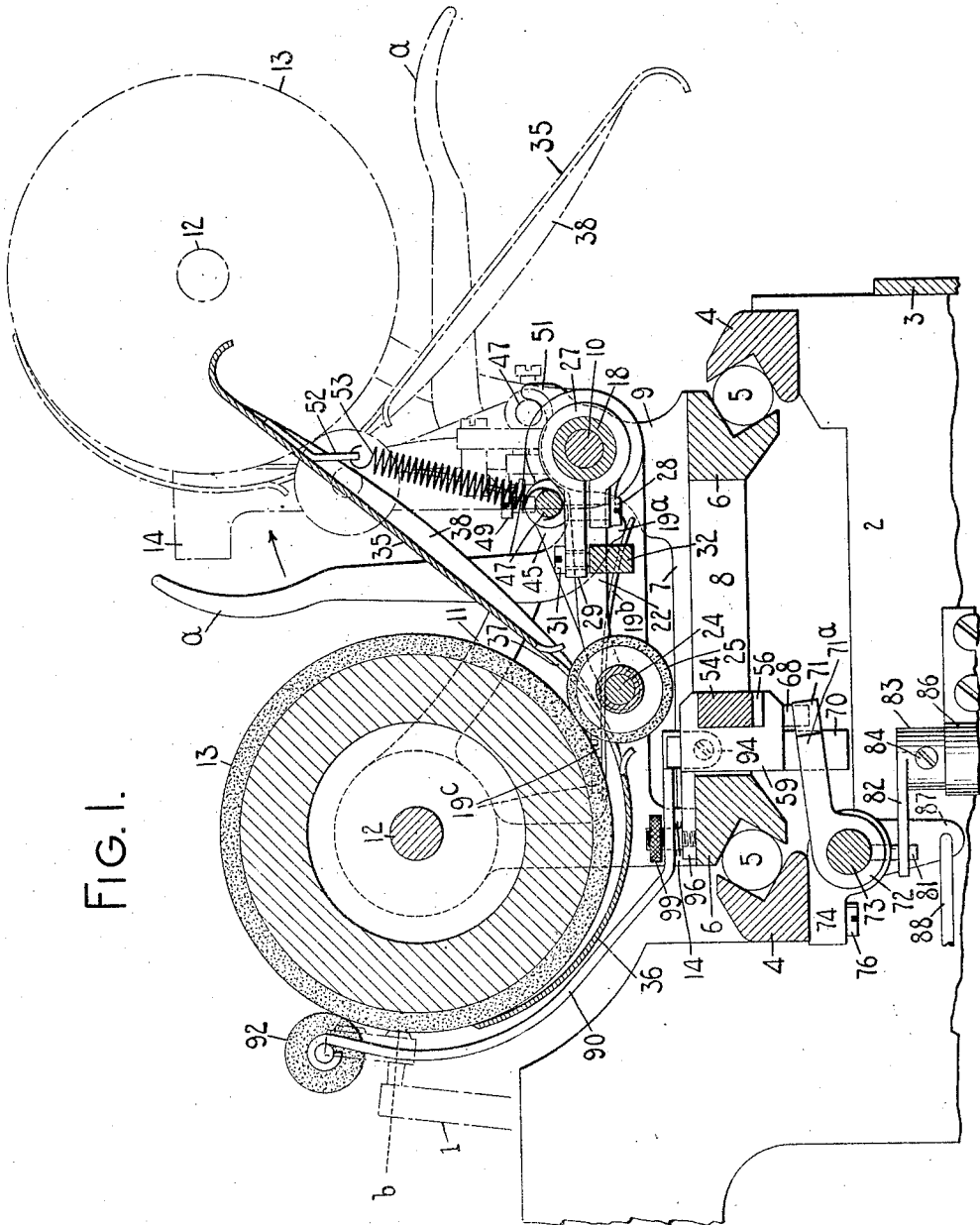


Patented Feb. 7, 1911.

3 SHEETS-SHEET 1.

983,470.

FIG. 1.



WITNESSES:

E. M. Wells.
Charles Smith.

INVENTOR:

Clio B. Yaw

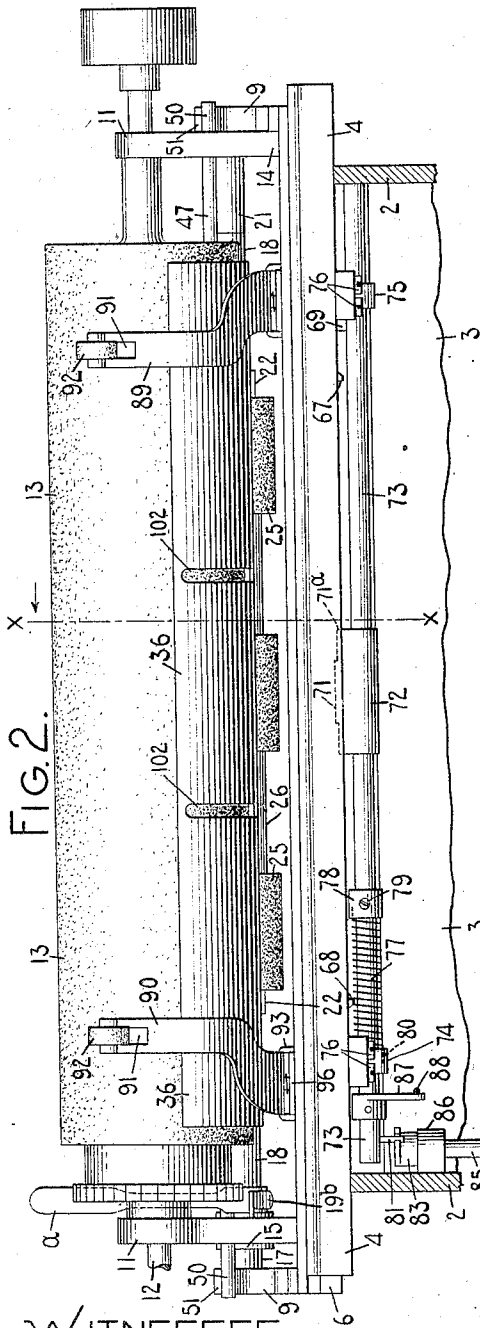
By Jacob F. Felt

HIS ATTORNEY

983,470.

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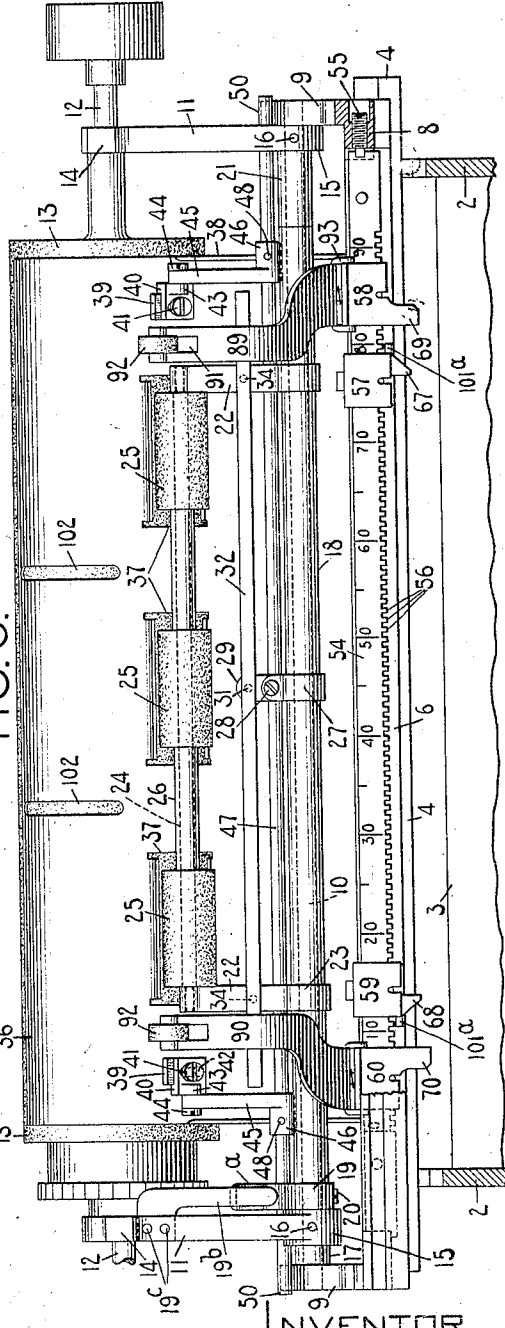
3 SHEETS-SHEET 2.



WITNESSES:

E. M. Wells.
Charles E. Smith

FIG. 3.



INVENTOR.

Chas B. Yaw
By Jacob F. Fabel
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UNITED STATES PATENT OFFICE.

CLIO B. YAW, OF ARLINGTON, NEW JERSEY, ASSIGNOR TO REMINGTON TYPEWRITER COMPANY, OF ILION, NEW YORK, A CORPORATION OF NEW YORK.

TYPE-WRITING MACHINE.

983,470.

Specification of Letters Patent:

Patented Feb. 7, 1911.

Application filed July 30, 1909. Serial No. 510,404.

To all whom it may concern:

Be it known that I, CLIO B. YAW, a citizen of the United States, and resident of Arlington, in the county of Hudson and State of New Jersey, 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 and the combination of the paper feeding mechanism or parts thereof with margin stop and line lock mechanism.

Heretofore considerable difficulty has been encountered by the marginal paper fingers which extend across the printing line being carried, at times, into the paths of the type bars as the latter move to the printing positions, thus causing the types to strike against the paper fingers and injure the faces of the types.

One of the main objects of my present invention is to overcome these difficulties and to provide simple and efficient means for preventing the types from striking the paper fingers or the paper feeding devices irrespective of the positions to which said devices may be adjusted along the platen.

A further object of my invention is to provide simple and efficient paper feeding devices which will properly feed the paper at all times irrespective of the varying conditions encountered.

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 designate corresponding parts in the various views, Figure 1 is an enlarged vertical fore and aft sectional view taken on the line $x-x$ of Fig. 2 and looking in the direction of the arrow at said line, the view showing a sufficient number of parts of one form of typewriting machine to illustrate my invention in its embodiment therein. Fig. 2 is a fragmentary front elevation partly in section showing the parts illustrated in Fig. 1 and disposed as shown in full lines in Fig. 1. Fig. 3 is a like view of the same showing the platen frame turned back as illustrated in dotted lines in Fig. 1. In Fig. 3 parts shown in Fig. 2 have

been omitted and parts have been broken away to illustrate the marginal line lock stops carried by the carriage. Fig. 4 is a vertical fore and aft sectional view of the platen, platen frame and some of the associated parts. Fig. 5 is a detail front view partly in section showing some of the means for applying pressure to the paper feed roller. Fig. 5^a is a like view of the same showing a slightly different disposition of the parts. Fig. 6 is an enlarged detail fragmentary plan view of one of the paper fingers and the stop on which it is mounted. Fig. 7 is a vertical transverse sectional view of the same taken on the line $y-y$ of Fig. 6 and looking in the direction of the arrow at said line.

I have shown my invention embodied in the present instance in a front-strike machine wherein the type bars 1 strike against the front face of the platen, though it should be understood that from certain aspects of my invention it may be embodied in other styles of typewriting machines.

The frame of the machine comprises side plates 2 united by a front cross plate (not shown) and a rear cross plate 3. Fixed guide rails 4 are supported on the side plates and are grooved on the opposite side for cooperation with anti-friction balls or rollers 5 which are likewise received in oppositely grooved rails 6 of a carriage truck 7. The carriage truck is thus supported for movement from side to side of the machine. The carriage truck is provided with end bars 8 having upwardly extending ears 9 formed thereon. These ears are apertured to receive the ends of a shaft 10 which turns freely in bearing openings in the ears 9. A platen frame 11 is apertured to receive a platen shaft 12 which supports a cylindrical platen 13. Depending feet 14 are formed on the platen frame and bear upon the forward guide rail 6 of the truck and the parts are in the normal position shown in full lines in Fig. 1. The platen frame has sleeves 15 formed thereon to receive the rock shaft 10, pins 16 extending through the sleeves 15 and shaft 10 to connect the platen frame and shaft to turn together. A spacing sleeve 17 (Figs. 2 and 3) surrounds the shaft 10 at the left-hand end portion thereof and is interposed between the left-hand end of the platen frame and the left-hand ear 9 on the platen truck. A hollow rock

shaft or sleeve 18 surrounds the shaft 10 and turns freely thereon. A collar 19 surrounds the hollow shaft at the left-hand end thereof and is secured to the shaft by a screw 20 threaded into the collar and bearing at its inner end in a depression in the hollow shaft. This collar is formed as a part of a release arm or finger piece *a* provided with a projection 19^a against which the free ends of a leaf spring 19^b bears, the spring being secured to the platen frame by screws 19^c. The pressure of the spring 19^b is exerted on the finger piece *a* to turn it rearwardly as indicated by the arrow in Fig. 1 in order to force the feed rollers into contact with the platen as will hereinafter more clearly appear. The left-hand end of the hollow shaft 18 bears against the left-hand end plate of the platen frame, whereas the right-hand end of said hollow shaft bears against a spacing sleeve 21 interposed between the shaft and the right-hand end plate of the platen frame. Hangers 22 are provided with collars 23 which surround and are loose upon the hollow shaft 18. The forward ends of these hangers receive a shaft 24 which supports a series of independently rotatable feed rollers 25, spaced apart on the shaft by spacing the sleeves 26. The bearing ends of the shaft 24 which are received in openings in the hangers are of such shape as to allow a limited swinging movement of one hanger 22 independently of the other without jamming or buckling the shaft 24 in its bearings in the hanger arms. The hollow shaft 18 has a split sleeve 27 surrounding it about midway of its length and intermediate the hanger arms 22 of the paper feed rollers. The ends of the split sleeve are united by a headed screw 28 which passes freely through an opening in one part of the split sleeve and is threaded into the other part in order to draw the ends of the sleeve together and thus bind the sleeve firmly upon the hollow shaft 18. An arm 29 extends forwardly from the split sleeve and is apertured at 30 to receive the stem of a headed screw 31 which passes freely through the opening 30 and takes at its threaded end into a tapped opening in a bar 32 which extends longitudinally of the platen and is loosely connected with the hanger arms 22. The manner of connecting the bar 32 with the hanger arms and with the arm 29 is best shown in Figs. 5 and 5^a from which it will be seen that each hanger arm 22 is apertured at 33 for the free passage therethrough of the stem of a headed screw 34 threaded into a tapped opening in the bar 32. The enlarged openings 30 and 33, and the disposition of the heads of the screws 31 and 34 relatively to the arms with which they are connected, are such that the bar 32 is adapted to receive a pivotal or rocking or swinging movement on the arm

29 as indicated for example by a comparison of Figs. 5 and 5^a. This pivotal movement of the bar 32 affords an independent turning movement of the hangers 22 on the hollow rock shaft 18 which supports them, for purposes which will hereinafter more clearly appear. It will be understood that the pressure of the spring 19^b is applied to turn the finger piece *a* toward the rear and to effect a corresponding turning movement of the hollow shaft 18. This movement is effective to produce an upward pressure on the arm 29 which tends to lift the bar 32, to apply the pressure of the spring 19^b equally to both of the hanger arms of the paper feed rollers 25, thus forcing them into contact with the platen or the paper thereon.

By pivoting the bar 32 intermediate of its ends and applying the pressure of the spring to the hangers of the feed rollers in the manner described, I am enabled to apply what may be termed a balanced pressure to the feed rollers, the pressure on the feed rollers at one end of the platen being equal to that at the other end of the platen. In short, the pressure applied to the feed rollers throughout the length of the platen must in all cases be the same, so that a straight and even feed of the paper at both ends of the platen is insured irrespective of the varying conditions that might be encountered. Thus, for example, if there should be a greater thickness of the work sheet at one end of the platen than at the other, the feed roll at that end of the platen where the greatest thickness occurs may be forced by the work sheet away from the platen, as I have attempted to indicate in Fig. 5^a, without affecting the feed roll or rolls at the opposite end of the platen, and an equal pressure would be exerted upon the feed rolls at both ends of the platen. The looseness of the connection between the arm 29 and the bar 32 and between the said bar and the hangers 22 affords this independent movement of the feed roll hangers to effect a uniform pressure of the feed rollers at both ends of the platen at all times, and to provide for maintaining the feed rolls on the paper at one end of the platen when the feed rolls at the opposite end of the platen are forced away from it, as hereinbefore explained.

The paper is directed to the platen and is directed in its movement around the platen by a combined paper feed table and paper apron preferably formed as one part from a single piece of sheet metal constituting an inclined paper table 35 which extends upwardly in the rear of the platen to direct the paper to the right between the feed rolls and platen. This paper table is continued around the platen following the general contour thereof and forming a paper apron 36 which extends upwardly in front of the

platen to a short distance below the printing line indicated by the dotted line *b* in Fig. 1. The paper apron is apertured at 37 to enable the paper rollers to extend therethrough and to bear upon the platen or the paper thereon. The paper table may be stiffened by the formation of flanges 38 on the side edges thereof. The rear side of the paper apron is provided with blocks 39 that may be soldered or otherwise secured to the paper apron. Supporting blocks 40 cooperate with the blocks 39 and are adjustably secured thereto by headed screws 41, the stems of the screws passing through elongated openings 42 in the blocks 40 and passing at their threaded ends into tapped openings in the blocks 39. Slots 42 extend fore and aft of the machine to enable a slight fore and aft adjustment of the combined paper table and paper apron to be effected on the supporting blocks 40. The blocks 40 are provided with ears 43 tapped to receive the threaded ends of shouldered headed pivot screws 44 which pivotally connect supporting blocks 40 to supporting arms 45. There are two supporting arms 45 provided, one near each end of the paper apron and each arm has a collar or hub 46 which surrounds a rod 47 and is fixed thereto by a pin 48 which extends through the collar and rod. The supporting rod 47 extends through openings in the platen frame and is secured therein by set screws 49 which are received in tapped openings in the end plates of the platen frame and bear at their inner ends against the supporting rod. The ends of the rod 47 are extended beyond the platen frame to form stop pins 50 which cooperate with upwardly extending stops 51 formed on the upwardly extending lugs 9 of the carriage truck. The stop pins 50 co-act with the stops 51 to limit the backward swinging movement of the platen as indicated in dotted lines in Fig. 1. The paper table has an ear 52 soldered or otherwise secured on the rear side thereof. This ear is perforated to connect one end of a contractile spring 53 thereto, the opposite end of the spring hooking around the supporting rod 47. The pressure of the spring is exerted to turn the paper table on its pivots 44 and thus cause the front edge of the paper apron to bear against the platen.

I have provided line lock and margin stop mechanisms which are combined with certain of the paper feed devices to prevent the types from striking the same under all adjustments of the paper feeding devices. The margin stop and line lock mechanism shown in the present instance comprises a line lock and margin stop bar 54 detachably secured to the carriage truck by screws 55 (see Fig. 3) which extend through threaded openings in the carriage truck and take at their reduced unthreaded ends

in openings in the ends of the bar 54, the squared ends of the bar being received in corresponding openings in the carriage truck to prevent the bar from turning. The bottom edge of the bar 54 is provided with teeth 56 spaced apart to correspond to the letter spacing of the machine. I have provided four stops adjustably mounted on this bar. There is a line lock stop 57, a final line lock stop 58, a margin stop 59 and a final margin stop 60. These stops are all adjustably secured to the stop bar 54 in the same manner so that the description of the means for adjusting one will suffice for all. Each stop is recessed on one side thereof to receive the stop bar 54, as indicated in Fig. 7, so that the body portion of each stop surrounds the stop rod on three sides. Each stop is apertured at 61 to receive the stem 62 of a locking device formed with an angular engaging portion 63 which is adapted to be received in the interdental spaces between the teeth 56 on the stop bar 54 so as to lock the stop in the position to which it has been adjusted along the stop bar. The locking device 62-63 is threaded at 64 for cooperation with a cap-like finger piece 65. A coiled expansion spring 66 is received in the opening 61 and surrounds the stem 62 of the engaging device, the spring bearing at its upper end against the lower edge of the cap-like finger piece 65 and bearing at its lower end against the bottom wall of the opening 61 in the stop. By pressing down on the finger piece 65 the engaging device may be disengaged and the stop moved along the stop rod to the desired position. From an inspection of Fig. 1 it will be seen that the forward side of each of the stops is adjacent to the front rail 6 of the truck, which rail prevents the stops from being withdrawn transversely of the rod.

The line lock stop 57 has a depending engaging portion 67 provided with a vertical engaging face on the left-hand side thereof and a beveled face on the right-hand side thereof. A corresponding projection 68 is formed on the margin stop 59, the projections 67 and 68 being of the same length. The final line lock stop 58 has a depending engaging portion 69 that extends down farther than the engaging members 67 and 68 on the line lock and margin stops 57 and 59 respectively but is set farther forward for purposes which will hereinafter appear. The final margin stop has also a depending portion 70 which is longer than the engaging portions on the stops 57 and 59 and corresponds to the length of the projection 69, and like it, is set forward of the projections 67 and 68, as indicated in Fig. 1. All four of these stops are adapted to co-act with a cooperative stop member carried by the frame of the machine under conditions which will hereinafter appear. The coop-

erative stop member comprises a reduced portion 71 and an enlarged portion 71^a both formed as an arm which extends rearwardly from a sleeve 72 formed as a part of the stop. This sleeve surrounds and is fixedly secured to a horizontally disposed rock shaft 73 which extends in the direction of the travel of the carriage and is situated beneath the carriage. The rock shaft 73 is mounted in bearings 74 and 75 secured to the forward fixed rail 4 by screws 76. The rock shaft is supported in these bearings to turn freely therein and to receive a limited longitudinal movement. The extent of this longitudinal movement is determined by the ends of the rock shaft 73 contacting with the side plates 2 of the frame as shown in Fig. 2. A coiled spring 77 surrounds the rock shaft 73 and is secured at one end in an opening in a sleeve 78 which surrounds the rock shaft and is secured thereto by a screw 79. The opposite end 80 of the spring is seated in an opening in the bearing 74. The pressure of this spring is exerted to normally maintain the shaft 73 in the longitudinal position illustrated in Fig. 2 with the right-hand end of the shaft bearing against the right-hand end plate 2 of the frame. The spring at the same time exerts a pressure to normally maintain the rock shaft turned to a position such as that illustrated in Figs. 1 and 2 in which the portion 71 of the stop 71—71^a is interposed in the path of the depending projections 67, 68, 69 and 70 on the cooperating stops which are carried by the carriage, the projections 67 and 68 cooperating with the portion 71, and the projections 69 and 70 cooperating with the portion 71^a. A depending pin 81 projects from the left-hand end portion of the rock shaft 73 and is received in a slot in an arm 82 provided with a collar 83 secured by a set screw 84 to a vertically disposed rock shaft mounted to turn in bearings 86. This vertically disposed rock shaft is connected with suitable line lock devices (not shown), such, for instance, as that disclosed in my application, Serial No. 507,920, filed July 16, 1909, to lock the printing instrumentalities against operation. For the purpose of the present invention the entire line lock mechanism may be of any suitable character.

A crank arm 87 is secured to the rock shaft 73 and is connected by a link 88 with a suitable key such as that disclosed in my application above referred to, and by which the rock shaft 73 may be turned against the pressure of its spring 77 to move the stop 71—71^a out of the path of the depending projections 67 and 68 on the line lock and margin stops 57 and 59 respectively. This movement of the stop 71—71^a is insufficient, however, to carry the portion 71^a thereof out of the path of the projections 69 and 70 on the final line lock and margin stops 58

and 60 respectively. When the shaft 73 is turned through the link 88 in the manner described the stop 71—71^a is cleared of the projections 67 or 68, and in one case the line lock mechanism is released to provide for the insertion of one or more additional letters to complete a word, or provide for the insertion of a hyphen. In the other case the stop 71—71^a is cleared from the projection 68 in order to enable the carriage to continue its movement to the right, to write within the margin. The final margin stop 60 determines the final point of arrest of the carriage to the right, whereas the final line lock stop 58 determines the final or extreme position that the carriage may be moved to in its movement to the left. It will be understood that in the movement of the carriage from left to right the margin stop 59 will cooperate with the stop 71—71^a on the frame of the machine and the right-hand end of the stop rod 73 normally bearing against the right-hand end plate 2 of the frame will arrest the carriage in its movement to the right. In the movement of the carriage to the left the line lock stop 57 will be brought into cooperation with the stop 71—71^a, causing the stop rod 73 to move with the carriage from right to left, thus rocking the upright shaft 85 to actuate the line lock mechanism controlled thereby. When the carriage is returned to the right the spring 77 restores the stop rod 73 to its normal position, with the right-hand end thereof bearing against the right-hand side plate 2 of the frame. If the stop 71—71^a should be rocked out of the path of the line lock stop 57 the stop rod 73 would likewise be restored to normal position by its spring 77 and a release of the line lock mechanism would thus be effected.

I have provided two longitudinal paper fingers 89 and 90, the paper finger 89 being carried by the final line lock stop 58, and the paper finger 90 being carried by the final margin stop 60. Each of the paper fingers is preferably formed of stiff sheet metal, the body portion thereof being apertured at 91 for the reception of a marginal paper feed roller 92 mounted on the paper finger. Depending ears 93 are formed on each paper finger and extend on opposite sides of the stop to which the paper finger is connected as shown in Figs. 6 and 7. The ears 93 are apertured to receive heads of screws 94 which are received at their threaded ends 95 in tapped openings in the sides of the stop on which the paper finger is mounted, thus pivotally connecting each paper finger with the stop by which it is carried. Each of the stops 58 and 60 is provided with a forwardly projecting portion 96 to which is secured an upwardly extending threaded stem 97 which projects freely through an enlarged opening 98 in the associate paper finger. A thumb

nut 99 is threaded on the stem above the paper finger and under certain conditions acts as a stop to limit its upward movement. A coiled expansion spring 100 surrounds the stem 97 and bears at its lower end against the projection 96 on the stop and at its upper end against the lower side of the associated paper finger. From an inspection of Fig. 1 it will be understood that when the thumb nut 99 is adjusted to the position shown in this figure the full pressure of the spring 100 is exerted on the paper finger to force it into contact with the platen or the paper thereon. The thumb nut, however, may be turned down on the stem 97 so as to reduce or entirely eliminate the effect of pressure of the spring on the paper and thus regulate the pressure of the paper feeding device on the paper. The paper finger is cut away or recessed at 101 in order to provide room for the finger piece 61 by which the latch of the stop is controlled. Each of the paper fingers 89 and 90 is off-set inwardly from its supporting portion, as indicated in Fig. 3 and from an inspection of this figure it will be seen that each of the stops 57 and 59 carries an outwardly projecting pin 101^a that limits the movements of the stops 57 and 58 and 59 and 60 of each pair toward each other and thus properly maintains the paper fingers 89 and 90 out of the paths of the types when the line lock mechanism or the margin stop mechanism is effective.

It will be understood from an inspection of Fig. 1 that each of the paper fingers extends upwardly from its supporting stop across the printing line and might ordinarily be brought into the path of the type bars were it not for the fact that an adjustment of the paper fingers also effects a corresponding adjustment of the final line lock and final margin stops and the line lock and margin stops 57 and 59 respectively being inside of the final stops must become effective before either of the paper fingers reaches the printing center, no matter what the adjustment of the stops 57 and 59 may be. Otherwise expressed, an adjustment of the final line lock and margin stops likewise adjusts the paper fingers so that the carriage in every instance will be arrested in its movement to the right before the left-hand paper finger can be brought into the path of the types, whereas the machine will be locked out of operation in every instance before the right-hand paper finger can be brought into the path of the types in the movement of the carriage from right to left. This adjustment of the line lock and margin stop to the positions corresponding to the adjustment of the paper fingers avoids the possibility of the paper fingers being brought into the path of the types in their printing movements, and prevents injury to the faces of the types.

From an inspection of Figs. 2 and 3 it will be seen that the paper apron is provided with elongated slots 102 which extend transversely of the platen beneath the platen when the latter is in the normal position and terminate at their forward ends near the front edge of the paper apron. These slots constitute side openings which when the platen is in the normal position shown in Fig. 2 enables the operator to see when the rear edge of the paper is approaching the printing line. When the platen is swung back to the position shown in Fig. 3 the paper is exposed through the sight openings still farther back and the rear edge of the paper may be seen shortly after it leaves control of the feed rollers. This enables the operator to determine how far the rear end of the sheet is from the printing line at a considerable distance from the printing line.

The line lock and margin stop mechanisms, as such, are claimed in the application hereinbefore referred to and are not claimed herein except in combination with the paper feed mechanism.

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 front-strike typewriting machine, the combination of a platen against the front face of which the types are adapted to strike, line lock mechanism including an adjustable line lock stop and a separate independently adjustable final line lock stop, margin stop mechanism including an adjustable margin stop and a separate independently adjustable final margin stop, and paper feeding devices that extend upwardly from and are adjustable concurrently with said final stops.

2. In a front-strike typewriting machine, the combination of a carriage, a swinging platen carried thereby, margin stop mechanism including an adjustable margin stop carried by the carriage beneath said platen, and a paper finger carried by the carriage and adjustable longitudinally of the platen with said margin stop, said paper finger extending upwardly from the margin stop for cooperation with the platen.

3. In a front-strike typewriting machine, the combination of a carriage, a swinging platen carried thereby, line lock mechanism including an adjustable line lock stop carried by the carriage beneath said platen, and a paper finger carried by the carriage and adjustable longitudinally of the platen with said margin stop, said paper finger extending upwardly from the margin stop for cooperation with the platen.

4. In a front-strike typewriting machine, the combination of a carriage, a swinging platen carried thereby, a stop rod carried by

the carriage beneath the platen, line lock mechanism including an adjustable line lock stop carried by said stop rod and access to which for the purpose of adjustment may be gained by swinging back the platen, a paper finger carried by and adjustable longitudinally of the platen with said line lock stop, said paper finger extending upwardly from the line lock stop for cooperation with the platen, margin stop mechanism including an adjustable margin stop carried by said stop rod and access to which for the purpose of adjustment may be gained by swinging the platen back, and a paper finger carried by said margin stop and adjustable with it longitudinally of the platen, said last mentioned paper finger also extending upwardly from the margin stop for cooperation with the platen.

5. In a typewriting machine, the combination of a platen, feed rollers, a shaft which extends longitudinally of the platen and carries said feed rollers, independently movable hangers which support said shaft, and a spring-pressed bar cooperative with said hangers and pivoted transversely intermediate said hangers and intermediate the ends of said bar.

6. In a typewriting machine, the combination of a platen, feed rollers, a shaft which extends longitudinally of the platen and carries said feed rollers, independently movable hangers which support said shaft, a spring-pressed support, and a bar pivoted to said support intermediate said hangers and cooperative with the hangers to move the feed rollers into contact with the platen or the paper thereon.

7. In a typewriting machine, the combination of a platen, feed rollers, a shaft which extends longitudinally of the platen and carries said feed rollers, independently movable hangers which support said shaft, a spring-pressed support, a bar pivoted to said support intermediate said hangers and cooperative with the hangers to move the feed rollers into contact with the platen or the paper thereon, and a finger piece operatively connected to said support to move it and thus release the pressure of the bar on the feed rollers to cast off the feed rollers.

8. In a typewriting machine, the combination of a platen, feed rollers, a shaft on which said feed rollers are mounted, independently movable hangers which support said shaft, and a spring-pressed bar pivoted intermediate its ends and cooperative with said hangers to force the feed rollers against the platen or the paper thereon.

9. In a typewriting machine, the combination of a platen, feed rollers, a shaft on which said feed rollers are mounted, independently movable hangers which support said shaft, a spring-pressed arm intermediate said hangers, and a bar loosely con-

nected with said spring-pressed arm and with said hangers.

10. In a typewriting machine, the combination of a platen, feed rollers, a shaft on which said feed rollers are mounted, independently movable hangers which support said shaft, a spring-turned rock shaft, an arm on said rock shaft, said arm being intermediate said hangers, and a bar loosely connected intermediate its ends to said arm, the bar being likewise loosely connected to said hangers.

11. In a typewriting machine, the combination of a platen, feed rollers, a shaft on which said feed rollers are mounted, independently movable hangers which support said shaft, a spring-turned rock shaft, an arm on said rock shaft, said arm being intermediate said hangers, and a bar loosely connected intermediate its ends to said arm, the bar being likewise loosely connected to said hangers, and a finger piece connected to said spring-turned shaft for turning the shaft against the pressure of the spring and casting off the feed rollers.

12. In a typewriting machine, the combination of a platen, feed rollers, a shaft for said feed rollers, independently movable hangers which support said shaft, a rock shaft on which said hangers are loosely supported, a spring for turning said rock shaft, an arm fixed on the rock shaft, said arm being situated between the hangers, and a bar loosely connected intermediate its ends to said arm and bearing at its end portions against said hangers.

13. In a typewriting machine, the combination of a platen, feed rollers, a shaft for said feed rollers, independently movable hangers which support said shaft, a rock shaft on which said hangers are loosely supported, a spring for turning said rock shaft, an arm fixed on the rock shaft, said arm being situated between the hangers, a bar loosely connected intermediate its ends to said arm and bearing at its end portions against said hangers, and a finger piece fixed to said rock shaft to turn it against the pressure of its spring and cast off the feed rollers.

14. In a typewriting machine, the combination of a platen, feed rollers, a shaft for said feed rollers, independently movable hangers which support said shaft, a rock shaft on which said hangers are loosely supported, a spring for turning said rock shaft, an arm fixed on the rock shaft, said arm being situated between the hangers, a bar loosely connected intermediate its ends to said arm by a headed screw and an enlarged opening through which the stem of the screw passes to form a loose but positive connection between the arm and bar, and similar connections between each end of the bar and one of said hangers.

15. In a typewriting machine, the combination of a platen, feed rollers, a shaft for said feed rollers, independently movable hangers which support said shaft, a rock shaft on which said hangers are loosely supported, a spring for turning said rock shaft, an arm fixed on the rock shaft, said arm being situated between the hangers, a bar loosely connected intermediate its ends to said arm by a headed screw and an enlarged opening through which the stem of the screw passes to form a loose but positive connection between the arm and bar, similar connections between each end of the bar and one of said hangers, and a finger piece connected with said rock shaft for turning it against the pressure of its spring to cast off the feed rollers.

16. In a typewriting machine, the combination of a platen, a shaft that extends longitudinally thereof, feed rollers carried by said shaft, and means for supporting the feed roll shaft and for pressing the feed rollers against the platen, said means comprising a spring-pressed arm that extends

intermediate the ends of the shaft and which is pivotally connected to a member by which pressure of the spring pressed arm is applied to the feed rollers.

17. In a typewriting machine, the combination of a platen, a carriage, a rack bar fixed to the carriage, margin and line lock mechanism including margin and line lock stops, releasable latches carried by said stops and adapted to engage the rack and to lock the stops against movement on said rack bar, a pivoted spring-pressed paper finger carried by each of said stops, and adjustable means for each of said paper fingers for regulating the normal position of the paper fingers with reference to the platen.

Signed at the borough of Manhattan, city of New York, in the county of New York, and State of New York, this 29th day of July, A. D. 1909.

CLIO B. YAW.

Witnesses:

CHARLES E. SMITH,
E. M. WELLS.