

1,008,158.

O. C. KAVLE.
TYPE WRITING MACHINE.
APPLICATION FILED JULY 15, 1907.

Patented Nov. 7, 1911.
3 SHEETS—SHEET 1.

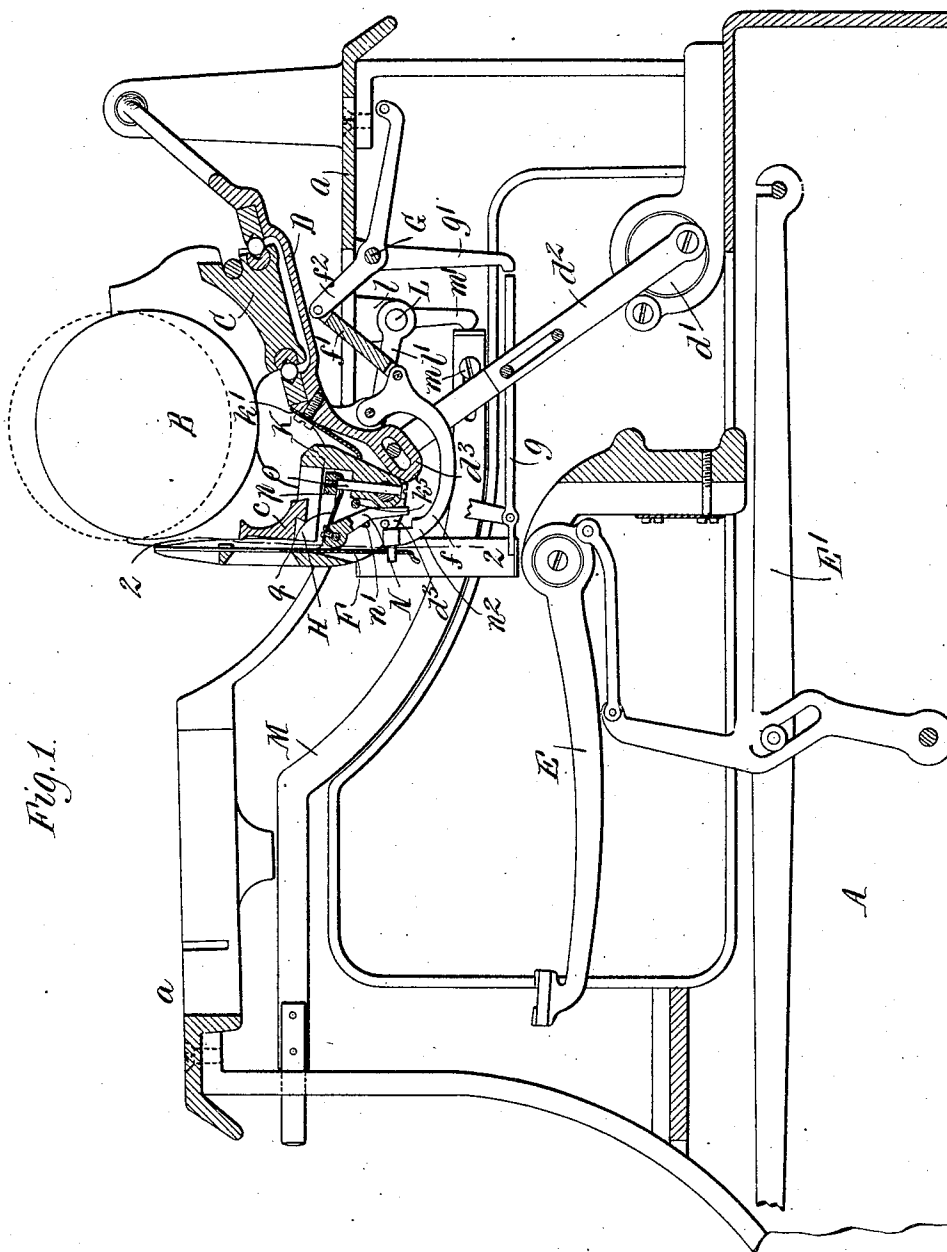


Fig. 1.

Witnesses:
E. A. Volk.
A. G. Diamond.

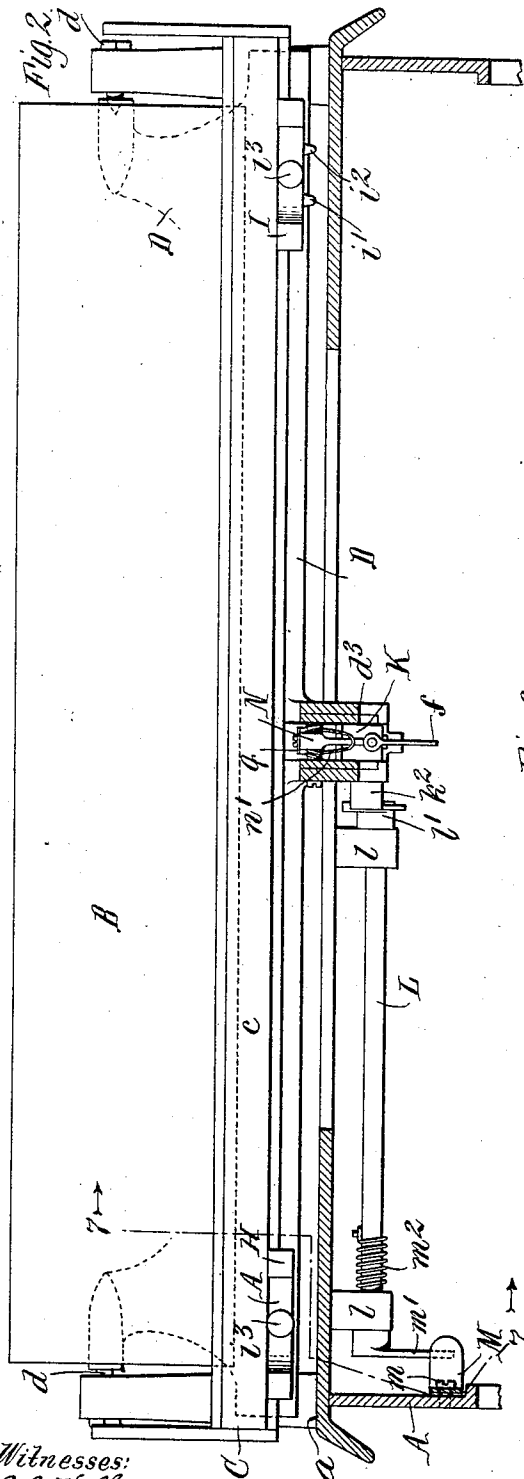
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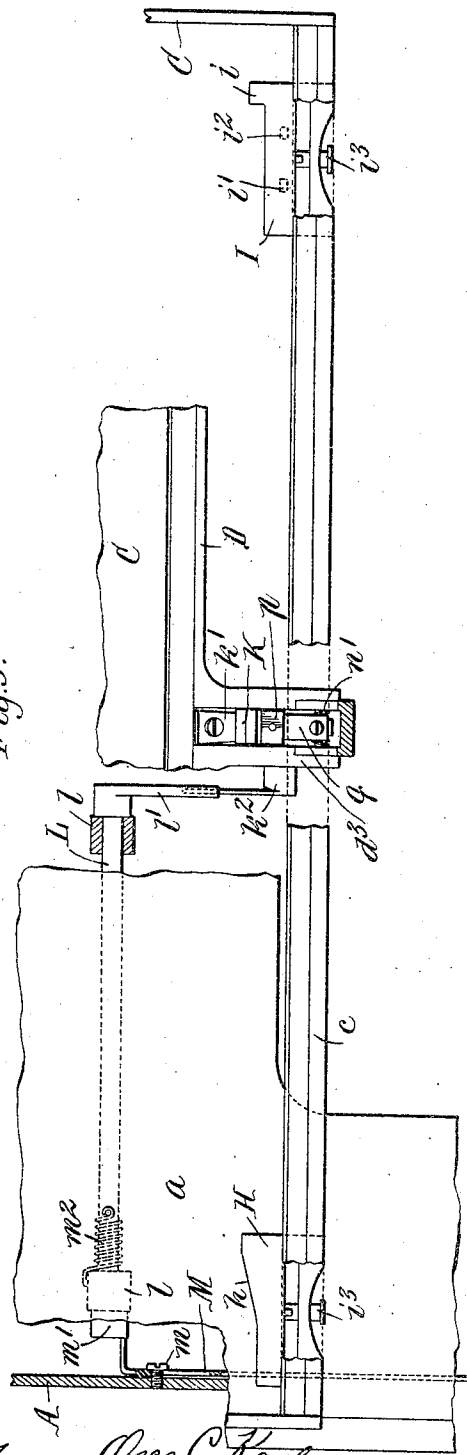
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3 SHEETS-SHEET 2.



Witnesses:
E. A. Volk,
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Fig. 3.

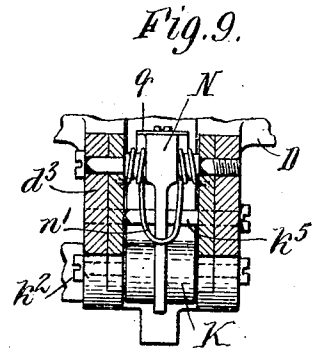
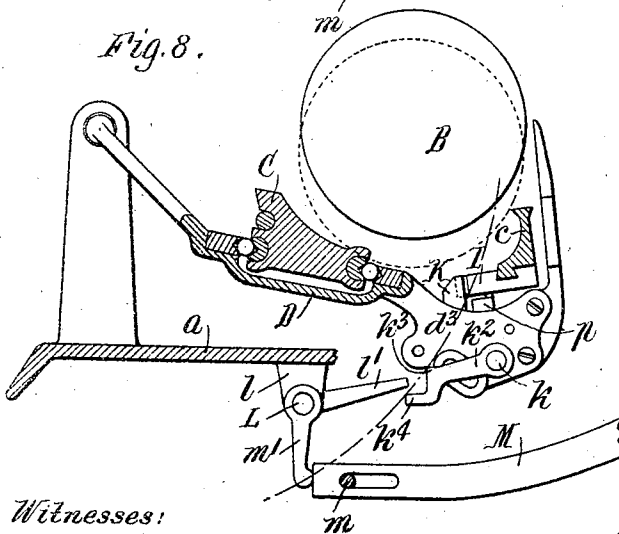
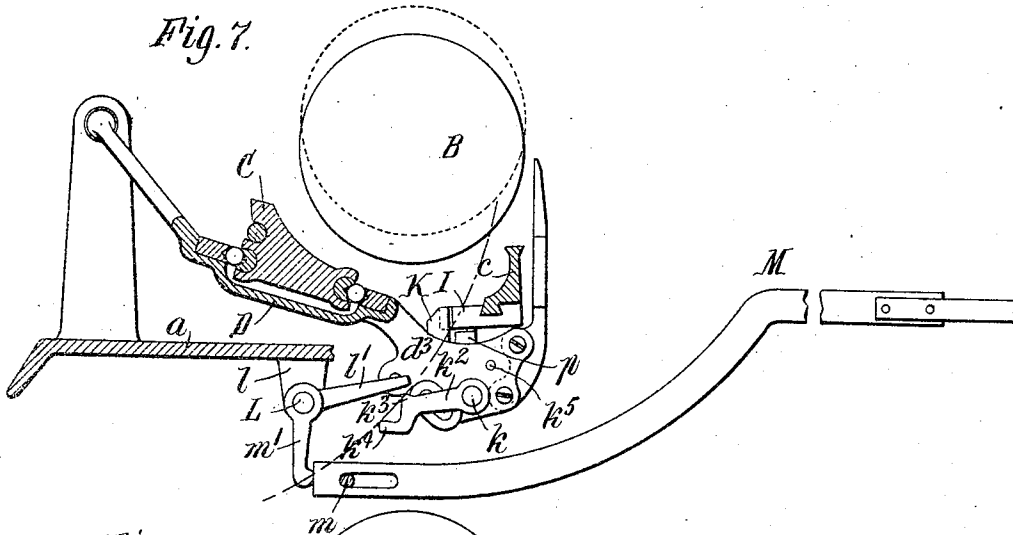
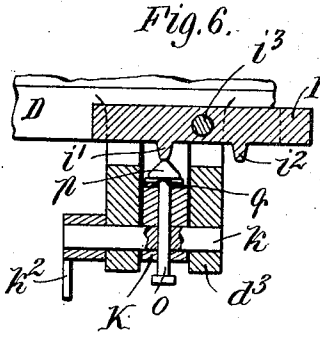
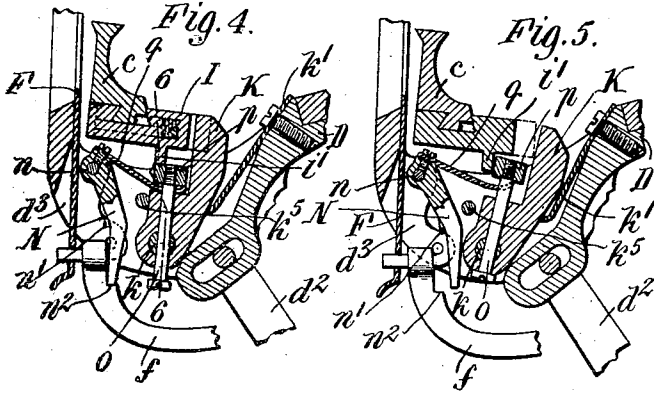


By *Oscar C. Kavle* Inventor.
Wichard Parker Ward Attorneys.

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3 SHEETS-SHEET 3.



Witnesses:
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UNITED STATES PATENT OFFICE.

OSCAR C. KAVLE, OF SYRACUSE, NEW YORK, ASSIGNOR TO HARVEY A. MOYER, OF SYRACUSE, NEW YORK.

TYPE-WRITING MACHINE.

1,008,158.

Specification of Letters Patent.

Patented Nov. 7, 1911.

Application filed July 15, 1907. Serial No. 383,799.

To all whom it may concern:

Be it known that I, OSCAR C. KAVLE, a citizen of the United States, residing at Syracuse, in the county of Onondaga and State of New York, have invented a new and useful Improvement in Type-Writing Machines, of which the following is a specification.

This invention relates to line or margin stop and locking mechanisms for typewriting machines, that is, to the mechanism for stopping the travel of the carriage at the ends of the line and locking operative parts of the machine, to prevent the printing of characters one over the other at the end of a line.

The objects of the invention are to produce a desirable line stop and locking mechanism of simple and desirable construction which will positively stop the carriage exactly at any desired point in the line for which the margin stop is set, and lock the printing mechanism to prevent the printing of characters over each other at the end of the line, and which is constructed to enable the ready release of the parts for printing additional characters; also to provide the mechanism with a lock-releasing key or device in a convenient location which can be readily operated by hand to enable the printing of additional characters either after a preliminary or second action of the stop and locking mechanism; also to arrange the parts to lock the universal bar which controls the carriage escapement and the ribbon vibrator, whereby these devices as well as the type-bars will be locked when the carriage is arrested; also to so adapt the line stop and locking mechanism to a machine in which the platen is shifted into printing relation with one of two sets of type on the type-bars so that the action thereof will be the same regardless of whether the platen is in the normal or shifted position; also to improve line stop and locking mechanisms for typewriting machines in the respects hereinafter described and set forth in the claims.

In the accompanying drawings, consisting of three sheets: Figure 1 is a central longitudinal sectional elevation of portions of a front-strike typewriting machine embodying the invention, showing the normal position

of the parts. Fig. 2 is a transverse sectional elevation thereof in line 2—2, Fig. 1. Fig. 3 is a sectional plan thereof broken in places. Fig. 4 is a central longitudinal sectional elevation, on an enlarged scale, of the line stop and locking mechanism, showing the parts locked. Fig. 5 is a similar view showing the position of the parts when moved to release the carriage. Fig. 6 is a sectional elevation in line 6—6, Fig. 4. Fig. 7 is a longitudinal sectional elevation of the line stop and locking mechanism in line 7—7, Fig. 2, looking in the direction of the arrow, Fig. 2. Fig. 8 is a view similar to Fig. 7, showing the position of the parts when the platen is shifted for printing upper case characters. Fig. 9 is a front sectional elevation, on an enlarged scale, of the lock lever and associated parts.

Like letters of reference refer to like parts in the several figures.

The invention is especially adapted for, and is described as applied to, a visible writing typewriting machine in which the type strike the front side of the platen, and in which the platen is mounted on a pivoted shift frame for placing it in printing relation to one or the other set of types on the type-bars, but the invention is also applicable to machines in which the platen is shifted by other means, and to non-shifting platen machines.

A represents the main frame of the machine. a the top plate thereof; B the platen; C the platen carriage; D the shift frame on which the carriage is supported and travels laterally or transversely of the machine; E one of the type-bars which are suitably pivoted to strike the front side of the platen; E' one of the key levers for operating the type-bars; F the guide or vibrator for vibrating the ribbon to cover and uncover the printing point at the type strokes; and G the rocking universal bar which is rocked by the actuation of the key levers, controls the carriage escapement (not shown) and actuates the ribbon vibrator. The top plate a is detachably secured by screws, or in any other usual manner, so that it can be detached from the frame A together with the parts mounted thereon. The carriage has a front bar c joining its ends upon which the margin stops are adjustably secured. In

the machine illustrated, this bar also constitutes the scale bar. The carriage, as usual, is capable of being detached or removed from the shift frame. The shift frame D is hinged by suitable pivots d , Figs. 1 and 2, at the upper rear portion of the machine to swing vertically to place the platen in printing relation with one or the other of the two sets of type carried by the type bars, the pivotal connection being such that the shift frame with the parts mounted thereon can be detached from the main frame. The shift frame is shifted and held stationary in either printing positions by an oscillatory eccentric d' and connecting rod d'' pivoted thereto and to a front central extension d^3 of the shift frame, or by other suitable means. The guide or vibrator F is connected to a vibrator lever f which is pivoted on the shift frame and connected by a link f' to a lever f'' fixed on the rocking universal bar, so that the ribbon is vibrated into and out of printing position by the universal bar G which is rocked each time a key lever is operated. The universal bar is journaled in suitable bearings on the top plate a and is rocked by one or more actuators g , Fig. 1, arranged to be struck by the type-bars as they approach the platen and to strike an arm or arms g' fixed to the universal bar. These parts are all shown and fully described in my prior pending applications and may be constructed and arranged as shown or in any other suitable manner.

H and I represent two stops adjustably secured on the front or scale bar c of the carriage, and K represents a cooperating stop or abutment mounted centrally on the shift-frame and adapted, when in its normal position, to engage the stops H or I to arrest the travel of the carriage in either direction at different desired points, depending upon the adjustments of the stops on the carriage. In the following description the stop K will be termed an "abutment" to avoid confusing it with the carriage stops H and I. The stops H and I are of different form, the left-hand stop shown, see Fig. 3, having a rearwardly projecting part with an abrupt face at its inner end to strike the abutment to arrest the travel of the carriage to the right, and an inclined rear face h adapted to engage and move the abutment out of the way to enable the stop to pass the abutment in the travel of the carriage to the left, while the right-hand stop I preferably has a rearward projection or part i at its extreme outer end with an abrupt face adapted to strike the abutment to positively arrest the travel of the carriage to the left. The right-hand stop I also has two depending studs or projections i' and i'' for operating the line lock, as will be later described. The stops may be adjustably secured on the carriage in any

suitable manner. As shown in Figs. 3 to 5, each stop is arranged to slide on a dove-tail rib on the bottom of the carriage bar and is provided with a slide latch i^3 having a tooth at its rear end held in engagement with serrations in the bottom of the carriage bar by a hidden spring. By pushing the latch rearwardly the stop can be slid along the bar to any desired position, and when the latch is released it will hold the stop rigidly in position.

The abutment K, Figs. 1, 3-6, is arranged in upright position in a slot in the front extension of the shift frame, being secured at its lower end to a rock shaft k journaled in bearings at opposite sides of the slot, see Figs. 4-6. The sides of the slot brace the abutment against lateral deflection under the impact of the carriage. The upper end of the abutment is normally held forward, see Figs. 1-4, in a position to engage the stop faces of the stops H and I, by a suitable spring, such as shown at k' , Figs. 1, 4 and 5, secured at one end to the shift frame extension and bearing at its free end against the abutment. The forward movement of the abutment is limited by a suitable stop k'' . One end of the abutment shaft k projects beyond the adjacent bearing and has an arm or lever k^2 , Figs. 3 and 7, fixed thereto. This arm or lever is provided at its free end with two shoulders or projections k^3 k^4 . L, Figs. 1-3 and 7, represents a horizontal rock shaft which is journaled in suitable bearings l depending from the top plate a . This shaft is provided at its inner end with an arm l' which overlies the free end of the lever k^2 on the abutment shaft, so that by rocking the shaft L the lever k^2 will be depressed and the abutment swung rearwardly out of the path of the carriage stops. The shoulders k^3 k^4 of the lever k^2 lie in an arc concentric with the pivot of the shift frame, and are separated a distance equal to the movement of said lever along said arc when the shift frame is shifted, so that one of said shoulders will be engaged and the abutment similarly operated in either the normal or shifted position of the shift frame. M, Figs. 1-3 and 7, represents a push rod which, in the construction shown, is arranged at one side of the machine and has a cylindrical front end extending through a guide hole in the front of the main frame, and a flat rear portion supported by a screw m secured to the side of the main frame and extending through an elongated slot in the push rod. The rear end of the push rod extends inwardly in front of a depending arm m' on the rock shaft L. The push rod and rock shaft L are held in the normal position shown by a suitable spring, such as the coil spring m^2 , surrounding the rock shaft L adjacent to one of its bearings and attached to said

bearing and to the shaft. When this push rod is pushed rearwardly, the shaft L will be rocked and swing the abutment to the rear, out of the path of the carriage stops, as described and as indicated in Fig. 5. Manifestly the abutment could be differently constructed and mounted on the shift frame for movement into and out of the path of the carriage stops, and the operating means therefor could be differently constructed and arranged.

N, Figs. 1, 2, 4 and 5, represents a lock lever which is located in the slot in the shift frame extension d^2 in front of the abutment, and is pivoted at its upper end on a suitable pivot or screw n connecting the side walls of the shift frame extension. The lock lever preferably has trunnions or bosses, see Fig. 9, which prevent lateral movement of the lever on its pivot, is normally held in the position shown in Fig. 1 by a suitable spring, such as the spring n' , Fig. 9, surrounding the lever trunnions, and attached to the lever and to the shift frame extension. The lower free end of the lock lever hangs, when swung forwardly to the position shown in Fig. 4, over a locking shoulder n^2 on the front end of the operating lever for the ribbon vibrator, whereby this lever and the universal bar G, to which it is connected, are instantly locked against action. This prevents the operation of the carriage escapement connected to the universal bar and so stops the carriage, and as the universal bar holds its actuators from movement the type-bars cannot reach the platen, so that overprinting is prevented. The vibrator lever f , link f' and lever f^2 connecting it to the universal bar constitute a sort of flexible connection between the lock lever and the type-bars which absorbs the force of the blows delivered by the type-bars without injury to any of the parts.

O represents an operating bolt or device for the lock lever. This bolt or device consists, in the construction shown, of a screw which passes vertically through a hole in the abutment K and its rock shaft L, and having a head or block p securely fastened to its upper end and provided with an A-shaped or oppositely beveled top, see Fig. 6. An arm q projecting rearwardly from the lock lever and having a slotted end engages under the head of the bolt, see Figs. 4 and 6, and in the normal position of the lock lever holds the bolt in position for its A-shaped head to be engaged and the bolt depressed by the two studs i' i^2 depending from the carriage stop I. The upward movement of the bolt is limited by the engagement of the head at the lower end of its screw with the lower end of the abutment. The lever arm q preferably consists of a spring strip secured to the lever but it normally swings with the lever as a rigid part

thereof. The only spring action of the arm is to provide for any slight variation in the fitting of the parts, and a rigid arm or integral portion of the lever could be employed instead of the separate spring, if preferred.

In the operation of the machine, when the carriage approaches nearly to the desired limit of its travel to the left, the first stud i' on the carriage stop I will engage the A-shaped head of the lock bolt and depress the bolt, as shown in Figs. 4 and 6, thereby swinging the lower end of the lock lever over the locking shoulder n^2 on the vibrating lever and locking the parts, as explained. The location of the stud i' is such that the carriage will come to a stop exactly at the point for which the stop I is set. The locking action described is positive and instantaneous so that the carriage does not move a letter space after the type-bars are locked, and this enables additional letters to be printed after the lock is released without necessitating adjustment of the carriage. If it is desired to print one or more additional characters after the parts have been thus temporarily locked, the push-rod M is pushed rearwardly, thereby rocking the shaft L and through it and the lever h^2 and swinging the abutment rearwardly. The lock bolt O being mounted on the abutment will be moved rearwardly out of engagement with the stud or projection i' of the carriage stop, whereupon the spring n' for the lock lever will throw the lever end of the lever rearwardly out of engagement with the shoulder of the vibrated lever and raise the lock bolt. The parts will then be freed and additional characters can be printed. When two characters have been printed the head of the bolt O will have passed the stud i' , and the push rod M being released, it will be moved forwardly by the spring on the rock shaft L, and the abutment returned to its normal position by its spring m^2 . The head of the lock bolt will then be in position between the studs or projections i' i^2 on the carriage stop I, and characters can be printed until the second stud i^2 engages and depresses the lock bolt in the same manner as the first stud, thereby again locking the vibrator, carriage escapement and type-bars from movement. At the same time that the lock bolt is operated by the second stud i^2 the stop face i of the carriage stop I will engage the abutment and positively arrest the carriage. The locking means can be again released and the carriage freed for printing still other characters, if this is necessary, by again operating the push rod to move the bolt O and abutment K clear of the stud i^2 and face i respectively of the stop I.

The described mechanism thus provides for a preliminary and second stopping of the carriage and locking of the machine,

but enables the parts to be freed for further writing after either automatic operation of the parts. The abutment can also be moved by the push rod at any time out of intercepting relation with either stop H or I to allow the carriage to be moved to its limit in either direction.

It will be observed that the margin stops are mounted on the carriage and the locking mechanism and abutment are on the shift frame, while the push rod is mounted on the main frame and the parts that are locked together with the connecting means from the push rod are mounted on the top plate α , and each of these four groups is self-contained or complete in itself and can be mounted and adjusted on its supporting part before the supporting parts are assembled in the machine. All of the different groups assume their proper place when the machine is put together without requiring pins, links or other connecting parts to be applied after the parts are assembled. This is important in assembling, and also desirable when making repairs as it enables the carriage to be taken from the shift frame, or the shift frame from the top plate, or the top plate from the main frame without necessitating disconnection of parts of the stop and locking mechanism.

I claim as my invention:

1. In a typewriting machine, the combination of a laterally moving platen carriage, a stop moving therewith, means for shifting the platen carriage transversely, an abutment mounted on said shifting means and normally in the path of said carriage stop, and means for moving said abutment out of the path of said carriage stop, substantially as set forth.

2. In a typewriting machine, the combination of a laterally moving platen carriage, a pair of stops adjustably mounted on and moving with said carriage, means for shifting the platen carriage transversely, an abutment mounted on said shifting means between said stops and normally in the path thereof and movable with the platen when shifted, and means for moving said abutment out of the path of said carriage stops, substantially as set forth.

3. In a typewriting machine, the combination of a laterally moving carriage, a pair of stops arranged on the lower front portion of the carriage and moving therewith, means for shifting the carriage and stops transversely, an abutment pivotally supported between said carriage stops in the path thereof and movable transversely with the carriage, and manually operated means for oscillating said pivoted abutment to clear the carriage stops, substantially as set forth.

4. In a typewriting machine, the combination of a laterally moving carriage, a pair of stops arranged on the lower front portion of

the carriage and moving therewith, an oscillating shift frame supporting the carriage, an abutment supported by said shift frame between said carriage stops, means acting to normally hold said abutment in the path of said carriage stops, and manually operated means for moving said abutment out of the path of said carriage stops, substantially as set forth.

5. In a typewriting machine, the combination of a laterally moving platen carriage, a stop moving therewith, means for shifting the platen transversely, an abutment normally in the path of said carriage stop and movable with the platen when shifted, and means for moving said abutment out of the path of said carriage stop in either the normal or shifted position of the platen, substantially as set forth.

6. In a typewriting machine, the combination of a laterally moving carriage, a pair of stops moving therewith, a shift frame for supporting the carriage and moving it transversely, an abutment arranged on said shift frame between and normally in the path of said carriage stops, and means extending from a point adjacent to the keyboard for moving said abutment out of the path of said carriage stops when the carriage and its shift frame are in either their normal or their shifted position, substantially as set forth.

7. In a typewriting machine, the combination of a laterally moving platen carriage, a stop moving therewith, means for shifting the platen transversely, an abutment normally in the path of said carriage stop and movable with the platen when shifted, a part connected to said abutment and having two working faces, and means for engaging one of said faces in one position of the platen and the other face in the other position of the platen to move said abutment out of the path of said carriage stop, substantially as set forth.

8. In a typewriting machine, the combination of a laterally moving carriage, a pair of stops movable therewith, an oscillating shift frame supporting the carriage, an abutment arranged on said shift frame between the carriage stops and normally in the path thereof, an oscillating lever connected to said abutment and having two working faces, and a manually operated part adapted to contact with one or the other of said working faces as required to move said abutment out of the path of said carriage stops in either the normal or shifted position of said shift frame, substantially as set forth.

9. In a typewriting machine, the combination of a laterally moving platen carriage, a stop moving therewith, means for shifting the platen transversely, a lock device mounted on said shifting means, and means actuated by said lock device for locking the ma-

chine from operation by the contact of said carriage stop with said lock device, substantially as set forth.

10. In a typewriting machine, the combination of a laterally moving platen carriage, a stop moving therewith, a transversely movable supporting frame for the carriage, a lock device movably mounted on said carriage supporting frame, a universal bar mechanism, and means actuated by said lock device whereby the contact of said carriage stop with said lock device locks the universal bar mechanism, substantially as set forth.

11. In a typewriting machine, the combination of a laterally moving platen carriage, a stop moving therewith, means for shifting the platen transversely to different printing positions, a lock device movably mounted on said platen shifting means so as to shift therewith, a ribbon vibrator, and a locking lever actuated by said carriage stop through the medium of said lock device to lock said ribbon vibrator, substantially as set forth.

12. In a typewriting machine, the combination of a universal bar mechanism, a laterally moving carriage, a stop moving therewith, an abutment normally in the path of movement of said carriage stop and movable transversely of said path, a lock device for the universal bar mechanism supported by and moving with said abutment, and means for both unlocking the universal bar and moving said abutment out of the path of said carriage stop, substantially as set forth.

13. In a typewriting machine, the combination of a series of type-bars, a universal bar actuated upon the actuation of said type-bars, means for locking the universal bar, a laterally moving platen carriage, a stop moving therewith, an abutment arranged to normally intercept said carriage stop, and a movable part on said abutment to cause the locking means to lock the universal bar before the abutment contacts with the carriage stop, substantially as set forth.

14. In a typewriting machine, the combination of a series of vibrating type-bars, a universal bar actuated by said type-bars, means for locking the universal bar, a laterally moving platen carriage, a stop moving therewith, an abutment arranged to normally intercept said carriage stop, and co-operating means carried by said stop and abutment for acting automatically on said locking means to lock the universal bar, substantially as set forth.

15. In a typewriting machine, the combination of a laterally moving platen carriage, a stop moving therewith, an abutment arranged to normally intercept said carriage stop and movable to release the carriage, a lock device supported by said abutment and movable therewith and independently there-

of, and means actuated by the contact of said carriage stop with said lock device for locking the machine from actuation, substantially as set forth.

16. In a typewriting machine, the combination of a series of type-bars, a universal bar actuated upon the actuation of said type-bars, means for locking the universal bar, a laterally moving platen carriage, a stop moving therewith, an oscillatory abutment arranged to normally intercept said carriage stop, and a part movably supported by said abutment which is actuated by contact with said carriage stop to operate said locking means for locking the universal bar, substantially as set forth.

17. In a typewriting machine, the combination of a pivoted lever for locking the machine from operation, a laterally moving platen carriage, a stop moving therewith, an oscillatory abutment arranged to normally intercept the carriage stop, a part movably supported by said abutment, and a part on said carriage stop acting on said movable part to swing said pivoted lever into locking position, substantially as set forth.

18. In a typewriting machine, the combination of a laterally moving carriage, a stop moving therewith, a shift frame for the carriage, a bracket extending forwardly from the central part of the shift frame, and means for locking the machine from operation supported by said bracket in a position to be actuated by said carriage stop, substantially as set forth.

19. In a typewriting machine, the combination of a laterally moving carriage, a stop moving therewith, a shift frame for the carriage, a bracket extending forwardly from the central part of said frame, an abutment supported by said bracket normally in the path of said carriage stop, and means for moving said abutment out of the path of said carriage stop, substantially as set forth.

20. In a typewriting machine, the combination of a laterally moving carriage, a stop moving therewith, a shift frame for the carriage, a bracket extending forwardly from the central part of the shift frame, a lever pivoted on said bracket and operated by successive contacts with said carriage stop to twice lock the machine from operation, and an abutment lever separately pivoted on said shift frame bracket for positively stopping the carriage upon the second locking action of the first lever, substantially as set forth.

21. In a typewriting machine, the combination of a laterally moving carriage, a stop moving therewith, an oscillating shift frame for the carriage, a main frame supporting the shift frame, a bracket extending forwardly from the central part of the shift frame under the carriage, a movable abutment

supported by said bracket normally in the path of said carriage stop, a manually movable part supported by the main frame, and connections whereby said manually movable part moves said abutment out of the path of said carriage stop when the shift frame is in either its normal or shifted position, substantially as set forth.

22. In a typewriting machine, the combination of a laterally moving carriage, a shift frame for the carriage, line locking mechanism supported by said frame, a main frame, manually operated means for unlocking the line-locking mechanism supported by the main frame, and connections whereby the manually operated means acts to unlock the line-locking mechanism regardless of the position of the shift frame, substantially as set forth.

23. In a typewriting machine, the combination of a laterally moving carriage, a stop moving therewith, a shift frame for the carriage, a movable abutment supported by the shift frame normally in position to intercept said carriage stop, a top plate supporting the shift frame, a main frame supporting the top plate, a rock shaft supported by the top plate and operatively connected to said abutment, and manually movable means supported by the main frame and operatively connected to said rock shaft, substantially as set forth.

24. In a typewriting machine, the combination of a main frame, a top plate detachably connected to the main frame, a carriage shift frame detachably connected to the top plate, a laterally moving carriage removable from the shift frame, a universal bar mechanism mounted on the top plate, and a universal bar locking mechanism mounted on the carriage shift frame, said locking mechanism being adapted for removal with the shift frame from the top plate as a unit without detaching any of its parts, substantially as set forth.

25. In a typewriting machine, the combination of a main frame, a top plate detachably secured to the main frame, a carriage shift frame detachably mounted on the top plate, a laterally moving carriage mounted on the shift frame, a stop mounted on the carriage and moving therewith, an intercepting abutment mounted on the shift frame, a manually movable part mounted on the main frame, and a part connecting said manually movable part with said abutment and mounted on the top plate, each of said parts being adapted to be mounted on its support before the supporting parts are assembled, and requiring no extra connect-

ing parts to form an operative combination when said supporting parts are assembled, substantially as set forth.

26. In a typewriting machine, the combination of a main frame, a detachable top plate supported by the main frame, a detachable shift frame supported by the top plate, a detachable carriage supported by the shift frame, a stop on the carriage, an intercepting abutment on the shift frame, a manually operated part on the main frame, and connections supported by the top plate between said manually operated part and said abutment and arranged to permit the shift frame to be applied to or removed from the top plate, or the top plate to be applied to or removed from the main frame regardless of said connections, substantially as set forth.

27. In a typewriting machine having type-bars arranged to swing upwardly and rearwardly to the platen, and a type-bar segment located below the platen, the combination of a platen carriage, a stop bar located under the front portion of the platen and moving therewith, an adjustable margin stop mounted on said bar, and an intercepting stop located between the platen and the central part of the type-bar segment, substantially as set forth.

28. In a typewriting machine having type-bars arranged to swing upwardly and rearwardly to the platen, and a type-bar segment located below the platen, the combination of a platen carriage, a stop bar located at the lower front portion of the carriage, a pair of adjustable margin stops mounted on said bar, and an intercepting stop located between said stops, and between the platen and the central part of the type-bar segment, substantially as set forth.

29. In a typewriting machine having type-bars arranged to swing upwardly and rearwardly to the platen, and a type-bar segment located below the platen, the combination of a stop-bar located at the lower front portion of the carriage, a pair of adjustable margin stops mounted on said bar, and a normally stationary transversely movable intercepting stop located between said margin stops and between the platen and the type-bar segment, substantially as set forth.

Witness my hand, this 11th day of July, 1907.

OSCAR C. KAVLE.

Witnesses:

FLORA S. ANDREWS,
OTTO A. SCHILLY.