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PATENTED JAN. 31, 1905.

J. D. DAUGHERTY.  
LINE LOCK FOR TYPE WRITERS.

APPLICATION FILED JULY 10, 1903. RENEWED OCT. 26, 1904.

2 SHEETS—SHEET 1.

Fig. 1.

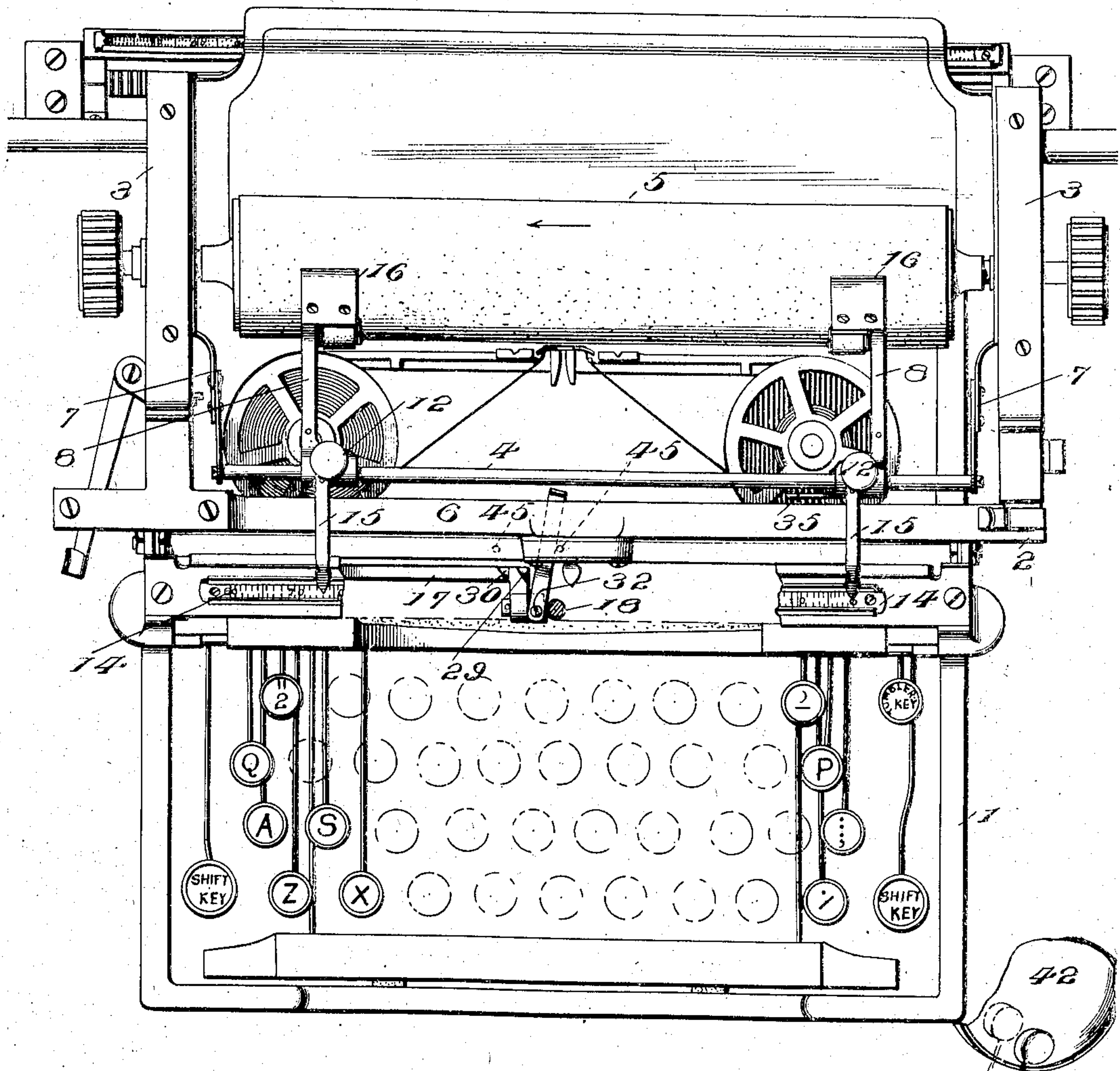
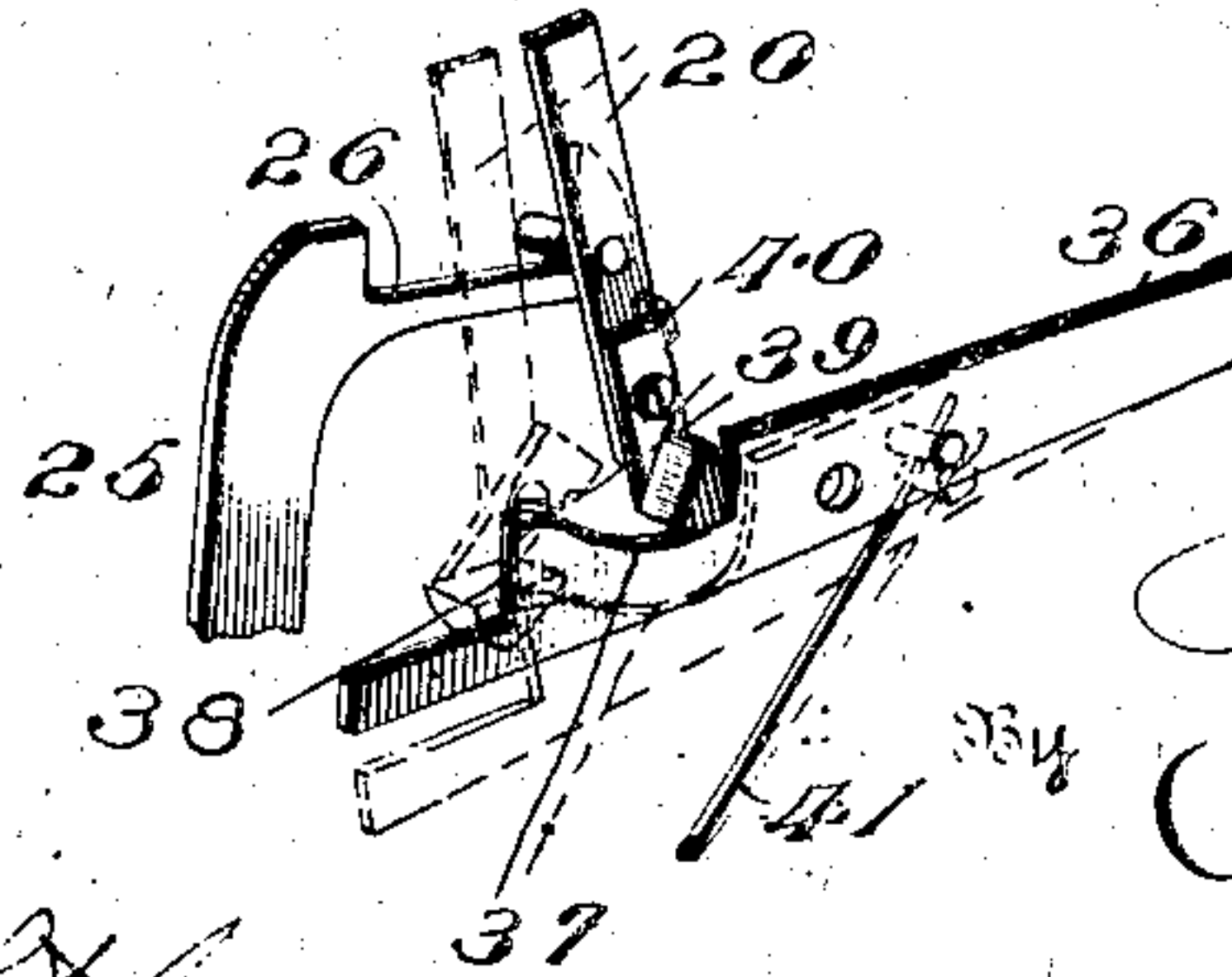


Fig. 7.



Witnesses

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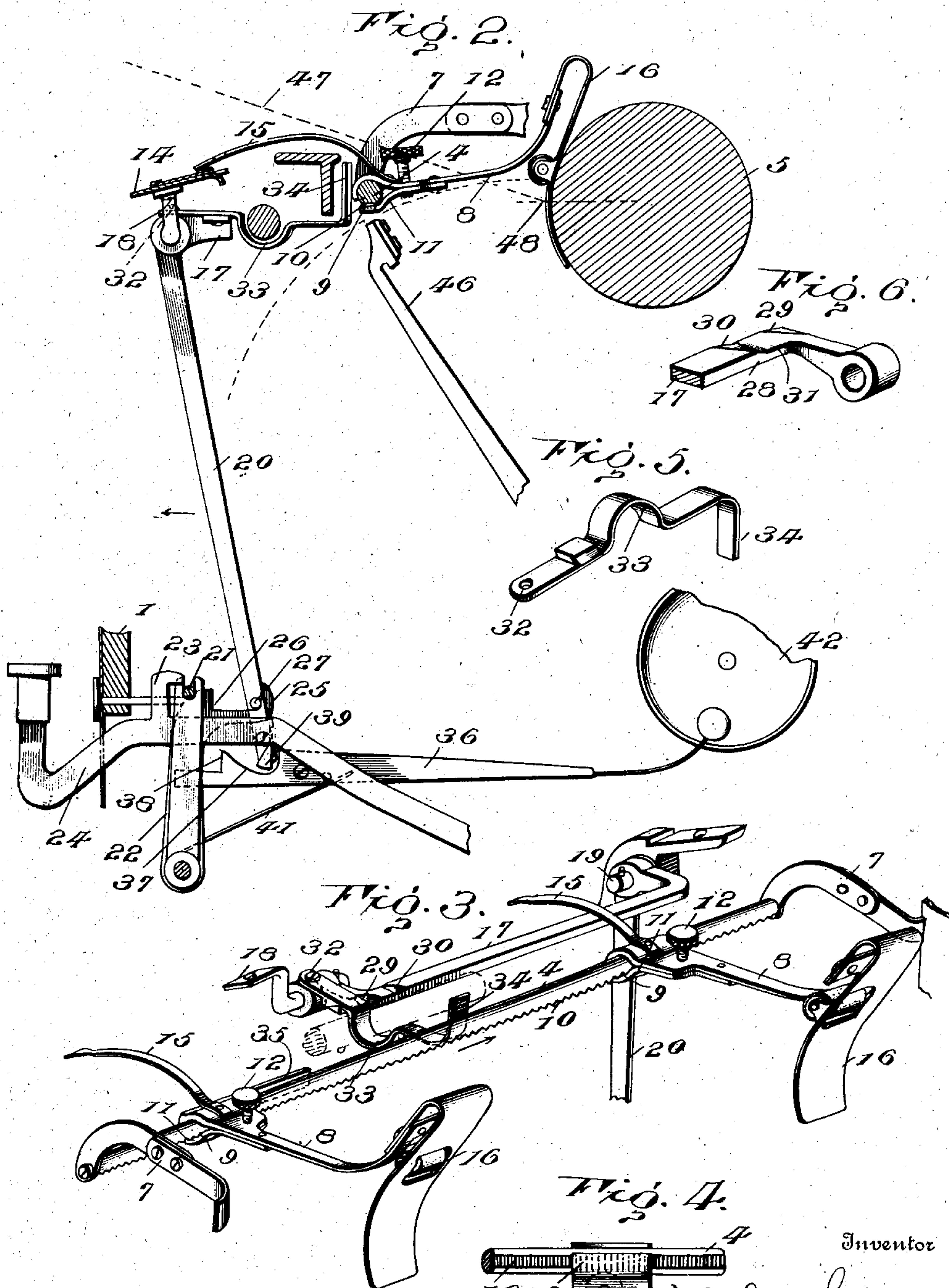
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2 SHEETS—SHEET 2.



Witnesses

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# UNITED STATES PATENT OFFICE.

JAMES D. DAUGHERTY, OF KITTANNING, PENNSYLVANIA.

## LINE-LOCK FOR TYPE-WRITERS.

SPECIFICATION forming part of Letters Patent No. 781,190, dated January 31, 1905.

Application filed July 10, 1903. Renewed October 26, 1904. Serial No. 230,108.

*To all whom it may concern:*

Be it known that I, JAMES D. DAUGHERTY, a citizen of the United States, residing at Kittanning, in the county of Armstrong and State of Pennsylvania, have invented new and useful Improvements in Line-Locks for Type-Writers, of which the following is a specification.

My invention relates to improvements in line-locks for type-writers, and has for its object certain improvements, which will be fully set forth hereinafter, and particularly pointed out in the drawings.

In the accompanying drawings, Figure 1 is a top plan view of a type-writer of the Underwood type, showing my invention applied thereto. Fig. 2 is a diagrammatic view of my improvement, showing it in position and the relative location of the parts as arranged in the type-writer. Fig. 3 is a perspective view of the paper-guides which comprise a part of my improvement and the cooperating parts adjacent thereto. Fig. 4 is an inverted view of a portion of the paper-guide-supporting rod and the embracing end of one of the paper-guides. Fig. 5 is a detached perspective view, inverted, of the operating connection or lever between the paper-guides and the locking and bell-ringing mechanism. Fig. 6 is a perspective view of an intermediate part which cooperates with the lever shown in Fig. 5. Fig. 7 is a detached perspective view showing the construction of the mechanism which directly cooperates with the bell-clapper.

Referring now to the drawings, 1 indicates the frame of the type-writer, which is here shown of the type known in the art as the "front-strike" or "visible-writing" machine, and the particular machine of this type here shown is the well-known Underwood, though my invention is adapted to be used in connection with other forms of front-strike or visible-writing machines.

2 is the carriage-frame, and 3 the platen-frame, which is supported by the carriage-frame. In the form of machine here shown the platen-frame has a vertical movement in respect to the carriage-frame, although my invention may be used in connection with that form of machine in which the platen-frame

moves horizontally, and certain features of my invention are adapted to be used in connection with any form of writing-machine, whether of the front strike, the top strike, or the under strike, as will more fully appear hereinafter. Some features of my invention, however, are particularly designed for use in connection with a front-strike machine, and for this reason only I have selected that type of machine in connection with which to here- in illustrate and describe my invention.

In applying my invention to a front-strike machine I provide a paper-guide-supporting rod 4, which is supported by the platen-frame 3 and at a point which is located between the platen 5 and the front rail 6 of the carriage-frame 2. This rod, as here shown and preferably, extends practically from end to end of the platen or carriage frame and, as here shown, is located adjacent the front rail 6 of the carriage-frame and when the platen-frame is in its lowest position is preferably in a horizontal plane below the upper face of the said rail 6. The rod is supported by the platen-frame or an extension thereof, and, as here shown, this extension consists of the arms 7.

Located on the rod 4 are the adjustable paper-guides 8, which have their outer ends 9 provided with suitable sockets or embracing members 9, by means of which they may be clamped to the rod 4 at the desired adjustment. Any suitable form of locking means may be provided; but, as here shown, it consists in providing the under side of the bar 4 with serrations 10 and having the under member 11 of the socket 9 provided with corresponding serrations and a clamping-screw 12, by means of which the serrated portion 11 can be brought into and out of engagement with the serrations 10, as will be readily understood. For the purpose of enabling the paper-guides to be adjusted to any given point on the scale 14 I provide the paper-guides with outwardly-projecting pointers 15, which enable the operator to place the paper-guides at any desired point in respect to the writing-line of the machine. It will be observed that the paper-guides have elongated arms extending from the rod 4 to the spring or roller portions 16, which engage the platen.



By arranging the paper-guides and their support as herein shown and described I am enabled to provide a front-strike machine with adjustable paper-guides and in such a manner as not to interfere in even the slightest degree with the visible writing of the machine, and by extending the rod practically the length of the platen-frame and, indeed, the complete length of the platen I am enabled to adjust these guides at any desired point throughout the length of the platen. Furthermore, by arranging the parts as here shown the paper-guide support is so located as not to interfere in any manner with the placing of the paper in the machine or with the passage of the paper from the machine, and, furthermore, it is so located as not to be between the platen and the point at which the paper is placed in the machine by the operator. Furthermore, the arrangement and location of the parts are such that the paper being written upon does not and cannot in any manner limit or interfere with the adjustment of the paper-guides to any point throughout the length of the platen and will even permit (should occasion arise for such adjustment) both guides to be moved at either end of the platen for the purpose of writing a short line or lines at either end of the platen or to use a narrow strip of paper located at any desired point on the platen.

In addition to providing a paper-guide for use in connection with front-strike machines having the advantages hereinbefore related I so arrange the paper-guides and a key-lever or line-locking mechanism that the adjustable paper-guides perform the additional function of locking the mechanism of the type-writer, and thereby determining the length of the line and also preventing printing over or piling characters on the papers. The locking of the mechanism as a mechanical sequence also locks the carriage. I also arrange the line-locking mechanism, the bell-ringing mechanism, and the paper-guides so that by the movement of the paper-guides three functions are accomplished—namely, the adjustment of the guides at the desired point, the locking of the mechanism to determine the length of the line and prevent overprinting or piling, and, thirdly, the ringing of the bell in advance of reaching the end of the line. This threefold function is very advantageous in type-writers in that the operator has only to adjust the paper guide or guides to the desired point without any thought of either the line-locking or bell-ringing mechanisms, since the adjustment of the paper-guides to the desired point, as aforestated, effects a corresponding operation of said mechanisms and causes them to perform their functions at the adjusted point. These features of my invention whereby the adjustment of the paper-guides will control the operations of the line-locking and bell-ringing

mechanisms may be applied to any form of writing-machine, though for convenience I have shown it in connection with a front-strike machine. In applying it to a machine of this type I provide a vibrating or movable member 17, which, as here shown, is located below the scale 14 and has one end pivotally supported by a lug 18, which depends from the under side of the scale, and this lug is located about at the center of the machine. The member 17, as here shown, is approximately U-shaped in plan view, and its end opposite from the lug 18 is pivotally supported upon a lug or stud 19, carried by the frame of the machine. Extending downward from the vibrating member 17 and made fast thereto is an arm 20, and this arm 20 has its lower end adapted to operate the key-locking and bell-ringing mechanism.

As here shown, the key-locking mechanism consists of a rocking bar 21, supported by arms 22, and this bar 21 is adapted to pass under hooks 23, which are carried by the key-levers 24. An arm 25 is connected with the bar 21 and has a horizontal recess 26, in which a pin 27, carried by the arm 20, is adapted to move and to engage the opposite vertical walls of the recess. The end 28 of the vibrating member 17 is provided with two cam-surfaces 29 and 30, between which is located a straight or non-cam surface 31. Pivotally supported at its outer end at the point 32 by the lug 18 is a lever 33, and this lever when it is moved in the direction indicated by arrow in Fig. 3 engages first the cam 29, passes over the smooth or straight portion 31, and then engages the second cam 30. The inner end of the lever 33 extends inward in the line traveled by the paper-guides 15, and the inner end of the lever 33 is bent upward, as shown at 34, for the purpose of providing an elongated vertical engaging surface between the paper-guide and the lever, whereby the said two members will engage when the platen-frame is lifted or shifted vertically for striking caps or the upper-case characters. The paper-guide 15, located at the right-hand side of the machine, is provided with a projecting member 35, which when the carriage moves strikes the end 34 of the lever 33 and moves the lever to engage the said cams 29 and 30. The object of this extension will be presently stated.

The bell-ringing mechanism consists of an intermediately-pivoted clapper-arm 36, carrying the clapper at its inner end and having at its outer end a recess 37 and a drop-off shoulder 38. Carried by the lower end of the arm 20 is a pivoted dog 39, which is held against movement in one direction through the medium of a stop 40, but is permitted to swing freely in the opposite direction, as indicated in Fig. 7. A suitable spring 41 serves to normally hold the clapper slightly out of contact with the bell 42, as shown in full



lines, Fig. 7. When the arm 20 is moved in the direction indicated by arrow, Fig. 2, it engages the inclined portion of the recess 37 and depresses the outer end of the clapper-arm 36 until it reaches the drop-off shoulder 38, when the clapper-lever 36 is permitted to drop and overcome the slight tension of the spring 41 and strike the bell 42, giving an alarm.

The operation of the parts whereby the adjustment of the paper-guides control the operation of the bell-ringing and line-locking mechanisms will be now described.

The operator adjusts the paper-guides 15 to write the desired length of line at the desired portion of the platen. The operation of the printing mechanism causes the carriage to travel in the direction indicated by arrow in Fig. 1. The movement of the carriage causes the projection 35 to engage the inner end of the lever 33 and move it in the direction indicated by arrow in Fig. 3. The movement of the lever engages first the cam 29 of the vibrating member 17, which moves the arm 20 in the direction indicated by arrow in Fig. 2 sufficiently far to cause the pivoted dog 39 to travel up the inclined surface of the recess 37, formed in the clapper 36, until it reaches the drop-off shoulder 38. This movement lifts the inner end of the clapper-lever 36 and permits it to drop, sounding an alarm by striking the bell 42. The continued movement of the carriage moves the lever 33 over the straight portion 31 of the vibrating member 17 and in engagement with the second cam 30. The second cam causes a further depression of the vibrating member 17 and a further outward movement of the arm 20 and sufficiently far to cause the pin 27 to engage the outer vertical wall of the recess 26 and move the rod 21 under the hooks 23 of the key-levers 24 and locks the key-levers against further operation and also stops the movement of the carriage. From this description it will be observed that the bell-alarm is sounded several spaces in advance of the locking action for the purpose of warning the operator and permitting a proper division of the word he may be writing or to indicate that there is a certain number of spaces before the end of the line is reached. When the locking action takes effect, and therefore the end of the line is determined, the pointer 15 of the paper-guides at the right-hand side of the machine will have reached the point or numeral on the scale to which the operator had previously adjusted it. The adjustment of the paper-guide at the left-hand side of the machine will determine the point on the platen at which the line of writing shall begin by the paper-guide engaging the inner end of the lever 33, and thus stopping the movement of the carriage as it is being drawn across the machine by the operator for the beginning of a line of writing. The movement of the lever 33 in

both directions is limited by means of suitable pins or projections 45, extending from a portion of the machine-frame. As the inner end of the lever 33 travels a considerable distance, (comparatively speaking,) the projection 35 on the paper-guides is provided to cause a movement of the lever in advance of the paper-guides and to cause the lever to be moved sufficiently far to effect the locking of the key-levers by the time the paper-guide has reached the point to which it has been adjusted to determine the length of the line of writing.

By reference to Fig. 2 it will be observed that the paper-guide-supporting rod 4 is located at a point so that the outer ends of the type-bars 46 will pass freely by the socket portions of the paper-guides, as well as being located sufficiently far from the platen to prevent the bar from interfering with the visible writing of the machine. The lowest line of vision is indicated in Fig. 2 by the dotted line 47, and the printing-point is indicated by the reference-numeral 48, and by locating the said bar 4 at a point between the line of vision and the line of travel of the outer ends of the type-bars I am enabled to extend this bar any desired distance longitudinal the frame, (preferably the whole length of the platen,) and thus permit the paper-guides to be adjusted across the normal writing-line of the machine and without interfering with the line of vision.

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 having a line-locking mechanism, an actuating member therefor located adjacent the carriage, a vertically-movable platen, a paper-guide longitudinally adjustable in relation to the platen and vertically movable therewith, the said actuating member located in the line of travel of the paper-guides, the paper-guides and actuating member having vertically-elongated engaging surfaces, for the purpose described.

2. The combination with a type-writer having a line-locking mechanism, of an actuating member therefor, a paper-guide movable longitudinally the platen, a vertically-movable platen operatively connected with the paper-guide, the actuating member and paper-guides so constructed that they will engage when the platen is in either its elevated or lowered position.

3. The combination with a type-writer having an end-line alarm, and a line-locking mechanism, of a vertically-shifting platen, a paper-guide shifted with the platen and movable longitudinally the platen, and an operating mechanism between the alarm, the line-locking mechanism, and the adjustable paper-guide so constructed as to operate when the platen is in its upper and lower positions.

4. In a front-strike type-writer, the com-



combination of a platen, type-bars arranged upon fixed pivots therebelow and adapted to swing upward, a line-locking mechanism, an actuating member for the line-locking mechanism  
 5 located between the line of vision and the path traveled by the type-bars, a paper-guide-supporting member also located at a point between the line of vision and the line of travel of the outer ends of the type-bars, and an ad-  
 10 justable paper-guide carried by the said supporting member and adapted to operate the said actuating member.

5. In a type-writing machine, the combination with a platen and type-bars mounted to  
 15 strike rearwardly against the front of the platen, of a front paper-guide for the platen, a rod upon which said paper-guide is adjustable along the platen, said rod being in front of the platen, above the paths of the type-  
 20 bars and below the line of vision, a carriage alarm mechanism, and a part upon said paper-guide and adjustable therewith, for operating said alarm mechanism.

6. In a type-writing machine, the combination with a platen and type-bars mounted to  
 25 strike rearwardly against the front of the platen, of a front paper-guide for the platen, a rod upon which said paper-guide is adjustable along the platen, said rod being in front of the platen, above the paths of the type-  
 30 bars and below the line of vision, and a carriage alarm and line-locking mechanism including a member in the path of a part upon said paper-guide.

35 7. In a type-writing machine, the combination with a platen and type-bars mounted to strike rearwardly against the front of the platen, of a rod extending longitudinally of the platen in front thereof above the paths of  
 40 the type-bars and below the line of vision, an arm extending rearwardly from said rod and adjustable therealong and carrying at its rear end a yielding paper-guiding finger in front of the platen, and a carriage alarm mechanism  
 45 including a part in the path of a part of said arm.

8. In a type-writing machine, the combination with a platen and type-bars mounted to strike rearwardly against the front of the  
 50 platen, of a rod extending longitudinally of the platen in front thereof above the paths of the type-bars and below the line of vision, a clip upon said rod and adjustable therealong, means for securing said clip firmly where ad-  
 55 justed, paper-guiding means extending rearwardly from said clip to the front of the platen, and carriage alarm and line-locking mechanism having a member in the path of a part upon said clip.

60 9. In a type-writing machine, the combination with a platen and type-bars mounted to strike rearwardly against the front of the platen, of a rack extending longitudinally of the platen in front thereof above the paths of  
 65 the type-bars and below the line of vision, a

front paper-guide for the platen, said paper-guide being supported upon said rack and adjustable therealong and having a tooth to engage said rack, and a line-locking mechanism having a member in the path of a part upon  
 70 said paper-guide.

10. In a type-writing machine, the combination with a platen and type-bars mounted to strike against the front of the platen, of a front  
 75 paper-guide for the platen, a rod upon which said paper-guide is adjustable along the platen, said rod being in front of the platen, above the paths of the type-bars and below the line of vision, a carriage alarm mechanism having a member in the path of a part upon  
 80 said paper-guide, an index upon said paper-guide, and a scale.

11. In a type-writing machine, the combination with a platen and carriage, of type-bars mounted to strike against the front of the  
 85 platen, a front paper-guide for the platen, a rod upon the carriage for supporting said paper-guide, the latter being adjustable upon said rod along the platen, and said rod being in front of the platen, above the paths of the  
 90 type-bars and below the line of vision, a carriage alarm mechanism having a member in the path of a part upon said paper-guide, a fixed scale, an index upon said carriage adapted to cooperate with said scale, and an index  
 95 upon said paper-guide also adapted to cooperate with said scale.

12. In a type-writing machine, the combination with a platen and type-bars mounted to strike against the front of the platen, of a front  
 100 paper-guide for the platen, a rod upon which said paper-guide is adjustable along the platen, said rod being in front of the platen, above the paths of the type-bars and below the line of vision, and a carriage alarm and line-lock-  
 105 ing mechanism inclusive of a lever in the path of a part upon said paper-guide, and cams operable by said lever; one of said cams for ringing the alarm, and the other for locking the line.  
 110

13. In a type-writing machine, the combination with a platen and type-bars mounted to strike against the front of the platen, of a front  
 115 paper-guide for the platen, a rod upon which said paper-guide is adjustable along the platen, said rod being in front of the platen, above the paths of the type-bars and below the line of vision, a lever in the path of a part upon  
 120 said paper-guide, a vibrating member having two cams engageable in succession by a part upon said lever, and bell-ringing and line-locking devices operable by said vibrating member.

14. In a type-writing machine, the combination with a platen and type-bars mounted to  
 125 strike against the front of the platen, of a pair of front paper-guides for the platen, a rod upon which said paper-guides are independently adjustable along the platen, said rod being in front of the platen, above the paths  
 130



of the type-bars and below the line of vision, a carriage upon which said platen and said rod are mounted, and carriage-arresting means including a member between said paper-guides and in the path of a part upon each thereof, for arresting the movements of the carriage in both directions at points determined by the adjustment of said paper-guides.

15. In a type-writing machine, the combination with a platen and type-bars mounted to strike against the front of the platen, of a carriage for said platen, a pair of front paper-guides for the platen, a rod upon which said paper-guides are independently adjustable along the platen, said rod being in front of the platen, above the paths of the type-bars and below the line of vision, and means between said paper-guides and movable by one thereof for ringing an alarm and locking the line, and engageable by the other thereof for arresting the carriage in its return movement.

16. In a type-writing machine, the combination with a platen and type-bars mounted to strike against the front of the platen, of a carriage for said platen, a pair of front paper-guides for the platen, a rack upon which said paper-guides are independently adjustable along the platen, each guide having a tooth to engage said rack, and the latter being mounted upon the carriage in front of the platen, above the paths of the type-bars and below the line of vision, and means for enabling one of said guides to ring an alarm and lock the line and the other of said guides to limit the return movement of the carriage.

17. In a type-writing machine, the combination with a platen and type-bars mounted to strike against the front of the platen, of a carriage for said platen, a pair of front paper-guides for said platen, a rod upon which said paper-guides are independently adjustable along the platen, said rod being mounted upon said carriage in front of the platen, above the paths of the type-bars and below the line of vision, means for enabling one of said guides to ring an alarm and the other thereof to limit the return movement of the carriage, a scale, and indexes upon said guides to cooperate with said scale.

18. In a type-writing machine, the combination with a platen and type-bars mounted to strike against the front of the platen, of a carriage for said platen, a front paper-guide for the platen, a rod upon which said paper-guide is adjustable along the platen, said rod being mounted upon said carriage in front of the platen, above the paths of the type-bars and below the line of vision, and a device in the path of a part of said paper-guide, for cooperating therewith to arrest the movement of the carriage.

19. In a type-writing machine, the combination with a carriage and a platen connected thereto and shiftable up and down, of type-

bars mounted to strike against the front of the platen, a front paper-guide for the platen, a rod upon which said paper-guide is adjustable along the platen, said rod being connected to shift with the platen, and a carriage alarm mechanism mounted upon the framework of the machine and operable by a part upon said paper-guide at either shift position of the platen.

20. In a type-writing machine, the combination with a platen and a carriage, of a platen-frame shiftable up and down upon said carriage, type-bars mounted to strike against the front of the platen, a front paper-guide for the platen, a rod upon said platen-frame, said paper-guide being adjustable upon said rod along said platen, and said rod being mounted in front of the platen, above the paths of the type-bars and below the line of vision, and a carriage alarm mechanism mounted upon the framework of the machine and operable by a part upon said paper-guide at either shift position of the platen-frame.

21. In a type-writing machine, the combination with a platen and a carriage, of a platen-frame shiftable up and down upon said carriage, type-bars mounted to strike against the front of the platen, a rod mounted upon said platen-frame in front of the platen, above the paths of the type-bars and below the line of vision, a front paper-guide adjustable upon said rod along the platen, and a carriage alarm and line-locking mechanism inclusive of a lever having a part in position to be engaged by a part of said paper-guide at either shift position of said platen-frame.

22. In a type-writing machine, the combination with a platen and a carriage, of a platen-frame shiftable up and down upon said carriage, type-bars mounted to strike against the front of the platen, a rack mounted upon said platen-frame in front of the platen, above the paths of the type-bars and below the line of vision, a front paper-guide adjustable along said rack longitudinally of the platen and having a tooth to engage said rack, and a line-locking mechanism having a part in position to be engaged by a part of said paper-guide at either shift position of said platen-frame.

23. In a type-writing machine, the combination with a platen and a carriage, of a platen-frame shiftable up and down upon said carriage, type-bars mounted to strike against the front of the platen, a pair of paper-guides for the front of said platen, said guides being independently adjustable upon said platen-frame along said platen, and carriage-arresting means between said paper-guides and engageable by either thereof, for arresting the opposite movements of the carriage, at either shift position of said platen-frame.

24. In a type-writing machine, the combination with a platen and a carriage, of a platen-frame shiftable up and down upon said car-



riage, type-bars mounted to strike against the front of the platen, a rod mounted upon said platen-frame in front of the platen, above the paths of the type-bars and below the line of vision, a pair of front paper-guides independently adjustable along said rod, and means effective at either shift position of the platen-frame, for enabling one of said guides to ring an alarm and lock the line and the other of

said guides to limit the return movement of the carriage.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

JAMES D. DAUGHERTY.

Witnesses:

A. S. PATTISON,

L. M. GOTWALD.