Nov. 12, 1929. J. LINDBURG 1,735,121

TYPEWRITING MACHINE

Filed Feb. 6, 1928

FIG. 1.

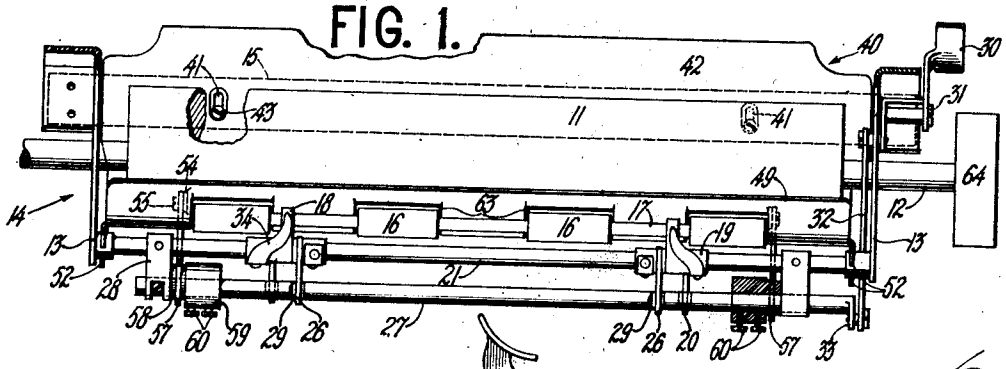
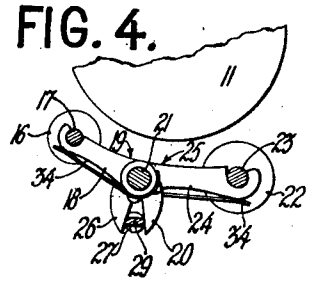


FIG. 4.



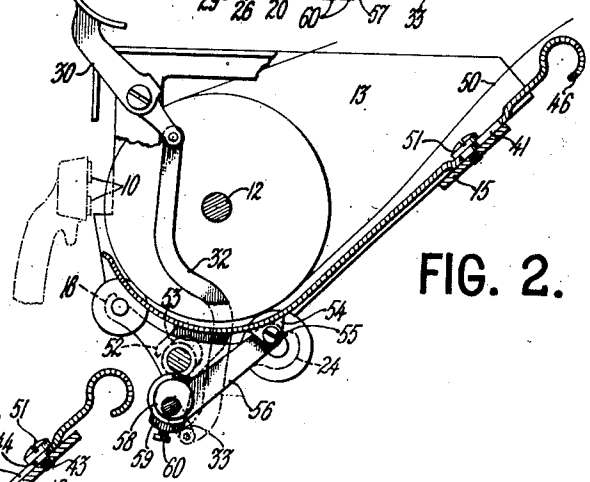


FIG. 2.

FIG. 3.

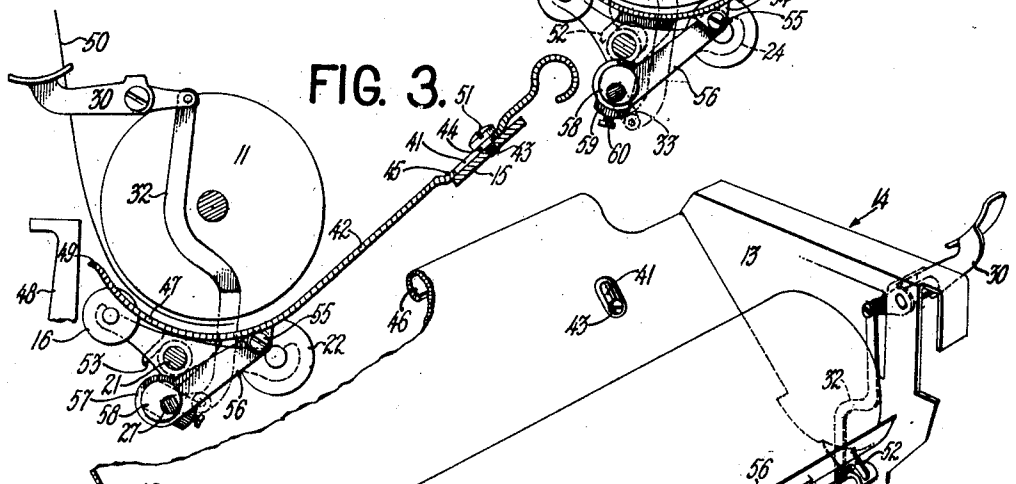


FIG. 5.

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UNITED STATES PATENT OFFICE

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TYPEWRITING MACHINE

Application filed February 6, 1928. Serial No. 252,138.

This invention relates generally to typewriting machines, and more particularly to the paper-table at the introductory side of the platen.

In typing certain kinds of short work-sheets, such as bills and the like, it is often convenient to insert the sheet at the front of the platen, and it is usual to increase the gap or opening between the platen and the apron which extends forwardly from the rear paper-table, by moving the apron down away from the platen. Various devices have been proposed for attaining this end, which were operated by the usual feed-roll-release lever, and which required a considerable increase in the force required for operating this lever. This increased resistance was met in bending the flexible apron, or overcoming retaining springs, or overcoming friction.

A feature of the present invention resides in the provision of means in a typewriting machine which are operable by the feed-roll-release lever and which are effective to move the front edge of a movably mounted rear paper-table apron away from the platen for inserting a work-sheet therebetween, the operation of said means requiring no substantial increase in the force required for operating them concomitantly with the release of said feed-rolls.

In carrying out the present invention, the rear paper-table which has a usual forwardly-extending apron is slidably mounted on a cross-bar of the platen-frame and eccentrics mounted on the feed-roll-releasing rock-shaft are operatively connected to said table for pulling it forwardly and downwardly. Means are provided for guiding the table forwardly and downwardly whereby it will not be warped or twisted upon being moved. The eccentrics are mounted on the rock-shaft so that their pulling effect on the table is very small during the first part of the movement of the feed-roll-release lever whereby the work required for moving the paper-table is not appreciable until the work of releasing the feed-rolls is almost through.

Another feature of the invention resides in connecting the eccentrics with the slidably-mounted paper-table so that the pull of the eccentrics is substantially along the line of movement of the paper-table, whereby the latter does not appreciably bind on the cross-bar.

Other features and advantages will hereinafter appear.

In the accompanying drawings,

Figure 1 is a fragmentary, front elevational view of the platen-shaft frame of the Underwood typewriting machine having my invention applied thereto.

Figure 2 is a fragmentary, cross-sectional view of the structure shown in Figure 1. In this view the feed-rolls and the rear paper-table are shown in their normal positions, the paper-table being disposed closely adjacent the platen.

Figure 3 is a view similar to Figure 2, the feed-rolls being shown thrown off the platen and the apron disposed forwardly from the platen.

Figure 4 is a fragmentary view illustrating one means of throwing the feed-rolls off the platen.

Figure 5 is a fragmentary, perspective view of the structure shown in Figure 1.

In an Underwood typewriting machine, type 10 strike against a platen 11 mounted on a shaft 12 journaled in side plates 13 of a platen-shift-frame generally designated as 14. A stiff cross-bar 15 is fastened between the plates 13 at the rear of the platen, and is inclined downwardly toward the platen at the introductory side thereof. Front rubber feed-rolls 16 are mounted on a shaft 17, journaled in forwardly-extending arms 18 of bell-cranks 19 which have depending arms 20, and are journaled on a cross-rod 21 fastened between the side plates 13. Rear rubber feed-rolls 22 are mounted on a shaft 23 and have rearwardly-extending arms 24 of bell-cranks 25, which have depending arms 26 and are journaled on the cross-rod 21. The depending arms 20 and 26 are disposed on the opposite sides of a rock-shaft 27 journaled in depending hanger members 28 whose upper ends are fastened to the cross-rod 21. The shaft 27 has flats 29 cut in it on its front and rear sides for engagement with the depending arms 20 and 26. The flat portions 29 of the

shaft 27 serve to cam the arms outwardly and swing the feed-rolls downwardly upon a partial rotation of the shaft 27 by operation of a feed-roll release lever 30, which is pivotally mounted on a screw 31 in the right-hand side plate 13. A depending link 32 operatively connects the lever 30 with an integral crank-arm member 33 on the right end of the shaft 27. Leaf-springs 34 may be arranged for holding the feed-rolls 16 and 22 against the platen. The parts described hereinbefore may be of the same construction as in the standard Underwood typewriting machine (except as noted hereinafter).

In practicing the present invention a rear paper-table 40 of flexible sheet metal is disposed between the side plates 13 with a loose sliding fit, and is slidably supported on the cross-bar 15, two elongated slots 41 being provided in a plane body-portion 42 of the paper-table through which slots two shoulder-screws 43 may pass to be threaded in the bar 15. Each slot has a long axis disposed parallel with the side plates 13 and a width for receiving with a sliding fit a shoulder portion 44 of its screw. Around each slot 41 is formed a sunken or depressed portion 45 in the body 42 to receive the head of its associated screw 43, so that it will be disposed substantially flush with the plane of the upper surface of the body 42. The depressed portions also serve advantageously in another way, which will presently appear. The upper end portion of the table may be formed with a usual downward curled edge 46.

An apron portion 47 of the table 40 extends forwardly and downwardly under the platen 11 closely adjacent thereto and upwardly around the forward side thereof, terminating a short distance below the top of a usual type-guide 48.

To provide an increased opening between a forwardly bent front edge 49 of the apron 47 and the platen 11 for conveniently inserting one or more work-sheets 50 at the front of the platen, it is a feature of the present invention to provide means for sliding the entire paper-table forwardly and downwardly in a fixed plane parallel to the plane of the cross-bar 15 and to apply force to the paper-table 40 for moving it downwardly, which will act substantially along the line of the plane body-portion 42, so that no appreciable binding of the paper-table on the bar 15 or heads 51 of the screws 43 will result from the sliding movement of the table and friction of the latter on the bar will be reduced to a minimum. To this end, two downwardly-extending guide ears 52 are integrally joined to the lower side of the paper-table 40 adjacent each end thereof and are constructed with open elongated slots 53 whose long axes are disposed parallel to the plane of the bar 15. The slots 53 are arranged to engage with a sliding fit about the fixed cross-rod 21. For applying force to the table 40 substantially parallel to the plane of the bar 15, two downwardly extending ears 54 are integrally joined to the table, in a manner to be more fully set forth hereinafter, and are disposed one adjacent each side of the table. To each ear 54 is pivotally fastened by screws 55 an eccentric connecting bar 56, which extends forwardly and downwardly in approximately the same plane as the body 42, and has an enlarged perforated end 57 which engages with a running fit about an eccentric bushing member 58 mounted on the shaft 27 by means of an integral enlarged hub 59 and screws 60, which are threaded through the hub 59 to engage against the shaft 27.

It will be noted (Figures 2, 3 and 4) that the cam operated means for moving the feed-rolls to release position are effective to swing the feed-rolls a considerable distance upon a small movement of the feed-roll release-lever and also that the same small lever movement only slightly affects the eccentric 58 which moves the paper-table. This arrangement is advantageous in two ways, it permits the greater part of the work of releasing the feed-rolls 16 and 22 to be completed before any considerable amount of the strain of moving the table 40 comes on the operator of the feed-roll release-lever 30. This desirable co-operation on the cam-shaft 27 and the eccentrics 58 permits the lever 30 to be operated by force which is only slightly greater at any time than is required for releasing the feed-rolls.

After the work-sheet 50 has been inserted and gaged to position by means, not shown, a small return operation of the lever 30 will cause the table 40 to be moved nearly back to its normal position before the feed-rolls are moved an appreciable amount. This is advantageous because of safeguarding the soft rubber feed-rolls from engagement with the hard metal table. In order that the feed-rolls 16 and 22 may engage against the platen, openings 63 are made in the apron through which the feed-rolls project. After the feed-rolls have engaged the work-sheet against the platen, the latter may be revolved for positioning the work-sheet by a usual finger-wheel 64 or usual line-spacing instrumentalities not shown.

In making the openings 63 through the sheet-metal table 40, part of the metal to be removed from the opening which comes next to the adjacent side plate 13 may be bent down to serve as a body to the ear 54 at that side. The slotted ears 52 may be made in a like manner as described for the ears 54.

It can be readily seen that the ears 54 can be positioned, if desired, to bring the axial screws 55 and the axes of the eccentrics 58 in a plane that is exactly parallel with the body portion 42 of the table. The eccentrics 58 are adjustably mounted on the shaft 27 by

the set-screws 60 and the extent of the movement of the table 40 forwardly and backwardly can be varied, the length of the slots 41 preferably being greater than the throw of the eccentrics 58. This arrangement, besides permitting the width of the work-sheet receiving throat between the edge 49 and the platen 11 to be varied, also permits the apron 47 to be disposed in varied operative positions adjacent the platen for convenient use with packs of work-sheets of varying thicknesses.

It will be noted that by employing the eccentrics for moving the slidably mounted table 40, the latter is positively controlled by the feed-roll release-lever 30 at all times and is moved in a gradual way that makes for quiet operation. It can be readily seen by those skilled in the art that the eccentric means described hereinbefore may be applied with feed-roll release mechanism of the kind disclosed in Patent 739,102 to McLaughlin, dated September 15, 1903, or with the kind of feed-rolls described in Patent 1,392,940 to Helmond, dated October 11, 1921. It can also be readily seen that the arrangement of the eccentrics and the slotted mounting for the table 40 is effective to move the table forwarding and backwardly without bending or straining it.

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 platen-frame, a revoluble platen in said frame, lower feel-rolls engaging against said platen, and a feed-roll-release lever, of a rear paper-table slidably mounted on said platen-frame and extending forwardly and downwardly around said platen closely adjacent thereto and terminating below the printing line thereof, said table having openings therethrough for said feed-rolls, means co-operating with the slidable mounting of said table for guiding the latter forwardly and downwardly along a fixed course to space the forward edge of said paper-table away from said platen for inserting a work-sheet therebetween, and eccentrics on said platen-frame arranged for operation by said feed-roll-release lever and connected to said table for sliding it forwardly and downwardly upon releasing said feed-rolls, and for returning said table to its normal position upon restoring said feed-rolls against said platen.

2. In a typewriting machine, in combination, a platen-frame, a revoluble platen in said frame, a feed-roll-releasing rock-shaft, a rear paper-table having a forwardly-extending apron disposed closely adjacent the platen at the front side thereof, means for slidably mounting said table for movement forwardly and downwardly, and eccentrics adjustably mounted on said shaft and connected to said table, whereby the latter may be moved by said eccentrics a variable distance forwardly and downwardly to space said apron away from said platen for inserting work-sheets therebetween.

3. In a typewriting machine having a platen-shift frame, a platen in said frame, and lower feed-rolls, the combination with a feed-roll-release lever, of a paper-table at the introductory side of said platen, said paper-table including an apron-portion extending forwardly and upwardly closely adjacent said platen and terminating below the printing line thereof, said table being slidably mounted upon fixed members of said platen-frame, and means operated by said feed-roll-release lever upon releasing said feed-rolls for pulling said table forwardly and downwardly over said members without binding thereon to provide an increased opening between the forward edge of said table and said platen for inserting a work-sheet therebetween, said means including eccentric elements operated by said feed-roll-release lever and operatively connected to said paper-table.

4. In a typewriting machine having a platen-shift frame, a platen in said frame, and lower feed-rolls, the combination with a feed-roll-release lever, of a paper-table at the introductory side of said platen, having a forwardly and downwardly inclined plane body-portion and a forwardly and upwardly extending curved apron-portion normally disposed closely adjacent said platen, means for slidably fastening said plane body-portion on a fixed member of said frame to be moved thereover with a minimum of friction, means controlled by said feed-roll-release lever for exerting a pull on said body-portion in a direction substantially parallel thereto for moving said apron-portion away from said platen, whereby work-sheets may be conveniently inserted therebetween at the front of said platen, a feed-roll-releasing rock-shaft, eccentric members on said rock-shaft movable forwardly and downwardly, and connecting members between said eccentrics and said table.

5. In a typewriting machine having a platen-shift frame, a platen mounted in said frame in fixed relation thereto, and lower feed-rolls, the combination with a feed-roll-release lever, of a sheet-metal paper-table at the introductory side of the platen, said table having a flat body-portion disposed in a downwardly and forwardly inclined plane, a cross-bar fastened between the ends of said platen-frame for supporting said body-portion thereon, said body-portion having elongated slots positioned over said cross-bar parallel with the sides of said platen-frame, shoulder-screws passing through each of said slots to be threaded in said bar, a recessed

portion pressed in said table around each of said slots for receiving the heads of said screws to permit the latter to be disposed substantially flush with the flat work-face of said body-portion, the under surfaces of said recessed portions projecting below the plane of the bottom side of said body-portion and engaging against said cross-bar to be effective to decrease the contact area of said table in sliding engagement with said cross-bar, an apron-extension on said table extending under and upwardly around said platen closely adjacent thereto, means for sliding said paper-table forwardly and downwardly whereby to space said apron-extension away from said platen for conveniently inserting a work-sheet therebetween, said means acting on said body-portion in a direction substantially parallel to the work-surfaces of said recessed portions sliding on said cross-bar, the reduced contact area of said recessed portions and said sliding means co-operating to decrease the friction incidental to the moving of said table, a cross-rod fixed between the ends of said platen-frame, and guide-members fast on said table engaging said rod for guiding said flat body-portion in a direction parallel to said cross-bar.

6. In a typewriting machine having a revoluble platen, the combination with a platen-frame, of a paper-table having a plane body-portion extending downwardly and forwardly at the introductory side of said platen, of means for slidably mounting said table in said machine, said means including a cross-rod between the sides of said platen-frame, two elongated slotted ears on said table engaging said cross-rod, the axis of the slots in said ears being parallel with said body-portion, and a slidable mounting for said body-portion on a fixed member of said platen-frame.

7. In a typewriting machine of the class described, in combination, a paper-table slidably mounted in the rear of the platen of said machine, and having a forwardly extending apron, a feed-roll-releasing rock-shaft, and eccentrics adjustably mounted on said rock-shaft and connected with said table, whereby said apron may be moved away from said platen upon rotation of said rock-shaft.

8. In a typewriting machine, in combination, a platen-frame, feed-rolls, a feed-roll-release mechanism including a lever, a rock-shaft, and cams on said rock-shaft, a rear paper-table slidably mounted on said frame for movement forwardly and downwardly, said table having an apron-extension disposed closely adjacent the platen at the forward side thereof, and eccentrics mounted on said rock-shaft and connected with said table for moving it and said apron forward to space said apron farther from said platen for inserting a work-sheet therebetween, said eccentrics being arranged on said shaft in relation to said cams so that the work of releasing said feed-rolls by operation of said lever is almost completed before an appreciable amount of strain on said lever results from moving said table by said eccentrics.

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