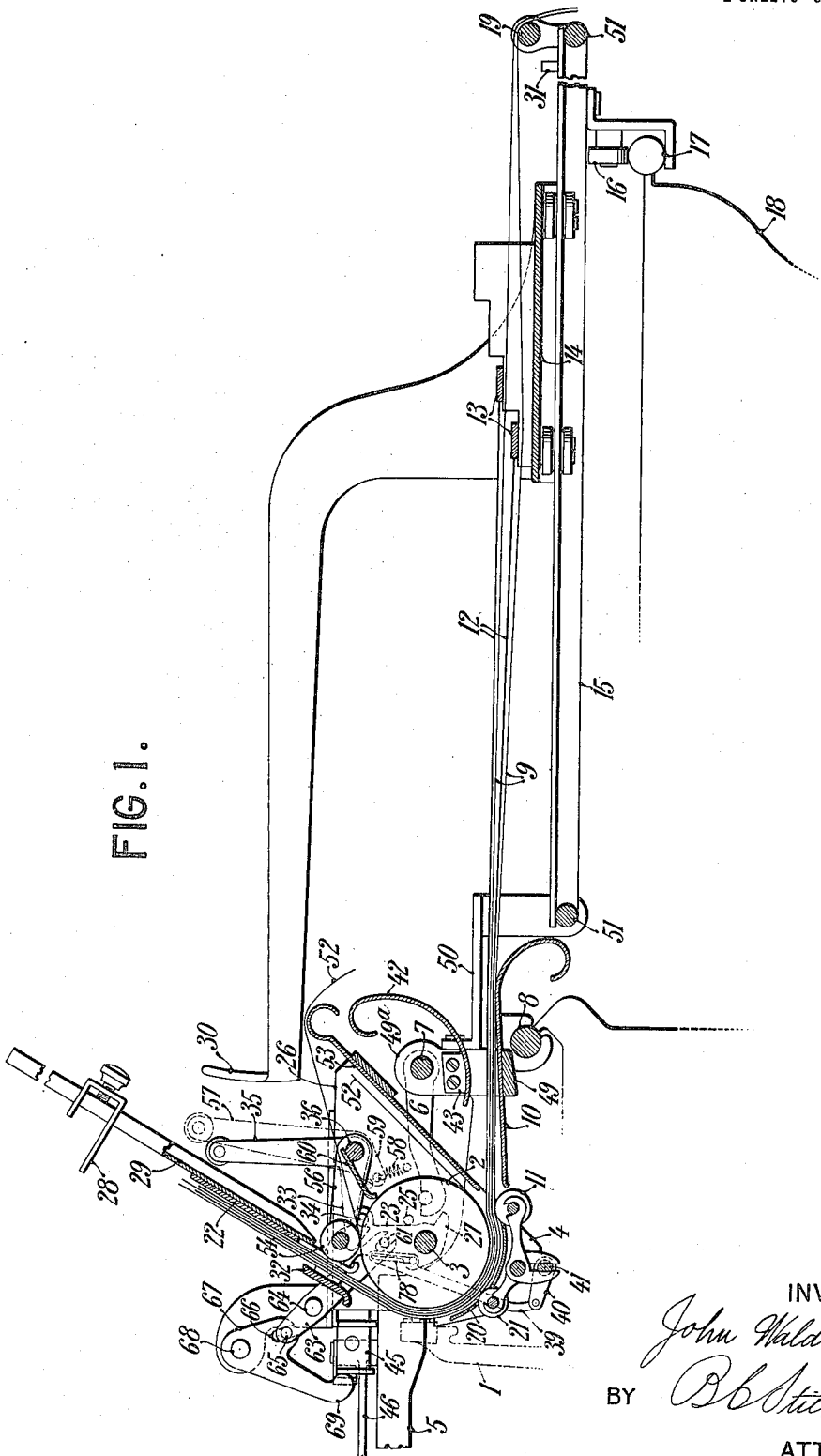


1,380,692.

J. WALDHEIM.
TYPEWRITING MACHINE.
APPLICATION FILED OCT 15, 1919.

Patented June 7, 1921.
2 SHEETS—SHEET 1.



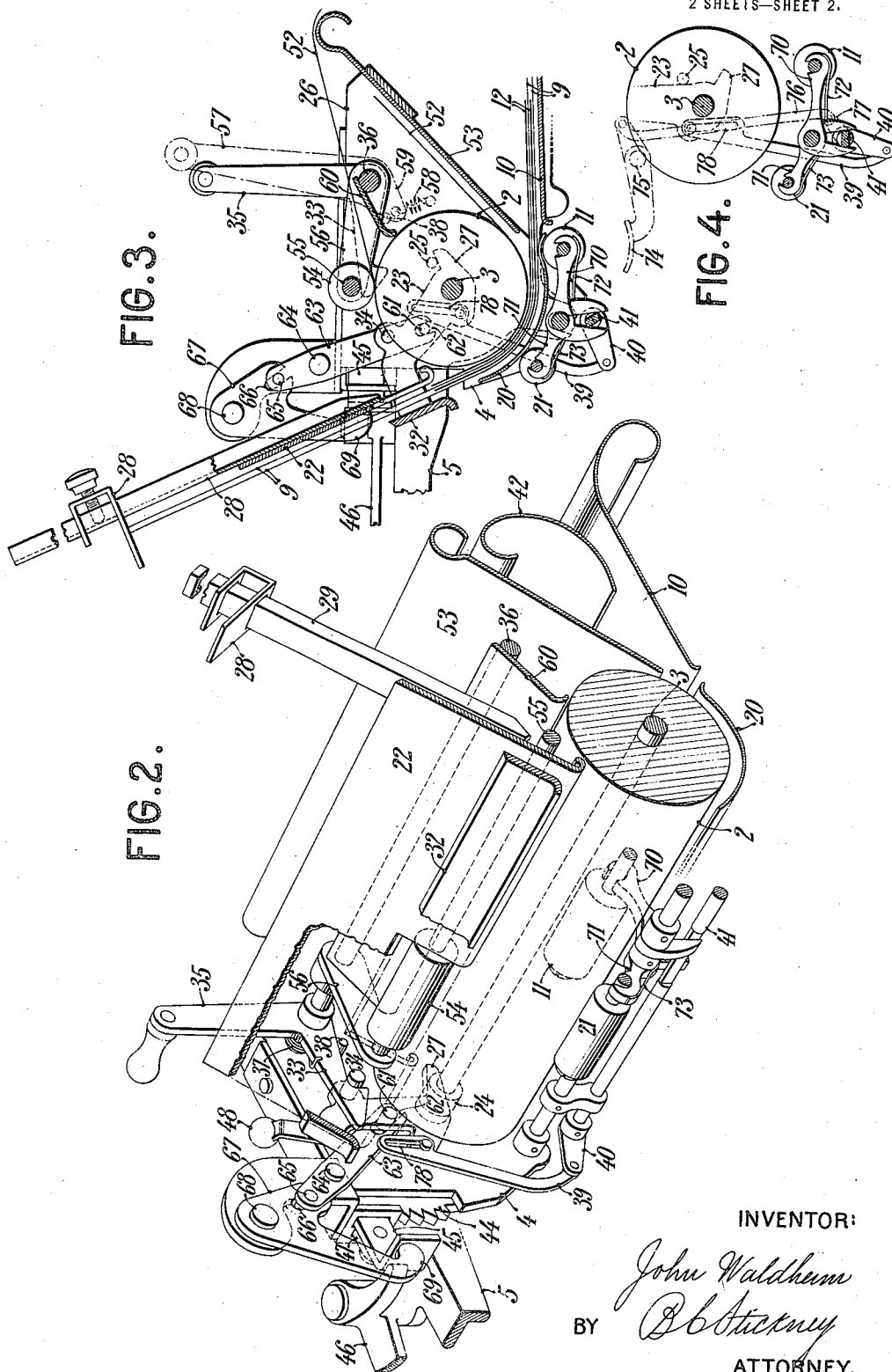
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2 SHEETS—SHEET 2.



INVENTOR:

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UNITED STATES PATENT OFFICE.

JOHN WALDHEIM, OF ELIZABETH, NEW JERSEY, ASSIGNOR TO UNDERWOOD TYPE-WRITER COMPANY, OF NEW YORK, N. Y., A CORPORATION OF DELAWARE.

TYPEWRITING-MACHINE.

1,380,692.

Specification of Letters Patent.

Patented June 7, 1921.

Application filed October 15, 1919. Serial No. 330,817.

To all whom it may concern:

Be it known that I, JOHN WALDHEIM, 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 relates to typewriting machines to be used for writing upon a number of continuous webs fed to the platen in superposed relation with carbon sheets interleaved therebetween, and is an improvement upon my prior application, Serial No. 316,981, filed August 12, 1919.

In said prior application, the webs, which may be parts of a fan-fold web, are carried around the under side of a revoluble platen, and up in front thereof, the typewriting being done upon the front of the platen; and, in order to straighten out the webs to permit the carbons to be drawn back independently of the webs, a delivery guide or chute, extending upwardly and forwardly from the front of the platen, is swung forwardly, thus reducing the bend around the platen of the webs and carbons which are led into the machine horizontally at the rear of the platen. The forward swinging of the delivery guide or chute also effects the actuation of a device for releasing the feed-rolls which cooperate with the under side of the platen. Little or no obstruction is then encountered in pulling back the carbon sheets as required. The guide or chute is provided with a knife to enable the tearing off of sections of the webs, and also with a gage for determining the length of the sections to be torn off. A releasable latch is provided for maintaining the guide or chute in its normal position.

An object of the present invention is to provide novel means to enable a condensed record-sheet, in the nature of a carbon copy, to be kept. To this end, there may be employed a paper-shelf inclining forwardly and downwardly toward the bottom of the platen, to direct the record-sheet between the platen and superposed webs or plies; and, if desired, a roll may be provided upon the top of the platen for feeding this record-sheet and also for holding it during the manipulation of the carbon and web plies. This roll or rolls may be carried upon

an arm or arms, and may be released by means of a finger-piece; and an apron or guide may be provided at the rear of the platen to guide the record-sheet back to the top of said rear paper-shelf.

Another object of my invention is to provide means whereby the platen and consequently the record-sheet will be line-spaced when the upwardly-extending guide is swung forward to enable the webs other than the record-sheet to be pulled forward. To this end, provision may be made of a train of connections by which the usual line-spacing slide of the Underwood typewriting machine will be operated upon swinging the guide or chute forwardly. This provision relieves the operator of the necessity of effecting a separate actuation of the line-space mechanism in connection with the adjustment of the webs and carbons and the subsequent severing of the webs; and guards against the superposition on the record-sheet of the first line of a new section on the last line of the previous section.

Other features and advantages will hereinafter appear.

In the accompanying drawings,

Figure 1 is a sectional side view of part of an Underwood typewriting machine, modified to show one form of my invention as applied thereto.

Fig. 2 is a fragmentary perspective view of a carriage, showing the parts in writing position.

Fig. 3 is a fragmentary sectional side view of the carriage, showing the parts positioned for withdrawing the carbon sheets.

Fig. 4 is a diagrammatic side view, showing the feed-rolls moved from the platen by the usual feed-roll release handle.

In the Underwood standard typewriting machine, depression of the character keys, not shown, causes type-bars 1 to be swung upwardly and rearwardly against the front of a platen 2, which is journaled by means of an axle 3 in a shift frame 4. The shift-frame 4 is supported in the carriage 5 partly by means of arms 6 connected by shaft 7.

The carriage 5 is supported upon a front rail, not shown, and a rear rail 8, which advantageously is located considerably lower than in the ordinary Underwood standard typewriting machine, so that webs 9, drawn over a rear paper-table 10, will be guided

above the rail 8 and reach the platen at the usual rear feed-roll 11 at the front end of a substantially horizontal stretch of web.

As herein illustrated, the webs 9, of which two are shown, have a carbon sheet or paper 12 extending therebetween. Obviously, a greater number of webs 9 may be used, and, if desired, they may be plies of a fan-fold web. The carbon papers 12 are held in any suitable manner to the clip bars 13 of a carbon-paper carrier or carriage 14, which resembles in many of its details the usual Underwood fan-fold carbon-carriage. The carriage 14 is shown as running upon rails 15, which form a rearward extension of the typewriter carriage, said extension being supported at its rear end by a wheel 16 running upon a rail 17 forming part of a fixed extension 18 of the typewriter frame.

In order to guide the webs 9 to the carbon-carriage 14, they may be drawn over a rear bar 19 of the carriage provided with any usual or suitable form of edge gage, not shown. When the webs are introduced into the machine, they pass over the aforesaid paper-table 10 to the rear feed-roll 11, and are then guided upwardly by an apron 20 supported on the platen frame in any desired manner, so that the webs pass between the front feed-rolls 21 and the platen 2, and then up in front of the platen to a swing guide or chute comprising a paper-table 22. The apron 20 may extend well up toward the printing line.

The swing paper-table 22 is herein shown as provided with brackets 23 at its ends, said brackets being journaled by hubs 24 upon the platen axle 3, to permit the swing table to be swung forward from a stop 25 fast upon an end frame 26 of the platen frame, against which it normally rests, to the Fig. 3 position, at which it is arrested by engagement of a tail 27 thereon with said stop 25. When the table 22 is swung forward to its Fig. 3 position, the angle through which the webs 9 and the carbons 12 between them are turned is only about 60°, and it has been found that this arc of contact on the ordinary Underwood standard platen is sufficiently small to allow the carbons to slip over the webs sufficiently readily for the purpose in hand. When the paper-table 22 is in the Fig. 3 position, the operator draws the leading ends of the webs to be gaged against a suitable adjustable end gage 28 fast upon an upward extension 29 of the table 22, and then, while holding the webs in gaged position, pushes the carbon-paper carriage 14 rearward by means of its forwardly-extending handle 30.

Provision may be made of an adjustable stop 31, for arresting the carbon-carriage 14 when the carbons 12 have reached any suitable point below the severing knife 32, which is fast to the table 22, and stands in

front of it, so that the webs and the carbon sheets are passed between the knife and the table.

When the leading edges of the carbons have been brought below the cutting edge of the knife 32, Fig. 3, the operator may swing the table 22 rearwardly to its Fig. 1 position, so that it will be caught in said position by means of a hook 33, which is adapted to catch over a pin 34 upon one of the swinging brackets 23, and hold the table 22 in its normal position. The webs may then be severed by drawing them against the knife, the feed-rolls 11 and 21 being sufficient to hold the webs firmly during this operation. To enable the table 22 to be readily released from the hook 33, provision is made of a handle 35, forming a bell-crank extension of the hook 33, and adapted to swing the same around shaft 36, against the action of a spring 37, which normally holds the hook in effective position. A stop 38 holds the hook 33 in position to be cammed upwardly by the pin 34, when the table 22 is swung backwardly.

In order to relieve the operator of the need of separately casting off the feed-rolls 11 and 21, and to insure actuation of the parts in proper order, the swinging bracket 23 may be connected by a link 39 to a rock-arm 40, fast upon the usual feed-roll-casting-off shaft 41 of the Underwood platen-frame, the connections being such that when the hook 33 holds the table 22 rearwardly, the feed-rolls are effective, but, when the swing-table is in the Fig. 3 position, the feed-rolls are automatically released.

In order to assist in guiding the webs 9 across the paper-table 10 to the platen, provision may be made of a paper-guide or shield 42, which lies above the paper-table 10, and is supported at each end by a bracket 43, secured to the typewriter carriage 5.

The usual line-space-ratchet-wheel 44 is secured on the axle 3, and is actuated by means of the usual line-space-slide 45, operated, in turn, by a line-space-lever 46, the operative connection between the line-space-slide and ratchet-wheel being effected by means of the usual pawl 47.

The number of line-spaces through which the platen is moved at each actuation of the line-space-lever 46, may be varied, for one, two or three spaces by the usual line-space-control handle 48.

The paper-table 10 is supported by means of a bar 49, from which extend posts 49^a, carrying brackets 50, which support the rails 15, said rails being connected by rods 51. The mechanism, so far described, is substantially the same as that disclosed in said prior application, Serial No. 316,981.

In order to keep a record on a separate sheet or web 52, provision is made of a pa-

per-table 53, of substantially the usual form. The record-sheet, when placed in the machine, passes from said paper-table 53 around the platen, and beneath the lower edge of the paper-table 22, being pressed against the upper part of the platen by means of an auxiliary feed-roller 54. Said roller 54 is supported upon a shaft 55, carried by arms 56, secured to shaft 36, a handle 57 being provided at the right-hand end of said shaft 36, to facilitate lifting said auxiliary roller 54, which is normally maintained in position against the platen by means of a spring 58, connecting a lug 59 on said handle 57 with a pin fixed in the platen-frame, the handle 57 being arranged near the right-hand end of the platen-frame. In order to assist in guiding the forward end of the record-sheet 52 above the top of paper-table 53, when inserted in the machine, a guide or shield 60 is secured to shaft 36, so that when the auxiliary roller 54 is withdrawn from the platen, shield 60 will be in proper position to receive and direct the forward end of the record-sheet to the rear of the machine.

It will be noted that after the webs have been severed, at the end of the operation previously described, fresh portions of the webs will have been positioned at the printing line, due to the initial drawing forward of the webs. The record-sheet, however, being pressed against the platen 2, by the auxiliary feed-roller 54, would not be advanced with webs 9, and consequently the line last written would still be at the printing line. This condition may be corrected by manually line-spacing the platen to advance the record-sheet. It is desirable, however, to relieve the operator of the necessity of performing a separate operation of line-spacing the platen, in connection with the operation of the other parts, by providing means for effecting automatic line-spacing of the platen, when the paper-table 22 is swung forwardly. To this end, provision is made of a pin 61 on bracket 23, engaging a slotted end 62 of a lever 63, pivoted at 64 on the platen-frame, and having, at its other end, a pin 65 engaging a slotted portion 66 of a lever 67, pivoted at 68 on the platen-frame, and having a nose 69 at the end of a downwardly-extending portion thereof, for engagement with the forward end of the line-space slide 45. Forward movement of bracket 23 will then effect, by means of the levers 63 and 67 and the line-space-slide 45, a line-space movement of the platen to advance the record-sheet. The other steps of advancing the webs 9 to the end gage 28, retracting the carbons 12, and severing the typewritten sections of the webs, will then be effected in the usual order, and upon return of paper-table 22 to normal position the webs, the record-sheet and the inter-

leaved carbons will be in position to start work afresh.

With this arrangement, it will be seen that the record-sheet is automatically line-spaced through one, two or three line-spaces, according to the setting of the line-space-control handle 48.

When the feed-rolls 11 and 21 are cast off or released from the platen by the actuation of the swing-frame, comprising the paper-table 22 and the bracket 23, arms 70 and 71, which support the feed-rolls, are moved against the tension of springs 72 and 73 by turning the rock-shaft 41 to the position indicated in Fig. 3. When the swing-frame is moved back to its normal position, the springs are effective to return the rock-shaft 41 and the link 39, and press the feed-rolls 11 and 21 against the platen.

Provision is made to cast off or release the feed-rolls by the usual finger-piece 74 (Fig. 4) pivoted at 75 on the right-hand end of the platen-frame 4, so that the feed-rolls may be released independently of the swing-frame. The finger-piece 74, when actuated, pulls upwardly on a link 76 connected to a crank-arm 77 on the right-hand side of the shaft 41 to rock the latter and release the feed-rolls 11 and 21, as hereinbefore described. It is desirable to maintain the feed-rolls in their released position when cast off by the finger-piece 74, so that both hands of the operative may be free to properly adjust a work-sheet around the platen. For this purpose, the finger-piece 74 is effective to rock the shaft 41 through a greater angular distance, than when actuated by the swing-frame, so that the return springs have no effect to restore the feed-rolls.

To permit the releasing of the feed-rolls by the finger-piece 74 independently of the swing-frame, the link 39 connected to the swing-frame and the rock shaft 41 is provided with a slot 78.

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, in combination, a revoluble platen, a guide to direct webs to the lower part of said platen, a guide to direct a record-sheet to the lower part of said platen between the same and said webs, main feed-rollers to press said webs and record-sheet against said platen, an auxiliary feed-roll for holding said record-sheet in engagement with said platen, line-spacing means for said platen, and means for retracting said main feed-rollers from said platen and concomitantly operating said line-spacing means to feed said record-sheet independently of said webs.

2. In a typewriting machine, in combination, a revoluble platen, means to direct

webs to the lower part of the platen and to direct a record-sheet between said webs and said platen, means to hold said webs and said record-sheet in operative relation with said platen, and means to release said webs from the platen to enable carbon-sheets interleaved between said webs and said record-sheet to be retracted, and to concomitantly rotate said platen to advance said record-sheet.

3. In a typewriting machine, in combination, a revoluble platen, means to guide a plurality of webs around said platen, comprising a paper-shelf at the rear of said platen to direct said webs to the lower part thereof, a guide to receive said webs when delivered from said platen, a guide to direct a record-sheet between said platen and said webs, an auxiliary roll for yieldingly pressing the record-sheet against the platen and directing it away from said webs, and means, including a finger-piece, for retracting said auxiliary roll from said platen.

4. In a typewriting machine, in combination, a revoluble platen, means to guide a plurality of webs around said platen, comprising a paper-shelf at the rear thereof to direct said webs to the lower part thereof, a guide to receive said webs when delivered from said platen, a guide to direct a record-sheet between said platen and said webs, an auxiliary roll for yieldingly pressing the record-sheet against the top of the platen and directing it away from said webs, and a shield to the rear of said auxiliary roll to prevent the forward end of the record-sheet from passing downward between said platen and said record-sheet guide.

5. In a typewriting machine, in combination, a revoluble platen, means to guide a plurality of webs around said platen, comprising a paper-shelf at the rear thereof to direct said webs to the lower part thereof, a guide to receive said webs when delivered from said platen, a guide to direct a record-sheet between said platen and said webs, an auxiliary roll for yieldingly pressing the record-sheet against the top of the platen and directing it away from said webs, a shield to the rear of said auxiliary roll to prevent the forward end of the record-sheet from passing downward between said platen and said record-sheet guide, and means to lift said auxiliary roll and said shield.

6. In a typewriting machine, in combination, a revoluble platen, a feed-roll yieldingly pressed against said platen, line-spacing mechanism for rotating said platen, said mechanism including a slide, means, including a lever, for retracting said feed-roll, and means, actuated by said lever, for actuating said slide.

7. In a typewriting machine, in combination, a revoluble platen, a feed-roll yield-

ingly pressed against said platen, line-spacing mechanism, including a slide, a manually-operable member engaging the forward end of said slide for actuating the same, a device for retracting said feed-roll, a second member engaging the forward end of said slide, and means whereby actuation of said device will cause said second member to actuate said slide and consequently effect a line-space movement of said platen.

8. In a typewriting machine, in combination, a revoluble platen, feed-rolls yieldingly pressed against the same, a guide for receiving the work fed from said platen, said guide being pivotally mounted, line-spacing mechanism, and means whereby movement for said guide will retract said feed-rolls and actuate said line-spacing mechanism.

9. In a typewriting machine, in combination, a platen frame, a revoluble platen, a platen axle journaled in said frame, a paper-guide to receive work fed from said platen, supporting brackets for said paper-guide loosely mounted on said axle, a ratchet-wheel fixed on said axle, ratchet-wheel-actuating means, comprising a line-space slide and a pawl for cooperation with said ratchet-wheel, an arm pivoted on said platen frame and adapted to engage said slide and actuate the same, and connections between one of said brackets and said arm, whereby swinging of said paper-guide to an abnormal position will actuate said arm and consequently line-space said platen.

10. In a typewriting machine, in combination, a platen frame, a platen rotatably mounted in said platen frame, line-spacing mechanism for driving said platen, including a slide on the platen frame, an arm pivoted on said frame and engaging the end of said slide, a lever pivoted on said platen frame having a pin-and-slot connection with said arm, a pivotally mounted paper-guide for receiving work from said platen, and means whereby movement of said paper-guide to abnormal position will actuate said lever.

11. In a typewriting machine, in combination, a revoluble platen, main feed-rolls normally pressed against said platen at one side of the writing line, a movable paper-guide to receive work advanced beyond the writing line, a record-sheet feed-roll pressed against said platen, line-spacing means for actuating said platen, and connections whereby movement of said paper-guide from its normal position will effect a withdrawal of said main feed-rolls from said platen and line-spacing of said platen to advance the record-sheet.

12. In a typewriting machine, in combination, a platen-frame, a platen rotatably mounted therein, feed-rolls movably mounted on said platen-frame, means urging said

feed-rolls against said platen, line-spacing mechanism for rotating said platen, and means for effecting withdrawal of said feed-rolls and concomitant actuation of said line-spacing mechanism.

13. In a typewriting machine, in combination, a platen-frame, a platen rotatably mounted therein, line-spacing mechanism for said platen, including a slide mounted on the platen-frame, a pivotally-mounted guide for receiving work from said platen, and means, actuated by said guide, when swung in one direction, to actuate said line-space slide.

14. In a typewriting machine, in combination, a revoluble platen, main feed-rolls to enable the feeding of a plurality of webs and a record-sheet between said webs and platen, means for releasing said main feed-rolls, an auxiliary feed-roll to enable actuation of said record-sheet when said main feed-rolls are released, and means, actuated by said main feed-roll-releasing means, to advance the platen, and consequently the record-sheet.

15. In a typewriting machine, in combination, a revoluble platen, means to feed around said platen a plurality of superposed webs and a record-sheet between said webs and said platen, means to release said webs from said feeding means, and means, actuated by releasing means, to rotate said platen, to advance said record-sheet.

16. In a typewriting machine, in combination, a revoluble platen, mechanism to line-space about said platen a plurality of webs and a record-sheet between said webs and said platen, means to release said webs from said line-space mechanism, and means, actuated in releasing said webs, to operate said line-space mechanism, to advance said record-sheet.

17. In a typewriting machine, the combination with a platen, of mechanism for line-spacing around said platen both a web and a record-sheet between said web and said platen, means, shiftable to release said web from said line-spacing mechanism, to enable a succeeding section thereof to be brought to the writing line, and means, actuated by said shiftable means, for automatically operating said line-spacing mechanism.

18. In a typewriting machine, in combination, a cylindrical platen, a paper-table to feed work to said platen at one point, a second paper-table to receive said work from said platen at another point, and platen-advancing means, automatically actuated upon movement of one of said paper-tables, to bring it more nearly into alignment with the other.

19. In a typewriting machine, in combination, a platen, primary feed-rolls for feeding webs and a record-sheet around said platen, an auxiliary feed-roll for feeding

said record-sheet, said auxiliary feed-roll normally cooperating with said primary feed-rolls, and means to render said primary feed-rolls ineffective, and to line-space said platen.

20. In a typewriting machine, in combination, a revoluble platen, feed-rolls normally in engagement with said platen, platen-rotating means, cast-off means for said feed-rolls, and means actuated by said cast-off means for operating said platen-rotating means.

21. In a typewriting machine, in combination, a revoluble platen, line-spacing means, a control-device for said line-spacing means, to permit the platen to be rotated through one or more line-space distances by said line-spacing means, means to assist in feeding around said platen a plurality of superposed webs and a record-sheet, means to release said webs from the feeding means, and means actuated by the releasing means to rotate said platen to advance said record-sheet one or more line-space distances, according to the setting of said control-device.

22. In a typewriting machine, in combination, a revoluble platen, means to feed around said platen a plurality of superposed webs, means to automatically release the webs from the feeding means, a finger-piece, and means actuable by said finger-piece to release said webs from the feeding means independently of the automatic means.

23. In a typewriting machine, in combination, a revoluble platen, feed-rolls to assist in feeding around said platen a plurality of superposed webs, a swing-frame, a rock-shaft actuable by said swing-frame, means actuable by said rock-shaft to cast off said feed-rolls to release said webs, and springs to restore said feed-rolls and said rock-shaft when the swing-frame is moved to its normal position.

24. In a typewriting machine, in combination, a revoluble platen, feed-rolls to assist in feeding around said platen a plurality of superposed webs, a swing-frame, a rock-shaft actuable by said swing-frame, means actuable by said rock-shaft to cast off said feed-rolls to release the webs, springs to restore said feed-rolls and said rock-shaft when the swing-frame is moved to its normal position, and a finger-piece to cast off said feed-rolls independently of said swing-frame.

25. In a typewriting machine, in combination, a revoluble platen, feed-rolls to assist in feeding around said platen a plurality of superposed sheets, a swing-frame, a rock-shaft actuable by said swing-frame, means actuable by said rock-shaft to cast off said feed-rolls to release said sheets, springs to restore said feed-rolls and said rock-shaft when the swing-frame is moved

to its normal position, and a finger-piece to cast off said feed-rolls independently of said swing-frame, said finger-piece being effective to rock the shaft to a position where
5 said springs will be ineffective to restore said feed-rolls, so that the latter may be retained in cast-off position indefinitely.

26. In a typewriting machine, the combination with a revoluble platen and means
10 at the introductory side of the platen for guiding webs thereto, of a carbon-shifter, a guide for the webs at the delivery side of the platen, said delivery guide being shift-
15 able relatively to the platen to a position to ease the webs upon the platen and thereby relieve the pressure upon the interleaved carbon, to permit the same to be drawn back by the carbon-shifter, and platen line-spacing mechanism connected to be operated at
20 the shifting of said delivery guide.

27. In a typewriting machine, the combination with a revoluble platen and means to guide work-webs with the interleaved carbon to and around said platen and away
25 therefrom, of feed-rolls to run upon the platen, means for casting off the feed-rolls and concomitantly casting off the webs from a portion of the platen while the latter remains stationary, to ease the webs suffi-
30 ciently to permit the interleaved carbon to be drawn back, and platen line-spacing mechanism operatively connected to said casting-off means.

28. In a front-strike typewriting machine, the combination with a revoluble
35 platen, of means to guide work-webs to and around the platen, whereby carbon interleaved between the webs is bound by said webs, a carbon-shifter, means movable rela-
40 tively to the platen to reduce the extent of the bend of the webs around the platen and thereby ease the webs sufficiently to permit the interleaved carbon to be drawn back

relatively to the webs by the carbon-shifter, a feed-roll for said platen, means for re-
45 leasing the feed-roll concomitantly with the easing of the webs, and line-spacing means also connected to operate concomitantly with the release of the feed-roll.

29. In a typewriting machine, in combi-
50 nation, a revoluble platen, means to guide a plurality of webs and a record-sheet to the platen, the record-sheet lying between said webs and the platen, a guide to receive said webs at the delivery side of the platen, and
55 means to shift said guide relatively to the platen to partly cast off the webs from the front of the platen, and to concomitantly rotate the platen and advance the record-sheet.

30. In a typewriting machine, in combination, a revoluble platen, a feed-roll yield-
60 ingly pressed against the same, line-spacing mechanism for the platen, a manually-operable member for actuating the same, a device for retracting said feed-roll from the
65 platen, a manually-operable member for actuating said retracting device, and means to concomitantly actuate said line-spacing mechanism and said feed-roll-retracting device.

31. In a typewriting machine, in combination, a cylindrical platen, feed-rolls to co-
operate with said platen, an introductory
75 table to guide work-sheets to the platen, a delivery table to receive said work-sheets from the platen, platen-advancing means, and means for moving one of said tables to bring it more nearly into alinement with
80 the other, and for concomitantly rotating the platen and casting off said feed-rolls.

JOHN WALDHEIM.

Witnesses:

EDITH B. LIBBEY,
CATHERINE A. NEWELL.