

O. WOODWARD.
TYPE WRITING MACHINE.
APPLICATION FILED MAR. 24, 1909.

961,194.

Patented June 14, 1910.

4 SHEETS—SHEET 1.

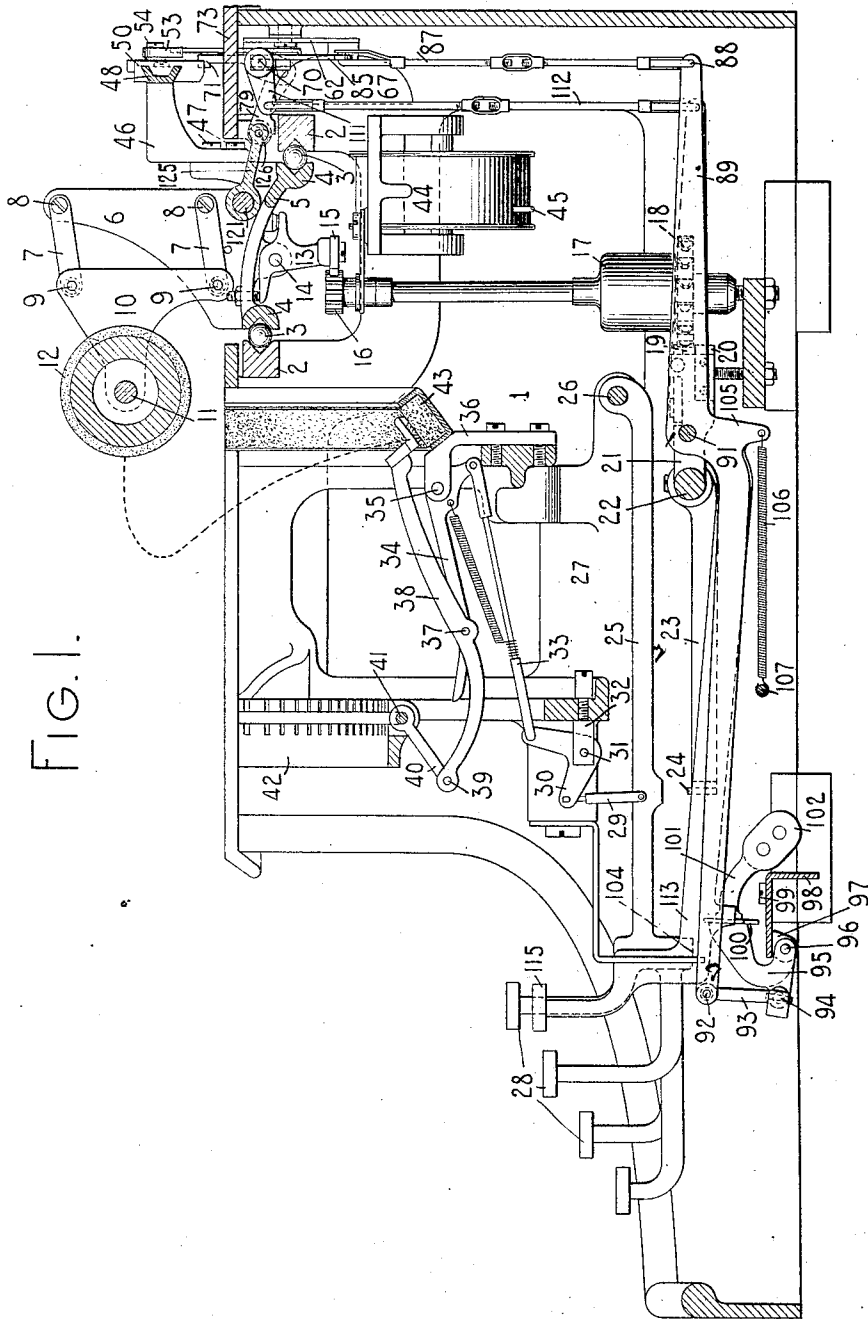


FIG. 1.

WITNESSES:

E. M. Wells.

Charles F. Smith

INVENTOR:

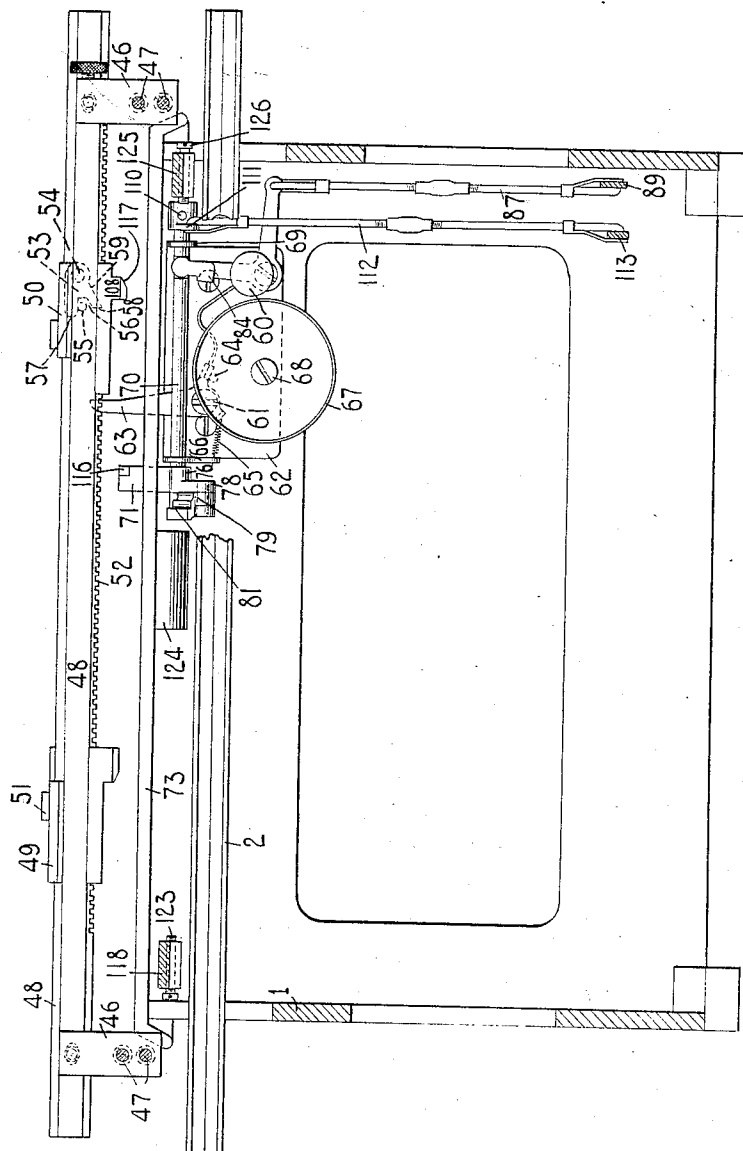
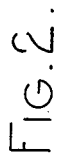
Oscar Woodward

By Jacob F. Felt

HIS ATTORNEY

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4 SHEETS—SHEET 2.



E. M. Wells.

Charles E. Smith

Oscar Woodward

By Jacob Felber

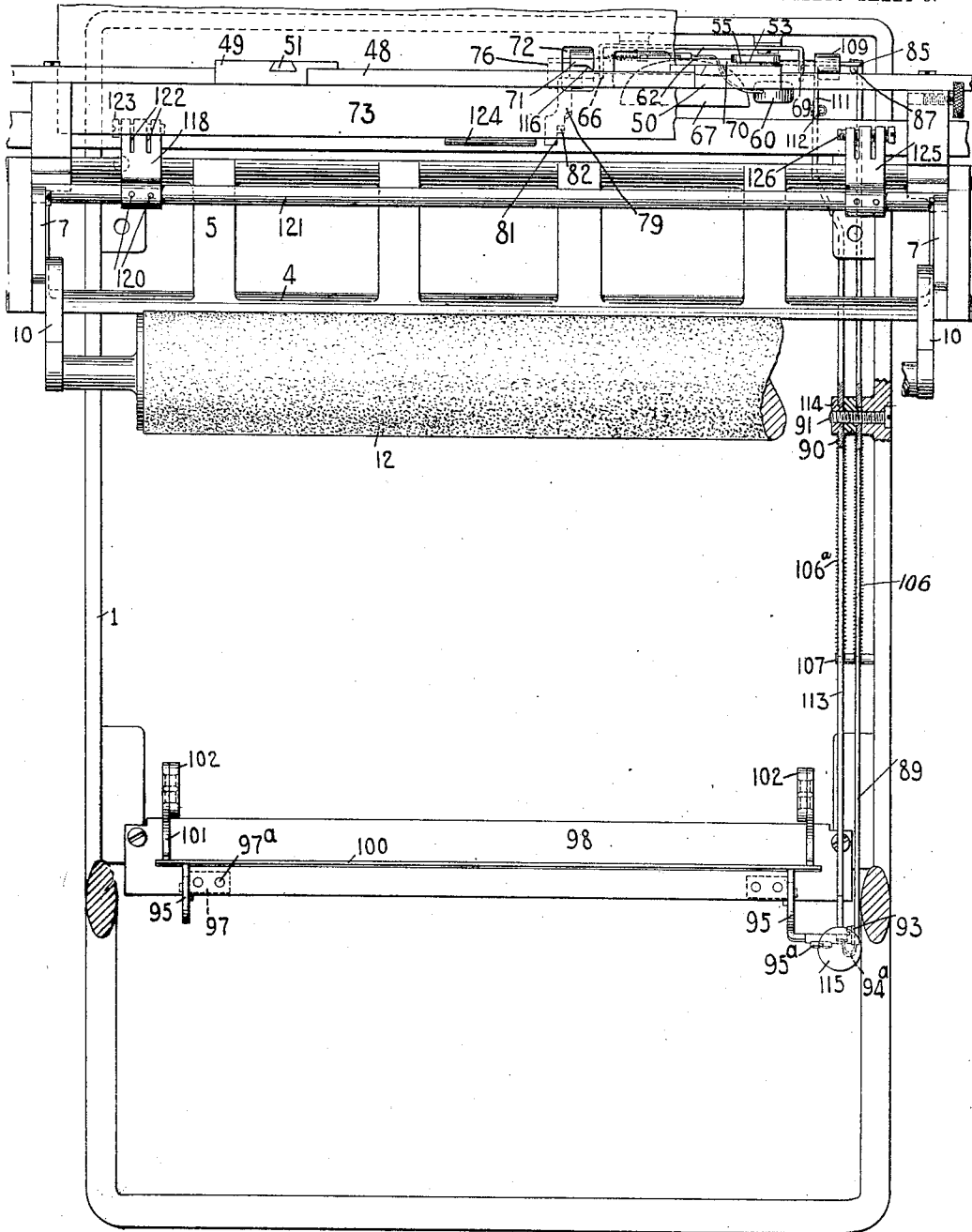
HIS ATTORNEY

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4 SHEETS—SHEET 3.



WITNESSES:

FIG. 3.

INVENTOR.

E. M. Wells.

Oscar Woodward

Charles E. Smith

By Jacob F. Bell

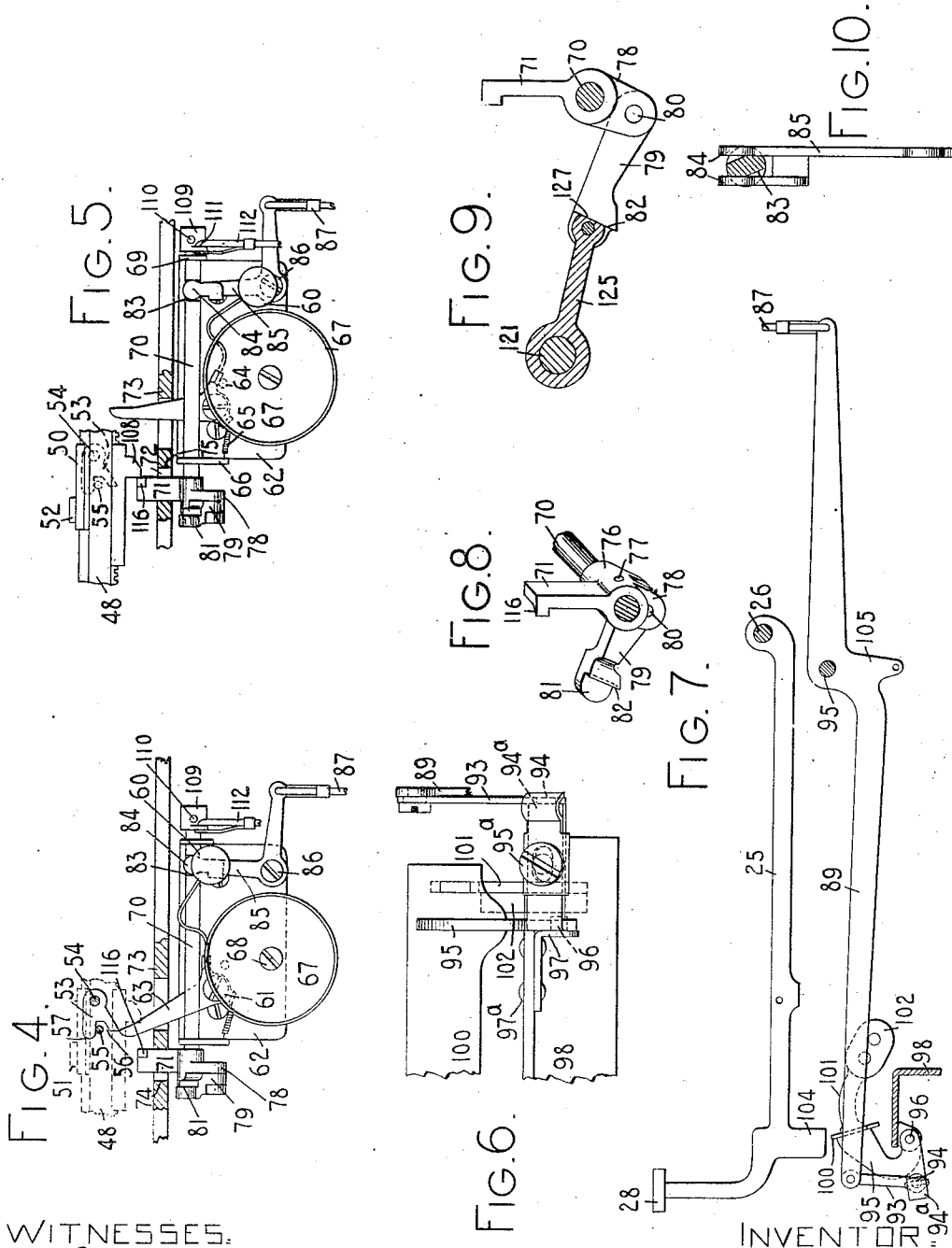
HIS ATTORNEY.

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4 SHEETS—SHEET 4.



WITNESSES.

E. M. Wells.
Charles Smith

Oscar Woodward
By Jacob F. Fabel
HIS ATTORNEY

UNITED STATES PATENT OFFICE.

OSCAR WOODWARD, OF MONTCLAIR, NEW JERSEY, ASSIGNOR TO YOST WRITING MACHINE COMPANY, OF ILION, NEW YORK, A CORPORATION OF NEW YORK.

TYPE-WRITING MACHINE.

961,194.

Specification of Letters Patent. Patented June 14, 1910.

Application filed March 24, 1909. Serial No. 485,512.

To all whom it may concern:

Be it known that I, OSCAR WOODWARD, a citizen of the United States, and resident of Montclair, in the county of Essex 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 line lock and margin stop mechanism for such machines.

One object of my invention is to provide efficient line lock and margin stop mechanism.

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 vertical front to rear sectional view of one form of typewriting machine embodying my invention. Fig. 2 is a vertical transverse sectional view showing a portion of the line lock and margin stop mechanism. Fig. 3 is a fragmentary plan view of the same with parts in section and parts broken away. Fig. 4 is a detail front elevation with parts in section of a portion of the line lock and alarm mechanism, the view showing the disposition of the parts just before the bell hammer is released to sound the alarm. Fig. 5 is a like view of the same showing the disposition of the parts when the line lock mechanism is actuated. Fig. 6 is an enlarged detail fragmentary bottom view of the line locking bar and some of its associated parts. Fig. 7 is a detail side view showing a key lever, the line locking bar and some of its actuating devices, the line locking bar being shown in the locking position. Fig. 8 is a detail perspective view of the stop on the frame of the machine by which the line locking mechanism is actuated. Fig. 9 is an enlarged detail end elevation with parts in section and showing the final line lock stop and the cooperating line lock stop on the frame. Fig. 10 is an enlarged detail end view partly in section but showing the joint between the bell crank of

the line lock mechanism and the rock shaft with which it coöperates.

I have shown my invention applied in the present instance to a typewriting machine including a type action of the same general character as that shown in the application of Arthur W. Smith, Serial No. 260,441, filed May 15th, 1905, the carriage construction and escapement mechanism shown herein being somewhat similar to structures disclosed respectively in my prior applications Serial Nos. 362,734 and 415,373, filed respectively March 16th, 1907 and Feb. 11th, 1908.

The frame 1 of the machine supports fixed guide rails 2 oppositely grooved to receive anti-friction balls or rollers 3 which are also received in oppositely grooved faces of guide rails 4 which form part of a carriage truck 5. End plates 6 are carried by the carriage and have parallel links 7 pivoted thereto at 8. The forward ends of the parallel links are pivoted at 9 to the end plates of a platen frame 10. The end plates of the platen frame have bearing openings therein which receive a platen shaft 11 which constitutes a support for a rotative platen 12. Arms are pivoted at 14 to depending ears on the carriage truck 5. These brackets are united by and constitute pivotal supports for a feed rack 15 which coöperates with a feed pinion 16 operatively connected through clutch mechanism contained in a housing 17 with an escapement wheel 18. Feed dogs 19 and 20 are carried by a dog rocker 21 and coöperate with the escapement wheel 18. The dog rocker is secured to a rock shaft 22 provided with forwardly extending arms that support a universal bar 24 that extends transversely of the machine beneath the printing key levers 25 to be actuated thereby. The key levers are pivoted upon a pivot rod 26 secured at its ends in an auxiliary frame 27 detachably secured to the main frame of the machine. The forward ends of the key levers are provided with the usual finger keys 28. A link 29 is connected at one end to a key lever and at its opposite end to the forwardly extending arm of a bell crank lever 30 pivoted at 31 to a hanger 32. The upwardly extending arm of each bell crank is connected to a link 33 which in turn is connected at its rear end to a driver 34 pivoted at 35 to a hanger 36. Each driver is pivoted at 37 to a type bar proper

38. The forward end of each type bar is pivoted at 39 to a guide link 40 pivoted at 41 to a segment 42. The various type bars are segmentally arranged and the type bearing ends thereof normally rest against an ink pad 43. A depression of a key lever causes the types to follow a path such as that indicated by the dotted lines in Fig. 1 and strike against the front face of the platen. Each actuation of a type carrier causes the universal bar to be depressed, thereby effecting a feed movement of the carriage which is propelled across the top plate of the machine by a spring drum 44 connected by a band or ligament 45 with the carriage. The carriage truck has brackets 46 secured thereto by screws 47, which brackets support a stop rod or bar 48 which is dove-tailed in cross section. This stop bar supports a margin stop 49 and a line lock stop 50 each of which is adjustable along the stop bar and may be secured in its adjusted position by a suitable spring-pressed locking device 51 which is adapted to engage teeth 52 on the stop bar. The construction of the line lock stops and its supporting bar form the subject-matter of a Patent to George F. Ballou, No. 903,434, dated Nov. 10th, 1908. The line lock stop 50 is provided with a bell trip 53 pivoted to the line lock stop at 54 and limited in its pivotal movement by a stop pin 55 received in an opening or cut-out 56 in the bell trip and coöperative with an arm 57 on the bell trip to limit its downward movement. The bell trip has a vertical face 58 on the left-hand end thereof and an inclined or beveled face 59 on the right-hand side thereof. A bell hammer 60 is pivoted on a pivot screw 61 to a bracket plate 62 and has an upwardly extending trip 63 which extends into the path of the bell trip 53 on the line lock stop. A stop pin 64 projects into the path of the arm of the bell hammer to limit the bell hammer in its movement toward the bell and prevent it from resting thereon. A coiled contractile spring 65 is connected at one end to an ear 66 of the bracket 62 and at its opposite end to the bell hammer. As the carriage moves from right to left the vertical face 58 of the bell trip on the margin stop will contact with the trip arm 63 as shown in Fig. 4 and when the carriage moves beyond this position toward the left the arm 63 will be released and the spring will cause the bell hammer to be vibrated against a bell 67 secured by a screw 68 to the bracket 62, thus causing the alarm to be sounded. As the carriage moves to the right the inclined face 59 of the bell trip 53 will contact with the arm 63 which will turn the bell trip 53 on its pivot to clear the arm 63 without sounding the alarm or obstructing the free movement of the carriage to the right.

65 The bracket 62 is provided with an ear

69 in addition to the ear 66 hereinbefore referred to and these ears are perforated to receive a rock shaft 70 that has a longitudinal as well as a rocking movement in its bearings. The rock shaft carries an upwardly extending stop 71 which extends through an opening 72 in the top plate 73 of the machine and the movement of the stop 71 in the direction of the travel of the carriage is limited by the end walls 74 and 75 of said opening. From an inspection of Fig. 8 it will be seen that the stop 71 is provided with a hub 76 which surrounds the rock shaft and is fixed thereto by a pin 77. A bifurcated depending lug 78 is formed as a part of the hub 76. A member 79 is received at its rear end in the space between the bifurcated arm 78 and is rigidly secured thereto by a rivet 80. The forwardly extending arm or member 79 is provided with a contact face 81 and with a flattened locking face 82 adjacent to the contact face 81 for purposes which will hereinafter more clearly appear. While the members 79 and 71 are shown as separate parts rigidly connected together it should be understood that these parts may, if desired, be cast or otherwise formed in one piece. The rock shaft 70 is cut out at 83 to receive forked fingers 84 at the upper end of an upwardly extending arm of an angular lever 85 pivoted at 86 to the bracket plate 62. The horizontally disposed arm of the bell crank lever is connected to the upper end of a depending link 87, the lower end of said link being connected at 88 to a lever 89 of the first order pivoted on a shouldered nut 90 (see Fig. 3) which coöperates with a screw 91 that passes through an opening in the frame of the machine. The forward end of the lever 89 is pivoted at 92 to a depending link 93 pivoted at 94 to an arm 95. The pivotal connection between the arm 95 and the link 93, as best shown in Fig. 6, is effected by a slip joint comprising a retaining piece 94^a slotted to receive the stem of a headed screw 95^a. When the screw is loosened and the member 94^a is moved to the right a disconnection of the link 93 from its pivot 94 may be effected. When, however, the parts are in the positions shown in Fig. 6 the member 94^a bears against the outer face of the link 93 and retains it on its pivot 94. The arm 95 is pivoted at 96 to a bracket 97 riveted at 97^a to a cross-bar 98 secured by screws 99 to the frame of the machine and extending from side to side thereof. There are two of the arms 95, one pivoted near each side of the machine but only one of said arms is directly connected with the lever 89. A locking bar 100 is connected to and supported by the pivoted arms 95. This locking bar extends transversely beneath the key levers and is adapted to lock them against printing movement when the locking bar is in the opera-

tive position, as will hereinafter more clearly appear. Rearwardly extending arms 101 project from the locking bar and carry weights 102 at the rear ends thereof. The relation of the parts is such that when the locking bar is in the normal position shown in Fig. 1 the printing key levers are free to be depressed. When, however, the locking bar is moved to the operative position shown in Fig. 7 it is brought beneath depending projections 104 on the printing key levers to prevent a depression of them sufficient to actuate the printing instrumentalities. From an inspection of Fig. 7 it will be seen that when the locking bar is moved to the operative position it will be brought into a position where the pressure exerted thereon by the key levers is on a dead center against the pivots 96 of the pivoted arms 95. The lever 89 has a depending portion 105 connected to one end of a contractile spring 106, the opposite end of said spring being connected to a pin 107 which projects inwardly from the frame of the machine. The counterweights 102 and the spring 106 restore the locking bar and the parts connected therewith to normal position.

From the foregoing description it will be understood that as the carriage moves from right to left and the depending engaging projection 108 on the line lock stop engages and moves the coöperative stop 71 the rock shaft 70 will be moved longitudinally with the carriage toward the left, thus rocking the bell crank 85 to effect a movement of the locking bar 100 to the locking position, as shown in Fig. 7. The parts are limited in this movement by the stop 71 contacting with the end wall 74 of the slot 72.

The right-hand end of the shaft 70 has a collar 109 secured thereto by a pin 110. A crank arm 111 projects from the collar and is connected at its free end to a depending link 112. The lower end of the link 112 is connected to the rear end of a lever 113 arranged beside the lever 89 and pivoted on a shouldered nut 114 secured in place by the screw 91. The lever 113 is a lever of the first order and is provided with a release key 115 at the forward end thereof, the key being arranged in the keyboard of the machine. A contractile spring 106^a is connected to the lever 113 in the same manner that the spring 106 is connected to its companion lever 89 and is also connected to the inwardly projecting pin 107. It will be understood that a depression of the release key 115 is effective to rock the lever 113 to effect a turning movement of the rock shaft. The joint between the rock shaft and the bell crank 85 shown in Fig. 10 affords a rocking movement of the shaft independently of the bell crank and the parts controlled thereby. This turning movement of the rock shaft is effective to move the stop 71 out of the path

of the depending projection 108 on the line lock stop 50 so as to free the stop 71 from the coöperation with the line lock stop 50 and thus release the line lock mechanism to enable one or more characters to be written after the line lock mechanism has been actuated to lock the machine against operation. The stop 71 has a beveled face 116 and the depending projection 108 is also beveled on its right-hand side at 117 so that when the line lock stop on the carriage has passed to the left of the stop 71 the carriage may be returned to the right without being obstructed in this movement by the stop 71 and the coöperating line lock stop on the carriage. During the movement of the carriage to the right the two beveled contact faces will come into coöperation to effect a turning movement of the stop 71 around the axis of the rock shaft and out of the path of the coöperating line lock stop on the carriage.

The margin stop 49 hereinbefore referred to is adapted to engage the stop 71 in the movement of the carriage to the right and thus limit it in such movement. It will be understood that during the movement of the carriage to the right the margin stop 49 effects no movement of the stop 71 since this last mentioned stop is normally in engagement with the end wall 75 of the slot so that the top plate resists the impact of the margin stop 49 against the stop 71. A depression of the release key 115 is effective to move the stop 71 out of the path of the margin stop as well as out of the path of the line lock stop 50 so that the writing may be effected within the margin.

In addition to the line lock and margin stops I have also provided final line lock and margin stops on the carriage. The final margin stop 118 (Fig. 3) has a hub secured by pins 120 to a cross rod 121 which extends between the end plates of the carriage truck. The final stop is split at 122 and is tapped transversely through the split portion to receive a screw 123, the inner projecting end of which constitutes the stop proper and is adapted to contact with an abutment 124 formed on the top plate 73 of the machine. Near the right-hand end of the bar 121 is a final line lock stop 125, which is similar in construction to the final margin stop 118. The contact screw 126 of the final line lock stop is adapted to contact with the contact face 81, hereinbefore referred to, on the stop 71 and to effect a longitudinal movement of the shaft 70 in order to actuate the line lock mechanism. From an inspection of Fig. 9 it will be seen that the final line lock stop 125 has a flat locking face 127 adapted to match the locking face 82 on the stop 71, the said locking faces constituting controlling means for purposes which will hereinafter appear. When the stop 125 and the

contact face 81 are brought into coöperation the effect of this engagement of the flat locking faces 82 and 127 is to prevent a rocking movement being given to the shaft 70 at this time. It will therefore be understood that when the locking faces 127 and 82 come into operation and the line lock mechanism has been actuated to lock the machine out of operation, that the line lock mechanism cannot at this time be released by the release key; and that it is necessary to move the carriage to the right before the line lock mechanism can be released. This is in order to prevent a release of the line lock mechanism by the release key after the final stop has been brought into operation and no further movement of the carriage can take place. If the line lock mechanism were released at this time it would merely enable the characters to be printed one on top of the other since the carriage can receive no further line feed movement. It will be understood that if the inner end of the screw 126 is projected sufficiently far to the left of the final line lock stop 125 as to contact with the bearing face 81 of the stop 71 without enabling the locking faces 127 and 82 to come into coöperation, then the means for automatically locking the releasing mechanism out of operation cannot be rendered effective. If, however, the screw 126 be withdrawn sufficiently far in its tapped opening to enable the locking face 127 on the final line lock stop to engage the locking face 82, then the release key is automatically rendered ineffective to release the line lock mechanism when the final stop is brought into coöperation with the stop 71.

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

1. In a typewriting machine, the combination of a carriage, a line lock stop carried thereby, a longitudinally movable rock shaft carried by the frame of the machine, a line lock stop carried thereby, key levers, a locking bar which coöperates with said key levers to lock them against depression, intermediate connections between said rock shaft and said locking bar whereby the latter will be moved to the locking position by a longitudinal movement of said rock shaft, a release key at the keyboard of the machine, intermediate connections between said release key and said rock shaft, to rock the latter and thereby move the line lock stop on the rock shaft out of the path of the line lock stop on the carriage and thus release the line lock mechanism, a final line lock stop coöperative with said line lock stop on the rock shaft, and means for rendering the release key inoperative to release the line lock mechanism when said last mentioned stops are brought into coöperation.

2. In a typewriting machine, the combination of a carriage, margin and line lock

stops carried thereby, a coöperative stop on the frame of the machine with which said first mentioned stops directly coöperate, a longitudinally movable rock shaft which carries said coöperative stop, a release key, 70 intermediate connections between said release key and rock shaft for turning the rock shaft to move said coöperative stop out of the path of the margin and line lock stops on the carriage, key levers, a locking bar coöperative therewith to lock the key levers 75 against depression, intermediate connections between said rock shaft and locking bar whereby a longitudinal movement of the rock shaft is effective to move the locking 80 bar to the working position, a final line lock stop on the carriage, and means for rendering said release key inoperative when the final line lock stop and the coöperative stop are brought into coöperation.

3. In a typewriting machine, the combination of a carriage, a line lock stop carried thereby, a longitudinally movable rock shaft carried by the frame of the machine, a line lock stop carried thereby, key levers, a locking 90 bar which coöperates with said key levers to lock them against depression, intermediate connections between said rock shaft and said locking bar whereby the latter will be moved to the locking position by a longitudinal movement of said rock shaft, said 95 intermediate connections including a connection with said rock shaft that affords a turning of the shaft without affecting the intermediate connections and the locking bar 100 controlled thereby, a release key at the keyboard of the machine, and intermediate connections between said release key and said rock shaft to rock the latter and thereby move the line lock stop on the rock shaft out 105 of the path of the line lock stop on the carriage and thus release the line lock mechanism.

4. In a typewriting machine, the combination of a carriage, a line lock stop carried 110 thereby, a longitudinally movable rock shaft carried by the frame of the machine, a line lock stop carried thereby, key levers, a locking bar which coöperates with said key levers to lock them against depression, inter- 115 mediate connections between said rock shaft and said locking bar whereby the latter will be moved to the locking position by a longitudinal movement of said rock shaft, said intermediate connections including an angular 120 lever one arm of which is operatively connected to the rock shaft to be actuated by a longitudinal movement of the rock shaft and to afford a turning movement of the rock shaft independently of said angular 125 lever, a release key at the keyboard of the machine, and intermediate connections between said release key and said rock shaft to rock the latter and thereby move the line lock stop on the rock shaft out of the path 130

of the line lock stop on the carriage, and thus release the line lock mechanism.

5. In a typewriting machine, the combination of a carriage, a line lock stop carried thereby, a longitudinally movable rock shaft carried by the frame of the machine, a line lock stop carried thereby, key levers, a locking bar which coöperates with said key levers to lock them against depression, intermediate connections between said rock shaft and said locking bar whereby the latter will be moved to the locking position by a longitudinal movement of said rock shaft, said intermediate connections comprising an angular lever directly connected with said rock shaft, a link connected with said angular lever, a second lever connected with said link, and an operative connection between said last mentioned lever and the locking bar, a release key at the keyboard of the machine, and intermediate connections between said release key and said rock shaft to rock the latter and thereby move the line lock stop on the rock shaft out of the path of the line lock stop on the carriage and thus release the line lock mechanism.

6. In a typewriting machine, the combination of a carriage, a line lock stop, a final line lock stop both of which are carried by the carriage and which are separate from each other, a margin stop and a final margin stop both of which last-named stops are carried by the carriage and which are separate one from the other, a coöperative stop mounted on the frame of the machine for movement in the direction of the travel of the carriage and also in a direction at right angles thereto and with which the final line lock stop and the margin stop are adapted to coöperate, a fixed abutment on the frame of the machine with which said final margin stop co-acts, line lock mechanism controlled by said coöperative stop, a release key, and connections between said release key and the coöperative stop.

7. In a typewriting machine, the combination of a carriage, a line lock stop, a final line lock stop both of which are carried by the carriage and which are separate from each other, a margin stop and a final margin stop both of which last named stops are carried by the carriage and which are separate one from the other, a coöperative stop mounted on the frame of the machine for movement in the direction of the travel of the carriage and also in a direction at right angles thereto and with which the final line lock stop and the margin stop are adapted to coöperate, a fixed abutment on the frame of the machine with which said final margin stop co-acts, key levers, a locking bar which coöperates with said levers, intermediate connections between said coöperative stop and said locking bar whereby the movement of the coöperative stop in the direction of

the travel of the carriage is effective to move the locking bar to locking position, a release key, and intermediate connections between said release key and said coöperative stop, for moving the coöperative stop in a direction at right angles to the travel of the carriage to move said coöperative stop out of the path of the line lock and margin stops.

8. In a typewriting machine, the combination of a carriage, line lock and margin stops carried by said carriage, final line lock and margin stops separate from the line lock and margin stops and each carrying a set screw that constitutes the contact portion thereof, coöperative stops, and line lock mechanism controlled by certain of said coöperative stops.

9. In a typewriting machine, the combination of a carriage, a line lock stop carried thereby, a coöperating line lock stop on the frame of the machine, line lock mechanism controlled by said coöperating line lock stop, carriage releasing mechanism, a final line lock stop, and means for rendering the carriage releasing means ineffective when the final line lock stop becomes effective to actuate the line lock mechanism.

10. In a typewriting machine, the combination of a carriage, a line lock stop carried thereby, a coöperating line lock stop on the frame of the machine, line lock mechanism controlled by said coöperating line lock stop, carriage releasing mechanism, a final line lock stop, controlling means for rendering the carriage releasing means ineffective when the final line lock stop becomes effective to actuate the line lock mechanism, and means whereby the said controlling means may be rendered inoperative.

11. In a typewriting machine, the combination of a carriage, line lock and margin stops carried by the carriage, a coöperative stop carried by the frame of the machine and mounted for movement in the direction of the travel of the carriage, a top plate having a hole therethrough through which said coöperative stop projects, the walls of said hole limiting the movement of said coöperative stop in its movements in the direction of the travel of the carriage, and line lock mechanism controlled by said coöperative stop.

12. In a typewriting machine, the combination of a carriage, a line lock stop carried by the carriage, a coöperative stop carried by the frame of the machine, key levers, a locking bar coöperative with said key levers, a release key in the keyboard of the machine, and intermediate connections between the coöperative stop and the locking bar and between the release key and said coöperative stop, said intermediate connections including two levers of the first order arranged side-by-side.

13. In a typewriting machine, the combi-

nation of a carriage, a stop bar carried by
 the carriage near the rear of the machine,
 a stop adjustable along said bar, a line lock
 stop on the frame of the machine, a rock
 5 shaft mounted for longitudinal movement
 as well as for turning movement on its longi-
 tudinal axis, said rock shaft carrying said
 last mentioned stop, line locking devices
 near the front of the machine, intermediate
 10 connections between said line locking devices
 and said rock shaft, a finger piece at the
 front of the machine, intermediate connec-
 tions between said finger piece and said rock
 shaft to effect a turning movement of it to
 15 move the stop thereon out of coöperation
 with the adjustable line lock stop on the
 carriage and thus release the line lock mech-
 anism.

20 14. In a typewriting machine, the combi-
 nation of a carriage, a stop bar carried by
 the carriage near the rear of the machine,
 a stop adjustable along said bar, a line lock
 stop on the frame of the machine, a rock
 shaft mounted for longitudinal movement

as well as for turning movement on its lon- 25
 gitudinal axis, said rock shaft carrying said
 last mentioned stop, line locking devices
 near the front of the machine, intermediate
 connections between said line locking de-
 vices and said rock shaft, said intermediate 30
 connections including a lever at one side of
 the machine and which extends fore and
 aft of the machine, a finger piece at the
 front of the machine, intermediate connec-
 tions between said finger piece and said rock 35
 shaft to effect a turning movement of it to
 move the stop thereon out of coöperation
 with the adjustable line lock stop on the
 carriage and thus release the line lock mech-
 40 anism.

Signed at the borough of Manhattan, city
 of New York, in the county of New York
 and State of New York, this 15th day of
 March, A. D. 1909.

OSCAR WOODWARD:

Witnesses:

CHARLES E. SMITH,
 E. M. WELLS.