement of the mechanism, substantially as described.

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Witnesses:

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