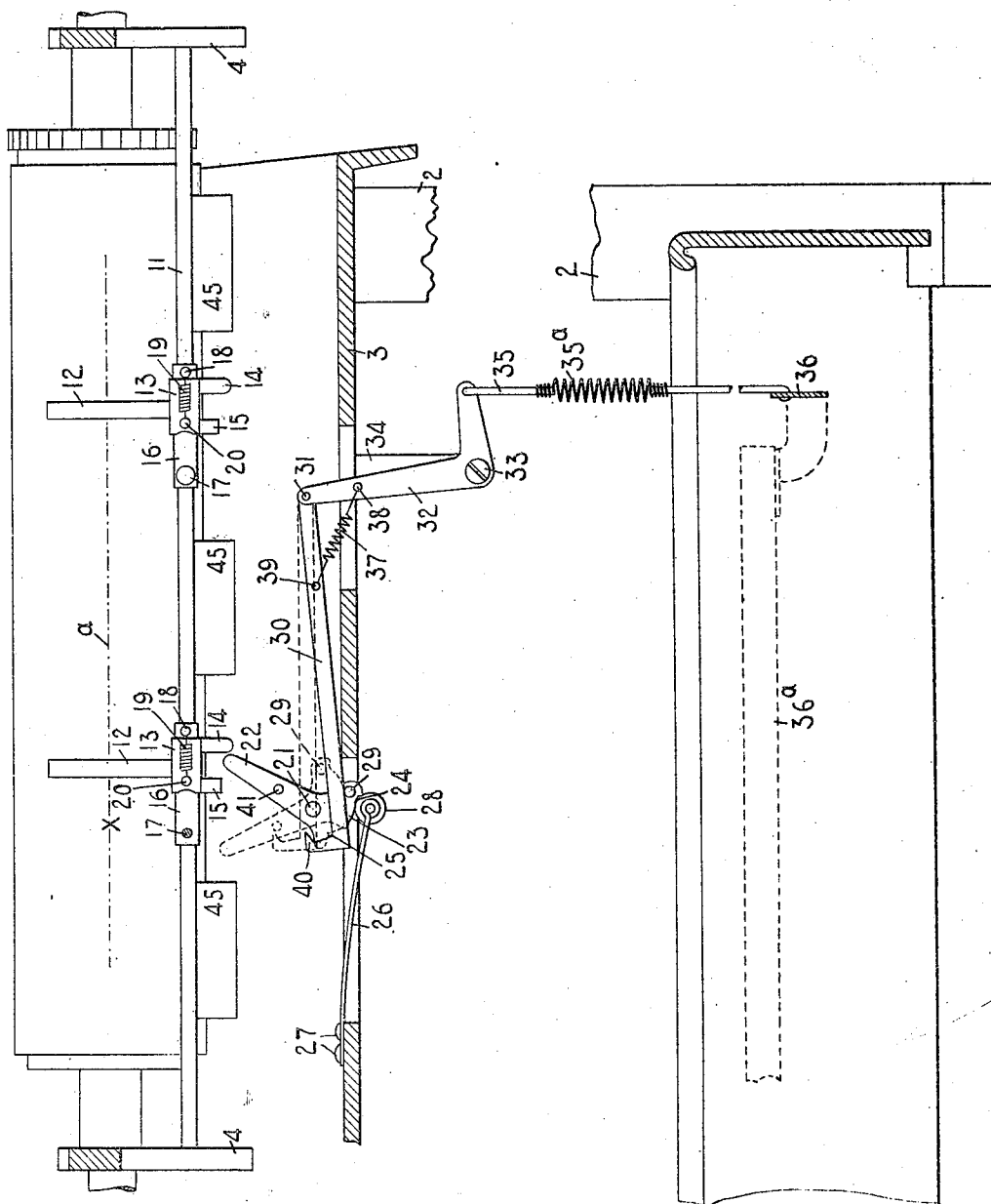


C. H. SHEPARD.
TYPE WRITING MACHINE.
APPLICATION FILED MAY 20, 1910.

1,053,115.

Patented Feb. 11, 1913.
4 SHEETS—SHEET 1.



WITNESSES:

W. F. Hannweber

Charles Smith

FIG. 1.

INVENTOR:

Charles H. Shepard

By Jacob F. Felt

HIS ATTORNEY

1,053,115.

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 4 SHEETS—SHEET 2.

FIG. 2.

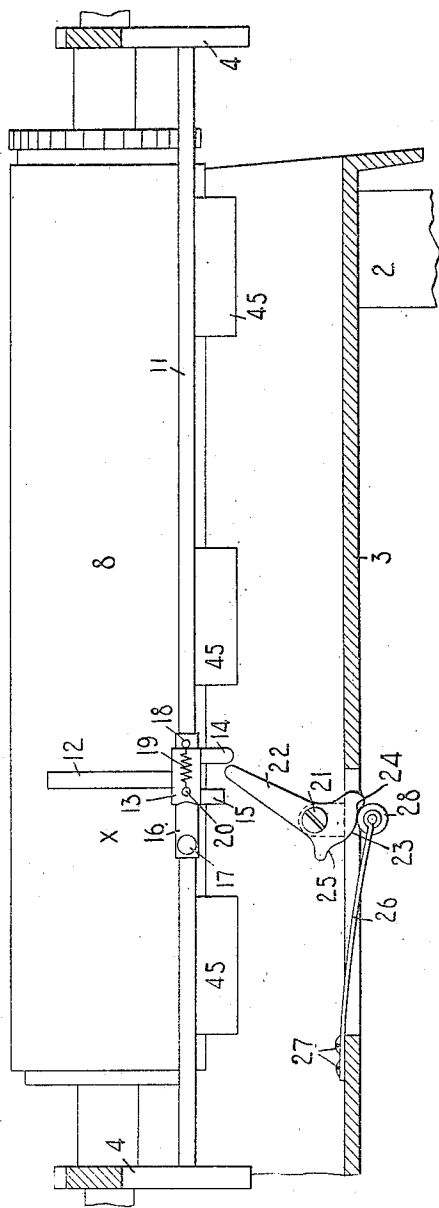


FIG. 4.

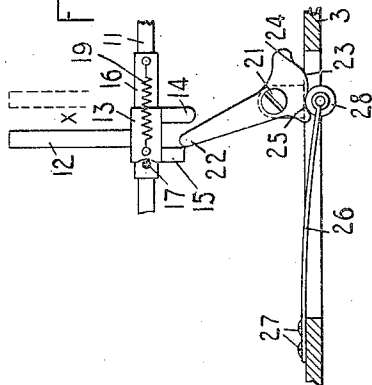
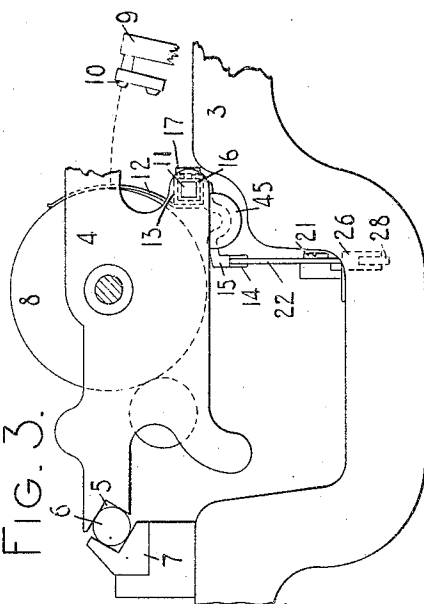


FIG. 3.



WITNESSES:

M. F. Hannover
Wm. E. Smith

INVENTOR

Charles H. Shepard
 By *Jacob Felber*
 HIS ATTORNEY

1,053,115.

4. SHEETS—SHEET 3.

M. F. Hanneker
Charles E. Smith

Charles H. Shepard
By Jacob Feld
HIS ATTORNEY

1,053,115.

Patented Feb. 11, 1913.
 4 SHEETS—SHEET 4.

FIG. 9.

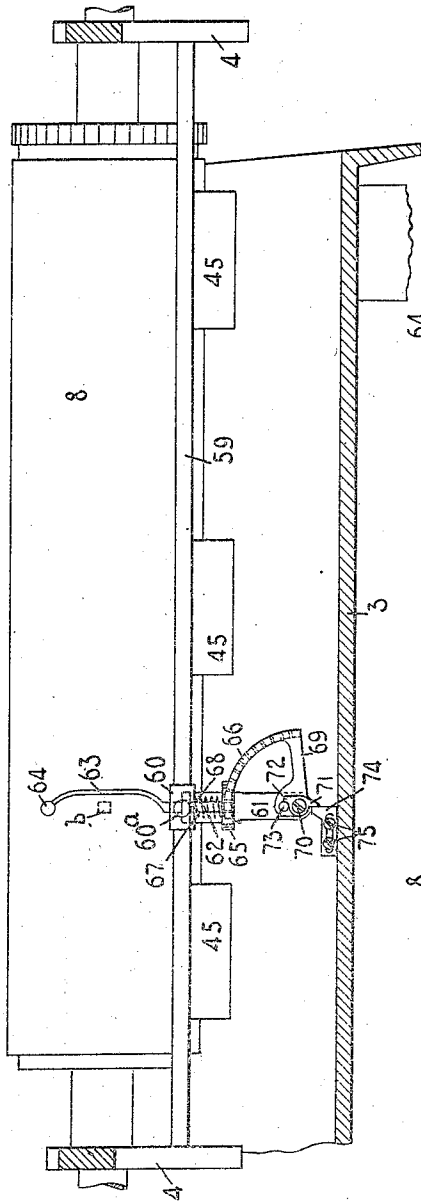
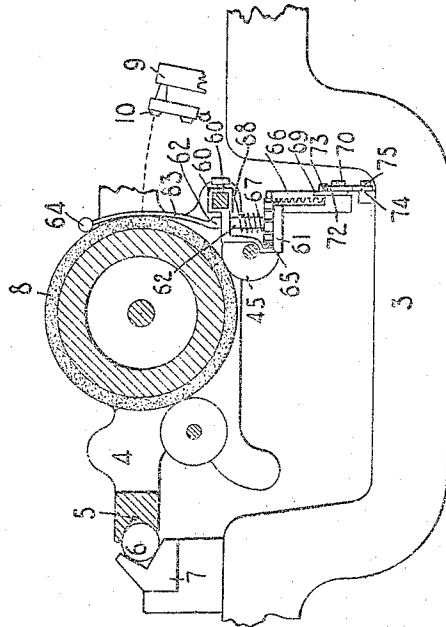
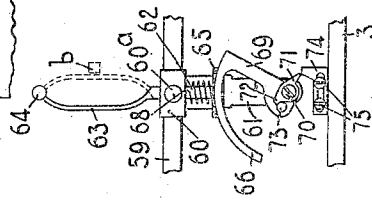


FIG. 11.



WITNESSES.

W. H. Hammer
Charles E. Smith

INVENTOR.

FIG. 10.

Charles H. Shepard
 By *Jacob Feld*
 HIS ATTORNEY

UNITED STATES PATENT OFFICE.

CHARLES H. SHEPARD, OF NEW YORK, N. Y., ASSIGNOR, BY MESNE ASSIGNMENTS, TO
UNION TYPEWRITER COMPANY, OF JERSEY CITY, NEW JERSEY, A CORPORATION
OF NEW JERSEY.

TYPE-WRITING MACHINE.

1,053,115.

Specification of Letters Patent.

Patented Feb. 11, 1913.

Application filed May 20, 1910. Serial No. 562,396.

To all whom it may concern:

Be it known that I, CHARLES H. SHEPARD, a citizen of the United States, and resident of the borough of Manhattan, city of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a specification.

My invention relates to typewriting machines and more particularly to paper feed mechanism.

The main object of my invention is to provide means for efficiently maintaining the paper snug against the platen at the printing line and for preventing the paper controlling devices which cross the printing line and which travel with the paper carriage from being struck by the printing instrumentalities.

To the above and other ends which will hereinafter appear, my invention consists in the features of construction, arrangements of parts and combinations of devices to be hereinafter described and particularly pointed out in the appended claims.

In the accompanying drawings wherein like reference characters indicate corresponding parts in the various views, Figure 1 is a fragmentary front elevation, partly in section, of a sufficient number of parts of one form of typewriting machine to illustrate my invention in its embodiment therein. Fig. 2 is a like view of a modified form of construction. Fig. 3 is a fragmentary end elevation of the parts shown in Fig. 2. Fig. 4 is a fragmentary detail view of certain of the parts shown in Fig. 2, the parts being shown differently disposed in the two views. Fig. 5 is a view corresponding to Fig. 2 but showing a still further modified form of construction embodying my invention. Fig. 6 is an end view of the parts shown in Fig. 5. Fig. 7 is a detail fragmentary front view of one of the paper guides and certain of the associated parts, the view illustrating the disposition of the parts after tension has been placed on the actuating spring thereof. Fig. 8 is a view corresponding to Fig. 7 but showing the parts as they are disposed just prior to the movement of the paper finger past the print-

ing point. Fig. 9 is a fragmentary front elevation with parts broken away and parts in section of a still further modified form of construction embodying my invention. Fig. 10 is a side elevation of the same with parts in section. Fig. 11 is a detail fragmentary front elevation of the guide finger and the controlling means therefor, the parts being represented as they appear after the paper finger has passed the printing point.

I have shown my invention in the present instance embodied in a front strike machine in which the carriage is fixed against case shifting movement, although it should be understood that the invention may be embodied in various styles of typewriting machines.

The frame of the machine comprises a base 1, corner posts 2 and a top plate 3. A carriage 4 is provided with grooved rails 5 which receive anti-friction balls or rollers, said balls or rollers being likewise received in oppositely grooved fixed guide rails 7 secured to the top plate 3 of the machine. The carriage supports a cylindrical platen 8 and is adapted to travel across the top plate from side to side of the machine. Segmentally arranged upwardly and rearwardly striking type bars 9 carry types 10 which are adapted to strike against the front face of the platen, and in the present instance the type basket may be supposed to receive a case shifting movement. The parts thus far described are substantially the same in the various constructions illustrated in the drawings.

Referring now more particularly to Figs. 1 and 2, it will be seen that a cross rod or bar 11 is secured at its ends to the end plates of the carriage 4 and extends from side to side of the carriage in front of the platen and beneath the printing line indicated by the dotted line *a*. A paper finger 12 which is curved to conform to the curvature of the platen extends upwardly across the printing line from a supporting sleeve, collar or support 13 that is rectangular in cross section. Any suitable number of these paper feed or guide fingers may be employed, two being shown in Fig. 1 and only one in Fig. 2. Each of the supports 13 is

provided with depending fingers or pins 14 and 15, one longer than the other for purposes which will hereinafter more clearly appear. Each of the supports 13 is mounted on a second rectangular support 16 which surrounds the angular cross rod 11 and is adapted to be adjusted to different positions longitudinally thereof and to be held in the adjusted position by a set screw 17. Each carrier 13 is movable longitudinally of the platen on its support 16 between a stop pin 18 and the set screw 17 by which the associated member 16 is held in position on the supporting rod 11. A contractile spring 19 is connected at one end to the stop pin 18 and at its opposite end to a pin 20 which projects forwardly from the associated carrier 13. The pressure of the spring is thus exerted to normally maintain the associated carrier 13 in contact with the stop pin 18. Both of the paper fingers shown in Fig. 1 are mounted in a like manner. Pivoted to a suitable support on the top plate, as indicated at 21, is a lever-like actuating device 22, the upright arm of which extends up into the path of the depending fingers 14 for co-operation therewith. The pivot 21 is arranged slightly to the right of the printing point X. A depending tail piece of the lever 22 is formed with an eccentrically arranged cam 23. A depression 24 in the face of the cam is provided near one end thereof and a corresponding depression 25 is provided at the other end of the cam. A leaf spring 26 is secured at one end as at 27 to the top plate of the machine. The free end of the leaf spring carries an anti-friction roller 28 which bears against the cam 23 on the lever-like actuating or controlling device 22. When the roller 28 is seated in the depression 24 the lever is maintained in the full line position shown in Fig. 1, whereas when the upper end of the lever is shifted slightly to the left the notched portion will be moved away from the roller and the spring 26 will then become effective on the cam to turn the controlling device to the dotted line position shown in Fig. 1 where it is retained by the roller 28, being seated in the depression 25. Referring now particularly to Fig. 1 it will be seen that a pin 29 is carried by the actuating device and extends forwardly therefrom. A link 30 is pivoted at its right-hand end, as at 31, to an angular lever 32 pivoted at 33 on a depending bracket arm 34. An upright link 35 is connected at its upper end to the angular lever 32 and at its lower end to a lever 36 which is connected to a suitable key. In the present instance the lever 36 constitutes one of the space key levers for a space key 36^a. The link 35 is in the nature of a two-part link with an interposed contractile spring 35^a connecting the inner

ends of the two parts. The purpose of this spring will be hereinafter described. A contractile spring 37 is connected at one end, as at 38, to the lever 32 and at its opposite end, as at 39, to the link 30. The left-hand end of the link 30 is extended upwardly and is provided with a hook 40. A pin 41 extends forwardly from the front face of the actuating device 22 and, under certain conditions as will hereinafter appear, is adapted to extend in the path of movement of the hook 40. It will be seen that when the parts are in the full line position shown in Fig. 1, a depression of the spring key is effective to actuate the lever 32 and to pull the hook 40 to the left. The free end of the link 30 at this time is supported on the pin 29 in such a position that the hook 40 will pass to the right beneath the pin 41 without engaging it and the actuating device 22 will be in no way affected by the actuation of the space key. When, however, the actuating or controlling device 22 is moved to the dotted line position the pin 29 will lift the free end of the link 30 and the hook 40 will be brought into coöperative relation with the pin 41. An actuation of the space key at this time is ordinarily effective to bring about an engagement between the hook 40 and the pin 41, so that in the further movement of the link 30 to the right, the upper end of the controlling device 22 will be shifted to the right, against the pressure of the spring 26, from the dotted to the full line position, it being understood that the power of the spring 35^a is sufficient to overcome the power of the spring 26.

The operation of the devices is as follows: Assuming the actuating device 22 to be in the normal or full line position, a movement of the carriage from right to left will carry the depending finger 14 of the first of the paper guides into contact with the upper end of the pivoted device 22, swinging it against the pressure of the spring 26 until the roller 28 is displaced from the depression 24. The spring 26 will then become effective to force the actuating device 22 to the dotted line position and thus complete its movement. This movement is effective to bring the upper end of the device 22 into engagement with the depending finger 15 on the paper guide and to force the paper guide in the direction of the travel of the carriage independently of or relatively to the carriage. The parts are so positioned and arranged that this independent movement of the paper guide takes place just before the printing point is reached so that the paper finger is moved rapidly, relatively to the carriage, past the printing point and is held in this position against the pressure of the spring 19 until the carriage by its successive letter feed movements moves the pin 18 of

the associated paper guide up to the carrier 13, thereby taking up the paper finger and moving it forward with the carriage. As the carriage continues to move to the left, the finger 14 of the first guide will act upon the upper end of the device 22, depressing it against the pressure of the spring 26 until the finger snaps past the actuating device in the movement of the carriage to the left.

As soon as the finger 14 of the first paper guide has passed the actuating device the latter will snap back under the pressure of the spring 26 to the dotted line position. As the operator proceeds with the writing a depression of the space key will actuate the hook 40 and bring about a movement of the device 22 back to the full line position, this movement occurring at the first operation of the space key. This backward movement of the device 22 restores it to a position where it is cooperative with the depending projection 14 on the carrier of the next paper finger. As the next paper finger is brought into cooperation with the device 22, the previously described operations will be carried out and as the second paper finger approaches the printing point it will be snapped past the printing point before a type has an opportunity to strike it. If for any reason the space key be not actuated before the carriage is returned to the right, then the device 22 in the dotted line position will be brought into cooperation with the depending finger 14 of the right-hand guide and will be held against the pressure of the spring 19 until the stop 17 cooperates with the carrier 13, which will positively force the carrier and the depending finger 14 to move with the carriage, and this movement will be effective to restore the device 22 to the full line or normal position. As the pin 14 passes over the device 22 the latter will be slightly depressed by the pin against the pressure of the spring 26 and after the pin 14 has passed out of contact with the device 22, then said device will be restored to its normal or full line position by the spring. The spring 35^a is in the nature of a safety device to enable the space key 36^a, under certain conditions, to be depressed without restoring or resetting the device 22. Thus if the space key should happen to be depressed when the device 22 is in the dotted line position in Fig. 1, and when a pin 14 engages the right-hand side of the device 22 and the pin 18 for the associated carrier 13 is in contact with said carrier, then the spring 35^a will be stretched without resetting the device 22, since while the power of the spring 35^a is sufficient to overcome the power of the spring 26, it is insufficient to overcome the spring 26 and the power of the carriage spring as well, which latter at this time opposes the return movement of the device 22. Were it

not for the spring 35^a a depression of the space key, under the conditions enumerated, would tend to move the carriage to the right. It will be understood, therefore, that the spring 35^a acts in the nature of a safety device to prevent the device 22 from moving the carriage. As soon as the pin 14 passes over or clears the device 22 an actuation of the space key is effective to reset the device 22 in the manner hereinbefore described.

The construction shown in Figs. 2, 3 and 4 is identically like that shown in Fig. 1 except that in the modified construction the means controlled by the space key for restoring the device 22 to the full line position has been eliminated. The construction shown in Figs. 2, 3 and 4 is effective where but a single paper guide finger is used and where there is no necessity of restoring the actuating device 22 to normal position before a second guide reaches it. In the construction shown in Fig. 2 the device is shifted to the position shown in Fig. 4 in the manner hereinbefore described and is shifted back to the position shown in Fig. 2 by the travel of the depending finger or pin 14 with the carriage in the movement of the latter to the right.

It is believed that a further detailed description of the construction shown in Figs. 2, 3 and 4 is unnecessary, the operation being the same as that previously described. It will be observed that in Figs. 2 and 4 the printing point is represented at X and in Fig. 2 the parts are shown disposed as they appear when the pin 14 is about to reach the controlling device 22. In Fig. 4 the parts are shown as they appear just after the paper finger has been shifted past the printing point X.

In the form of construction shown in Figs. 5, 6, 7 and 8, paper fingers 12^a cross the printing line and are each carried by a sleeve 42 provided with a depending bracket 43. Each of the sleeves 42 loosely surrounds the shaft 44 of the forward set of paper feed rollers 45. A stop collar 46 cooperates with each carrier or sleeve 42 to arrest its movement to the left, each of the collars being adjustably fixed to the shaft 44. An expansion spring 47 is associated with each of the carriers 42 and bears at one end against the carrier and at its opposite end against the sleeve 48 adjustably fixed to the shaft 44. The pressure of each spring 47 is thus exerted to normally maintain the associated carrier 42 in contact with its stop 46 as shown in Fig. 5. A paper apron 49 is provided with pins 50, one for each of the paper fingers and for purposes which will hereinafter more clearly appear. Each of the depending brackets 43 carries an arm 51 pivoted to the bracket at 52. A spring 53 is connected at one end to pins 54 and 55

and bears at its free end against the pivoted arm 51, tending to move the arm to the left. Each arm 51 is provided with a stop or projection 56 which coöperates with the associated pin 55 to limit the turning movement of the arm under the pressure of its spring 53. A cam or wiper 57 is adjustably fixed to the top plate of the machine by a nut 57^a threaded onto a depending screw of the wiper, which nut bears against the top plate and holds the wiper in the different positions to which it may be adjusted along a slot 57^b in the top plate. The wiper extends into the path of anti-friction rollers 58 carried by the arms 51. As the carriage moves to the left the first of the arms 51, or the anti-friction roller 58 carried thereby, will be brought into contact with the wiper 57, holding it during the step-by-step travel of the carriage and thereby compressing the associated spring 47, as represented in Fig. 7. It will be understood, of course, that the tension of each spring 53 is sufficient to overcome the pressure of the associated spring 47 during the movement of the carriage by the usual spring drum (not shown). The movement of the carriage continues to compress the spring 47 until the associated stop 50, carried by the carriage, is brought into contact with the paper finger and positively moves the paper finger and its carrier in the direction of the feed of the carriage and overcomes the pressure of the spring 53 as represented in Fig. 7. This movement of the paper finger with the carriage continues until the associated anti-friction roller 58 is released from the wiper 57. At this time the parts are in about the position represented in Fig. 8. As soon as the arm 51 is released from the wiper 57 the associated spring 47 becomes effective to quickly move the carrier and paper finger in the direction of the travel of the carriage, and independently thereof, past the printing point as represented in dotted lines in Fig. 8. This movement of the paper finger past the printing point is so rapid that the types cannot strike it during the printing operations. In the movement of the carriage from left to right the anti-friction rollers 58 ride up on the inclined face of the wiper 57, flexing the spring 53 until the arm 51 passes the wiper, when the arm is restored to normal position by its spring 53. It will be observed that in this construction each of the paper fingers carries its own tripping devices which are coöperative with the wiper; and each paper finger has associated therewith the spring by which the paper finger is moved past the printing point.

In the construction shown in Figs. 9, 10 and 11, a cross rod 59, rectangular in cross section and similar to the rod 11 in the construction shown in Figs. 1 to 4 inclusive, is

fixedly connected at its ends to the end plates 65 of the carriage 4. A carrier 60, in the nature of a sheath is provided with a rectangular opening to fit the rod 59. A set screw 60^a is received in a threaded opening in the carrier and bears at its inner end against the rod 59 to hold the carrier and the parts carried thereby in the position to which they may be adjusted along the bar 59. This carrier supports a bracket 61 provided with bearings in which a journal or shaft 62 is adapted to turn, the shaft carrying or being formed as a part of a paper finger 63 which extends upwardly therefrom and crosses the printing line. The paper finger as shown in Fig. 9 is bowed laterally and as shown in Fig. 10 is likewise curved slightly to conform to the curvature of the platen. The upper end of this paper finger is provided with a bearing device or ball 64 which is adapted to bear against the platen and the center of which is substantially in line with the shaft 62 of the paper finger. The bowed portion of the finger 63 is offset or bent laterally from the axial line of the shaft 62 which extends through the ball 64 and around which the paper finger is adapted to turn. The lower end of the shaft 62 is provided with a pinion 65 fixed thereto and is adapted to mesh with a segmental rack 66. A coiled spring 67 surrounds the shaft 62 and is fixed at one end to the pinion 65 and is fixed at its opposite end to the carrier 60, as indicated at 68. The segmental rack 66 has a radially extending arm 69 pivoted by a shouldered pivot screw 70 to the depending bracket 61. Pivoted on this same shouldered pivot screw is a tripping pawl 71 provided with a tail piece 72 which coöperates with a pin 73 carried by the arm 69. The pawl 71 is coöperative with a wiper 74 adjustably secured by screws 75 to the top plate of the machine.

The operation of the devices disclosed in Figs. 9, 10 and 11 is as follows:—The paper finger and the parts associated therewith are normally disposed, as shown in Fig. 9, being held in this position by the spring 67. As the carriage moves to the left the pawl 71 is brought into contact with the vertical right-hand face of the wiper 74. As the carriage continues to move the lower end of the pawl is arrested by the wiper and causes the segmental rack to turn on its pivot, thereby turning the rock shaft 62 through the engagement of the segmental rack with the pinion 61. This movement takes place just before the paper finger reaches the printing point, indicated at 6.

The parts are so arranged that a single letter space movement of the carriage is effective to turn the paper finger from the position shown in full lines in Fig. 9 to the full line position shown in Fig. 11, so that

the paper finger is moved past the printing point in the general direction of the feed of the carriage before the type can strike it. The movement of the shaft 62 around its axis during the turning movement of the paper finger places the spring 67 under greater tension and when the carriage has moved to a position such as that indicated in Fig. 11, where the pawl 71 is just about to trip off of the wiper 74, the paper finger 63 will be at a point where its reverse movement to normal position will clear the printing point, as indicated by the dotted lines in Fig. 11. This reverse movement of the paper finger to normal position is effected when the pawl 71 escapes from the wiper, the tension of the spring 67 being then effective to restore the parts to normal position. The turning movement of the paper finger from the position shown in Fig. 9 to a position corresponding to the full line position shown in Fig. 11 is effected by a single letter space movement of the carriage. The next letter space movement of the carriage carries the paper finger along with it without turning the finger farther and brings the parts into the position shown in Fig. 11 where the pawl 71 escapes from the wiper and the paper finger will be free to be restored to normal position by the pressure of the spring 67. During this last letter space feed movement of the carriage, the pawl 71 slides over the upper flat end or dwell of the wiper until the pawl is released from the wiper. It may be found desirable in some instances to make the dwell on top of the wiper 74 longer in order that the pawl 71 may be held thereon during several letter space movements of the carriage, thus carrying the paper finger several letter space distances farther to the left of the printing point than is shown in Fig. 11 before the pawl is released from the wiper and the finger is free to turn back to normal position. In such a construction the paper finger would be several letter space distances from the printing point when the finger is turned back to normal position instead of being but a single letter space distance therefrom as shown in Fig. 11. It will therefore be understood that no turning movement is transmitted to the paper finger except the turning movement effected at a single letter feed movement of the carriage, which is effective to turn the paper finger past the printing point and after the pawl 71 passes the wiper and the parts are restored to normal position as hereinbefore pointed out. During the movement of the carriage from left to right, the right-hand face of the pawl 71 will engage the inclined face of the wiper and turn the pawl on its pivot 70 without transmitting movement to the segmental rack.

It will be understood that by this construction any suitable number of adjustable paper fingers may be employed and that each paper finger will be automatically swung past the printing point in the general direction of the letter space feed of the carriage during the travel of the carriage in the direction of its feed and that this movement of the paper finger is a movement effected independently of the bodily movement of the paper finger with the carriage. Moreover, it will be understood that the parts are so constructed and arranged, and that their movements are so timed that each of the paper fingers shown and described crosses the printing point during the interval between two printing movements of the printing instrumentalities, the movement being from an unprinted portion of the line to a printed portion thereof. This is brought about by timing the movement of each paper finger relating to the carriage so that such relative movement will take place at the let-off of the carriage and by effecting such let-off as a type recedes from the printing point as when an "ordinary" escapement mechanism is employed.

When I refer herein to the parts 12, 12^a and 63 as paper feed devices, or employ like terms to designate the parts in question, it should be understood that I use these terms in a generic sense and intend to include by these terms various devices which assist in controlling, holding or guiding the paper during the feed movement thereof, whether such devices be in the nature of paper fingers, or other equivalent devices.

Various changes may be made without departing from the spirit and scope of my invention.

What I claim as new and desire to secure by Letters Patent, is:—

1. In a typewriting machine, the combination of a platen, a paper feed device which travels with the platen, and automatically actuated means for causing the paper feed device to travel relatively to the platen.

2. In a typewriting machine, the combination of a platen, a paper feed device which travels with the platen, and automatically actuated means for causing the paper feed devices to travel relatively to the platen and for restoring the paper feed device to normal position relatively to the platen.

3. In a typewriting machine, the combination of a carriage, a paper finger which travels with the carriage, and automatically actuated means controlled by the travel of the carriage for moving the paper finger relatively to the carriage.

4. In a typewriting machine, the combination of a platen, a paper feed device which travels with the platen and which crosses the printing line, and automatically actu-

ated means for causing the paper feed devices to travel relatively to the platen past the printing point.

5. In a typewriting machine, the combination of a platen, a printing instrumentality, a paper feed device that travels with the platen and crosses the printing line, and automatically actuated means for compelling the paper feed device to move independently of the platen and to cross the printing point before a printing instrumentality can strike it.

6. In a typewriting machine, the combination of a printing instrumentality, a platen, a paper feed device which crosses the printing line, and automatically actuated means including a spring for snapping the paper feed device past the printing point and thereby preventing the printing instrumentality from striking said paper feed device.

7. In a typewriting machine, the combination of a carriage, a paper feed device carried thereby and movable relatively thereto, and automatically actuated means for applying spring pressure to said paper feed device and for causing it to move under said spring pressure relatively to the carriage past the printing point.

8. In a typewriting machine, the combination of a carriage, a paper feed finger carried thereby and movable relatively thereto, and automatically actuated means controlled by the movement of the carriage for storing spring pressure and for applying said spring pressure to said paper feed finger to move it relatively to the carriage past the printing point.

9. In a typewriting machine, the combination of a carriage, a paper feed device carried thereby and movable relatively thereto, and automatically acting tripping means cooperative with said paper feed device to move it relatively to the carriage past the printing point.

10. In a typewriting machine, the combination of a carriage, a paper feed device carried thereby and mounted for movement relatively thereto, a spring cooperative with said paper feed device, means controlled by the travel of the carriage for flexing said spring and for rendering it effective to cause the paper feed device to move relatively to the carriage past the printing point, and means for automatically restoring the paper feed device to normal position relatively to the carriage.

11. In a typewriting machine, the combination of a carriage, a platen carried thereby, a paper finger carried by the carriage and mounted for movement relatively thereto longitudinally of the platen, and means controlled by the movement of the carriage for bringing about a relative movement of

the paper finger longitudinally of the platen past the printing point.

12. In a typewriting machine, the combination of a carriage, a platen carried thereby, a paper finger carried by the carriage and mounted for movement relatively thereto and longitudinally of the platen, a spring operative to move the paper finger in the direction of the letter feed movement of the carriage, and tripping means which control said spring by the travel of the carriage and bring about a movement of the paper finger past the printing point by said spring.

13. In a typewriting machine, the combination of a carriage, a paper feed device carried thereby, and spring actuated means for moving said paper feed device past the printing point by a movement of the paper feed device relatively to the carriage, said means being carried in part by the carriage and in part by the frame of the machine.

14. In a typewriting machine, the combination of a carriage, a paper feed device carried by the carriage and mounted to move relatively thereto, and a tripping device actuated by the travel of the carriage for effecting such relative movement of the paper feed device.

15. In a typewriting machine, the combination of a carriage, a paper feed device movable with and relatively to the carriage, and a pivoted actuating device brought into cooperation with the paper feed device during the travel of the carriage to effect such relative movement of the paper feed device.

16. In a typewriting machine, the combination of a carriage, a paper feed device movable with and relatively to the carriage, a pivoted actuating device brought into cooperation with the paper feed device during the travel of the carriage to effect such relative movement of the paper feed device, and a spring cooperative with said pivoted actuating device and operative to move it.

17. In a typewriting machine, the combination of a carriage, a paper feed device movable with and relatively to the carriage, a pivoted actuating device brought into cooperation with the paper feed device during the travel of the carriage to effect such relative movement of the paper feed device, a cam carried by said actuating device, and a spring cooperative with said cam.

18. In a typewriting machine, the combination of a carriage, a paper feed device movable with and relatively to the carriage, an actuating device carried by the frame of the machine and with which said paper feed device is brought into engagement by the travel of the carriage, a cam carried by said actuating device, and a spring cooperative with said cam to move the actuating device and thus effect a relative movement of said paper feed device.

19. In a typewriting machine, the combination of a carriage, a paper feed device movable with and relatively to the carriage, an actuating device carried by the frame of the machine and with which said paper feed device is brought into engagement by the travel of the carriage, a cam carried by said actuating device, a spring coöperative with said cam to move the actuating device and thus effect a relative movement of said paper feed device, and means with which said spring coöperates to hold said actuating device in either of the two positions to which it is moved, the construction and arrangement of the parts being such that a slight movement of the actuating device from its normal position renders the spring effective to move the actuating device to the other position.

20. In a typewriting machine, the combination of a carriage, a paper finger carried thereby and movable relatively thereto, pins carried by said paper finger, an actuating device pivoted to the frame of the machine and extending into the path of one of said pins as it moves with the carriage and adapted to engage the pins, a cam carried by said actuating device, a spring coöperative with said cam to move the actuating device in one direction when the said actuating device receives a slight movement by the engagement of one of said pins therewith and to effect a relative movement of the paper finger.

21. In a typewriting machine, the combination of a carriage; a paper feed device carried thereby and movable relatively thereto; and means for effecting such relative movement of the paper feed device, said means comprising an actuating device spring pressed in one direction and set in operation by the movement of the carriage, and means controlled independently of the carriage movement for resetting said actuating device.

22. In a typewriting machine, the combination of a carriage; a paper feed device carried thereby and movable relatively thereto; means for effecting such relative movement of the paper feed device, said means comprising an actuating device spring pressed in one direction and set in operation by the movement of the carriage; and automatically actuated means controlled independently of the carriage movement for resetting said actuating device against the pressure of said spring.

23. In a typewriting machine, the combination of a carriage; a paper feed device carried thereby and movable relatively thereto; means for effecting such relative movement of the paper feed device, said means comprising an actuating device spring pressed in one direction and set in

operation by the movement of the carriage; a finger key; and means controlled thereby for resetting said actuating device.

24. In a typewriting machine, the combination of a carriage; a paper feed device carried thereby and movable relatively thereto; means for effecting such relative movement of the paper feed device, said means comprising an actuating device spring pressed in one direction and set in operation by the movement of the carriage; a space key; and means controlled thereby for automatically resetting said actuating device at the first operation of said space key.

25. In a typewriting machine, the combination of a carriage; a paper feed device carried thereby and movable relatively thereto; means for effecting such relative movement of the paper feed device, said means comprising an actuating lever, a spring for moving said lever in one direction to effect the said relative movement of the paper feed device, means controlled by the movement of the carriage for rendering said spring effective at a predetermined point in the travel of the carriage to move said actuating lever and paper feed device; and automatically actuated means for resetting said actuating lever.

26. In a typewriting machine, the combination of a carriage; a paper feed device carried thereby and movable relatively thereto; means for effecting such relative movement of the paper feed device, said means comprising an actuating lever, a spring for moving said lever in one direction to effect the said relative movement of the paper feed device, means controlled by the movement of the carriage for rendering said spring effective at a predetermined point in the travel of the carriage to move said actuating lever; a key; and means controlled by said key for resetting said actuating lever.

27. In a typewriting machine, the combination of a carriage; a paper feed device carried thereby and movable relatively thereto; and means for effecting such relative movement of the paper feed device, said means comprising an actuating lever, a spring for moving said lever in one direction to effect the said relative movement of the paper feed device, means controlled by the movement of the carriage for rendering said spring effective at a predetermined point in the travel of the carriage to move said actuating lever; a space key; and means controlled by said space key for automatically resetting said actuating lever at the first operation of said space key.

28. In a typewriting machine, the combination of a carriage, a platen, a paper feed device carried by the carriage, a support for the paper feed device adjustable to different

set positions longitudinally of the platen, means for affording a movement of said paper feed device on said support, and automatically actuated means for moving said paper feed device on its support and relatively to the platen.

29. In a typewriting machine, the combination of a carriage, a platen, a paper feed device carried by the carriage, a support for the paper feed device adjustable to different set positions longitudinally of the platen, means for affording a movement of said paper feed device on said support, a spring which tends to maintain a fixed relation between said paper feed device and its support, and automatically actuated means for overcoming said spring and for moving said paper feed device on its support and relatively to the platen.

30. In a typewriting machine, the combination of a carriage, a platen, a paper feed device carried by the carriage, a support for the paper feed device adjustable to different set positions longitudinally of the platen, means for affording a movement of said paper feed device on said support, a spring which tends to maintain a fixed relation between said paper feed device and its support, and automatically actuated means controlled by the movement of the carriage for overcoming said spring and for moving said paper feed device on its support.

31. In a typewriting machine, the combination of a carriage; a platen; a paper feed device carried by the carriage; a support for the paper feed device adjustable to different set positions longitudinally of the platen; means for affording a movement of said paper feed device on said support; a spring which tends to maintain a fixed relation between said paper feed device and its support; and automatically actuated means for overcoming said spring and for moving said paper feed device on its support, said automatically actuated means including a spring pressed device that is cooperative with the paper feed device and which is effective to move the same against the pressure of the first mentioned spring, and means whereby the travel of the carriage renders said spring pressed device effective to move the paper feed device.

32. In a typewriting machine, the combination of a carriage; a platen; a paper feed device carried by the carriage; a support for the paper feed device adjustable to different set positions longitudinally of the platen; means for affording a movement of said paper feed device on said support; a spring which tends to maintain a fixed relation between said paper feed device and its support; and automatically actuated means for overcoming said spring and for moving said paper feed device on its sup-

port, said automatically actuated means including a spring pressed device that is cooperative with the paper feed device and which is effective to move the same against the pressure of the first mentioned spring, and means whereby the travel of the carriage renders said spring pressed device effective to move the paper feed device from and back to normal position.

33. In a typewriting machine, the combination of a carriage; a platen; a paper feed device carried by the carriage; a support for the paper feed device adjustable to different set positions longitudinally of the platen; means for affording a movement of said paper feed device on said support; a spring which tends to maintain a fixed relation between said paper feed device and its support; automatically actuated means for overcoming said spring and for moving said paper feed device on its support, said automatically actuated means including a spring pressed device that is cooperative with the paper feed device and which is effective to move the same against the pressure of the first mentioned spring and means whereby the travel of the carriage renders said spring pressed device effective to move the paper feed device; a key; and means whereby said key is rendered effective to reset said spring pressed device.

34. In a typewriting machine, the combination of a carriage; a platen; a paper feed device carried by the carriage; a support for the paper feed device adjustable to different set positions longitudinally of the platen; means for affording a movement of said paper feed device on said support; a spring which tends to maintain a fixed relation between said paper feed device and its support; automatically actuated means for overcoming said spring and for moving said paper feed device on its support, said automatically actuated means including a spring pressed device that is cooperative with the paper feed device and which is effective to move the same against the pressure of the first-mentioned spring, means whereby the travel of the carriage renders said spring pressed device effective to move the paper feed device; a space key; and means whereby said space key is effective to automatically reset said spring pressed device at the first actuation of said space key.

35. In a typewriting machine, the combination of a carriage, a paper feed device carried thereby, and movable relatively thereto, a key carried by the frame of the machine, and means cooperative with said key and with said paper feed device for controlling the movement of the paper feed device relatively to the carriage.

36. In a typewriting machine, the combi-

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nation of a carriage, a paper feed device carried thereby and movable relatively thereto, a space key, and means coöperative with said space key and with said paper feed device for controlling the movement of the paper feed device relatively to the carriage.

Signed at the borough of Manhattan, city

of New York, in the county of New York, and State of New York, this 19th day of 10
May A. D. 1910.

CHARLES H. SHEPARD.

Witnesses:

CHARLES E. SMITH,
E. M. WELLS.

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