L. A. WERNERY.

TYPE WRITING MACHINE.

APPLICATION FILED MAY 15, 1914.

1,209,090.

Patented Dec. 19, 1916.

2 SHEETS—SHEET 1.

FIG. 1.

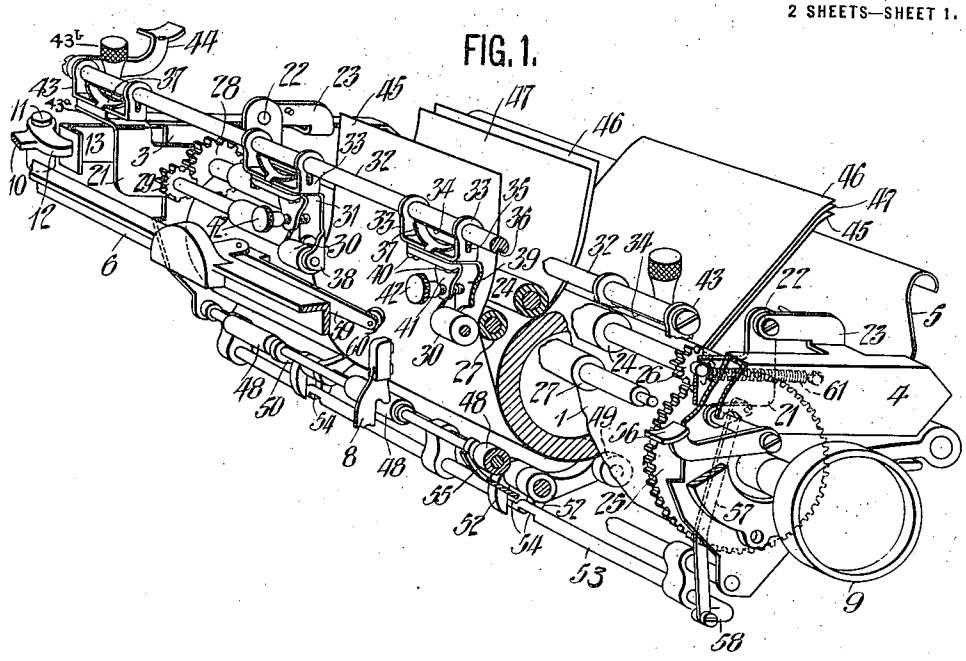
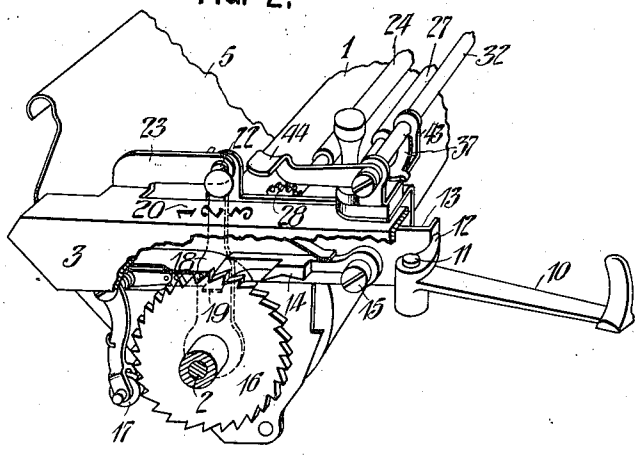


FIG. 2.



WITNESSES:

Leopold Pittiger.

W. O. Westphal

INVENTOR:

Lester A Wernery

BY B. B. Stickney

ATTORNEY.

L. A. WERNERY.

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2 SHEETS—SHEET 2.

Fig. 3.

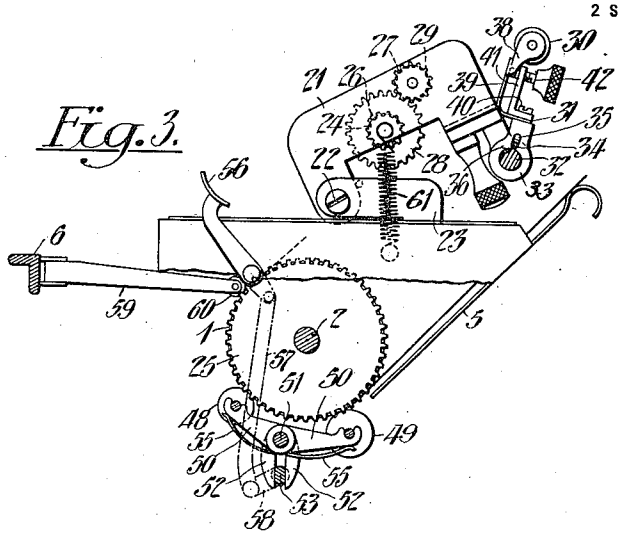


Fig. 4.

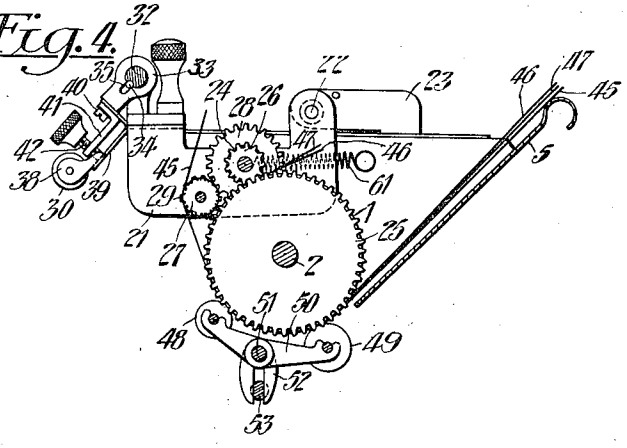
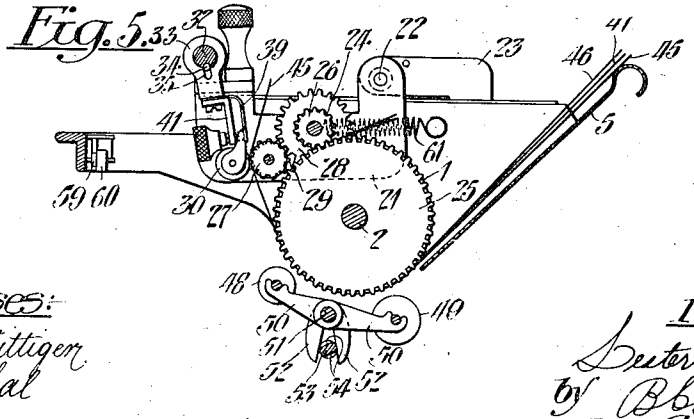


Fig. 5.



Witnesses:

Leopold Pfittigen

W. F. Westphal

Inventor

Lester A. Wernery

by B. B. Stickney

his Attorney.

UNITED STATES PATENT OFFICE.

LESTER A. WERNERY, OF BROOKLYN, NEW YORK, ASSIGNOR TO UNDERWOOD TYPEWRITER COMPANY, OF NEW YORK, N. Y., A CORPORATION OF DELAWARE.

TYPE-WRITING MACHINE.

1,209,090. Specification of Letters Patent. Patented Dec. 19, 1916.

Application filed May 15, 1914. Serial No. 838,634.

To all whom it may concern:

Be it known that I, LESTER A. WERNERY, a citizen of the United States, residing in Brooklyn borough, in the county of Kings, city and State of New York, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a specification.

This invention relates to attachments for typewriting machines, and one of the features of the invention is the provision of novel means for simultaneously feeding a number of work sheets past the printing line at different speeds.

The invention further provides means which may be brought into activity at will for feeding all of the work sheets together, and at the same speed.

In various kinds of work in which several copies are simultaneously made, it is desirable to feed the original sheet or work-form at a different speed from that of the other copies. For example, in writing bills or other statements, usually written on printed forms, duplicates being simultaneously written on a ledger sheet or other record sheet, it is often desirable to condense the record copy by making the line space distances thereon only a fraction of those on the original copy, and also by reducing on the record copy the space between succeeding statements.

In some kinds of work also it is desirable to condense a portion only of the record copy and to make the line-spacing of other portions the same as on the original work forms. For example, in writing checks, a number of items or amounts covered by the face value of the check are sometimes written at single line-space distances on a stub at one end of the check. In this instance, these items should be spaced the same on the record copy as on the original, while the items written on the check itself may be condensed on the record copy. The present invention is well adapted for such work and, in general to any work as the work sheet feeding mechanism may be instantly adjusted either to feed the work sheet at the same speed or at different speeds.

In general, the invention is adapted for any work where it is desired in making several copies at once to make the line-spacing on one copy or any portion of a copy, different from that of the other copies.

In carrying out the invention, a main feed roll may extend along the platen in contact therewith above the printing line, and may be positively driven at the same speed as the platen by means of a gear and a pinion connected respectively to the platen and said feed roll. An auxiliary feed roll may also extend along the front side of the platen, by which is meant the exposed side, said roll being above the printing line, but spaced from the platen and driven by the platen through a train of gears at a different peripheral speed from that of the platen; as for example, twice the speed of the platen. Such gearing may comprise a gear and pinion running in mesh and connected respectively to said main and auxiliary feed rolls. Coöperating with the said auxiliary feed roll, are pressure rolls supported by hangers depending from a rock shaft which may be rocked by a key thereon to lift said pressure rolls, and each of said pressure rolls may be individually lifted by swinging its hanger on said rock shaft. The original work-sheet may extend over the printing line and be held between said auxiliary feed roll and pressure rolls, and a record and carbon sheet may be held between the said main feed roll and platen. In order to feed all of the work-sheets at the same speed, when desired, additional feed rolls are located below the printing line to hold all the work sheets on the platen, but said additional rolls are held away from the platen while the work sheets are being fed at different speeds.

The feed rolls of my attachment may be mounted in a swinging frame pivoted in brackets on the ends of the platen frame, so that said frame may be swung upwardly and rearwardly to carry the rolls to inactive position, where they will not interfere with the operation of the machine in the usual way. A spring connected to said frame is operative to hold it in either position.

Other features and advantages will hereinafter appear.

In the accompanying drawings, Figure 1 is a part sectional front perspective view of an Underwood typewriter carriage with the present invention applied thereto. Fig. 2 is a perspective view of the mechanism at the left-hand end of the carriage. Fig. 3 is a sectional elevation taken near the right-hand end of the platen, the auxiliary sheet feeding

attachment being swung back to inoperative position, permitting the machine to be used in the usual way. Fig. 4 is a similar view showing the attachment swung forward and the feed rolls arranged to advance the work-sheets at the same speed. Fig. 5 is a similar view but with the feed rolls arranged to advance the original work-sheet at a higher speed than the duplicate sheet.

The roller platen 1 is mounted on the platen axle 2 journaled in the ends 3 and 4 of the platen frame, which also comprises an inclined paper shelf 5 connecting the frame ends and located at the rear side of the platen. The platen frame is mounted in a carriage 6 which may be driven in letter-feed direction by the usual spring motor (not shown), the platen being shiftable to upper and lower case positions, as is usual in the Underwood machine. Type-bars 8 actuated in the usual manner, are provided with upper and lower case types to strike against the front face of the platen, or the work-sheet thereon.

The platen may be rotated either by hand wheels 9 secured to the ends of the platen axle, or by the line-spacing mechanism comprising a hand lever 10 pivoted at 11 and having an arm 12 to move rearwardly a slide bar 13. A pawl 14 pivoted at 15 to the slide bar, has a tooth to engage the line-space ratchet wheel 16 and rotate the platen as the slide 13 is moved rearwardly. The usual spring-pressed detent 17 bearing against the teeth of the wheel 16 holds the platen at line-space intervals. The number of line-space intervals through which the platen is rotated by the operation of the lever 10 is determined by the adjustment of the lever 18 provided with a ledge 19 to hold the dog 14 off the line-space wheel until the dog has moved rearwardly to a point determined by the adjustment of the lever 18. The adjustment of the lever 18 is indicated on a scale 20.

The parts above described, may be the same as are usually found on the Underwood machine.

The means for simultaneously feeding a plurality of work-sheets past the printing line at different speeds, may be in the form of an attachment comprising a swinging frame having ends 21 connected by pivots 22 to bracket arms 23 formed integral with, or otherwise secured to the frame ends 3 and 4. A pressure roll 24 for feeding one or more of the work pieces at the surface speed of the platen, comprises a shaft journaled at its ends in the frame ends 21, said roll extending along the upper surface of the platen and preferably comprising an outer sleeve of rubber or other suitable friction material. The pressure roll 24 may, in some instances, be driven by frictional contact with the platen or a work-sheet on the platen, but is preferably positively driven by a gear wheel 25 fixed to the platen axle and running in mesh with a pinion 26 fixed to the pressure roll shaft. The pitch circle of the gear 25 is equal to and in alinement with the periphery of the platen, so that the pressure roll 24 is positively driven at the same surface speed as the platen.

Means for feeding the outer or original work-sheet (and additional sheets, if desired) at a different speed from the sheets fed by the roll 24, comprises an auxiliary or secondary feed roll 27 also journaled at its ends in the frame ends 21, and driven by a gear wheel 28 on the roll 24 meshing with a pinion 29 on the roll 27. The pinion 29 is smaller than the gear wheel 28, so that the peripheral speed of the roll 27 is greater than that of the roll 24. In the particular construction shown, the speed of the two rolls is in the ratio of two to one, although the ratio may obviously be varied as desired and the roll 27 might be run slower than the roll 24.

Running with the feed roll 27 are a number of pressure rolls 30 mounted in hangers 31 depending from a rock shaft 32. Each of these hangers comprises a U-shaped bracket 33 having bearings on the shaft 32, and yieldingly held against rotation on the shaft by means of a cam roller 34, the ends of which are mounted in elongated openings 35 in the said bracket, the roller 34 being pressed by a leaf spring 37 into a cam groove 36 extending longitudinally in the under face of the shaft 32. Each roll 30 is journaled in ears 38 formed on a depending spring arm 39 secured to the bracket 33 by screws 40, which also secure a bracket 41, through which is threaded an adjusting screw 42, the end of which bears against the arm 39. By adjusting the screw 42, the pressure of the roll 30 against the feed roll 27 may be adjusted as desired. Each roll 30 forms with the roll 27, a feeding couple at the front side of the platen, that is, the exposed side of the platen.

The rock shaft 32 is mounted in brackets 43 rigidly secured to the platen frame ends, and, since it is disposed above the feeding couple, acts to prevent the outer or original work-sheet or sheets from falling forwardly away from the platen. The brackets 43 are of substantially the same construction as the brackets 33, and also provided with cam rolls 34 seated in the groove 36, and leaf springs 37, so that the rock shaft is yieldingly held in operative position. The brackets 43 may be mounted on spacing blocks 43^a, attached to the frame ends 21 by thumb screws 43^b. A finger lever 44, secured to the end of the rock shaft, operates, when depressed, to swing the hangers 31 outward to the Fig. 4 position, thereby separating the pressure rolls 30 from the roll 27

to permit a work-sheet 45 to be readily introduced between the rolls 30 and 27.

Before positioning the original work-sheet 45, the duplicate sheet or sheets 46 and carbon sheet or sheets 47 are placed in position between the platen and feed roll 24. The attachment may be bodily swung upwardly and rearwardly about its pivots 22 to the Fig. 3 position, when desired, so that it is entirely out of the way to permit the machine to be used in the usual manner.

When the attachment is swung rearwardly, an arm 59 pivoted to the carriage 6 and provided at its outer end with a roller 60, may be swung outward to the Fig. 3 position, in which the roller 60 is adjacent to the platen, and forms a holder and guide for cards, envelops, or other work-pieces. The attachment frame is held in either position by a spring or springs 61 connected at one end of the platen frame, and at the other end to a part of the swinging frame, as for example, to the shaft of the roller 24.

In order that all of the work-sheets may feed together and at the same speed, or the feed quickly changed from an equal speed for all of the sheets to unequal speeds, or vice versa, front and rear pressure rolls 48 and 49 are located beneath the platen and shiftable to and from the platen, so that they may feed the work-sheets when the auxiliary rolls 30 are lifted from the roll 27. The rolls 48 and 49 are mounted on levers 50 pivoted on a rod 51, which may be a tie-rod of the platen frame, said levers 50 comprising arms 52 straddling a rock shaft 53 provided with flats 54 which permit the rolls 48, 49 to be held against the platen by springs 55. When the shaft 53 is rocked, the arms 52 are spread, and the rolls thereby lifted from the platen. The shaft 51 is rocked by means of a finger lever 56 connected through a link 57 to a rock arm 58 on the shaft 53. The pressure rolls 48 and 49 are self-holding in released position.

In Figs. 1 and 5, the parts are shown in position for feeding the original and duplicate sheets at different speeds. If the line-space adjusting lever 18 is set to permit the duplicate sheet to be fed a single line-space distance at each operation of the line-space lever, the original sheet 45 will be fed through two line-space intervals, at each operation. Such arrangement is useful in various kinds of work, as for example, in filling out checks, bills or other blank forms which constitute the original work-piece, when it is desired to make the duplicate in condensed form on the ledger sheet or other record sheet.

If it is desired that certain portions of the work shall be equally spaced on both the original and duplicate sheets, as for example in making a condensed list of items on the original sheet, the feed of the device may instantly be changed by depressing the finger piece 44 to throw off the pressure rolls 30, and by turning the finger piece 56 to throw the feed rolls 48, 49 up against the platen. Said feed rolls then serve to feed the original sheet at the same speed as the duplicate sheet.

To illustrate one use of the invention, the following example is given, showing the method of using the invention in writing a check and making a condensed record copy thereof. For use on typewriting machines, it is customary to print the blanks on sheets of a size to be placed on the machine, the blank forms being arranged one beneath another on the sheet. Thus a blank check, when filled out, may appear as follows:

UNDERWOOD BANKING COMPANY.

New York, Jan. 26, 1914.
Pay to the
Order of Henry Smith---------- $100.00
One Hundred and--------- 00/100 Dollars.
No. 7564.

On the record sheet it will appear as follows:

Jan. 26, 1914.
Henry Smith 100.00
One Hundred and--------- 00/100
7564.

In this instance, the items on the record sheet are condensed as well as the spacing between the successive checks being reduced, so that the space required for each check on the record sheet is only half that of the original check. In this case, it is unnecessary to change the relation of the feed rolls, the arrangement shown in Fig. 5 being retained throughout the writing of a series of checks.

The above example is given merely to illustrate one of the uses of the invention, and not to indicate its scope, as the invention is adapted for a great variety of work, and various methods of use.

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, the combination with a platen and means to feed a work-sheet thereover, of auxiliary feeding mechanism for simultaneously feeding a second work-sheet over the platen at a different

speed from that of said first sheet, and means to concomitantly feed both of said sheets at the same speed.

2. In a typewriting machine, the combination with a platen and means to feed a work-sheet thereover, of auxiliary feeding mechanism for simultaneously feeding a second work-sheet over the platen at a different speed from that of said first sheet, and means to concomitantly feed both of said sheets at the same speed, said last named means and said auxiliary feeding mechanism being alternatively settable into operative position.

3. In a typewriting machine, the combination with a rotatable platen, of a roller running on the platen for feeding a work-sheet thereover at the peripheral speed of the platen, auxiliary feed rolls driven from the platen at a peripheral speed different from that of the platen to feed a second work-sheet at a different speed from that of the first, said auxiliary feed rolls settable to inoperative position, and means to feed both the work-sheets at the surface speed of the platen while said auxiliary rolls are inoperative.

4. In a typewriting machine, the combination with a rotatable platen, of a feed roll running on the platen above the printing line, auxiliary feed rolls separate from the platen to feed a work-sheet at a different speed from that of the platen, and a feed roll movable into and out of position to run on the platen below the printing line.

5. In a front-strike typewriting machine, the combination with a rotatable platen, of a feed roll running on the platen above the printing line, auxiliary feed rolls located above the printing line, separate from the platen, and gearing for simultaneously rotating said auxiliary rolls and said first named feed roll, but at a different peripheral speed.

6. In a typewriting machine, the combination with a rotatable platen, of feed rolls running thereon above and below the printing line respectively, and intermediate auxiliary feed rolls spaced from the platen and operable at a different peripheral speed from that of the platen.

7. The combination with a rotatable platen, of a plurality of feed rolls running thereon, the platen and said rolls all running at the same surface speed, means for independently moving said feed rolls into and out of position to feed work pieces over the platen at the surface speed of the platen, auxiliary feed rolls movable into and out of operative position independently of said first named rolls, and a gearing between the platen and said auxiliary rolls for driving the latter at a peripheral speed different from that of the platen.

8. In a typewriting machine, the combination with a rotatable platen, of a feed roll running in contact with the platen, an intermeshing gear and pinion secured respectively to and concentric with the platen and said roll and having their pitch circles equal in diameter to the diameters of the platen and said feed roll respectively, an auxiliary feed roll, and gearing for driving said auxiliary roll from the platen at a different speed from that of the first named feed roll.

9. In a typewriting machine, the combination with a rotatable platen, of a feed roll running in contact with the platen, an intermeshing gear and pinion secured respectively to and concentric with the platen and said roll and having their pitch circles equal in diameter to the diameters of the platen and said feed roll respectively, an auxiliary feed roll, and intermeshing gears connected to said feed rolls respectively for rotating the auxiliary roll at a greater speed than that of the first named roll.

10. In a typewriting machine, the combination with a rotary platen, of a feed roll, a rock shaft, hangers depending therefrom, pressure rolls on said hangers to run in contact with the feed roll, and means to rock said shaft and separate the pressure rolls from said feed roll.

11. In a typewriting machine, the combination with a rotary platen, of a feed roll, a rock shaft, hangers depending therefrom, pressure rolls on said hangers to run in contact with the feed roll, and means to rock said shaft and separate the pressure rolls from said feed roll, said hangers individually rotatable about said shaft independently of each other to separate the individual pressure rolls from said feed roll.

12. In a typewriting machine, the combination with a roller platen and a platen frame, of a feed roll, a rock shaft parallel with the platen and journaled on the platen frame, hangers mounted on said rock shaft and comprising resilient arms, pressure rolls on said arms and bearing against the feed roll, set screws for adjusting said arms to vary the pressure of the rolls, means for holding the rock shaft against rotation, and means to drive the feed roll from the platen.

13. In a typewriting machine, the combination with a roller platen and platen frame, of an auxiliary frame pivoted on the platen frame, said auxiliary frame comprising a feed roll to run on the platen, and auxiliary feed rolls separate from the platen, said pivoted frame movable about its pivot to carry the said rolls away from the platen to inoperative position.

14. In a typewriting machine, the combination with a roller platen and a platen frame, of an auxiliary frame pivoted on the platen frame, said auxiliary frame comprising a feed roll to run on the platen, auxiliary feed rolls separate from the platen, said

pivoted frame movable about its pivots to carry the said rolls away from the platen to inoperative position, and a spring to hold said pivoted frame in either an operative or an inoperative position.

15. In a typewriting machine, the combination with a roller platen and a platen frame of an attachment comprising frame ends pivoted to the ends of the platen frame, a feed roll journaled in said frame ends, and bearing against the platen, an auxiliary feed roll journaled in said frame ends, intermeshing gears on said rolls, a rock shaft journaled in said frame ends, pressure rolls carried by said rock shaft and bearing against said auxiliary feed roll, and means to rock said shaft.

16. In a typewriting machine, the combination with a roller platen and a platen frame, of an attachment comprising frame ends pivoted to the ends of the platen frame, a feed roll journaled in said frame ends, and bearing against the platen, an auxiliary feed roll journaled in said frame ends, intermeshing gears on said rolls, a rock shaft journaled in said frame ends, pressure rolls carried by said rock shaft and bearing agains said auxiliary feed roll, means to rock said shaft, and intermeshing gears connected respectively to the platen and said first named feed roll, said attachment movable about its pivots to separate said last named gears and move the feed rolls to inoperative position.

17. In a typewriting machine, the combination with two sets of feed rolls to advance superposed work-sheets, of gearing between said two sets of rolls to rotate the rolls of the two sets at different peripheral speeds and thus advance the work-sheets at different speeds, the two sets of rolls being so arranged that one set has driving engagement with a portion of a sheet laterally co-extensive with a portion of the other sheet engaged by the other set.

18. In a typewriting machine, the combination with a rotatable platen and means to advance a work-sheet thereover at the peripheral speed of the platen, of feed rolls to advance a second work-sheet simultaneously with the first but at a different speed, when said work-sheets are superposed and extend along the same length of the platen, said feed rolls running on a portion of the second work-sheet laterally co-extensive with a portion of the first-mentioned work-sheet engaged by said advancing means.

19. In a typewriting machine, the combination with a platen, of sheet feeding devices for advancing over the platen superposed work-sheets of equal extent along the platen, and connections between said devices for causing one device to drive the other and feed the work-sheets at different speeds, said devices relatively positioned to simultaneously maintain sheet-feeding contact with laterally co-extensive portions of the superposed sheets.

20. The combination with a rotary platen, of means driven by and coöperating with the platen to feed a work-sheet over the platen, and feed rolls separate from and driven by the platen for simultaneously feeding a second work-sheet over the platen at a different speed from that of the first work-sheet, said feed rolls arranged to engage a portion of said second work-sheet overlying a portion of the first-mentioned sheet which runs between the platen and said feeding means.

21. The combination with a rotary platen, of means to advance a work-sheet simultaneously with the rotation of the platen and at the peripheral speed of the platen, and means comprising a feeding couple in front of the platen and driven thereby to simultaneously advance a second work-sheet at a different speed from that of the first, said second sheet being co-extensive with the first at the printing line.

22. The combination with a rotatable platen, of a feed roll running thereon to advance a work-sheet over the platen, feed rolls separate from the platen to advance a second work-sheet, and a train of gearing between the platen and said last named feed rolls for positively driving the latter when the platen is rotated, but at a different peripheral speed from that of the platen, said feed rolls arranged to advance work-sheets of equal width and co-extensive at the printing line.

23. The combination with a platen, of means for holding a plurality of work-sheets simultaneously upon the platen in position to receive type impressions, said work-sheets being superposed at the printing line, means to rotate the platen, and a sheet-feeding couple separate from the platen and driven thereby to simultaneously feed forward said work-sheets at different speeds, the relative speed of the work-sheets being constant, the sheet-engaging portion of said couple being intermediate the ends of the platen.

24. The combination with a platen, of means to hold a work-sheet in frictional contact with the platen to advance the work-sheet as the platen is advanced, and a sheet-feeding couple in front of the platen and driven thereby to simultaneously advance at a different speed a second work-sheet lying over the first-named work-sheet, and co-extensive therewith at the printing line.

25. The combination with a rotatable platen and a feed roll running thereon to advance a work-sheet over the platen, of auxiliary feed rolls for advancing over the platen a second work-sheet placed over and

co-extensive at the printing line with the first sheet, line-space mechanism for rotating the platen, and means driven by the line-space mechanism for rotating said auxiliary feed rolls.

26. The combination of a rotatable platen, main and auxiliary feed rolls running thereon, the main roll or rolls positioned to grip a series of work-pieces before they reach the printing line, for advancing all the work-pieces past the printing line at the surface speed of the platen, the auxiliary roll or rolls positioned beyond the printing line to hold one or more of the work-pieces against the platen and cause them to advance at the surface speed of the platen, and means for moving the main roll or rolls out of gripping position, to permit the work-pieces held by the auxiliary roll or rolls to be fed relatively to the remaining work-pieces.

27. The combination with a rotatable platen, of a main feed roll and an auxiliary feed roll running thereon, the main feed roll operating with the platen to feed a number of sheets at the peripheral speed of the platen, means for independently moving said feed rolls into and out of operative position, said auxiliary feed roll coöperative with the platen to feed one or more of said sheets at the peripheral speed of the platen, additional feed rolls movable into and out of position to feed the remaining sheet or sheets of said number, and means to simultaneously operate said auxiliary and said additional feed rolls at different speeds.

28. In a typewriting machine, the combination with a rotatable platen and platen frame, of a frame shiftable on the platen frame, a feed roll thereon, a rock shaft mounted on the shiftable frame and extending parallel with the platen, hangers on said rock shaft, pressure rolls carried by said hangers to run on said feed roll, means to rock said shaft and hangers to move the pressure rolls into and out of engagement with the feed roll, and means forming a driving connection between the platen and feed roll, said connection controlled by the shifting of said shiftable frame.

29. In a typewriting machine, the combination with a rotatable platen and platen frame, of a rock shaft mounted on the platen frame and extending parallel with the platen, hangers on said rock shaft, pressure rolls carried by said hangers, a feed roll, means for yieldingly holding said rock shaft in a predetermined angular position in which the pressure rolls bear against the feed roll, means to adjust the position of the pressure rolls on said hangers and thereby vary their pressure on the feed roll, and a driving connection from the platen to the feed roll.

30. In a typewriting machine having types to print on work-pieces, the combination of means for simultaneously feeding a number of work-pieces past the printing point at different speeds, and means which may be brought into activity at will to feed all of the work-pieces concomitantly at the same speed.

31. In a typewriting machine, the combination with means to feed a work-piece past the printing point, of additional means to feed a second work-piece past the printing point concomitantly with the first but at different speed, means to feed both work-pieces together at the same speed, and means to render ineffective said first-mentioned means, to permit said feeding of the work-pieces at the same speed.

32. In a typewriting machine, the combination with a revoluble platen and means for supporting superposed work-sheets extending around the platen past the printing line, of sheet-feeding means located beyond the printing line to engage one or more of said sheets and cause them to be fed forward past the printing line, additional sheet-feeding means beyond the printing line to feed the remaining sheet or sheets simultaneously with those fed by the first-mentioned sheet-feeding means but at different speed, and means at the opposite side of the printing line from said first mentioned sheet-feeding means coöperating with the platen to feed all of said sheets simultaneously at the same speed.

33. The combination with a revoluble platen and a feed roll running thereon and coöperating therewith to feed superposed work-sheets forward past the printing line, a feed roll running on the platen beyond the printing line and coöperating with the platen to feed one or more of said sheets, additional sheet-feeding means to engage the remaining sheet or sheets at a point beyond the printing line, and a driving connection between the platen and said sheet-feeding means to cause the latter to advance the sheet or sheets engaged thereby at a different speed from that of the other sheets as the platen rotates, said first-mentioned feed roll being releasable at will to permit the sheets to be fed at different speeds.

34. The combination with a revoluble platen and a feed roll or rolls to run thereon and feed a number of sheets simultaneously forward past the printing line at the same speed, of a plurality of sheet-feeding devices, each arranged to engage one or more of the sheets at a point beyond the printing line and feed them forward past the printing line, and gearing between said sheet-feeding devices to cause them to simultaneously advance the sheets at different speeds, said feed roll or rolls releasable

from the platen to permit the sheets to be fed at different speeds.

35. In a typewriting machine, the combination with a revoluble platen, of feed rolls running thereon above and below the printing line respectively and coöperating with the platen to feed work-sheets forward at the surface speed of the platen, an auxiliary sheet-feeding couple spaced from the platen to engage a work-sheet at a point beyond the printing line, and gearing between the platen and said couple for operating the latter at a surface speed different from that of the platen, whereby said couple is operative to feed a sheet simultaneously with the feeding of a sheet by the roll above the printing line but at a different speed, said roll below the printing line releasable from the platen to permit the sheets to be simultaneously fed at different speeds.

36. In a typewriting machine, the combination with a revoluble platen, of a feed roll, a rock shaft, hangers on said shaft, pressure rolls on said hangers to run on the feed roll, means to rock said shaft to separate the pressure rolls from the feed roll, and a swinging frame on which said roll and rock shaft are mounted and whereby said shaft and roll may be swung into and out of position to coöperate with the platen in feeding work-pieces over the platen.

37. In a typewriting machine, the combination with a roller platen and a platen frame, of an auxiliary frame, a feed roll thereon to run on the platen, auxiliary feed rolls separate from the platen, and gearing for driving the auxiliary feed rolls at a different surface speed from that of the platen when the latter is rotated, said auxiliary frame arranged to swing on the platen frame to carry said auxiliary feed rolls away from the platen.

38. In a typewriting machine, the combination with a roller platen and a platen frame, of an auxiliary frame, a feed roll thereon to run on the platen, auxiliary feed rolls separate from the platen, gearing for driving the auxiliary feed rolls at a different surface speed from that of the platen when the latter is rotated, said auxiliary frame arranged to swing on the platen frame to carry said auxiliary feed rolls away from the platen, and intermeshing gears connected to the platen and said feed roll to positively drive the latter at the surface speed of the platen when the platen is rotated, said gears being disconnected when the roll is moved away from the platen.

39. In a typewriting machine, the combination with a platen frame and a platen rotatable thereon, of an auxiliary frame, and a work-piece-feeding couple carried by said frame in position to engage a work-piece at a point beyond or in advance of the printing line, said auxiliary frame arranged to swing about its pivot, to carry said feeding couple away from the platen to inoperative position.

40. In a typewriting machine, the combination with a platen frame and a platen rotatable thereon, of an auxiliary frame, a work-piece-feeding couple carried by said frame in position to engage a work-piece at a point beyond or in advance of the printing line, said auxiliary frame arranged to swing about its pivot, to carry said feeding couple away from the platen to inoperative position, and a gear train between the platen and said feeding couple for driving the latter at a different surface speed than that of the platen.

41. In a front-strike typewriting machine, the combination with a platen frame and a roller platen mounted thereon, of an auxiliary frame mounted to swing on the platen frame and comprising a work-sheet-feeding couple normally positioned above the printing line to engage a work-sheet and feed it forward past the printing line, said auxiliary frame arranged to swing upwardly and rearwardly and thereby carry said feeding couple into position to prevent interference with the operation of the machine independently of the said couple.

42. In a front-strike typewriting machine, the combination with a platen frame and a roller platen mounted thereon, of an auxiliary frame mounted to swing on the platen frame and comprising a work-sheet-feeding couple normally positioned above the printing line to engage a work-sheet and feed it forward past the printing line, said auxiliary frame arranged to swing upwardly and rearwardly and thereby carry said feeding couple into position to prevent interference with the operation of the machine independently of the said couple, a feed roll carried by said auxiliary frame to run on the platen when said auxiliary frame is in its forward position, and means to form a driving connection between the platen, said feeding couple, and said feed roll.

43. In a typewriting machine, the combination with a revoluble platen and means for feeding work-sheets thereover, of auxiliary work-sheet-feeding means comprising a feed roll separate from the platen and extending along the front of the platen, pressure rolls to run on said feed roll, said pressure rolls individually adjustable lengthwise of said feed roll, an additional feed roll arranged to run on the platen, and gearing between said feed rolls arranged to simultaneously drive said rolls at a different surface speed for simultaneously advancing superposed work-sheets at different speeds.

44. In a front-strike typewriting machine, the combination with a revoluble

platen and means coöperating therewith to feed a work-piece thereover, a feeding couple located in front of the platen but separate therefrom for feeding an additional work-piece, and means for driving said couple when the platen is rotated, but at a different surface speed from that of the platen, whereby the work-pieces are fed by said couple and said first-named means simultaneously, but at different speeds.

45. In a typewriting machine, the combination with a revoluble platen and means coöperating therewith to feed a work-piece over the platen at the surface speed of the platen, a work-sheet-feeding couple in front of the platen to engage a work-piece overlying said first-mentioned work-piece, and means to drive said couple from the platen.

46. In a typewriting machine, the combination with a revoluble platen and means coöperating therewith to feed a work-piece over the platen at the surface speed of the platen, a work-sheet-feeding couple in front of the platen to engage a work-piece overlying said first-mentioned work-piece, gearing between the platen and said couple for driving the latter at a different surface speed from that of the platen, whereby the work-pieces are fed concomitantly at different speeds, and additional work-piece-feeding means which may be brought into activity at will to feed all of the work-pieces simultaneously at the same speed.

47. In a typewriting machine, the combination with a revoluble platen, of a feed roll running on the platen and coöperating therewith to advance a work-sheet, an auxiliary feed roll separate from the platen, gearing connecting said feed rolls to drive the auxiliary roll at a different surface speed from that of the platen, and a pressure roll coöperating with said auxiliary roll to advance a work-sheet which overlies the first-mentioned work-sheet, whereby said sheets are concomitantly fed past the printing line at different speeds.

48. In a typewriting machine, the combination with a revoluble platen, of a feed roll running on the platen and coöperating therewith to advance a work-sheet, an auxiliary feed roll separate from the platen, gearing connecting said feed rolls to drive the auxiliary roll at a different surface speed from that of the platen, a pressure roll coöperating with said auxiliary roll to advance a work-sheet which overlies the first-mentioned work-sheet, whereby said sheets are concomitantly fed past the printing line at different speeds, means to release said pressure roll to permit all of the work-sheets to be fed at the same speed, and means which may be brought into activity when the pressure roll is released for simultaneously feeding all the work-sheets at the same speed.

49. The combination with a revoluble platen and line-spacing means for feeding sheets therearound, of means separated from said platen for line-feeding a separate sheet around the same during the rotation thereof, the second-named feeding means comprising a pair of coöperating rolls extending along the platen for gripping and advancing the sheet, and capable of separation for releasing the sheet, a drive-shaft upon which one of said rolls is mounted, and gearing between said drive-shaft and said platen, inclusive of a pinion on said shaft, and also inclusive of a gear on said platen.

50. The combination with a revoluble platen and line-spacing means therefor, of means separated from said platen for advancing a sheet around the same during the rotation thereof, said feeding means comprising a pair of coöperating rolls extending along the platen for gripping and advancing the sheet, and capable of separation for releasing the sheet, toothed gearing between said line-spacing means and said feeding rolls, and a mounting for one of said feeding rolls adjustable to effect endwise adjustment of that roll with relation to the other roll.

51. The combination with a revoluble platen and line-spacing means therefor, of a main feeding or driving roll extending along said platen, gearing connecting said main feeding or driving roll to said platen, and a plurality of feeding rolls mounted end to end to coöperate with said main feeding roll to grip and advance the sheet; said plurality and said main roll being separable, and each of said plurality of rolls being adjustable along said main feeding roll independently of the other.

52. The combination with a revoluble platen and line-spacing means therefor, of means separated from said platen for advancing sheets around the same during the rotation thereof, said feeding means comprising a pair of coöperating rolls extending along the platen for gripping and advancing the sheet, toothed gearing between said line-spacing means and said feeding rolls, and means for moving one of said feeding rolls bodily away from the other to release the sheet.

53. The combination with a revoluble platen and line-spacing means therefor, and means coacting with said platen to feed a sheet therearound at the operation of said line-spacing means, of means separated from said platen for advancing another sheet around the same during the rotation thereof, said feeding means comprising a pair of coöperating rolls extending along the platen for gripping and advancing the sheet, and capable of separation for releasing the sheet, and toothed gearing between said line-spacing means and said feeding

rolls to cause the rolls to turn at a different peripheral speed from the platen and thereby feed the second sheet at a different speed from the first.

54. The combination with a revoluble platen and line-spacing means therefor, of means separated from said platen for advancing a sheet around the same during the rotation thereof, said feeding means comprising a pair of coöperating rolls extending along the platen for gripping and advancing the sheet, and capable of separation for releasing the sheet, and toothed gearing between said line-spacing means and said feeding rolls, said rolls mounted close to the platen and above the printing point and in proximity thereto, to grip the top margin of the sheet as the first line is being written on the page.

55. The combination with a revoluble platen and line-spacing means therefor, of means separated from said platen for advancing a sheet around the same during the rotation thereof, said feeding means comprising a pair of coöperating rolls extending along the platen for gripping and advancing the sheet, and capable of separation for releasing the sheet, toothed gearing between said line-spacing means and said feeding rolls, said rolls mounted close to the platen and above the printing point and in proximity thereto, to grip the top margin of the sheet as the first line is being written on the page, and means above said rolls to guard the sheet from falling forwardly away from the platen.

56. The combination with a revoluble platen and line-spacing means therefor, of means separated from said platen for advancing sheets around the same during the rotation thereof, said feeding means comprising a pair of coöperating rolls extending along the platen for gripping and advancing the sheet, and capable of separation for releasing the sheet, toothed gearing between said line-spacing means and one of said feeding rolls, said rolls mounted close to the platen and above the printing point and in proximity thereto, to grip the top margin of the sheet as the first line is being written on the page, and a frame on which said rolls are mounted for being moved up and away from the platen.

57. The combination with a revoluble platen and line-spacing means therefor, of means separated from said platen for advancing sheets around the same during the rotation thereof, said feeding means comprising a drive roll and a companion roll extending along the platen for gripping and advancing the sheet, and capable of separation for releasing the sheet, a drive-shaft upon which said drive roll is mounted, gearing between said drive-shaft and said platen, inclusive of a pinion on said shaft, and also inclusive of a gear on said platen, and a frame on which said drive roll, pinion, shaft and companion roll are all mounted for being moved up and away from the platen.

58. The combination with a revoluble platen and line-spacing means therefor, of means separated from said platen for advancing sheets around the same during the rotation thereof, said feeding means comprising a pair of coöperating rolls extending along the platen for gripping and advancing the sheet, toothed gearing between said line-spacing means and said feeding rolls, means to effect separation of said feeding rolls to release the sheet and to maintain the rolls mechanically separated, and means to carry said rolls away from the platen.

59. The combination with a revoluble platen and line-spacing means therefor, of means separated from said platen for advancing a sheet around the same during the rotation thereof, said feeding means comprising a pair of coöperating rolls extending along the platen for gripping and advancing the sheet, toothed gearing between said line-spacing means and said feeding rolls, said rolls mounted close to the platen and above the printing point and in proximity thereto, to grip the top margin of the sheet as the first line is being written on the page, and means for moving one of said feeding rolls bodily away from the other to release the sheet.

60. In a typewriting machine, the combination with a rotary platen, of a pair of feed rolls at the delivery side of the platen, and work-sheet feeding means at the opposite side of the printing line from said feed rolls and coöperating with the platen to feed work-sheets past the printing line, said feed rolls operable in alternation with said feeding means to feed the same work-sheet over the platen.

LESTER A. WERNERY.

Witnesses:
W. O. WESTPHAL,
TITUS H. IRONS.