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W. F. HELMOND
TYPEWRITING MACHINE
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Fig. 1.

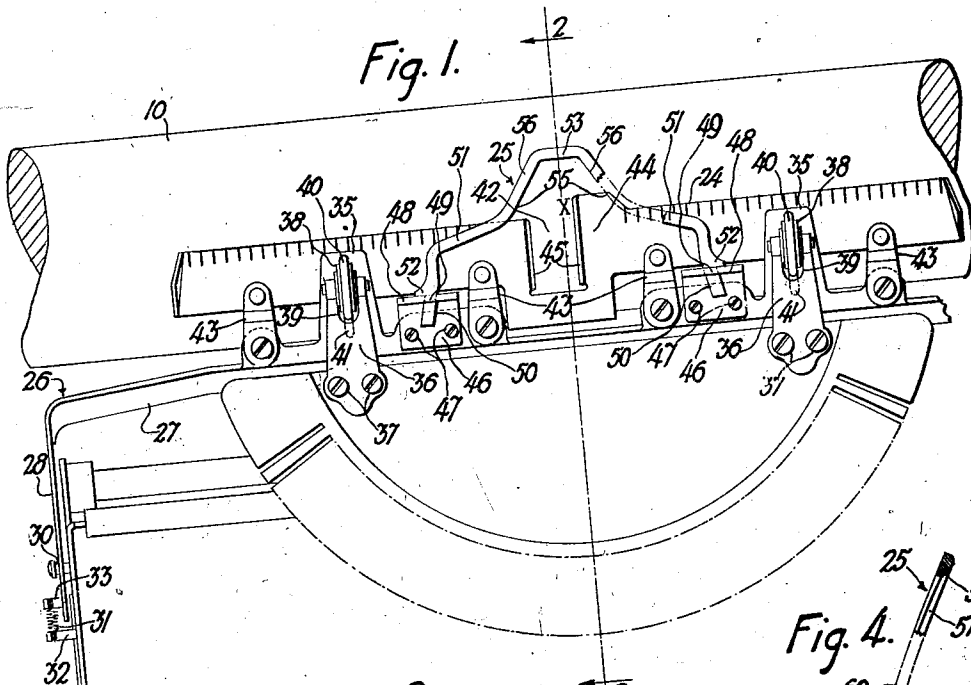


Fig. 2.

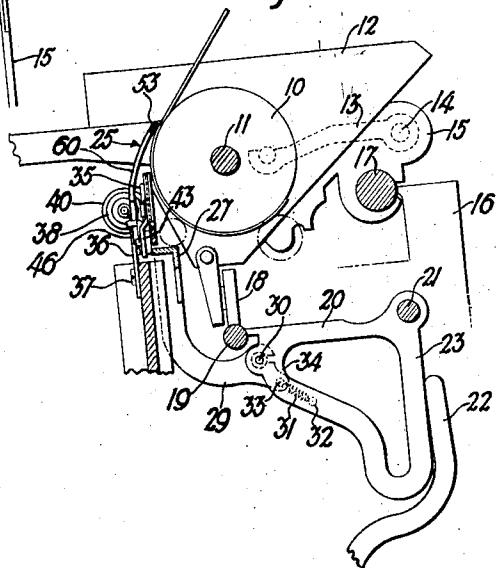
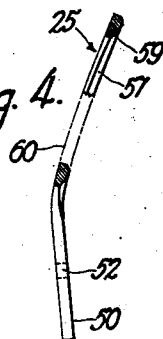


Fig. 4.



UNITED STATES PATENT OFFICE.

WILLIAM F. HELMOND, OF HARTFORD, CONNECTICUT, ASSIGNOR TO UNDERWOOD TYPEWRITER COMPANY, OF NEW YORK, N. Y., A CORPORATION OF DELAWARE.

TYPEWRITING MACHINE.

Application filed November 8, 1923. Serial No. 673,454.

To all whom it may concern:

Be it known that I, WILLIAM F. HELMOND, a citizen of the United States, residing in Hartford, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Typewriting Machines, of which the following is a specification.

The invention relates to devices, at or adjacent the printing point, in typewriting machines, for flexing relatively stiff workpieces, such as cards, to the curvature of the platen beyond or above the printing line, and for holding the card smoothly to the platen during typing thereon.

An object of the invention is a device, for the purpose mentioned, which shall be of extreme simplicity and cheapness, readily attachable to the machine when wanted, and readily removable therefrom when not needed, and which in bending the card to the platen, or in holding the same to the platen during line-spacing of the platen, or letter-spacing of the carriage, cannot foul the card or impede its movement.

An object of the invention is a device, of the character mentioned, usable in connection with a platen shiftable between case-positions; and which automatically adjusts itself to any case-setting of the platen so that its action on the card is at all times the same.

A feature of the invention is that the device may consist simply of a bowed piece of spring metal, which is placeable by a simple thrust to home-position on the framework; which automatically locks itself in home-position; and which is nevertheless unlocked and removed by a simple pull on the same.

Other features and advantages will hereinafter appear.

In the accompanying drawings,

Figure 1 is a view in front elevation of the platen, and associated parts embodying the present invention, of a type-writing machine.

Figure 2 is a view in side elevation, partly cross-sectional, taken on the line 2—2 of Figure 1.

Figure 3 is a detail view in front elevation of the card-holder; its free or distend-

ed "set" being shown in full lines, and its "set," when contracted, and in place in the machine, being shown in dotted lines.

Figure 4 is a view in cross-section on the line 4—4 of Figure 3.

Figure 5 is a view in cross-section on the line 5—5 of Figure 3.

The platen 10, by means of an axle 11, is journaled for rotary movement in side plates 12 of a platen-frame. Type-bars (not shown) strike on the front of the platen. Each type-bar ordinarily has two types thereon, which print in lower and upper case positions, respectively. To enable the change in writing from normal lower-case characters to upper-case characters, the platen-frame 12 is supported for vertical movement by means of arms 13 on a shaft 14 journaled in side pieces 15 of the carriage. A coil spring (not shown) in the shaft 14 tends to rotate the shaft to assist in lifting the platen-frame to upper-case position on the carriage. The carriage, with the platen-frame thereon, is movable in letter feed and return directions on the main frame 16 of the machine; and to this end is supported at its rear on rail 17 on the main frame and at its front on another rail (not shown) on the main frame. The platen-frame, by means of a roller 18 thereon, is supported for movement in letter feed and return directions, with the carriage, on a rail 19, carried by a shift-frame 20 rockable on a shaft 21 on the main frame.

To rock the shift-frame 20, and thus raise the platen for upper-case writing, there is provided a key on a key-lever (not shown), but which, when the key is depressed, causes an arm 22 to be swung forward. The arm 22 bears against the rear edge of one of the side pieces 23 of the rockable shift-frame; thereby causing the latter to be rocked clockwise, Figure 2, to raise the platen.

For the purpose of positioning a work-member, such as a stiff card, on the platen, there is provided a gage 24 and a card holder and guide 25. In order that these two elements may co-operate properly with the platen in both lower and upper case positions of the latter, they are supported on a floating frame 26. The frame 26 is,

in turn, supported on the case-shift frame 20; and comprises a cross-piece 27 on which the gage 24 and card-holder 25 are mounted. The frame 26 has side arms 28 which extend
 5 downwardly from the cross-piece 27 and arch rearwardly, as at 29, see Figure 2, toward the shift-frame side pieces, to which they are pivoted by means of studs 30 on the shift-frame. The floating frame has
 10 open bearings on the studs 30, so that the floating frame as a whole may be readily slipped onto and off the shift-frame, and so as to allow for a certain amount of lost motion in the movement of the parts.

15 In order to hold the floating frame 26 into its pivot-pins or studs 30 on the shift-frame, there is provided on each side of the latter a spring 31 connected at one end to a pin 32 on the shift-frame and at its other
 20 end to a pin 33 on the floating frame. It will be noted that the pins 33 are located on projections 34 of the floating frame which extend somewhat to the rear of and below the pivots 30.

25 For properly guiding the floating frame in its movements with the case-shift frame, there are provided on the cross-piece 27 of the floating frame a pair of upward projecting tongues 35. Journaled on spring
 30 brackets 36 secured by screws 37 to the type-segment plate are a pair of rollers 38, which project through slots 39 in the brackets 36 and bear against the front faces of the tongues 35 of the floating frame. Each
 35 roller 38 is provided with a peripheral flange 40, which protrudes into a slot 41 in the corresponding tongue 35, and thereby guides the floating frame in its vertical movement relative to the rollers and prevents lateral displacement of the floating
 40 frame. The bearing of the rollers 38 on the tongues 35 prevents forward displacement of the floating frame, and the spring tension of the brackets 36 tends to force the floating frame and parts carried thereby
 45 toward the platen in all positions of the latter, to cause the upper edge of the guide 25 to hold the card to the platen. The springs 31, which connect the floating frame
 50 to the shift-frame, are so positioned as to cause the tongues 35 to be pressed forward against the rollers 38. The rollers 38, therefore, absolutely determine the setting of the tongues 35.

55 The gage 24 is slotted at 42 to permit the types to strike through to the platen. A wing 44 is provided on the gage at the right of the slot 42; and the vertical edges of the gage at the slot 42 are rolled or bent
 60 forward at 45 to prevent fouling of the card on the gage. The gage as a whole is secured to the cross-piece 27 of the floating frame by means of brackets 43.

65 For securing the card guide or holder 25 to the floating frame, a pair of brackets 46

are secured by screws 47 to the front face of the cross-piece 27, one at each side of the printing point. Each of these brackets is provided with a forwardly-projecting flange or offset 48 having a downward and out-
 70 ward inclined opening 49 therethrough, to receive retaining toes 50 on the lower ends of the arms or branches 51 of the card holder or guide.

As shown in Figure 3, the card-holder is a
 75 bow of spring material, the branches 51 whereof may be pressed together sufficiently to permit the toes 50 to register with the openings 49 in the brackets 46; so that the holder may be set into, and secured to, the
 80 brackets, by passing the toes 50 through the openings 49 in the brackets. The home position of the holder on the brackets 46 is determined by the engagement of the horizontal under faces of the lugs 52 on the
 85 holder with the upper faces of the offsets 48 on the brackets. It will be noted that the toes 50 are inclined downward and laterally outward, so that, when the holder is in home position on the floating frame,
 90 it cannot be removed from the latter without being contracted. As the holder is relatively stiff, the same is not readily contracted, and accidental displacement thereof from the floating frame is therefor prevented.
 95 The toes 50 of the holder fit into the slots 49 in such manner as to prevent angular displacement thereof.

The normal or effective position of the holder is that shown in Figure 2. In this
 100 position, it will be noted that the upper end or edge 53 of the holder is set closely to the platen and holds the card to the latter. The holder as a whole has sufficient spring
 105 to permit passage of the card between the upper edge 53 thereof and the platen. As the card is fed from behind the platen down around and upward over the latter, and before its leading edge passes between the upper
 110 edge 53 of the holder and the platen, it will strike the holder at a point below such leading edge 53 of the holder.

As shown in Figure 1, the branches 51 of the holder, after extending toward each
 115 other a certain distance, are turned up at 55 in the form of an inverted U, of which the upper edge 53 of the holder forms the cross-reach. It is against the branches 56 of this U-shaped portion of the holder that the
 120 leading edge of the card will ordinarily first strike; and, to prevent catching or fouling of the card on the holder, during insertion of the card, during line-spacing of the card with the platen, and during movement of
 125 the card with the carriage, the rear face of the holder, on the interior and exterior edges of the branches 56 of the U-shaped portion thereof, is cut back or rounded as shown at
 130 57 and 58 in Figure 5. As shown at 60 in Figure 2, the entire U-shaped portion of the

holder and the branches 51 thereof below the U-shaped portion are curved rearward so as to provide a smooth continuous surface for turning the leading edge of the card rearward toward and onto the platen after the leading edge of the card first strikes the holder below the top edge 53 of the latter, and the lower, rear edge of the cross-reach 53 of the holder is cut away or rounded at 59 to prevent fouling of the card thereon.

As shown in Figure 1, the wing portion 41 of the gage projects up behind the right-hand branch of the holder, so that the gage with the holder may form a practically continuous surface with which the leading edge of the card may engage in its movement around the platen. The right-hand branch of the holder is also effective to press the gage 24 toward the platen and thereby assists in holding the card to the platen.

It will be noted that due to the tendency of the holder to expand, it is automatically locked by lateral outward movement of the toes 50 under the flanges 48 of the brackets 46, as the holder reaches home-position on the brackets. Upon reference to Figure 2, it will be seen that the rear faces of the toes 50, when the holder is in place, lie against the vertical faces of the brackets 46, to prevent forward angular displacement of the holder.

Variations may be resorted to within the scope of the invention, and portions of the improvements may be used without others.

Having thus described my invention, I claim:

1. In a typewriting machine, a platen, and a device for flexing and holding a card to the platen, consisting of a spring bow and anchoring means therefor, the free ends of the bow being held in engagement with the anchoring means by reason of the distending force of the bow, the latter having only the distal portion of the cross-reach thereof as the means for holding the card to the platen.

2. In a typewriting machine, a platen, and a device for flexing and holding a card to the platen, consisting of a spring bow, and anchoring means therefor, the free ends of the bow being held in engagement with the anchoring means by reason of the distending action of the bow, the latter having only the distal portion of the cross-reach thereof as the means for holding the card to the platen; the bow being bent backward between its anchorage and its card-holding portion to present to the leading edge of the card, as the latter is inserted, a curved surface for bending the card and guiding the leading edge thereof between the card-holding portion of the device and the platen.

3. In a typewriting machine, a platen, a device for flexing and holding a card to the platen, consisting of a bowed strip of spring material substantially rectangular in

cross-section, and correspondingly shaped sockets located forward of the front face of the platen for receiving the free ends of the bow when the same are pressed toward each other to tension the bow, the latter being curved backward to the distal part thereof to present to the leading edge of the card a surface inclined toward the platen for flexing the card to the platen, and such distal portion of the bow comprising the means whereby the card, when flexed to the platen, is held against the same; the opposed interior edges of the side reaches of the bow and the exterior or outer edges of such side reaches of the bow which extend above the sockets being tapered or rounded to prevent fouling of the card thereon.

4. In a typewriting machine, a platen, a frame for the platen, means for shifting such frame and the platen between case-positions, a floating frame on the case-shift frame, a device on the floating frame for flexing and holding a card to the platen; such device consisting of a bowed strip of spring material, anchoring means therefor, the free ends of the bow being held in engagement with said anchoring means by reason of the expanding force of the bow, the latter having one point thereof for holding the card to the platen in all case-positions of the latter, and means for actuating the floating frame so that such point of the device may be effective in all case-positions of the platen.

5. In a typewriting machine, a platen, a device in the form of a bowed strip for flexing and holding a card to the platen, and means for anchoring the strip in place; the strip being of spring material so that the ends of the bow may be pressed together and be set upon the anchoring means, and may be held to the latter by the distending force of the spring; the ends of the bow being offset laterally outward beyond the anchoring means, when the bow is in place, to lock the bow to the anchoring means.

6. In a typewriting machine, a platen, a device for flexing and holding a card to the platen, consisting of a bow of spring material, a supporting frame for the bow having apertures therein through which the ends of the bow may be passed, and shoulders on the bow to determine the home-position thereof on its supporting frame; the spring action of the bow being such as to cause it to distend when free, and the ends of the bow beyond the apertures in the frame diverging outwardly, whereby the bow, by such distension, automatically locks itself on the frame.

7. In a typewriting machine, the combination with a platen and a movable gage at the front of said platen, of a device for flexing and holding a work-piece to the curvature of the platen adjacent the printing

line, said device being effective to move said gage toward the platen whereby to aid in holding the work-piece thereagainst.

8. In a typewriting machine, the combination with a platen and a movable gage at the front of said platen, of a device for flexing and holding a work-piece to the curvature of the platen adjacent the printing line, said device being effective to move said

gage toward the platen whereby to aid in holding the work-piece thereagainst, and providing with said gage a substantially continuous guiding means with which the leading edge of said work-piece engages in its upward movement around the platen to its typing position.

WILLIAM F. HELMOND.