M. B. SARGENT.

BACK FEED MECHANISM FOR TYPE WRITERS.

APPLICATION FILED AUG. 23, 1909.

954,138.

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Fig. 1.

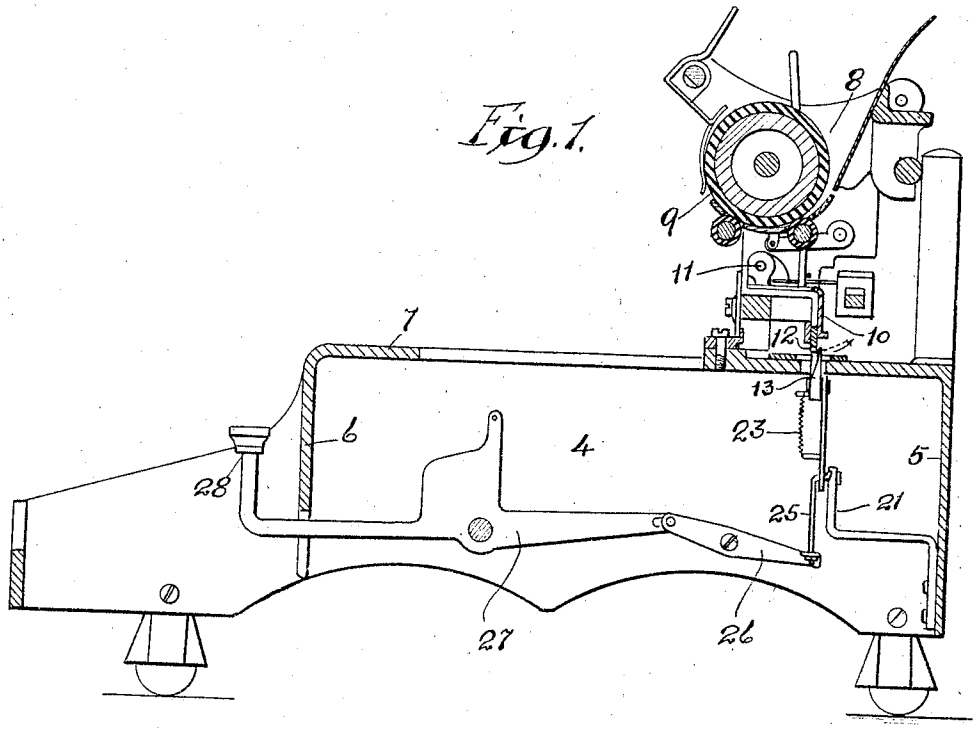


Fig. 2.

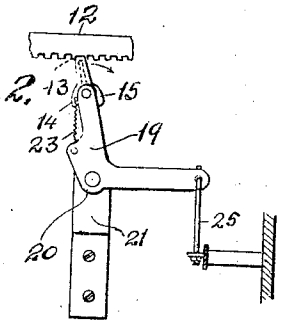
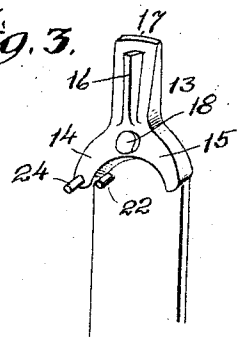


Fig. 3.



Witnesses;

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UNITED STATES PATENT OFFICE.

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BACK-FEED MECHANISM FOR TYPE-WRITERS.

954,138. Specification of Letters Patent. Patented Apr. 5, 1910.

Application filed August 23, 1909. Serial No. 514,217.

To all whom it may concern:

Be it known that I, MARSHALL B. SARGENT, a citizen of the United States, residing at Momence, in the county of Kankakee 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 back-feed mechanism of the present invention is applied to a typewriter having an escapement rack, which is pivoted to the carriage frame in a suitable manner to permit the rack to be swung away from and out of engagement with the escapement dogs; and the object of the present invention is to so construct the back-feed that it will hold the rack against such swinging action during the operation of the back-feeding, thereby preventing a sudden release of the carriage, which might take place if the rack were accidentally swung out of its normal position.

Another object of the invention is to so arrange the back-feeding dog that it will not interfere with a disengaging movement of the rack when such movement is desirable in column spacing.

Further objects will appear from a detailed description of the invention, which consists in the features of construction and combination of parts hereinafter described and claimed.

In the drawings, Figure 1 is a cross sectional view of the frame and those portions of the typewriter having to do with the present invention; Fig. 2 a detail showing the back-feeding dog and actuating lever, together with other associated parts; and Fig. 3 an enlarged detail showing the acting face of the back-feeding dog.

The invention is applied to a typewriter, which is built into a frame, having side walls 4, a rear wall 5, a front wall 6, and a top wall or floor 7. The typewriter is provided with a carriage frame 8, which journals a platen 9, and furnishes a support for a rack frame 10, which is provided with ears 11 pivoted to the ends of the carriage frame in such a manner as to permit an escapement rack 12 to be swung rearwardly in the direction of the arrow when it is desired to throw the rack out of engagement with the escapement dogs, not shown. The carriage frame carrying the platen rack and associated parts is adapted to normally travel from right to left in the usual manner.

The back-feeding mechanism comprises a dog 13, which is bifurcated, at its lower end, to afford arms 14 and 15. The dog is provided, on its inner side, with a rib 16, which constitutes a tooth adapted to engage with the rack when it is desired to impart a back-feeding action. The tooth terminates below an upper end 17 of the dog, which projects above the tooth sufficiently to occupy a position outside of the rear face of the rack 12, when the tooth is thrown into back-feeding engagement with teeth of the rack, so that during the period of operation, the rack will be held against lateral movement, which might be occasioned by the back-feeding action in case no guard were afforded by the upper end 17 of the dog.

The dog is pivoted by means of a pin or stud 18 to the upper end of a bell crank lever 19, which is pivoted at its elbow 20 to a suitable fixed bracket 21, and a stop pin 22 is provided on the bell crank lever inside of the arm 14 of the dog, which stop pin prevents the movement of the dog on the forward or back-feeding movement of the bell crank lever, and, at the same time, allows freedom of movement to the dog on the reverse movement of the bell crank lever, so that the dog on each reverse movement will be permitted to ride under a tooth, or teeth, on the rack, in preparation for the next back-feeding movement. The arm 14 of the dog will normally be held in contact with the stop pin 22 by the action of a coil spring 23, which engages a pin 24 on the arm 14 of the dog.

Operating movements are imparted to the bell crank lever by the action of a rod 25, which engages the rear end of a pivoted transmission lever 26, and which in turn is pivoted to the rear end of a back-feeding key lever 27, which is upturned at its forward end and terminates in a key 28 within convenient reach of the operator.

It will be understood that the above mechanism coöperates with suitable mechanism or means for swinging the rack out of engagement with the escapement dogs, and a suitable stop mechanism for resting the movement of the release carriage at designated column positions, but such mechanism may

be of any suitable character, and the present invention is not concerned with the nature or details of such mechanism, which is only referred to to indicate the desirability of providing a pivotally mounted rack of the character described.

In use, during the normal operation of the machine, the back-feed dog will lie out of engagement with the rack and in position to permit the rack to clear the upper or guard edge 17 of the dog when it is desirable to swing the rack to the rear, in order to clear the escapement dogs. When the operator desires to impart a back-feed to the carriage, the key 28 will be depressed, which imparts a downward movement to the rod 25 and throws the upper arm of the bell crank lever from left to right, as indicated by the arrow in Fig. 2. This movement raises the guard edge 17 of the dog into position to bear against the outer face 17 of the escapement rack and brings the upper end of the tooth 16 into engagement with one of the teeth of the escapement rack, so that a continued movement of the bell crank lever and the dog will impart a back-feeding movement to the rack, which movement will, of course, be imparted to the carriage. With the completion of such movement, the key lever will be released and the parts returned to their initial positions, during which movement the dog will be enabled to ride under the escapement rack teeth by the swinging or turning of the dog against the tension of the spring 23, which is so depressed as to permit the rack to swing in the necessary direction, and, at the same time, the stop pin 22 will hold the dog rigidly during the back-feeding movement. If the guard edge 17 were omitted, there would be a tendency to swing the rack upwardly and outwardly during the back-feeding action, so that the rack might be thrown out of engagement with the escapement dogs and released therefrom, allowing the carriage to be accidentally advanced, which would cause inconvenience and trouble for the operator.

I claim:

1. In typewriter back-feed mechanism, in combination with a movable rack bar, a back-feed dog provided with a guard edge or lip positioned to engage the face of the rack, and further provided with a tooth adapted to engage with the teeth of the rack, and means for actuating the dog, to impart back-feeding movements thereto, substantially as described.

2. In typewriter back-feed mechanism, in combination with a movable rack bar, a back-feed dog provided with a guard edge or lip positioned to engage the face of the rack, and further provided with a tooth adapted to engage with the teeth of the rack, a bell crank lever to which the dog is pivoted, means for holding the dog rigidly against movement in one direction and adapted to permit movement in the opposite direction, and means for actuating the bell crank lever, substantially as described.

3. In typewriter back-feed mechanism, in combination with a pivoted rack bar, a dog provided with a guard lip, normally out of line of swinging movement of the rack bar, and adapted, when the dog is thrown into back-feeding position, to be moved into position to bear against the face of the rack bar and prevent swinging movement thereof, a tooth on the dog adapted to engage with the teeth on the rack bar, and means for actuating the dog, substantially as described.

4. In typewriter back-feed mechanism, in combination with a pivoted rack bar, a dog provided with a guard lip, normally out of line of swinging movement of the rack bar, and adapted when the dog is thrown into back-feeding position, to be moved into position to bear against the face of the rack bar and prevent swinging movement thereof, a tooth on the dog adapted to engage with the teeth on the rack bar, a bell crank lever to which the dog is pivoted, means for permitting the dog to move freely in one direction and adapted to hold the dog against movement in the opposite direction, and means for actuating the bell crank lever, substantially as described.

5. In typewriter back feed mechanism, in combination with a rack bar adapted to be moved into and out of engagement with the escapement devices, a back feeding device normally out of engagement with the rack bar and comprising a dog provided with a tooth for engaging the rack bar, and a lip for preventing lateral movement of the rack bar when the back feeding device is moved into and out of engagement with the rack bar, substantially as described.

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Witnesses:
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