

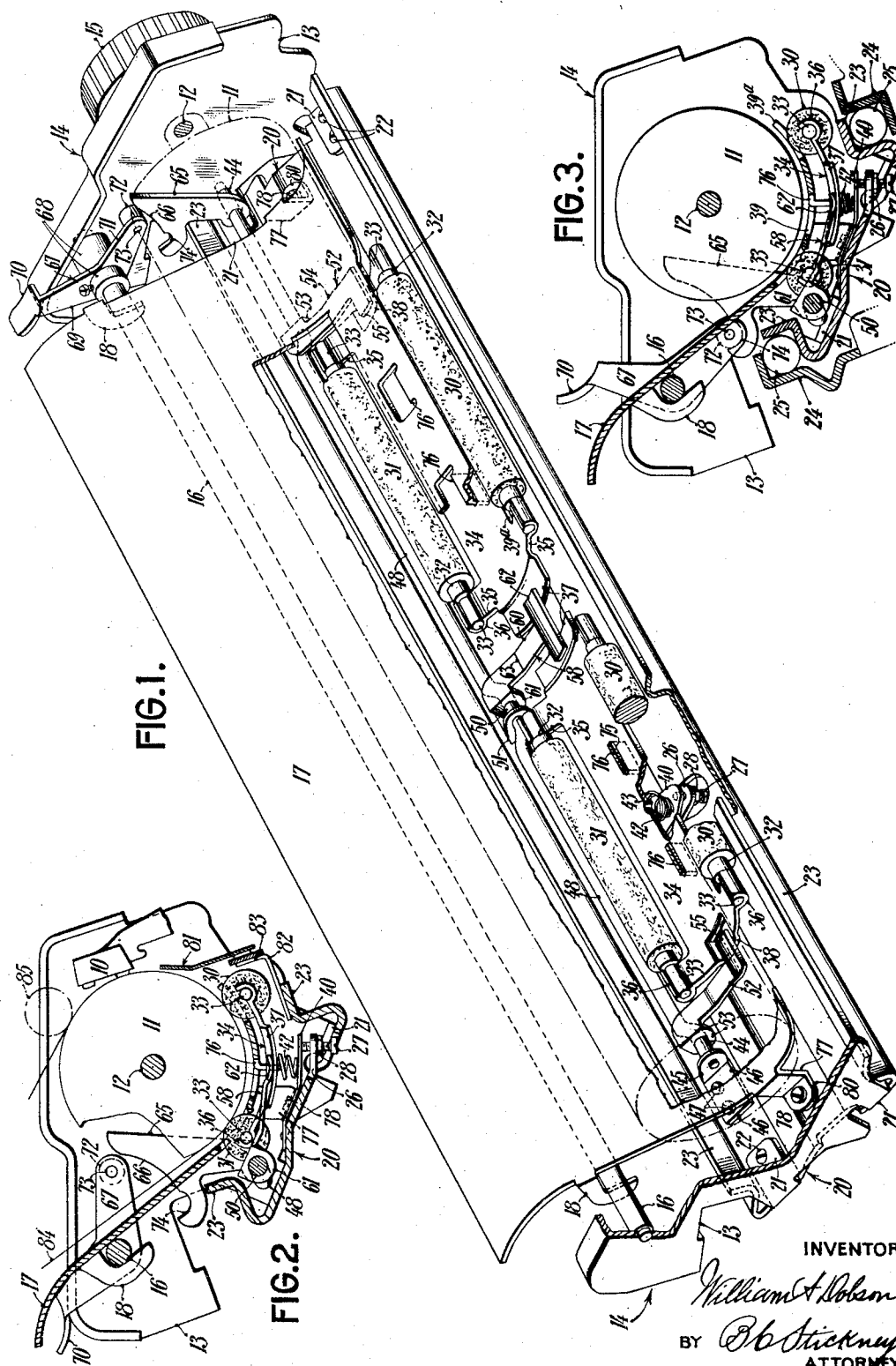
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W. A. DOBSON
TYPEWRITING MACHINE

1,874,256

Filed May 1, 1930

2 Sheets-Sheet 1



INVENTOR:

William A. Dobson
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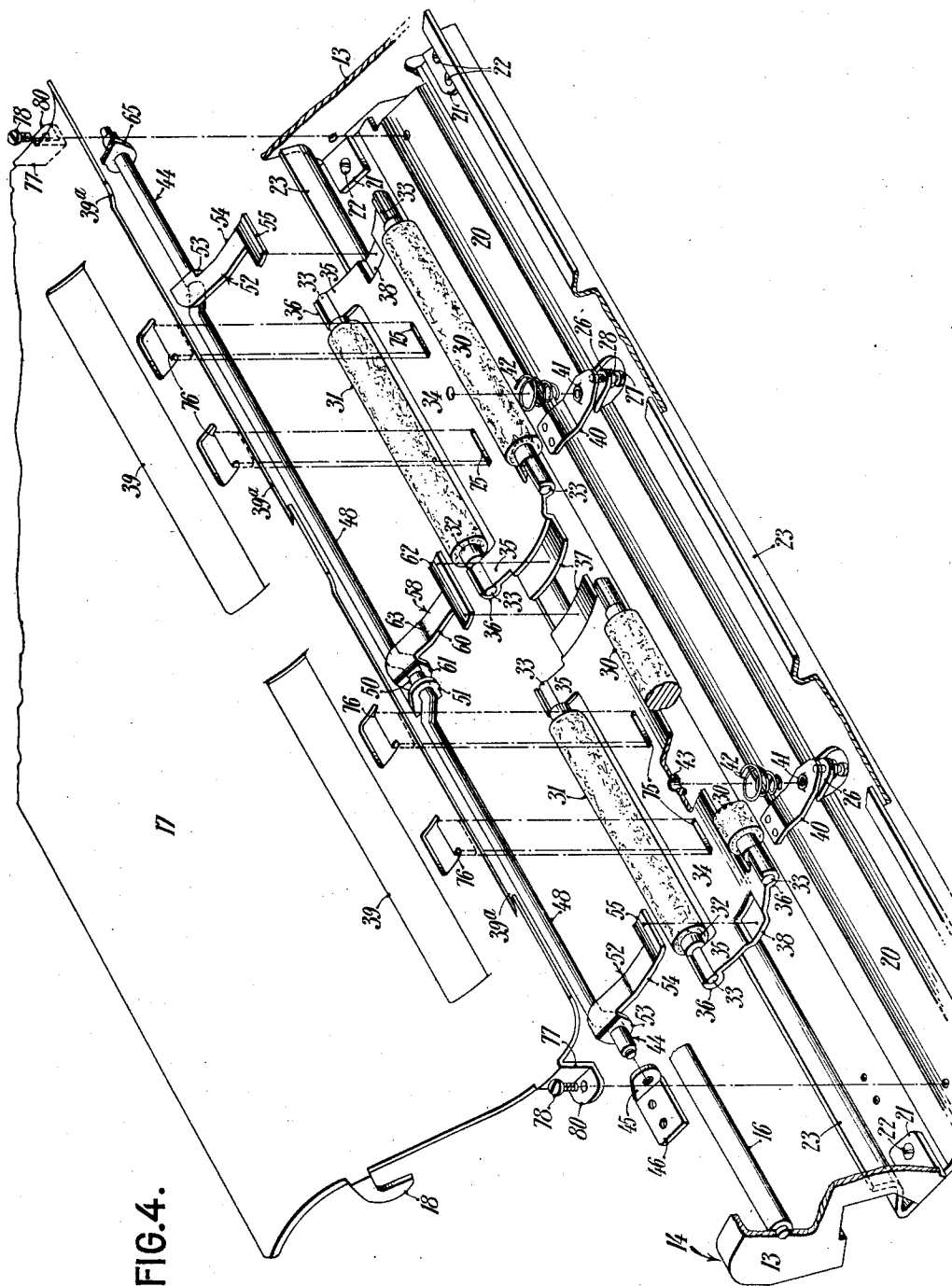


FIG. 4.

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TYPEWRITING MACHINE

Application filed May 1, 1930. Serial No. 448,815.

This invention relates to means for feeding paper around a revoluble platen, especially in an Underwood portable typewriting machine.

When the line-spacing mechanism is operated sharply, the paper is apt to slip relatively to the feed-rolls and platen. Sometimes it is desired to feed a work-sheet around the platen at one end portion thereof, or to feed a pack of narrow sheets at one end while feeding a single sheet around the other end of the platen. An object of the invention is to provide a universally operated feed-roll mechanism to overcome the difficulties mentioned.

According to the present invention, there are employed independent feed-roll carriers. Each carrier is arranged side by side with the other carrier, and in each carrier are mounted both front and rear feed-rolls. These carriers are in the form of frames, each having bent-up end portions at front and back in which the axles of the feed-rolls are journaled, each carrier forming a sole support of its feed-rolls.

For equalizing the pressure upon the feed-rolls of each carrier, independently of the other carrier, the present invention provides a single compression spring for each carrier, said spring resting at its lower end upon a support that is provided upon the typewriting machine, and bearing up at its top against said carrier, at the middle point thereof. Thus, in the case of each carrier, the pressure is equalized between the ends of the rolls, and also the pressure of the front roll is made equal to the pressure of the back roll.

Since each carrier is independent of the other, it results that a narrow sheet may be carried upon either end of the platen, or other inequalities of conditions may occur, but all the sheets will be successively carried around the platen. There being so many points of contact, and the pressure being equal at all points, it results that any sheet is carried around the platen accurately without danger of slipping or skewing.

A roll-releasing rock-shaft is mounted upon the carriage or platen-frame, and extends longitudinally of the platen, preferably in rear thereof. Fingers extend forwardly from the

rock-shaft to bear down upon said frames, to release the rolls from the platen. There may be one finger on said rock-shaft for the outer end of each roll-frame, and also a single midway finger for engaging the inner ends of both roll-frames.

There may also be provided upon the rock-shaft a cam-arm, which is engageable by a finger-lever mounted upon the carriage to rock said shaft and lock it in position with the rolls dropped from the platen. Said roll-frames are in the nature of floats, but they are anchored against lateral displacement by means of ears which are bent down from the paper-guiding apron. The latter curves forwardly under the platen and above said frames. These ears project down through holes formed in the frames, and restrain the frames against endwise displacement.

The spring gives the roll-carrier a swiveling action in all directions, and a single spring provides the entire pressure in each pair of rolls, and equalizes the pressure throughout.

The paper-shelf, which extends downwardly and forwardly at the back of the platen, is constructed to be independent of the feed-rolls, and is rigidly mounted directly upon the frame of the carriage. In manufacturing the machine, the usual carriage-scales and the usual front paper-guiding fingers can be adjusted; and subsequently, if it should be found necessary, resetting or readjustment of the feed-rolls or the feed-roll frame can be practically effected without disturbing such adjustment of the usual paper-fingers and scales, inasmuch as the bottom feed-rolls are not mounted upon said paper-shelf or apron.

Other features and advantages will hereinafter appear.

In the accompanying drawings,

Figure 1 is a perspective view of the platen-carriage of an Underwood portable typewriting machine, having my invention applied thereto, part of the structure being broken away to better illustrate other parts.

Figure 2 is a cross-sectional view, front to rear, through the structure shown in Figure 1. In this view, the feed-rolls are shown in effective positions against the platen.

Figure 3 is a view similar to Figure 2. In

this view the lower feed-rolls are shown in released positions.

Figure 4 is a disassembled perspective view of certain of the elements of my improved feed-roll mechanism.

In an Underwood portable typewriting machine, types 10 strike against a platen 11 mounted on a platen-shaft 12 journaled in end plates 13 of a platen-carriage 14. The platen 11 may be rotated by a finger-wheel 15 on each end of the shaft 12. The end plates 13 may be fastened together in the rear of the platen 11 by a cross-rod 16.

For feeding work-sheets at the delivery side of the platen 11, a rear paper-table 17 is mounted between the end plates 13, and its upper rear end portion may be supported on the cross-rod 16. For fastening the table 17 to the rod 16 a hook-like member 18 integrally joined at each end of the table may be bent rearward for engaging over the rod, as illustrated in Figures 1 and 2. The lower forward portion of the paper-table 17 is fastened in the carriage.

A sheet-metal base-plate 20 is fastened between the end plates 13 to inreaching integral lugs 21 of the end plates by screws 22. The front and rear side-edge portions of the plate 20 are formed, as shown in Figure 3, with angular rail-elements 23, each of which is disposed adjacent a usual laterally fixed rail-member 24 to form therewith a track or race-way for usual anti-friction elements 25.

The base-plate 20 may have two or more integral lugs 26 formed by cutting them partly away from the surrounding metal and bending them upward a small amount, as shown in Figure 3. Each of the lugs 26 may have tapped holes for receiving a screw 27, which is provided with a lock-nut 28.

A front feed-roll 30 and an associated rear feed-roll 31, constituting a pair, may be positioned adjacent each end of the platen. Roll-shafts 32 have reduced bearing portions 33.

Each front feed-roll 30 and its paired feed-roll 31 are mounted on a slightly concaved sheet-metal frame 34 which may be approximately parallel to the forward overlying portion of the paper-table 17, which underlies the platen 11. Each frame has an arm 35 at each corner formed with a journal element 36 for receiving one of the bearing portions 33. The inner end of each frame 34 has a depressed extension 37. Each of the outer end portions of the frames 34 may have a sunken portion 38, substantially as shown in Figure 1.

The rear feed-rolls 31 pass through slots 39 in the paper-table 17 to bear against the platen 11. The front feed-rolls 30 extend through cut-out sections 39^a in the forward edge portion of the paper-table to bear against the platen. A strip 40 of metal is riveted to the base plate 20 at the rear of each screw 27, and the forward end of the strip rests on the top of screw 27. Each strip

40 is made with a small boss 41 to serve for holding in place a small end of an upright conical spring 42.

Each spring 42 presses against the bottom of the overlying frame 34, to press the feed-rolls 30 and 31 on the frame 34 firmly against the platen. The tension can be adjusted by the screws 27. To retain the springs 42, a boss 43 is centrally located in each frame 34 for engaging in the upper end of each spring.

Each pair of feed-rolls 30 and 31 engages the platen 11 independently of the other pair of feed-rolls. Each pair of feed-rolls is thrown off the platen simultaneously with the other pair. For this purpose, a rock-shaft 44 has its right end journaled in the right end plate 13 and its left end journaled in an arm 45 of a bracket 46 fastened to the base-plate 20 by screws 47. A stretch 48 of the rock-shaft 44 behind each feed-roll 31 is bent or cranked rearwardly from the axis of the shaft 44 to form offset portions, thus providing clearance for moving the rear feed-rolls 31 in the restricted space between the platen 11 and the plate 20. Between the two stretches 48 is provided a short stretch 50 coaxially disposed relatively to the end bearing portions of the shaft 44. A portion of the stretch 50 may be journaled in a bracket 51, which may be a duplicate of bracket 46. To make the revoluble movement of the shaft 44 effective for moving the frames 34 downward, two sheet-metal rocking arms 52 are mounted on the shaft 44, and each has a downwardly bent mounting flange 53 at its rear end apertured for engaging with a tight fit on the end portions of the shaft 44.

A forwardly-extending body-member 54 of each arm 52 has a finger 55 which is seated in the adjacent sunken portion 38. No part of the arm 52 opposite the middle portions of the frames 34 needs to extend above the plane of the upper faces of the frames 34.

For pressing down the frames 34, a third rocking arm 58 has a forwardly-extending body 60 and an integral down-reaching mounting flange 61 fitting tightly on the axially-disposed stretch 50 of the shaft 44. Upon the forward end of the body 60 is a cross-piece 62 which gives the arm 58 a T-shape. Each end of the cross-piece 62 rests on the adjacent depressed extension 37, and the body 60 may be bent slightly at 63, so that no part of the body or the cross-piece 62 will be disposed above the planes of the middle portions of the frames 34. This is desirable because of the shallow space between the upper face of the frame 34 and the lower face of the paper-table 17. For revolving the rock-shaft 44 and swinging the arms 52 and 58 against the frames 34, a cam-arm 65 is fastened on the shaft 44 adjacent the right-hand end plate 13. A cam-edge 66 is provided on the upper end of the arm 65 at its rear side. A feed-roll release lever 67 is rotatably

mounted on the cross-rod 16 adjacent the right-hand end plate 13 between two collars 68, and has an upwardly-extending arm 69 which terminates in a finger-piece 70 and a forwardly-extending arm 71.

A cam-roller 72 mounted on a transverse pin 73 on the front end portion of the arm 71 engages against the cam-edge 66. A light upward pull on the finger-piece 70 is effective to move the roller 72 downward and cam the arm 65 forward until the roller is seated in a notch 74 at the lower end of the cam-edge 66. The shaft 44 is revolved clockwise and swings the arms 52 and 58 down and moves both frames 34 down together against the force of the springs 42. The engagement of the roller 72 in the detent-notch is effective to hold the frames 34 and the feed-rolls 30 and 31 in their released positions against the actions of the springs 42.

Each of the frames 34 is mounted upon a single centrally-disposed spring 42. For guiding the up and down movements of the frames to move the feed-rolls 31, each of the frames 34 has two narrow rectangular guide-slots 75 cut in it. The long axis of each slot 75 is positioned to coincide with the long axis of the associated frame 34, and the slots are positioned on opposite sides of the spring-retaining boss 43 equal distances therefrom. Vertically-disposed guide-tongues 76 are bent down from the paper-table 17 in position for engaging loosely in the subjacent guide-slots 75. The springs are in line with the row of guides, each spring being between two guides, to avoid binding.

For fastening the forward end of the paper-table 17 rigidly to the carriage 14, an integral lug 77 on each end of the table 17 under the platen 11 is fastened to the base-plate 20 by a screw 78 which passes through a hole in an outreaching extension 80 of the lug 77 and is threaded in the plate 20.

It is usual in portable typewriting machines to have a front scale, such as is shown in Figure 2 and designated 81. The scale 81 is mounted in a way so that it will not be affected by any adjustment that may be necessary for the feed-roll pressure springs 42. In carrying out this feature, brackets 82 are fastened to the forward side of the plate 20 and each has an upreaching arm 83. The scale 81 may be fastened to the arms 83 in any suitable way.

It will be noted that the paper-table 17 does not extend up far enough to interfere with the scale 81. It can be readily seen, however, that if desired the front portion of the paper-table may be slightly extended and the cut-out sections 39^a may then be closed slots, such as the slots 39.

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 having a platen, the combination with a platen-carriage, of a feed-roll mechanism including a plurality of frames, a paired front and rear feed-roll on each frame, means for urging each of the pairs of feed-rolls against said platen, independently of the other pairs, and instrumentalities for moving all of said pairs of feed-rolls away from said platen simultaneously to their released positions, a slotted rear paper-table on said carriage extending forwardly over the released positions of said feed-rolls, the slots in said table positioned to permit said feed-rolls to extend therethrough for engaging said platen, and means whereby said paper-table co-operates with said frames for guiding said feed-rolls through said slots.

2. In a typewriting machine having a platen, the combination with a platen-carriage, of a feed-roll mechanism including a displaceably-mounted slotted frame, a paired front and rear feed-roll on said frame for engaging with the lower side of said platen, and a slotted rear paper-table fixed on said platen-carriage and extending forwardly under said platen above the released positions of said feed-rolls, the slots in said paper-table arranged to permit said feed-rolls to extend therethrough for engaging said platen, said paper-table having guide-members engaging in the slots of said frame for guiding said feed-rolls through said slots in said paper-table into engagement with said platen.

3. In a typewriting machine of the class described, having a revoluble platen and a platen-frame, the combination of a paper-guiding apron curving forwardly under and around the platen, a row of guiding studs directed downwardly from said apron, a plurality of frames under said apron and having, between the rolls, apertures having sliding fit upon said guiding studs, front and rear rolls upon each of said guiding frames to operate through apertures in said apron and run upon the under side of the platen, and separate springs pressing up against said frames, one spring for each frame, each spring pressing against the central portion of its frame, to divide its force between the rolls and between the ends of each roll upon said frame.

4. In a typewriting machine of the class described, having a revoluble platen and a platen-frame, the combination of a paper-guiding apron curving forwardly under and around the platen, a row of guiding studs directed downwardly from said apron, a plurality of frames under said apron and having, between the rolls, apertures having sliding fit upon said guiding studs, front and rear rolls upon each of said guiding frames to operate through apertures in said apron

and run upon the under side of the platen, separate springs pressing up against said frames, one spring for each frame, each spring pressing against the central portion of its frame, to divide its force between the rolls and between the ends of each roll upon said frame, said springs being in line with the studs, supports for said springs, and screws for adjusting the supports to regulate the tension of said springs.

5. In a typewriting machine of the class described, having a revoluble platen and a platen-frame, the combination of a paper-guiding apron curving forwardly under and around the platen, a row of guiding studs directed downwardly from said apron, a plurality of frames under said apron and having, between the rolls, apertures having sliding fit upon said guiding studs, front and rear rolls upon each of said guiding frames to operate through apertures in said apron and run upon the under side of the platen, separate springs pressing up against said frames, one spring for each frame, each spring pressing against the central portion of its frame, to divide its force between the rolls and between the ends of each roll upon said frame, said springs being in line with the studs, a rock-shaft, a finger-piece having means to operate said rock-shaft, and arms extending from said rock-shaft over the ends of the roll-frames to bear down each end of each frame, said arms having bearing points in line with the studs, and said guide-studs preventing the frames from skewing as the rolls drop from and rise to the platen.

6. In a typewriting machine of the class described, having a revoluble platen and a platen-frame, the combination of a paper-guiding apron curving forwardly under and around the platen, a row of guiding studs directed downwardly from said apron, a plurality of frames under said apron and having, between the rolls, apertures having sliding fit upon said guiding studs, front and rear rolls upon each of said guiding frames to operate through apertures in said apron and run upon the underside of the platen, separate springs pressing up against said frames, one spring for each frame, each spring pressing against the central portion of its frame, to divide its force between the rolls and between the ends of each roll upon said frame, said springs being in line with the studs, a rock-shaft, a finger-piece having means to operate said rock-shaft, and arms extending from said rock-shaft over the ends of the roll-frames to bear down each end of each frame, said arms having bearing points in line with the studs, and said guide-studs preventing the frames from skewing as the rolls drop from and rise to the platen, each roll-frame being formed of sheet-metal and having depressed bearings at its ends to re-

ceive the ends of said forwardly-extending release arms.

7. In a typewriting machine of the class described, having a revoluble platen and a platen-frame, the combination of a paper-guiding apron curving forwardly under and around the platen, a row of guiding studs directed downwardly from said apron, a plurality of frames under said apron and having, between the rolls, apertures having sliding fit upon said guiding studs, front and rear rolls upon each of said guiding frames to operate through apertures in said apron and run upon the under side of the platen, separate springs pressing up against said frames, one spring for each frame, each spring pressing against the central portion of its frame, to divide its force between the rolls and between the ends of each roll upon said frame, said springs being in line with the studs, a rock-shaft, a finger-piece having means to operate said rock-shaft, arms extending from said rock-shaft over the ends of the roll-frames to bear down each end of each frame, said arms having bearing points in line with the studs, and said guide-studs preventing the frames from skewing as the rolls drop from and rise to the platen, an upstanding operating arm upon an end of said rock-shaft, and a key-lever having means to swing said arm and lock it in roll-releasing position.

8. In a typewriting machine, the combination with a platen and a platen-frame, of a plurality of sets of lower feed-rolls, each set including a rear and a front feed-roll, a one-piece frame for each set of said feed-rolls, means for urging each set of feed-rolls against said platen independently of the other sets, said means including a single compression spring on said platen-frame, centrally disposed below each of said one-piece frames to press upward against the same, and devices on said platen-frame for adjusting the tension of said compression spring.

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