A. S. DENNIS.

TYPE WRITING MACHINE.

APPLICATION FILED DEC. 11, 1913. RENEWED AUG. 10, 1915.

1,208,757.

Patented Dec. 19, 1916.

2 SHEETS—SHEET 1.

FIG. 1.

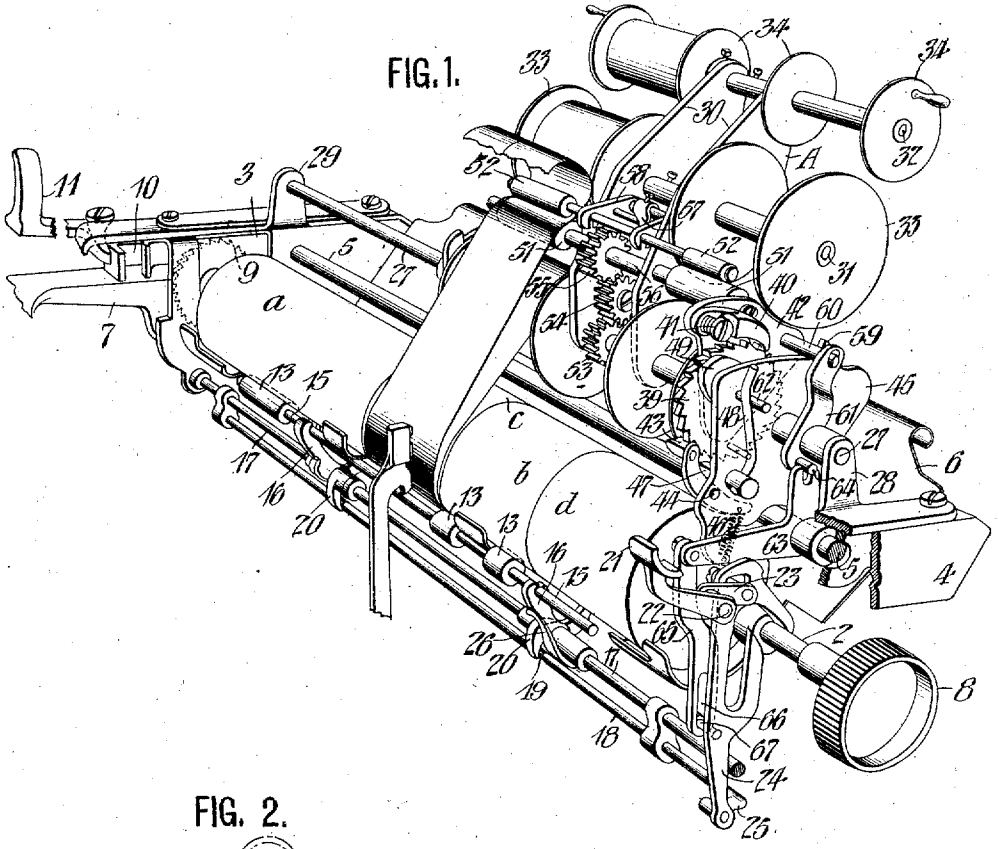


FIG. 2.

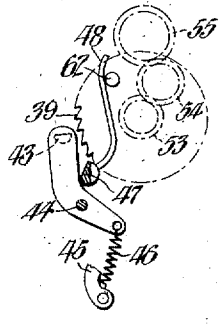
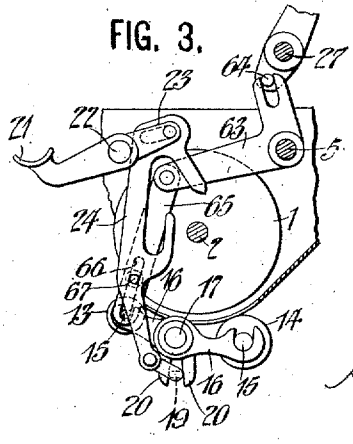


FIG. 3.



WITNESSES:

J. L. Greenfield

M. C. Westphal

INVENTOR:

Adolphus S. Dennis

BY B. C. Stickney

ATTORNEY.

A. S. DENNIS.

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2 SHEETS—SHEET 2.

FIG. 4.

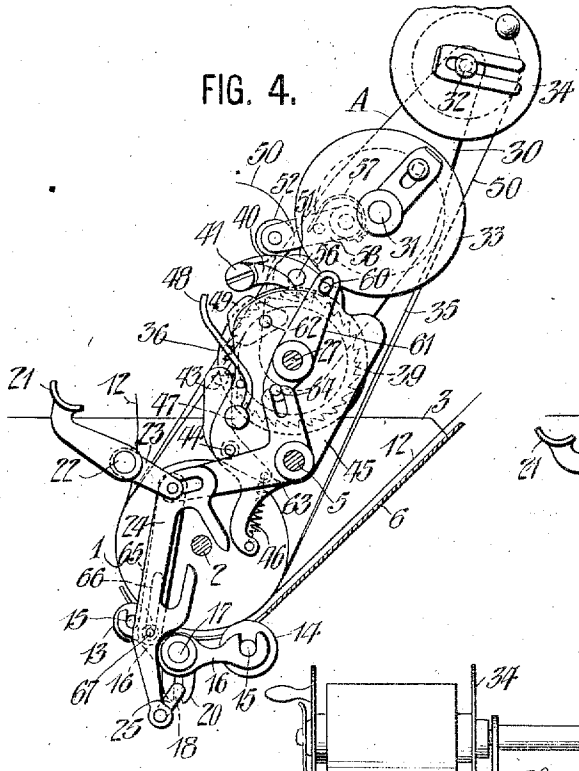


FIG. 5.

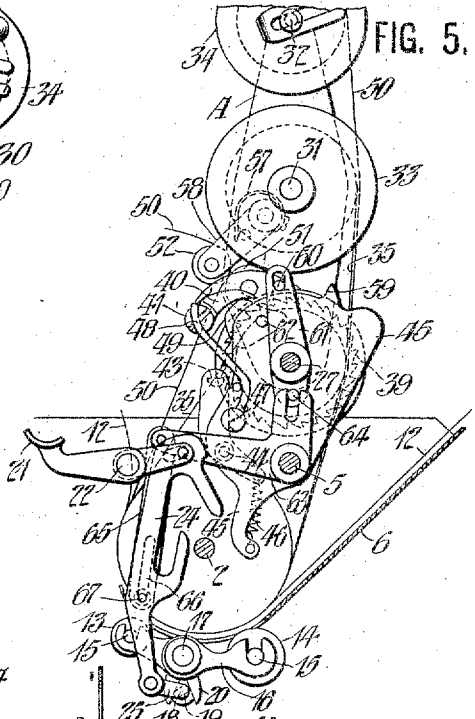
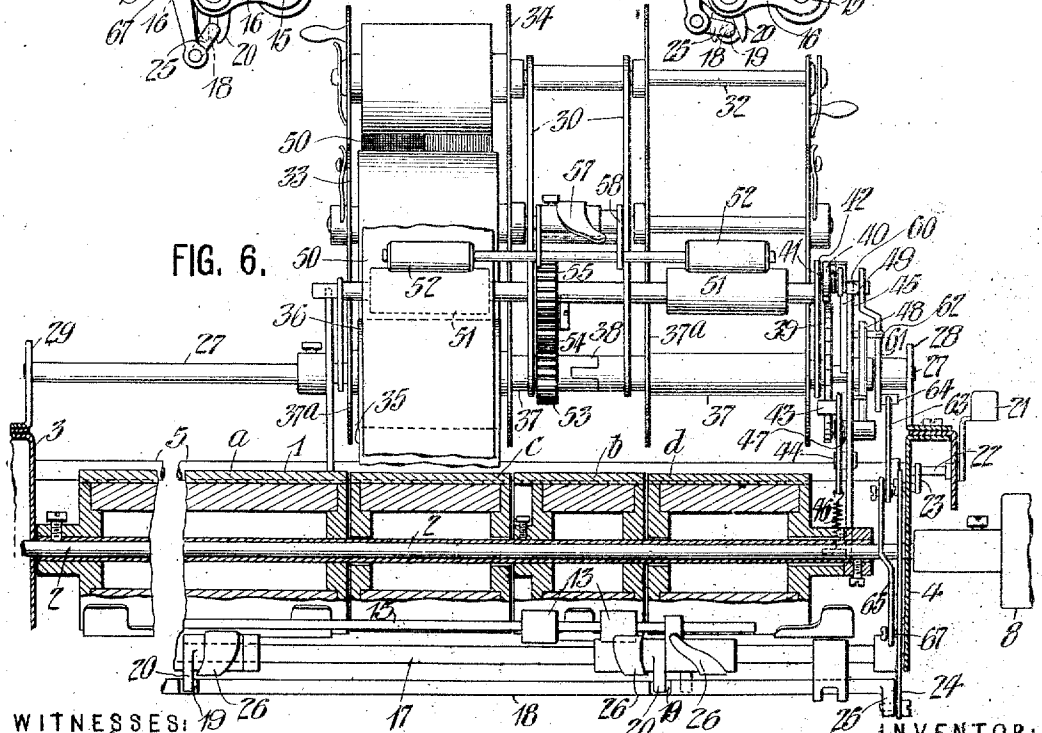


FIG. 6.



WITNESSES:

J. D. Garfield

W. O. Westphal

INVENTOR:

Adolphus S. Dennis

BY

R. B. Stickney

ATTORNEY

UNITED STATES PATENT OFFICE.

ADOLPHUS S. DENNIS, OF LAKEWOOD, OHIO, ASSIGNOR TO UNDERWOOD TYPEWRITER COMPANY, OF NEW YORK, N. Y., A CORPORATION OF DELAWARE.

TYPE-WRITING MACHINE.

1,208,757. Specification of Letters Patent. Patented Dec. 19, 1916.

Application filed December 11, 1913, Serial No. 805,926. Renewed August 10, 1915. Serial No. 45,080.

To all whom it may concern:

Be it known that I, ADOLPHUS S. DENNIS, a citizen of the United States, residing in Lakewood, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a specification.

My invention relates to tally strip mechanism for use in connection with typewriting machines, in which one or more tally strips or webs are fed over the platen in position to receive the figures representing totals in itemized accounts or bills, or other data, the strips being usually fed independently of the work-sheets.

The present invention provides an improved mechanism for supporting and feeding the tally strips.

In order to line-feed the tally strip, it has been customary to employ the same key that releases the feed rolls which run on the platen, a pawl being connected to said key to turn the tally-strip winding-spool. This throws on said key the burden both of throwing the feed rolls off the platen and winding the tally strip, and it is one of the objects of the invention to line-feed the tally strip by separate means, thereby permitting a much lighter and improved action of said key. To this end the tally strip spool is mounted on a frame, which can be swung by the operator. To this frame is connected a pawl, which during the swinging of the frame, effects a winding movement of the tally-strip spool, thereby line-feeding the tally strip.

The frame is preferably swung forwardly, thereby giving better access to the paper shelf in rear of the platen, and facilitating the insertion or manipulation of a bill or main work-sheet; and preferably during the return or rearward swinging of the spool frame, said pawl is effective to turn the ratchet wheel, which winds the tally strip. This improvement is of special value in machines where it is desired to employ two tally strips, as the labor of winding both tally strip spools would be excessive if attempted by the use of the ordinary pressure roll release key; but where said spools are mounted on a swinging frame, the effort required in swinging said frame is so slight as not to be objectionable, even when it is necessary to use the frame to wind two or even more tally strip spools simultaneously.

An objection is sometimes found in using carbon strips in connection with tally strips, that the carbon strip is used too rapidly and wastefully.

Another feature of the present improvements consists in avoiding this objection, and to this end the carbon strip is connected to a separate feeding means, mainly for the purpose of feeding the carbon strip very slowly relatively to the tally strip, so that the type impressions upon the carbon sheets will fall closely together, thus avoiding waste.

Another feature of the improvement is the provision of a tally strip platen which is a trifle under-sized, relatively to the platen on which the main work-sheet is held. The main work-sheet is intended to overlie the under-sized platen; and upon the latter are previously wound the tally strip and carbon strip, which, however, do not protrude beyond the periphery of the main platen, because of the smaller diameter of the tally strip platen. Thus the main sheet will have a backing of uniform diameter, and will remain smooth and unwrinkled, and other advantages will be gained.

The usual key for releasing the feed rolls from the main platen is retained, and it can be used at any time, independently of the swinging spool-frame, to perform its usual function of locking the feed rolls away from the platen, so as to leave both hands of the operator free to manipulate the sheets.

The swinging frame is connected to the usual feed-roll release-shaft in a manner to turn the latter far enough to release the rolls without locking them away from the platen. The weight of the swinging frame and spools is sufficient to hold the frame in its forward position, so that the feed rolls are held away from the platen, and the operator may use both hands in inserting or manipulating the main work-sheet; and when the frame is swung backwardly the feed rolls will resume their normal positions against the platen.

The platen may comprise a section or sections fixed to the platen axle to be rotated therewith for feeding forward the bills or work-sheets, and a narrow section or sections loose on the platen axle, over which the tally strips are fed independently of the said

work-sheets. The tally strips may be fed from supply rolls carried on the swinging frame supported over the platen, the webs being fed from said rolls downward around the loose sections of the platen and onto winding spools mounted on the axis of the swinging frame. A feed ratchet, connected to rotate with the winding spools, is actuated by the pawl carried by the swinging frame, the pawl riding idly over the ratchet as the frame is swung forward, and driving the ratchet as the frame is returned, thereby feeding the tally strips forward. Carbon strips may be supplied from spools also carried by the swinging frame, and extend around the platen over the tally strips, the leading end of each carbon extending between feed rolls which may be actuated by a train of gearing between the winding spool shaft and the feed rolls to feed the carbon strips a short distance each time the tally strips are fed forward.

The work-sheets are held in contact with the platen, and fed forward as the platen rotates, by means of the usual feed rolls. In order to permit the feed rolls to be lifted for removing and replacing a bill, and the tally strip to be fed forward by a single operation, means are provided for automatically lifting the pressure rolls from the platen each time the swinging frame is actuated to feed the tally strips forward. Such means may comprise a bell crank actuated by said swinging frame and connected through a link to the usual key-actuated link for lifting the feed rolls, a lost motion connection between said links permitting the pressure rolls to be lifted either by the swinging frame or the finger key ordinarily provided for such purpose.

Other features and advantages will hereinafter appear.

In the accompanying drawings, Figure 1 is a perspective view, showing my invention applied to the carriage of an Underwood typewriting machine. Fig. 2 is a detail view, showing means to release the holding detent for the ratchet wheel. Fig. 3 is a fragmentary sectional elevation, showing the feed rolls thrown off the platen. Fig. 4 is a part sectional end elevation of the mechanism shown in Fig. 1, the parts being in their normal position of rest. Fig. 5 is a similar view, showing the tally strip frame thrown forward. Fig. 6 is a front elevation of the invention, the platen and platen frame being shown in section.

The rotary platen 1 is mounted upon an axle 2 journaled in the ends 3 and 4 on the platen frame, which also comprises a tie-rod 5 and a paper shelf 6 uniting the frame ends. The platen frame is supported in the usual traveling carriage 7. The platen comprises sections *a* and *b* fixed to the axle 2, and loose sections *c* and *d* over which the tally strips extend and which are rotatable independently of the fixed sections *a* and *b* to permit independent feeding of the work-sheets and the tally strips.

The sections *c* and *d* are preferably of slightly less diameter than the main sections *a* and *b*, to accommodate the tally strips and their carbons, so that the main work-sheet, which is supported on the sections *a* and *b*, and also extends over the tally strips, may lie smoothly on the platen.

The platen axle and sections *a* and *b* may be rotated either by the usual hand wheel 8 or the line-space mechanism, comprising a ratchet wheel 9 fixed to the axle 2 and rotated by the usual pawl on the reciprocating slide 10 actuated by the line-space lever 11. The main work-sheet or bill 12 is held against the platen and is fed forward when the latter is rotated by means of the usual front and rear pressure feed rolls 13 and 14, which bear against the sections *a* and *b* of the platen. These rolls are mounted on rods 15 supported on arm 16 journaled on a tie-rod 17 of the platen frame, and are adapted to be thrown off the platen by the usual pressure roll releasing shaft or rod 18 formed with flats or cams 19 adapted, when said releasing shaft is rotated to the Fig. 3 position, to spread extensions 20 of the arms 16, and thus move the pressure rolls away from the platen. The releasing shaft 18 is actuated by a key 21 on a rock shaft 22 carrying a rock arm 23 connected through a link 24 to a crank 25 on the shaft 18. The pressure rolls are held against the platen by springs 26.

The tally strip mechanism is supported on a frame A mounted to swing or oscillate on a shaft 27 parallel with the platen and connected at its ends to brackets 28 and 29 on the ends of the platen frame. The swinging frame A may comprise plates 30 rotatable on the shaft 27 and connected by tie-rods 31 and 32. The rod 31 forms spindles for the tally strip supply spools 33, and the rod 32 provides spindles to receive the spools 34 from which the carbon strips are supplied.

The tally strips or webs 35 extend from the supply spools 33 downwardly around the loose platen sections *c* and *d* and up to the winding spools 36 upon which the written portions of the strips are wound. The winding or storage spools 36 may each comprise a sleeve 37 loose on the shaft 27 and end flanges 37^a, said sleeves being separately formed for convenience in assembling, and connected by a coupling 38, to cause the spools to rotate together.

The frame A is normally supported in the rearwardly inclined position as shown in Fig. 4, and may be swung forwardly to a substantially vertical position, Fig. 5, to permit free access to the paper shelf for re-

moving a work-sheet or bill and placing a new one in the machine.

In order that the tally strips and their carbons may be automatically fed forwardly by the oscillation of the frame A, a pawl-and-ratchet feeding device is provided, comprising a ratchet wheel 39 fixed to a sleeve 37 and actuated by a pawl 40 pivoted at 41 to a plate 42 forming part of the swinging frame A. When the frame is swung forwardly, a detent 43 pivoted at 44 to a bracket plate 45 fixed to the platen frame, holds the ratchet wheel 39 from rotating with the frame, so that the pawl 40 rides idly over the ratchet wheel. As the swinging frame is returned, the pawl engages the ratchet, to cause it to rotate with the frame. The winding spools 36 are thus given a step-by-step rotation as the frame is oscillated. The detent 43 is held against the ratchet wheel 39 by a spring 46, but may be thrown off by a cam 47 actuated by a finger-piece 48, Fig. 2, to permit backward rotation of the winding spools for removing stored portions of the tally strips. The cam 47 has a flat to bear against the detent lever and hold the detent 43 off the ratchet wheel when the finger-piece 48 is released. The pawl 40, during a portion of its travel, is held off the ratchet wheel by a cam 49, which limits the extent that the winding spools are rotated at each oscillation of the frame.

The strips 50, faced with carbon or other copying material, extend downwardly from the supply spools 34 over the tally strips 35 around the platen and up to feed rolls 51, 52, between which the leading ends of the strips 50 are gripped. These feed rolls are actuated from the winding spools 36 by a train of reduction gearing, comprising a pinion 53 connected to rotate with the winding spools 36, an idler pinion 54 journaled on one of the plates 30, and a pinion 55 fixed on a shaft 56 on which the rollers 51 are also fixed. The rollers 52 are yieldingly held against the rollers 51 by means of a spring 57 bearing against a swinging frame 58 carrying said rollers 52.

When the frame A is swung forwardly, the pinion 53 being held stationary by the detent 43, the idler 54 rolls on the pinion 53, thereby rotating on its own axis, and thus rotates the pinion 55, so that the carbon strips extending between the feed rolls 51 and 52 are fed forwardly by said rolls. During the return movement of the frame A, and while the pawl 40 is in engagement with the ratchet wheel 39, there is no relative rotation of the gear pinions 53, 54 and 55. These gears form a speed reduction gearing for effecting only a very small feed of the carbon strips, each time the frame is oscillated. The feeding movement, however, is positive and insures a fresh surface of the manifolding strips being continuously supplied. Said strips may be provided, as is common, with different colored zones, as for example black and red, as indicated in Fig. 6.

The rearward movement of the frame A is limited by a shoulder 59 on the plate 45, said shoulder being in the path of a tie-rod 60 connecting the plate 42 with an arm 61 journaled on the shaft 27. The forward movement of the frame A may be limited by a pin 62 on the plate 45 projecting into the path of the arm 61, said pin 62 also forming a stop for the finger-piece 48.

In order to automatically lift the pressure feed rolls 13 and 14 from the platen when the frame A is swung forwardly to permit the insertion of a new work-sheet, the following mechanism is provided: A bell crank lever 63 comprises a vertical arm having a slot to engage a pin 64 on a depending extension of the arm 61, and a horizontal arm of the bell crank lever is connected to a depending link 65 provided with a slot 66, to receive a pin 67 on the link 24. When the frame A is swung forwardly, the pin 64 is moved rearwardly and the bell crank lever 63 is actuated to lift the link 65 and carry with it the link 24 to the Fig. 5 position, thus rotating the shaft 18 and throwing off the pressure feed rolls 13 and 14.

As shown in Fig. 5, the swinging frame A rotates the pressure roll releasing shaft 18 only far enough to bring the flats or cams 19 to an inclined position, so that when the frame is returned, the springs 26 may also return the pressure rolls to the platen. When the key 21 is actuated, as shown in Fig. 3, the shaft 18 is rotated into such position that the springs 26 are ineffective to return the feed rolls 13, 14 and the key 21.

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. The combination with a platen frame and a rotary platen thereon, of an oscillating frame, means to direct a web over the platen, and mechanism to feed said web over the platen when said frame is swung in one direction, and permitting the web to remain stationary when the frame is swung in the reverse direction.

2. The combination with a platen frame and a platen rotatable thereon, of an oscillating frame carried by the platen frame, a paper supply roll on the oscillating frame, a receiving roll for a web extending from the supply roll over the platen, and pawl-and-ratchet mechanism for imparting an intermittent rotation to the receiving roll when the frame is oscillated.

3. The combination with a rotary platen and feed rolls therefor, of tally strip feed mechanism comprising a swinging frame,

means actuated by said frame when swung in one direction to throw the feed rolls off the platen, and means to feed the tally strip forward when said frame is swung in the reverse direction.

4. The combination with a rotary platen and feed rolls therefor, of tally strip feed mechanism comprising a swinging frame, means actuated by said frame when swung in one direction to throw the feed rolls off the platen, means to feed the tally strip forward when said frame is swung in the reverse direction, and means operable independently of the movement of said frame to throw off the feed rolls from the platen.

5. The combination with a platen frame and a platen axle journaled therein, of a platen comprising a section fixed to the axle, and a section loose on the platen axle, tally strip mechanism for feeding a tally strip over said loose section, feed rolls for the said fixed section, movable into and out of operative relation to the said fixed section, and means to automatically effect said movement of the feed rolls when the tally strip mechanism is operated.

6. The combination with a platen frame and a rotary platen thereon, of a frame mounted to swing about an axis parallel with the platen, a tally strip supply roll mounted on said frame, a strip winding spool rotatable about the axis of said swinging frame, a ratchet wheel connected to rotate with said spool, a pawl carried by the frame for engaging said wheel and rotating the spool in one direction, a detent to lock said ratchet against rotation in the reverse direction, and means for throwing said detent into and out of engagement with the ratchet wheel.

7. The combination with a platen frame and a rotary platen thereon, of a frame mounted on the platen frame to swing about an axis parallel with the platen, a tally strip supply spool, a carbon strip supply spool, both mounted on said swinging frame, a winding spool for the tally strip rotatable about the axis of the swinging frame, a pawl-and-ratchet for rotating the winding spool when said frame is oscillated, feed rolls for the carbon strip, and speed reduction gearing between the winding spool and said feed rolls.

8. The combination with a platen frame, of a rotary platen thereon, an oscillating frame supported on said platen frame, a supply spool on said oscillating frame, and means operated by the oscillation of said frame to impart a step-by-step feeding movement to a web extending from said spool over the platen.

9. The combination with a platen frame and a rotary platen thereon, of a tally strip mechanism comprising a frame movable into and out of position to obstruct the placing of a work-sheet on the platen, and means actuated by said movement to feed a tally strip.

10. The combination with a platen frame and a rotary platen thereon, of a tally strip mechanism comprising a frame movable into and out of position to permit a work-sheet to be placed on the platen, feed rolls for the platen, and means actuated by the movement of said last-named frame to throw the said rolls off the platen.

11. The combination with a platen frame, a rotary platen thereon, and platen feed rolls, of a tally strip mechanism comprising a frame movable into and out of position to obstruct the placing of a work-sheet on the platen, and mechanism actuated by the movement of said last-named frame to throw the feed rolls off the platen and to feed a tally strip forward over the platen.

12. The combination with a platen frame, a rotary platen thereon, and platen feed rolls, of a tally strip mechanism comprising a frame movable into and out of position to obstruct the placing of a work-sheet on the platen, and mechanism actuated by the movement of said last-named frame to throw the feed rolls off the platen and feed a tally strip forward over the platen, and to feed a web of impression material a fraction of the distance through which the tally strip is fed.

13. The combination with a platen frame and a rotary platen thereon, of a tally strip frame pivoted to swing about an axis parallel with the platen and normally occupying a position in which it is an obstruction to the placing of a work-sheet on the platen but adapted to swing about said axis into position to permit the placing of the work-sheet, and mechanism actuated by the swinging movement of said tally strip frame to feed a tally strip forward over the platen.

14. The combination with a platen frame and a rotary platen thereon, of a tally strip frame pivoted to swing about an axis parallel with the platen and normally occupying a position to obstruct the placing of a work-sheet on the platen but adapted to swing out of obstructing position to permit the placing of a work-sheet, mechanism actuated by the swinging movement of said tally strip frame to feed a tally strip forward over the platen, feed rolls for the platen, and means coöperating with said mechanism to throw the said rolls off the platen when the swinging frame is moved to position for permitting the work-sheet to be placed on the platen.

15. The combination with a carriage having a letter-feed travel, a platen frame thereon, and a rotary platen on said frame, of a swinging tally strip frame mounted on the platen frame for letter-feed travel with the carriage, means actuated by the swing-

ing of said tally strip frame to impart a feeding movement to a tally strip or web, and a web of impression material therefor, the latter web being fed only a fraction of the distance the tally strip is fed.

16. The combination with a rotary platen, of a tally strip mechanism comprising a swinging frame, and mechanism actuated by the swinging of said frame to feed a tally strip over the platen and to simultaneously feed an impression strip over the platen a fraction of the distance that the tally strip is fed.

17. The combination with a rotary platen, of a tally strip mechanism comprising a swinging frame, and mechanism actuated by the swinging of said frame to feed a tally strip over the platen and to simultaneously feed an impression strip over the platen a fraction of the distance that the tally strip is fed, said feeding means comprising a train of speed-reduction gearing for positively feeding the impression strip when the tally strip is fed.

18. The combination with a platen frame and a platen thereon, of an oscillating frame, means to support a web on said oscillating frame, mechanism operable by the oscillation of said frame to feed the web over the platen, feed rolls for the platen, means operated by the oscillation of said frame to throw off the feed rolls from the platen, and means coöperating with said last-mentioned means to throw off said rolls independently of the feeding of said web.

19. The combination with a platen frame, of a rotary platen thereon, an oscillating frame supported on said platen frame, a supply spool on said oscillating frame, a winding spool, means operated by the oscillation of said frame to rotate the winding spool step-by-step for feeding a web extending from said supply spool over the platen, feed rolls for the platen, means operated by the movement of said oscillating frame to throw off the feed rolls from the platen, and means coöperating with said last-mentioned means to throw off said rolls independently of the feeding of said web.

20. The combination with a platen frame and a rotary platen thereon, of a frame mounted to swing on said platen frame about an axis parallel with the platen, a paper supply spool on the swinging frame from which spool a web may extend around the platen, and mechanism to engage a portion of the web that has advanced beyond the printing line, and operable by the swinging of said frame to draw the web from said spool over the platen.

21. The combination with a rotary platen and feed rolls therefor, of means operable to feed a tally strip, mechanism coöperating with said means to control the relation of the rolls and the platen when said means is operated, and means coöperating with said mechanism for throwing said rolls off of the platen independently of the operation of the tally strip feeding means.

22. The combination with a rotary platen and means for feeding a work-sheet over the platen, of mechanism for feeding a tally strip peripherally around the platen, feed rolls for advancing a carbon strip peripherally around the platen between the said work-sheet and tally strip, and speed-reduction gearing between said mechanism and feed rolls for actuating the latter at a relatively slow speed and advancing the carbon strip at a slower speed than that of the tally strip, said work-sheet being free to advance over the platen relatively to the said strips.

23. The combination with a carriage, of a platen frame, and a platen thereon, an oscillating frame, means to support a web on said oscillating frame, said oscillating frame mounted to travel with the carriage and maintain the web in operative relation to the platen, and mechanism operable by the oscillation of said frame to feed the web over the platen.

24. The combination with a rotary platen, feed rolls therefor, and a key, of tally strip feed mechanism, and means coöperating with said mechanism and key to throw the rolls off the platen when either the key or the said feed mechanism is operated, and permitting the feed rolls to be actuated by the key without operating said feed mechanism.

25. The combination with a platen frame and a rotary platen thereon, of a tally strip frame pivotally mounted on the platen frame above the platen and upwardly and rearwardly inclined in position to permit the leading ends of the work-sheets to incline backwardly as they advance beyond the platen, said frame adapted to swing forwardly into position to prevent obstruction to the placing of a work-sheet on the platen, feed rolls bearing against the platen, and mechanism to throw the feed rolls off the platen when the tally strip frame is swung forwardly and to feed a tally strip and return the feed rolls when the frame is returned.

26. In a typewriting machine, the combination of a platen, means for feeding a tally strip, and tally-strip-carrying mechanism, said carrying mechanism comprising means movable from a normal position assumed while a work-sheet is being written upon to a position to facilitate the placing of a succeeding work-sheet on the machine, said movable means operable to actuate the tally-strip-feeding means, whereby the tally strip is fed step by step as the succeeding work-sheets are placed on the machine.

27. In a typewriting machine, the combination with a revoluble platen and feed rolls

to advance work-sheets over the platen, of means for supporting a tally strip, said supporting means comprising a part movable from its normal position assumed while the work-sheet is being written upon to a different position to facilitate the substitution for a typewritten sheet of a succeeding sheet, and tally-strip-feeding mechanism operated by the movement of said supporting means, whereby the tally strip automatically feeds each time a work-sheet is replaced by a succeeding sheet.

28. In a typewriting machine, the combination with a revoluble platen and feed rolls to advance work-sheets over the platen, of means for supporting a tally strip, said supporting means comprising a part movable from its normal position assumed while the work-sheet is being written upon to a different position to facilitate the substitution for a typewritten sheet of a succeeding sheet, tally-strip-feeding mechanism operated by the movement of said supporting means, whereby the tally strip automatically feeds each time a work-sheet is replaced by a succeeding sheet, and means also operated by the shifting of said tally-strip-supporting means to move said feed rolls off the platen.

29. In a typewriting machine, the combination with a platen on which work-sheets may be placed *seriatim* to be written upon, tally-strip-supporting means movable from a position normally occupied during the typewriting operation, to a position to facilitate the placing of a fresh work-sheet on the platen, mechanism for feeding a tally strip arranged in superposed relation to the work-sheet, means for supporting a carbon strip interposed between the tally strip and work-sheet, said tally-strip-feeding mechanism being actuated by the movement of said tally-strip-supporting means, and means operable when said tally strip is fed, to advance the carbon strip a shorter distance than the tally strip is advanced.

30. In a typewriting machine, the combination with a platen comprising separately rotatable sections, of means for rotating one of said sections to advance a work-sheet extending over both said sections, means for supporting a tally strip, said strip extending over one of said sections beneath the work-sheet, said supporting means movable from a normal position maintained during the typewriting operation to a position to facilitate the placing of a work-sheet on the platen, and tally-strip-feeding mechanism operable when said supporting means is moved to feed the tally strip.

31. In a typewriting machine, the combination with a platen comprising separately rotatable sections, of means for rotating one of said sections to advance a work-sheet extending over both said sections, means for supporting a tally strip, said strip extending over one of said sections beneath the work-sheet, said supporting means movable from a normal position maintained during the typewriting operation to a position to facilitate the placing of a work-sheet on the platen, tally-strip-feeding mechanism operable when said supporting means is moved to feed the tally strip, and means also operable by the movement of said tally-strip-supporting means, to advance at a slower speed than the tally strip a carbon sheet interposed between the work-sheet and tally strip.

32. In a typewriting machine, the combination with a roller platen comprising a main section over which work-sheets are fed and a separately rotatable section over which a tally strip may be fed, of tally-strip-supporting means, tally-strip-feeding mechanism, feed rolls coöperating with said main platen section to advance a work-sheet which is placed on said section and overlies the tally strip, said tally-strip-supporting means movable from a normal position maintained during the typewriting operation to a position to facilitate the replacing of a work-sheet by a succeeding sheet, said tally-strip-feeding mechanism actuated when said supporting means is moved to feed the tally strip separately from the work-sheet, and means operated by the movement of the tally-strip-supporting means to throw said feed rolls off the platen.

33. In a typewriting machine, the combination with a roller platen comprising a main section over which work-sheets are fed and a separately rotatable section over which a tally strip may be fed, tally-strip-supporting means, tally-strip-feeding mechanism, feed rolls coöperating with said main platen section to advance a work-sheet which is placed on said section and overlies the tally strip, said tally-strip-supporting means movable from a normal position maintained during the typewriting operation to a position to facilitate the replacing of a work-sheet by a succeeding sheet, said tally-strip-feeding mechanism actuated when said supporting means is moved to feed the tally strip separately from the work-sheet, means operated by the movement of the tally-strip-supporting means to throw said feed rolls off the platen, said feed rolls being returned to the platen when said supporting means is restored to normal position, and a key operable to throw said feed rolls off the platen while said supporting means is in its normal position.

34. In a front-strike typewriting machine, the combination with a rotatable platen and a platen frame, said frame comprising a paper shelf at the rear of the platen, of a tally-strip-supporting frame located above the platen and normally extending rear-

wardly over the said paper shelf in position to permit the leading end of a work-sheet, which is fed from the paper shelf beneath the platen and up over the front face of the platen, to incline rearwardly and be supported on said tally-strip-supporting frame, the tally-strip-supporting frame movable forward from said position to facilitate the placing of a work-sheet on the platen, and tally-strip-feeding mechanism actuated by the movement of said supporting frame to feed a tally strip.

35. In a typewriting machine, the combination with a platen, of a tally-strip-supporting frame, a winding spool on which a tally strip supported on said frame and extending around the platen is adapted to be wound, said supporting frame movable from normal position into position to facilitate the substitution of a work-sheet for one that has been written upon, means operated by the return of said supporting frame to rotate said winding spool and feed the tally strip, and means to lock the winding spool against rotation in the opposite direction during the movement of said supporting frame.

36. In a typewriting machine, the combination with a platen, of a tally-strip-supporting frame, a winding spool on which a tally strip supported on said frame and extending around the platen is adapted to be wound, said supporting frame movable from normal position into position to facilitate the substitution of a work-sheet for one that has been written upon, means operated by the return of said supporting frame to rotate said winding spool and feed the tally strip, means to lock the winding spool against rotation in the opposite direction during the movement of said supporting frame, feed rolls for a carbon strip, said carbon strip interposed between the tally strip and the work-sheet, and speed-reduction gearing between the winding spool and said feed rolls for advancing the carbon strip at a slower speed than that of the tally strip.

37. In a typewriting machine, the combination of a roller platen comprising a main section and an auxiliary section separately rotatable about a common axis, means for feeding a work-sheet extending over both said sections, a tally-strip-supporting frame from which the tally strip extends to and around said auxiliary section, said supporting frame movable from a normal position into a position to facilitate the removal or placing of a work-sheet on the platen, and means operated by the movement of said supporting frame to feed the tally strip.

38. In a typewriting machine, the combination of a roller platen comprising a main section and an auxiliary section separately rotatable about a common axis, means for feeding a work-sheet extending over both said sections, a tally-strip-supporting frame from which the tally strip extends to and around said auxiliary section, said supporting frame movable from a normal position into a position to facilitate the removal or placing of a work-sheet on the platen, said feeding means comprising feed rolls bearing on the main section, means operated by the movement of said supporting frame away from normal position to throw the feed rolls off the platen, and means operated by the return movement of the said frame to feed the tally strip.

39. The combination with a platen frame and a rotatable platen thereon, of a swinging frame, said frame comprising a support for a web or tally strip, a web-winding spool rotatable about the axis of said swinging frame, a ratchet wheel connected to rotate with said spool, a pawl to engage and rotate said ratchet wheel when said frame is swung in one direction, and thereby rotate the winding spool to feed the web, and means to lock the winding spool against rotation in the reverse direction.

40. The combination with a platen frame and a rotatable platen thereon, of a swinging frame, said frame comprising a support for a web or tally strip, a web-winding spool rotatable about the axis of said swinging frame, a ratchet wheel connected to rotate with said spool, a pawl to engage and rotate said ratchet wheel when said frame is swung in one direction, and thereby rotate the winding spool to feed the web, means to lock the winding spool against rotation in the reverse direction, and means to release the locking means and thereby permit the winding spool to be rotated in the reverse direction for unwinding the web therefrom.

41. The combination with a platen frame and a rotatable platen thereon, of a swinging frame, said frame comprising a support for a web or tally strip, a web-winding spool rotatable about the axis of said swinging frame, a ratchet wheel connected to rotate with said spool, a pawl to engage and rotate said ratchet wheel when said frame is swung in one direction, and thereby rotate the winding spool to feed the web, a locking detent to engage the said ratchet wheel and lock it against backward rotation, and a key to throw the detent off the ratchet wheel, said detent being self-holding in both locking and unlocking position.

42. The combination of a platen, means to hold a work-piece thereon, a movable tally-strip-supporting frame, and means operated when said frame is moved, to move the said holding means away from the platen.

43. The combination of a rotatable platen, work-sheet feeding means to hold a work-sheet on the platen and cause it to be fed over the platen as the latter is rotated, a

tally-strip-supporting frame movable back and forth, and means operable when said frame is moved in one direction to move said feeding means away from the platen and operable when the frame is moved in the reverse direction to return said feeding means to the platen.

44. In a typewriting machine, the combination with a rotatable platen, of a tally-strip-supporting frame located above the platen and mounted for a forward and rearward swinging movement, said frame normally supported by gravity in its rearward position, and also held by gravity in its forward position, feed rolls to hold a work-sheet on the platen, and means to automatically throw said feed rolls off the platen when said supporting frame is moved to its forward position, said feed rolls returned to the platen when the said frame is returned to normal position.

45. In a typewriting machine, the combination with a carriage, a platen frame thereon, and a roller platen, of a tally-strip-supporting frame mounted on the platen frame to travel with the platen, said supporting frame having a forward and rearward movement on the platen frame, the platen comprising a tally strip section around which the tally strip may extend from said supporting frame and a main section to support a work-sheet which extends beyond said main section to overlie the tally strip, feed rolls bearing along the main section to hold and feed the work-sheet over the platen, and means operated by the movement of said supporting frame in one direction to throw the feed rolls off the platen, said rolls being returned to the platen when the supporting frame is returned.

46. In a typewriting machine, the combination with a carriage, a platen frame thereon, and a roller platen, of a tally-strip-supporting frame mounted on the platen frame to travel with the platen, said supporting frame having a forward and rearward movement on the platen frame, the platen comprising a tally strip section around which the tally strip may extend from said supporting frame and a main section to support a work-sheet which extends beyond said main section to overlie the tally strip, feed rolls bearing along the main section to hold and feed the work-sheet over the platen, means operated by the movement of said supporting frame in one direction to throw the feed rolls off the platen, said rolls being returned to the platen when the supporting frame is returned, said supporting frame also forming a support for a carbon strip which extends from said frame around the tally strip section of the platen between the tally strip and work-sheet, and means to feed the tally strip and carbon strip separately from the said work-sheet, said feeding means operable to advance the carbon strip through shorter distances than the tally strip is advanced.

47. In a front-strike writing machine, the combination with a rotatable platen and a platen frame comprising a paper shelf at the intake side of the platen, of means normally located over the paper shelf and movable from said position into a position to facilitate the placing of a work-sheet on said shelf, and mechanism for feeding a tally strip governed by the movement of said means, whereby the successive actuation of said means, as work-sheets are placed in succession on the machine, effects a step-by-step advance of the tally strip.

48. In a typewriting machine, the combination with a rotatable platen and a platen frame, of a tally-strip supporting frame mounted to swing on the platen frame, a winding spool mounted for rotation about the axis on which said frame swings and adapted to wind a tally strip extending from said frame downward around the platen and upward to said winding spool, a ratchet wheel connected to said spool, a pawl operated by the swinging frame to drive said ratchet wheel as the frame swings in one direction and rotate the winding spool in a forward direction, a lock to hold the winding spool against rotation in the reverse direction, a pair of feed rolls for feeding an impression strip which is supported on the swinging frame and extends downward around the platen over the tally strip, said feed rolls being located beyond the printing line to draw the impression strip over the platen, gearing between the winding spool and said feed rolls for actuating the latter and feeding the impression strip through shorter distances than the tally strip is fed, platen feed rolls, and means for throwing the platen feed rolls off the platen when said supporting frame is swung.

49. In a typewriting machine, the combination with a platen frame, of a roller platen comprising sections fixed to the platen axle and sections loose on the platen axle and alternating with said fixed sections, a tally-strip-supporting frame mounted on the platen frame to swing back and forth about an axis parallel with the platen, winding spools mounted for rotation about said axis for winding tally strips which extend from said supporting frame downward around said loose sections of the platen and upward to said winding spools, a ratchet wheel rotatable about said axis and connected to said winding spools, a locking pawl to engage said ratchet wheel and prevent rotation of said spools as said swinging frame swings forward, a pawl carried by the swinging frame to drive said ratchet wheel and wind said spools as the swinging frame is returned, feed rolls for feeding carbon strips

which are supported on said frame and extend around the loose platen sections over the tally strips, speed-reduction gearing between the winding spools and said feed rolls for feeding the carbon strips at a slower speed than that of the tally strips, platen feed rolls to bear against said fixed sections of the platen for holding and feeding a work-sheet placed on said sections and overlying said strips, and means operable when said swinging frame is swung forward to throw said platen feed rolls off the platen and to return them to the platen when said frame is swung backward.

50. The combination with a paper-advancing device, of reciprocatory mechanism to advance said device step by step, said mechanism including a ratchet wheel and pawl and a reciprocatory support for said pawl, a drive-roll and a companion roll both separate from the first-mentioned device but mounted to cooperate with each other to feed or advance paper line by line preparatory to the type-impressing operation, said rolls being mounted for a relative yielding movement, and a train of gearing between said ratchet wheel and said drive-roll, to operate it with said companion roll.

51. The combination of a paper-controlling mechanism, inclusive of a platen, and also including a reciprocatory means for effecting the advance of paper step by step, said paper-advancing means including a ratchet wheel operated by said reciprocatory means, a drive-roll and a companion roll both separate from the platen and mounted to coöperate with each other, to advance paper line by line around the platen, preparatory to the type-impressing operation, said rolls being mounted for a relative yielding movement, and a train of gearing between said ratchet wheel and said drive-roll to advance the paper, and a paper-advancing connection operated at the actuation of said ratchet wheel and distinct from said rolls.

52. In a typewriting machine, the combination with a platen, of a revoluble device separate from the platen and around which paper may be passed at the line-feeding operation, a ratchet wheel connected to said revoluble device to control the same, line-spacing mechanism for operating said ratchet wheel, a train of gearing also driven by said ratchet wheel, and a pair of separable line-spacing rolls separate from said revoluble device and driven by said gearing.

53. The combination with a revoluble platen, of mechanism constituting the sole means for line-spacing paper around said platen and comprising a ratchet wheel, a reciprocatory driving mechanism therefor, gearing connected to said ratchet wheel, and a pair of rolls for pulling the paper around the platen, said rolls connected to said gearing, and separable for insertion and removal of the paper.

54. The combination of a line-space ratchet wheel, a driver therefor, a carrier for said driver arranged for reciprocatory movement to actuate the same, a pair of line-spacing paper-gripping rolls, separable for permitting insertion and removal of the paper, a train of gearing connecting one of said rolls to said line-space wheel, and a revoluble platen around which the paper is line-spaced by the recited devices preparatory to the type-impressing operation.

55. The combination with a plurality of independently revoluble platen sections, of a plurality of tally-strip spools, one spool associated with each section, and means for line-spacing the spools and their associated platen sections.

56. The combination with a plurality of platens, of a plurality of sets of line-spacing rolls, all separate from the platen, and each acting to line-space a separate strip around a platen, and a single line-spacing mechanism connected to said sets to actuate all of them.

57. The combination with a main platen and a line-spacing mechanism therefor, of a plurality of auxiliary platens, and means, including a single ratchet wheel, for effecting line-feeding of paper around the auxiliary platens.

ADOLPHUS S. DENNIS.

Witnesses:
ALBERT H. BATES,
GERTRUDE K. SMITH.