

No. 824,157.

PATENTED JUNE 26, 1906.

G. H. SMITH.
TYPE WRITING MACHINE.
APPLICATION FILED AUG. 27, 1900.

6 SHEETS—SHEET 1.

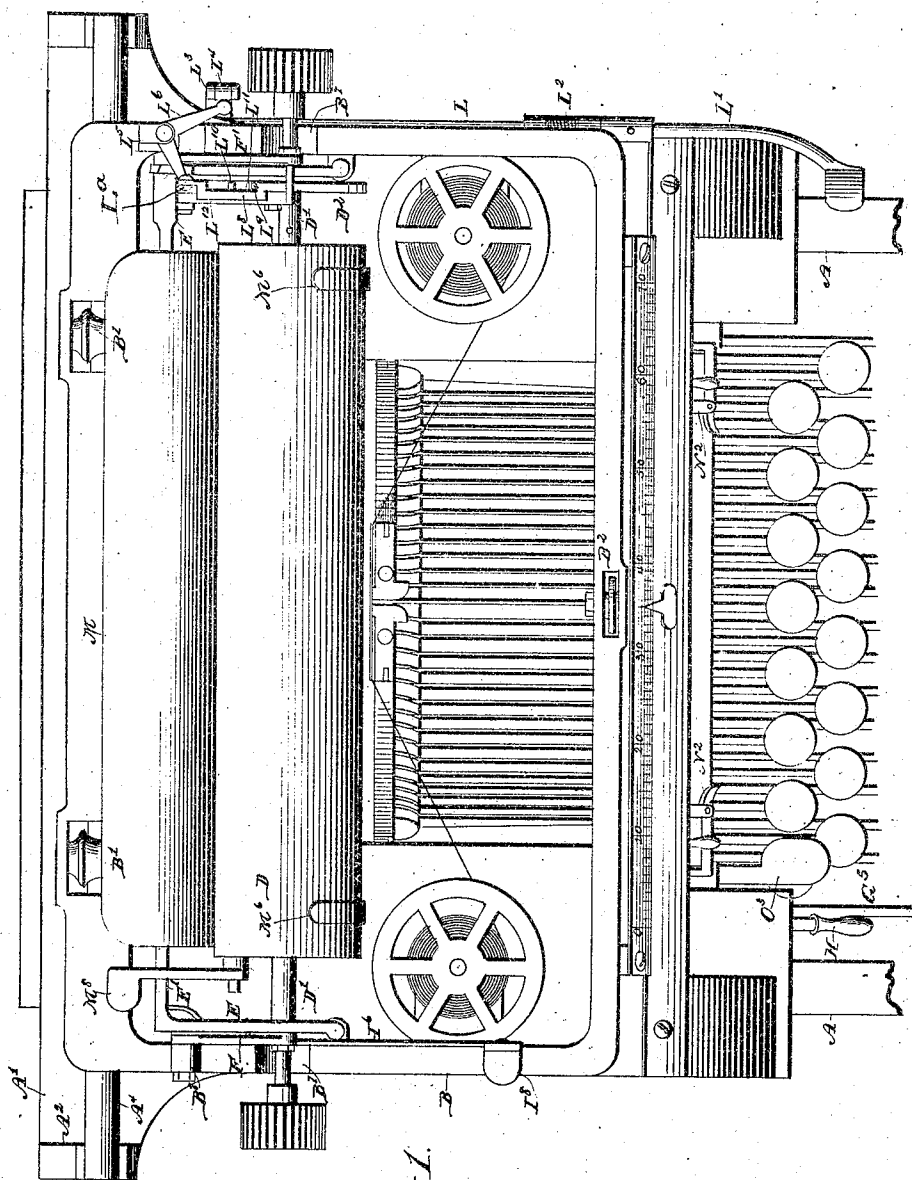


Fig. 1.

Witnesses.

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J. F. Groat.

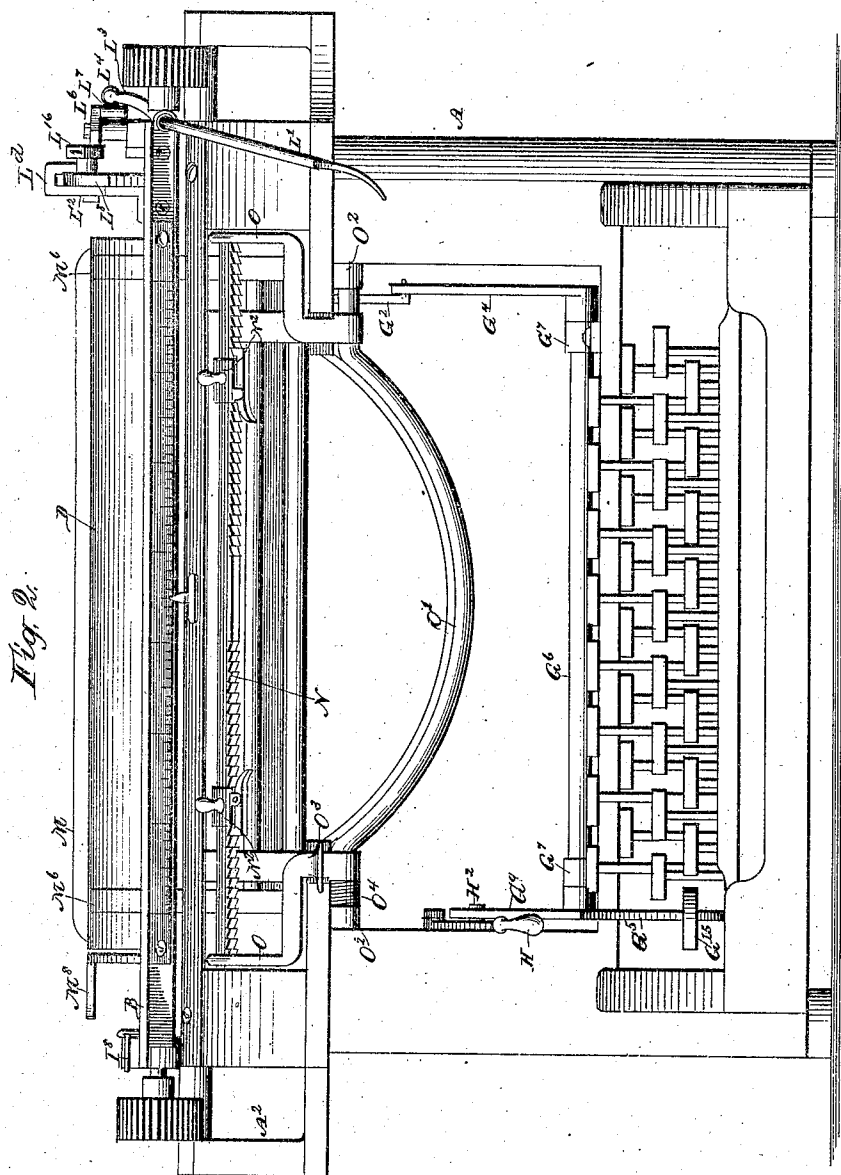
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6 SHEETS—SHEET 2.



Witnesses.
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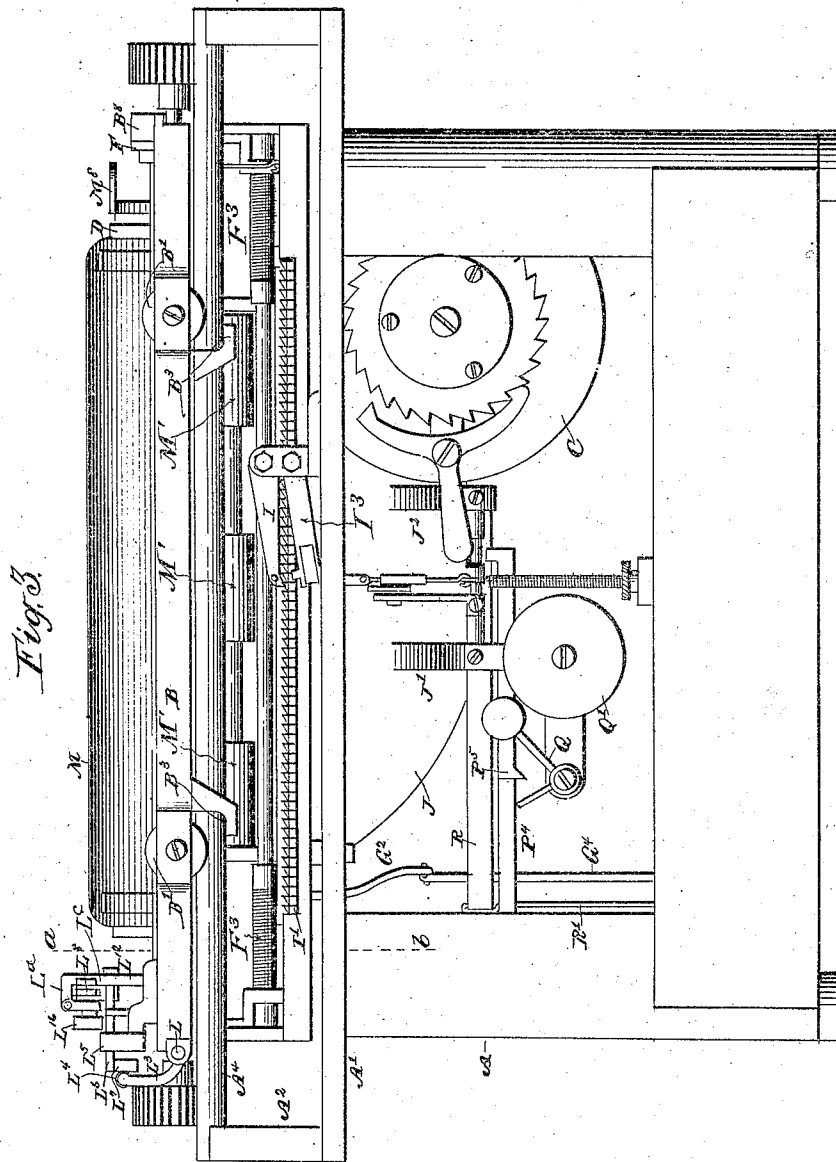
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6 SHEETS—SHEET 3.



Witnesses

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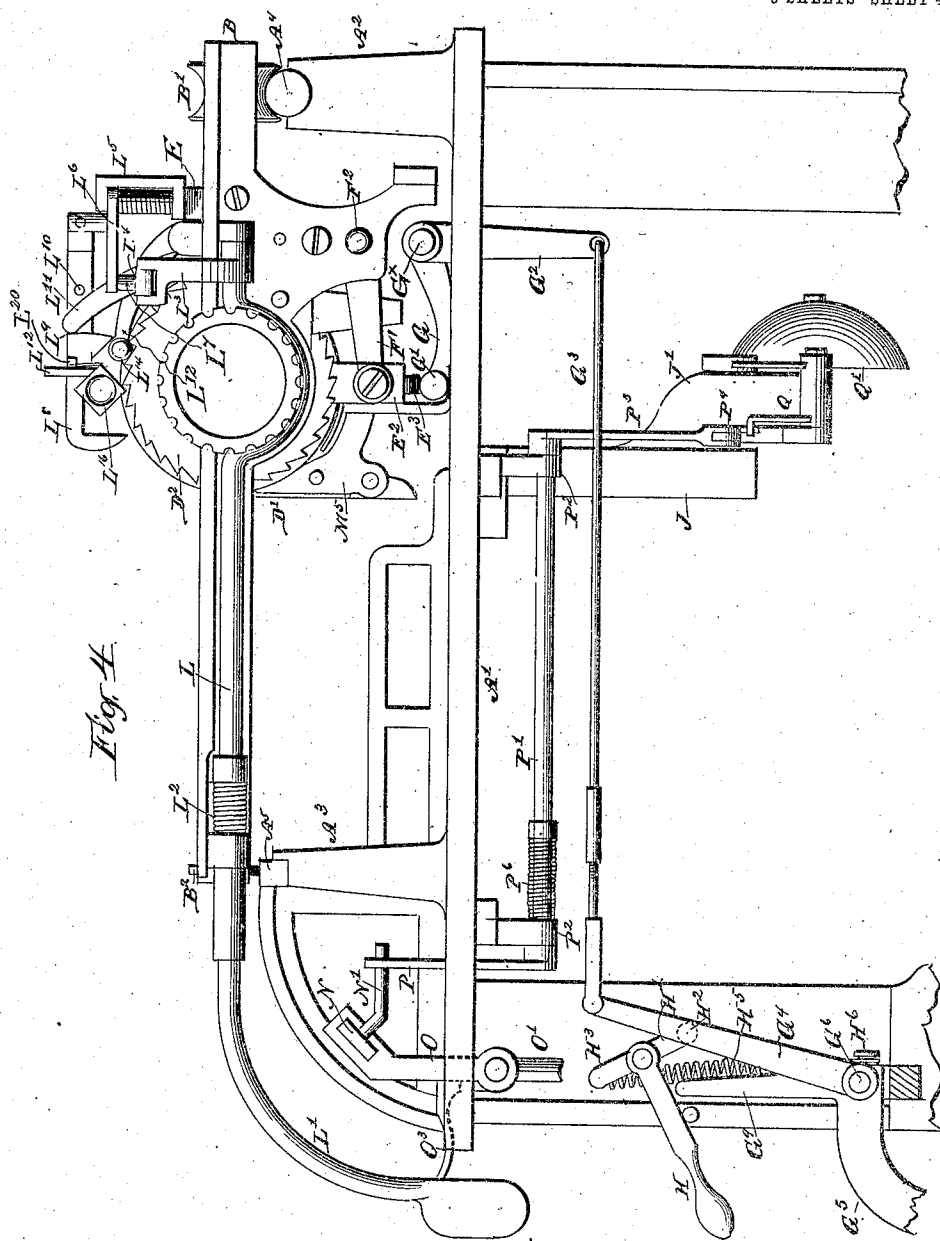
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6 SHEETS—SHEET 4.



Witnesses.

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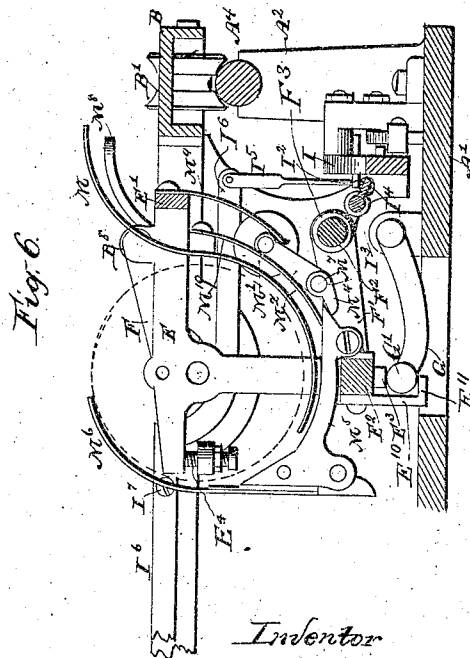
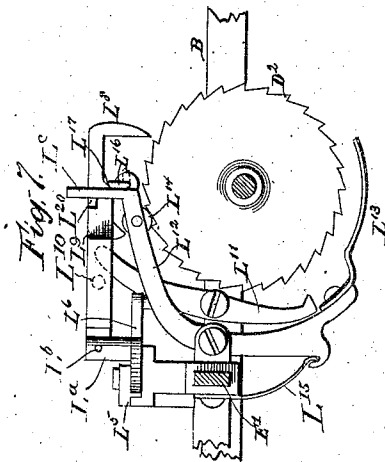
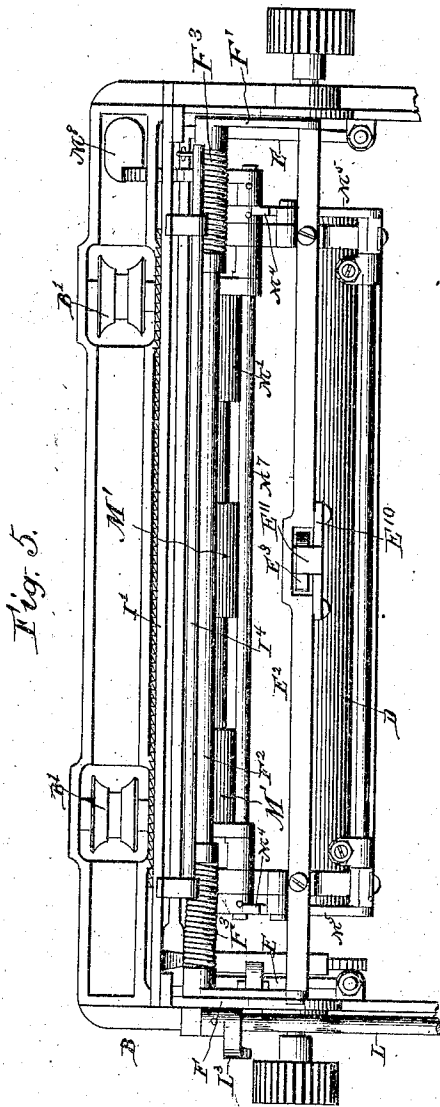
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G. H. SMITH.
TYPE WRITING MACHINE
APPLICATION FILED AUG. 27, 1900.

6 SHEETS—SHEET 5.



Witnesses.

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Inventor

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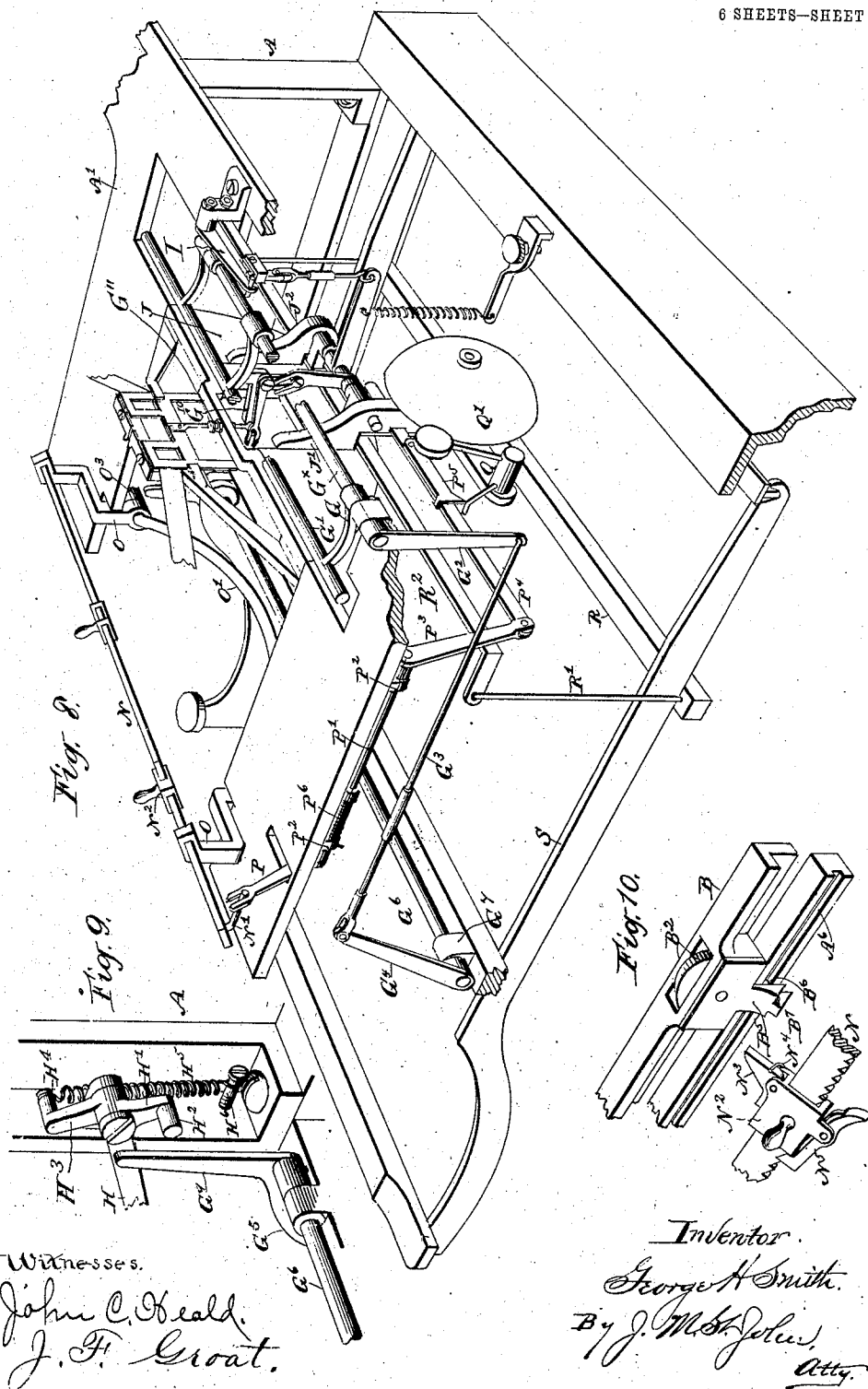
By J. M. St. John, Atty.

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G. H. SMITH.
TYPE WRITING MACHINE.
APPLICATION FILED AUG. 27, 1900.

6 SHEETS—SHEET 6.



UNITED STATES PATENT OFFICE.

GEORGE H. SMITH, OF CEDAR RAPIDS, IOWA, ASSIGNOR TO UNION
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TYPE-WRITING MACHINE.

No. 824,157.

Specification of Letters Patent.

Patented June 26, 1906.

Application filed August 27, 1900. Serial No. 28,142.

To all whom it may concern:

Be it known that I, GEORGE H. SMITH, a citizen of the United States, residing at Cedar Rapids, in the county of Linn and State of Iowa, have invented certain new and useful Improvements in Type-Writers; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to type-writing machines; and the object of the invention is to improve type-writing machines in a number of particulars, as will hereinafter appear.

To these ends my invention consists in the novel arrangement and combinations of parts hereinafter described, and particularly pointed out in the claims.

In the accompanying drawings, wherein like reference-letters designate corresponding parts in the various views, Figure 1 is a top view of sufficient number of parts of a type-writing machine to illustrate my invention. Fig. 2 is a front view of the same. Fig. 3 is a rear elevation of the machine. Fig. 4 is a side or end elevation of the machine looking toward the right-hand end of the machine, the frame-posts at said right-hand end being removed. Fig. 5 is a bottom view of the carriage with parts broken away. Fig. 6 is a transverse sectional view taken on the line *a b* of Fig. 3 and looking toward the right in said figure. Fig. 7 is a like view of the same, the section being taken on the line *a b* of Fig. 3 and looking toward the left. Fig. 8 is a general rear perspective view of the machine with parts omitted and broken away. Fig. 9 is a detail perspective view of a portion of the platen-shifting mechanism. Fig. 10 is a fragmentary view of the front portion of the carriage-frame and carriage, together with the cooperating margin-stop.

In the drawings, A denotes the main frame, which has a top plate A', on which is mounted the carriage B and other mechanism, which will be described in detail hereinafter. The top plate is provided with suitable posts A² and A³, which support the rear guide-rail A⁴ and the front guide-rail A⁵, on which the carriage moves from side to side of the machine in the usual way. It will be under-

stood that the carriage is actuated by the usual spring mechanism C in a manner that need not be particularly described.

The carriage comprises a substantially rectangular frame B, provided with a pair of traverse-rollers B' to run on the back rail A⁴ and a single front roller B² to run on the front rail. The carriage is held from displacement on the rails by a pair of brackets B³, extending under the rear guide-rail, while at the front the same object is secured by a small lug B⁴, that extends rearwardly from the front plate B⁵ and engages in a groove A⁶ along the front of the front guide-rail, Fig. 10. In the side bars of the carriage-frame are depressions B⁷ (see Fig. 1) to allow for the vertical movement of the shaft of the platen D as the same is shifted vertically for upper and lower case printing.

The shaft D' of the platen D is mounted in bearings formed in a stirrup or platen-frame E, having longitudinal connecting-bars E' at the rear and E² at the bottom, as shown in Figs. 1 and 6. This platen-frame is pivotally connected at the lower portion thereof to crank-arms F', that are secured to a rock-shaft F², whereas the upper portion of the platen-frame is pivoted at each side to one end of a link F, the opposite end of which is pivoted at B⁸, Fig. 1, to the carriage, the links F and crank-arms F' constituting, in effect, parallel links on which the platen-frame and platen receive their vertical movements to change the printing position. The shifting mechanism is best shown in Figs. 4 and 8, wherein it will be seen that bearings on the top plate A' support a rock-shaft G^x, from which project crank-arms G, that have connected at the outer ends thereof a supporting or shift rail G', which supports a roller E³, mounted in the lower longitudinal bar E² of the platen-frame above mentioned. A bracket E⁴, depending from the bar E² of the platen-frame, has a lug E⁵ projecting under the rail G' to prevent the roller E³ from being raised off of said rail by overthrow due to violent shifting of the platen or in any other manner. The rock-shaft G^x has connected to one end thereof a crank-arm G², which is connected by a rod G³ with an arm G⁴, that projects from one end of a rock-shaft G⁶, that is mounted to turn in bearings G⁷ in the frame

of the machine at the front thereof. This rock-shaft G^6 has secured thereto at its opposite end a hand-operated actuating-arm G^5 , provided with a shift-key G^{15} at the keyboard of the machine. It will be seen that by depressing the shift-key G^{15} the platen-frame and platen will be elevated and on the release of the key the platen and platen-frame will move to the normal position by their own weight. The weight of the platen and platen-frame is counteracted by coil-springs F^3 , which surround the shaft 2 and tend to counterbalance the weight of the platen and platen-frame. The upward movement of the rail G' is limited by an arm G^{10} , which projects downwardly and forwardly from one of the center crank-arms G , abutting against an adjusting-screw G^{11} , as will be seen in Fig. 8, whereas the downward movement of the platen and its frame may be limited by an adjustable screw E^4 , (see Fig. 6,) carried by the carriage and with which the platen-frame coöperates.

By referring to Figs. 2, 4, and 9 the mechanism for securing the platen in shifted position will be clearly seen. An upwardly-extending arm G^9 may be made as a part of the actuating-arm G^5 , and near this arm is a three-arm lever H , pivoted to a fixed portion of the machine, one extension H' of which is provided with a lateral lug H^2 , that constitutes a stop adapted to intercept the arm G^9 as the said lug is moved forward by the upward throw of the forwardly-projecting hand-operated arm of the lever H , while the upwardly-disposed arm H^3 connects by a lug H^4 with a spring H^5 , fastened at its lower end to a fixed stud H^6 . The construction is such, as will be seen, that one end of the spring is moved to either side of the pivotal center of the lever H , and the spring holds the lever H in either position to which it may be moved around its pivot. The stud H^2 in its forward movement engages the arm G^9 , thereby moving and holding down the shift-key G^{15} and maintaining the platen in its elevated position. The step-by-step movement of the carriage is controlled by an escapement which comprises feed-dogs I and I^3 , Figs. 3, 5, 6, and 8, which coöperate with a doubly-notched rack I' . These parts form no essential feature of this invention, and a detailed description thereof may be omitted. It may also be noted that the lever mechanism which actuates the escapement also coöperates with other mechanism; but as these features are not claimed herein they need not be described. To the shaft of the platen is attached the usual ratchet D^2 , and this is actuated to give the desired single or double line spacing by means of mechanism which will now be described. At the right-hand side of the carriage is pivoted a rock-shaft L , terminating in a downwardly-extending finger-piece L' . (See Fig. 4.) A coil-spring L^2

serves to restore this rock-shaft to normal position. At the rear end of the rock-shaft is connected an upwardly-extending arm L^3 , provided with a small antifriction-roller L^4 . On a bracket L^5 , connected to the platen-frame E , is mounted a bell-crank lever L^8 , (see Figs. 1 and 4,) provided with a depending vertical stud L^7 to engage the antifriction-roller above described. The opposite arm of this bell-crank has an upwardly-extending pivot-post L^a , that is connected to the arm by a vertical pivot, whereas a horizontal pivot L^b constitutes the connection between the pivot-post and the rear end of a horizontally-movable dog L^8 , which is moved rearwardly or in the direction of its feed by the oscillation of the finger-piece L' , while the spring L^2 restores it to the normal position. In the rearward movement of the dog L^8 it engages the ratchet-wheel D^2 , connected to the platen, and thus rotates it for line-spacing.

Referring to Fig. 4, it will be seen that a shoulder L^9 and a pin L^{10} on the carrier of the dog L^8 engage the tail of a pawl L^{11} , which is independent of the dog and its actuating means and is pivoted to ears projecting forwardly from the platen-frame, and the engaging nose of said pawl L^{11} engages the teeth of the ratchet-wheel D^2 and serves to lock the same against further movement in either direction as the dog about completes its feed-stroke, and this is true whether the line-spacing dog be employed for half-spacing or for full spacing, as will hereinafter more clearly appear. It will thus be seen that the locking-pawl extends into the path of the line-spacing dog and is positively moved thereby to effect a locking of the platen against overthrow or against rotation in either direction when the dog has about completed its line-spacing movement.

To the rear of the ratchet-wheel D^2 is an independently-actuated hand-operated angular lever L^{12} , (see Fig. 7,) that is pivoted to ears extending forwardly from the platen-frame and the upper part of which forms a guide L^c for the space-dog and to the lower part of which is connected an elastic or resilient brake-shoe L^{13} , that is preferably made of a strip of sheet metal. In the upper part of this lever is mounted a roller or detent L^{14} , which in the normal position of the lever L^{12} is adapted to engage the ratchet and to hold it against accidental displacement, but so that the platen may be turned one or more line-space distances in either direction. This lever is under tension of a spring L^{15} , attached to the platen-frame E at one end and bearing at its free end against the lever and exerting a pressure thereon that tends to maintain the detent-roller in engagement with the ratchet-wheel and to maintain the brake-spring out of contact therewith.

The guide L^c on the lever L^{12} has a cross-

bar or locking-abutment L^d , Fig. 2, that is adapted to cooperate with a transverse locking-notch L^{20} in the upper edge of the line-space dog, where it extends through the guide, so that when the operator desires to write on lines or in spaces of a blank or sheet that cannot ordinarily be brought to the printing-line it is merely necessary to raise the free end of the line-spacing dog, thereby turning it around the pivot L^b . The effect of this movement is to turn the lever L^{12} on its pivot against the tension of the spring L^{15} until the brake-spring is forced against the teeth of the line-spacing ratchet-wheel, and the detent-roller L^{14} will by the same movement be moved out of contact with the teeth of the wheel. By this time a slight relative movement of the line-space dog and the guide L^c will have been effected and which is sufficient to bring the locking-notch in the dog into register with the cross-bar L^d of the guide, and the cross-bar will be seated in said notch and will bear against the forward end wall thereof, thus maintaining the parts in the positions to which they have been moved, with the brake-spring bearing against the teeth of the line-spacing wheel and the detent-roller maintained away therefrom. At the same time the line-spacing mechanism is locked against movement and the platen is free to be rotated by either finger-wheel of the platen to the desired extent, and it will be retained in the position to which it is rotated by the brake-spring L^{13} . By locking the line-spacing mechanism out of actuation when the brake is applied for differential spacing the hand-lever L^f may continue to be used to restore the carriage to the right without, however, at this time actuating the line-spacing mechanism. A slight downward pressure exerted upon the forward or free end of the line-spacing dog will release the parts from their locked positions, and they will be restored to their normal positions, with the detent-roller bearing on the ratchet-wheel, the brake-spring moved away therefrom, the spacing-dog in a position to cooperate with the ratchet-wheel, and the line-spacing mechanism as a whole free to be actuated. While I prefer to employ a locking-notch in the dog to cooperate with the guide in the manner specified, it should be understood that any suitable means may be employed for this purpose.

It will be seen that the actuation of either the locking-lever L^{11} or the detent or braking lever L^{12} is entirely independent of the other. Thus the movement of the locking-lever in no way affects the detent-lever, whereas when the braking-lever is moved to a position where the brake-spring is applied any movement that may be transmitted to the locking-lever is insufficient to bring the nose thereof into engagement with the teeth of the ratchet-wheel. To the front part of the

lever is pivotally connected a cam L^{16} , and when turned in either direction, as indicated in Fig. 7, its highest surface engages an inclined shoulder L^{17} on the space-dog, and this determines the relative elevation of said space-dog so that the same may engage every tooth for single spacing or every other tooth for double spacing, as will be apparent from said Fig. 7. It will be seen that the throw of the dog L^8 is the same whether it be employed for single or double spacing and that therefore the locking-lever will be actuated to lock the lever at the end of the stroke irrespective of the extent of line-spacing movement transmitted to the platen. It is to be further noted that the construction is such that the same movement is imparted to the spacing mechanism whether the platen is lifted for upper-case writing or is in the lowermost position for lower-case writing, the depending stud L^7 being adapted to engage with the roll L^4 when the platen is in either of said positions. It will likewise be noted that a single movement of the finger-piece is effective to produce the line-spacing movement of the parts and to simultaneously move the carriage back to the right to begin a new line.

The mechanism for disengaging the escapement so that the carriage may be freely moved back and forth is best illustrated in Fig. 6, wherein it will be seen that the dog I of the escapement is provided with a lateral stud I^2 , and adjacent to this is mounted a rock-shaft I^3 , provided with a lateral wing I^4 . This wing connects by a link I^5 with a lever I^6 , pivoted to one side of the carriage at I^7 , and by pushing down on the finger-piece I^8 , Fig. 1, the dog I will be thrown out of engagement with the feed-rack and the carriage is free to be moved in either direction.

The carriage is provided with the usual paper-guide or table M , connected with the platen-frame, and the platen-frame also has connected thereto the paper-feed rollers M' , which are mounted on a shaft supported in bearings on arms M^2 , secured to a rock-shaft M^7 . (See Fig. 6.) A short crank-arm M^4 projects from the rock-shaft M^7 near each end of the platen, and these arms M^4 each engage a lever M^5 , each of which is also pivoted to the platen-frame and terminates at the opposite side of the platen with the flexible paper guiding and retaining arm or finger M^6 , which extends transversely of the platen and conforms to the curve thereof. Attached to one end of the rock-shaft M^7 , to which the arms M^2 are connected, is a finger-lever M^8 , (see Figs. 5 and 6,) and by pressing down on the lever it will be seen that the paper-feeding rollers M' are moved away from the platen and at the same time the crank-arms M^4 , cooperating with the levers M^5 , force the guiding-fingers M^6 away from the platen, thus entirely freeing the paper, so that it may be moved freely in either direction.

The feed-rollers M' are normally maintained in contact with the paper by springs M⁹, whereas the paper-guiding fingers M⁶ are maintained under pressure by springs M¹⁰, these features all being best illustrated in Fig. 6.

At the front of the machine is mounted a rack-bar N, having oppositely-disposed teeth, as shown in Fig. 2. This rack-bar is mounted so as to slide longitudinally a short distance in brackets O, which are connected to a curved rock-shaft O', mounted in bearings O² on the frame of the machine. The rock-shaft is provided with a suitable finger-lever O³, by which it may be tilted, the parts being held to normal position by a suitable coil-spring O⁴. Near one end of this rack-bar is a stud N', (see Fig. 8,) which extends into the bifurcated end of a lever P, attached to one end of a rock-shaft P', mounted in bearings P², that depend from the top plate. The other end of the shaft is provided with a depending lever P³, pivoted to a longitudinally-movable bar P⁴, the inner end of which is guided in a bearing in a bracket J', that extends rearwardly from the type-bar segment J. A pawl P⁵, pivoted to this bar, is adapted as the bar moves endwise to the right to engage the trip-arm of the bell-crank lever Q, the other arm of which forms the hammer for the bell Q', which is attached to the bracket J'. When the bar P⁴ moves in the opposite direction, the cam-face of the pawl P⁵ will come in contact with the trip-arm and will cause the engaging end of the pawl to be moved up around the pivot of the pawl until it has passed the trip, thus permitting the pawl to be moved back with the bar P⁴ without sounding the alarm. The rock-shaft P' and the parts connected thereto are restored to normal position by a spring P⁶.

From the foregoing description it will be understood that as the bar N moves longitudinally from right to left it will sound the alarm, while the spring P⁶ restores the parts to the normal position when the carriage is moved to the right. On the slide-bar are mounted slides N², each provided with a pivoted stop N³, adapted to engage a projection or stop B' (see Fig. 10) of a plate B⁵, attached to the front part of the carriage-frame. Each stop N³ is controlled by a spring N⁴, and the construction is such that when the carriage moves in one direction a cooperating stop is positively engaged; but when moved in the opposite direction the stop yields and the carriage passes over it for purposes which will presently appear. The slide of each stop N³ is adjusted to any desired position by a dog N⁵, which engages the cooperating teeth on the rack-bar N. The right-hand stop N³ constitutes a margin-stop to limit the movement of the carriage toward the right, whereas the left-hand stop constitutes a line-stop or a stop which limits the movement of the

carriage toward the left, thus determining the length of the line.

The construction is such that when the carriage approaches the limit of its movement on any line, as determined by the location of the left-hand stop N³, the carriage-stop B' contacts with said stop N³ and moves the sliding rack-bar N from right to left against the tension of the spring P⁶, when the bell will be sounded; and after a slight further movement the carriage will be arrested. The operator is thus apprised of the approach to the end of the line by the sounding of the alarm just before the end of the line is reached whether the left-hand stop be set for a long or short line. It is to be noted further that in case the line may terminate with a long monosyllable word or in any case in which the word may overrun the limits of the line, the word may be carried still farther past the fixed limit of the line by depressing the finger-piece O³, thereby tilting the whole slide-bar and its connected slides forward, allowing the carriage-stop to pass by the left-hand stop N³, and the final letters of the word may be added, and in the return of the carriage the carriage-stop B' will deflect the pivoted line-stop to one side, so that it will afford no obstruction to the movement of the carriage back to the right. In the same manner the right hand or margin stop may be moved to one side by the finger-piece O³ to permit writing in the margin of the paper. After the carriage has been moved past the margin-stop an uninterrupted feed movement of the carriage to the end of the line may take place, by reason of the fact that the carriage-stop B' will at this time deflect the margin-stop to one side around its pivot. It will be observed that the line-stop N³ has three different motions. Said stop is moved toward the left near the end of a line by the carriage-stop to sound the alarm. It may also be moved by the key O³ out of the path of the carriage-stop, and it has a third motion about its pivot to permit the carriage-stop to pass it freely when the carriage is moving toward the right.

Referring to Fig. 8, it will be seen that the escapement is actuated by being connected to a cross-bar R², which is in turn connected by links R' to a universal bar R, on which rest the space-bar levers S and the key-levers, which are not shown.

While I have shown and described the various features of my invention in their application to a front-strike type-writing machine, it should be understood that the invention is not limited thereto, but that the various features of the invention may be applied to any style type-writing machine.

Certain of the features set forth in this case are not claimed herein, but are claimed in divisional applications, Serial Nos. 297,692 and 297,693, both filed January 26, 1906, and di-

visional application, Serial No. 299,266, filed February 3, 1906, and also in my prior application, Serial No. 684,991, filed July 1, 1898.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination with a type-writer carriage and an adjacent slide-bar intercepting the same and adapted to have a limited longitudinal movement that is effected by the carriage, of a rock-shaft having an arm in engagement with said slide-bar, a spring to restore said shaft to normal position, a depending arm at the other end of said shaft, a bell-hammer and bell, and connections between said bell-hammer and said depending arm whereby the longitudinal movement of the bar effects a ringing of the bell.

2. In a type-writing machine, the combination of a carriage, a stop carried thereby, a bar carried at the front of the framing of the machine and mounted to have two motions, an adjustable stop carried by said bar and extending normally in the path of the carriage-stop, the position of said bar and stop being such that the stop is at all times accessible to the operator in order that it may be readily adjusted along said bar, hand-operated means for moving said bar so as to move the stop thereon out of the path of said carriage-stop, an alarm, and means actuated by another motion of said bar due to the engagement of the carriage-stop with said adjustable stop for sounding said alarm.

3. In a type-writing machine, the combination of a carriage, a stop carried thereby, a bar carried at the front of the framing of the machine and mounted to have two motions, an adjustable stop carried by said bar and extending normally in the path of the carriage-stop so as to arrest the movement of the carriage in one direction, the position of said bar and stop being such that the stop is at all times accessible to the operator in order that it may be readily adjusted along said bar, means which permit said stops to move past one another when the carriage is moving in an opposite direction, hand-operated means for moving said bar so as to move the stop thereon out of the path of the carriage-stop, and an alarm operated by another movement of said bar.

4. In a type-writing machine, the combination of a carriage, a stop or stops carried thereby, a bar carried at the front of the framing of the machine and mounted for two motions, an adjustable margin-stop and an adjustable line-stop carried by said bar and extending normally in the path of said carriage stop or stops, the position of said bar and stops being such that the stops are at all times accessible to the operator in order that they may be readily adjusted along said bar, hand-operated means carried by the framing of the machine for swinging said bar so as to

simultaneously move both of said margin and line stops out of the path of the carriage-stop, and means operated by another motion of said bar for sounding an alarm.

5. In a type-writing machine, the combination of a carriage, a stop or stops carried thereby, a bar carried at the front of the framing of the machine and mounted to have two motions, an adjustable margin-stop, and an adjustable line-stop carried by said bar and extending normally in the path of the carriage stop or stops, the position of said stops and bar being such that the stops are at all times accessible to the operator in order that they may be adjusted along said bar, hand-operated means carried by the framing of the machine for moving said bar so as to simultaneously move the margin and line stops out of the path of the carriage stop or stops, means for permitting the carriage stop or stops to move past each of said adjustable stops in one direction, and means operated by another motion of said bar for sounding an alarm.

6. In a type-writing machine, the combination of a carriage, a stop carried thereby, a bar carried at the front of the framing of the machine, an adjustable margin-stop and an adjustable line-stop carried by said bar and extending normally in the path of the carriage-stop, the position of said stops and bar being such that the stop is at all times accessible to the operator in order that it may be readily adjusted along said bar, hand-operated means carried by the framing of the machine for swinging said bar so as to simultaneously move the margin and line stops out of the path of the carriage-stop, means for permitting the carriage-stop to move past each of said other stops in one direction, and means controlled by a motion of said bar for sounding an alarm when the carriage approaches the end of a line as determined by said line-stop.

7. In a type-writing machine, the combination of a carriage, a stop carried thereby, a swinging and longitudinally-movable bar, a stop on said bar which normally projects into the path of the carriage-stop, hand-operated means carried by the frame of the machine for swinging said bar to move the stop thereon out of the path of the carriage-stop and means carried by the framing of the machine and controlled by the longitudinal movement of the bar for sounding an alarm when an end of a line is approached.

8. In a type-writing machine, the combination of a carriage, a stop carried thereby, a swinging and longitudinally-movable bar at the front of the machine, a stop on said bar which normally projects into the path of the carriage-stop, hand-operated means carried by the frame at the front of the machine for swinging said bar to move the stop thereon out of the path of the carriage-stop and means

controlled by the longitudinal movement of the bar for sounding an alarm when an end of a line is approached.

9. In a type-writing machine, the combination of a carriage, a stop carried thereby, a swinging and longitudinally-movable bar at the front of the machine, an adjustable line-stop and an adjustable margin-stop on said bar which normally projects into the path of the carriage-stop, hand-operated means carried by the frame at the front of the machine for swinging said bar to move the stops thereon out of the path of the carriage-stop and means controlled by the longitudinal movement of the bar for sounding an alarm when an end of a line is approached.

10. In a type-writing machine, the combination of a carriage, a stop carried thereby, a swinging longitudinally-movable bar at the front of the machine, an adjustable line-stop and adjustable margin-stop on said bar which normally projects into the path of the carriage-stop, hand-operated means carried by the frame at the front of the machine for swinging said bar to move the stops thereon out of the path of the carriage-stop, means controlled by the longitudinal movement of the bar for sounding an alarm when an end of a line is approached and means for permitting said carriage-stop to pass each of the other stops in one direction.

11. In a type-writing machine, the combination of a carriage, a stop carried thereby, a movable bar carried by the frame at the front of the machine, an adjustable stop on said bar which is normally in the path of the carriage-stop, the position of said stop and bar being such that the stop is at all times accessible to the operator in order that it may be readily adjusted along said bar, means independent of the carriage for moving said bar so as to move the stop thereon out of the path of the carriage-stop, and means operated by another movement of the bar for sounding an alarm.

12. In a type-writing machine, the combination of a carriage, a stop carried thereby, a movable spring-restored bar carried by the frame at the front of the machine, an adjustable stop on said bar which is normally in the path of the carriage-stop, the position of the stop and bar being such that the stop is at all times accessible to the operator in order that it may be readily adjusted along said bar, means independent of the carriage for moving said bar so as to move the stop thereon out of the path of the carriage-stop and means controlled by another motion of said bar for sounding an alarm when an end of a line is approached.

13. In a type-writing machine, the combination of a carriage, a stop carried thereby, a movable rack-bar carried by the frame at the front of the machine, end portions of said rack-bar having oppositely-disposed teeth

for retaining the stops carried by said bar in the adjusted position, an adjustable stop on each end portion of said rack-bar and which coöperates therewith to afford a free movement of each stop in one direction and to normally prevent a movement thereof in an opposite direction, which stops are normally in the path of the carriage-stop, means on the framework for moving said bar so as to simultaneously move both of said stops thereon out of the path of the carriage-stop, and means operated by another motion of said bar for sounding an alarm.

14. In a type-writing machine, the combination of a carriage, a stop carried thereby, a movable rack-bar carried by the frame at the front of the machine, adjustable stops on said rack-bar, which stops normally project into the path of the carriage-stops, the position of the stops and bar being such that the stop is at all times accessible to the operator in order that it may be readily adjusted along said bar, a pawl carried by each stop and adapted to engage teeth on the rack-bar to maintain the stops thereon in the adjusted position, means at the front of the machine and arranged on the framework for moving the said stops on the bar out of the path of the carriage-stop, and means operated by a motion of said bar for sounding an alarm.

15. In a type-writing machine, the combination of a carriage, a stop carried thereby, a movable rack-bar carried by the frame at the front of the machine, end portions of said rack-bar having oppositely-disposed teeth, an adjustable stop on each end portion of said rack-bar which stops normally project into the path of the carriage-stop, a pawl carried by each stop on the rack-bar and adapted to engage with the coöperating teeth thereof to maintain each of the stops thereon against movement in one direction, the position of said stops and bar being such that the stop is at all times accessible to the operator in order that it may be readily adjusted along said bar, means at the front of the machine and on the framework for moving the said stops on the bar out of the path of the carriage-stop, and means operated by a motion of said bar for sounding an alarm.

16. In a type-writing machine, the combination of a carriage, a stop on the carriage, a movable bar carried by the frame of the machine at the front thereof, an adjustable line-stop and an adjustable margin-stop carried by said bar and projecting normally into the path of the carriage-stop, the position of said stops and bar being such that the stop is at all times accessible to the operator in order that it may be readily adjusted, a hand-operated key at the front of the machine which is connected to said bar to move the stops thereon out of the path of said carriage-stop, independent means for permitting the carriage-stop to move freely past the margin-

stop at all times in the movement of the carriage from right to left and independent means for permitting the carriage-stop to move freely past the line-stop at all times in the movement of the carriage from left to right, and means operated by a motion of said bar for sounding an alarm.

17. In a type-writing machine, the combination of a carriage, a stop on the carriage, a movable spring-restored bar carried by the frame of the machine at the front thereof, an adjustable line-stop slide and an adjustable margin-stop slide carried by said bar, and a pivoted spring-pressed stop carried by each of said slides and projecting normally into the path of the carriage-stop and a hand-operated key at the front of the machine which is connected to and adapted to move said bar so as to move the stops thereon out of the path of the carriage-stop.

18. In a type-writing machine, the combination of a carriage, a stop on the carriage, a swinging and longitudinally-movable spring-restored bar carried by the frame of the machine at the front thereof, an adjustable line-stop slide and an adjustable margin-stop slide carried by said bar, a pivoted spring-pressed stop carried by each of said slides and projecting normally into the path of the carriage-stop, a hand-operated key at the front of the machine which is connected to and adapted to move said bar so as to move the stops thereon out of the path of carriage-stop, and means controlled by the longitudinal movement of said bar for sounding an alarm as an end of a line is approached.

19. In a type-writing machine, the combination of a carriage, a stop on said carriage, a swinging spring-restored frame pivoted to the frame of the machine at the front thereof, a bar which is carried by said swinging frame and moves longitudinally independently thereof, a margin and line stop carried by the bar and projecting normally in the path of the carriage-stop, a finger-piece carried by said swinging frame and extending in front of the machine

for swinging it, whereby the margin and line stops may be simultaneously thrown out of the path of the carriage-stop and means controlled by the longitudinal movement of the bar for sounding an alarm as the carriage approaches an end of a line.

20. In a type-writing machine, the combination of a carriage, a stop on said carriage, a frame movably mounted on the frame of the machine, a bar movably mounted in said movable frame, a stop carried by said bar and projecting normally in the path of the carriage-stop, and hand-operated means for moving said movable frame to move the said stop out of the path of the carriage-stop.

21. In a type-writing machine, the combination of a carriage, a stop on said carriage, a frame movably mounted on the frame of the machine, a longitudinally-movable bar carried by said movable frame, a stop carried by said bar and projecting normally in the path of the carriage-stop, and hand-operated means for moving said movable frame to throw the stop carried thereby out of the path of the carriage-stop.

22. In a type-writing machine, the combination of a carriage, a stop on said carriage, a frame movably mounted on the frame of the machine, a bar movably mounted on said movable frame, a stop carried by said bar and projecting normally in the path of the carriage-stop, and adapted when moved by said carriage-stop in one direction to move said bar, but to yield without moving said bar to permit the carriage-stop to pass it freely in the other direction, and hand-operated means for moving said movable frame to throw said stop out of the path of the carriage-stop.

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

GEORGE H. SMITH.

Witnesses:

J. F. GROAT,

J. M. ST. JOHN.