June 15, 1926.

1,588,894

A. G. F. KUROWSKI

TYPEWRITING MACHINE

Filed June 30, 1924

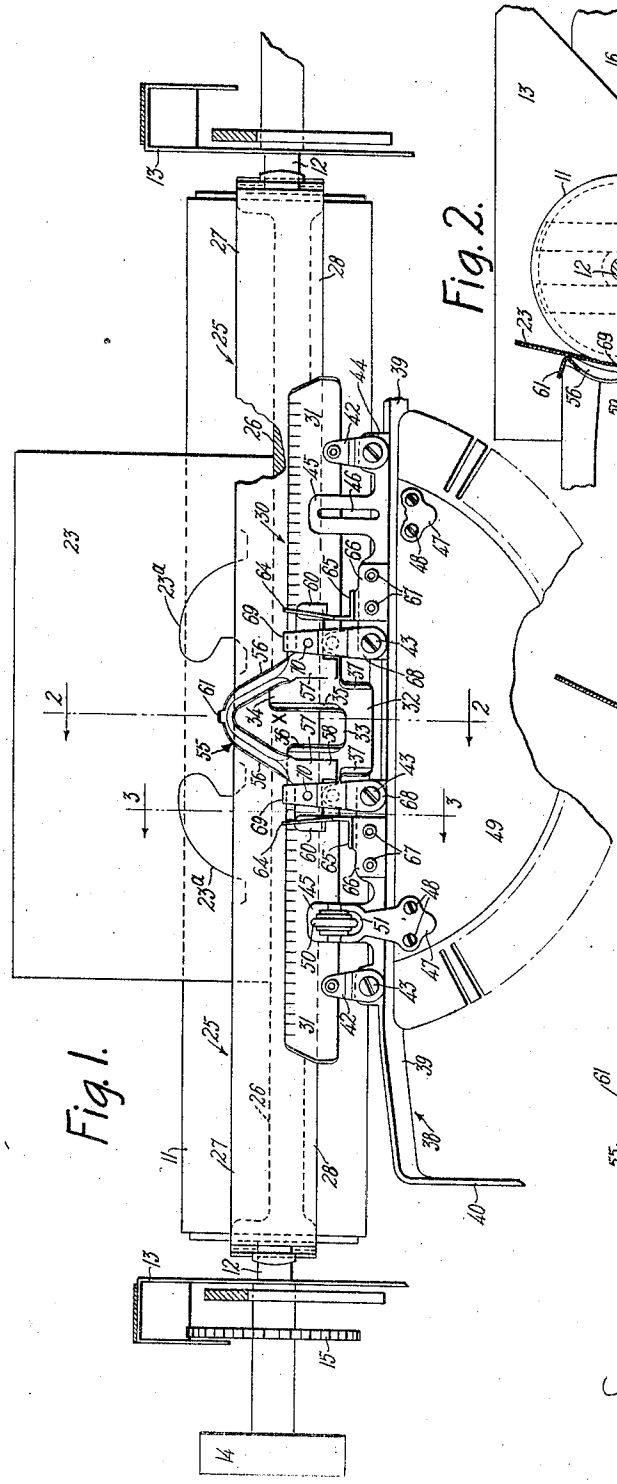

Fig. 1.

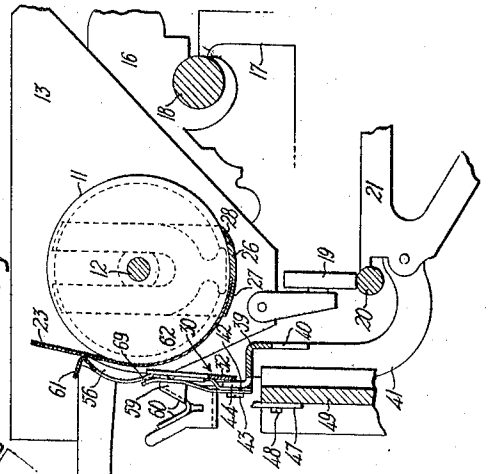

Fig. 2.

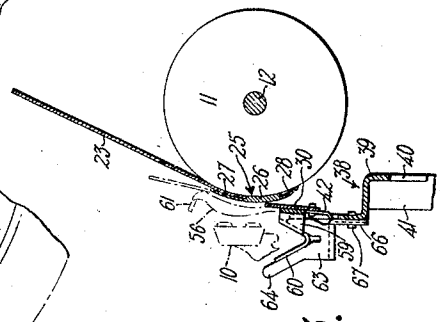

Fig. 3.

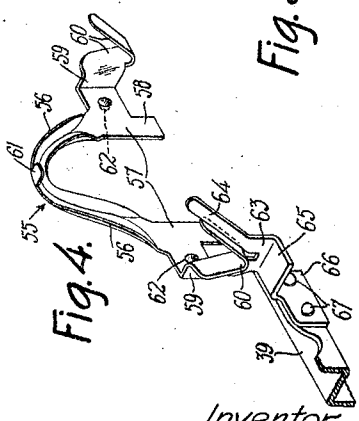

Fig. 4.

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Patented June 15, 1926. 1,588,894

# UNITED STATES PATENT OFFICE.

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## TYPEWRITING MACHINE.

Application filed June 30, 1924. Serial No. 723,200.

This invention relates to typewriting machines, and more particularly to devices detachably engageable therewith to facilitate holding cards and other relatively stiff work-sheets to the platen while being typed.

One of the features of the invention is in the provision of means for maintaining the lower marginal edge of a card in close contact with the platen, and effectually preventing the card from interfering with the wing-scale or guide when the platen is being rotated to feed the card downward, from the front, as is the usual practice.

Another feature is to provide a card-holder which may easily be applied in operative position, and become automatically locked therein, without recourse to use of tools and, conversely, as readily removed by a mere manual operation, the holder when attached being effective in maintaining a card against the platen, but permitting the card to move freely with the platen across the printing point of the machine.

A further feature of the invention is the provision of simple and inexpensive devices for flexing a card and for holding it smoothly on the platen without interference with its line or letter spacing movements, holding the card from fouling with parts of the machine, and preventing its distortion or displacement.

A still further feature is that the wing-scale or guide has the same flexibility as a standard scale, so that, upon removal of the card-holding device, the machine can be used in the ordinary manner on common work-sheets.

Other features and advantages will hereinafter appear.

In the accompanying drawings,

Figure 1 is a front elevational view of the upper portion of an Underwood typewriting machine, some of the parts being omitted and others broken or in section, and showing the application of an embodiment of the invention.

Figure 2 is a transverse sectional view taken through the center of the machine on the line 2—2 of Figure 1.

Figure 3 is a similar view taken on the line 3—3 of Figure 1.

Figure 4 is a perspective view of the card-guide shown as resting at one end within its support.

In the drawings, the numeral 10 indicates a fragment of a type-bar and head actuated in the usual manner from the keyboard of a typewriting machine to strike against a platen 11, mounted on a shaft 12 journaled in a platen-frame having ends 13, and being provided with a common twirling knob 14 for manually rotating the platen, and a line-space wheel 15 for its mechanical operation.

Each type-head ordinarily has two types, respectively upper and lower case characters, and to shift the platen from one position to another the platen-frame is arranged for vertical movement by means (not shown) carried on the end members 16 of a carriage movable lengthwise on the main frame 17 of the machine.

The carriage with the platen-frame thereon is supported at the rear on a rail 18 fixed on the frame 17, and at the front on another rail (not shown). The platen-frame is supported for movement in letter space and return directions, with the carriage, by a roller 19 resting on a rail 20 carried by a shift-frame 21, that is pivoted to the main frame and actuated by a shift-key on the keyboard (not shown) to raise the platen and its frame into upper-case position from which it returns by gravity upon release of the shift-key to normal lower-case position.

In typing upon relatively stiff work-sheets, as indicated by the card 23 in Figures 1, 2 and 3, it is a matter of considerable difficulty to properly position the card on the platen and to prevent its displacement during operation. This difficulty is further enhanced if the card is sheared or cut, as shown at $23^a$ in Figure 1, the edges of the cuts springing out and catching on parts of the scale and gage devices at the front of the machine in an annoying manner, tending to imperfect work and consuming the time of an operator.

In order to avoid such occurrences, an improved device is used for engaging the lower, leading edge of the card when entered from the front, holding the card in alignment, this device comprising a bar 25 extending the full length of the platen 11 and curved in cross-section to rest closely against its periphery, the bar being relatively thin and of considerable width, with its under surface raised by a thickened portion 26 producing two longitudinally-spaced

strips of unequal width; the wider front strip 27 receives below it the leading edge of the card to hold it tightly against the platen, and the narrow rear strip 28 extends inwardly, so that its edge makes contact with the platen, acting as a smooth shield in avoiding interference with the scale and other parts of the machine as the platen and bar are rotated.

The thickened portion 26 of the bar acts as an abutment for the edge of the card, which is thus held in alignment with the platen, when the card is introduced bottom edge first over the platen, as is the usual custom. The ends of the bar are bent at right angles and forked to straddle the platen-shaft 12, which may be flattened in a manner well known in the art.

The card is further held in operative relation by a wing-scale 30, its extending wings 31 being integrally connected by a bridge 32 below an opening 33 through which the type strike over the platen at a printing point marked X. The right-hand wing 31 has an upstanding lug 34 adjacent the opening 33 to aid in the entry of the card, and the lateral edges 35 and 36 of the opening are flared toward the front to prevent interference with the work. Similar flares 37 are provided at the ends of the bridge 32 for a like purpose, and the outer ends of the wing-scale are also curved away from the platen for the same reason.

The wing-scale is supported on a floating frame 38 including a cross-bar 39 having side arms 40 connected to shift-frame side arms 41 that are pivotally engaged with the shift-frame 21.

A plurality of spring brackets 42 are riveted to the lower edges of the scale wings and held by screws 43 to a flange 44 on the floating frame 38, these brackets being offset to locate the upper edge of the wing-scale closely against the platen, but, due to their resiliency, readily permit the scale to move forward or away from the platen. To guide the floating frame in its movements with the case-shift frame, a pair of upstanding lugs 45 extend from the flange 44 and contain elongated vertical slots 46.

Journaled on spring brackets 47, secured by screws 48 to the type-segment plate 49, are rollers 50 which project through openings 51 in the brackets 47 and bear against the front faces of the lugs 45 of the floating frame. The enlarged central peripheries of the rollers protrude into the slots 46, guiding the floating frame in its vertical movements, and preventing its lateral displacement.

The pressure of the rollers on the lugs tends to prevent forward movement of the floating frame, and the spring tension of the brackets 47 operates to urge the floating frame and parts carried by it toward the platen, irrespective of its case-position, and to cause the upper edge of the wing-scale 30 to hold the card against the platen.

A card-guide 55 is formed symmetrically from spring material having the appearance of an inverted U-shaped bow, its curved and rounded side branches 56 blending into flat level pads 57, clearing the upper ends of the spring brackets 42, and their main portions terminating at their lower ends in projections 58 level with the lower edge of the wing-scale 30 over which the pads are disposed when in operative position.

The outer ends of the pads are bent forwardly at right angles, these forward portions 59 being turned laterally outward and downward at an angle with the pads 57, and thereafter bent upward presenting transverse V-shaped angular terminals 60, so that a plane bisecting angles of these terminals is parallel to the pads 57.

A finger-piece 61 extends forward from the apex of the bow for convenience in placing the guide in position or removing it after use. A rounded protuberance 62 is struck out from each of the pads 57 to extend toward the front for holding the guide when in operative position, as will later be more fully explained.

The card-guide terminals 60 are adapted to enter and seat on a pair of forked supports 63, the forks 64 of which are shaped to agree with the angle of the terminals and bent slightly outward to the right and left respectively, as can be seen in Figure 1, to act efficiently as supports. The terminals 60 provide a means for adjusting the top of the card-guide nearer to or farther from the platen, since bending the terminals 60 outwardly brings the upper part of the card-guide nearer to the platen, and vice versa. These supports 63 are made of sheet-metal. the edges of the forks being transverse to the surfaces of the terminals 60 and their bases 65 are bent at a right angle downward, presenting flanges 66 which are secured by rivets 67 to the flange 44 of the floating frame 38.

A pair of spring detents 68 are shaped to overlie the inner pair of the brackets 42, and are held by the same screws 43 to the floating frame flange 44. The upper portions of the spring detents 68 are offset slightly toward the wing-scale 30, and their upper ends 69, which extend about level to the upper edge of the wing-scale, are bent outwardly to the front to allow the pads 57 of the card-guide to be readily entered. A perforation 70 in each of the spring detents is located to receive the protuberances 62 of the card-guide when seated on the supports 63 and act effectively to retain the card-guide in operative position, as shown in Figures 1 and 2.

The spring detents 68 will yield upon the

exertion of force, allowing the card-guide to be removed, and, when so removed, a considerable space is created between the spring detents and the wing-scale, allowing the scale to yield readily when work-sheets of ordinary nature are inserted in the usual manner, the wing-scale having the same flexibility as an ordinary scale.

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, the combination with a revoluble platen and a carriage thereof, of a card-clamping bar secured to said platen and extending therealong and having means at its advancing edge to hold the bottom edge of a card, a support on the framework of the machine, and a pressure finger carried by said support and stationary as the carriage travels and engaging said card above the printing point to press said card back around said platen.

2. In a typewriting machine, the combination with a revoluble platen and a carriage therefor, of a card-clamping bar secured to said platen and extending therealong and having means at its advancing edge to hold the bottom edge of a card, a support on the framework of the machine, a pressure finger carried by said support and stationary as the carriage travels and engaging said card above the printing point to press said card back around said platen, and card-guiding plates extending along the platen below the printing line and mounted on the machine framework and co-operative with said card-clamping bar and said finger to control the card.

3. In a typewriting machine, the combination with a platen, a shift-frame therefor, a scale-frame movable vertically with the shift-frame, and a wing-scale yieldingly supported on said scale-frame, of a card-holder having a card-engaging bow and a pair of downwardly-extending supporting arms, said scale-frame having supports thereon for said arms, said arms being adjustable on said supports to cause said bow to bear with greater or lesser pressure upon the card.

4. In a typewriting machine, the combination with a platen, a shift-frame therefor, a scale-frame movable vertically with the shift-frame, and a wing-scale yieldingly supported on said scale-frame, of a card-holder having a card-engaging bow and a pair of supporting arms, said scale-frame having supports for said arms, said arms being flexible adjacent their ends to permit their positions to be adjusted to thus locate said bow at greater or lesser distances from said platen.

5. In a typewriting machine, the combination with a platen, a shift-frame therefor, a scale-frame movable vertically with the shift-frame, and a wing-scale yieldingly supported on said scale-frame, of a card-holder having a card-engaging bow and a pair of supporting arms, said scale-frame having supports for said arms, said arms being flexible adjacent their ends to permit their positions to be adjusted to thus locate said bow at greater or lesser distances from said platen, and resilient means for pressing said card-holder against said wing-scale and thus retaining said card-holder in operative position.

6. In a typewriting machine, the combination with a platen, a shift-frame therefor, a scale-frame movable vertically with the shift-frame, and a wing-scale yieldingly supported on said scale-frame, of a card-holder having a card-engaging bow and a pair of downwardly-extending suporting arms ending in forwardly-directed terminals of V-shape, said scale-frame having supports thereon provided with recesses of V-shape for said terminals, said terminals being flexible to permit changes in position thereof in said receses to thereby adjust said card-engaging bow close to or farther from said platen, and resilient means for pressing said card-holder against said wing-scale and thus retaining said card-holder in operative position.

7. In a typewriting machine, the combination with a platen, a shift-frame therefor, a scale-frame movable vertically with the shift-frame, and a wing-scale yieldingly supported on said scale-frame, of a card-holder having a card-engaging bow and a pair of supporting arms, retaining clamps adjacent said wing-scale yieldable to permit the insertion of said card-holder between said clamps and said wing-scale, and means for preventing said supporting arms from escaping from said clamps, said means being releasable on the exertion of sufficient force manually on said card-holder to permit said card-holder to be removed.

8. In a typewriting machine, the combination with a platen, a shift-frame therefor, and a scale-frame movable vertically with the shift-frame, of a wing-scale resiliently carried by the scale-frame to present its upper edge adjacent the platen, the wing-scale being disposed at a tangent below the center of the platen and having a flat outer surface, a spring bow curved to conform to the platen and having flat lower portions, and resilient means for clamping the lower portions of the bow to the outer surface of the wing-scale.

9. In a typewriting machine, the combination with a platen, a shift-frame therefor, and a scale-frame movable vertically with the shift-frame, of a wing-scale resiliently carried by the scale-frame to present its up-

per edge adjacent the platen, the wing-scale being disposed at a tangent below the center of the platen and having a flat outer surface, a spring bow curved to conform to the platen and having flat lower portions, resilient clamps constraining the lower portions of said bow to the face of the wing-scale, and means co-operative with said clamps and bow elements to prevent relative motion.

10. In a typewriting machine, the combination with a platen, a shift-frame therefor, and a scale-frame movable vertically with the shift-frame, of a wing-scale resiliently carried by the scale-frame, a spring bow having branches curved in cross-section blending into flat pads to seat on the wing-scale, a protuberance on each pad, and spring arms fixed on the scale-frame to extend over the pads, said arms having openings into which the protuberances enter.

11. In a typewriting machine, the combination with a platen, a shift-frame therefor, and a scale-frame movable vertically with the shift-frame, of a wing-scale resiliently carried by the scale-frame, a spring bow having flat pads at the ends of its branches to seat upon the wing-scale, said pads each having a protuberance, spring detents fixed on the scale-frame to extend over the pads and containing openings receptive of the protuberances, and a finger-piece at the apex of the bow to facilitate its manipulation.

12. In a typewriting machine, the combination with a platen, a shift-frame therefor, and a scale-frame movable vertically with the shift-frame, of a wing-scale resiliently carried by the scale-frame, a spring bow having flat pads at the ends of its branches to seat upon the wing-scale, said pads each having a protuberance, spring detents fixed on the scale-frame to engage the protuberances, and auxiliary supports for the bow carried on the scale-frame.

13. In a typewriting machine, the combination with a platen, a shift-frame therefor, and a scale-frame movable vertically with the shift-frame, of a wing-scale resiliently carried by the scale-frame, a spring bow having symmetrical side branches disposed adjacently in front of the wing-scale, the ends of the branches being bent forwardly at right angles and shaped to present outstanding angular feet, and supporting brackets fixed on the scale-frame in which the feet may be engaged.

14. In a typewriting machine, the combination with a platen, a shift-frame therefor, and a scale-frame movable vertically with the shift-frame, of a wing-scale resiliently carried by the scale-frame, a spring bow having symmetrical side branches disposed adjacently in front of the wing-scale, the ends of the branches being bent forwardly at right angles and shaped to present outstanding angular feet, angularly forked brackets receptive of the feet, and spring-actuated detents to maintain such engagement, said brackets and detents being carried by the scale-frame.

15. In a typewriting machine, the combination with a platen, a platen-carrying frame shiftable to upper and lower case position, and a scale-frame movable up and down with the platen-frame, of a wing-scale, pairs of spring brackets connecting the wing-scale to its frame, a card-guide comprising a spring bow disposed adjacent the scale, the ends of the bow being bent to present transverse V-shaped extensions, angularly spread forks in which the extensions may be seated, said forks leaning oppositely outward and having shanks fixed on the scale-frame to support the bow, spring detent arms overlying the inner pair of spring brackets, means to effect snap engagement of the detents and bow ends, and a finger-piece on the bow to facilitate its removal and replacement.

16. In a typewriting machine, the combination with a platen, a platen-carrying frame shiftable to upper and lower case position, and a scale-frame movable up and down with the platen-frame, of a wing-scale, having a resilient connection to the scale-frame, a card-guide comprising a spring bow superposed on the wing-scale, the ends of the bow being bent to form triangular forwardly extending feet, brackets on the scale-frame shaped to receive the feet, means carried by the scale-frame for holding the feet in the brackets, said means also locating the bow on the wing-scale and preventing the bow from moving endwise, and means to maneuver the bow.

17. In a typewriting machine, the combination with a platen, a platen-carrying frame shiftable to upper and lower case position, and a scale-frame movable up and down with the platen-frame, of a bar extending lengthwise the platen and engaged at its ends thereto, said bar being curved concentrically to the platen and having a narrow thickened under portion in contact therewith, thus presenting a card-receiving pocket between its main portion and the platen, a wing-scale resiliently mounted on the scale-frame to clear the bar when the platen is rotated, a spring bow removably engaged over the wing-scale, rigid outstanding supports on the scale-frame to carry the bow, and spring detents to hold the bow on its supports.

18. In a typewriting machine, the combination with a platen, a platen-carrying frame shiftable to upper and lower case position, and a scale-frame movable up and down with the platen-frame, of a bar carried by the platen, said bar having a card-

receiving pocket between its under surface and the platen and an abutment beyond the pocket to align an entered card, a wing-scale spaced to clear the bar as it rotates with the platen, said scale being spring-mounted on the scale-frame, a spring bow held resiliently against the scale and having outstanding angular feet, rigid supports on the scale-frame to receive the feet, spring detents to normally maintain the bow in operative position, and a finger-piece on the bow by which it may be manipulated.

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