March 18, 1924. 1,487,284

B. C. STICKNEY

TYPEWRITING MACHINE

Filed Sept. 27, 1920 2 Sheets-Sheet 1

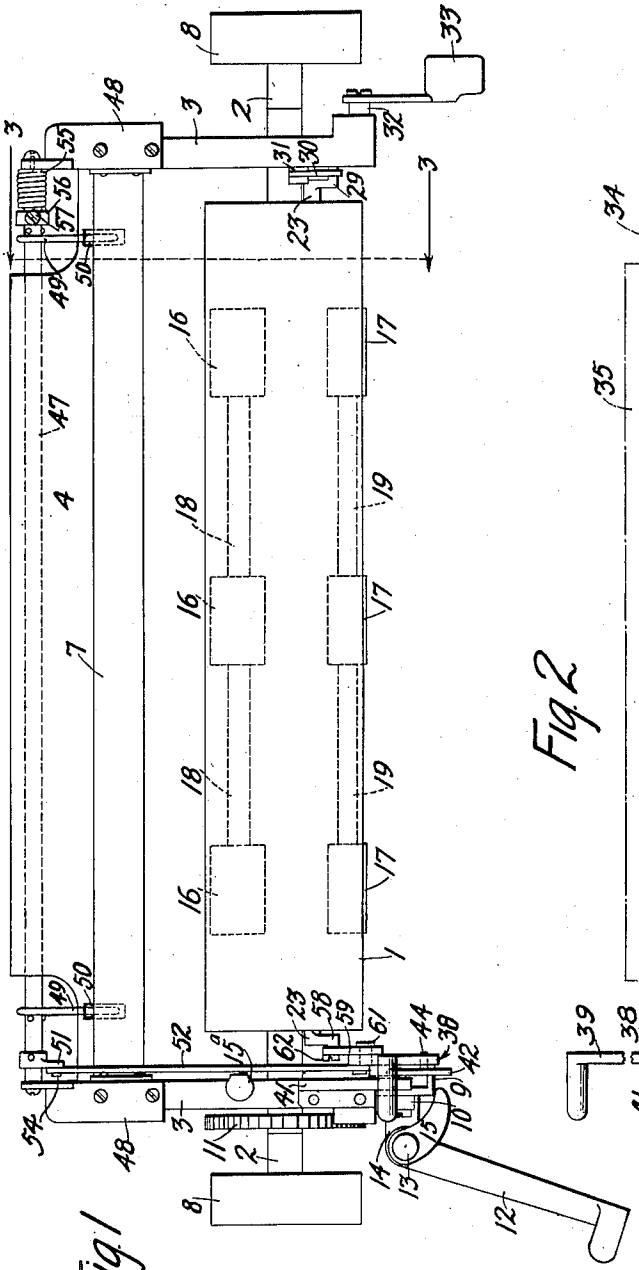


Fig. 1

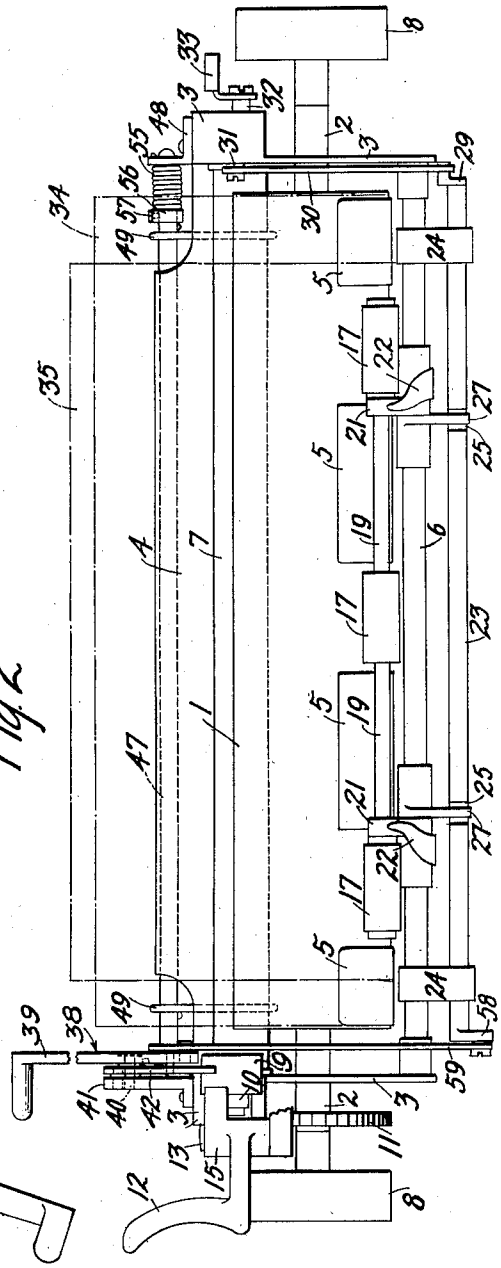


Fig. 2

Inventor:

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TYPEWRITING MACHINE

Filed Sept. 27, 1920 2 Sheets-Sheet 2

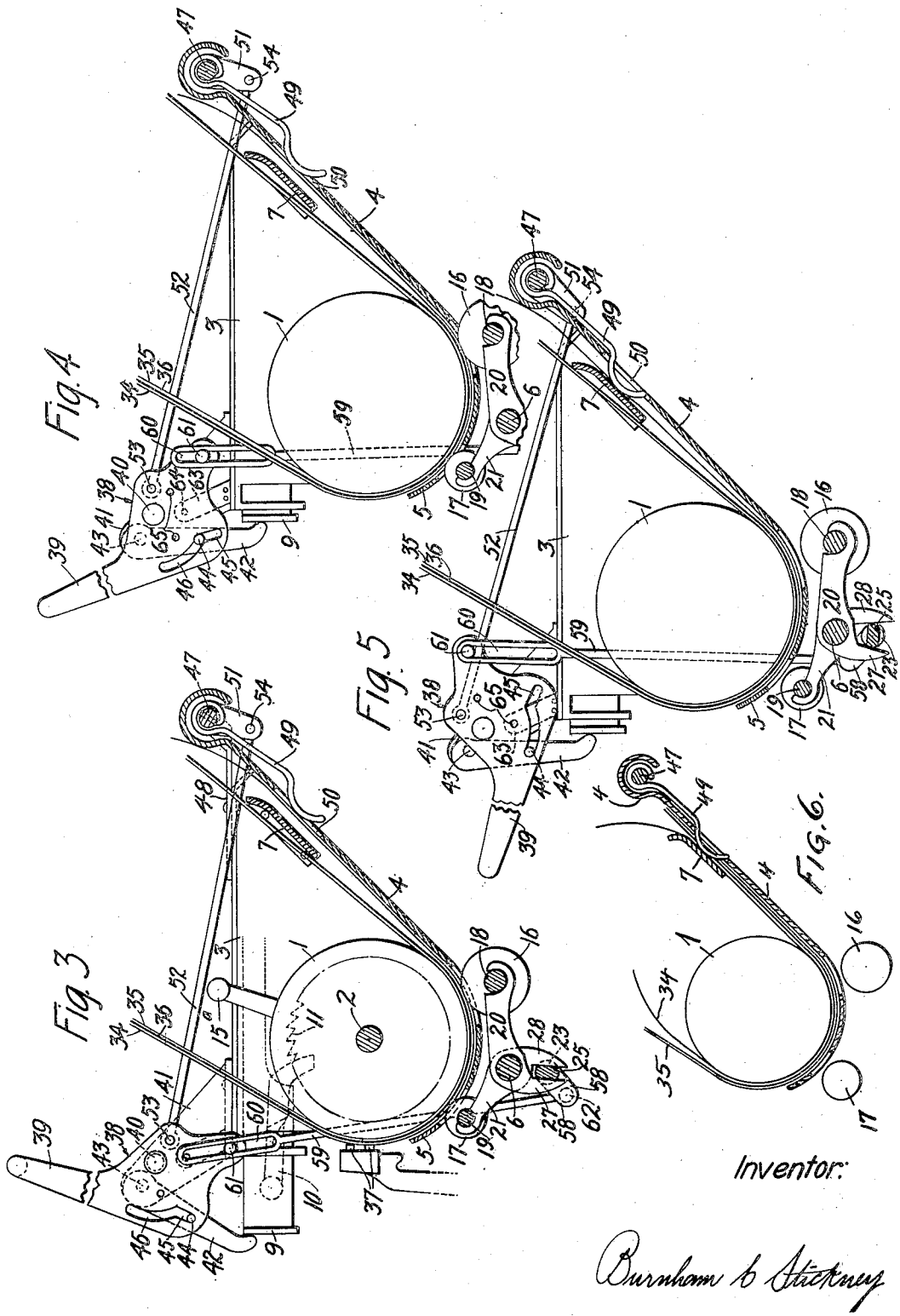


Fig. 4

Fig. 5

Fig. 3

Fig. 6.

Inventor:

Burnham & Stickney

Patented Mar. 18, 1924. 1,487,284

# UNITED STATES PATENT OFFICE.

BURNHAM C. STICKNEY, OF ELIZABETH, NEW JERSEY, ASSIGNOR TO UNDERWOOD TYPEWRITER COMPANY, OF NEW YORK, N. Y., A CORPORATION OF DELAWARE.

## TYPEWRITING MACHINE.

Application filed September 27, 1920. Serial No. 413,035.

*To all whom it may concern:*

Be it known that I, BURNHAM C. STICKNEY, a citizen of the United States, residing in Elizabeth, in the county of Union and State of New Jersey, have invented certain new and useful Improvements in Typewriting Machines, of which the following is a specification.

This invention, in typewriting machines, relates to means for retaining in place in the machine a single general or condensed record-sheet, while permitting individual statements or bill sheets to be typed, withdrawn and others inserted and positioned in the machine relatively to the record-sheet, and has for its objects an inexpensive device simple in construction, which may be readily incorporated in an ordinary typewriting machine to adapt it for billing purposes, and which will require only a minimum number of movements on the part of the operator to change the individual sheets, and which will assure a performance of the required successive operations automatically in proper sequence, thereby to accomplish the desired results while avoiding the liability of error.

In accordance with the present invention, preparatory to withdrawing the typed individual sheet and replacing it by another individual sheet, three distinct but correlated and interdependent operations are performed automatically and in proper sequence, by a single movement of a single handle-member. At a single stroke of the handle-member, first the platen is line-spaced to line-space the record-sheet, then a normally released gripping device is caused to grip and hold stationary the line-spaced record-sheet independently of the bill or individual sheet, and then by the same continued movement or stroke of the handle-member the usual releasable feed-rolls are cast off from the platen to release the bill or individual sheet, while the record-sheet remains gripped, thereby providing for the removal or withdrawal of the bill or individual sheet and its replacement by another such sheet, which may then be positioned relatively to the stationary record-sheet, which is held by the gripping device. The return movement of the same handle-member, at a single return stroke, operates to restore all of the parts of the machine to their normal or typewriting position, and the automatic line-spacing of the record-sheet leaves a blank space between the successive items which are entered thereon.

According to the present invention, the three above-noted required operations, preparatory to withdrawing the typed individual sheet and replacing it by another individual sheet, are not only performed in proper sequence automatically at a single stroke or throw of a single lever, but it is rendered impossible for the operator to perform any one of these operations out of its proper order, or to fail through oversight to perform any one or another of the required operations.

Other features and advantages will hereinafter appear.

In the accompanying drawings,

Figure 1 is a plan view of a platen frame, and parts carried thereby, of an Underwood typewriting machine embodying the present invention.

Figure 2 is a front elevation of the same.

Figure 3 is an enlarged transverse section, with parts in elevation, on a vertical plane indicated by the line 3—3 of Figure 1 as viewed from the right with the parts in the normal position corresponding to Figures 1 and 2.

Figure 4 is a similar view at an intermediate phase of operation, in which the line-spacing mechanism has been operated while the feed-rolls are still in their normal effective position, and the gripping device for the record-sheet is still in its normal ineffective position.

Figure 5 is a similar view in the final position of operation, showing the gripping device in its gripping position for holding the record-sheet stationary while the feed-rolls are cast off to provide for the replacement and positioning of the statement or bill sheet.

Figure 6 shows the manner of arranging the sheets when it is desired to have the type impressions from the ribbon fall upon the bill-sheet.

In the embodiment of the invention illustrated in the accompanying drawings, the usual rotative platen 1 has an axle 2 journaled in end walls 3 of the platen frame shown as of the usual Underwood type, and further comprising at the rear or introductory side of the platen 1 an inclined paper chute or paper-table 4,

shown as continued around below the platen 1 to form a curved platen shield or paper-apron 5, a tie-rod 6 connecting the end walls 3 below the platen 1, and a transverse bar 7 extending between the end walls 3 above the paper-table 4 at the rear of the platen 1. Finger wheels or handle knobs 8 are provided on the outer ends of the platen axle 2 for conveniently rotating the platen 1, which also may be fed in line-space direction by means of suitable line-spacing mechanism which may be and is shown as of the usual Underwood type. This line-spacing mechanism includes a slide 9 guided in its line-spacing movement to slide rearwardly on the left end wall 3, and which may be spring-pressed to its forward position by the usual spring, not shown. The slide 9 carries a line-spacing pawl 10 engageable with a line-space wheel 11 fixed on the platen axle 2. Line-spacing may be effected in the usual way by means of the usual line-space lever or handle 12 pivoted at 13 on the typewriter carriage, of which a fragment is shown at 14, and having an actuating toe 15 engageable with the forward end of the line-spacing slide 9. The extent of the line-spacing movement of the platen 1 may be determined in the usual way by means including the usual upstanding adjusting lever 15a.

Below the platen 1, there is provided a rear set of feed-rolls 16, shown as three in number, and a forward set of feed-rolls 17, also shown as three in number, co-operative with the platen 1 through openings shown as provided in the curved paper-apron 5. The rear feed-rolls 16 are mounted on a feed-roll shaft 18, and the forward feed-rolls 17 are mounted on a feed-roll shaft 19. The rear feed-roll shaft 18 is carried by a pair of lever arms 20 pivoted on and projecting rearwardly from the tie-rod 6, and the forward feed-roll shaft 19 is similarly carried by a pair of lever arms 21 pivoted on and projecting forwardly and upwardly from the tie-rod 6 in diverging relation to the rear lever arms 20. All of the feed-rolls 16 and 17 are normally pressed towards and into effective feeding relation with the platen 1 by means of springs 22 acting upon the lever arms 20 and 21, two of such springs 22 being shown in Figure 2 for the forward lever arms 21, and it being understood that similar springs, not shown, are provided for the rear lever arms 20, according to the usual Underwood construction.

A cast-off device is provided for releasing the feed-rolls 16 and 17, and comprises a cam shaft 23 journaled in bearings 24 on the tie-rod 6 and provided with cams 25 engageable with downwardly-projecting actuating lugs 27 on the rear lever arms 20 and similar actuating lugs 28 on the forward lever arms 21, as in the usual Underwood construction. At its right end the cam shaft 23 is provided with a forwardly-extending crank-arm 29 connected by a link 30 to a similar rearwardly-extending crank-arm 31 at the inner end of a short shaft 32 pivoted on the right end wall 3 of the platen frame, and provided at its outer end with the usual forwardly-projecting finger-piece 33.

The construction hereinbefore described, with the exception of the addition of the transverse bar 7, is substantially the same as heretofore commonly employed in the Underwood typewriting machine, but it was necessary to describe this usual construction in order to understand the co-operative relation of the features of the present invention therewith, and the features of the present construction relating more particularly to the present invention will now be described.

In the present invention, it is desired to feed forward to the next writing position and to retain in the machine in stationary position a single general sheet or condensed record-sheet 34, while a statement, or bill, or item sheet 35 may be removed and replaced by another similar sheet 35, and each of these individual sheets 35 successively positioned relatively to the condensed record-sheet 34, and it is highly desirable for convenience and saving of time that these changes may be made quickly and with as few operations or movements by the operator as possible. In the drawings the bill or item sheet 35 is shown next to the platen 1, while the condensed record-sheet 34 is at the outside of an interleaved carbon-sheet 36 to be written upon directly by the usual types 37, as shown in Figure 3, by means of a usual interposed ribbon, not shown.

In accordance with the present invention, and as now to be described more particularly, it is only necessary to move a single handle member in one direction in order, by the single stroke of the handle-member, to line-space the platen, for producing automatically a blank space between the items or groups of items on the record-sheet 34, and, by a continuation of the same movement or stroke of the handle-member, to grip independently and separately hold stationary the record-sheet 34 in the machine, and to cast off the feed-rolls 16 and 17 from the platen 1, while the record-sheet 34 remains gripped, so that the bill or item sheet 35 is left free to be withdrawn from the machine and replaced by another similar sheet, which may be correctly positioned relatively to the record-sheet 34, while the record-sheet is securely retained in stationary position in the machine.

A single operating member or handle-member 38, provided with a normally upstanding handle-lever 39, is pivoted by means of a stud 40 on a forwardly and upwardly inclined supporting bracket 41, secured on

the top and front of the platen frame end wall 3 at the left of the machine. Means operated by the handle-member 38 for automatically line-spacing the platen 1 to line-feed the record-sheet 34, thereby to produce automatically a blank space between the successive records thereon, will now be described. An operating arm or lever 42 is pivoted at its upper end on the supporting bracket 41 by means of a pivot-pin 43 above and at the front of the pivot-stud 40, and at its lower end the operating lever 42 is rounded and bent slightly backward and is normally positioned just in front of the projecting end of the line-spacing slide 9, as shown in Figure 3, in position for operating the latter. The upper end of the pivoted operating lever lies between the supporting bracket 41 and the pivoted handle-member 38. At a point near its middle, this operating lever 42 is provided with a cam-stud or pin 44 which projects through a cam-slot formed in the handle-member 38, this cam-slot extending in a generally vertical direction in front of the pivot 40 when the handle-member 38 is in the normal position, shown in Figure 3. This cam-slot has a lower straight inclined active or operating part 45 and a longer upper curved part 46 which is concentric with the pivot 40, so as thereby to form a dwell in the cam formed by the slot.

By moving forward the upstanding handle-lever 39 from the normal position thereof, shown in Figure 3, to the slightly inclined position thereof, shown in Figure 4, the straight or active part 45 of the above described cam-slot will act upon the pin 44 to swing the operating lever 42 rearward from the inclined position thereof, shown in Figure 3, to the substantially vertical position thereof, shown in Figure 4, so that the lower free rounded end of this operating lever will push the line-spacing slide 9 rearward, thereby to effect line-spacing movement of the platen 1 automatically independently of the usual line-spacing handle 12, and without the necessity of operating the latter, and which the typist would be liable to forget to do. Also it is clear that the usual line-spacing lever 12 may be operated in the usual way to effect line-spacing movement of the platen 1 independently of the operation of the handle-member 38. In either case, the extent of line-spacing movement of the platen 1 will be the same and is determined in the usual way by the position of the line-space adjusting lever $15^a$, and also, in either case, the record-sheet 34, the bill-sheet 35 and the interleaved carbon-sheet 36 will be correspondingly fed forward. That is to say, all the sheets in the machine will be line-fed, although when the handle 39 is operated, the advancing of the bill-sheet 35 is merely incidental and is immaterial and of no consequence. During the operation of writing on the superposed sheets, the handle-member 38 and all of the parts controlled thereby are left in the normal position thereof, shown in Figure 3, and line-spacing between the successive typewritten lines is effected in the usual way by operating the usual line-spacing handle 12. The handle-lever 39 is employed for line-spacing when it is desired to move up the record-sheet 34, preparatory to replacing the bill-sheet 35 with another similar bill-sheet, so as to leave blank spaces on the record-sheet 34 between the successive items, or groups of items, corresponding to the different bill-sheets. The line-spacing movement of the handle-member 38 comprises about one-third of the complete extent of movement provided for this member, and, at the completion of this one-third or first part of the movement of the handle-member 38, the concentrically curved part 46 of the cam-slot will come into engagement with the cam-pin 44, thereby permitting further or continued movement of the operating member 38 after the completion of the line-spacing operation as above described.

Means, now to be described, are provided to be operated, following the line-spacing operation, and by the further movement at the same stroke of the handle-member 38, for automatically independently gripping and separately holding the line-spaced record-sheet 34 stationary and for concomitantly casting off the releasable feed-rolls 16 and 17, thereby to permit the bill-sheet 35, which has been written upon, to be removed and another bill-sheet to be inserted and correctly positioned relatively to the stationary record-sheet 34, which remains gripped.

The normally released, automatically operated, gripping device, or sheet-clip for holding stationary the record-sheet 34, will be next described. A rock-shaft 47, at the rear of and below the upper downwardly-curved edge of the paper-table 4, is pivoted at its ends in bearing brackets 48 secured upon the top of the end walls 3 of the platen frame. The rock-shaft 47 carries spring gripping fingers 49, shown as two in number, and positioned adjacent to the ends of the rock-shaft 47, opposite to the end parts of the platen 1, although, obviously, a greater number of these gripping fingers may be provided if desired, and in the present construction may be located at intermediate points on the rock-shaft 47. These gripping fingers 49 may be formed of wire and are shown as given a turn about the rock-shaft 47 in order to provide greater resiliency, and thence each of these gripping fingers extends forward and downward below the upper part of the paper-table 4, and, adjacent to its lower end, is upwardly curved in rounded form, so as to be capable

of passing upward through a slot 50 in the paper-table 4, to press the record-sheet 34 against the lower side of the transverse bar 7 of the platen frame for frictionally gripping and holding the record-sheet 34 stationary, as is shown in Figure 5. At its left end, an operating arm or crank-arm 51 is fixed on and extends downward from the rock-shaft 47, and is pivotally connected by a forwardly-extending operating link 52 to the pivoted handle-member or operating member 38 at a point rearward of, and below the axis of, the pivot-stud 40 in the normal position of the operating member 38, appearing in Figure 3. Also it is to be noted that the pivot-point 53 on the operating member 38 for the link 52 is slightly below a line joining the axis of the pivot-stud 40 and the pivot-point 54 for the link 52 on the crank-arm 51, so that the operating member 38 forms a toggle with the link 52. It is also to be noted, from Figure 4, that, after the operating member 38 has been rocked sufficiently to effect the line-spacing operation, as above described and as shown in Figure 4, the pivot-point 53 for the link 52 on the operating member 38 will be about as much displaced above a line joining the axis of the pivot-stud 40 and the pivot-point 54 on the crank-arm 51 as it was below this line in the normal position of the parts shown in Figure 3. By reason of this arrangement of the operating link 52, the gripping fingers 49 will not be moved to their gripping position during the movement of the operating member 38 to effect line-spacing, but will only be moved slightly downward and then back again substantially to the original position, while the pivot-point 53 on the operating member 38 is moved past the center line of the toggle formed with the link 52, thereby assuring that line-spacing by movement of the handle-lever 39 will be completed before the gripping fingers 49 are brought into gripping relation with the transverse bar 7.

Further or continued forward and downward movement at the same stroke of the handle-lever 39 through about another one-third of the complete movement provided therefor will result in elevating the upwardly-curved gripping ends of the gripping fingers 49 through the slots 50 in the paper-table 4 into frictional gripping relation with the bar 7, with the record-sheet 34 gripped and frictionally held against the bar 7 by the gripping fingers 49. Yet further or continued forward and downward movement at the same stroke of the lever 39 will impart further clockwise rotation to the rock-shaft 47, as viewed from the right in Figures 1 and 2 and as seen in Figures 3, 4 and 5, and will press the yielding spring fingers 49 with greater force against the record-sheet 34, for clamping it more securely against the transverse bar 7, as shown in Figure 5.

When the several parts of the device are in the normal position, shown in Figures 1, 2 and 3, the gripping fingers 49 will be maintained at the ineffective or released position by the link 52. Preferably, the gripping fingers 49 should have a normal tendency to move to the released or ineffective position, and, for this purpose, a spring 55 is provided and is shown as a torsion spring coiled about the rock-shaft 47, this spring being anchored at one of its ends to the adjacent bearing bracket 48 and at its other end being connected to a collar 56, adjustably fixed upon the rock-shaft 47 by means of a set-screw 57.

During the above-noted last part or substantially last one-third extent of forward and downward movement in the single stroke of the handle 39, the previously effective releasable feed-rolls 16 and 17 will be cast off automatically independently of and without the necessity of operating the usual finger-piece 33 of the cast-off device. The means for thus automatically casting off the feed-rolls 16 and 17 during the last part of the movement of the operating member 38 will now be described.

At its left end the cam-shaft 23 is provided with a forwardly and downwardly extending crank-arm or operating arm 58 to which is pivoted the lower end of an upwardly-extending operating link 59, the upper end of which is provided with a slot 60, forming a lost-motion connection with an operating stud 61, carried by the handle-member or operating member 38. The stud 61 is located farther from the pivot 40 of the member 38 than is the pivot 53 for operating the gripping fingers 49, and also it it to be noted, in the normal position of the operating member 38 and other parts of the device, as shown in Figure 3, that the operating stud 61 is positioned at about the middle of the slot 60 of the link 59, and is located substantially in a straight line between the pivot-stud 40 and the pivot-point 62 of the lower end of the link 59 on the crank-arm 58. The lost motion thus provided in the slot 60 below the operating stud 61 provides for the casting off of the feed-rolls 16 and 17 independently of the handle-member 38 and other parts in the usual way by means of the finger-piece 33, as above described. The lost motion in the slot 60 above the operating stud 61 provides for effecting line-spacing movement, as above described, by operating the handle 39 of the operating member 38, without casting off the feed-rolls, which are thus left in co-operative feeding relation with the platen 1 during the line-spacing operation automatically effected by means of the operating member 38. At the comple-

tion of the line-spacing movement, as illustrated in Figure 4, it will be noted that there is still a space above the operating stud 61 in the slot 60, and this further lost motion provides for the bringing of the gripping fingers 49 into effective gripping relation to hold the record-sheet 34 stationary, while the feed-rolls 16 and 17 are still effective, thereby preventing any accidental displacement of the record-sheet 34, which otherwise might take place were the feed-rolls cast off prematurely. During about the middle one-third part of the continued movement of the handle-lever 39, away from the position shown in Figure 4, the gripping fingers 49 will be elevated to the gripping position, as hereinbefore described, and also at the same time the remaining lost motion in the upper part of the slot 60 will be taken up.

Further continued forward and downward movement of the handle-lever 39, through about the last one-third part of its movement and to the final position thereof shown in Figure 5, will lift the link 59 and rock the cam-shaft 23 to cast off the feed-rolls 16 and 17, as shown in Figure 5. The statement or bill sheet 35 which, together with the record-sheet 34, has been written upon by the types 37, as indicated in Figure 3, is now free to be removed and may be replaced by a succeeding statement or bill sheet to be likewise written upon, and so on for succeeding bill-sheets, the several items, or groups of items, corresponding to the different bill-sheets appearing upon the single, general or condensed record-sheet 34 in spaced relation by reason of the automatic line-spacing effected through the operation of the handle-member 38, and the record-sheet 34 being securely held in stationary position in the machine during the replacing and positioning of the successive bill-sheets.

The swinging movement of the handle-member or operating member 38 is limited by the ends of the cam-slot therein coming in contact with the cam-pin 44 at the initial and final positions, as shown in Figures 3 and 5. After each bill-sheet 35 has been inserted and positioned, then the handle 39 may be moved back from the final position shown in Figure 5 to the initial position shown in Figure 3. By this reverse movement of the handle-lever 39, the gripping fingers 49 will be released from the record-sheet 34, as shown in Figure 4, and, during the remaining part of the return movement of the handle-lever 39, the operating lever 42 will be retracted by the lower part 45 of the cam-slot from the position of this lever appearing in Figure 4 to that shown in Figure 3, thereby permitting the line-spacing slide 9 to be returned by its usual spring to the normal position. The feed-rolls may be restored by operation of the finger-piece 33, and, if the finger-piece 33 is actuated prior to the restoration of the handle-member 38 to normal position, it will be effective to restore both the feed-rolls and the handle-member to their normal positions.

It will be noted, from Figure 5, that, in the gripping position, the spring gripping fingers 49 and also the return spring 55 therefor will exert a tension on the link 52, which will have a tendency to rock the handle-member 38 away from its final position, there appearing, and towards its normal position. In this position of the several parts, illustrated in Figure 5, the operator should have both hands free for inserting and positioning the bill-sheet 35. A detent 63 is provided for holding the operating member 38 at its initial or normal position, shown in Figure 3, and also at its final position, shown in Figure 5. This detent 63 is shown as in the form of a flat spring secured at its lower end to the supporting bracket 41, and, at its upper end, provided with a projection 64 engageable in recesses 65 formed in the adjacent face of the operating member 38. After inserting and positioning the bill-sheet 35, all that the operator has to do is simply to lift slightly the handle member 38, either by actuation of the handle-lever 39 or of the finger-piece 33 to release the member 38 from the detent 63, whereupon the spring 55 will return the handle-member 38 and other connected parts toward their initial positions. It is apparent that the effectiveness of the spring 55 will gradually decrease and become non-existent before the completion of the return movement, due to the downward movement of the pivot-point 53 at the forward end of the link 52. The latter part of this return movement, after the handle-member 38 has reached the position shown in Figure 4, will be effected chiefly by the forward pressure of the spring-retracted line-spacing slide 9 acting upon the lower end of the operating lever 42, as will be readily understood by a comparison of Figures 4 and 3. The spring detent 63 will retain the operating member 38 and its adjuncts in normal position and against accidental displacement therefrom, particularly during the independent line-spacing movement of the line-space slide 9, effected in the usual manner by the line-space handle 12.

In carrying out the invention, as illustrated in Figures 1 to 5, the interleaved carbon-sheet 36 is shown as passing above the transverse bar 7, so as to accompany the bill-sheet 35 to be released and removed therewith, to prevent smudging of the bill-sheet by the carbon. Also, in the form of the invention as shown in these figures, the arrangement is such that the record-sheet

34 is the top or outer sheet to receive the type-impressions directly from the ribbon, while the underlying bill-sheet 35 will be a carbon-copy. It is to be understood, however, that, broadly according to the present invention, the arrangement could be such (Figure 6) that the bill-sheet 35 would be the outer sheet to receive the type-impressions from the ribbon, while the record-sheet 34 would be a carbon-copy underlying the bill-sheet. In the construction shown in the drawings, it is to be noted that there is one gripping finger 49 adjacent to each end of the platen 1 for engaging the record-sheet 34, which may be wider than the bill-sheet 35, as shown in Figure 2. With this construction, it is obvious that, if desired, the bill-sheet 35 could be passed down along the upper surface of the paper-table 4 and around the platen at the outside of the record-sheet 34 between and, because of its narrowness, so as not to be engaged by the gripping fingers 49, so that then the bill-sheet 35 would form a ribbon-copy. In that case, also the carbon-sheet 36 could be wide enough to be engaged by the gripping fingers 49 and held in the machine along with the record-sheet 34, which then would be a carbon-copy underlying the bill-sheet 35. Also, the transverse bar 7 could be spaced farther above the paper-table 4, and the gripping fingers 49, together with their shaft 47, could be positioned above the paper-table 4, so that the bill-sheet 35 would then pass below the rock-shaft 47 and along the upper surface of the paper-table 4.

In view of the fact that the normally released sheet-gripping device, comprising the gripping fingers 49 and the bar 7, is independent of the platen, it is obvious that the individual bill sheets, such as 35, could be wide sheets of the same width or of greater width than the record-sheet 34. Also, the independence of the gripping device from the platen provides for the insertion of the successive individual bill sheets to underlie the record-sheet 34 on the platen, as shown in the drawings.

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 condensed record typewriting machine in which a single general record-sheet is detained in the machine while typing a succession of individual sheets or bills which are successively withdrawn and others inserted, in combination, a rotative platen, line-spacing mechanism therefor, normally effective releasable sheet-feeding means co-operative with the platen to line-feed all the work-sheets when the platen is line-spaced, a normally ineffective gripping device engageable with the record-sheet to hold the same stationary independently of the individual work-sheet when the sheet-feeding means are released, and a single manually-operable device for successively at a single stroke first operating the line-spacing mechanism to line-feed all the work-sheets and then rendering the gripping device effective to hold the record-sheet and also releasing the individual typed work-sheet entirely from the platen.

2. In a condensed record typewriting machine in which a single general record-sheet is detained in the machine while typing a succession of individual sheets or bills which are successively withdrawn and others inserted, in combination, a rotative platen, line-spacing mechanism therefor, a releasable feed-roll normally effective to hold all the work-sheets against the platen, a normally released gripping device for holding the record-sheet stationary independently of the individual work-sheet when the feed-roll is released, a cast-off device for releasing the feed-roll, a handle-member, an operating connection from the handle-member to the line-spacing mechanism for operating the latter from the former to line-feed all the work-sheets during the first part of a single stroke of the handle-member, an operating connection from the handle-member to the gripping device for actuating the latter to gripping position during a second part of the same stroke of the handle-member, to grip and hold the record-sheet, and an operating connection from the handle-member to the cast-off device for operating the latter to release the individual work-sheet entirely from the platen during a third and final part of the same stroke of the handle-member.

3. In a condensed record typewriting machine in which a single general record-sheet is detained in the machine while typing a succession of individual sheets or bills which are successively withdrawn and others inserted, in combination, a rotative platen, line-spacing mechanism therefor, means including a movable handle-member for operating the line-spacing mechanism to line-feed all the work-sheets during the first part of the movement of the handle-member, a line-spacing handle for operating the line-spacing mechanism independently of the handle-member, a normally effective releasable feed-roll for pressing all the work-sheets against the platen, a cast-off device for releasing the feed-roll, a normally released gripping device for holding the record-sheet stationary independently of the individual work-sheet when the feed-roll is released, connections from the handle-member for operating both the cast-off device and the gripping device during the latter part of the same stroke of the handle-member, thereby to hold the record-sheet

and to release the individual typed work-sheet, whereby at a single stroke of the handle-member the record-sheet is both line-spaced and gripped and also the typed individual sheet released preparatory to withdrawing the typed individual sheet and replacing it by another individual sheet, and manually-operable means for operating the cast-off device independently of the handle-member and gripping device.

4. In a condensed record typewriting machine in which a single general record-sheet is detained in the machine while typing a succession of individual sheets or bills which are successively withdrawn and others inserted, in combination, a rotative platen, line-spacing mechanism therefor, a normally effective releasable feed-roll for pressing all the work-sheets against the platen, a normally released gripping device for holding the record-sheet stationary independently of the individual work-sheet when the feed-roll is released, a cast-off device for releasing the feed-roll, a movable handle-member, an operating connection from the handle-member to the line-spacing mechanism for operating the latter to line-feed all the work-sheets during the first part of a single stroke of the handle-member, an operating connection from the handle-member to the gripping device for actuating the latter to the gripping position during a second part of the same stroke of the handle-member, to grip and hold the record-sheet, an operating connection from the handle-member to the cast-off device for operating the latter to release the feed-roll during a third and final part of the same stroke of the handle-member, whereby at a single stroke of the handle-member the record-sheet is both line-spaced and gripped and also the typed individual sheet released preparatory to withdrawing the typed individual sheet and replacing it by another individual sheet, the line-spacing mechanism also being operable independently of the handle-member, a line-spacing handle for independently operating the line-spacing mechanism, the cast-off device also being operable independently of the handle-member, and additional means including a separate finger-piece for operating the cast-off device independently of the gripping device.

5. In a condensed record typewriting machine in which a single general record-sheet is detained in the machine while typing a succession of individual sheets or bills which are successively withdrawn and others inserted, in combination, a rotative platen, a normally effective feed-roll for pressing work-sheets against the platen, a cast-off device connected to the feed-roll for releasing the individual sheets entirely from the platen, a normally ineffective gripping device for independently holding the record-sheet stationary, a handle-member, an operating connection from the handle-member for actuating the gripping device to gripping position by the movement of the handle-member, and an operating connection from the handle-member to the cast-off device for operating the latter by the further movement of the handle-member after the gripping device has been operated to hold the record-sheet.

6. In a condensed record typewriting machine in which a single general record-sheet is detained in the machine while typing a succession of individual sheets or bills which are successively withdrawn and others inserted, in combination, a rotative platen, a normally effective feed-roll for pressing work-sheets against the platen, a cast-off device for the feed-roll, a normally ineffective gripping device for holding the record-sheet stationary, a handle-member, operating connections from the handle-member for operating the cast-off device and for concomitantly actuating the gripping device to the gripping position, the cast-off device being operable independently of the handle-member and the gripping device, and additional means including a separate finger-piece for operating the cast-off device independently of the gripping device.

7. In a condensed record typewriting machine in which a single general record-sheet is detained in the machine while typing a succession of individual sheets or bills which are successively withdrawn and others inserted, in combination, a rotative platen, a normally effective feed-roll for pressing work-sheets against the platen, a cast-off device for the feed-roll, a normally ineffective gripping device for holding the record-sheet stationary, a handle-member, an operating connection from the handle-member to the gripping device for actuating the latter to the gripping position by the movement of the handle-member, an operating connection from the handle-member to the cast-off device for operating the latter during the continued movement of the handle-member after the actuation of the gripping device for holding the record-sheet, the cast-off device being operable independently of the handle-member and of the gripping device, and additional means including a separate finger-piece for operating the cast-off device independently of the gripping device.

8. In a condensed record typewriting machine in which a single general record-sheet is detained in the machine while typing a succession of individual sheets or bills which are successively withdrawn and others inserted, in combination, a rotative platen, line-spacing mechanism therefor, a normally ineffective gripping device for holding the record-sheet stationary rela-

tively to the platen, and a single manually-operable device for successively first operating the line-spacing mechanism for line-spacing the record-sheet to avoid the liability of typing the first line on the new sheet over the last line on the record-sheet, and then for actuating the gripping device to gripping position for independently gripping the line-spaced record-sheet to detain it in the machine while the typed individual sheet is withdrawn and replaced by another individual sheet.

9. In a typewriting machine, in combination, a rotative platen, line-spacing mechanism therefor, a normally effective feed-roll for pressing work-sheets against the platen, a cast-off device for the feed-roll, a normally ineffective gripping device for holding stationary a selected one of said work-sheets, a movable handle member, movement-transmitting means for operating the line-spacing mechanism from the handle member including an operating member and a cam having an active surface for moving the operating member during the first part of the movement of the handle member and having a dwell for holding the operating member substantially stationary during the continued movement of the handle member, the line-spacing mechanism having a movable part in the path of said operating member to be operated thereby and for permitting the independent operation of the line-spacing mechanism, a line-spacing handle for independently operating the line-spacing mechanism, an operating connection from the handle member to the gripping device for actuating the latter to gripping position during the further continued movement of the handle member after the operation of the line-spacing mechanism, a lost-motion connection between the handle member and the cast-off device for operating the latter during the further continued movement of the handle member after the operation of the gripping device and providing for the independent operation of the cast-off device, and manually-operable means including a finger-piece for independently operating the cast-off device.

10. In a front-strike typewriting machine, in combination, a rotative platen, a platen-frame in which the platen is journaled, line-spacing mechanism for the platen mounted on the platen-frame and including a rearwardly-slidable line-spacing bar guided on the platen-frame, manually-operable means including a line-spacing handle for sliding said bar rearward thereby to line-space the platen, front and rear feed-rolls below the platen spring-pressed into co-operative relation with the platen for holding work-sheets against the platen, diverging lever-arms pivoted on the platen-frame and carrying the feed-rolls for swinging the feed-rolls toward and away from the platen, a cam-shaft journaled on the platen-frame and provided with cams operative to cast off the feed-rolls when said shaft is rocked, manually-operable means including a finger-piece for rocking the cam-shaft to cast off the feed-rolls, the platen-frame including an inclined paper-table at the introductory side of the platen and also including a transverse bar spaced above the paper-table, a rock-shaft journaled in the platen-frame at the rear of the platen, spring-fingers carried by the rock-shaft and forming frictional holding members for gripping a selected one of said work-sheets against said transverse bar to hold this work-sheet stationary, a movable handle member pivoted on the platen-frame, an operating arm pivoted on the platen-frame and engageable with the forward end of said slidable line-spacing bar for operating the latter while permitting the independent operation of the slidable bar by the line-spacing handle, a cam on the handle member for operating said operating arm and having a cam surface active to impart line-spacing movement to said operating arm during the first part of the pivotal movement of the handle member, and said cam having a dwell permitting said operating arm to remain stationary during the remainder of the pivotal movement of the handle member, operating connections including a link pivoted to the handle member for rocking the rock-shaft to swing the gripping fingers into gripping relation with said transverse bar during the further continued pivotal movement of the handle member, and operating connections including a link having lost motion and connected to the handle member for rocking the cam-shaft thereby to cast off the feed-rolls during the further and final continued pivotal movement of the handle member while permitting the feed-rolls to be cast off independently by the operation of the finger-piece.

11. In a typewriting machine for typing entries upon a succession of individual work-sheets and at the same time typing upon a common record-sheet the entries typed on all of the individual sheets, a revoluble platen, feed-rolls co-operating therewith, means for casting off the feed-rolls, line-spacing mechanism for the platen, a clamp for holding the record-sheet stationary during insertion, adjustment and withdrawal of the individual sheets, and an operating handle mechanically controlled to actuate the line-spacing mechanism, record-sheet clamp and the feed-roll cast-off means in the order named by movement in one direction, said operating handle being effective on movement in the reverse direction

to withdraw the record-sheet clamp but not to rotate the platen.

12. In a condensed record typewriting machine in which a record-sheet is detained in the machine while individual bills or the like are withdrawn and others inserted, the combination with a revoluble platen and releasable means to co-operate therewith to line-feed all the work-sheets, of a normally released sheet-clip for gripping the record-sheet independently of the individual sheet, a device for concomitantly calling into action said sheet-clip to grip and hold the record-sheet and causing said feeding means to release the work-sheets entirely from the platen, and means controlled by said device for automatically rotating the platen to line-feed all the work-sheets prior to the calling into action of said sheet-clip and the releasing of said feeding means.

13. In a machine for typing a succession of bills or individual sheets and making records thereof in succession on a single general sheet which is detained in the machine, the combination with a revoluble platen and releasable means to co-operate therewith to line-feed the individual sheets and the record-sheet when the platen is line-spaced, of means, to be operated preparatory to withdrawing the typed individual sheet and replacing it by another individual sheet, for concomitantly automatically line-spacing the platen for line-feeding the record-sheet to avoid the liability of typing the first line on the new individual sheet over the last line on the record-sheet, gripping the line-spaced record-sheet independently of the platen to detain it in the machine while the typed individual sheet is withdrawn and replaced by another individual sheet, and causing said feeding means to release the typed individual sheet entirely so it may be withdrawn while the record-sheet remains gripped.

14. In a typewriting machine for typing entries upon a succession of individual work-sheets and at the same time typing upon a common record-sheet the entries typed on all of the individual sheets, a revoluble platen, feed-rolls co-operating therewith, means for casting off the feed-rolls, line-spacing mechanism for the platen, a clamp for holding the record-sheet stationary during insertion, adjustment and withdrawal of the individual sheets, an operating handle mechanically controlled to actuate the line-spacing mechanism, the record-sheet clamp and the feed-roll cast-off means in the order named by movement in one direction, said operating handle being effective by movement in the reverse direction to withdraw the record-sheet clamp but not to rotate the platen nor to restore the feed-rolls, and a finger-piece movable in one direction to cast off the feed-rolls independently of the operating handle, said finger-piece being effective upon movement in the reverse direction to restore the feed-rolls and also in case the operating handle is in actuated position to restore it to its normal position.

15. In a typewriting machine for typing entries upon a succession of individual work-sheets and at the same time typing upon a common record-sheet the entries typed on all of the individual sheets, a revoluble platen, feed-rolls co-operating therewith, means for casting off the feed-rolls line-spacing mechanism for the platen, a clamp for holding the record-sheet stationary during insertion, adjustment and withdrawal of the individual sheets, an operating handle mechanically controlled to actuate the line-spacing mechanism, the record-sheet clamp and the feed-roll cast-off means in the order named by movement in one direction, and a common member for restoring the feed-rolls, withdrawing the clamp and restoring the operating handle to initial position without rotating the platen.

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Witnesses:
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