Dec. 2, 1924. 1,517,408

F. K. DAVIS ET AL

TYPEWRITING MACHINE

Filed Nov. 23, 1921

Fig. 1.

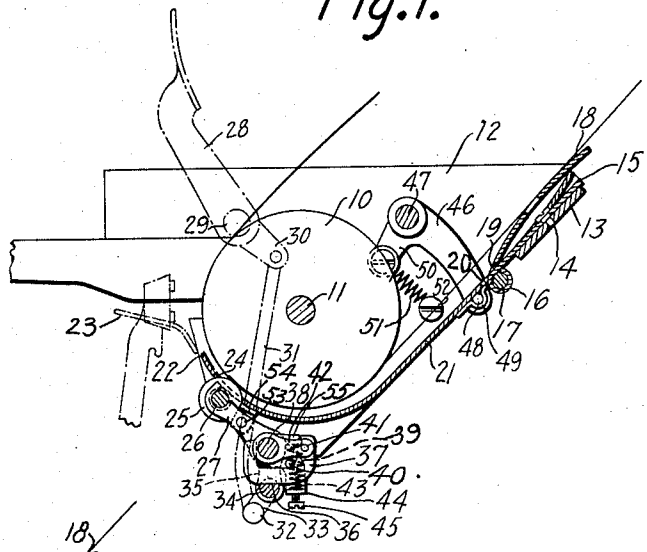


Fig. 2.

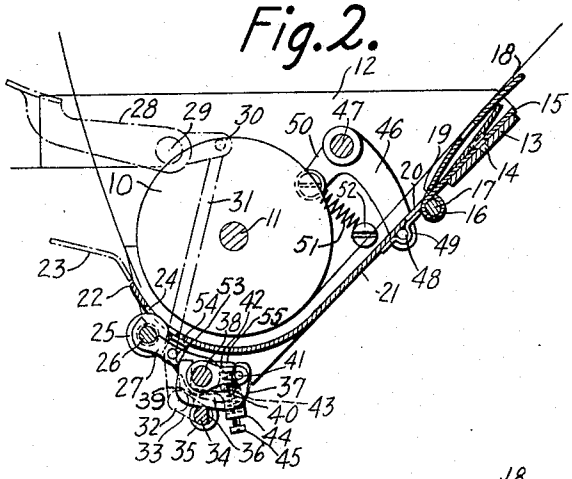
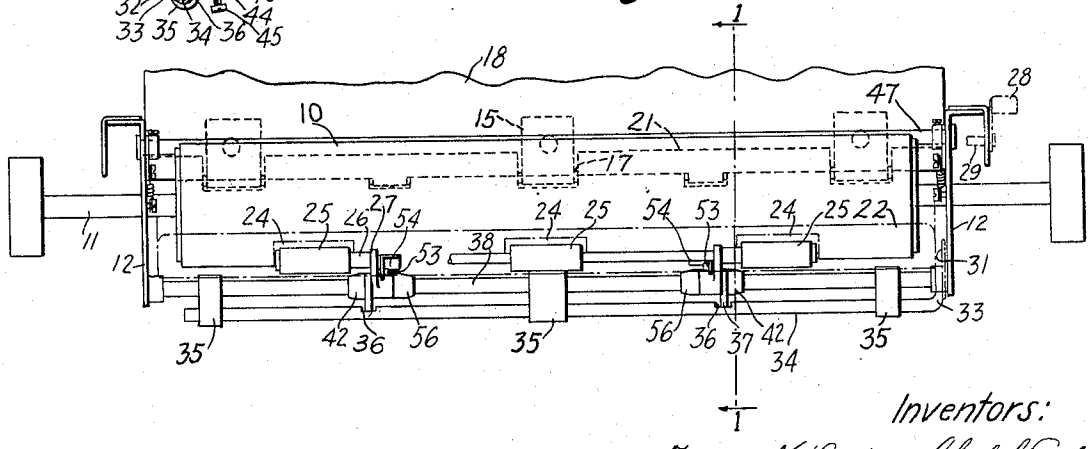


Fig. 3.



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UNITED STATES PATENT OFFICE.

FRANK K. DAVIS AND CHARLES C. TAYLOR, OF WASHINGTON, DISTRICT OF COLUMBIA, ASSIGNORS TO UNDERWOOD TYPEWRITER COMPANY, OF NEW YORK, N. Y., A CORPORATION OF DELAWARE.

TYPEWRITING MACHINE.

Application filed November 23, 1921. Serial No. 517,158.

To all whom it may concern:

Be it known that we, FRANK K. DAVIS and CHARLES C. TAYLOR, both citizens of the United States, and residing in the city of Washington, District of Columbia, have invented certain new and useful Improvements in Typewriting Machines, of which the following is a specification.

The present invention relates to paper-guides for typewriting machines; that is to say, to the guides variously designated as the paper-shelf, table, apron, etc., over which the work-sheets are inserted to printing position, either top end first from the rear of the rotary platen or bottom end first from the front of the platen; and over which the work-sheets have line-feed movement around the platen.

In a front-strike machine, as for instance the Underwood, the paper-guide, at its front upper edge, forms with the platen a mouth through which a work-sheet may be inserted bottom end first; and the guide thence passes down around the platen to the rear thereof. This much of the guide is commonly termed the apron, as distinguished from the longer downwardly and forwardly inclined part at the rear of the platen, usually designated as the paper-shelf or table. The apron portion of the guide is generally so close to the platen that, for easy and convenient insertion of considerable thicknesses of paper, it should be thrown from the platen with the feed or pressure rolls. To facilitate front insertion of work-sheets, bottom end first, an additional plate for guiding the work-sheets down to the front upper edge of the apron is commonly employed; this plate being preferably so set as to be forward of and out of registry with the apron except when the latter is thrown off the platen. The throw of the apron, therefore, may have the additional purpose of bringing the same into alignment or registry with the front guide, for front insertion of work-sheets.

Heretofore the apron and the rear shelf or table have ordinarily been in one piece, thus necessitating the movement of the entire paper-table in the operation of throwing the apron off the platen. There may be no purpose for so moving the rear paper-shelf. To move it forward may merely constrict the space for the work-sheets between it and the platen. Any such movement of the shelf calls for greater effort and stronger connections than would be required for mere movement of the apron. Furthermore, the shelves frequently now have foldable extensions and various connections on the carriage or platen-frame which should preferably not be made subject to movement with the apron in the throw-off operation. Nevertheless, if the apron is to be moved independently of the shelf or table, provision should be made for a continuity of the guide surfaces of the two; so that, the work-sheets when inserted, either from the front or rear, may pass from one to the other of these guiding elements.

A feature of the present invention is the provision of means whereby the apron may be thrown from the platen to a work-sheet inserting position independently of the paper-shelf or table.

Other features of the invention are the provision of means for effecting a translatory, substantially rectilinear, movement of the apron to sheet-inserting position, independently of the paper-shelf; and of means for maintaining, in the sheet-inserting position, an alignment or registration, and, in effect, continuity, of the guide surfaces of the apron and paper-shelf, so that the work-sheets, in the operation of inserting the same, either from the front or the rear, pass easily around the platen to printing position.

A feature of the invention is the means by which the apron is mounted for movement, relatively to the paper-shelf or table, into alignment or registration with the front guide, for front insertion of sheets, bottom end first.

Another feature of the invention is the connection of the apron to the feed-roll throw-off mechanism, whereby operation of the latter effects the movement of the apron to the sheet-inserting position in a simple and efficient manner; and of means, acting in conjunction with such connection, for guiding the apron to assure the proper translatory movement thereof.

Other features and advantages will hereinafter appear.

In the accompanying drawings,

Figure 1 is a view in cross-sectional side elevation, on the line 1—1 of Figure 3, showing the parts in normal or printing position.

Figure 2 is a view similar to Figure 1, except that the parts are shown in the sheet-inserting position.

Figure 3 is a front view, partly broken, of the mechanism shown in Figures 1 and 2.

The platen 10 is mounted for rotary movement on axle 11, having bearings in the end plates 12 of the platen-frame. The end plates 12 of the platen-frame are also connected by a cross-piece or bar 13. Secured to the bar 13, by means of screws 14, are brackets 15, having loops 16 in which a rod 17 is supported. A paper-table or shelf 18 has curls or tongues 19 on the forward edge thereof to embrace the rod 17 and provide a pivotal connection of the table to the rod. A combined paper-guide and apron 21 extends down and around the platen from the front to the rear thereof, and at the rear edge thereof overlies the bar 13 and is overlapped by the forward edge of the paper-table 18; the rear of the apron being recessed at 20 for passage therethrough of the tongues 19 of the table. The recesses 20 are elongated to permit of movement of the apron relatively to the table. In the Figure 2, or sheet-inserting, position of the apron and guide 21, the forward edge 22 thereof registers or is in alignment with the lower forward edge of a paper-guide 23 which is used in front-insertion of sheets.

The apron 21 is recessed at 24 to permit of engagement of the feed or pressure rolls 25 with the platen. These feed-rolls are mounted on a rod 26, supported on arms 27. The support and means for shifting the pressure-rolls to and from the platen are substantially as shown in United States Letters Patent to W. F. Helmond, No. 1.058,672, granted April 8, 1913, and, briefly, are as follows: The pressure-roll-release-lever 28 is mounted on a stub rock-shaft 29, supported on the platen-frame and carrying an arm 30, to which is pivotally connected one end of a link 31, the other end of which link is pivotally connected at 32 to an arm 33, fast to a cam-shaft 34, mounted to rock in brackets 35, fast to a rod 38, in turn fast to the platen-frame. The cams on the shaft 34 are formed by grooves or flats 36 therein at the points where a pair of feed-roll-release-levers 37 engage the cam-shaft. In the normal or writing position of the feed-rolls, shown in Figure 1, the release-levers 37 are shown as seated on the flats 36 in the cam-shaft, whereas, in the Figure 2 position of the parts, the release-levers 37 are shown as riding upon the periphery of the cam-shaft.

In order that the release-levers 37 may actuate the levers 27, which support the feed-rolls, the levers 27 are pivoted at an intermediate point on the rod 38, so as to have arms 39 projecting rearward from the rod 38; on which arms 39 are pins 40. The pins 40 overlie and are adapted to be engaged by the release-levers 37, so that the latter, when swung from Figure 1 to Figure 2 position, cause the arms 39 to be swung up, and the levers 27 thus to be rocked in such direction as to lower the feed-rolls from the platen. The levers 37 are pivoted at 41 to brackets 42, fast to the rod 38.

The feed-roll-shifting mechanism is held in normal position, and returned to normal position, by coil-springs 43, and, for this purpose, the springs 43 bear at one end upon ears 44, offset from the arms 39 of levers 27, and at their other ends bear against lugs or ears 55 on brackets 56, also fast to the rod 38. The feed-roll throw-off operation causes the springs 43 to be compressed; and, in expanding, the springs return the parts to normal position. Screws 45, threaded in the ears 44, may be provided for adjustment of the tension of the springs 43.

The manner in which the apron or guide 21 is supported and shifted with respect to the platen, independently of the paper-shelf 18, is as follows: Near its rear upper edge, the apron 21 is supported on arms 46, pivotally mounted on a cross-rod 47, carried by the platen-frame. The arms 46 are connected to the apron 21 by the pins 48, which turn in yokes or bearing-pieces 49 secured to the apron. The axes 47 and 48 are so located that the direction of movement of the apron by the arms 46, is substantially at right angles to the arms 46, so that the rear of the apron moves in substantially the plane in which it normally lies. Arms 50, which form bell-crank-levers with the arms 46, have each attached thereto one end of a spring 51, the other end of which is secured by means of a screw 52 to the corresponding side piece of the platen-frame. The springs 51 are for returning or assisting in the return of the apron 21 to the normal position.

At its lower forward portion, the apron or guide 21 is supported on the levers 27. For this purpose, the levers 27 have pins 53 in pin-and-slot engagement with brackets or ears 54, carried by the apron 21. When, therefore, the feed-roll-supporting levers 27 are rocked from Figure 1 to Figure 2 position, the levers 27 draw with them the apron 21 against the tension of the springs 51; the apron being guided at its rear, during this motion, by the arms 46. In this operation, the pins 53, which connect the apron to the levers 27, move in a direction substantially parallel to the rear portion of the apron. In this manner, a translatory, substantially rectilinear movement of the apron, is effected.

Variations may be resorted to within the scope of the invention, and portions of the

improvements may be used without others.

Having thus described our invention, we claim:

1. In a front-strike typewriting machine, a rotary platen, a platen-carriage, a paper-guide or apron on the carriage extending around under and to the front of the platen, and movable between a normal writing position snugly adjacent the platen and a sheet front-insertion position with its forward extremity remote from the platen, a paper-table at the rear of the platen, interlaced fingers on the apron and paper-table to form with the apron and table an uninterrupted guide-surface which will not snag sheets inserted bottom-end first at the front of the platen between the platen and the apron, when the latter is in its sheet-inserting position, and means for effecting translatory movement of the apron relative to the paper-table and substantially parallel thereto between the normal and sheet-inserting positions of the apron.

2. In a front-strike typewriting machine, a rotary platen; a platen-carriage; a paper-table at the rear of the platen; a paper-guide or apron on the platen-carriage, forming a continuation of the paper-table under and to the front of the platen; means for effecting a translatory forward movement of the apron away from the platen, independently of the paper-table, to provide a wide entrance opening between the apron and the front of the platen for front insertion of work-sheets; means for maintaining the continuity of the apron and paper-table surface to avoid snagging work-sheets inserted at the front of the platen, comprising interdigitally arranged projections on the paper-table and apron, and means for guiding the apron in a substantially rectilinear course in its translatory movement, said guiding means comprising an arm disposed at substantially a right angle to the apron at the rear of the platen and pivotally connected at one point to the platen-frame and at another point to the apron adjacent its confluence with the paper-table.

3. In a front-strike typewriting machine, a rotary platen; a platen-carriage, a paper-table at the rear of the platen; a paper-guide or apron on the platen-carriage, forming a continuation of the paper-table under and to the front of the platen; means for effecting a translatory forward movement of the apron away from the platen, independently of the paper-table, to provide a wide entrance opening for insertion of work-sheets at the front of the platen; means for guiding the apron in a substantially rectilinear course in its translatory movement substantially parallel to the paper-table, to maintain the continuity of the table and apron, said guiding means comprising an arm pivoted on the platen-frame and pivotally connected to the apron; and a spring acting on the guiding arm, and through the latter, on the apron, for urging the apron to normal position.

4. In a front-strike typewriting machine, a rotary platen; a platen-carriage; a paper-table at the rear of the platen; a paper-guide or apron on the platen-carriage, forming a continuation of the paper-table under and to the front of the platen; means connected to the apron forward of the axis of the platen for effecting a translatory forward movement of the apron away from the platen, independently of the paper-table, for front insertion of work-sheets; and means for guiding the apron in a substantially rectilinear course in its translatory movement; said guiding means comprising an arm disposed at substantially a right angle to the apron at the rear of the platen and pivotally connected at one point to the platen-frame and at another point to the apron.

5. In a front-strike typewriting machine, a rotary platen; a platen-carriage; a paper-table, inclined downward and forward, at the rear of the platen; an apron passing around underneath the platen from the front thereof and inclined upward and rearward behind the platen to the forward lower part of the paper-table; and means for moving the apron from the platen, in the general direction of the apron's rearward incline, to provide a wide, flaring, front entrance opening between the apron and the front of the platen for front insertion of work-sheets.

6. In a front-strike typewriting machine, a rotary platen; a platen-carriage; a paper-table, inclined downward and forward, at the rear of the platen; an apron passing around underneath the platen from the front thereof and inclined upward and rearward behind the platen to the forward lower part of the paper-table; and means for moving the apron from the platen, in the general direction of the apron's rearward incline, to provide a wide, flaring, front entrance opening between the apron and the front of the platen for front insertion of work-sheets, said apron-moving means comprising a moving arm pivotally connected to the forward part of the apron and a guiding device engaging the rearward part of the apron.

7. In a front-strike typewriting machine, a rotary platen; a platen-carriage; a paper-table, inclined downward and forward, at the rear of the platen; an apron passing around underneath the platen from the front thereof and inclined upward and rearward behind the platen to the forward lower part of the paper-table; means for pivotally supporting the apron from the platen-carriage,

comprising arms pivotally connecting with the apron, one forward of the other, and disposed substantially at right angles to the direction of rearward incline of the apron; and means for moving the apron forward from the platen, in the general direction of the apron's rearward incline, to provide a wide, flaring entrance opening between the apron and the front of the platen for front insertion of work-sheets.

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CHARLES C. TAYLOR.

Witnesses:
C. H. WALLEIGH,
GEORGE H. WARD.