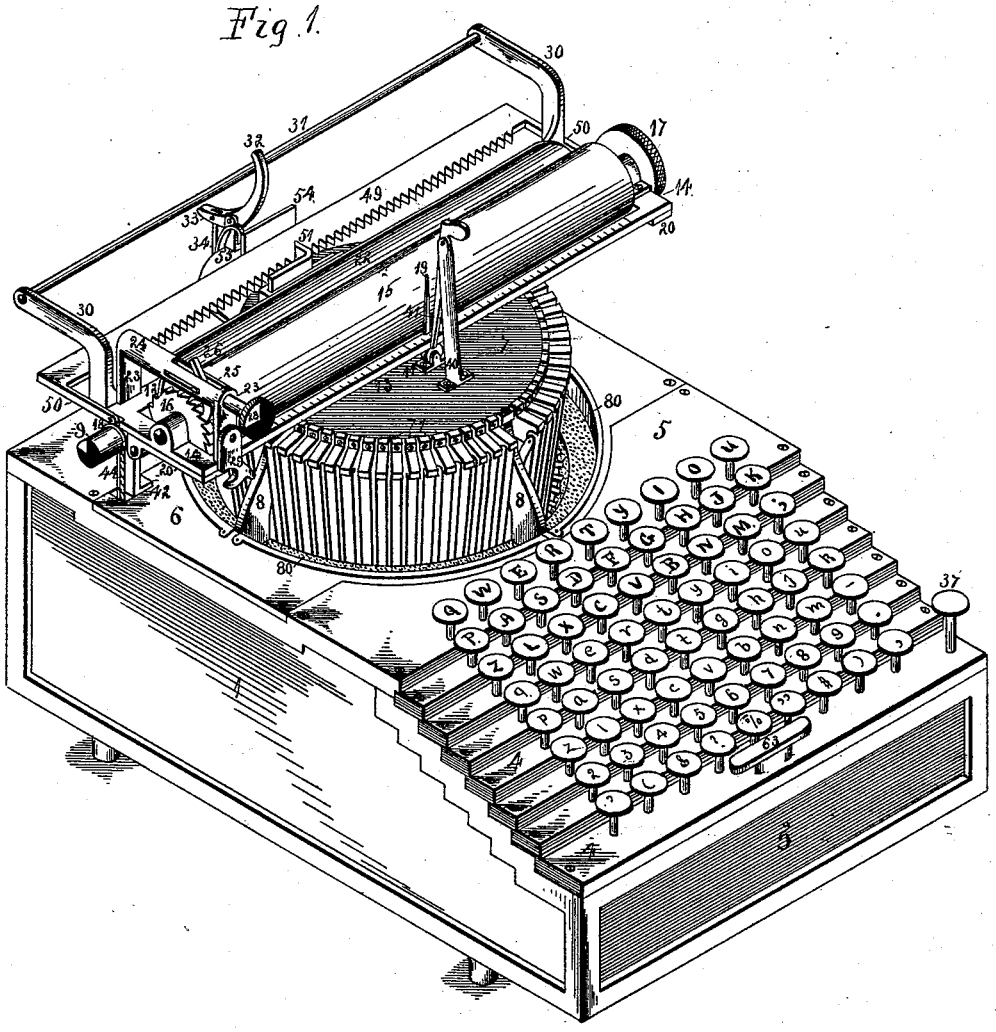
(No Model.) 5 Sheets—Sheet 1.

C. W. WALKER.

TYPE WRITING MACHINE.

No. 524,364. Patented Aug. 14, 1894.

Fig. 1.



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(No Model.) 5 Sheets—Sheet 2.

C. W. WALKER.

TYPE WRITING MACHINE.

No. 524,364. Patented Aug. 14, 1894.

Fig. 4.

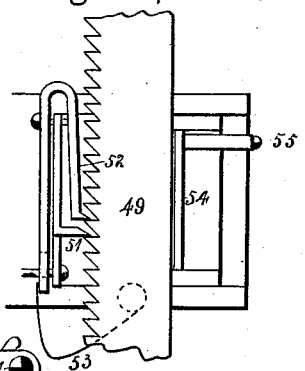


Fig. 2.

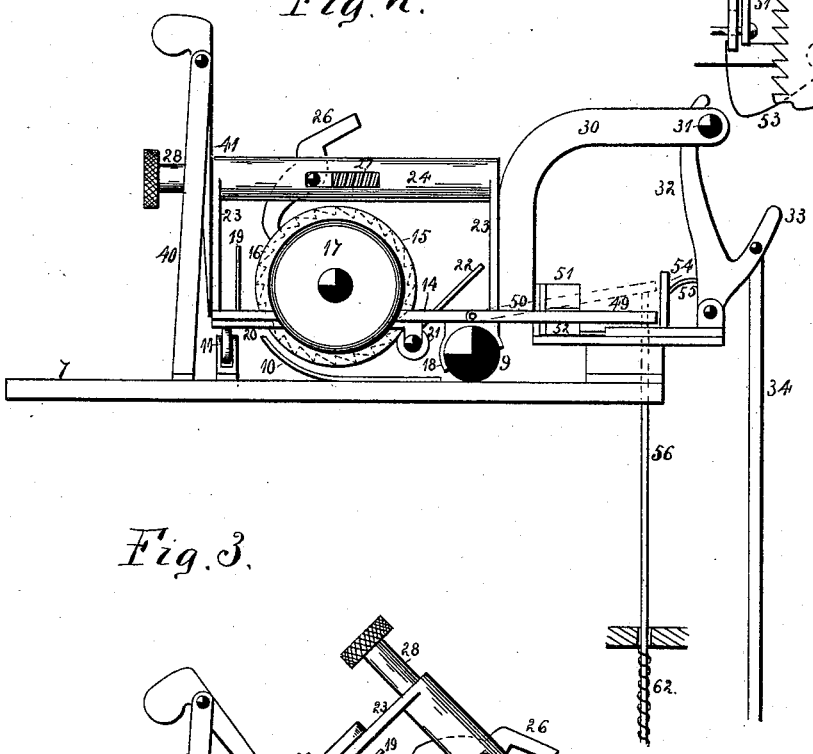
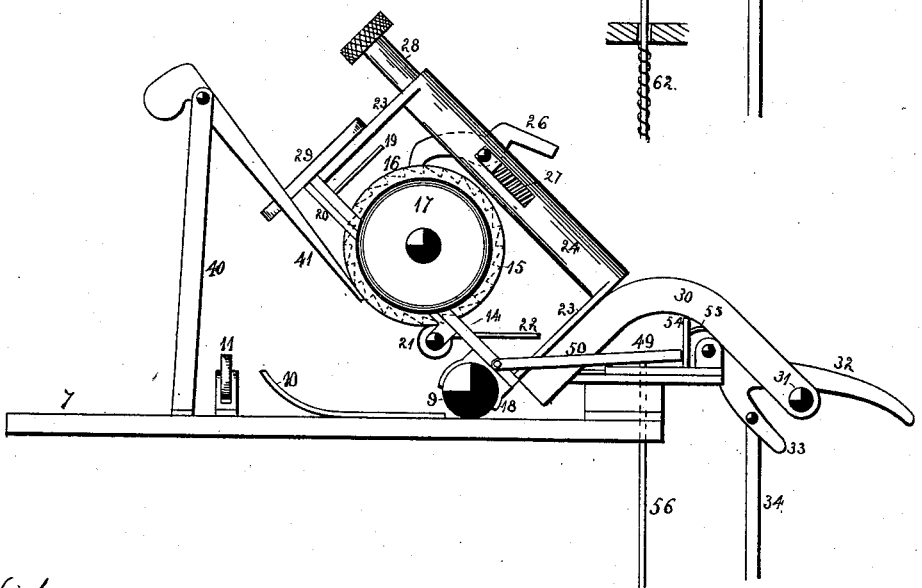


Fig. 3.



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C. W. WALKER.

TYPE WRITING MACHINE.

No. 524,364. Patented Aug. 14, 1894.

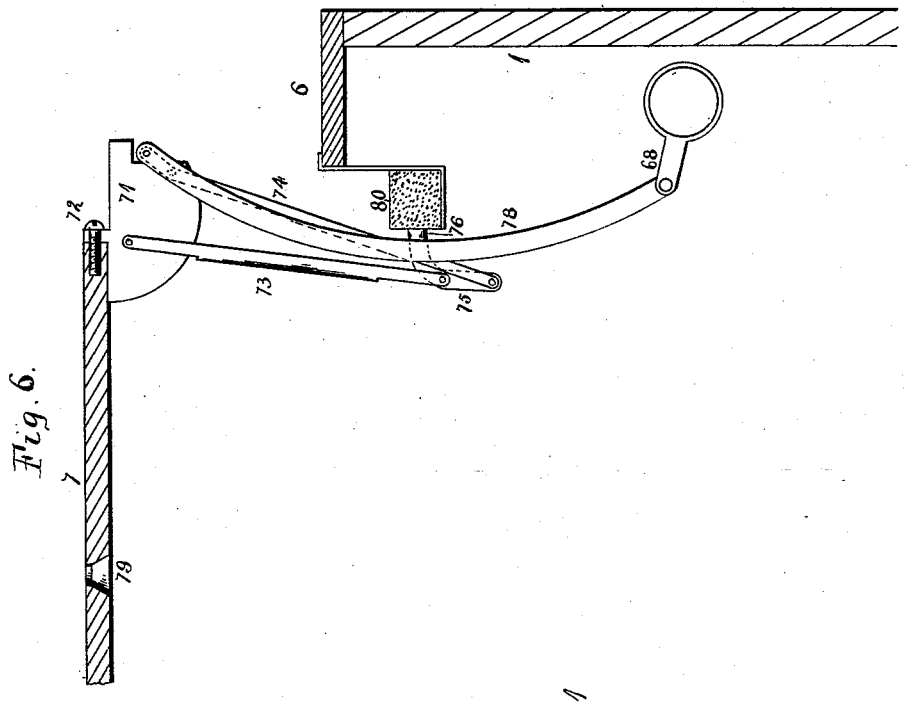

Fig. 6.

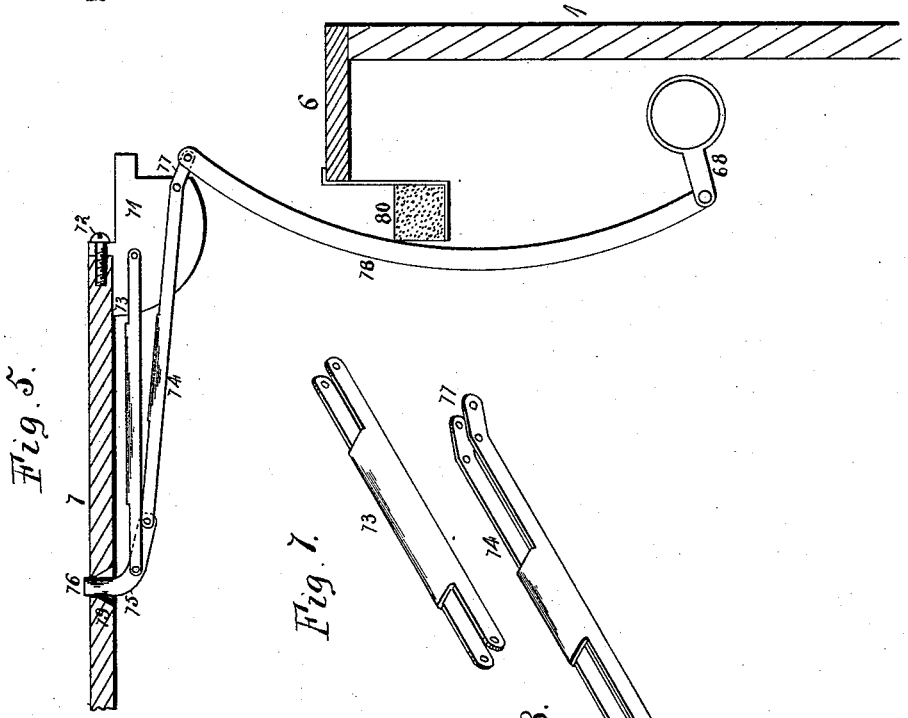

Fig. 5.

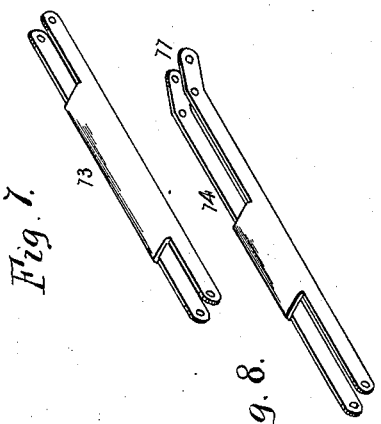

Fig. 7.

Fig. 8.

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(No Model.) 5 Sheets—Sheet 4.

C. W. WALKER.

TYPE WRITING MACHINE.

No. 524,364. Patented Aug. 14, 1894.

Fig. 9.

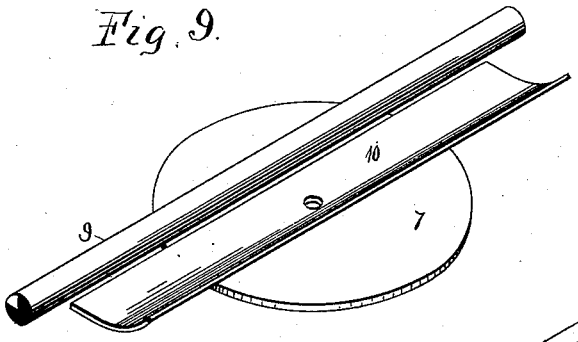


Fig. 10.

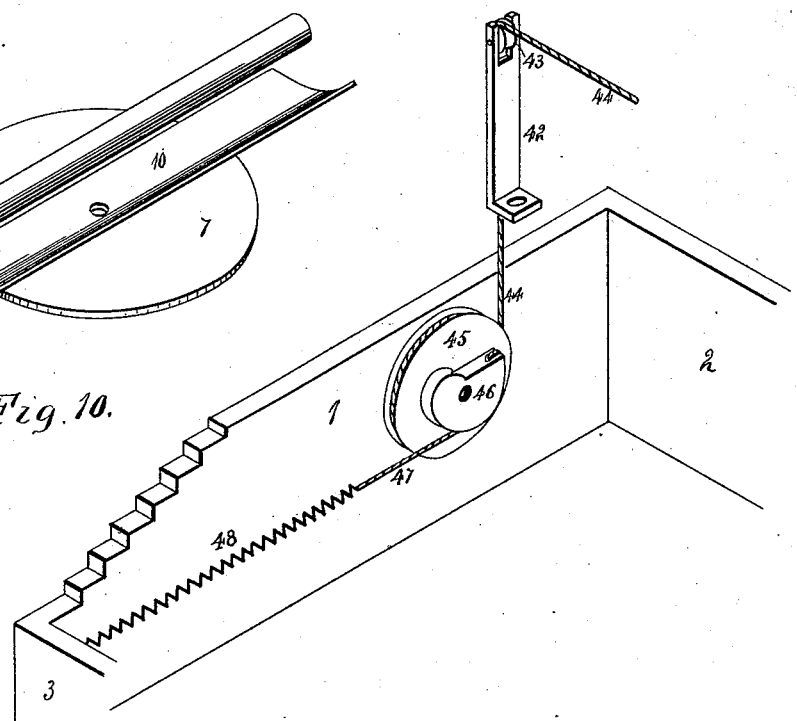
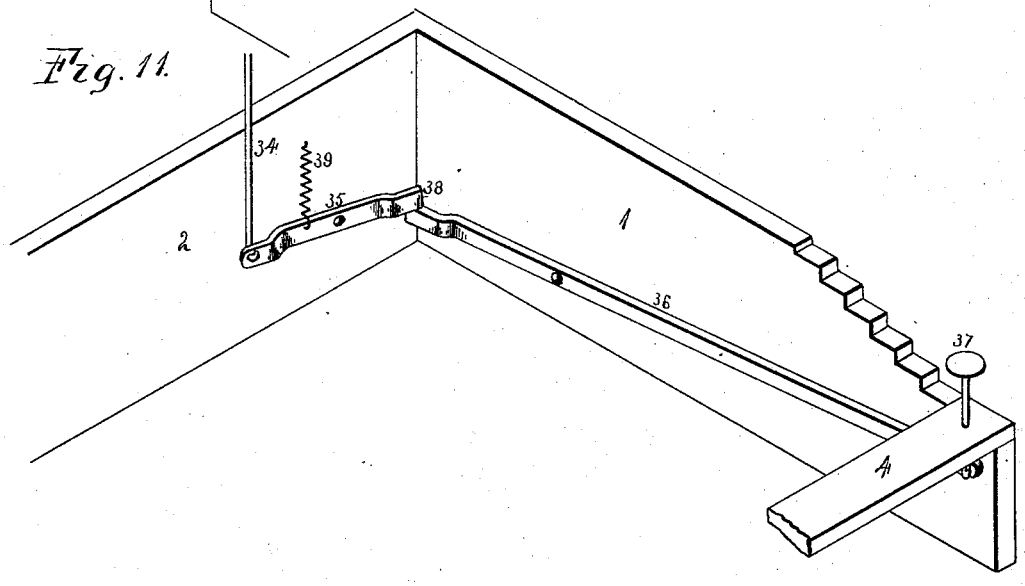


Fig. 11.



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(No Model.) 5 Sheets—Sheet 5.

C. W. WALKER.

TYPE WRITING MACHINE.

No. 524,364. Patented Aug. 14, 1894.

Fig. 12.

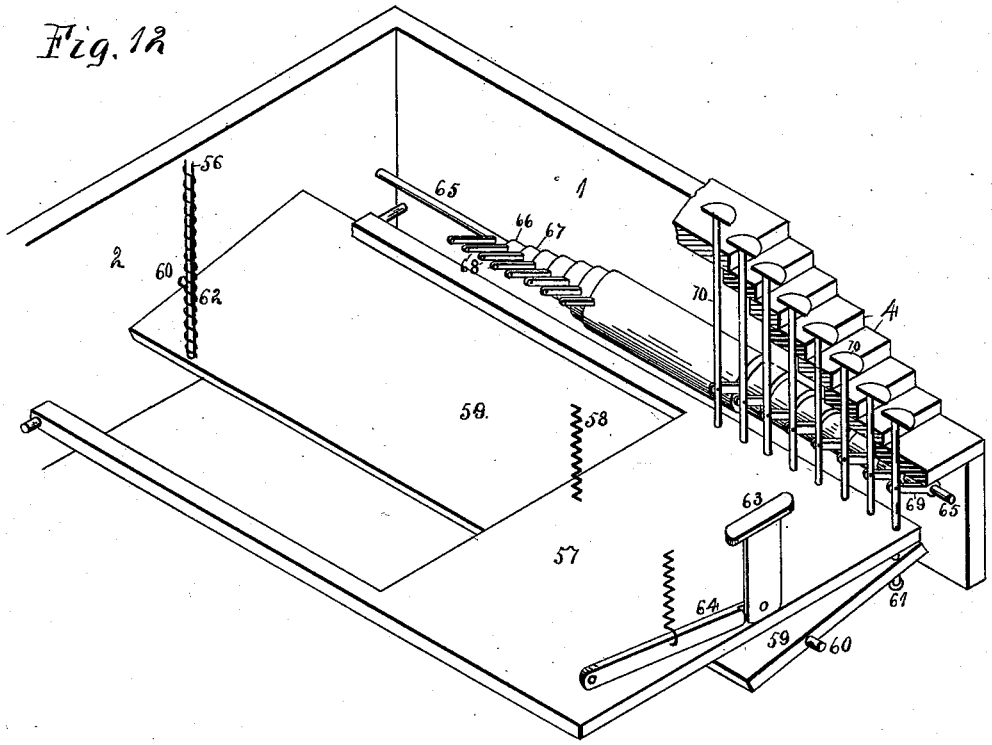
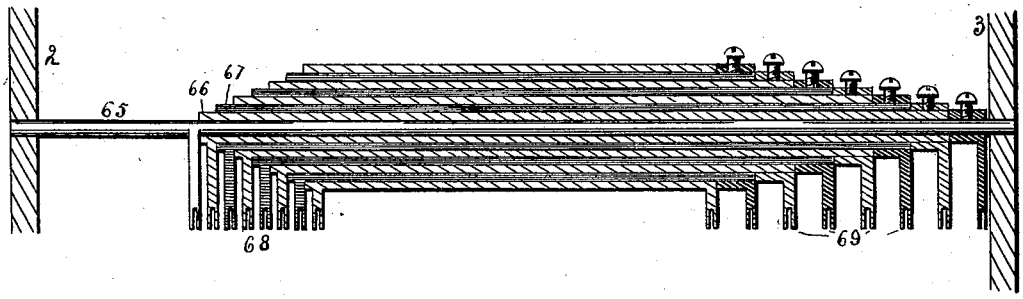


Fig. 13.



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Inventor:
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By A. O. Bechel
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UNITED STATES PATENT OFFICE.

CHARLES W. WALKER, OF STRANG, NEBRASKA.

TYPE-WRITING MACHINE.

SPECIFICATION forming part of Letters Patent No. 524,364, dated August 14, 1894.

Application filed April 18, 1893. Serial No. 470,863. (No model.)

To all whom it may concern:

Be it known that I, CHARLES W. WALKER, a citizen of the United States, residing at Strang, in the county of Fillmore and State of Nebraska, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a specification.

This invention relates to that class of typewriting machines in which a pad is employed and consists in the details of construction shown in the accompanying drawings, in which—

Figure 1, is an isometrical view of my improved typewriter. Fig. 2, is an end elevation of the upper portion thereof in its normal position. Fig. 3, is a similar view in which the platen is tilted to expose the printing. Fig. 4, is a plan view of the escapement. Figs. 5, and 6 are elevations of the type bar. Figs. 7 and 8 are isometrical representations of the parts composing the type bar. Fig. 9, is an isometrical view of the upper portion of the typewriter showing the support for the carriage, and a paper guide secured thereto. Fig. 10, is an isometrical view of the inner face of one of the sides showing the spring arrangement for moving the carriage during the process of printing. Fig. 11, is an isometrical view of the mechanism for tilting the platen to expose the writing. Fig. 12, is an isometrical representation of the manner of constructing the key levers, showing their connection with the keys, also showing the spacing device. Fig. 13, is a horizontal lengthwise section, through the key levers, upon an enlarged scale.

The main frame of my improved typewriter consists of sides, 1, rear end 2, and front end 3, properly secured together. The front upper faces of the sides are provided with steps ascending from the front, and key guides 4, are located upon these steps and secured thereto.

The top 5, of the machine is provided with a central opening within which is seated the metallic support 6, for the type bars, carriage and necessary connections.

Centrally over the opening in the metallic support 6, and some distance above its upper face is secured a disk 7, by legs 8. To the upper face of this disk and transverse of the main frame of the machine is secured a cylindrical rod 9, and forward of this rod is secured a paper shield 10, having its front edge curved upward, and in front of the shield is secured a roller 11.

The paper carriage consists of the lengthwise bars 12, and 13, and end bars 14, provided with suitable bearings for the platen 15. The end of the platen at the left hand of the machine is provided with a ratchet wheel 16, and to its opposite end is secured a knob 17, by which it may be rotated. From the under side of the rear lengthwise bar 12, is secured a section of a tube 18, having its lower portion cut away, the cut away portion being less than half of the tube. This tube is slipped over the rod 9, thereby forming a connection between the paper carriage and rod 9, consequently with the main frame of the machine. The front lengthwise bar 13, rests upon the roller 11, secured to the upper face of the circular support 7. The upper face of the front lengthwise bar is marked with divisions, forming a scale and from the center of its length rises a stationary pointer 19. To the underside of the end bars 14 are secured bearings 20, which form supports for a paper feed roller 21, located in rear of the platen and in contact therewith, and a paper guide 22, has a connection with this paper roller, in order that the paper may properly enter between the face of the paper feed roller and the platen.

From the upper face and left hand of the paper carriage, rise arms 23, connected by a tube 24. This tube is provided with vertical lengthwise slots 25. A dog 26, is located in the vertical slots and a spring 27, is located in the tube pressing against the dog. A plunger 28, is located in the tube surrounding the plunger by means of which the dog may be moved in the lengthwise direction of the tube. The lower end of the dog engages the toothed ratchet wheel 16. By pushing in the plunger the dog will engage the toothed ratchet moving the platen a double space, that is, the distance of two teeth, and when a single space is required, a pivoted latch 29, is turned up, and around the shank of the plunger, limiting the extent of the movement of the plunger, consequently the extent of the movement of the platen. From the rear lengthwise bar 12, of the paper carriage rise right angle arms

30, extending upward and rearward and connected by a transverse rod 31.

To a suitable support is connected a lever, consisting of arms 32 and 33. The longer arm engaging the transverse rod on the front side thereof. To the shorter arm is connected a vertical rod 34, having its lower end connected to a bar 35, pivoted to the rear end of the main frame. A lever 36 has a pivotal connection with one side of the main frame and to its front end is pivoted a key 37, its short end resting under the end 38, of the bar 35. A spring 39, is connected to this bar 35 and to the main frame. By this arrangement we have a connection between the key 37 and the paper carriage. By pressing upon the key 37, the bar 35, will be moved upon its pivot, drawing down upon the rod 34, against the action of the spring 39. This drawing down movement will carry the lever from the position shown at Fig. 2, to that shown at Fig. 3, causing the paper carriage to tilt upon its connection with the rod 9, exposing to view the printed matter as shown at Fig. 3, and upon releasing the pressure upon the key 37, the carriage will return to its normal position. This key is located near the key board and consequently within easy reach of the operator.

To the circular support 7, in front of the paper carriage I have secured a pointer, consisting of its support 40, and the pointer proper 41. This pointer lies in contact with the front edge of the front lengthwise bar of the paper carriage and when the paper carriage is tilted to the position shown at Fig. 3, this pointer will, by reason of its upper end being weighted, move in contact with the paper as shown in said figure, pointing out the exact location of the point at which the type print, and by its use the location of any letter may be easily ascertained, and upon lowering the paper carriage it will assume its normal position as shown at Fig. 1.

By employing the fixed paper guide 10, the paper will readily feed into the proper position to be printed upon and the stationary pointer 19, will prevent the paper from falling forward.

From the upper face of the metallic support 6, rises an arm 42, supporting a roller 43, at its upper end, over which passes a cord 44, connected at one end to the paper carriage and at its other end to a wheel 45, secured to the inner face of one of the sides of the main frame as shown at Fig. 10. To the face of this wheel is secured a cam shaped wheel 46, to the greatest diameter of which is secured a cord 47, and to this cord is secured a spring 48, having its opposite end secured to the main frame. By means of this arrangement I exert a uniform pulling strain upon the carriage, that is, as the spring loses its force the leverage or its purchase over the wheel 45, is increased.

To the rear of the lengthwise bar of the paper carriage is pivoted a toothed rack 49, by the arms 50, and at Figs. 2, 3 and 4, I have shown the escapement mechanism, which consists of a stationary dog 51, and a movable dog 52, said dogs having a sliding engagement, and when the toothed rack is in its normal position its teeth will lie in engagement with the movable dog, preventing the movement of the paper carriage and during the printing process this toothed rack bar is raised and lowered to be in engagement with either of the dogs, and when it is in engagement with the stationary dog, the movable dog is drawn in the lengthwise direction of the toothed rack by the spring 53, keeping it in line with the stationary dog so that when the ratchet bar descends its teeth will come in contact with the movable dog, and the spring force exerted upon the paper carriage being greater than the spring force exerted upon the movable dog, the paper carriage will be moved the extent of the movement of the movable dog, this operation is repeated at each impression of the type or operation of the space bar.

It will be noticed at Figs. 2 and 3, that when the paper carriage is tilted upon its pivotal connection with its support, the ratchet bar will be moved rearward and in order to prevent the disengagement of the toothed rack with the dogs the rear edge of the ratchet bar will come in contact with the uprising bar 54, which has a connection with the dogs, and as the toothed rack moves rearward it will carry the dogs with it and upon the return of the carriage to its normal position, a spring 55, secured to the stationary portion of the machine and exerting its force against the uprising bar 54, will force the dogs forward, always holding the dogs in engagement with the toothed rack during the horizontal movement of the ratchet bar.

The escapement is effected by a rod 56, moving upward against the under face of the toothed rack causing the toothed rack to move from its engagement with the movable dog, to the stationary dog as shown at Fig. 2. The mechanism for imparting this vertical movement to the rack will now be explained.

At Fig. 12, I have shown the construction of a universal bar, which consists of a platform 57, pivoted to the rear end of the sides of the main frame and extending forward covering the space occupied by the keys. A spring 58, has a connection with the upper face of this universal bar and to the under face of the upper portion of the main frame so that an upward influence is exerted upon the bar. Underneath this universal bar is pivoted an inclined rocking bar 59, by pivots 60, having an engagement with the ends of the main frame. A screw 61, having an engagement with the tilting bar rests against the under face of the universal bar, by means of which the proper adjustment may be given to the toothed rack in order to allow the proper escapement. The rod 56, which operates upon the ratchet bar, has a connection

with this tilting bar and a spring 62, surrounds this rod, its upper end resting against the under face of the top of the machine and its lower end against a tilting bar hold the parts in the position shown at Fig. 12. The space key 63, shown at Figs. 1, and 12, passes through an opening in the upper face of the machine and its lower end having a pivotal connection with a bar 64, the other end of which has a pivotal connection with the front end of the main frame.

It will be seen that by depressing the space bar, the universal bar will be correspondingly depressed which will rock the tilting bar upon its pivot, causing the rod 56, to move in an upward vertical direction, causing the toothed rack to move from its engagement with the movable dog to the stationary dog and upon the release of the space key the parts will assume the position shown at Fig. 12, allowing the toothed rack to assume its normal position shown at Fig. 2.

At Figs. 12 and 13 I have shown my improved construction of key lever, which consists in locating a series of levers upon the same axial center, that is the first lever 65, may be a tube or solid lever and upon this first lever is located a tube 66, forming the second, and upon the second tube is located a third tube 67, and so on until the required number has been attained. In this instance I have located eight as shown at Fig. 13. From one end of each of these levers is permanently secured an arm 68, and upon the other end is set screwed a collar, from which projects an arm 69. The arms 69, have a pivotal connection with the keys 70, as shown at Fig. 12, and the solid arms have a connection with the type bars as shown at Figs. 5 and 6. By this arrangement I am able to locate a series of key levers within a very small compass and each one having an oscillatory movement, giving the least possible friction. The stems of the keys rest in contact with the upper face of the universal bar 57, so that when any one key is depressed the universal bar will be correspondingly depressed which will operate the escape mechanism as before described in relation to the space bar.

To the periphery of the circular support 7, is secured a series of radial type bar supporting blocks 71, by means of a screw 72, so that any one block may be removed without disturbing the others. My type bar consists of two bars 73, and 74, of sheet metal connected together at their upper faces for a portion of their length and having one end pivoted to the blocks 71, so the block will lie between the arms, and to the free ends of these bars is pivoted a type carrying arm 75, having the type located upon its free end 76. The lower type bar 74, is provided with an extension 77, to which is pivoted a link 78, connecting it with the arm 68, extending from the key levers. The circular support 7, is provided with a central, conical opening 79, through which the type pass and come in contact with the under face of the platen.

At Fig. 6, I have shown the type bar in its normal position and its type resting against the ink pad 80. This pad being supported from the metallic support 6, as shown at Fig. 1 and in this instance is in four sections, each section made removable for re-inking. By depressing the keys the type bar will be moved from its position shown at Fig. 6, to that shown at Fig. 5, leaving its imprint upon the paper and upon releasing the keys it will drop to its normal position. It will be seen by this construction of type bar, the arms being slotted and pivoted to their support, that the support forms a guide for the type bar in its movement and prevents lateral movement of the bar and will consequently present the type at the required position at each depression of the key.

When it is desired to set the carriage the operator will lift upon the toothed rack, releasing it in its engagement with the dogs, when the carriage may be moved in either direction transversely of the machine.

I claim as my invention—

1. In a type writing machine, a paper carriage having a vertical oscillatory movement, arms extending upward and rearward from the center, upon which the carriage is pivoted, and at the end thereof a rod connecting the arms, a pivoted hook engaging the rod and a key lever for operating the hook for imparting the vertical oscillatory movement to the carriage.

2. In a type writing machine, the combination of a paper carriage, a toothed rack having a pivotal connection therewith and capable of a horizontal bodily movement, a pivoted dog and a stationary dog and a movable base supporting said dogs to move in unison with the horizontal movement of the toothed rack.

3. In a typewriting machine, the combination of a paper carriage, a toothed rack, an escapement device, a universal bar capable of a vertical oscillatory movement, a tilting bar located beneath the universal bar and operated thereby, a connection between the tilting bar and toothed rack, and keys for operating the universal bar.

4. In a type writing machine, a type bar consisting of two bars having a pivotal connection with a stationary support and a pivotal connection with the type carrying arm, one end of each of the bars lying on each side of the stationary support, forming a guide for the bar.

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