W. C. FREEMAN.

TYPE WRITING MACHINE.

APPLICATION FILED MAR. 22, 1912.

1,180,388.

Patented Apr. 25, 1916.

3 SHEETS—SHEET 1.

Fig. 1.

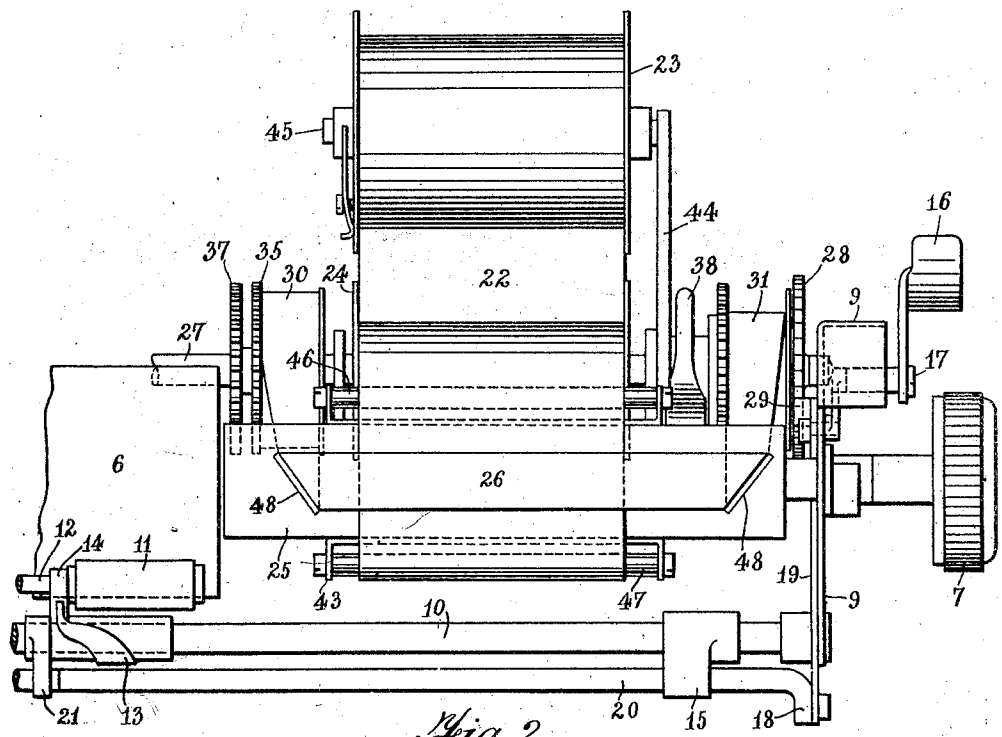
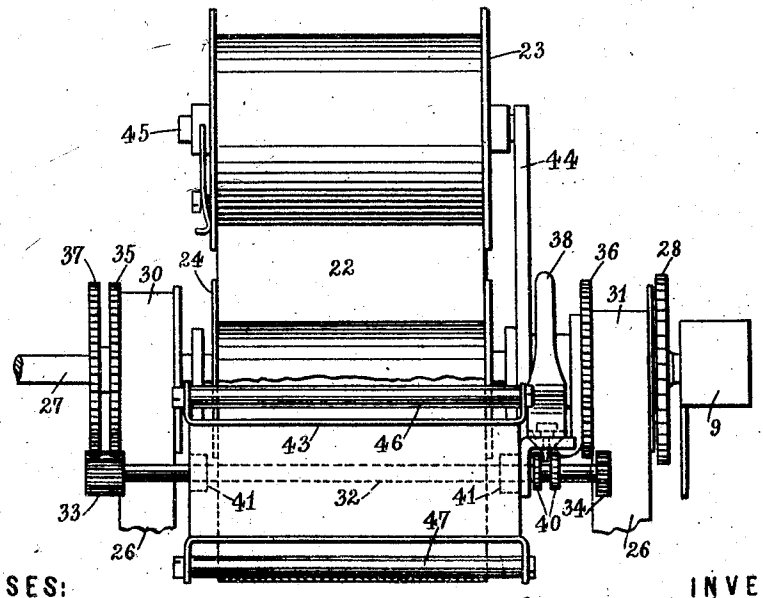


Fig. 2.



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3 SHEETS—SHEET 2.

Fig. 3.

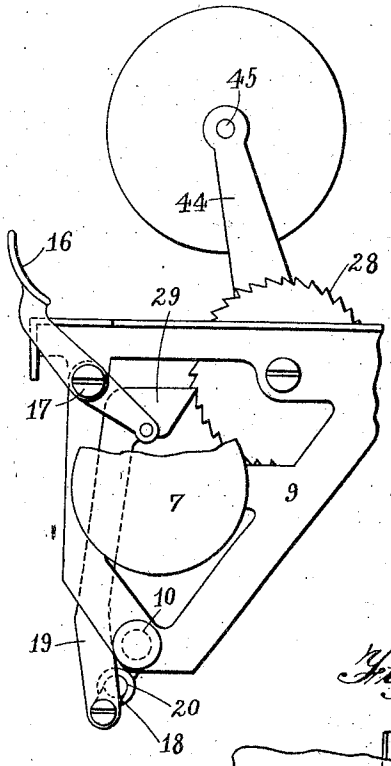


Fig. 4.

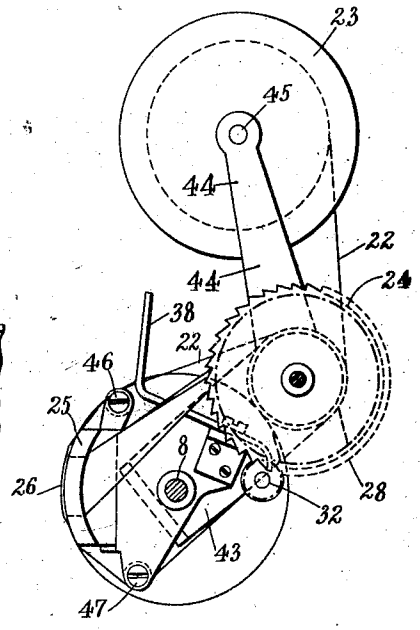
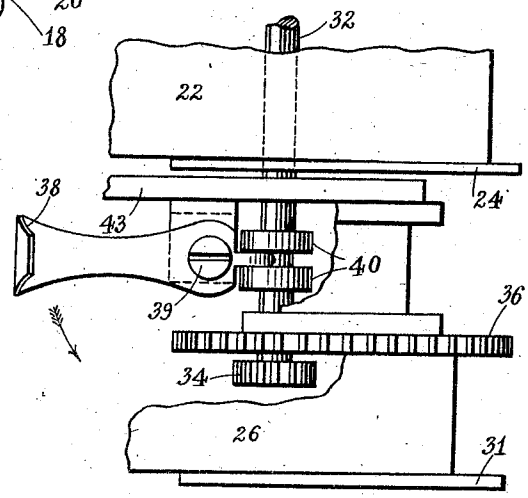


Fig. 5.



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TYPE WRITING MACHINE.

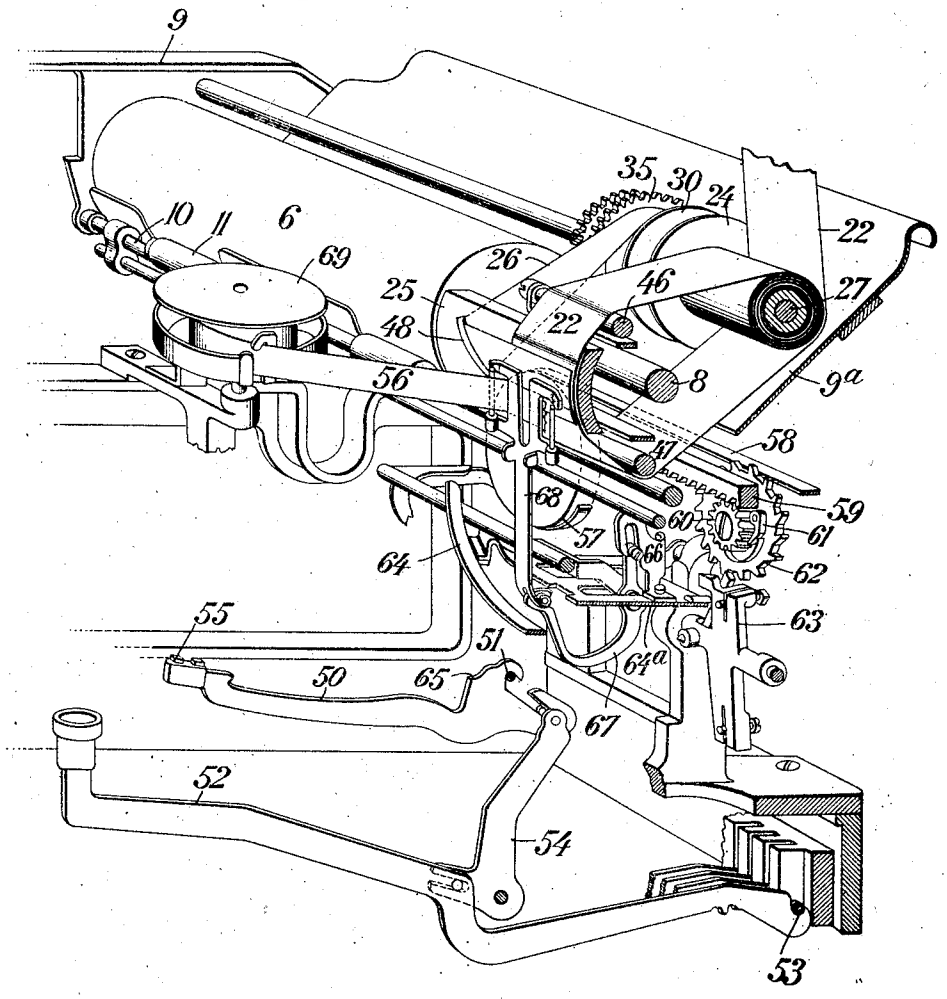
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1,180,388.

Patented Apr. 25, 1916.

3 SHEETS—SHEET 3.

Fig. 6.



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UNITED STATES PATENT OFFICE.

WILLIAM COMPTON FREEMAN, OF LONDON, ENGLAND, ASSIGNOR TO UNDERWOOD TYPEWRITER COMPANY, OF NEW YORK, N. Y., A CORPORATION OF DELAWARE.

TYPE-WRITING MACHINE.

1,180,388. Specification of Letters Patent. Patented Apr. 25, 1916.

Application filed March 22, 1912. Serial No. 685,521.

To all whom it may concern:

Be it known that I, WILLIAM COMPTON FREEMAN, a subject of the King of Great Britain, and resident of 120 Queen Victoria street, London, E. C., England, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a specification.

This invention relates to typewriting machines of the kind wherein a so-called tally-strip device is provided for the purpose of preserving, separately from the main work sheet, a condensed duplicate record of intermittently recurring entries such as the extended totals of accounts and the like comprising series of individual items which appear on the main sheet or original document alone.

A common practice for obtaining the duplicate record has been to repeat each extended total (after it has been written once upon the main sheet) by writing this total afresh upon a continuous tally-strip presented alongside of the main sheet upon a separate platen and controlled by independent feed mechanism whereby the strip is advanced by the operator line-by-line only as successive totals are written upon it. Such a method of working, however, not only wastes time by requiring each extended total to be written twice, but involves risk of error in transcribing the amount of each total from the original document to the tally-strip. The arrangement, moreover, although requiring the use of only the usual single ink-ribbon, necessitates an increase in the width of the carriage equal to the width of the tally-strip plus any further space occupied by the mechanism employed for controlling the strip.

An object of the present invention is, by enabling the condensed duplicate record of the extended totals to be produced concurrently with the writing of the corresponding column in the original document, to obviate the necessity of rewriting these totals upon the tally-strip and thus to avoid not only the waste of time but the risk of error involved in transcription.

According to the present invention the tally-strip is placed beneath the main sheet, and the duplicate record of extended totals, although written simultaneously with the corresponding column in the original document, is produced not by means of carbon paper but by taking the impression through a second ink-ribbon serving for the tally-strip alone; while advantage is taken of the fact that as a rule each account or similar document has only a single extended total, to effect the feeding forward of the tally-strip and the advance of the ribbon step-by-step automatically each time a sheet bearing an original document is withdrawn from the machine.

Other objects and advantages will hereinafter appear.

In the accompanying drawings, which illustrate an arrangement embodying a convenient form of the invention, Figure 1 is a front elevation of the right hand end of the carriage of a typewriting machine of the well-known Underwood type provided with the mechanism of the present invention. Fig. 2 is a view similar to Fig. 1, but with the rotary and non-rotatable platens and various other portions of the mechanism removed. Fig. 3 is a part outside elevation of the end of the carriage, looking from the right hand in Figs. 1 and 2, various parts being omitted and others broken away. Fig. 4 is a view similar to Fig. 3, taken inside the end frame of the carriage. Fig. 5 is a part plan view, showing certain details drawn to a larger scale. Fig. 6 is a perspective view of an Underwood typewriting machine with the present invention applied thereto, the tally strip mechanism and other parts being in section, and the carriage moved to the left to bring the printing point over the tally strip.

A rotary platen 6 is mounted on the axle 8 journaled in the end frames 9 of the carriage; a finger wheel 7 for rotating the platen is secured to the axle 8. The end frames 9 may be connected by the usual paper shelf 9^a at the rear side of the platen and by tie-rods, one of which is shown at 10. Feed rollers 11 by which work-sheets are held in frictional contact with the platen 6, are rotatably mounted on a rod 12 extending parallel with the rod 10, the shaft 12 being carried by levers 14 pivoted on the rod 10. The rollers 11 are normally pressed against the platen by springs 13 which bear against the levers 14. The levers 14 are caused to turn about the rod 10 in opposition to the springs 13, so as to withdraw the rollers 11 at will from contact with the platen 6, by the action of a manually-oper-

ated lever 16 fulcrumed at 17 to the end-frame 9 of the carriage. For this purpose the lever 16 is coupled by a link 19 to a crank 18 on a shaft 20 which extends parallel with the rod 10 and is journaled in bearings 15 carried by said rod; the shaft 20, when partially rotated, engaging (by means of flats formed upon it) the second arms 21 of the bell-crank levers 14 so as to move the latter in the direction required. All the parts thus far described are arranged and adapted to operate substantially as usual.

The tally-strip 22, drawn from a supply spool 23 and wound upon a winding spool 24, receives its impression while presented upon an auxiliary, non-rotatable platen 25 having its printing surface in alinement with and constituting in effect an endwise continuation of the rotary platen 6; the main work sheet (not shown), which receives the entire original document, extending across both platens. Hence the cylinder which constitutes the rotary platen 6 may, if desired, be shortened by an amount corresponding to the width of the non-rotatable platen 25.

The tally-strip ink-ribbon 26, which may be of the usual width, overlies the tally-strip 22 transversely, so as to extend horizontally from side to side of the strip; this ribbon 26 being drawn step-by-step in the direction of its own length, and the tally-strip 22 itself being simultaneously fed forward line-by-line, each time the feed-roll release-lever 16 is operated to permit the removal from the machine of a sheet bearing an original document. For this purpose ratchet-and-pawl mechanism is interposed between the feed-roll release-lever 16 and the winding spool 24, so that each actuation of said lever will cause the spool to rotate through an angle corresponding to one line-space of typewritten matter. In the arrangement illustrated, the winding spool 24 is fast upon a shaft 27 extending parallel with the platen-axis and mounted to rotate in bearings in the end-frames 9 of the carriage; the shaft 27 having fast upon it a ratchet-wheel 28 with which engages a pawl 29 formed on the link 19 operated by the lever 16. Beyond the respective ends of the winding spool 24 (and preferably upon the same axis therewith as shown) are mounted the two spools 30, 31, which carry the tally-strip ink-ribbon 26; the respective ribbon-spools, which are free to rotate independently of one another, being driven alternately (so as to cause the ribbon to travel in opposite directions) by the winding spool ratchet-gear through the medium of a counter-shaft 32 geared to the ratchet-wheel 28. The counter-shaft 32 for this purpose carries pinions 33, 34 adapted to gear alternatively with toothed wheels 35, 36 turning as one with the respective spools 30, 31, the pinion 33 being of sufficient breadth to remain constantly in gear with a toothed wheel 37 fast on the shaft 27.

38 is a thumb-lever, fulcrumed at 39 and engaging between collars 40 on the counter-shaft 32, for the purpose of enabling the latter to be slid lengthwise at will so as to bring it into gear with that ribbon-spool 30 or 31 whereon the ribbon is for the time being to be wound.

In the arrangement illustrated, the bearings 41, wherein the countershaft 32 is slidably journaled, are provided on a frame 43 which serves to carry the auxiliary platen 25 and the fulcrum 39; this frame 43, which is supported by the platen-spindle 8 and the shaft 27, having an upward extension 44 carrying the fixed axis 45 about which the spool 23 rotates under the control of a tension device.

46, 47 are guide-rods for the tally-strip 22, these rods assisting in bracing together the cheek-plates of the frame 43.

When the ribbon-spools 30, 31 are mounted as just described upon the axis of the receiving spool 24 (or upon an axis parallel to the direction of the ribbon across the tally-strip), it will be obvious that the ribbon in being drawn from the one spool to the other, must be twisted twice, namely, at some point between each spool and the corresponding edge of the tally-strip 22 whereat the ribbon 26 passes to or from its operative position, as the case may be. In order to effect this, the ribbon may beyond each edge of the tally-strip, be led through an oblique slit 48 (Fig. 1) provided in the auxiliary platen 25 and serving as a guide to change the plane of movement of the ribbon, or any other suitable means may be employed to effect this change in the direction of the ribbon.

Type-bars 50 fulcrumed on a rod 51 are actuated by key levers 52 fulcrumed at 53 and connected through bell cranks 54 with the type-bars to swing the latter upwardly and rearwardly and thereby cause the types 55 to print through the usual ribbon 56, the types striking against the front face either of the rotary platen or the auxiliary platen 25, depending upon the position of the carriage. It will be understood that the printing line, that is, the line along which the types print as the type-keys are actuated and the carriage is fed from right to left, extends along the front face of both platens and is approximately co-extensive with the combined length of the platens. The carriage is driven in letter-feed direction by the usual spring drum 57 connected through the band 58 to the carriage. The movement of the carriage is controlled by the usual letter-feed mechanism comprising a rack bar 59 having rack teeth meshing with a pinion 60 which has a one-way driving con-

nection through a spring-pressed pawl 61 with the escapement wheel 62. The wheel 62 is permitted a step-by-step movement when the type-keys or space keys are operated, said movement controlled by escapement dogs on an oscillating dog carrier 63, actuated by a universal bar 64 in the path of shoulders 65 on the type-bars, so that the universal bar is moved rearwardly each time a type-bar moves up to printing position. The ribbon 56 is vibrated over the printing point at each type stroke by means of the universal bar frame 64^a which carries a bracket 66 having a slot and pin connection with one end of the lever 67, the other end of which is connected to the ribbon vibrator 68 through which the ribbon 56 is guided. The ends of the ribbon 56 are wound on spools 69 which may be rotated by the usual mechanism to feed the ribbon through the guide 68. It will be noted that when the carriage is in the Fig. 6 position, the main and auxiliary ribbons 56 and 26 are superposed so that the types will print through the main ribbon onto the main work-sheet and through the auxiliary ribbon onto the tally strip.

In operation, the feed-roll release-lever 16, having been operated as usual to permit the insertion, the sheet of paper to receive the account or other original document, (with or without a duplicate sheet and carbon paper) is passed into position so that the space allotted to the column for extended totals or the like overlies the tally-strip 22 upon the non-rotatable platen 25, the remainder of the width of the sheet overlying the rotary cylindrical platen 6 as usual. The feed-roll release-lever 16 being then returned to normal position so as to permit the sheet to be clamped against the rotary platen 6 by the spring-pressed feed-rollers 11, the various items are written upon the sheet, line-by-line, the tally-strip 22, however, not participating in the line-space advance movements of the sheet. When the extended total is entered upon the original document in the proper column, a duplicate record of this total is impressed upon the tally-strip 22 in consequence of the type printing through ink-ribbon 26.

On the completion of the document, the feed-roll release-lever 16 is again actuated to permit the withdrawal of the sheet from the machine; such movement of said lever also feeding the tally-strip 22 a distance of one line-space, and advancing the ink-ribbon 26 one step. Hence, when another sheet has been inserted in position and written upon, the duplicate record of the extended total inscribed upon it will appear upon the tally-strip 22 close beneath the record of the extended total of the previously-written document, and so on as often as the operation is repeated.

Obviously, if more than a single extended total (or similar entry) should be required in the same document, the feed-roll release-lever 16 must be operated after each such entry has been made, so that the tally-strip 22 may be advanced to the extent of one line-space in order to make room for the reception of the succeeding entry of the same kind.

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

Claims:

1. In a typewriting machine, the combination, with a rotary platen; of a non-rotatable platen forming a virtual continuation of said rotary platen; supply and winding spools for a tally-strip of paper led over the non-rotatable platen beneath the original work-sheet; a feed-roll release lever; and a ratchet-gear actuated by said lever and serving to impart a step-by-step rotation to the winding spool and to an ink-ribbon having its operative portion overlying the tally-strip and extending transversely from side to side thereof.

2. In a typewriting machine, the combination, with a rotary platen; of a non-rotatable platen forming a virtual continuation of the rotary platen; supply and winding spools for a tally-strip of paper led over the non-rotatable platen beneath the original work-sheet; a feed roll release lever; a ratchet gear actuated by said lever and serving to impart step-by-step rotation to the winding spool and to an ink-ribbon having its operative portion overlying the tally-strip and extending transversely from side to side thereof; a pair of spools for said ribbon; a shaft whereon said ribbon spools are mounted to rotate freely, disposed parallel to the platen axis; a counter shaft parallel to and constantly in gear with said shaft; and means for throwing said counter shaft into gear with one or the other of said ribbon spools alternately at will, said ratchet gear when actuated by said release lever, operating through said shaft and counter shaft to impart a step-by-step rotation to the spool which is in gear with the counter shaft.

3. In a typewriting machine, the combination, with a rotary platen; of a non-rotatable platen forming a virtual continuation of the rotary platen; supply and winding spools for a tally-strip of paper led over the non-rotatable platen beneath the original work-sheet; a feed roll release lever; a ratchet gear actuated by said lever and serving to impart step-by-step rotation to the winding spool and to an ink ribbon having its operative portion overlying the tally-strip and extending transversely from side to side thereof; a pair of spools for said ribbon; a shaft whereon said ribbon

spools are mounted to rotate freely, disposed parallel to the platen axis, said ratchet gear when actuated by said release lever serving to impart a step-by-step rotation to said shaft; a counter shaft parallel to and constantly in gear with said shaft; means for throwing said counter shaft into gear with one or the other of said ribbon spools alternately at will; and means for changing the plane of motion of the ribbon beyond each edge of the tally-strip.

4. In a typewriting machine, the combination of a paper carriage, means to support a work-sheet and tally strip thereon with the work-sheet overlying the tally strip at the printing line, said carriage having associated with it a ribbon traveling with the carriage and interposed between the said work-sheet and tally strip along the printing line, said work-sheet extending laterally beyond the tally strip and ribbon at the printing line, and means for vibrating a ribbon over the printing point throughout the travel of the carriage to enable types to print through the last-named ribbon alone along a portion of the printing line and through both said ribbons while the tally strip is over the printing point.

5. In a typewriting machine, the combination, with a carriage; of platens carried thereby in alinement with each other and arranged to be brought successively into cooperative relation with a ribbon during the travel of the carriage, one of said platens having also associated with it a second ribbon arranged to travel with the carriage; and means to feed the second-named ribbon over said platen in the direction of the printing line.

6. In a typewriting machine, the combination of a carriage, a rotary platen, an auxiliary platen at the end of the rotary platen, and means to feed a ribbon horizontally over said auxiliary platen.

7. In a typewriting machine, the combination with a carriage frame, of platens supported therein, and mechanism for feeding a ribbon horizontally over one of the platens, said mechanism being carried on the carriage frame.

8. In a typewriting machine, the combination with a carriage frame, of a rotary platen mounted thereon, an auxiliary platen, and a ribbon-winding mechanism on said frame for feeding a ribbon over the auxiliary platen in a direction transverse to that of the work member.

9. The combination of a paper carriage having means to support a ribbon extending over a portion of the line along which printing is done during the travel of the carriage, means to support a tally strip beneath said ribbon at the printing line, means to support a work-sheet to overlie the ribbon and tally strip, and to extend laterally beyond the tally strip and ribbon, means to vibrate a ribbon supported independently of the carriage over the printing point to permit types to print therethrough directly onto the work-sheet and through the work-sheet and first-mentioned ribbon onto the tally strip when the latter is over the printing point, and line-space mechanism to advance the work-sheet relatively to the tally strip.

10. In a typewriting machine, the combination with a carriage, of a main rotatable platen and an auxiliary platen mounted thereon, said auxiliary platen at the end of the main platen, a tally-strip mechanism including means for line-spacing a tally-strip over said auxiliary platen, a ribbon device coöperating with both platens, and auxiliary ribbon mechanism to feed a ribbon over the auxiliary platen only.

11. In a typewriting machine, the combination, with a carriage having a letter-feed travel; of means to support a ribbon over the printing point at each type stroke, said carriage arranged to bring a second ribbon with it over the printing point on reaching an intermediate position in its travel, and to hold said second ribbon over the printing point during the remainder of its travel; means to support a work-piece beneath the second ribbon, to be printed upon by the types striking through said second ribbon; means to line-space said work-piece; means to feed said second ribbon lengthwise; means to support a second work-piece in position to receive the impressions of types striking through said first-mentioned ribbon; and means to line-space said second-mentioned work-piece separately from the line-spacing of the first-mentioned work-piece.

12. In a typewriting machine, the combination with a carriage, of a rotating platen and a non-rotating tally-strip platen carried thereby, in alinement with each other and arranged to be brought into coöperative relation with a ribbon during the travel of the carriage, tally-strip mechanism including means to line-space a tally-strip over said non-rotating platen, said non-rotating platen being arranged for association with a ribbon extending over the printing line thereof, and means to feed the last-named ribbon.

13. In a typewriting machine, the combination, with a carriage frame; of platens mounted in said frame with their printing surfaces in alinement and arranged to be brought successively into coöperative relation with a ribbon during the travel of the carriage; a tally-strip mechanism, including means for line-spacing a tally-strip over one of said platens, the tally-strip platen having a ribbon supported over the printing line thereof throughout the travel of

said platen; and means for feeding the second-named ribbon lengthwise of said printing line.

14. In a typewriting machine, the combination with a carriage, of platens thereon with their printing surfaces in alinement, said platens being arranged to be brought successively into coöperative relation with a ribbon during the travel of the carriage, a tally-strip mechanism coöperating with one of said platens and including means for line-spacing the tally-strip, means for supporting a second ribbon over the printing line of said tally-strip platen, and means for feeding said second ribbon lengthwise.

15. In a typewriting machine, the combination of a paper carriage arranged to travel throughout its entire extent in coöperative relation to a ribbon, means for automatically bringing a second ribbon into printing position only when an intermediate point has been reached in the travel of the carriage, means to support work-pieces to underlie and overlie respectively said second ribbon, the overlying work-piece extending laterally beyond the said second ribbon to permit types to print thereon through the first ribbon, before the said underlying work-piece has been brought to printing position, and means for separately line-spacing each of said work-pieces.

16. In a typewriting machine, the combination with a main platen and a tally-strip platen, said platens having their printing surfaces in alinement, of means associated with the tally-strip platen for line-spacing a tally-strip thereover, both plates being arranged to coöperate with a ribbon, and the tally-strip platen only being arranged to coöperate with a second ribbon, and means for feeding said second ribbon lengthwise.

17. In a typewriting machine, the combination with a carriage, of rotatable and non-rotatable alined platens carried thereby, independent ribbon mechanisms for supporting and feeding ribbons, one of which ribbons overlies the printing line of the non-rotatable platen and is supported in such position throughout the carriage travel, and the other of which ribbons coöperates with both platens and is positioned over the printing point at each type stroke throughout the travel of the carriage, to permit the types to strike therethrough against the rotatable platen, while the latter is in the printing zone, and to permit the types to strike through both ribbons against the non-rotatable platen, while the non-rotatable platen is in the printing zone, and means to line-space a web extending over said non-rotatable platen between the latter and the said overlying ribbon.

18. In a typewriting machine, the combination, with a carriage; of alined platens supported thereon, one platen having a ribbon disposed in fixed relation thereto during the carriage travel, and both platens co-acting with a ribbon separate from the first-named ribbon and supported independently of the carriage; winding mechanism for the first-named ribbon; and means to guide said first-named ribbon and cause it to be fed by said winding mechanism over the printing line of its carriage in the direction of the carriage travel.

19. In a typewriting machine, the combination with a carriage, of platens mounted therein, means to hold a work-sheet over both platens, ribbon mechanism for printing on said work-sheet during the travel of the carriage, a tally-strip mechanism including means for holding a tally-strip over one of said platens so that said tally-strip and work-sheet are superposed, and means for line-spacing the tally-strip and ribbon mechanism including means for feeding across the tally-strip a ribbon for duplicating on said tally-strip the printing on said work-sheet when said second platen is traveling past the printing point.

20. In a typewriting machine, the combination with a carriage, of means to feed a ribbon and cause its active portion to move in the direction of the carriage travel over a portion only of the line along which the printing point is advanced by the travel of the carriage, said ribbon-feeding means carried with the carriage, a key operable to actuate said means, means to support a tally strip beneath said active portion of the ribbon, means actuated by said key to line-space the tally strip, means to support a work-sheet in position to overlie the tally strip and ribbon and extend along the printing line laterally beyond the tally strip, and means for line-spacing said work-sheet separately from the line-spacing of the tally strip.

21. In a front-strike typewriting machine, the combination of a paper carriage, means to vibrate a ribbon over the printing point during the travel of the carriage, ribbon-winding mechanism supported on the carriage, means to guide an auxiliary ribbon from said mechanism over the printing point during a portion of the carriage travel, and cause said auxiliary ribbon to be fed by said winding mechanism in the direction in which the printing line extends, means to support a work-piece beneath the auxiliary ribbon, and means to support a work-piece in position to overlie said first-mentioned work-piece, and to extend beyond the auxiliary ribbon along the printing line in position for types to print thereon through the first-mentioned ribbon during the travel of the carriage; the auxiliary ribbon being brought to the printing position at an intermediate point in the printing of a line, to permit the types to print through both rib-

bons and on both work-pieces during the continued printing of the line.

22. In a typewriting machine, the combination of a carriage and platen; means to vibrate a ribbon over the printing portion during the travel of the carriage; and means to automatically feed a separate ribbon independently of the rotation of the platen, the last-named ribbon being brought over the printing point during a portion only of the carriage travel.

23. In a typewriting machine, the combination of a carriage; a platen; feed rolls to run on the platen; a key to release said rolls; means to vibrate a ribbon over the printing point during the travel of the carriage; and winding mechanism controlled by said key for moving an auxiliary ribbon longitudinally over the printing point.

24. In a front-strike typewriting machine, the combination of a carriage having a letter-feed travel, means to vibrate a ribbon over the printing point, a tally-strip mechanism including means to guide and support an auxiliary ribbon brought over the printing point during a portion of the letter-feed travel of the carriage, means to feed said auxiliary ribbon independently of the movements of the carriage, and means to line-space a tally-strip and cause it to be fed past the auxiliary ribbon in position for types to print thereon through the auxiliary ribbon.

25. In a typewriting machine, the combination with a rotary platen, of feed rolls, mechanism to shift said rolls toward and from the platen mechanism to feed the active portion of a ribbon in a direction parallel with the platen axis, and means to simultaneously operate said mechanisms.

26. In a typewriting machine, the combination with a rotary platen, of feed rolls, ribbon-winding mechanism, a device to move the feed rolls to and from the platen, means operated by said device to actuate the ribbon-winding mechanism, and means to guide the ribbon longitudinally of the printing line of the platen.

27. In a typewriting machine, the combination with a carriage, of a platen, means to support and guide a tally strip over the platen, a winding spool to receive the tally strip, means to support a ribbon and guide it over the face of the platen in a direction transverse to that of the tally strip, a key, and mechanism controlled thereby, to feed the tally strip and ribbon over the face of the platen.

28. In a typewriting machine, the combination with a carriage, of a platen, ribbon spools located behind the platen and rotatable about an axis extending in the direction of the carriage travel, the platen forming a support for leads of ribbon extending forwardly from the spools to the face of the platen, and formed to change the direction of the ribbon and guide it over the face of the platen, and mechanism to rotate said spools.

29. In a typewriting machine, the combination with a carriage, of a platen, ribbon supporting and winding mechanism comprising spools having their axes of rotation parallel with the platen, said platen having diagonal slots by means of which the direction of the ribbon is changed in passing from the platen to the spools.

30. In a typewriting machine, the combination with a carriage, of a platen, and a ribbon mechanism comprising spools behind the platen, said platen having diagonal slots therein to guide a ribbon and change its direction between the platen face and the ribbon mechanism.

31. In a typewriting machine, the combination with a paper carriage, of ribbon mechanism operated throughout the travel of the carriage, an auxiliary mechanism comprising means to direct a ribbon over a portion of the printing line, means to support a work-piece in position to underlie said ribbon at the printing line, means to concomitantly feed said ribbon along the printing line and said work-piece across the printing line, means to support a work-sheet in position to project over said ribbon and work-piece, and means to separately feed said work-sheet.

32. In a typewriting machine, the combination with a carriage, of a ribbon mechanism operable during the printing of an entire line, ribbon mechanism carried by the carriage and comprising means to direct a ribbon over a portion of the printing line, means to support a work-piece to underlie the said ribbon along said portion of the printing line, means to support a work-piece in position to overlie the first-mentioned work-piece and to extend along the entire printing line, and means to separately feed said work-pieces.

33. In a typewriting machine, the combination with a carriage and a rotary platen thereon, of feed rolls, an auxiliary platen, a ribbon mechanism for the auxiliary platen, and a device to move the feed rolls toward and from the rotary platen and operate said ribbon mechanism.

34. In a typewriting machine, the combination with a carriage, of a rotary platen, feed rolls, mechanism to move the feed rolls toward and from the platen, and ribbon winding mechanism, said first-named mechanism comprising a manual device also connected to operate said winding mechanism.

35. In a typewriting machine, the combination with a carriage, of a rotary platen, feed rolls, mechanism to lift and lower said rolls, an auxiliary platen, ribbon winding mechanism, and means to guide a ribbon to and from said winding mechanism over the

face of said auxiliary platen, said first-named mechanism comprising a manual device for simultaneously operating said rolls and the ribbon mechanism.

36. In a typewriting machine, the combination with a carriage, of a rotary platen, feed rolls in contact therewith, ribbon spools, a shaft on which said spools are mounted, a ratchet wheel secured to said shaft, a finger lever, a pawl connected therewith for operating the ratchet wheel, and an operating connection between the said lever and the rolls for moving the latter from the platen.

37. In a typewriting machine, the combination with a carriage, of a rotary platen, feed rolls, an auxiliary platen in alinement with the rotary platen, ribbon mechanism comprising a shaft, ribbon spools mounted thereon, means for guiding a ribbon between said spools and over the face of the auxiliary platen, a ratchet wheel secured to said shaft, a pawl to operate the ratchet wheel, a finger lever connected to the pawl, an operating connection between said lever and the feed rolls, and means to effect a driving connection between the ribbon spools alternately and said shaft.

38. In a typewriting machine, the combination with a carriage, of means for feeding a tally strip over an end portion of the printing line, ribbon mechanism for presenting a ribbon over the printing point throughout the printing of a line, and an auxiliary ribbon mechanism for winding a ribbon and guiding it over the tally strip.

39. In a typewriting machine, the combination with a carriage, of a ribbon mechanism for presenting a ribbon at the printing point throughout the printing of a line, a ribbon mechanism movable with the carriage for guiding and supporting a ribbon over an end portion of the printing line, means to support and guide a strip of paper over said end portion of the printing line, and feeding means to concomitantly feed the said ribbon and paper strip, the direction of movement of the ribbon over the printing line being transverse to that of the paper strip.

40. In a typewriting machine, the combination with a carriage, of a rotary platen thereon, an auxiliary platen in alinement therewith, ribbon mechanism coöperating with both platens, means for directing a tally strip over the auxiliary platen, and means to direct and feed a ribbon over the tally strip in a direction transverse to that of the tally strip.

41. In a typewriting machine, the combination with a carriage, of a rotary platen, an auxiliary platen in alinement therewith, means to support a tally strip over the auxiliary platen, ribbon winding mechanism on the carriage, means to direct a ribbon from said mechanism over the tally strip independently of the first-named platen, and means to actuate said mechanism and feed said ribbon relatively to the tally strip.

42. In a typewriting machine, the combination with a carriage, of a rotating platen, a non-rotating platen in alinement therewith, mechanism to support a tally strip over the non-rotating platen, ribbon winding mechanism on the carriage, means to direct the ribbon to and from said winding mechanism over the tally strip, said winding mechanism operable to feed the ribbon relatively to the tally strip, and non-traveling ribbon mechanism.

43. In a typewriting machine, the combination, with a carriage, of a rotary platen; mechanism for feeding a tally-strip adjacent one end of the platen, independently of the rotation of the platen; and means to feed a ribbon transversely over the tally-strip.

44. In a typewriting machine, the combination with a carriage, of a rotary platen, mechanism on the carriage for supporting and feeding a tally strip adjacent one end of the platen, means to operate said mechanism and feed the tally strip independently of the movement of the carriage or the rotation of the platen, and means actuated by said tally strip feeding mechanism to feed a ribbon across the tally strip.

45. In a typewriting machine, the combination of a ribbon mechanism, a carriage traveling independently of said mechanism, means on the carriage for supporting a tally strip, and ribbon mechanism on the carriage for feeding and directing a ribbon over the tally strip.

46. In a typewriting machine, the combination with a carriage, of a rotary platen thereon, an auxiliary platen in alinement with the rotary platen, ribbon mechanism for supporting a ribbon at the printing point, said mechanism being mounted independently of the carriage, means for supporting a tally strip and directing it over the auxiliary platen, mechanism for winding and guiding a ribbon over the printing line of the tally strip, and a device for operating said winding mechanism and feeding said tally strip.

47. In a typewriting machine, the combination with a carriage, of a rotary platen thereon, an auxiliary platen in alinement therewith, ribbon mechanism for supporting a ribbon at the printing point, said mechanism being mounted independently of the carriage, means for supporting a tally strip and directing it over the auxiliary platen, mechanism for winding and guiding a ribbon over the printing line of the tally strip, and a device for operating said winding mechanism and feeding said tally

strip independently of the rotation of the rotary platen.

48. In a typewriting machine, the combination with a carriage, of a rotary platen, feed rolls, means for supporting a tally strip adjacent one end of the platen, mechanism to feed a ribbon over the tally strip, mechanism to move the feed rolls toward and from the platen, and a device operatively connected to actuate both said mechanisms.

49. In a typewriting machine, the combination with a carriage, of a rotary platen, feed rolls, mechanism to move said rolls toward and from the platen, an auxiliary platen in alinement with said rotary platen, means to direct a tally strip over the auxiliary platen, means to direct a ribbon over the tally strip, winding mechanism for said ribbon, feeding mechanism for the tally strip, and a device operatively connected to all of said mechanisms whereby the feed rolls, the tally strip, and the ribbon winding mechanism may be simultaneously actuated.

50. In a typewriting machine, the combination with means to support a web of paper, said means comprising a receiving spool, of a shaft on which said spool is mounted, a ribbon spool on said shaft, means to direct a ribbon over the platen and to said ribbon spool, and mechanism to rotate said shaft and thereby simultaneously feed the web of paper and advance the ribbon over the paper.

51. In a typewriting machine, the combination with means for supporting a web of paper, said means comprising a receiving spool, of a shaft on which said spool is mounted, ribbon spools on said shaft, means to direct a ribbon from one spool over said web of paper into the other spool, reversing mechanism to connect either of the ribbon spools to the shaft, and means to rotate the shaft and thereby feed the web of paper and simultaneously advance the ribbon.

52. In a typewriting machine, the combination with receiving and supply spools for a tally strip, of ribbon spools on opposite sides of said tally strip, means to direct a ribbon from one spool to the other over the printing line of the tally strip, means to support a work sheet over the tally strip, and a ribbon mechanism for the work sheet.

53. In a typewriting machine, the combination of a main platen and an auxiliary platen mounted at the end of the main platen, an ink ribbon device coöperating with both platens, an auxiliary ribbon device coöperating with only the auxiliary platen, means associated with the auxiliary platen for line-spacing a tally strip thereover, and means connected with said line-spacing means for feeding the auxiliary ribbon.

54. In a typewriting machine, the combination of a main platen; an auxiliary platen; a ribbon device coöperating with both platens; and an auxiliary ribbon device coöperating only with the auxiliary platen, said auxiliary device comprising a pair of ribbon spools, and means to drive said spools alternately, so as to wind the ribbon from either spool to the other, said auxiliary platen and said auxiliary ribbon device being mounted at one end of the main platen.

55. In a typewriting machine, the combination of a main platen, an auxiliary platen, a ribbon device coöperating with both platens, an auxiliary ribbon device comprising a pair of ribbon spools to coöperate only with the auxiliary platen, said auxiliary platen and said auxiliary ribbon device being all mounted at one end of the main platen; the printing field of said auxiliary platen arranged between the spools of said auxiliary ribbon device, and means for leading the ribbon from one spool to the auxiliary platen, and then along the auxiliary platen, and thence to the other spool.

56. In a typewriting machine, the combination, with a carriage, type operating keys, and means controlled by said keys for effecting a step-by-step movement of said carriage; of means to support a work-sheet in printing position; means to support a tally-strip in printing position, with said tally-strip and work-sheet superposed; ribbon mechanism coöperating with the work-sheet throughout the printing operation; and ribbon mechanism for directing a ribbon over the portion of the printing line occupied by the tally-strip and feeding the ribbon in a direction transverse to that in which the tally-strip extends past the printing line.

57. In a typewriting machine, the combination, with a carriage, type operating keys, and means controlled by said keys for effecting a step-by-step movement of said carriage; of a rotary platen; means to feed a tally-strip over the printing line adjacent one end of the platen; mechanism to feed a ribbon across the tally-strip; means to support a work-sheet in printing position with the work-sheet extending over said tally-strip and said ribbon; and mechanism for presenting an additional ribbon at the printing point throughout the printing of a line.

WILLIAM COMPTON FREEMAN.

Witnesses:
ERNEST UPTON,
GEORGE E. MINTERN.