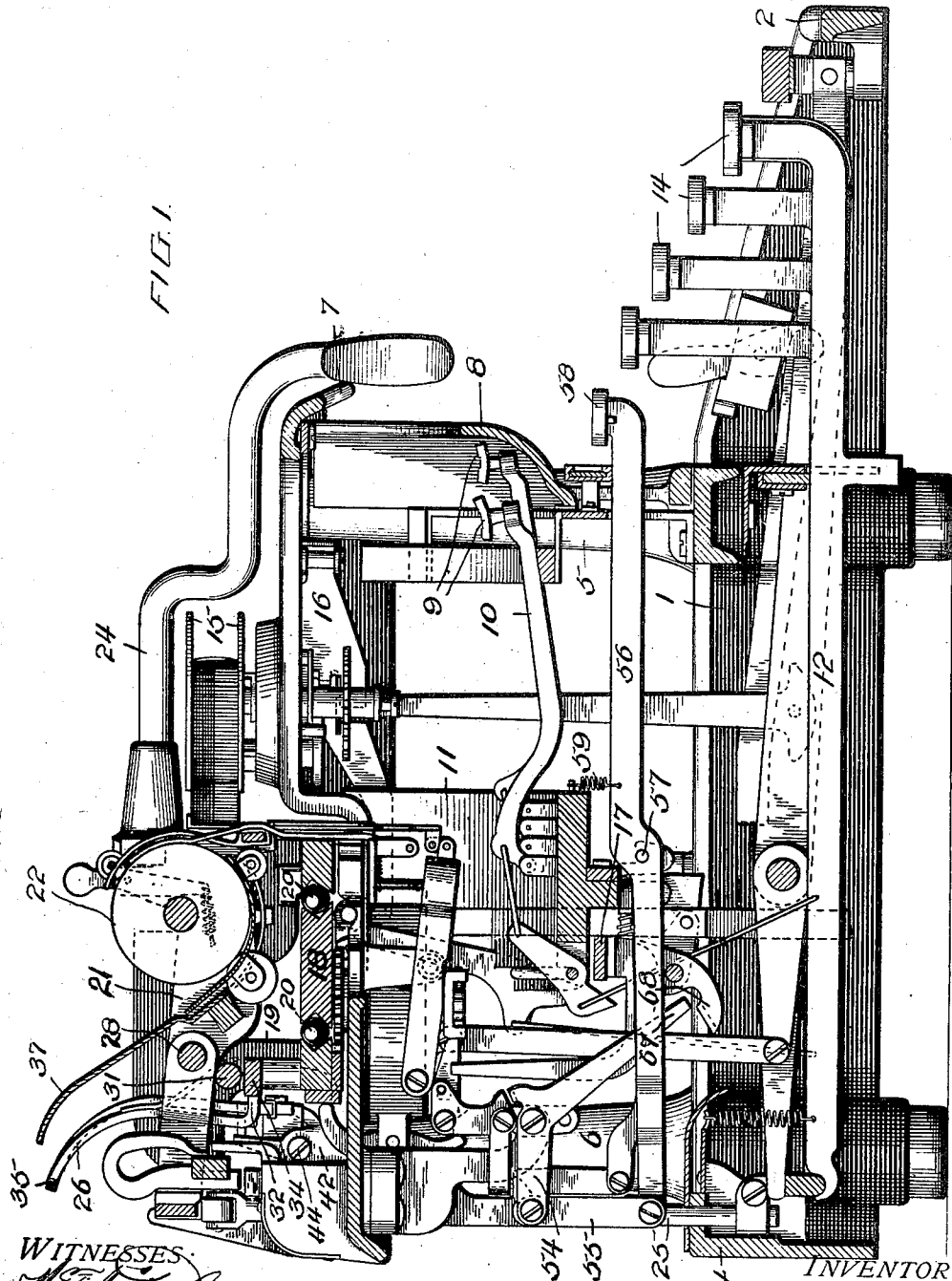


C. SPIRO.
 LINE LOCK AND MARGIN STOP MECHANISM.
 APPLICATION FILED AUG. 4, 1910.

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Patented Mar. 28, 1911.

2 SHEETS-SHEET 1.



WITNESSES:

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BY

INVENTOR

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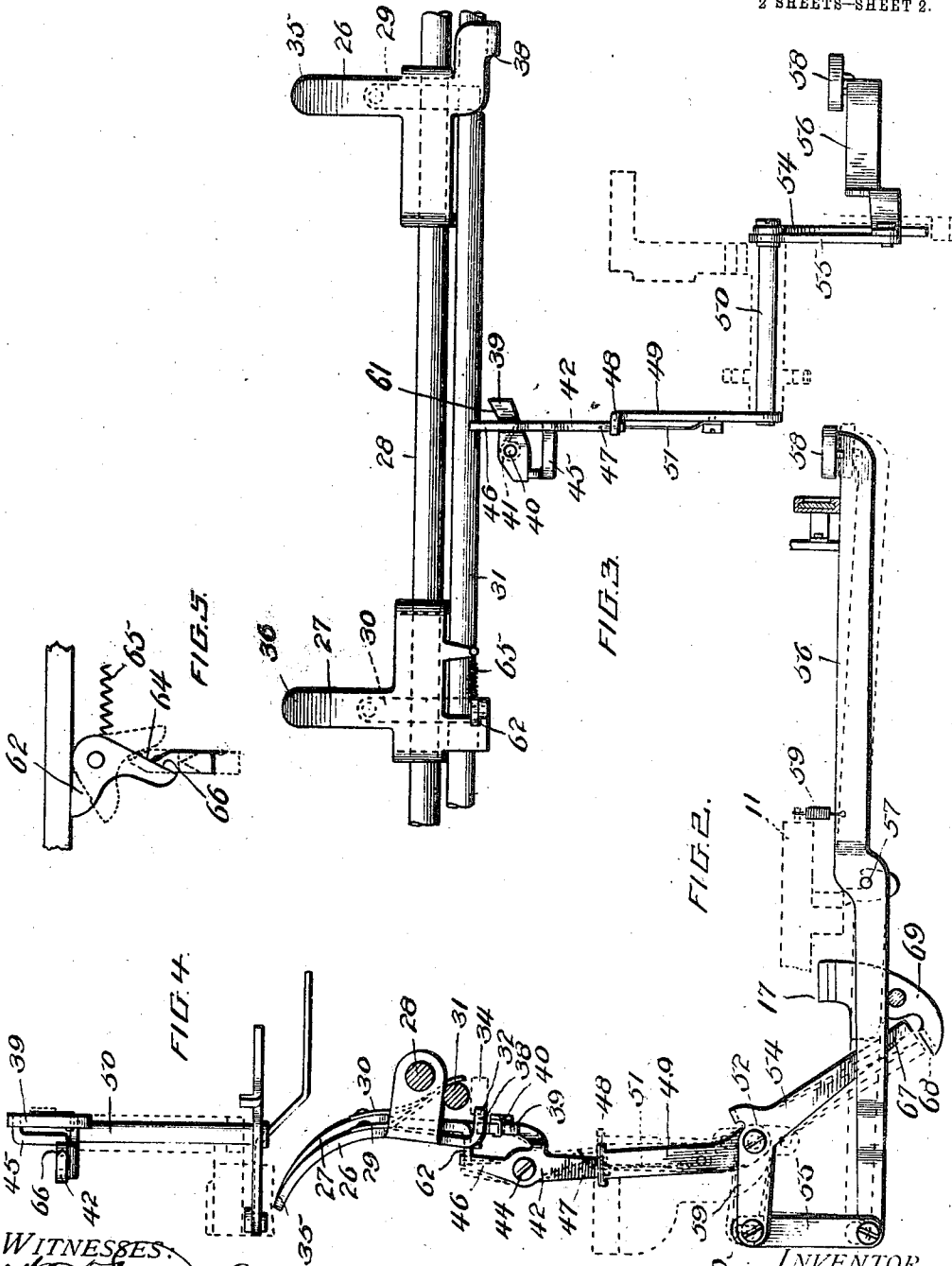
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UNITED STATES PATENT OFFICE.

CHARLES SPIRO, OF NEW YORK, N. Y.

LINE-LOCK AND MARGIN-STOP MECHANISM.

987,765.

Specification of Letters Patent.

Patented Mar. 28, 1911.

Application filed August 4, 1910. Serial No. 575,524.

To all whom it may concern:

Be it known that I, CHARLES SPIRO, a citizen of the United States, residing at New York, county of New York, State of New York, have invented certain new and useful Improvements in Line-Lock and Margin-Stop Mechanism, of which the following is a specification, reference being had therein to the accompanying drawing.

The invention disclosed in this application relates broadly to typewriting machines and specifically to line lock and margin stop mechanisms for a typewriter carriage.

The principal object of this invention is to construct a margin stop and line lock mechanism for a front strike typewriting machine in which the stop actuators are located to the rear of the paper table, and are so positioned as to be easily and quickly adjustable from the front of the machine.

Another object of this invention is to construct a line lock and margin stop mechanism for a typewriting machine wherein both the margin stop and line lock devices are released by means of a single release key lever.

Another object of this invention is to construct a line lock mechanism for a typewriting machine in which a lock stop is swung into the path of a swinging stop in order to lock the printing, escapement, and ribbon mechanisms when the carriage has reached a pre-determined point in its travel; the positioning of said stops being effected by means of a latch cam mounted upon a movable carriage.

Another object of this invention is to construct a line lock mechanism for the carriage of a typewriter in such manner that the locking parts are adapted to be unlocked by depression upon a release key which moves the parts in the same direction as the parts were moved to be thrown into locking position.

A further object of this invention is to construct a line lock mechanism for a typewriting machine in which a movable actuating cam member is carried upon the line lock actuator in the path of mechanisms adapted to position the stops when the carriage has reached a pre-determined point in its travel.

Still other and further objects of this invention will in part be obvious and will in part be pointed out hereinafter in the specification by reference to the accompanying

drawings in which like numerals are used to indicate like parts throughout the several figures, and the scope of the invention will be indicated by the appended claims.

Figure 1 is a view showing a typewriting machine in sectional elevation. Fig. 2 is a view showing the line lock mechanism in elevational detail. Fig. 3 is a view showing the line lock mechanism in detail in front elevation. Fig. 4 is a plan view of one of the line lock stops. Fig. 5 is a detail view of the movable latch member.

Referring particularly to Fig. 1, it will be noted that several parts of a typewriter are disclosed in this view which do not relate specifically to line lock or margin stop mechanism, and therefore, these particular parts will only be described in a general way. However, the particular mechanisms which do not form a part of the specific combination of elements in the margin stop and line lock mechanisms, are covered by applications for patent co-pending with this application.

Referring specifically to Fig. 1, the machine frame comprises side portions 1, which are connected by means of a front bar 2, at the front of the machine, and by means of a rear bar 4, at the rear of the machine. Upright posts 5 and 6, are formed integral with the side members 1, and are adapted to carry a top plate 7, which is fixedly mounted upon the upper ends of the supporting posts 5 and 6, by means of any well known method for interlocking metallic parts. A front board 8, is carried in the front portion of the machine between the supporting posts 5, and is adapted to protect type heads 9, that are mounted upon type bars 10. The type bars 10 are pivotally mounted in a type bar hanger segment 11, and are operatively connected with key levers 12, which terminate in the forward portion of the machine in key cap members 14. The top plate 7, is adapted to carry ribbon spools 15 and actuating mechanisms 16 therefor, which are operatively connected with a universal bar 17, in such manner as to be actuated each time a printing key 14 is depressed in the key board. The top plate 7 is also adapted to support a carriage bed 18, upon which is reciprocally mounted a carriage frame 19, by means of anti-friction balls 20. A swinging platen carriage 21, is mounted within the carriage frame 19, and is adapted to carry a cylindrical platen 22. Line spacing mech-

anism 24, is mounted upon the carriage frame 19, and is operatively connected with the cylindrical platen 22. Platen shifting mechanisms 25, are arranged in such manner as to enable the cylindrical platen to be shifted from one printing level to another at the will of the operator.

It is believed that the general description hereinbefore given is sufficient for an understanding of the relationship of the several parts of the typewriting machine in assembled relation, and the description has been given for the reason that all of the parts of the typewriting machine are necessarily more or less inter-related in their construction and operation; however, the remainder of the specification will be devoted specifically to description of margin stop and line lock mechanisms.

Referring more specifically to Figs. 2 and 3 of the drawings, a margin stop carrier 26 and a line lock actuator 27 are pivotally and slidably mounted upon a rod 28 which forms the pivotal supporting rod for the swinging platen carriage 21, and are provided with leaf springs 29 and 30, that are adapted to be in sliding engagement with a cross rod 31, which is carried in the carriage frame 19. The lower ends of the margin stop carrier and line lock actuator are provided with toothed faces 32, which are adapted to engage the teeth of a rack 34, which is also mounted in the carriage frame 19. The margin stop carrier 26 and line lock actuator 27, are provided on their upper ends with finger pieces 35 and 36 respectively, which extend in an upward direction substantially back of and beneath a paper table 37, in such manner that when the finger pieces 35 or 36, are pulled toward the front of the machine the toothed faces 32 are disengaged from the rack 34 and either of the members 26 or 27, may be moved longitudinally of the rod 28 and positioned thereupon at any point which the operator may choose. The margin stop carrier 26, which is located upon the right of the carriage frame, terminates in a downwardly depending portion which carries a stop 38. As the platen carriage is returned from left to right to begin a new line, the stop 38 is moved from left to right until it comes into engagement with a swinging stop member 39, which is pivotally mounted upon a stud screw 40 upon the top plate of the machine frame, and is resiliently held in the path of the adjustable stop 38, by means of a small coiled spring 41, which is mounted upon the stud screw 40. The engagement of the adjustable stop 38 with the swinging stop 39, merely determines the distance to which the carriage of the machine can be moved to the right. In other words, it determines the width of the margin at the left of the typewritten page and does not lock any of the

actuating parts of the typewriting machine, for the reason that it is desirable to print a letter or character when the stops 38 and 39 are in engagement with each other. However, it is some times desirable that the carriage mechanism may be moved a distance to the right which is greater than that allowed by the margin stops, and at the same time it may be desirable that the movable stop shall not be changed from its set position. When the above set forth condition arises, it becomes necessary that a mechanism for releasing the engagement of the two stops may be available, and for this purpose mechanisms which will hereinafter be described, is provided. A pivoted controlling member 42, is mounted in the machine frame upon a stud screw 44, and is formed with an offset member 45, which is adapted to underlie the tail portion of the swinging stop 39. The upper end of the pivoted controlling member 42, terminates in a line lock actuating member 46, which coöperates with the line lock mechanisms to be described hereinafter. The tail portion 47, of the pivoted controlling member 42, is adapted to be received within a bifurcated portion 48, formed upon the upper end of a bell crank member 49, which is fixedly mounted upon a rocking shaft 50, that is pivoted within the machine frame. A wire spring 51, is fixedly mounted upon the bell crank member 49, and engages with the pivoted controlling member, 42, in such manner as to maintain the movable parts 42 and 49, in normal position. A bell crank stop carrying member 52, is fixedly mounted upon the opposite end of the rocking shaft 50, and the arm 54 of the bell crank member 52, is operatively connected by means of a connecting link 55, to a release key lever 56, which is pivotally mounted in the machine frame as at 57, and extending forwardly terminates in a key cap 58, which is adapted to occupy a position in a plane above the key caps 14 in the keyboard. A small coiled spring 59, is attached to the release key lever 56 and to the type bar segment 11, in such manner as to normally maintain the key lever in proper position. The link member 55, is constructed with its upper end provided with a slot 60, in order that the release key lever 56, will not be actuated by the carriage when the line lock mechanism, hereinafter to be described, is set by movement of the carriage. After the margin release stops 38 and 39 have been released in order to permit the carriage to move beyond them in its travel toward the left, it becomes necessary that the parts shall be so constructed as not to be reengaged to lock the carriage when the carriage is moving under the influence of the escapement mechanism and carriage spring drum in its normal letter space movement from right to left, and for this purpose the

swinging stop member 39 is provided on its upper edge with a slanting face 61, which permits the stop 38 to ride over the swinging stop 39 without impeding the progress of the carriage. The line lock actuator 27, is formed with a depending member which carries a pivotally mounted cam dog 62, that is provided with a beveled cam face 64, which is normally held in a forward position by means of a small coiled spring 65, as is clearly shown in Fig. 5. As the carriage mechanism is moved from right to left under the influence of the carriage spring drum, and controlled by the escapement mechanism, the swinging cam dog 62 comes into engagement with a beveled face 66, which is formed upon the line lock actuating member 46, formed integral with the lock controlling member 42. The co-action of the cam face 64 with the beveled face 66, is such as to swing the member 42 upon its pivot, and turns the rocking shaft 50, by means of the bell crank member 49, thus swinging the bell crank stop carrying member 52, and positioning the line lock stop 67 in the path of an oscillating stop 68, which is carried by the universal bar 17. When the line lock stop 67, is in the path of the oscillating stop 68, the universal bar 17, can not be actuated, and therefore the whole of the operation of the typewriting machine which has to do with the printing operation, is locked against actuation and it becomes impossible to depress the printing key 12 in order to actuate the type bar 10 or to cause escapement action of the carriage, the reason for this being that when the end of a line is reached, it is desirable that the operator shall be notified thereof to prevent running from off the paper and spoiling the right hand margin of the typewritten page, and after the carriage has ceased to move it becomes necessary that the printing mechanism shall be locked in order that letters will not be printed one upon the other before the operator is aware of the stoppage of the carriage. However, it frequently is desirable that a letter or two may be added to complete a word or that a hyphen may be inserted to indicate a word is completed upon the next line. In order to permit further movement of the carriage from right to left, it is necessary that the locking parts shall be disengaged, and it will be seen that if the key cap 58 of the release key lever 50 is depressed, the bell crank stop carrying member 52 will be oscillated by means of the carrying link 55, to swing the line lock stop 67 forward in same direction that it was moved to locking position in the path of the oscillating stop 68. The swinging movement of the bell crank stop carrying member oscillates the rocking shaft 50, and swinging the bell crank member 49, the pivoted controlling member 42 is also swung a sufficient distance to per-

mit the line lock actuating member 46, to swing out of the path of the cam dog 62, which is immediately restored to normal position by means of the coiled spring 65, and upon releasing pressure on the key cap 68, the several parts of the line lock mechanism will return to normal position within the line lock stop 67, and will lie in a cut-away portion 69, of the oscillating stop 68, and the printing mechanisms of the typewriting machine are unlocked and free to actuate in the usual normal manner.

In the construction which has hereinbefore been described, it will be noted that both the margin stops and the line lock mechanisms are adapted to be released by the same release key, and that the releasing operation does not affect or swing any of the parts controlled by the moving carriage, with the exception of the small cam dog 62, and furthermore, that in releasing the line lock mechanisms, the releasing operation carries the line lock mechanisms forward in the same direction which they are positioned for the line locking operation, however, the releasing operation is not complete until pressure is relieved upon the release key and the several parts are permitted to retrace their movements back to normal position.

Having thus described my invention what I desire to claim is:—

1. In a margin stop mechanism for typewriting machines in combination, a machine frame, a platen carriage mounted for reciprocal movement upon said machine frame, an adjustable margin stop carried by said carriage mechanism, a pivoted stop mounted in said machine frame, and releasing means for actuating said pivoted stop, said releasing means including a pivoted actuating member, a release key lever pivotally mounted in said machine frame, a rocking shaft operatively connected with said pivoted key lever, and operative means connecting said rocking shaft and said pivoted stop member.

2. In a margin stop mechanism for typewriting machines in combination, a machine frame, a platen carriage mounted for reciprocal movement upon said machine frame, a margin stop adjustably mounted in said platen carriage, a pivoted stop mounted in said machine frame, and means for releasing said pivoted stop from engagement with said margin stop, said releasing means comprising a pivoted actuating member, a releasing key lever pivotally mounted in said machine frame, a rocking shaft, means for operatively connecting said rocking shaft with said pivoted lever, a pivoted controlling member, and means operatively connected with said rocking shaft and adapted to cooperate with said pivoted controlling member.

3. A margin stop mechanism for type-

writing machines including a main frame, a carriage mounted for reciprocal movement upon said main frame, a pivotal rod mounted in said carriage, a cross rod also mounted in said carriage, a margin stop mounted for rotatable and longitudinal movement upon said pivoted rod, a leaf spring carried by said margin stop and adapted to engage said cross rod, a rack member, and means on said margin stop to engage said rack member, substantially as described.

4. A line stop mechanism for typewriting machines comprising a machine frame, a platen carriage mounted for reciprocal movement upon said machine frame, a line lock actuator adjustably mounted upon said platen carriage, a cam dog carried upon said line lock actuator, a pivoted controlling lever mounted in said machine frame, a rocking shaft operatively connected with said pivoted controlling lever, a line lock stop carried by said rocking shaft, a universal bar, and an oscillating stop carried by said universal bar.

5. A line lock mechanism for typewriting machines comprising a machine frame, a platen carriage mounted for reciprocal movement upon said machine frame, a line lock actuator adjustably mounted in said carriage, a controlling member, and means carried by said line lock actuator and adapted to operate said controlling member, a rocking shaft, means operatively connecting said rocking shaft with said controlling member, a line lock stop carried by said rocking shaft, a universal bar, and an oscillating stop operatively connected with said universal bar.

6. A line lock mechanism for typewriting machines comprising a machine frame, a platen carriage mounted for reciprocal movement in said machine frame, a line lock actuator adjustably mounted in said platen carriage, a spring controlled cam member pivotally mounted on said actuator, a cam face controlling member pivotally mounted in said machine frame and normally having said cam face in the path of said pivoted cam, a universal bar, an oscillating stop carried by said universal bar, a line lock stop adapted to be positioned in the path of said oscillating stop, and means for operatively connecting said controlling member with said line lock stop.

7. A line lock mechanism for typewriting machines comprising a machine frame, a carriage mounted for reciprocal movement upon said machine frame, a line lock actuator adjustably mounted in said carriage, a controlling member mounted in such manner as to be movable transversely to the movement of said carriage, a universal bar, an oscillating stop operatively connected with said universal bar, a line lock stop, and means operatively connecting said line lock

stop with said controlling member in such manner that said line lock stop is positioned in the path of said oscillating stop when the carriage has reached a pre-determined point in its travel.

8. A line lock mechanism for typewriting machines comprising a machine frame, a carriage mounted for reciprocal movement upon said machine frame, a line lock actuator adjustably mounted in said carriage, a controlling member mounted in such manner as to be movable transversely to the movement of said carriage, a universal bar, an oscillating stop carried by said universal bar, a line lock stop adapted to be positioned in the path of said oscillating stop, means operatively connected with said controlling member and with said line lock stop in such manner that said line lock stop is positioned in the path of said oscillating stop when the carriage has reached a pre-determined point in its travel, and means for causing said line lock stop to be removed from the path of the oscillating stop.

9. A line lock mechanism for typewriting machines comprising a machine frame, a carriage mounted for reciprocal movement upon said machine frame, a line lock actuator adjustably mounted in said carriage, a controlling member pivotally mounted in said machine frame, and adapted to swing in a path substantially at right angles to the path of movement of said reciprocating carriage, cam means for operating said actuating member, a universal bar, an oscillating stop carried by said universal bar, a line lock stop adapted to be positioned in the path of said oscillating stop, and means operatively connecting said line lock stop with said controlling member.

10. In a line lock mechanism for typewriting machines in combination, a machine frame, a carriage mounted for reciprocal movement upon said machine frame, a line lock actuator adjustably mounted on said carriage, a pivoted cam member operatively mounted on said actuator, a controlling member pivotally mounted in said machine frame, in such manner, as to have movement in a plane substantially at right angles to the direction of movement of said reciprocating carriage, a line lock stop, a universal bar, an oscillating stop carried by said universal bar, means operatively connecting said line lock stop with said controlling member, and means for actuating said line lock stop in such manner as to cause said controlling member to be removed from the path of said cam member.

11. A line lock mechanism for typewriting machines including a main frame, a carriage mounted for reciprocal movement upon said main frame, a line lock actuator adjustably mounted in said carriage, a controlling member mounted in said machine

frame, an oscillating cam member mounted upon said actuator and normally in the path of said controlling member, means for disengaging said controlling member from said oscillating member, means for oscillating said cam member when said controlling member is disengaged therefrom, an oscillating stop, a line lock stop, and means con-

necting said controlling member and said line lock stop.

In testimony whereof I affix my signature in presence of two witnesses.

CHARLES SPIRO.

Witnesses:

EDWD. E. JONES,

H. P. ALDEN.

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