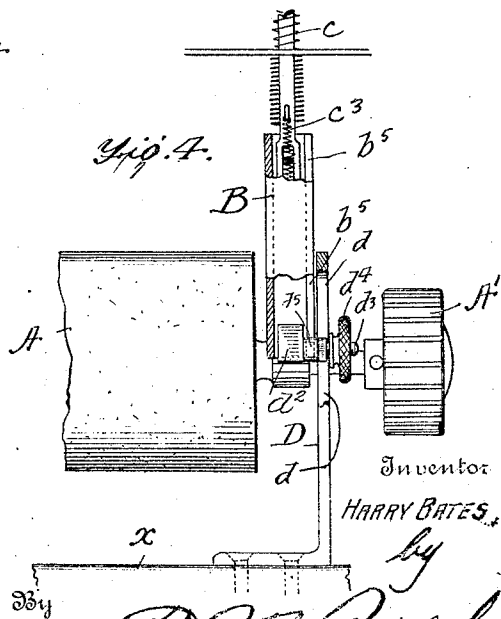
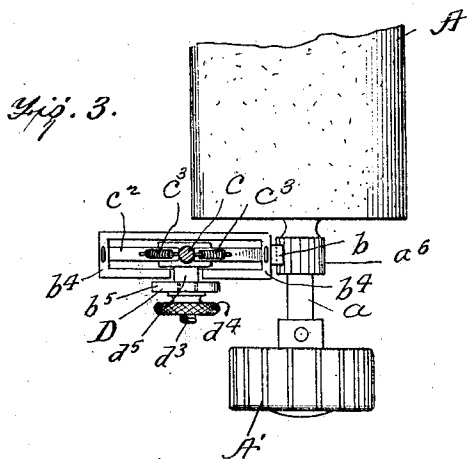
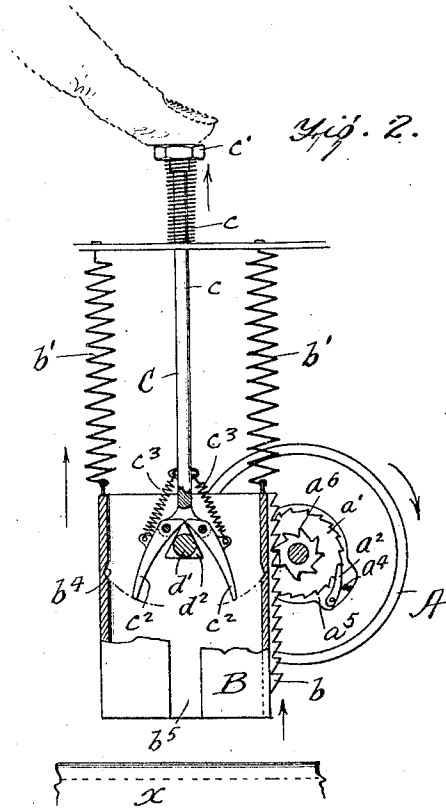
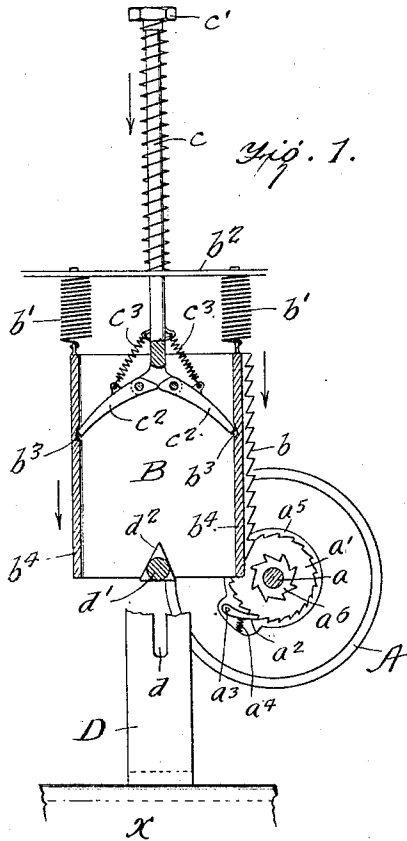


H. BATES.
TYPE WRITER PLATEN ACTUATING MECHANISM.
APPLICATION FILED FEB. 1, 1911.

1,034,058.

Patented July 30, 1912.

2 SHEETS—SHEET 1.



Witnesses

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2 SHEETS—SHEET 2.

Fig. 5.

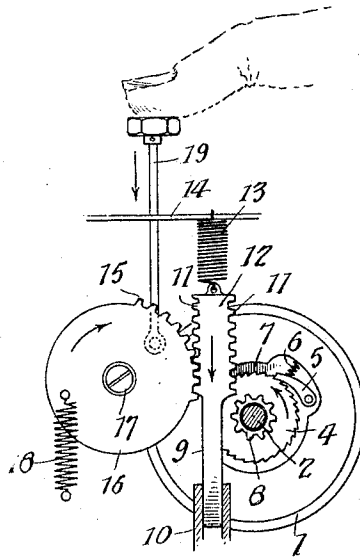


Fig. 8.

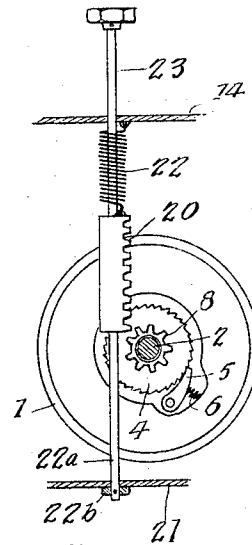


Fig. 6.

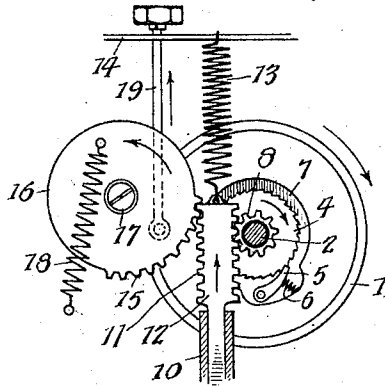
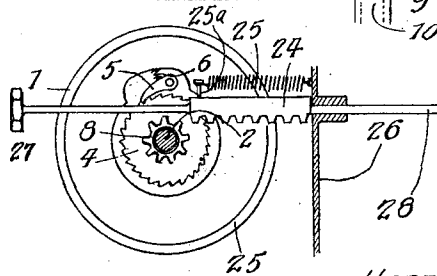
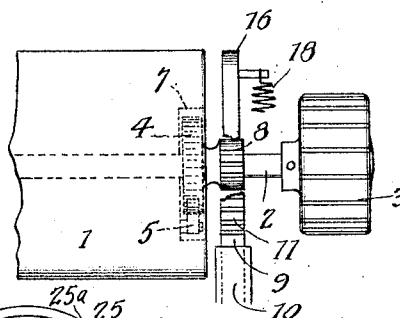


Fig. 7.



WITNESSES:

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Fig. 9.

By

[Signature]
ATTORNEYS

UNITED STATES PATENT OFFICE.

HARRY BATES, OF WEST COPAKE, NEW YORK.

TYPE-WRITER-PLATEN-ACTUATING MECHANISM.

1,034,058.

Specification of Letters Patent.

Patented July 30, 1912.

Application filed February 1, 1911. Serial No. 605,983.

To all whom it may concern:

Be it known that I, HARRY BATES, a citizen of the United States, residing at West Copake, in the county of Columbia and State of New York, have invented new and useful Improvements in Type-Writer-Platen-Actuating Mechanisms, of which the following is a specification.

In the typewriter art, it has been customary, up to the present time, in order to feed typewriter paper or envelopes to position on the typewriter-platen, to provide either a manipulating hand-wheel or twirler on one, or each, end of the typewriter-platen shaft or axis, or a fulcrumed hand-lever provided on its lower end with an arcuate rack engaging a pinion or cog-wheel on the platen-shaft. In the case of the hand-twirler, it usually requires several separate movements of the operator's hand properly to position the paper on the platen, the twirler being somewhat objectionable for this reason; and the hand-lever, with its associated parts, is more or less complicated, and, in this respect, is objectionable, also.

The fundamental objects of this invention, therefore, are *inter alia*, to provide novel means for quickly and easily feeding paper to position on a typewriter platen, with but a single movement of the operator's hand, and to furnish a mechanism of this description which will dispense with the laborious twirling of the typewriter-platen hand-wheel, in feeding a paper or envelop to position upon, or in discharging it from, the platen.

A subsidiary object is to provide a device of the character outlined, which will embody the maximum of simplicity of construction, of practicability, and of ease of operation, with a minimum of cost to manufacture.

The device is designed to be susceptible of manufacture at such a figure as not to add materially to the cost of any typewriter to which it may be applied.

Another subsidiary object is to provide a device which will be very compact and of inconsiderable size, whereby it may be attached to a typewriter without presenting an unsightly appearance, or be unduly conspicuous, and without being in the way of any of the movable parts of the typewriter, or of the hands of the typewritist in manipulating the keys of the typewriter, etc.

With the above, specifically-stated objects in view,—and of others, going to make up

the ultimate perfection of the invention *in toto*, which will appear as the specification proceeds and the nature of the invention more fully appears,—the invention comprehends, in its broadest aspect, the employment of spring-actuated means for rotating the typewriter-platen in a rearward direction so as to feed the typewriter-paper to position on the platen, or to discharge the paper (or envelop) therefrom; and the invention resides, particularly, in the novel construction, combination, and arrangement of parts, as will be hereinafter fully described in the specification, pointed out in the appended claims, and illustrated in the accompanying drawing.

In the drawing, I have shown four forms of embodiment of my invention, for purposes of illustrative example; it being understood, of course, that the invention is susceptible of embodiment in other forms, without departing from the spirit of the invention.

For purpose of clearer and more salient exhibition of my invention, I have omitted, in the drawing, illustration of all parts of a typewriter not correlated or germane to the invention at issue, as being entirely superfluous to an understanding of my invention.

The different figures of the drawings may be briefly described as follows:

Figure 1 is an end view, partly in section, of the preferred form of my improvements, showing the initial operating-rod or lever in normal position; Fig. 2 is a similar view, showing the position of the parts after depression of the initial operating-rod; Fig. 3 is a view in top plan of my improvements; Fig. 4 is a front elevation, partly in section, of my improvements. Fig. 5 is an end view, in elevation, showing a modified form of my invention, and illustrating the different parts, as regards their respective positions, before actuation thereof; Fig. 6 is a similar view, showing the respective positions of the different parts after initial movement thereof; Fig. 7 is a fragmentary view, in front elevation, of said modified form of invention, certain parts being broken away; Fig. 8 is a view, similar to Fig. 5, showing another modified form of my invention; and Fig. 9 is a view, in end elevation, exhibiting still another modified form of my invention.

Referring, now, in detail to the drawings and, first, to Figs. 1 to 4 thereof: A desig-

nates a typewriter-platen, having a shaft or axis a , on the end of which may be the usual hand-twirler A' . Loosely mounted on said shaft is a ratchet-wheel a' engaged by a spring-pressed pawl a^2 pivoted at a^3 to one of the end faces of the platen, the pawl-spring being designated by a^4 . Conveniently, said ratchet-wheel, pawl and spring may be disposed in a cavity or recess a^5 in said end face of the platen. This is given as an example of a simple form of clutch, but any suitable form of clutch may, of course, be used. Also loosely mounted on said shaft a and integral with, or rigidly attached to, said ratchet-wheel a' is a smaller ratchet-wheel a^6 . It will be obvious that movement of the ratchet-wheel a^6 in one position, *i. e.*, to the left in Fig. 1, will not revolve the typewriter-platen, since the ratchet-wheels a' and a^6 are loose on the shaft a and the pawl a^2 slips idly over the teeth of the wheel a' ; and that movement in the reverse direction, will revolve the platen, since the pawl a^2 engages a tooth of the ratchet-wheel a' and thus locks said ratchet-wheel and connected or integral wheel a^6 to said platen, against movement independent thereof, whereby the ratchet-wheels a' and a^6 and platen A revolve together, and thus the platen A is revolved rearward, *i. e.*, in the direction to cause the positioning of the paper or envelop upon the platen A . Disposed in proximity to said ratchet-wheel a^6 is mechanism for revolving the same, and which may take various forms.

My preferred form of mechanism is shown in Figs. 1 to 4, and will now be described: B designates a vertically-disposed and vertically-reciprocable member, which, in this instance, comprises an open-ended, oblong box, casing, or shell (the particular shape being immaterial), carrying, along the vertical side thereof adjacent the ratchet-wheel a^6 , ratchet-teeth b , constituting a rack, coöperable with the ratchet-wheel a^6 . While I have shown, as an example, ratchet-teeth on the wheel a^6 and on the shell B , cog-teeth may, of course, be used instead, if desired, and this is so obvious as not to require illustration; but such cog-teeth are shown in connection with the modified forms of devices illustrated in Figs. 5 to 9. Maintaining the shell B in normal position, with the rack b out of engagement with the ratchet-wheel a^6 , is a resilient medium, which may take the form of coiled springs b' , b' , one end thereof being secured to a bridge or overhead bracket b^2 and the other end thereof secured to the top of said shell B . A vertically-disposed and vertically-reciprocable stem, or rod C works through the bridge b^2 ; a coiled spring c , encircling said stem and bearing at one end against the lower surface of the key c' carried at the top of said rod C and, at its

lower end, against the upper surface of the bridge b^2 , serving to maintain the rod C in normal position and, after depression of said rod, to return it to normal position. Dogs or fingers c^2 , c^2 are pivotally secured, near one end thereof, to the lower end of said rod C , the other end of said dogs, in the normal position of the shell B , being engageable in notches b^3 , b^3 on the inner surface of the two vertical end walls b^4 , b^4 of said shell. Coiled springs c^3 , c^3 , one end thereof being secured to the rod C and the other end thereof to the dogs c^2 , c^2 , serve to maintain the dogs normally in engagement with the shell B . It will be noted that the dogs c^2 , c^2 constitute a clutch between the rod C and the shell B , and, while I have shown these dogs as an example of a simple and convenient form of clutch, other forms of clutches may be used, if desired.

D represents a vertical bracket carried by the typewriter-carriage X , and having a longitudinal slot d . Vertically-adjustable in, and projecting at both ends through, said slot d is a shaft d' , projecting, also, through a longitudinal slot b^5 in the side wall b^6 of the shell B . The slots d and b^5 are parallel. The end of the shaft d interiorly of the shell B carries a stop or abutment d^2 , preferably triangular shaped in transverse section. The opposite end of the shaft d is threaded, as shown at d^3 , on which is threaded a thumb-nut d^4 , which nut, when tightened, clamps the shaft d' to the bracket D in any desired position of raised or lowered adjustment, and thus, consequently, holding the stop d^2 in any position of raised or lowered adjustment. The portion of the shaft d' extending from the stop d^2 to the bracket D is square in transverse section, as shown at d^5 (Fig. 3), thence onward to the threaded end d^3 thereof is reduced in width and is circular in transverse section. It will be noted that the square portion d^5 of the shaft is of greater width than the slot d in the bracket D , so that the portion d^5 of the shaft may be clamped against the bracket D by means of the adjusting-nut d^4 .

The operation of the device is apparent, but, briefly described, it is as follows: The operator presses down upon the key c' , and the rod C , through the clutch-device c^2 , c^2 , forces the shell B downward, until the inner, adjacent ends of the fingers or dogs c^2 , c^2 , contact with the apex of the triangular-shaped stop d^2 , which will rock said fingers on their pivots, thus (as shown in Fig. 2) releasing said fingers from engagement with the shell B and permitting return of the shell to normal position, independent of the return of the rod C to normal position. In the downward movement of the shell B , the rack b meshes with the ratchet-wheel a^6 , rotating the same, but this direction of rotation of the ratchet-wheel

effects no rotation of the platen, it is to be remembered. However, as soon as the shell B is released from engagement with the dogs c^2 , c^2 (as shown in Fig. 2), the springs b' , b' return the shell B to normal position, and consequently rotate the ratchet-wheel in a direction the reverse of that just described, and, with said ratchet-wheel a^6 , the ratchet-wheel a' , with the result that the platen A is revolved in the direction of the arrow in Fig. 2, to feed the paper or envelop to position upon the platen, or to discharge the paper or envelop thereof, if it is already upon the platen and writing thereupon has been completed. By adjusting the stop d^2 up or down, contact between the stop and the fingers c^2 , c^2 , may be effected at differing periods in the downward movement of the shell B, and, thus, the degree or amount of revolution of the platen A may be adjusted, as desired by the operator.

Referring, now, to Figs. 5 to 7 of the drawings: 1 designates a typewriter-platen, and 2 the shaft or axis thereof; 3 the usual hand-twirler. Loosely mounted on said shaft is a ratchet-wheel 4 engaged by a spring-pressed pawl 5 pivoted at 6^a to one of the end faces of the platen, the pawl-spring being designated by 6. Conveniently, said ratchet-wheel, pawl, and spring may be disposed in a cavity 7 in said end face of the platen. This is given as an example of a simple form of clutch, but any suitable form of clutch may, of course, be used. Also loosely mounted on said shaft 2, and integral with or rigidly connected to, said ratchet-wheel 4, is a small pinion or cog-wheel 8. It will be obvious that movement of said pinion or cog-wheel 8 in the direction of the arrow on the ratchet-wheel 4, in Fig. 1, will not revolve the typewriter-platen, since the cog-wheel is loose on the shaft 2 and the pawl 5 slips idly over the teeth of the ratchet-wheel 4; but that movement of said pinion 8 in the reverse direction will revolve the platen, since the pawl engages a tooth of the ratchet-wheel 4 and thus locks said ratchet-wheel and connected pinion 8 to said platen, against movement independent thereof, whereby the cog-wheel 8, ratchet-wheel 4, and platen 1 revolve together, and thus the platen is revolved rearward, to cause the positioning of the paper or envelop upon, or discharge thereof from, the platen. Disposed in proximity to said cog-wheel 8 is mechanism for revolving the same. This mechanism may take various forms, but I have found that about to be described to be desirable: Disposed in proximity to said cog-wheel 8 is a bar or plunger 9, supported for vertically-reciprocatory movement in any suitable or preferred manner,—in this instance, I have shown, as an example, a guide-tube or dash-pot 10 secured to the typewriter carriage. The upper

portion of this plunger is provided, on each of its two longitudinal end edges, with cog-teeth 11,—the upper portion of the plunger thus constituting a rack 12. The normal position of the plunger 9, when not in use, is with its rack 12 above and thus out of engagement with the cog-wheel 8, so that the platen 1 may be free to be rotated back and forth by the hand-twirler 3, if desired, as for making corrections on preceding lines of matter written upon the paper on the platen. Means for yieldingly retaining this rack 12 in said normal position thereof are provided, and, while these yielding-means may take various forms, I prefer to use a coil-spring, as I have found this to be very efficacious and advantageous for the purpose in view; and I have, therefore, shown, as an example of such yielding means, a coiled spring 13, which is fixed at its upper end to some rigid or stationary part, such as an overhead, stationary bracket 14 carried by the typewriter-carriage.

Means are provided for causing vertically reciprocatory movement of the plunger 9 and with it the rack 12. These means may take various forms; in this instance, I have, as an example, shown a wheel 16 revoluble on a stationary pivot 17 and provided, along a portion of its periphery, with teeth 15, meshing with the teeth 11 on one side of the rack 12, the teeth on the opposite side being adapted to engage with the cog-wheel 8, as above noted. While I have shown in the drawing a coiled spring 18 secured at one end to said wheel 16 and at its other end to a fixed part of the typewriter, to assist in returning the wheel 16 to normal position, after partial revolution thereof, yet said spring is, really, unnecessary, and may be omitted, the spring 13 being sufficient, of and by itself alone, to return all of the parts to normal position after actuation thereof. As a convenient means for actuating said wheel 16, I have shown a rod 19, which may be supported for operative movement in said bracket 14, or in any other manner, as may be desired, and is pivotally connected, at its lower extremity, to said wheel 16.

The operation of the device of Figs. 5 to 7 will now be apparent from the above description of the different parts, taken in connection with the drawing; but, briefly described, it is as follows: When the typewritist desires to feed a paper-sheet or envelop to, or to discharge it from, the platen, she presses with her finger down upon the rod 19, which partially rotates the wheel 16 and, with it, the intermeshing rack 12 is forced downward, bringing its teeth on one side into engagement with the cog-wheel 8, but this downward movement of the rack and consequent rotation of the cog-wheel, it is to be remembered, causes no movement (rotation) of the platen 1: however, as soon

as the typewritist removes her finger from the rod 19, the spring 13 will immediately draw the rack 12 upward, rotating the cog-wheel 8 (with which it intermeshes) in a direction the reverse of that just described above, and causing backward revolution of the platen 1 (through ratchet-wheel 4 and pawl 5), whereby the paper-sheet or envelop is fed quickly to position on the platen, or, if the sheet or envelop is already on the platen and printing upon said sheet or envelop has been completed, it is discharged from the platen. The operation, it will be noted, is very simple and easy, the spring 13, after depression of the rod 19, automatically operating to feed the paper or envelop onto the platen, or to discharge it therefrom.

Referring, now, to the modification shown in Fig. 8: The ratchet-wheel 4, pawl 5, spring 6, and pinion 8 are identical with those shown in the device of the preceding figures, and are for the same purpose. A vertically-disposed and vertically-reciprocatory rack 20 is disposed in proximity to the pinion 8, the normal position of this rack (as with the rack 11 of the device of the preceding figures) being out of engagement with the pinion 8. A stem 23 passes down through a stationary bracket 14 and, at its lower extremity, carries the rack 20. Maintaining the rack 20 normally out of engagement with the pinion is an elastic medium, in this instance a coiled spring 22, the upper end thereof being secured to the bracket 14 and the lower end to the rack 20, the stem 23 passing down through the center of said spring. While the spring 22 is shown as disposed between the bracket 14 and the upper end of the rack 20, of course it may, if desired, be disposed between the plate 21 and the lower end of the rack 20,—this is so obvious as not to require illustration. Any suitable means may be provided for guiding the rack 20 in its vertically-reciprocatory movement: In this instance, I have shown a vertical guide-rod 22^a secured to the rack 20 and passing down through the carriage 21 of the typewriter. A collar or button 22^b may be secured to the lower end of said rod 22^a, beneath the plate 21, to act as a stop to limit upward movement of the rod 22^a, rack 20, and stem 23.

It will be noticed that the principle of operation of the device of Fig. 8 is the same as that of the device of the preceding figures (5, 6 and 7); the rebound of the spring 22, after depression of the stem 23, causing the platen 1 to be revolved rearward to feed the paper or envelop to position upon the platen, or to discharge it therefrom. The principal difference in structure between the device of Fig. 8 and that of the preceding figures is that the wheel 16 of the device of Figs. 5 to 7 is omitted, thus, to this extent,

effecting a simplification of structure and a reduction in cost of manufacture.

Referring, now, to the device shown in Fig. 9: Here, the ratchet-wheel 4, pawl 5, spring 6, and pinion 8 are the same as in the preceding figures, and have the same function and operation. In proximity to the pinion 8 is a horizontally disposed and horizontally-reciprocable rack 24, the normal position of the rack being out of engagement with the pinion. An elastic medium, such as a coiled spring 25, is secured at its rear end to the vertical bracket 26 carried by the typewriter, and, at its other end, to a pin 25^a carried by the rack 24. Any suitable means for guiding the rack in its reciprocatory movement may be provided: In this instance, I have shown a guide-rod 28 working through said bracket 26 and through a bearing 26^a carried by said bracket. A horizontal stem 27 is secured to said rack, for manipulation thereof. The principle of operation of this form of device is the same as in the devices of the preceding figures (5 to 8). The principal difference in structure is that the wheel 16 of the device of Figs. 5 to 7 is omitted, thus, in this respect, effecting a simplification of structure and a consequent reduction in cost of manufacture. It will be noted that, in the device of Fig. 9, the operator pulls outward upon the stem 27, instead of pressing down upon the stems 19 and 23 of the devices of the preceding figures.

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

1. In a typewriter, the combination with a platen having an axial shaft movable in unison therewith, of means for feeding a printing paper-sheet or envelop to position upon said platen, including: a pinion loosely mounted on said shaft, means for locking said pinion to said platen, to move the platen and pinion in unison, when said pinion is revolved rearward, a spring, and means for distorting said spring from normal attitude, the rebound of said spring, after distortion thereof, revolving said pinion rearward.

2. In a typewriter, the combination with a platen having an axial shaft movable in unison therewith, of means for feeding a printing paper-sheet or envelop to position upon said platen, comprehending: a pinion loosely mounted on said shaft, means for locking said pinion to said platen, to move the platen and pinion in unison, when said pinion is revolved rearward, a spring, and a manually-operable member for distorting said spring from normal attitude, the rebound of said spring, after distortion thereof, revolving said pinion rearward.

3. In a typewriter, the combination with a platen having an axial shaft movable in

unison therewith, of means for feeding a printing paper-sheet or envelop to position upon said platen, including: a pinion loosely mounted on said shaft, means for locking said pinion to said platen, to move the platen and pinion in unison, when said pinion is revolved rearward, a rack engageable with said pinion, a spring normally maintaining said rack out of engagement with said pinion, and means for actuating said rack in one direction to traverse said pinion and for distending said spring, the rebound thereof, actuating said rack in the opposite or reverse direction and revolving said pinion rearward.

4. In a typewriter, the combination with a platen having an axial shaft movable in unison therewith, of means for feeding a printing paper-sheet or envelop to position upon said platen, including: a pinion loosely mounted on said shaft, means for locking said pinion to said platen, to move the platen and pinion in unison, when said pinion is revolved rearward, a member carrying a rack engageable with said pinion, a spring for normally maintaining said member with its rack out of engagement with said pinion, means engaging said member for actuating the same to cause its rack to traverse said pinion and to cause distortion of said spring, the rebound thereof actuating said rack in the reverse direction and revolving said pinion rearward, and means for causing automatic release from said member of said means engaging said member, at a predetermined point in the travel of said member.

5. In a typewriter, the combination with a platen having an axial shaft movable in unison therewith, of means for feeding a printing paper-sheet or envelop to position upon said platen, including: a pinion loosely mounted on said shaft, means for locking said pinion to said platen, to move the platen and pinion in unison, when said pinion is revolved rearward, a member carrying a rack engageable with said pinion, a spring for normally maintaining said member with its rack out of engagement with said pinion, means engaging said member for actuating the same to cause its rack to traverse said pinion and to cause distortion of said spring, the rebound thereof actuating said rack in the reverse direction and revolving said pinion rearward, and an adjustable stop for causing automatic release from said member of said means engaging said member, at a predetermined point in the travel of said member.

6. In a typewriter, the combination with a platen having an axial shaft movable in unison therewith, of means for feeding a printing paper-sheet or envelop to position upon said platen, including: a pinion loosely

mounted on said shaft, means for locking said pinion to said platen, to move the platen and pinion in unison, when said pinion is revolved rearward, a member carrying a rack engageable with said pinion, a spring for normally maintaining said member with its rack out of engagement with said pinion, a manually-operable member, a clutch between said manually-operable member and said rack-carrying member, and means for causing automatic release of said clutch from engagement with said rack-carrying member, at a predetermined point in the operation of said manually-operable member.

7. In a typewriter, the combination with a platen having an axial shaft movable in unison therewith, of means for feeding a printing paper-sheet or envelop to position upon said platen, including: a pinion loosely mounted on said shaft, means for locking said pinion to said platen, to move the platen and pinion in unison, when said pinion is revolved rearward, a member carrying a rack engageable with said pinion, a spring normally maintaining said member with its rack out of engagement with said pinion, a manually-operable member, pivoted means carried by said manually-operable member and forming a clutch between said manually-operable member and said rack-carrying member, and means for causing automatic release of said clutch from engagement with said rack-carrying member, at a predetermined point in the operation of said manually-operable member.

8. In a typewriter, the combination with a platen having an axial shaft movable in unison therewith, of means for feeding a printing paper-sheet or envelop to position upon said platen, including: a pinion loosely mounted on said shaft, means for locking said pinion to said platen, to move the platen and pinion in unison, when said pinion is revolved rearward, a member carrying a rack engageable with said pinion, a spring normally maintaining said member with its rack out of engagement with said pinion, a manually-operable member, fingers pivoted to the lower end of said manually-operable member and normally engaging said rack-carrying member, forming a clutch between said manually-operable member and said rack-carrying member, and means for causing automatic release of said fingers from engagement with said rack-carrying member, at a predetermined point in the operation of said manually-operable member.

9. In a typewriter, the combination with a platen, having an axial shaft movable in unison therewith, of means for feeding a printing paper-sheet or envelop to position upon said platen, including: a pinion loosely mounted on said shaft, means for locking said pinion to said platen, to move the platen and pinion in unison, when said pin-

ion is revolved rearward, a member carrying a rack engageable with said pinion, a spring normally maintaining said member with its rack out of engagement with said
5 pinion, a manually-operable member, fingers pivoted to the lower end of said manually-operable member and normally engaging said rack-carrying member, forming a clutch between said manually-operable member and
10 said rack-carrying member, means for causing automatic release of said fingers from engagement with said rack-carrying member, at a predetermined point in the operation of said manually-operable member, and
15 means for automatically and independently returning said manually-operable member to normal position after operation thereof.

10. In a typewriter, the combination with a platen having an axial shaft movable in unison therewith, of means for feeding a
20 printing paper-sheet or envelop to position upon said platen, including: a pinion mounted on said shaft, a spring, and means for distorting said spring from normal attitude, the rebound of said spring, after distortion
25 thereof, revolving said pinion and platen rearward.

In testimony whereof, I have hereunto set my hand in presence of two subscribing witnesses.

HARRY BATES.

Witnesses:

M. W. JOHNSON,

E. T. BRANDENBURG.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."