

953,816.

G. B. BRAND.
TYPE WRITING MACHINE.
APPLICATION FILED DEC. 16, 1909.

Patented Apr. 5, 1910.

2 SHEETS—SHEET 1.

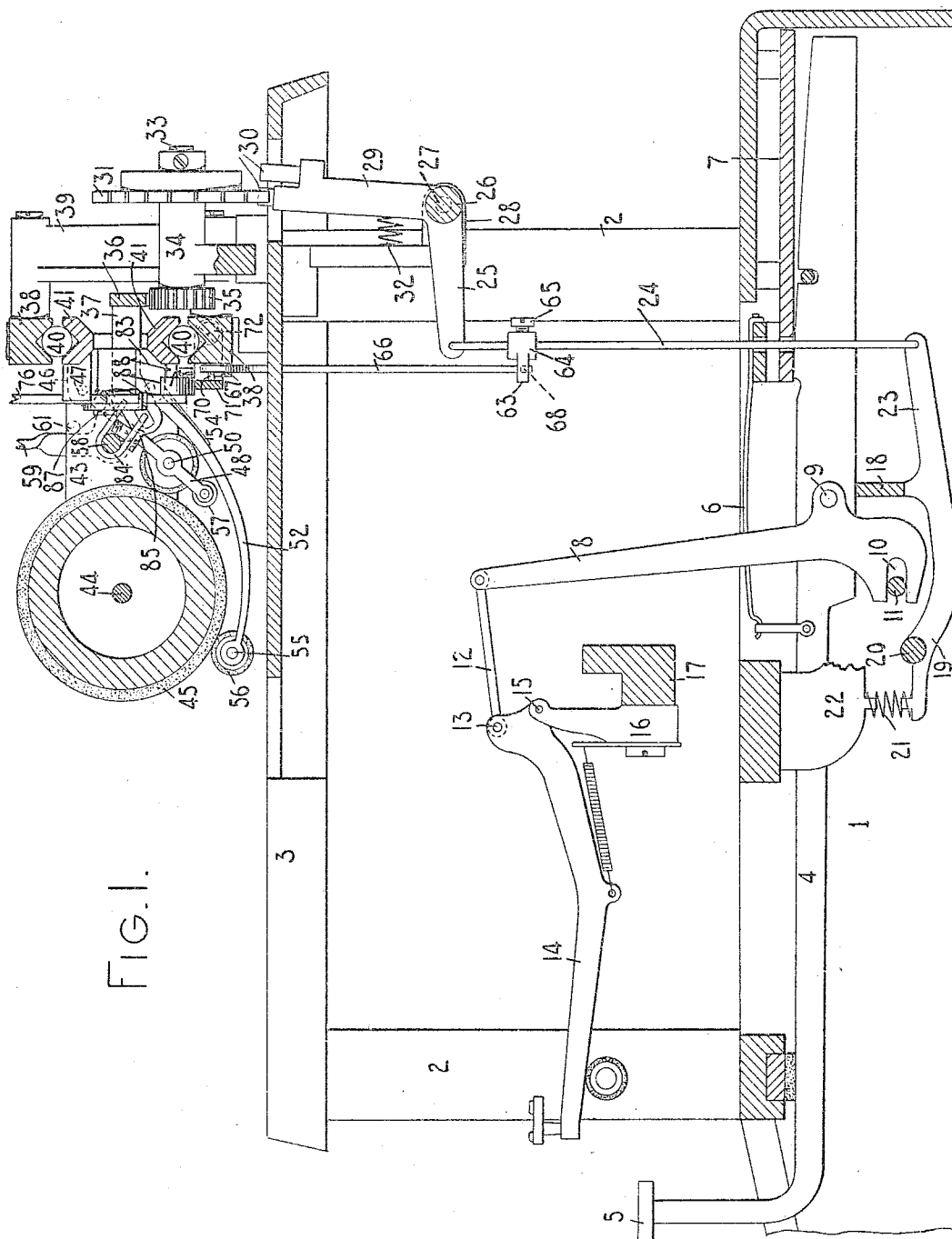


FIG. 1.

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2 SHEETS—SHEET 2.

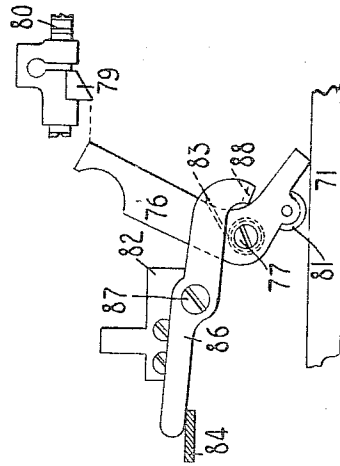
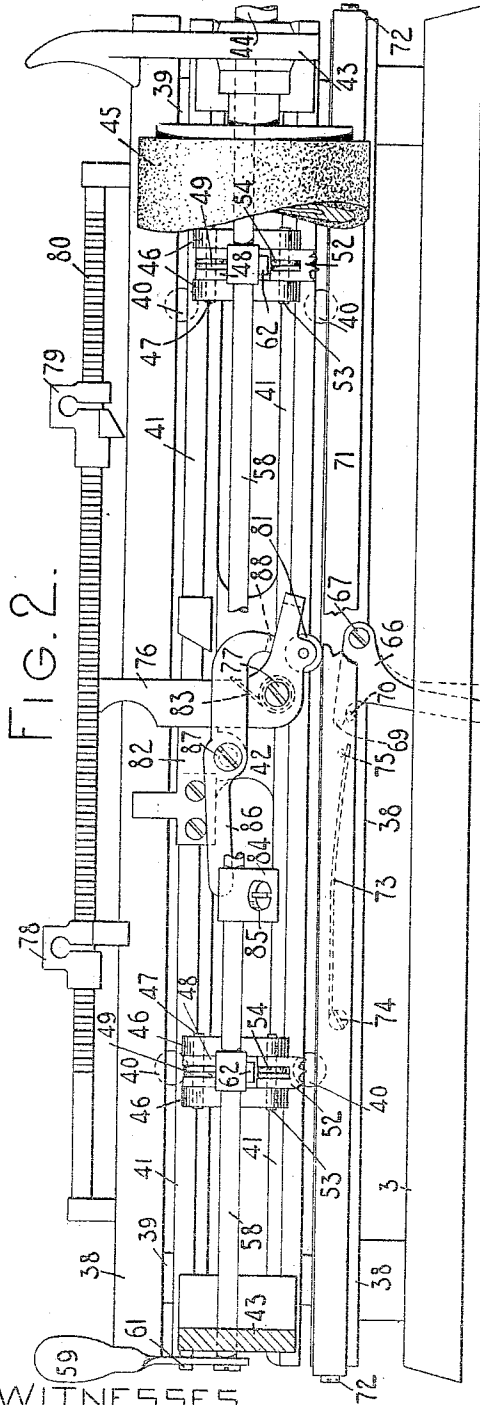


FIG. 4.

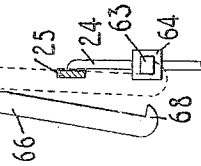


FIG. 3.

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UNITED STATES PATENT OFFICE.

GEORGE B. BRAND, OF SYRACUSE, NEW YORK, ASSIGNOR TO THE MONARCH TYPE-
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TYPE-WRITING MACHINE.

953,816.

Specification of Letters Patent.

Patented Apr. 5, 1910.

Application filed December 16, 1909. Serial No. 533,430.

To all whom it may concern:

Be it known that I, GEORGE B. BRAND, citizen of the United States, and resident of Syracuse, in the county of Onondaga 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 more particularly to means for automatically locking a typewriting machine, or a portion thereof, out of operation when a paper feeding device or feed roller has been locked in the released or inoperative position.

The invention also relates to means for automatically releasing the locked-off paper feeding device or feed roller and the part or parts of the machine which have been locked out of operation.

One object of the invention is to provide comparatively simple and efficient means of the character specified.

A further object of the invention is to provide means which may be readily applied to existing styles of typewriting machines without modifying, or materially modifying, the structural features of said machines.

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 vertical front to rear sectional view of one form of typewriting machine embodying my invention, so much only of the typewriting machine being shown as is necessary to illustrate my invention. Fig. 2 is a fragmentary front elevation with parts of the machine broken away, the view showing only the upper portion of the machine. Fig. 3 is a detail transverse sectional view showing the feed rollers in the released or locked-off position. Fig. 4 is a fragmentary detail front view showing portions of the line lock and margin stop mechanism and the means by which it is controlled.

I have shown my invention applied to a Monarch machine in which my invention may be readily embodied without modifying, or materially modifying, the structural

features of said machine, although it should be understood that the invention may be embodied in various other forms of typewriting machines.

Where means are provided for locking off the feed rolls trouble is likely to occur if the operator should forget to release the lock and restore the feed rollers to operative position before proceeding with the writing. By my present invention I overcome this liability by automatically locking the machine out of operation when the feed rollers are cast off and by providing means for automatically unlocking the feed rollers and the devices by which the machine is locked out of operation, so that the operator cannot proceed with the writing unless the feed roll lock has either been released by hand in the usual manner or the carriage has been returned to the right to begin a new line of writing, which return movement of the carriage is effective to automatically release the locks and bring about a restoration of the parts to operative positions.

The frame of the machine comprises a base 1, corner posts 2 and a top plate 3. Key levers 4, provided with the usual finger keys 5 and restoring springs 6, are fulcrumed against a fulcrum plate 7. Each key lever has a sub-lever 8 pivoted thereto at 9. The lower end of each sub-lever is slotted at 10 to receive a fulcrum rod 11 which extends beneath the key levers and is fixed to the base of the machine. The upper ends of the sub-levers are connected to links 12 pivoted at 13 to segmentally arranged upwardly and rearwardly striking type bars 14. The type bars are pivoted at 15 on type bar hangers 16 secured to a type bar segment 17. A universal bar 18 constitutes part of a frame 19 which also includes a rock shaft 20 pivoted to the base of the machine. A spring 21 coöperates with the universal bar frame and with a fixed portion of the machine to return the universal bar and the parts connected therewith to normal position. The universal bar frame has a rearwardly extending centrally projecting arm 23 connected with an upright link 24 pivoted at its upper end to the forward arm 25 of a dog rocker 26 pivoted at 27 to bracket arms 28 secured to the frame of the machine. An upwardly extending arm 29 of the dog rocker is provided with

feed dogs 30 which cooperate with an escapement wheel 31. A spring 32 is operative to assist in moving the dog rocker and the universal bar frame to normal position. The escapement wheel is operatively connected in the usual manner to a shaft 33 which rotates in a bearing 34 secured to the top plate of the machine. A feed pinion 35 is secured to the forward end of the shaft and cooperates with a feed rack 36 which is carried by arms 37 pivotally connected to the carriage in the usual manner. Fixed guide rails 38 are secured to brackets 39 fixed to the top plate of the machine. The fixed guide rails 38 are grooved on opposite faces for cooperation with anti-friction rollers 40 which are likewise received in oppositely grooved guide rails 41 of the carriage. The guide rails 41 form part of a guide or traverse bar 42 which with forwardly extending end bars or plates 43 constitute the platen frame or carriage. The end bars are provided with bearings for a platen shaft 44 to which is affixed a cylindrical platen 45. It will thus be understood that the carriage is mounted for movement from side to side of the machine over the top plate, and a step-by-step feed movement of the carriage is afforded by the escapement mechanism, an intermittent feed movement of the carriage being effected at each depression of a printing key 5 or of the usual space key (not shown).

The paper feed devices may be of the usual character employed in the Monarch machine; only some of these are shown. The cross bar 42 of the carriage is provided with forwardly extending lugs 46 between each pair of which is pivoted at 47 a depending hanger arm 48. A coiled spring 49 surrounds each of the pivots 47 and tends to force the hangers toward the platen. A shaft 50 connects the hanger arms and constitutes a bearing for main paper feed rollers 51. A downwardly and forwardly extending hanger arm 52 is likewise pivoted between each pair of lugs 46, as indicated at 53. Coiled springs 54 surround the pivots 53 and tend to move the arms 52 toward the platen. A shaft 55 connects the arms 52 and constitutes a support for the forward feed rollers 56. The hanger arms 48 are extended beyond the points where they are connected with the shaft 50 so as to provide bearings for anti-friction rollers 57 which are adapted to bear on the upper sides of the hanger arms 52. A rock shaft 58 is received in bearings in the end plates and one end of the shaft, where it extends beyond the left-hand end plate 43, is provided with a finger piece 59 by which the rock shaft may be turned. The finger piece or crank arm has an extension 60 which constitutes a stop cooperative with a stop pin 61 which projects outwardly from the left-hand end plate or

bar of the carriage. The stops 60 and 61 cooperate to limit the forward movement of the finger piece 59 and to limit the rotative movement of the rock shaft 58 from its normal position. The body of the finger piece 59 cooperates with the stop pin 61 to limit the movement of the finger piece in an opposite direction. The rock shaft 58 is provided with projections 62, one of said projections being provided for each of the hanger arms 48. The arrangement of the parts is such that when the finger piece 59 is in the normal position shown in Fig. 1 the projections 62 on the rock shaft will be moved out of cooperation with the hangers 48 and the springs 49 and 54 are effective to maintain both sets of feed rollers against the platen or the paper thereon. When, however, the finger piece 59 is moved to the position shown in Fig. 3 the projections 62 are brought into cooperation with the hangers 48, forcing the feed rollers 51 away from the platen. The cooperation of the anti-friction rollers 57 with the arms 52 likewise cause the arms 52 to be moved downwardly to carry the forward set of feed rollers away from the platen.

From an inspection of Fig. 3 it will be seen that when the finger piece 59 is moved to the position shown in this figure the projections 62 will be between the axis of the shaft 58 and the hangers 48 so that the parts are in what may be termed a dead centered position and the feed rollers are at this time locked in the cast-off or inoperative position by the dead centered arrangement.

The line lock and margin stop mechanism in the Monarch machine comprises an arm or finger 63 provided with a collar or hub 64 adjustably fixed by a set screw 65 on the link 24. A locking lever 66 is pivoted at 67 to the forward side of the lower fixed carriage rail 38, said locking lever being provided with a hook-like portion 68 at the lower end thereof. When the locking lever is moved from the full to the dotted line position shown in Fig. 2 the hook 68 is adapted to engage beneath the arm 63, thus preventing a downward movement of the link 24, thereby locking the universal bar frame against depression and locking the key levers and the escapement mechanism against actuation. The locking lever 66 has an off-set arm or finger 69 which is cooperative with a pin 70 which projects rearwardly from a bail or bar 71, said pin extending beneath the finger 69. The bail 71 is turned rearwardly at its ends where it is pivoted on shouldered screws 72 to the lower fixed carriage rail 38, so that the bail is adapted to swing around the pivot screws 72. A wire spring 73 is fixed at one end, as at 74, to the lower fixed carriage rail 38 and bears at its free end upwardly against a

pin 75 which projects from the rear face of the bail or bar 71. This spring exerts an upward pressure to normally maintain the cross bar of the bail in the elevated position shown in Fig. 2. In this position of the bail the lever 66 is maintained in the full line position shown in Fig. 2, the line lock mechanism being thus released and the key levers and escapement mechanism being free to be actuated.

A combined line lock and stop lever contact device or stop member 76 is pivoted at 77 to the cross bar 42 of the carriage. The stop lever is angular in form, the upright arm thereof being adapted to cooperate with a line lock stop or contact device 78 and with a margin stop or contact device 79, both adjustable along a stop rod 80 carried by the upper fixed carriage rail 38. The lower arm of the stop lever is disposed at substantially right angles to the upright arm and carries an anti-friction roller 81 which cooperates with the cross bar or bail 71 at any point in the travel of the carriage. The combined line lock and stop lever 76 normally bears against a stop member 82, as shown in Fig. 2, so that during the movement of the carriage to the right the stop lever may be brought into cooperation with the margin stop 79 and the force of the impact between the stops will be resisted by the stop member 82, so that the stop lever at this time is not moved from its normal position on the carriage. When, however, the carriage moves to the left the stop lever 76 is brought into cooperation with the line lock stop 78 and the lever 76 is turned against the pressure of its spring 83 to the position shown in Fig. 4. The effect of this movement is to depress the bail 71 against the pressure of its spring 73, thus enabling the line lock lever 66 to move from the full line to the dotted line position shown in Fig. 2 and to lock the machine out of operation. As soon as the carriage is again moved to the right the spring 83 will restore the lever 76 to its normal position, where it bears against the stop member 82, thus releasing the line lock lever and freeing the line lock mechanism.

The parts thus far described are the same, or are similar to those ordinarily employed in the Monarch machine.

On the rock shaft 58 I have provided a yoke-like actuating member 84 which straddles the rock shaft and the arms of the actuating member are united by a headed screw 85 threaded at one end into a tapped opening in one of the arms of the yoke-like member and turning freely in an opening in the other arm. By this construction the actuating member 84 may be readily placed on the shaft 58 and adjusted around and along the shaft and secured in the position to which it has been adjusted by tightening the screw

85 to secure the device 84 to the shaft. A lever 86 is pivoted on a shouldered screw 87 received in a tapped opening in the stop member 82. The right-hand end of this lever is formed with a rearwardly extending arm or finger 88 which extends over and is adapted to cooperate with the horizontally disposed arm of the lever 76. The actuating device 84 is so positioned on the shaft 58 that it is adapted to cooperate with the left-hand end of the lever 86 when the rock shaft 58 is moved to release the feed rollers and lock them in the released or cast-off positions. Thus when the finger piece 59 is moved forwardly to the position shown in Fig. 3 this is effective to elevate the actuating device 84 so as to turn the lever 86 on its pivot 87. This movement is effective to move the stop lever 76 to the position shown in Fig. 4, thus depressing the bail 71 to cause a movement of the line lock lever 66 from the full line position shown in Fig. 2 to the position shown in dotted lines in said figure. The effect of this is to lock the machine out of operation when the feed rolls are locked in the released or cast-off positions.

It will be understood that the lever 76 will be maintained in the position shown in Fig. 4 as long as the finger piece 59 is maintained in the position shown in Fig. 3. If the operator should forget to restore the feed rollers to operative position after adjusting the paper, the machine cannot be actuated if the attempt to write occurs when the carriage is at any other position than that necessary to begin a line. The operator is thereby warned that the feed rolls must be moved back to operative position and there is therefore no danger of destroying the sheet or sheets in the machine by writing on the sheets when they are out of control of the paper feed rollers. Ordinarily, however, the carriage is moved to the right to begin a new line of writing after the sheet has been adjusted and when this is done the upper end of the stop lever 76 will be brought into cooperation with the margin stop 79, thus forcing the lever back to normal position against the stop member 82. This automatic restoration of the stop lever 76 to its normal position automatically releases the feed rollers from their locked position and enables them to be restored to operative position in contact with the paper. The bail 71 is at the same time freed and the spring 73 becomes effective to elevate the bail, thus withdrawing the hook 68 of the line lock lever from beneath the finger 63, so as to automatically release the line lock mechanism. It will thus be seen that the movement of the carriage automatically effects a release of the locked feed rollers and also of the means by which the machine is locked out of operation, and that the act of locking the feed rollers in the released or

cast-off position is effective to lock the machine out of operation. Moreover, it will be seen that my invention may be readily embodied in a Monarch typewriting machine, for instance, without changing, or materially changing, the structural features of that machine; and that the features of the invention are simple in construction and efficient in use.

It should be understood that from certain aspects of my invention some of the features may be employed without others and that various changes may be made without departing from the invention.

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

1. In a typewriting machine, the combination of a paper feed device, means for moving said paper feed device to and for locking it in inoperative position, means for locking the machine out of operation whenever said paper feeding device is locked in inoperative position, and means for automatically releasing the locked paper feed device.

2. In a typewriting machine, the combination of a paper feed device, means for moving said paper feed device to and for locking it in inoperative position, means for locking the printing keys against actuation when said paper feed device is locked in inoperative position, and means for automatically releasing the locked paper feed device.

3. In a typewriting machine, the combination of a paper feed device, means for releasing and for locking the paper feed device released, line lock mechanism actuated by the act of locking the paper feed device in released position, and means for automatically releasing the locked-off paper feed device.

4. In a typewriting machine, the combination of a paper feed device, means for releasing and for locking the paper feed device released, line lock mechanism actuated by the act of locking the paper feed device in released position, and means for automatically releasing the locked-off paper feed device and for simultaneously releasing the line lock mechanism.

5. In a typewriting machine, the combination of a feed roller, means for releasing said feed roller and for locking it in the released position, means for locking the printing keys out of operation by the act of locking the feed roller in the released position, and means for automatically releasing the locked feed roller and printing keys.

6. In a typewriting machine, the combination of a carriage, a feed roller, means for releasing said feed roller and for locking it in the released position, means for locking the printing keys out of operation by the act of locking the feed roller in the released position, and means controlled by

the movement of the carriage for releasing the locked feed roller.

7. In a typewriting machine, the combination of a carriage, a paper feed device, means for releasing the paper feed device and for locking it in the released position, and means controlled by the movement of the carriage for unlocking said paper feed device.

8. In a typewriting machine, the combination of a carriage, a paper feed device, means for releasing the paper feed device and for locking it in the released position, line lock mechanism actuated by the act of locking the paper feed device in the released position, and means controlled by the movement of the carriage for unlocking said paper feed device and said line lock mechanism.

9. In a typewriting machine, the combination of a carriage, a paper feed device, line lock and margin stop mechanism including a combined line lock and margin stop member, means for releasing said paper feed device and for locking it in the released position, and means for moving said combined line lock and stop member by the act of locking the paper feed device in the released position.

10. In a typewriting machine, the combination of a carriage, a paper feed device, a combined line lock and margin stop member, line lock devices controlled thereby, a coöperative line lock stop, a coöperative margin stop, means for releasing said paper feed device and for locking it in the released position, and means for moving said combined line lock and stop member by the act of locking the paper feed devices in the released position, the said member being automatically restored to normal position by its coöperation with said margin stop.

11. In a typewriting machine, the combination of a carriage, a paper feed device, means for releasing said paper feed device and for locking it in the released position, and margin stop devices operative to unlock the locked off paper feed device.

12. In a typewriting machine, the combination of a carriage, a paper feed device, means for releasing said paper feed device and for locking it in the released position, line lock devices, means whereby the line lock devices are actuated by the act of locking the paper feed device in the released position, and margin stop means for unlocking the locked paper feed device and line lock devices through the return movement of the carriage.

13. In a typewriting machine, the combination of a carriage, a paper feed device, means for releasing said paper feed device and for locking it in the released position, means operative by the act of locking the

paper feed device in the released position for locking the machine out of operation, said last mentioned means including a contact device on the carriage, and a coöperative contact device on the frame of the machine for restoring the first mentioned contact device to normal position.

14. In a typewriting machine, the combination of a carriage; a paper feed device; means for releasing said paper feed device and for locking it in the released position; and means for automatically releasing the locked-off paper feed device, said automatic releasing means comprising a contact device on the carriage, and a coöperative contact device on the frame of the machine.

15. In a typewriting machine, the combination of a carriage; a paper feed device; means for releasing said paper feed device and for locking it in the released position; and means controlled by the movement of the carriage for automatically releasing the locked-off paper feed device, said last mentioned means comprising two contact devices one on the carriage and the other on the frame of the machine, an operation of one of said contact devices by the other being effected through the movement of the carriage.

16. In a typewriting machine, the combination of a carriage, a paper feed roller, means for casting off said feed roller and for locking it in the cast-off position, a universal bar, means for locking said universal bar by the act of locking the feed roller in the cast-off position, and means controlled by the movement of the carriage for automatically releasing the feed roller from its locked position and for releasing the universal bar.

17. In a typewriting machine, the combination of a carriage; a paper feed roller; means for casting off said feed roller and for locking it in the cast-off position; a universal bar; means for locking said universal bar by the act of locking the feed roller in the cast-off position; and means controlled by the movement of the carriage for automatically releasing the feed roller from its locked position and for releasing the universal bar, said last mentioned means comprising a contact device on the carriage, and

a coöperative contact device on the frame of the machine.

18. In a typewriting machine, the combination of a carriage; a paper feed roller; means for casting off said feed roller and for locking it in the cast-off position; and means for automatically releasing the cast-off feed roller from its locked position, said last mentioned means comprising a lever, and a contact device, one being carried by the carriage and the other by the frame of the machine, the travel of the carriage being effective to bring the lever and contact device into coöperation.

19. In a typewriting machine, the combination of a carriage; a paper feed roller; means for casting off said feed roller and for locking it in the cast-off position; and means for automatically releasing the cast-off feed roller from its locked position, said last mentioned means comprising a lever carried by the carriage and moved from normal position when the feed roller is cast off and locked in the cast-off position, and a contact on the frame of the machine with which said lever is brought into coöperation by the travel of the carriage to effect a movement of the lever back to normal position and to release the locked-off feed roller from its locked position.

20. In a typewriting machine, the combination of a carriage, a feed roller, a finger piece and coöperative means for casting off said feed roller and for locking it in the cast-off position, a combined margin stop and line lock lever carried by the carriage, line lock devices controlled by said lever, means whereby said lever is moved to actuate the line lock mechanism when the feed roller is locked off, and a margin stop coöperative with said lever to return it to normal position when the carriage is moved to the right, whereby the feed roller and line lock devices will be automatically unlocked.

Signed at Syracuse in the county of Onondaga and State of New York this 14th day of December, A. D. 1909.

GEORGE B. BRAND.

Witnesses:

GILES B. EVERSON,
H. H. STEELE.