

No. 848,560.

PATENTED MAR. 26, 1907.

E. F. KUNATH.
TYPE WRITING MACHINE.
APPLICATION FILED DEC. 4, 1905.

2 SHEETS—SHEET 1.

Fig. 2.

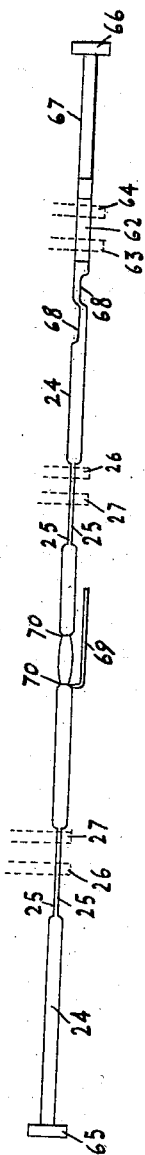


Fig. 1.

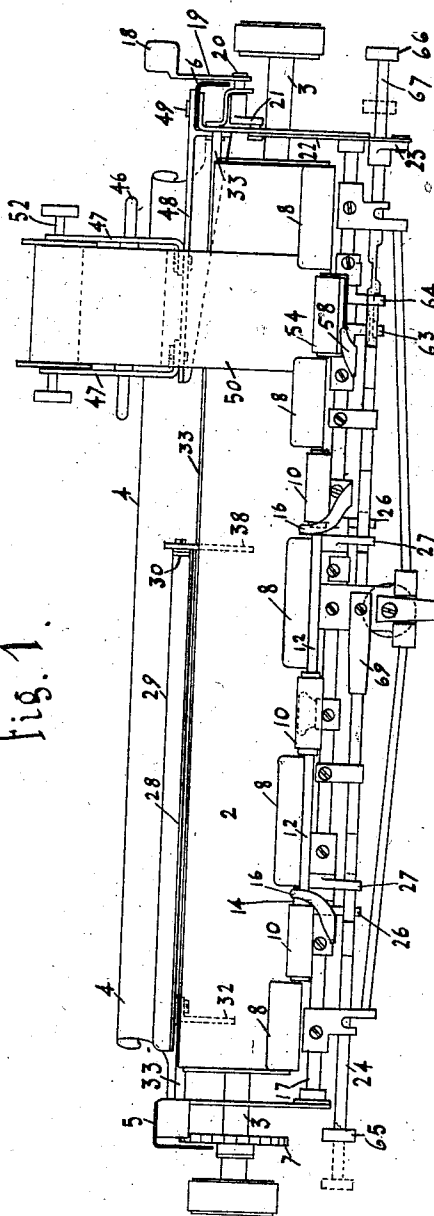
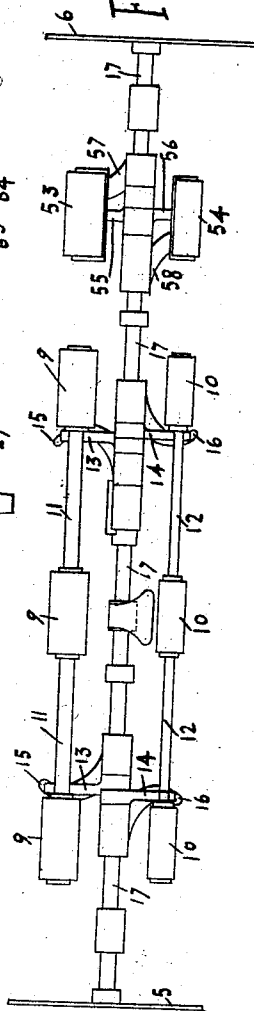


Fig. 3.



Witnesses

H. Frankfort

J. B. Addett

Inventor

Edward F. Kunath

By his Attorney

R. B. Stickney

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2 SHEETS—SHEET 2.

Fig. 5.

Fig. 4.

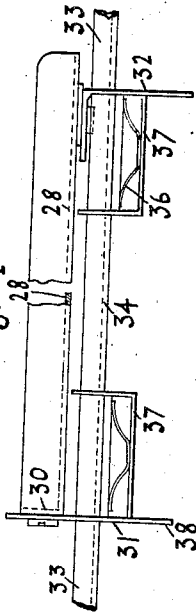


Fig. 8.

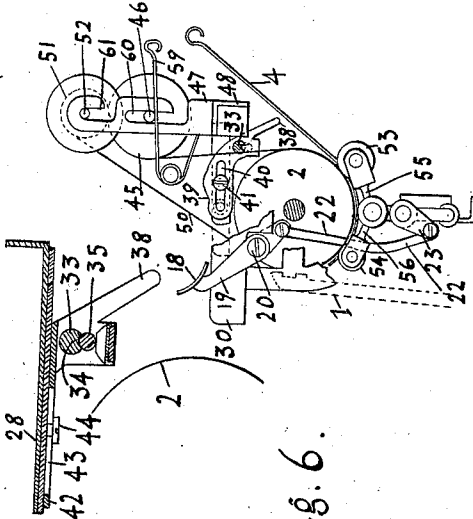


Fig. 6.

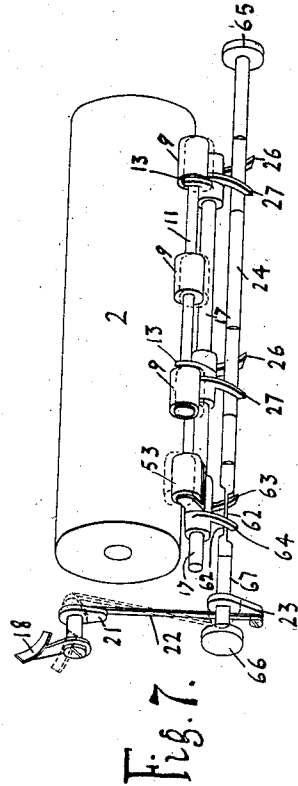
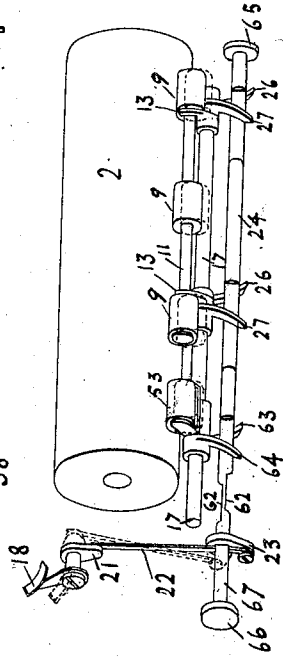
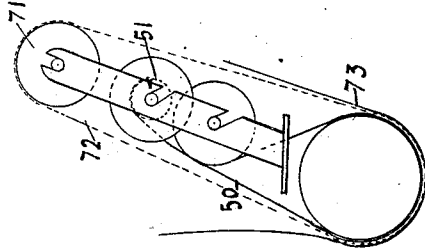


Fig. 9.



Witnesses

H. Frankfort.

J. B. Addett

Inventor

Edward F. Kunath

By his Attorney

R. B. Stickney

UNITED STATES PATENT OFFICE.

EDWARD F. KUNATH, OF JERSEY CITY, NEW JERSEY, ASSIGNOR TO UNDERWOOD TYPEWRITER COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW JERSEY.

TYPE-WRITING MACHINE.

No. 848,560.

Specification of Letters Patent.

Patented March 26, 1907.

Application filed December 4, 1905. Serial No. 290,172.

To all whom it may concern:

Be it known that I, EDWARD F. KUNATH, a citizen of the United States, residing in Jersey City, in the county of Hudson and State of New Jersey, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a specification.

This invention relates to the line-spacing or paper-feeding devices of type-writing machines, particularly those of the front-strike or visible-writing variety, and especially those in which it is desired to insert each bill or sheet in the machine once for every line of writing written thereon and also where it is desired to make carbon or other copies of the successive totals of many bills upon a single tally-strip.

I mount over the platen in such a manner as to be capable of adjustment both along the platen and also forwardly and rearwardly a plate or tablet provided with gages for the leading and side edges of the paper, whereby when the usual pressure-rolls are released or cast off a sheet or set of sheets may be introduced around the platen and adjusted upon said tablet to said gages so that the first item and all succeeding items written thereon shall appear in alignment upon the written bill even though the latter is withdrawn after the writing of each item and reinserted to write the next item. By having the gages adjustable it becomes practicable to have the writing fall at any particular point desired on the sheet—as, for instance, on a ruled line or between ruled columns.

In order to keep a tally-record upon one piece of paper of the totals of a large number of bills, I carry a tally-strip or paper ribbon around the platen and provide means to co-operate with the platen for unwinding the strip from a coil and rewinding it on a spool, and I also provide means to be used when desired for making carbon-records upon the tally-strip.

In order to draw the paper ribbon from the coil, I provide either one or a pair of pressure-rolls to press the same against the platen. By this means the rotation effects the line-feeding of the paper ribbon. The latter is to be line-fed only once for each total written thereon, and hence has to remain stationary during the rotation of the platen, as the bill is fed line by line. To this end I provide

means for releasing the roll or rolls that press the paper ribbon against the platen, whereby the ribbon is caused to remain motionless during the rotation of the platen. I further contrive to move the main pressure-rolls and the auxiliary pressure-rolls alternately into and out of use, so that by depressing a single release-key the main pressure-rolls are cast off and the auxiliary rolls are brought into action, whereby the paper ribbon may be first fed in line and then the bill withdrawn and a new bill inserted and adjusted by means of the top tablet and gages. Thereupon the release-key may be restored to normal position, thereby releasing the auxiliary rolls, so that the paper ribbon will not feed with the platen, and at the same time restoring the main rolls to their active positions, thereby to feed the inserted bill. I further provide means whereby when desired the auxiliary rolls may be both released and restored simultaneously with the main rolls by means of the same release-key.

Other objects and advantages will herein-after appear.

In the accompanying drawings, Figure 1 is a front elevation of a wide carriage of an "Underwood" front-strike writing-machine, showing the main pressure-rolls as running upon the platen, while the auxiliary rolls are cast off. Fig. 2 is a view of a rock-shaft formed with cams to release the several pressure-rolls, said shaft having two sets of cams for this purpose and being movable endwise, so as to bring either set into play. Fig. 3 is a plan of the main and auxiliary pressure-rolls and appurtenances. Fig. 4 is a rear elevation of the tablet and gages mounted above the platen. Fig. 5 is a vertical section of the same, taken from front to rear. Figs. 4 and 5 illustrate the adjustability of said tablet. Fig. 6 is a perspective rear view which illustrates the action of the main and auxiliary pressure-rolls in unison, all of said rolls being shown in full lines in working positions and being also shown in dotted lines as cast off simultaneously by the release-key. Fig. 7 is a view similar to Fig. 6, but showing the roller-releasing rod as shifted endwise, so as to bring the other set of releasing-cams into play. At this figure the main pressure-rolls are shown in full lines as running upon the platen, while the auxiliary roll or rolls is shown in full lines as cast off. The dotted

lines show the operation of the release-key which cast off the main rolls and simultaneously brings the auxiliary rolls into play. Fig. 8 is an end elevation illustrating particularly the means for carrying and feeding a coil of paper ribbon. Fig. 9 illustrates the method of employing a roll of carbon-ribbon in connection with the paper ribbon or tally-strip.

Type-bars 1 strike upon the front side of a platen 2, which is mounted on an axle 3 in a platen-frame comprising a paper-shelf 4 and ends 5 6, the platen being provided with the usual line-spacing mechanism, including a ratchet-wheel 7.

Bills or other sheets are introduced between the paper-shelf 4 and the platen and guided forwardly around the same by a deflector 8. Rear rolls 9 and front rolls 10 press the sheets against the platen, said rolls carried upon axles 11 12, which are pressed toward the platen by arms 13 14, upon which bear springs 15 16, the latter secured upon a fixed rod 17 of the platen-frame and said rod serving also as a pivot for said arms. These main pressure-rolls are released by means of a key 18, fixed upon a lever 19, which is pivoted at 20 upon the platen-frame and has an arm 21, which is connected by a link 22 to a crank-arm 23, the latter mounted upon a rock-shaft 24, which effects the releasing of said pressure-rolls. Said rock-shaft has depressions or cutaways 25 in its opposite sides to receive arms 26 27, formed upon said pressure-arms 13 14, the construction being such that when the shaft is rocked through about ninety degrees said arms 26 and 27 are separated from each other and the arms 13 14 moved away from the platen, thereby releasing the pressure-rolls. At this time the arms 26 27 rest upon the uncut periphery of the rock-shaft, as at Fig. 2, and are thereby mechanically held away from the platen, so that the operator may have both hands free for manipulation of the paper. When these main pressure-rolls are cast off, a sheet or sheets may be introduced at the rear of the platen and pushed around beneath and up in front of the same, and its leading portion may be pressed down upon a tablet 28 and the leading edge of the paper adjusted to a gage 29, formed along the rear edge of said tablet, while the side edge of the paper may be adjusted to a gage 30, formed along the right-hand edge of said tablet, whereupon the release-key 18 may be restored to normal position, thus bringing the main pressure-rolls into action, whereupon the sheet or sheets may be fed line by line in the usual manner. The provision of the said gages makes it practicable to bring successive items on the same sheet into accurate alinement, even though the sheet is withdrawn after writing each line and reinserted for writing the succeeding line, as is sometimes nec-

essary in making out bills. Said tablet is secured upon arms 31 and 32, which fit upon a horizontal fixed rod 33, extending from end to end of the platen-frame. In the under side of the rod is formed a groove 34 to receive cylindrical loose splines or keys 35, which are pressed into said groove by springs 36, the latter secured to brackets 37, fastened to said arms and engaging said rod 33. The tablet, together with the arms, may be slid along said rod, and hence adjusted to any point required along the platen, so as to enable the writing to fall at any desired point or points on the sheet, as between ruled columns, while the springs 36 hold the tablet and gages tightly wherever adjusted. Gages 38 extend backwardly and downwardly from said arms 31 32 and toward the paper-shelf 4, Fig. 8, thereby to guide the operator in introducing the sheets. Said arm 31 has a forward extension 39, Fig. 8, having a slot 40 extending from front to rear, and a screw 41, passing through said slot and threaded into the gage or ledge 30, secures the latter to the arm and permits forward and backward adjustment of the gage and tablet. The arm 32 is also provided with a forward extension 42, Fig. 5, having a slot 43, through which passes a fastening-screw 44, so that either one or both ends of the tablet may be adjusted either forwardly or backwardly, so as to enable the writing to fall upon ruled lines on the bill or at any desired point on the paper. The gage 30 is preferably at the right-hand end of the tablet, and the left-hand end of the latter preferably overlies the slotted extension 42, Figs. 1 and 4. Access to the screw 44 is afforded by tipping the tablet up on the rod 33.

A coil of paper ribbon 45 is carried upon a core or axle 46, mounted in a pair of arms 47, erected upon a bracket 48, which is secured by a screw 49 to the right-hand end 6 of the platen-frame. The ribbon passes from said coil downwardly and around beneath the platen and up in front thereof, as at 50, and is wound upon a spool 51, whose axle 52 is also journaled in said arms 47. The paper ribbon is pressed against the platen by rear and front rolls 53 and 54, which are pressed toward the platen by arms 55 56 and springs 57 58, said arms pivoted upon the rod 17. Springs 59, one at each end of the axle 46, press the coil 45 up against the spool 51, so that when the ribbon is drawn off from the coil by reason of the cooperation of the rolls 53 and 54 with the platen 2 the surplus ribbon is wound up by the spool 51, which is caused to rotate by reason of the friction between it and the coil 45. The arms 47 are vertically slotted, as at 60, to receive the axle 46 and accommodate its upward movement. Each slot 60 is opened at its bottom to permit detachment of the coil, and an open slot 61 is provided to receive the axle

52 of the winding-spool, so as to permit detachment of the latter. As seen at Fig. 7, the auxiliary rolls 53 54 for feeding the paper ribbon are cast off during the line-feeding of the bill by means of the main pressure-rolls, so as to permit the paper ribbon to remain stationary. At the completion of the bill or item thereon the total is written upon the paper ribbon or tally-strip 50, and then the release-key 18 is depressed, thereby casting off the main pressure-rolls, as seen in dotted lines at Fig. 7, and bringing the auxiliary rolls against the platen, so that by turning the latter the paper ribbon is caused to feed up for a new line. The main pressure-rolls being now released, the written bill may be pulled out and a fresh bill inserted and gaged at the top of the platen. Thereupon the release-key 18 may be restored to normal position, thus bringing the pressure-rolls to the full-line position at Fig. 7 so that the bill may be written line by line while the paper ribbon remains stationary. Thus the entries upon the tally-strip follow one another line by line regardless of the number of lines written upon each bill.

For the purpose of bringing the auxiliary rolls into action when the main rolls are cast off the rock-shaft 24 is provided with recesses 62, which are at right angles to the recesses 25, so that when the shaft is rocked for separating the arms 26 27 it permits arms 63 64, which are formed upon the arms 55 56, to fall into the recesses, thereby permitting the springs 57 58 to press the arms 55 56 and rolls 53 54 against the platen. Thus when either set of main or auxiliary rolls is released the other set is brought into action.

When it is desired to have both the main and auxiliary rolls act in unison, as in feeding sheets which extend all the way along the platen, the releasing rock-shaft 24 may be moved endwise, being provided with end buttons 65 66 for this purpose and said shaft being squared at 67 to fit a square hole in the hub of the crank-arm 23, the latter remaining stationary during the endwise movement of the shaft. The arm may be otherwise splined to the shaft. When the latter is moved to the Fig. 6 position, the arms 63 64 fall into recesses 68, which agree in position with recesses 25, so that at this time all of the rolls either release or come into action simultaneously. It will thus be seen that two sets of cams are formed upon said rod, each of the recesses 25 consisting really of two recesses which merge into each other. The shaft may be detained in either of its endwise positions by means of a spring-tooth 69, which is adapted to engage annular depressions 70, formed in the shaft.

At Fig. 9 a pulley 71 is mounted above the winding-spool 51 to receive an endless band 72, which is of the same width as the paper ribbon and runs between the latter and a

sheet or strip 73, whereby two copies of the tally entries may be produced. It will be seen that a clear space is left between the bracket 48 and the paper-shelf 4 to permit insertion of wide sheets of paper, and it will be understood that said bracket may be detached, if desired, whenever it is necessary to use the machine for other purposes.

Variations may be resorted to within the scope of the invention, and portions of my improvements may be used without others.

Having thus described my invention, I claim—

1. In a type-writing machine, the combination with a platen of pressure-rolls mounted to run directly upon the platen and independently press thereagainst, said rolls being connected to cause one to move against the platen while the other moves away from the platen.

2. In a type-writing machine, the combination with a platen of pressure-rolls therefor, and a key having means to release the rolls in alternation.

3. In a type-writing machine, the combination with a platen of pressure-rolls therefor, and a key having means to release either roll and render the other roll effective.

4. In a type-writing machine, the combination with a platen, of pressure devices co-operating therewith to feed different sheets of paper around the platen, and a single finger-piece having means for releasing either feeding device and simultaneously bringing the other feeding device into operation.

5. In a type-writing machine, the combination with a platen, of pressure-rolls mounted side by side along the platen, and a single finger-piece having means for releasing either pressure-roll and simultaneously bringing the other pressure-roll into action.

6. In a type-writing machine, the combination with a platen, of a plurality of pressure devices ranged along the platen, and a single finger-piece having means for releasing either pressure device and simultaneously bringing the other device into action.

7. In a type-writing machine, the combination with a platen, of a set of main pressure-rolls, an auxiliary roll, and a single finger-piece having means for releasing the main rolls and simultaneously bringing into operation the auxiliary roll.

8. In a type-writing machine, the combination with a platen, of a set of main pressure-rolls ranging along the platen, an auxiliary roll, and a single finger-piece having means for releasing said auxiliary roll and simultaneously bringing into operation said main rolls.

9. In a type-writing machine, the combination with a platen, of pressure-rolls ranged along the platen, a rock-shaft extending along the platen, a key for said rock-shaft, and means controlled by said rock-shaft for

simultaneously releasing one of said rolls and causing another of said rolls to become effective.

10. In a type-writing machine, the combination with a platen, of rolls ranged along the platen, some of said rolls forming a set of main pressure-rolls and the remaining rolls being auxiliary, a rock-shaft extending along the platen, and means controlled by said rock-shaft for releasing the main rolls and simultaneously bringing the auxiliary rolls into operation.

11. In a type-writing machine, the combination with a platen, of rolls ranging along the platen, spring-pressed arms or levers engaging said rolls, and a rock-shaft having cam portions to release one or more of said arms, and concomitantly bring one or more other arms into effective action.

12. In a type-writing machine, the combination with a revoluble platen, of a rock-shaft extending along the platen and controlled by a key, cams provided upon said rock-shaft, levers having arms to engage said cams and extending forwardly and rearwardly from said shaft, and rolls engaged by said levers; said cams constructed to release some of said arms and concomitantly bring other arms into action.

13. In a type-writing machine, the combination with a revoluble platen, of a roll to cooperate therewith to feed wide sheets of paper around the platen, a device for carrying a paper ribbon, a roll to cooperate with the platen for feeding said ribbon, and a release-key having means for effecting the release of either roll while calling the other roll into action.

14. In a type-writing machine, the combination with a platen, of a spool to carry a paper ribbon, a roll to press the ribbon against the platen, a release-key for said pressure-roll, and a main set of rolls for pressing wide sheets of paper against the platen, said main set of rolls connected to said release-key and constructed to be released thereby when the ribbon-pressure roll is brought into action.

15. The combination with a revoluble platen, of a spool for carrying a paper ribbon, a releasable pressure-roll cooperating with the platen to draw said ribbon around the platen, and a spool for taking up the ribbon as it runs off from the platen; and a set of main pressure-rolls releasable independently of the first-mentioned pressure-roll.

16. In a type-writing machine, the combination with a platen and a set of pressure-rolls therefor, of means for releasing the rolls, means for supporting a paper ribbon which is carried around the platen, and means rendered effective by said releasing means for feeding said ribbon in line-space direction.

17. In a type-writing machine, the combination with a platen, of a pressure-roll for

feeding wide sheets of paper around the platen, means for releasing the roll, means for supporting a paper ribbon which is carried around the platen, and means rendered effective by said releasing means, for cooperating with the platen to line-space said ribbon.

18. In a type-writing machine, the combination with a cylindrical platen and a releasable main pressure-roll, of two spools for delivering and winding up a coil of paper ribbon carried around the platen, a roll releasable independently of said pressure-roll for pressing said ribbon against the platen, and means for pressing said spools together so as to cause the winding-spool to be rotated by means of the movement of the delivering-spool.

19. In a type-writing machine, the combination with a platen, of a series of pressure-rolls ranging along the platen, means for supporting a coil of paper ribbon which is carried around the platen, means for enabling one of said rolls to cooperate with the platen to line-feed said ribbon while the other rolls are released, and means for enabling an extra wide sheet of paper to be fed by all of said rolls at will.

20. In a type-writing machine, the combination with a platen and pressure-rolls, of a release-key, means for enabling said release-key to release one of said rolls while bringing another thereof into action, and means for also enabling the release-key to release all of said rolls simultaneously, at will.

21. In a type-writing machine, the combination with a platen-frame, of a platen revolvably mounted in said frame, a rod mounted on said frame and extending along the platen, arms upon said rod and adjustable therealong, a plate above the platen and connecting said arms and adjustable along the rod therewith, and gages upon said plate for the leading and side edges of the paper; and said arms also extending rearwardly from said rod so as to guide the paper laterally when introduced around the platen; said plate having at one end a guide for the side edge of the paper, and at the other end extending over its supporting-arm.

22. In a type-writing machine, the combination with a platen, of a main pressure-roll or set of rolls for feeding wide sheets of paper around the platen, means for supporting a coil of paper ribbon which is carried around the platen, a roll for pressing said ribbon against the platen, a release-key which releases the main rolls while bringing the ribbon-pressure roll into action, and a tablet mounted above the platen upon which to adjust the main sheets while the main pressure-rolls are released; said tablet being provided with a gage or gages for the edges of the main sheets.

23. In a type-writing machine, the combination with a platen, of a pressure-roll for

nation with a platen and a plurality of pressure-rolls, certain of which are normally out of action, of a release-key, and shiftable means for enabling said release-key either to release all of said rolls simultaneously or to release one roll while bringing another roll into action.

24. In a type-writing machine, the combination with a platen and a series of pressure-rolls ranging end to end along the platen, of a release-key, and shiftable means for enabling said key either to release said rolls all together, or else to release some of the rolls while bringing others of the rolls into action.

25. In a type-writing machine, the combination with a platen and means for supporting a coil of paper ribbon which is carried around the platen, of a roll to cooperate with the platen for feeding said ribbon, pressure-rolls to feed wide sheets of paper around the platen, means for causing the first roll to be out of action while said pressure-rolls are effective, and vice versa, a release-key, and shiftable means for enabling said key either to release said ribbon-pressure roll while calling the other rolls into action, or to release all of said rolls simultaneously.

26. In a type-writing machine, the combination with a platen, of rolls ranging along the platen, spring-pressed arms for said rolls, and a rock-shaft having two sets of cams to engage said arms; said rock-shaft being movable endwise to bring either set of cams into play; and concomitantly put the other cams out of action, and thereby vary the effect upon said rolls of rocking said shaft.

27. In a type-writing machine, the combination with a platen, of spring-pressed rolls ranging along the platen, a rock-shaft having two sets of cams for releasing said rolls either in alternation or all together, said rock-shaft being movable endwise to bring either set of cams into use, and a key having means to rock said shaft.

28. In a type-writing machine, the combination with a platen, of spring-pressed rolls ranging along the platen, a rock-shaft having cams for releasing said rolls in alternation and cams for releasing all the rolls together, said rock-shaft being movable endwise so as to bring either set of cams into use, and a key for rocking said shaft; said rock-shaft having means for mechanically detaining the rolls in released positions.

29. In a type-writing machine, the combination with a platen, of pressure-rolls therefore, a key which releases the rolls in alternation, and means for enabling the key to release the rolls all together, at will.

30. In a type-writing machine, the combination with a platen, of pressure devices cooperating therewith to feed different sheets of paper around the platen, means for releasing either feeding device and simultaneously bringing the other feeding device into opera-

tion, and means for releasing all of the rolls simultaneously.

31. In a type-writing machine, the combination with a platen, of pressure-rolls ranging side by side along the platen, means for releasing either pressure-roll and simultaneously bringing the other pressure-roll into action, and means for releasing all the rolls simultaneously.

32. In a type-writing machine, the combination with a platen, of a plurality of pressure devices ranged along the platen, means for releasing either pressure device and simultaneously bringing the other pressure device into action, and means for causing both pressure devices to act together and release together.

33. In a type-writing machine, the combination with a platen, of pressure-rolls ranged along the platen, a longitudinally-movable shaft extending along the platen, a key for said rock-shaft, and means upon said rock-shaft and effective at one longitudinal position thereof for simultaneously releasing one of said rolls and causing another of said rolls to become effective, and means upon said rock-shaft effective at another longitudinal position thereof, for simultaneously releasing all of the rolls.

34. In a type-writing machine, the combination with a platen, of rolls ranging along the platen, spring-pressed arms or levers engaging said rolls, and a rock-shaft having cam portions to operate said arms; certain of said cam portions being constructed to release certain of said arms and bringing certain other arms into effective action, and certain other cam portions being constructed to release all of said arms simultaneously; shiftable means being provided to bring either set of cam portions into use.

35. In a type-writing machine, the combination with a revoluble platen, of a rock-shaft extending along the platen and controlled by a key, two sets of cams provided upon said rock-shaft, levers having arms to engage said cams and extending forwardly and rearwardly from said shaft, and rolls engaged by said levers; one set of said cams being constructed to release certain of said rolls and bring into action others of said rolls, and the other set of cams being constructed to release all the rolls simultaneously; said rock-shaft being shiftable to bring either set of cams into use.

36. In a type-writing machine, the combination with a platen, of a main pressure-roll or set of rolls for feeding wide sheets of paper around the platen, means for supporting a coil of paper ribbon which is carried around the platen, a roll for pressing said ribbon against the platen, a release-key having means for releasing the main rolls while bringing the ribbon-pressure roll into action, a tablet mounted above the platen upon

which to adjust the main sheets while the main pressure-rolls are released; said tablet being provided with a gage or gages for the edges of the main sheets; and means for enabling said release-key to release all of said rolls simultaneously.

37. In a type-writing machine, the combination with a revoluble platen, of pressure-rolls ranging along the platen, a rock-shaft having two sets of cams formed thereon for releasing said rolls either in alternation or all together, said rock-shaft being movable endwise to bring either set of cams into play, and means being provided for detaining said rock-shaft at either end of its endwise movement, a lever-arm splined to said rock-shaft, and a key connected to said lever-arm.

38. In a type-writing machine, the combination with a revoluble platen, of pressure-rolls ranging along the platen, a rock-shaft having two sets of cams formed thereon for releasing said rolls either in alternation or all together, said rock-shaft being movable end-

wise to bring either set of cams into play, and yielding means being provided for detaining said rock-shaft at either end of its endwise movement, a lever-arm splined to said rock-shaft, and a key connected to said lever-arm, and buttons upon the ends of said rock-shaft for shifting the same endwise.

39. In a type-writing machine, the combination with a platen, of pressure-rolls ranging along the platen, certain of said rolls being normally ineffective, a rock-shaft extending along the platen, a key for said rock-shaft, means controlled by said rock-shaft for simultaneously releasing one of said rolls and simultaneously causing another of said rolls to become effective, and shiftable means for enabling said rock-shaft to release all of said rolls simultaneously.

EDWARD F. KUNATH.

Witnesses:

J. BADDETT,

B. C. STICKNEY.