

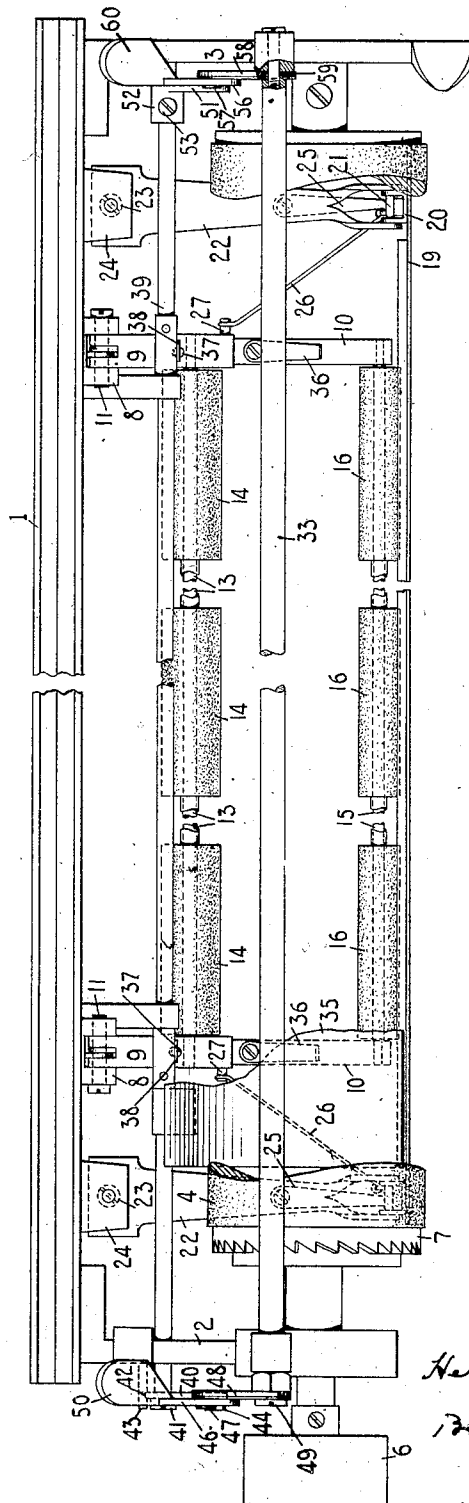
960,427.

H. H. STEELE.
TYPE WRITING MACHINE.
APPLICATION FILED FEB. 26, 1910.

Patented June 7, 1910.

4 SHEETS—SHEET 1.

FIG. 1



WITNESSES:

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M. W. Pool

INVENTOR:

Harbert H. Steele
By Jacob F. Felt

HIS ATTORNEY

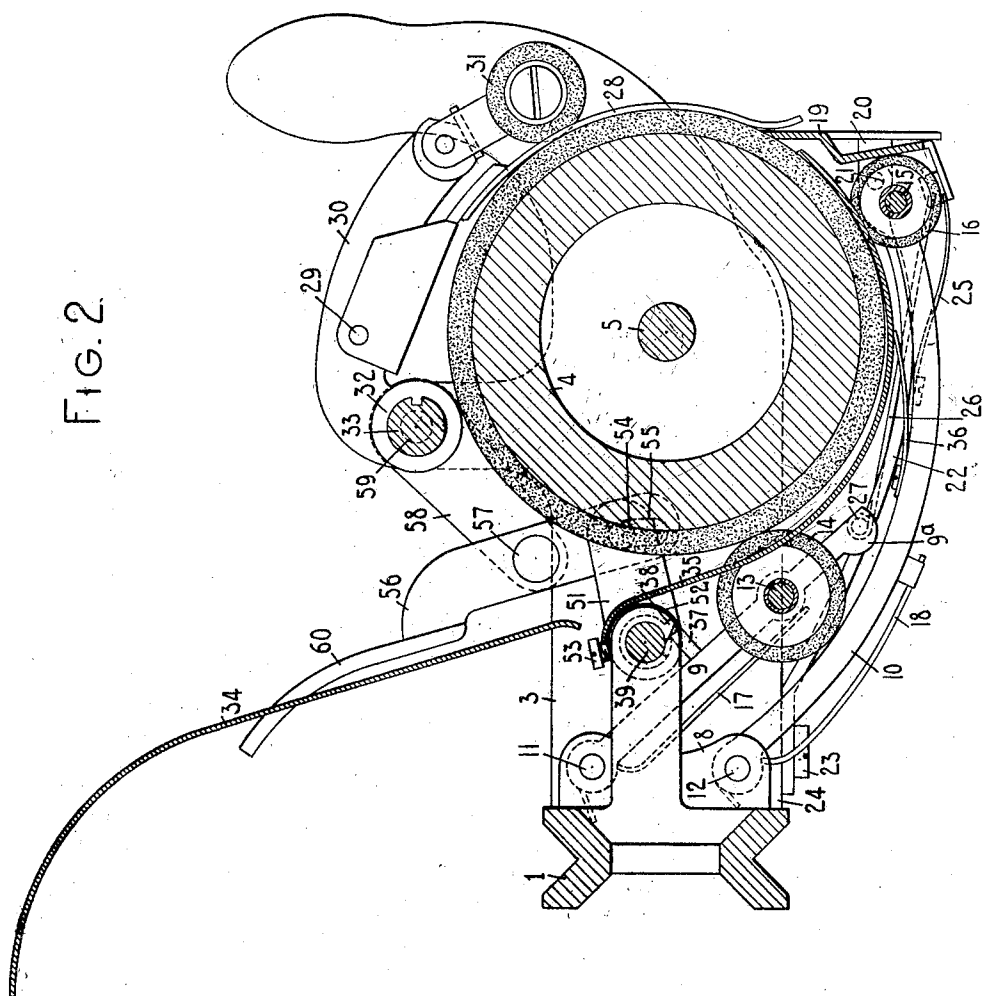
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4 SHEETS—SHEET 2.

FIG. 2.



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4 SHEETS—SHEET 3.

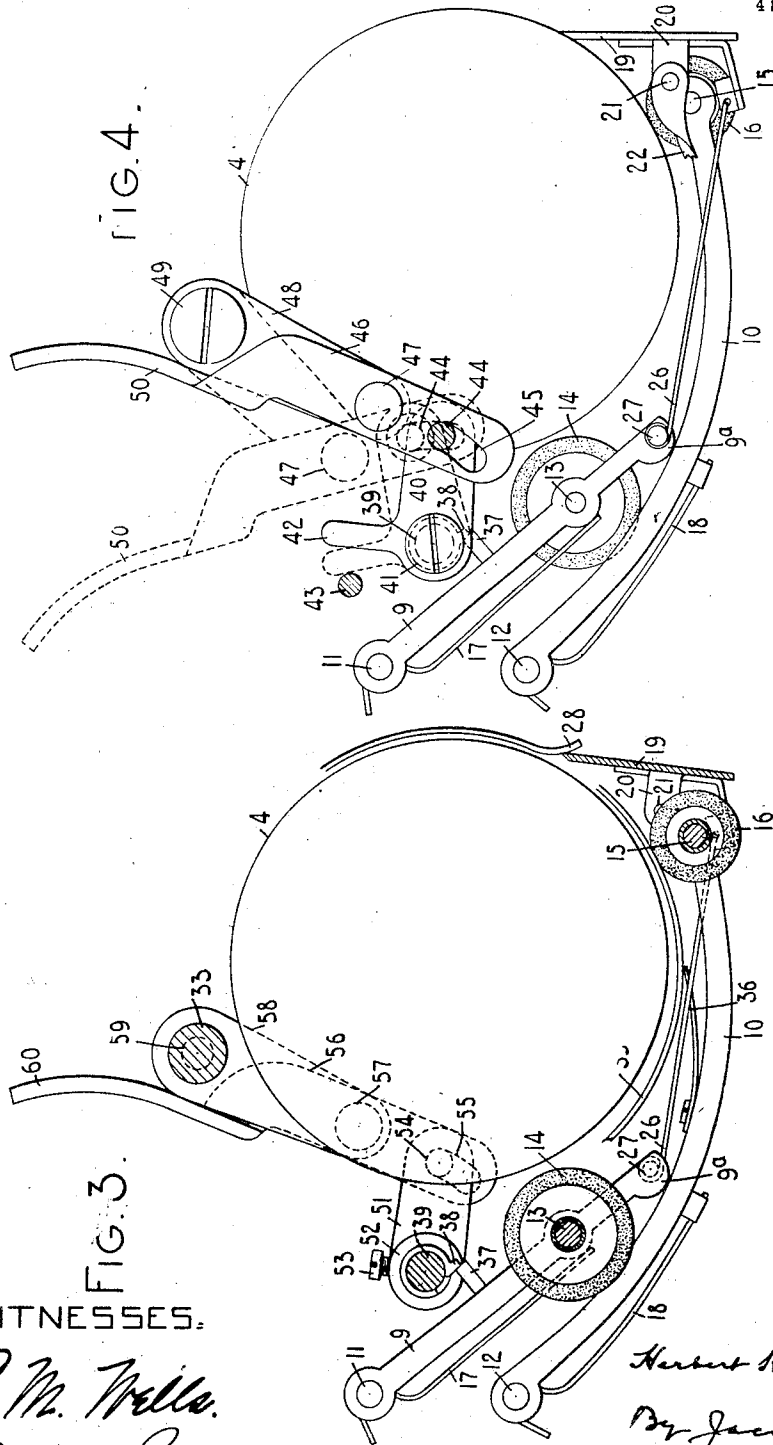


FIG. 3.

FIG. 4.

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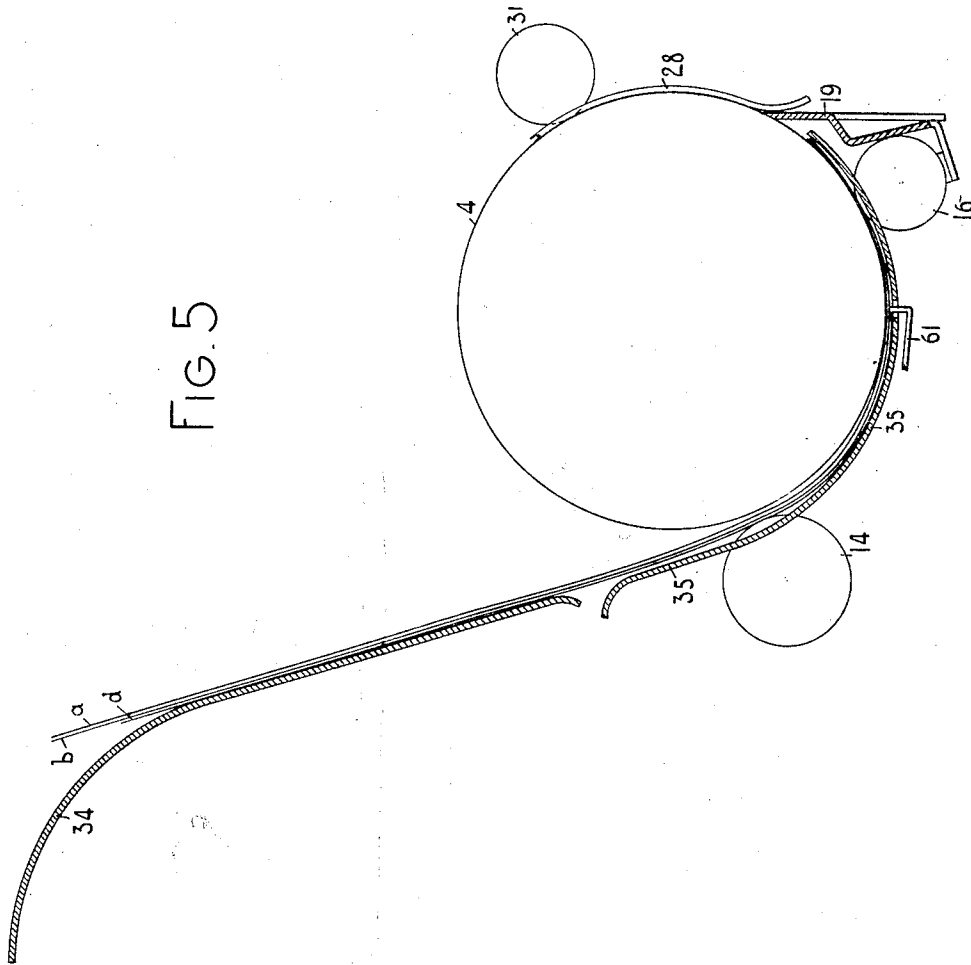
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960.427.

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4 SHEETS—SHEET 4.

FIG. 5



WITNESSES.

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UNITED STATES PATENT OFFICE.

HERBERT H. STEELE, OF MARCELLUS, NEW YORK, ASSIGNOR TO THE MONARCH TYPEWRITER COMPANY, OF SYRACUSE, NEW YORK, A CORPORATION OF NEW YORK.

TYPE-WRITING MACHINE.

960,427.

Specification of Letters Patent.

Patented June 7, 1910.

Application filed February 26, 1910. Serial No. 546,186.

To all whom it may concern:

Be it known that I, HERBERT H. STEELE, citizen of the United States, and resident of Marcellus, in the county of Onondaga and State of New York, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a specification.

My invention relates especially to paper feeding mechanism for typewriting machines and its general object is to provide improved devices of the class specified.

To the above and other ends my invention consists in the features of construction, combinations of devices and arrangements of parts hereinafter described and particularly pointed out in the claims.

In typewriting machines as heretofore constructed, it has been common to release or render inoperative all of the paper feeding devices which cooperate with the platen by means controlled by a key or hand lever so that a single operation entirely releases the paper from the control of the paper feeding mechanism. This, of course, is highly desirable since it enables paper to be introduced, adjusted and removed with facility; but it also possesses certain disadvantages. For example, in some forms of billing work it is common to reproduce the items of the bills or invoices on an underlying record sheet which remains in the machine as the different bills are removed and replaced by other bills, said record sheet being manipulated so as to receive in condensed form the records of a considerable number of bills. If the first entry at the top of a record sheet happens to be that of a short bill, one, say, in which there are but one or two lines, then after the entry has been written and the record sheet fed backward for condensing purposes, the release key is operated and the leading edge stop devices positioned for co-operation with the next bill sheet to be entered. In the supposititious case, however, the record sheet will have been fed backward so far that it will have passed out of control of the paper fingers and the pressure rolls usually carried by said fingers, so that there will be nothing to hold said record sheet in position; and during the adjustment of

the second bill sheet said record sheet is liable to become displaced, thus impairing the alinement of subsequent record entries. My present improvements obviate this disadvantage by providing in addition to a release lever or key which operates to release all the paper feeding devices, a second release lever or key which operates to release certain only of said paper feeding devices so as to enable the record sheet to be held against the platen under all conditions that may arise during the work.

My invention will be more particularly described in connection with the accompanying drawings which illustrate one form of said invention applied to a Monarch front-strike typewriting machine, although it is to be understood that said invention may be adapted to other styles of writing machines.

In said drawings, Figure 1 is a fragmentary plan view of the platen and platen carrier of a Monarch typewriting machine embodying my invention, parts being omitted and parts broken away. Fig. 2 is a vertical transverse sectional view of said platen and platen carrier. Figs. 3 and 4 are operating views corresponding to Fig. 2 but showing the parts in different relations. Fig. 5 is a diagrammatic view showing the paper feeding and controlling devices set for the introduction of a bill sheet.

In the drawings, the platen carrier which comprises a rear bar 1 and end bars 2 and 3 carries a platen 4 mounted on an axle 5 and provided at its ends with finger wheels 6. A line spacing ratchet wheel 7 is connected to the platen and cooperates with other line spacing devices (not shown). Lugs 8 project forward from the rear bar 1 and are slotted to receive pairs of arms 9 and 10 which are pivoted at 11 and 12. A rod or shaft 13 connecting the arms 9 carries sections 14 composing the main feed roller, and a similar rod or shaft 15 on the arms 10 carries the sections 16 of the secondary feed roller.

The main and secondary feed rollers are arranged at the under side of the platen, the secondary feed roller forward of the main feed roller and between it and the

printing point on the front face of the platen. Normally the main and secondary feed rollers are maintained in contact with the platen or the paper thereon by springs 17 and 18, which operate respectively against the arms 9 and 10. Forward of the feed roller 16 is a platen scale or plate 19 which is provided near its ends with brackets 20 which are pivoted on pins 21 carried by arms 22 secured by screws 23 to lugs 24 on the rear bar 1. Leaf springs 25 tend constantly to press the upper edge of said scale toward the platen. Said scale is connected by diagonally disposed links 26 to pins 27 extending laterally from enlargements 9^a in which the lower ends of the arms 9 terminate.

Extending downward transversely of the printing line so that their lower ends overlie the scale plate 19, are spring pressed guide fingers 28 pivoted at 29 on supporting arms 30 which also carry spring-pressed rolls 31 coöperating with the platen through openings in the fingers 28. The arms 30 curve over the top of the platen and at their rear ends terminate in hubs 32 which are slidably but non-rotatably supported on a paper finger rod 33 so that each paper finger contrivance comprising a support 30, pressure roll 31 and guide finger 28 may be adjusted lengthwise of the platen. Paper is adapted to be fed into the machine over a paper table 34 and deflector or apron 35, the latter being formed with openings through which the feed roller sections protrude and being pressed toward the platen by leaf springs 36 secured to the arms 10.

As the machine has been heretofore constructed, key controlled releasing mechanism is provided which when actuated throws off from coöperation with the platen, or releases, as it is called, the main and secondary feed rollers, the apron 35, the scale plate 19 and the guide fingers 28 all together. In the present instance I provide devices controlled by a key which is operative to effect the same results, but I further adapt said devices to the control of another key whereby only the main feed roller 14 is released without affecting the other paper feeding and controlling elements in advance of or between said main feed roller and the printing line. Said devices comprise pins 37 fixed to and projecting from the arms 9, which pins are adapted to be acted on by other pins or lugs 38 fast on a rock shaft 39 journaled on the platen carrier. The construction as thus far described is not novel, the rock shaft 39 and the lugs 38 and pins 37 being well known, the present embodiment of the invention residing in novel means for variably controlling the rock shaft.

Referring to Fig. 2 which shows the parts in normal position, it will be observed that the enlargements 9^a are separated sufficiently from the arms 10 to enable the arms 9 to be swung downward on their pivots far enough to carry the main feed roller away from the platen before the enlargements 9^a contact with the arms 10. It is through the operation of the enlargements 9^a on said arms 10 that the latter are swung down to release the secondary feed roller and other paper controlling devices. Consequently it will be understood that if the turning of the rock shaft 39 ceases prior to the co-action of the enlargements 9^a with the arms 10 the main feed roller will be released without affecting the secondary feed roller and paper apron and also without affecting the paper plate and paper guide fingers, these two last named elements being controlled by the links 26 which operate only during the last stage of movement of the enlargements 9^a when they co-act with the arms 10. The means for turning the rock shaft 39 only far enough to release the main feed roller without affecting the other paper feeding devices comprise a crank arm 40 which fits over the left-hand end of the rock shaft 39 outside the end bar 2 and is secured to said rock shaft by a screw 41 (Figs. 1 and 4). Said left-hand end of the rock shaft is squared and the hole in the crank arm 40 is correspondingly squared so that the relationship between the crank arm and shaft is fixed. The crank arm 40 is provided with an upwardly extending finger 42 which normally contacts with a stop pin 43 on the end bar 2. The crank arm 40 is provided near its forward end with a headed pin 44 which co-operates with an arcuate slot 45 formed at the lower end of one member 46 of a toggle connection, said member being pivotally connected at 47 with the other member 48 of said connection, the member or arm 48 having a pivot 49 fast on the end bar 2. Above the pivot 47 the member 46 is bent inward angularly to provide a finger piece or key 50, this key portion coöperating with the rear edge of the arm 48 to limit the forward movement of the toggle connection. The normal position of said toggle connection is illustrated by dotted lines in Fig. 4. When the key 50 is pulled forward the toggle is straightened and the upper end of the slot 45 engaging with the pin 44 will press the crank arm 40 downward, turning the rock shaft 39 and causing the lugs or pins 38, acting on the pins 37, to swing the arms 9 downward, moving the main feed roller 14 to the released position shown in Fig. 4. The top end of the slot 45 and the pin 44 are so related that the forward movement of the finger piece 50 is arrested by the rear

edge of the arm 48 before the enlargements 9^a have operatively engaged with the arms 10. Consequently the auxiliary feed roll 10^a will remain in operative position as shown in Fig. 4. Moreover, the wire links 26 form loose connections between the scale plate 19 and the arms 9, so that the lost motion between the arms 9 and the scale plate will not entirely be taken up during the movement of the arms 9 from the normal to the Fig. 4 position and consequently the scale plate 19 and the guide fingers 28 will not be disturbed but will remain in operative position. When the finger piece 50 is pushed rearward the feed roller 14, crank arm 40 and rock shaft 39 will be restored to normal position by the springs 17. The pin and slot connection 44, 45 provides a lost motion connection between the member 46 and the crank arm 40, the purpose of which is to permit the crank arm to swing downward such that when the rock shaft 39 is turned from its right-hand end the crank arm 40 may swing freely downward, carrying the pin 44, said pin traversing the slot 45 without affecting the member 46, the entire toggle connection remaining undisturbed.

The rock shaft 39 is adapted to be turned from its right-hand end, for the purpose of releasing all the paper feeding devices, by means which comprise a crank arm 51 having a hub 52 which surrounds the rock shaft 39 inside the end bar 3, said hub 52 being fixed to the rock shaft by a set screw 53 (Figs. 1, 2 and 3). The crank arm 51 extends normally forward and slightly upwardly as shown in Fig. 2 and is provided with a headed pin 54 which coöperates with an arcuate slot 55 formed at the lower end of a toggle member 56, said member being pivotally connected at 57 with a second toggle member 58 pivoted at 59 on the reduced end of rod 33 having a fixed pivot 59. The upper end of the member 56 is formed to provide a key or finger piece 60 which is bent inward so that it may co-act with the rear edge of the members 58 to limit the forward movement of the toggle connection. The toggle connection comprising the members 58 and 56 is similar in most respects to the toggle connection at the left-hand side of the machine previously described, but the distance from the pivotal center 57 to the top of the slot 55 is greater than the corresponding distance from the pivotal center 47 to the top of the slot 45. Consequently the toggle connection 58, 56 will, when straightened, operate through the crank arm 51 to turn the rock shaft 39 forward to a greater extent than will the left-hand toggle connection. The result is that when the finger key 60 is pulled forward from the nor-

mal to the Fig. 3 position it will operate not only to throw off the main feed roller 14 but will cause the enlargements 9^a to co-act with the arms 10 to release the secondary feed roller 16 while concurrently the links 26 will operate to swing the scale plate 19 away from the platen, said scale plate in turn acting against the lower ends of the guide fingers 28 to release the same. The position of the parts at this time is shown in Fig. 3. It will be apparent that the operation of the release key 60 is similar in effect to the operation of release keys hitherto provided. It will further be understood that when the right-hand releasing devices comprising the toggle members 56 and 58 are in normal position, the operation of the release key 50 will swing the crank arm 51 downward and cause the pin 54 to traverse the slot 55 without affecting the member 56.

In operation, when the record sheet, bill sheet and intermediate carbon inlay are to be introduced into the machine, the key 60 is pulled forward, thus releasing all the paper feeding devices and affording a clear passageway from the rear or introductory side of the platen past the printing point at the front thereof so that the three sheets may be expeditiously pushed around and adjusted in place for receiving the first line of writing. After such adjustment the finger piece 60 is pushed rearward and the paper feeding devices permitted to return to normal position under the control of the restoring springs provided for the purpose. Assuming that the bill comprises but a single entry composed of but one line of writing, the operator at the end of this line of writing removes the bill and turns the platen backward until it reaches the point where the record sheet will be properly positioned to coöperate with the next bill sheet when it is introduced at the back of the machine. This point, as is well understood, is commonly determined by appropriate indicating or stop devices comprised in the billing mechanism which is not disclosed herein. As soon as said point is reached the operator throws forward the key 50, releasing the main feed roller but not affecting the secondary feed roller 16 so that the record sheet and the carbon inlay will be held in place by the secondary feed roller, the back-feeding movement not being of sufficient extent to draw the record sheet and carbon inlay backward past the roller 16 but only, say, to the location shown in Fig. 5 where the record sheet and carbon inlay are illustrated and respectively designated by the reference characters *a* and *b*. Said Fig. 5 also illustrates in operative position a leading edge stop 61, which stop may be of any appropriate construction, as in the Monarch

machine, and is adapted to cooperate with the platen between the main and secondary feed rollers through suitable openings in the paper apron 35. After the completed bill sheet has been withdrawn a second bill sheet designated as *d* in Fig. 5 may be introduced over the paper table and paper apron and positioned with its leading edge against the stop 61. After the bill sheet *d* has been properly arranged, the feed roller 14 is restored to action and the leading edge stop mechanism is operated to withdraw the stop 61 from abnormal position. Thereafter the platen is turned to bring the work sheets into position for printing and the work may be proceeded with as before.

It will be observed that by my present invention duplex means are provided for variably controlling the feed roller 14, the duplex means in the present instance comprising two sets of toggle devices controlled by separate keys, one key at one end of the platen and the other key at the opposite end of the platen. By said duplex means the feed roller may be locked away from the platen in two different inoperative positions. When moving to one of these inoperative positions said feed roller does not affect the secondary feed roller and other paper controlling devices, while when said feed roller is moving to the other of said inoperative positions the release of the secondary feed roller and other paper controlling devices is effected during a single operation; that is to say, concurrently. The main and secondary feed rollers are parallel and are arranged at different points circumferentially of the platen, the secondary feed roller being arranged between the main feed roller and the printing line which in the present instance is at the front face of the platen. The feed roller 14 is releasable by a movable member or rock shaft which is provided with releasing devices such as the lugs or pins 38, this member or rock shaft being movable, or in the present instance rotatable, different extents by key-controlled devices which comprise crank arms fixed to the rock shaft and toggle members such as 46 and 56 having loose or pin and slot connections with said crank arms so as to enable the rock shaft to be turned by operating either key without affecting the other key.

Various changes may be made without departing from the spirit and scope of my invention.

What I claim as new and desire to secure by Letters Patent, is:--

1. In a typewriting machine, the combination of a platen, a feed roller, a support therefor, and duplex means for variably controlling said feed roller, said means being

operative by a plurality of keys, said keys being mounted independently of said feed roller and its support.

2. In a typewriting machine, the combination of a platen, a feed roller, and duplex means for variably releasing said feed roller and for locking the same in different released positions.

3. In a typewriting machine, the combination of a platen, a feed roller, a member movable to release the same, and duplex devices controlled by a plurality of independent keys for moving said member different extents.

4. In a typewriting machine, the combination of a platen, a feed roller, a member rotatable to release the same, and duplex key controlled devices for rotating said member different extents in the same direction.

5. In a typewriting machine, the combination of a platen, a feed roller, a member movable to release the same, a key operative to move said member one extent, another key operative to move said member a different extent, and connections between said member and said keys.

6. In a typewriting machine, the combination of a platen, a feed roller, a member movable to release the same, key controlled means operative to move said member one extent and lock the same at the end of said movement, and key controlled means operative to move said member a different extent and lock it.

7. In a typewriting machine, the combination of a platen, two feed rollers cooperative with said platen at different points circumferentially of the same, feed roller supports, means for releasing one of said feed rollers independently of the other, said means being controlled by a key mounted independently of both said feed rollers and their supports, and means for releasing both said feed rollers concurrently.

8. In a typewriting machine, the combination of a platen, a feed roller, a rock shaft provided with releasing devices, a key operative to turn said rock shaft a predetermined extent, and a second key operative to turn said rock shaft a different predetermined extent.

9. In a typewriting machine, the combination of a platen, a feed roller extending lengthwise of the platen, a second feed roller extending lengthwise of the platen between the first feed roller and the printing line, means for releasing the first recited feed roller independently of said second feed roller, and means for releasing both said feed rollers at one operation.

10. In a typewriting machine, the combination of a platen, a main feed roller extending lengthwise of said platen, a second-

- ary feed roller extending lengthwise of the platen between the printing line and the main feed roller, devices controlled by a key at one end of the platen for releasing the main feed roller independently of the secondary feed roller, and a key at the opposite end of the platen for operating certain of said devices to release both the main and secondary feed rollers.
11. In a typewriting machine, the combination of a platen, parallel feed rollers cooperative with said platen, a rock shaft provided with devices for releasing said feed rollers, key controlled devices for turning said rock shaft a predetermined extent to release both of said feed rollers, and key-controlled means for turning said rock shaft a different predetermined extent to release one only of said feed rollers.
12. In a typewriting machine, the combination of a platen, parallel feed rollers cooperative with said platen, a rock shaft provided with devices for releasing said feed rollers, key controlled toggle elements for turning said rock shaft a predetermined extent and locking it whereby both said feed rollers are locked away from the platen, and other key-controlled toggle elements for turning said rock shaft a different predetermined extent and locking it, whereby one only of said feed rollers is locked away from the platen.
13. In a front strike typewriting machine, the combination of a platen, a main feed roller at the introductory side of the platen, a secondary feed roller arranged between the printing line and the main feed roller, a releasing rock shaft, devices controlled by a key at one end of said rock shaft for turning it to release the main feed roller only, and other devices controlled by a key at the opposite end of said rock shaft for turning it a different extent to release both feed rollers concurrently.
14. In a typewriting machine, the combination of a platen, parallel feed rollers, devices including a rock shaft for releasing said feed rollers together and for releasing one only of said feed rollers at pleasure, and means for controlling said rock shaft including a key, loose connections between said key and said rock shaft, a second key, and other loose connections between said second key and said rock shaft, each of said keys being operative while the other key remains quiescent.
15. In a typewriting machine, the combination of a platen, paper feeding devices cooperative therewith, releasing devices for said paper feeding devices, said releasing devices comprising a rock shaft, and duplex means for variably controlling said rock shaft, each means comprised in said duplex means being operative independently of the other.
16. In a typewriting machine, the combination of a platen, paper feeding devices cooperative therewith, releasing devices for said paper feeding devices, said releasing devices comprising a rock shaft, crank arms secured to said rock shaft, and two sets of key controlled toggle devices one cooperating with each crank arm, said toggle devices being independently operative to turn said rock shaft different extents.
17. In a typewriting machine, the combination of a platen, paper feeding devices cooperative therewith, releasing devices for said paper feeding devices, said releasing devices comprising a rock shaft, crank arms secured to said rock shaft, and sets of toggle members each set having pin and slot connections with said crank arms and being provided with a key.
18. In a typewriting machine, the combination of a platen, a main feed roller supported on spring-pressed pivoted arms, a secondary feed roller supported on spring-pressed pivoted arms controllable by the supporting arms of said main feed roller, a rock shaft provided with releasing devices cooperative with the supporting arms of said main feed roller, and duplex key controlled means for variably operating said rock shaft.
19. In a typewriting machine, the combination of a platen, a main feed roller supported on spring pressed pivoted arms, a secondary feed roller supported on spring pressed pivoted arms controllable by the supporting arms of said main feed roller, a rock shaft provided with releasing devices cooperative with the supporting arms of said main feed roller, crank arms fixed to said rock shaft, and toggle members having pin and slot connections with said crank arms and provided with keys.
20. In a typewriting machine, the combination of a platen, a main feed roller mounted on spring pressed pivoted supporting arms, a spring pressed scale plate, link connections from said scale plate to said supporting arms, a secondary feed roller mounted on spring pressed pivoted arms controllable by said supporting arms, a rock shaft provided with releasing devices cooperative with said supporting arms and sets of key controlled toggle devices loosely connected with said rock shaft.
21. In a front strike typewriting machine, the combination of a platen, a main feed roller having a pivoted support, a secondary feed roller forward of the main feed roller and controlled by said pivoted support, a scale plate below the printing line, link connections between said scale plate and said

pivoted support, paper guiding fingers releasable by said scale plate, and duplex means for variably moving said pivoted support.

- 5 22. In a front strike typewriting machine, the combination of a platen, a main feed roller having a pivoted support, a secondary feed roller forward of the main feed roller and controlled by said pivoted support, a
10 pivoted scale plate below the printing line, link connections between said scale plate and said pivoted support, paper guiding

fingers overlying said scale plate, and means for variably moving said pivoted support, said means comprising a plurality of sets 15 of key actuated toggle elements.

Signed at Marcellus, in the county of Onondaga, and State of New York, this 24th day of February A. D. 1910.

HERBERT H. STEELE.

Witnesses:

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HILDA M. PERKINS.