C. B. YAW.

TYPE WRITING MACHINE.

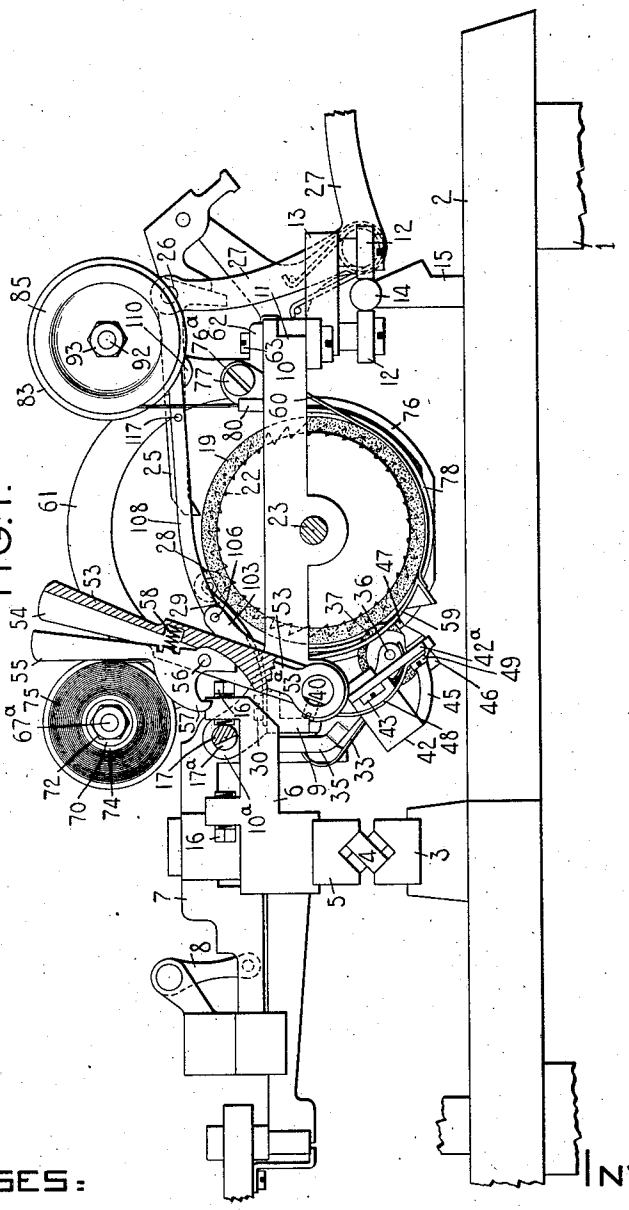
APPLICATION FILED APR. 2, 1907.

1,010,711.

Patented Dec. 5, 1911.

5 SHEETS—SHEET 1.

FIG. 1.



WITNESSES:

J. B. Wells.

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INVENTOR:

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By Jacob Felbel

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TYPE WRITING MACHINE.

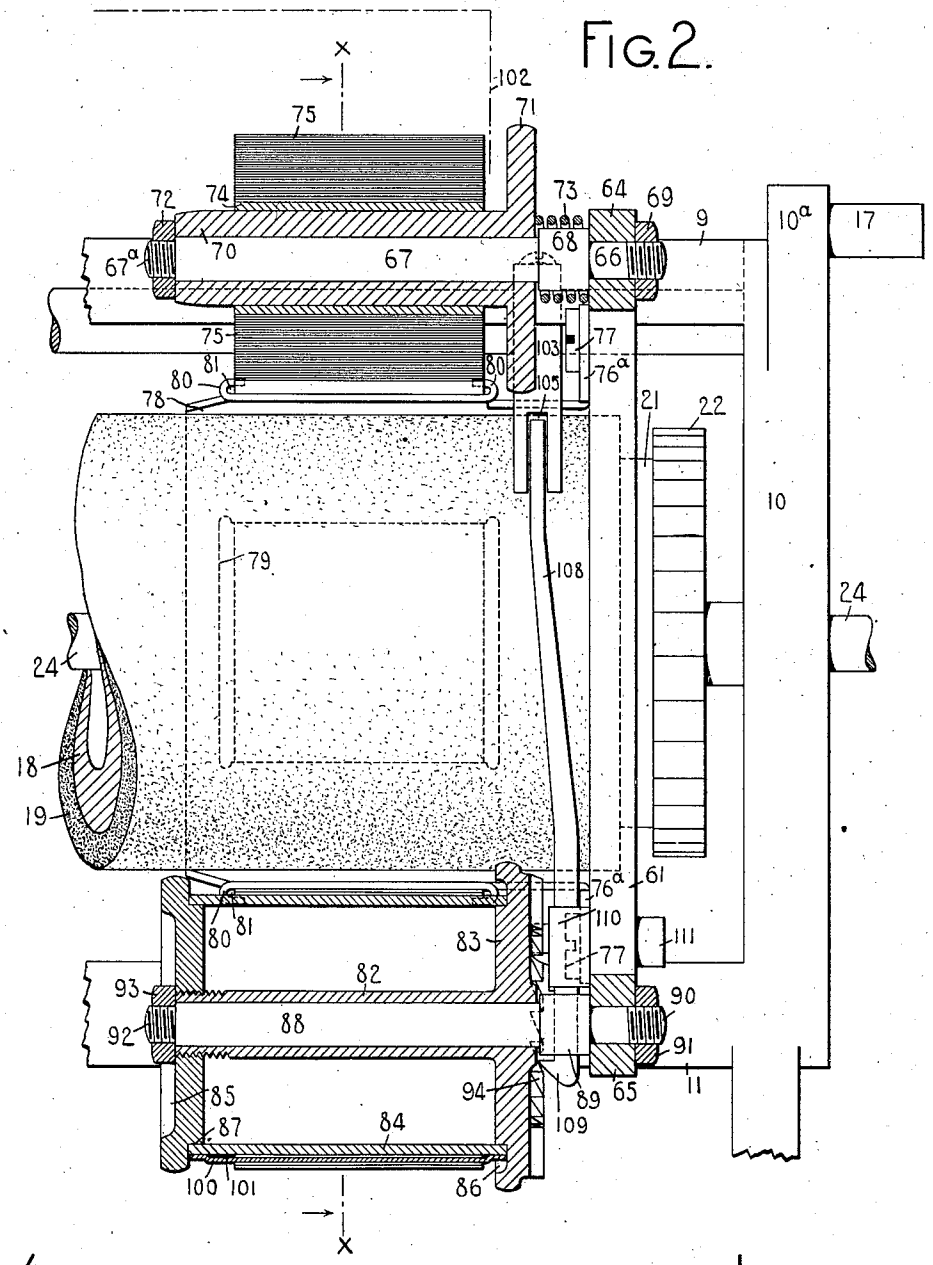
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5 SHEETS—SHEET 2.

FIG. 2.



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5 SHEETS—SHEET 3.

FIG. 3.

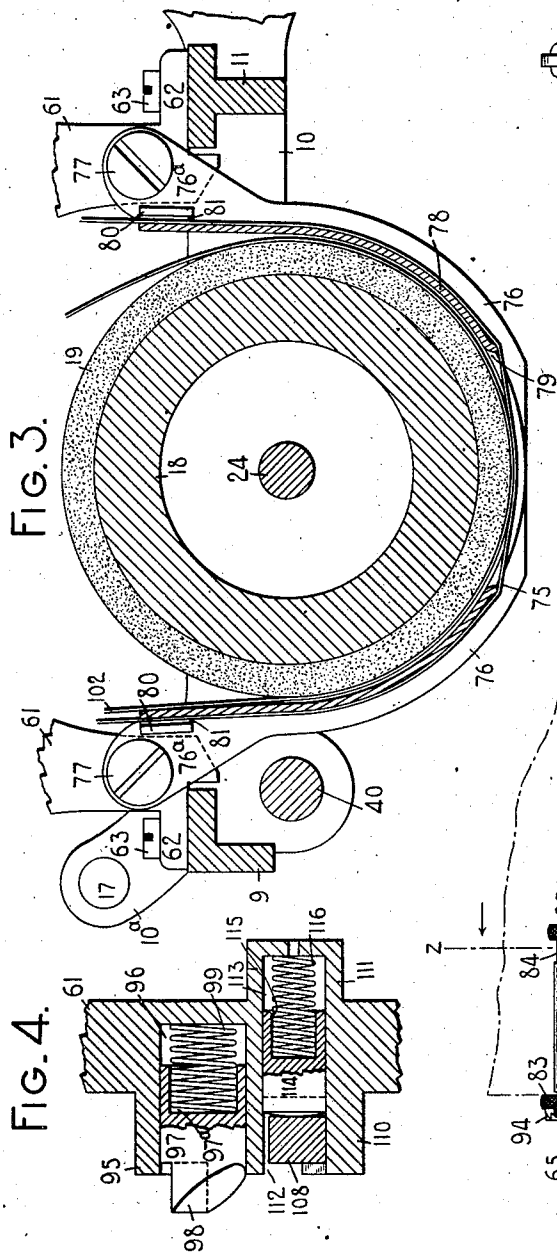
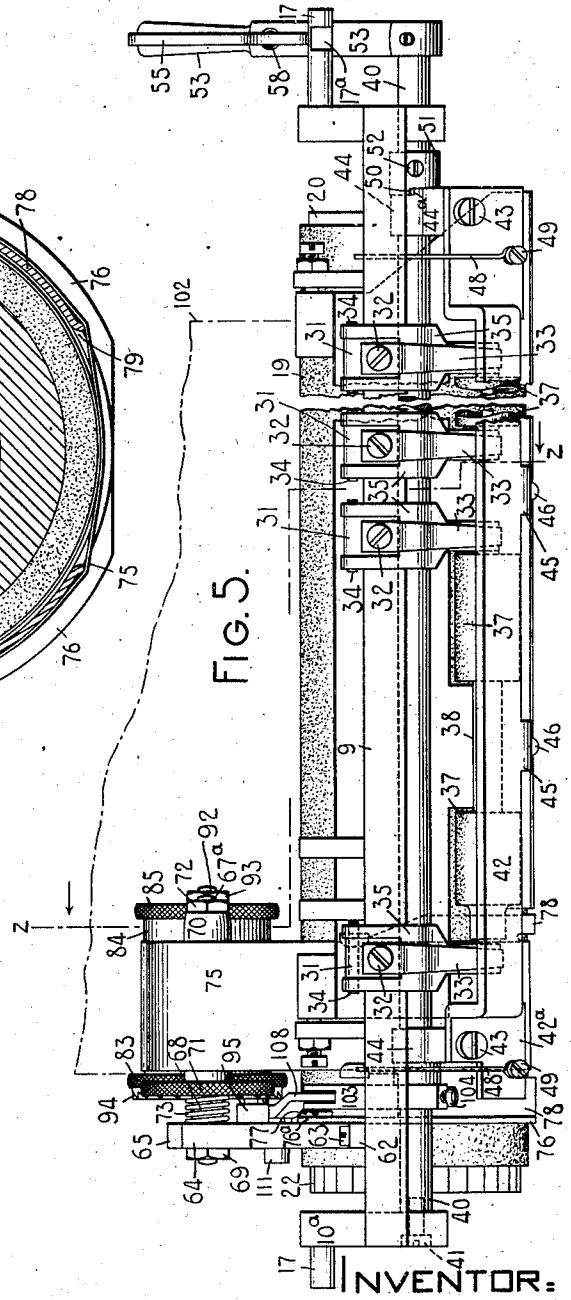


FIG. 4.

FIG. 5.



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TYPE WRITING MACHINE.

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1,010,711.

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5 SHEETS—SHEET 4.

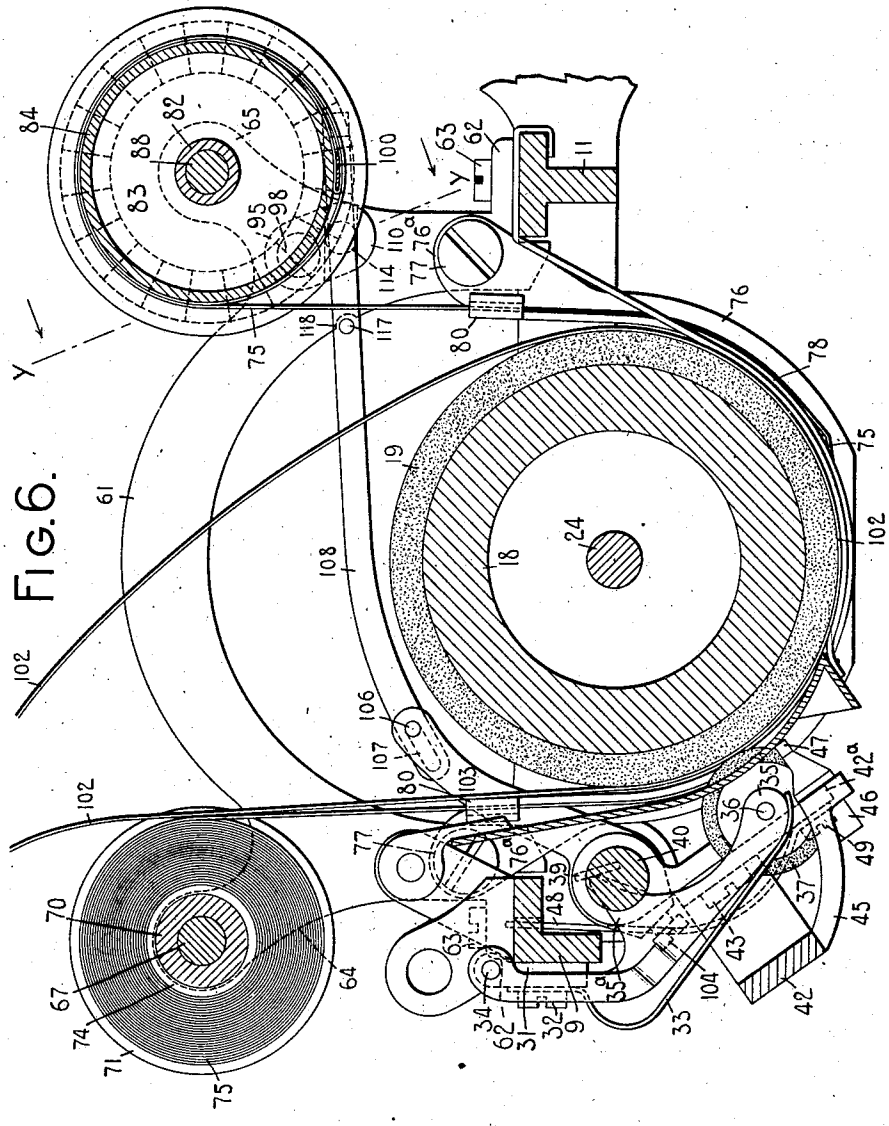


FIG. 6.

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TYPE WRITING MACHINE.

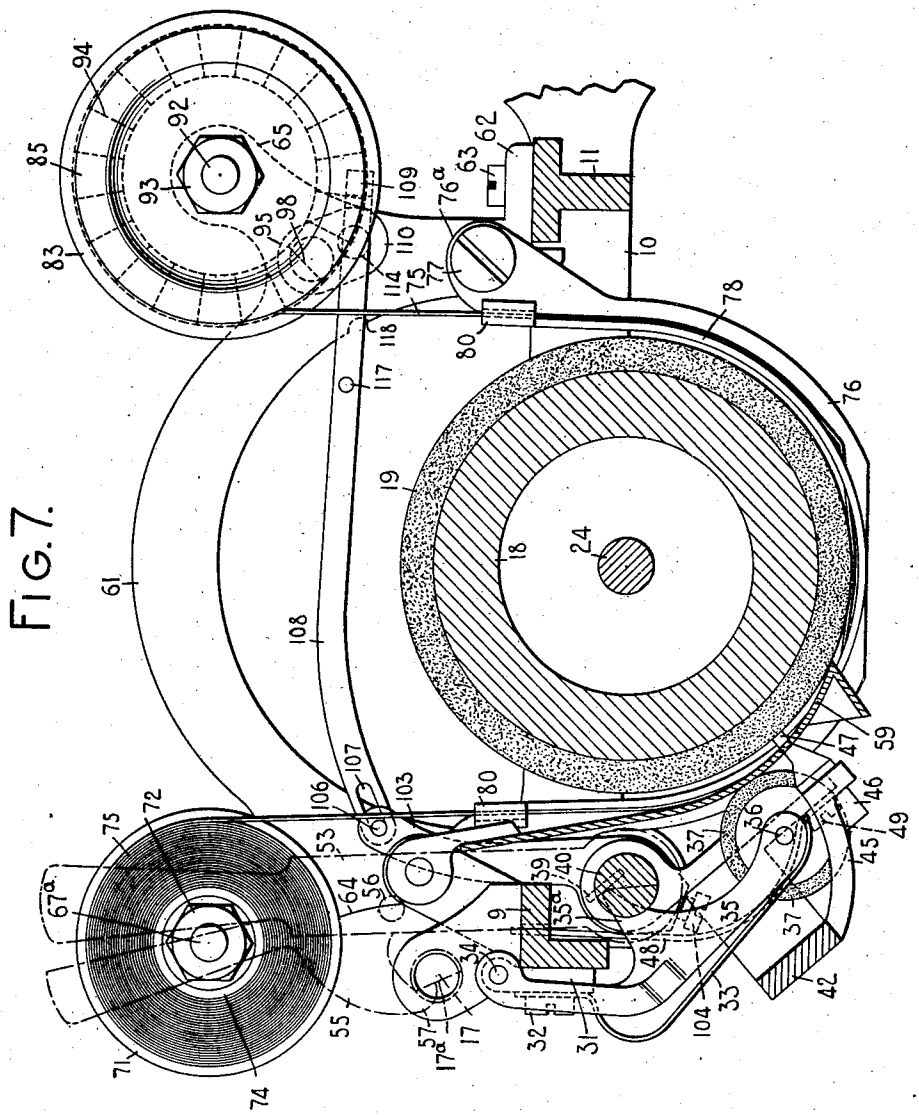
APPLICATION FILED APR. 2, 1907.

1,010,711.

Patented Dec. 5, 1911.

5 SHEETS—SHEET 5.

FIG. 7.



WITNESSES:

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UNITED STATES PATENT OFFICE.

CLIO B. YAW, OF NEW YORK, N. Y., ASSIGNOR TO WYCKOFF, SEAMANS & BENEDICT, OF ILION, NEW YORK, A COROPORATION OF NEW YORK.

TYPE-WRITING MACHINE.

1,010,711. Specification of Letters Patent. Patented Dec. 5, 1911.

Application filed April 2, 1907. Serial No. 365,953.

To all whom it may concern:

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

My invention relates generally to paper feeding and paper supply devices for typewriting machines and its principal object is to provide improved devices of the classes named, exemplified in novel tally strip mechanism by the employment of which certain styles of commercial billing may be facilitated, a check on the bills rendered and accounts kept may be had and the bookkeeping work simplified.

To the above and other ends, my invention consists in the features of construction, combinations of devices and arrangements of parts hereinafter described and particularly pointed out in the claims.

In carrying out my invention in the present instance I mount on the usual paper carriage of a typewriting machine a pair of rotary carriers on which is wound a narrow tally or checking strip which is guided around the platen and is adapted to overlie what is termed the daily total column on the bill sheet, so that when the daily total is printed the impressions are made simultaneously on the tally strip and on the bill sheet with the assistance of a suitable transfer medium. The bill sheet may be line spaced in the usual manner without affecting the tally strip, and means are provided for line spacing the tally strip automatically when the paper feed releasing mechanism is operated to release the bill sheet after the entry on it has been completed and it is desired to remove it from the machine.

One billing system in which my invention may be employed may be outlined as follows:—When a sale is made a sales slip containing the item and amount of the sale is made out by the salesman and sent to the office of the establishment. At the close of the business day the sales slips are sorted alphabetically and divided into lots and the order in which each lot is arranged is thereafter maintained at all times. The amount of the day's sales to each customer is totaled on the totalizing strip of an adding machine, and will, of course, appear on the totalizing strip in the order in which the sales slips are kept. Next the bills which are to be sent to the customers are made out from these sales slips, the latter being used as copies from which to write the bill. In writing the bill, after the entry of the day's sales on the bill sheet is completed the total amount of the day's sales is written on the tally strip and simultaneously in the daily total column on the bill, after which the paper feeding mechanism is released and the bill removed and a new bill inserted. The operation of releasing the bill automatically line spaces the tally strip so that when the total of the next bill is printed on said tally strip it will be at the proper distance from the next preceding total on said strip. It will be apparent that the totals on the tally or checking strip will appear in the order in which the operator receives the sales slips and in which the entries on the bills are made. After the day's items have been written upon it, each bill is filed away until the next sale is made to the customer whose name the bill bears. This method is continued until the end of the month when the monthly total is made out from the daily totals on the bill, after which the latter may be given to the bookkeeper who makes his entries from it and thereafter said bill is sent to the customer. When this system is pursued the condensed record frequently employed may be dispensed with. At the end of each day, the tally or checking strip, containing that day's totals, is removed from the carriers on the paper carriage of the typewriting machine and is turned over to the bookkeeper for comparison with the totalizing strip previously made on the adding machine. If a disagreement between entries is found the error may be quickly located by going back to the original sales slip and the bill and comparing the two, the proper sales slip being readily found, since the sales slips, as has been stated, are at all times maintained in the order in which they were first handed to the typewriter operator for making out the bills. No comparison of the bill and tally strip is necessary since the daily total on the bill and that on the tally strip were written at one operation. The typewritten tally strip and the adding machine totalizing strip may be pasted in a book for convenient reference. The sales slips still maintained in their original order

are filed away so that reference may be made to them whenever necessary.

In the accompanying drawings I have illustrated my invention as applied to a No. 8 Remington typewriting machine but the nature of the invention is such that it may be applied to other forms of writing machines and the construction and arrangement of the parts may be varied without departing from my invention.

In the drawings, Figure 1 is a fragmentary end view, partly in section, of the upper part of a No. 8 Remington typewriting machine showing my invention applied thereto. Fig. 2 is a fragmentary top plan view partly in section of the right-hand end portion of the platen carrier showing parts of my invention in place thereon, said view being drawn to a larger scale than Fig. 1. Fig. 3 is a fragmentary sectional view taken on a plane represented by the dotted line *x*—*x* in Fig. 2 and looking in the direction of the arrows at said line. Fig. 4 is a fragmentary sectional view taken on a plane represented by the line *y*—*y* in Fig. 6 and looking in the direction of the arrows at said line. Fig. 5 is a fragmentary rear view of the platen carrier of the machine drawn to the same scale as Fig. 1. Fig. 6 is a view drawn on planes represented by the dotted line *z*—*z* in Fig. 5 and looking in the direction of the arrows at said line, said Fig. 6 being drawn to the same scale as Figs. 2 and 3. Fig. 7 is a view corresponding with Fig. 6 except for the fact that the carrier for the tally strip is shown in end view instead of in section and that certain of the parts are shown in different relations from those in which they appear in said Fig. 6.

Referring more especially to Figs. 1, 3 and 5, the main frame of the machine comprises a base frame (not shown) from which rise corner posts 1 supporting a top plate 2. A fixed grooved track-way 3 is sustained by the top plate and receives bearing rollers 4 which coöperate also with a grooved track-way 5 on a carriage truck 6. The usual connections, comprising slide bars 7 and links 8, connect the carriage truck with the platen carrier or frame, said carrier comprising a rear bar 9, side or end bars 10 and a front bar 11. Guide rollers 12, carried by a bracket 13 fixed to the front rail of the carriage are adapted to engage opposite sides of a shift rail 14, said shift rail being carried by arms 15 pivoted in the usual manner to the machine frame at their lower ends. The shift rail 14, it will be understood, is movable at will to shift the platen frame fore-and-aft of the machine on the carriage truck, this shifting movement being for the purpose of changing from lower to upper case and vice versa and being limited by adjustable screw stops 16 supported on the carriage truck 6 and coöperating with stop pins 17 projecting laterally from the usual extensions or arms 10^a rising from the rear of the side bars 10 of the platen carrier. Besides its sliding connection with the carriage truck the platen carrier has a pivotal movement thereon, said pivotal movement, as is well understood, being for the purpose of exposing the writing. The carriage truck and the platen frame comprise a platen carriage for a single, rotary platen or paper roller which, as shown clearly in Fig. 3 comprises the usual wooden core 18 and an outer sheath 19 of rubber or the like. The platen is provided with a left-hand and a right-hand platen head numbered respectively 20 and 21, the latter being provided with the usual line spacing ratchet teeth 22. The platen is supported on axle sections 23 and 24 which have bearings on the left and right-hand side bars of the platen carrier. Coöperating with the line spacing ratchet teeth 22 is a line spacing pawl 25, the latter being pivoted at 26 to the upper arm of an angular line-spacing lever 27 which is operative in the usual way to communicate rotary line space movements to the platen. The line space ratchet teeth 22 coöperate with a detent roller 28 carried by a spring arm 29 secured to the platen carrier by a screw 30, said roller serving to maintain the platen in proper line space positions. The parts thus far described do not differ essentially from the corresponding parts found in the No. 8 Remington machine.

Referring now to the paper controlling devices, these are best shown in Figs. 1, 5, 6 and 7 and include a paper feeding device comprising two sets of bearing brackets 31 which are secured to the rear bar 9 of the platen frame by screws 32, said screws also securing in place pressure springs 33. Each bracket 31 provides a bearing for a pivot pin 34 fixed to the projecting end portions of which are the bifurcated end portions of a Y-shaped hanger arm 35, bifurcated to embrace the associate bracket 31. Two feed roller shafts 36 arranged end to end are supported at their ends by the hanger arms 35 and said shafts in turn carry feed roller sections 37 suitably spaced apart by sleeves 38 on the shaft 36. As will be understood from an inspection of Fig. 5, each pair of hanger arms 35 carries a feed roller shaft 36, the two hanger arms of each pair being spaced apart at one side of the middle of the platen frame and the inner hanger arms being close together. Each shaft 36 is provided with two feed roller sections 37 so that in the present construction thereof there are four feed roller sections, these four sections being arranged substantially equal distances apart at the rear of the platen and being normally maintained in operative position; that is to say, in contact with the

platen or the paper thereon, by the springs 33 which at their lower or free ends press against the lower end portions of the hanger arms 35. It is to be understood, however, that although these four feed roller sections 37 are shown mounted in pairs on two separate shafts, this being a convenient and efficient arrangement, yet as far as my present invention is concerned any other arrangement of the feed roller sections or a single long feed roller may be employed. The hanger arms 35 are each provided with a forwardly and upwardly extending lug 35^a with which coöperates a fin 39 fixed to a rock shaft 40 extending from side to side of the carrier at the rear of the platen, said rock shaft at its right-hand end bearing on the screw pivot 41 and at its left-hand end extending through a bearing opening in the left-hand side bar 10 of the platen frame. This rock shaft is hand controlled and is adapted to be turned or rocked by means presently to be described so as to cause the fin 39, acting on the tips of the lugs 35^a, to press the hanger arms 35 downwardly and rearwardly against the springs 33, thereby releasing the feed roller sections 37 or, in other words, moving them to inoperative position.

The paper controlling devices include, in addition to the paper feeding device or feed roller above described, a paper stop device comprising a U-shaped stop frame or stop bar 42 which extends lengthwise of the platen behind the main feed roller and is provided with lateral extensions or ears 42^a disposed forwardly of the body portion of the bar. The ears 42^a receive headed screws 43, said screws serving to secure the stop frame or bar 42 to bearing blocks 44, the latter being mounted loosely on the rock shaft 40. Curved arms 45 extend forwardly from the lower edge of the stop bar 42 at intervals throughout its length. Each of said arms carries a hollow casing 46 in which is mounted an individual spring-pressed stop pin 47, the latter being adapted to contact with the platen between sections 37 of the feed roller. The stops 47 are normally maintained in inoperative position at some distance from the platen, as shown in Figs. 1 and 6, by a pair of wire springs 48, each secured by a headed screw 49 to one of the ears 42^a of the stop frame or bar, said springs extending upwardly through holes in the rear bar 9 of the platen frame and bearing against the sides of said holes. As shown in the rear view (Fig. 5) the left-hand bearing block 44 of the stop frame is cut away to form a shoulder 44^a and adapted to coöperate with this shoulder is a shoulder 50 formed on a collar 51 which is secured by a screw 52 to the rock shaft 40. Normally the shoulders 44^a and 50 are separated, as shown, but when the rock shaft 40 is turned rearwardly the shoulder 50 is adapted to engage with the shoulder 44^a, and, overcoming the springs 48, to swing the stop bar 42 and the stops 47 forwardly and upwardly toward the platen, bringing said stops into operative position. The parts are arranged so that this movement of the stops 47, however, will not take place until after the feed roller has been released by the coöperation of the fins 39 with the lugs 35^a.

The rock shaft 40 is manually controlled by means of an arm 53 secured to the left-hand end portion of the rock shaft 40 outside of the platen carrier by a set screw 53^a. The rear face of the arm 53 is formed with a longitudinal slot 54 which receives a detent or latch 55 pivoted at 56 to the arm and provided with a lug 57 which is adapted to coöperate with the closed end of a cut-away or notch 17^a formed at the rear of the left-hand stop pin 17 (Fig. 1). Normally the detent or latch 55 is maintained in the position illustrated in Fig. 1 by a coiled spring 58. Such parts of the paper feeding and controlling devices thus far described as are not common to the Remington machine are essentially the same as, although differing somewhat in detail from, those shown and claimed by me in my pending application No. 350,948, filed January 5th, 1907 and hence are not claimed broadly *per se* in the present application.

In employing the paper controlling devices above described, a work sheet may be entered in the machine over a paper table (not shown) and passed down between the usual paper apron 59 and the platen, thence between the platen and the feed rollers, and then upward and outward between the platen and the usual paper fingers which are conventionally shown in Fig. 1 and designated by the numeral 60.

In systems of billing work such as that hereinbefore outlined in which it is necessary to make entries on a bill sheet from time to time during a month or other stated period, it is important that each time the bill sheet is introduced into the machine for the purpose of printing a new item thereon, said bill sheet should be started to be fed forward by the line spacing devices from the same point, in order that the first line or item of the new entry shall be spaced at a regular and proper distance from the last line of the immediately preceding entry. For this reason a paper stop device for alining and initially positioning the bill sheet is highly desirable. After the entry on one bill has been written and it is desired to remove the written bill and introduce another bill into the machine, the operator first presses rearwardly against the arm 53 until the lug 57 on the latch 55 engages with the notch 17^a on the stop pin 17, as shown by the dotted lines in Fig. 7.

It will be understood that prior to the engagement of the lug with the notch, the rounded face of said lug rides over the rounded face of the stop pin 17 in front of the notch 17ª, the compressible detent spring 58 yielding slightly to permit of this riding movement, and that as soon as the point of the lug 57 passes over the edge of the notch 17ª, said lug will be forced downwardly to locking position. The rearward movement of the arm 53 from the normal position shown in Fig. 1 to that shown in Fig. 7 causes a corresponding movement of the rock shaft 40, during which movement the fins 39 on said shaft first coöperate with the lugs 35ª on the hanger arms 35 to release the feed roller or swing it away from the platen from the operative position shown in Figs. 1 and 6 to that shown in Fig. 7. During the movement of the feed roller away from the platen the shoulder 50 on the collar 51 will approach the shoulder 44ª on the stop frame or bar and after the shoulders engage further turning movement of the rock shaft 40 will overcome the springs 48 and force the stop frame toward the platen bringing the spring-pressed stops 47 into contactive engagement with the bill just written. This bill may now be withdrawn, the pressure against it of the stops 47 due to their individual springs being so slight as not to obstruct or impede such withdrawal. As soon as the written bill has been drawn past the stops they will be forced into contact with the platen by their individual springs. These stops, which are commonly termed leading edge stops, will now be in position to coöperate with the leading edge of the next bill sheet which may now be introduced into the machine and moved downwardly over the paper table and paper apron and between the platen and the main feed roller until the leading edge of said bill sheet contacts with the stops 47. The locking engagement between the lug 57 and the notch 17ª serves, of course, to lock the parts in the position shown in Fig. 7, so that the operator has the use of both hands to enter the new bill sheet and square or aline it by the aid of the leading edge stops 47. It will be understood, however, that though this locking feature is a desirable one, it is not essential in the present case. The bill sheet having been thus alined, the handle of the detent or latch 55 may be pressed forwardly to cause the lug 57 to swing upward about the pivot 56 and disengage from the notch 17ª, permitting the feed roller and leading edge stop to be restored to normal position. From the operations just described it will be understood that means are provided for squaring each bill sheet as it is introduced into the machine and for starting it off under the control of the line spacing devices from a predetermined position, which position is of course the same for all of the bill sheets.

Coming now to the novel tally strip devices which I associate with the mechanism hereinbefore described, it may be stated that it is highly desirable that the tally strip and that portion of the bill sheet containing the daily total column or the entries which are to be duplicated on the tally strip, should overlap or be superposed one on the other as by this arrangement the daily total entries may be simultaneously written on both work sheets, thus avoiding possibility of error in duplicating as well as effecting considerable saving of time. This desideratum I obtain by my construction wherein the tally strip devices comprise a curved supporting bracket 61 (shown in all the principal views) which bridges or spans the platen near its right-hand end, said bracket being provided with angularly disposed ears 62 which rest on the tops of the rear and front bars 9 and 11 of the platen carrier and are secured to said bar by headed screws 63. The bracket 61 is provided at its rear with a rearwardly and upwardly inclined extension 64 and at its front with a forwardly and upwardly inclined extension 65. As shown in Fig. 2 the extension 64 is perforated to receive the reduced end portion 66 of a rod or axle 67, the latter being provided with an enlarged collar portion 68 immediately to the left of the end portion 66. Near its end, the portion 66 is threaded to coöperate with a clamping nut 69 which when tightened forces the right-hand face of the collar portion 68 against the left-hand face of the extension 64 and so clamps the axle 67 in a fixed relation with the bracket 61. The axle 67 supports a rotary spool-like carrier or holder 70 for the tally strip, said carrier having a flange 71 at its right-hand end. At its left end the shaft 67 is reduced and threaded as indicated at 67ª to receive a nut 72 which is arranged in place after the spool 70 is mounted on the axle. Surrounding the collar 68 and confined between the flange 71 and the extension 64 is a coiled spring 73 which at all times presses the carrier leftward and keeps its left end in frictional contact with the confining nut 72. The spool-like carrier or holder is thus frictionally mounted on its axle so that while it may be turned on said axle when an adequate turning force is applied to it, yet, nevertheless, it may be held against accidental turning by the friction due to the spring 73. The carrier 70 receives a sleeve 74 which frictionally engages said carrier so that normally it turns with the latter, but it may be readily slipped on and off said carrier. The sleeve 74 carries a ribbon-like supplementary work-sheet or tally strip 75 which is wound into a roll as shown in the principal views.

The free outer end of the supplementary work sheet or tally strip is led downward over the top and front of the wound-up roll and passes around and under the right-hand end portion of the platen through and over a combined shield and guide which is most clearly shown in Figs. 2, 3, 6 and 7. The combined shield and guide comprises a curved rib 76 which passes around the front, back and under sides of the platen between the front and back bars of the platen carrier. At its front and rear upper end portions, the rib is broadened out as indicated at 76ª and is perforated to receive headed screws 77 which secure the guide to the lower front and rear portions of the bracket 61. The curved body portion 78 of the guide extends leftward from the rib 76 at right-angles thereto and lies close to the platen at the lower side thereof. Said body portion conforms to the curvature of the platen for the most part but the front and back upper portions of the guide leave the platen and extend upwardly in comparatively straight lines, thereby enabling the tally strip to pass from and to its carriers into and out of engagement with the guide in substantially straight paths, as will be understood from an inspection of Figs. 6 and 7. At its under side the combined shield and guide is formed with a rectangular opening 79 to permit of the coöperation of the printing types with the platen and the main work sheet or bill sheet carried thereby through the supplementary work sheet or tally strip. At each side of both its front and rear upper portions the body 78 of the combined shield and guide is formed with ears 80 which are bent oppositely toward each other to form guiding slots 81 through which the tally strip is guided. The tally strip 75 passes downward through the rear slots 81 and over the outer face of the body portion 78 of the combined shield and guide so that said body portion is interposed between said tally strip and the surface of the platen, as clearly shown in Fig 3. Passing around the outside of the body portion 78, the tally strip is guided upward through the front slots 81 and thence over the rear and top of the forward rotary carrier or holder for the tally strip.

The forward carrier, as shown clearly in Fig. 2, comprises a hub portion 82, a right-hand head 83 integral with said hub, a cylindrical shell or body 84 and a left-hand head or flange 85. The body 84 is confined between the two heads, being received in a groove 86 in the right-hand head and engaging an annular boss 87 projecting inwardly from the left-hand head 85. The left-hand end portion of the hub 82 is threaded externally to coöperate with a threaded opening in the head 85, the latter being screwed on the hub until stopped by the shell or body 84 which by this construction is clamped between the two heads or flanges of the carrier. Said carrier is mounted on an axle or rod 88 which passes loosely through the hub 82 and like the rear axle is provided with a collar 89 and a reduced right-hand end portion 90 which passes through an opening in the extension 65 of the bracket 61 and is threaded to receive a clamping nut 91, the latter coöperating with the part 90 and the collar 89 to hold the shaft 88 in fixed relation with the bracket 61. The left end portion of the axle 88 is reduced and threaded at 92 to receive a confining nut 93 which prevents accidental withdrawal of the forward carrier or spool from its support or axle 88. The right-hand head 83 of the forward carrier is formed with crown ratchet teeth 94 constituting a ratchet wheel which is adapted to coöperate with a supplementary turning or line spacing device hereinafter to be described. As shown clearly in Figs. 2 and 4 the bracket 61 at its forward side is provided with an inner extension or boss 95 counterbored as indicated at 96 to receive a slidable detent 97 having a beveled tooth 98 which is constantly pressed into engagement with one or another of the ratchet teeth 94 on the forward carrier by a coiled spring 99 confined between the bottom of the counter-bore 96 and the bottom of a counter-bore 97ª formed in the inner or bottom face of the detent 97. The construction is such that the detent 97 through its spring 99 presses the carrier bodily leftward on its axle 88 until said carrier contacts with the nut 93, and the detent tooth 98 engaging with one or another of the ratchet teeth 94 prevents accidental turning of the carrier and tends to retain it in one or another of what may be termed its line spacing positions.

Returning for a moment to the tally strip 75, the latter after passing upwardly out of the forward slots 81 and over the back and top of the shell-like body 84 of the forward carrier is secured to said carrier by any suitable means. As shown in Figs. 2 and 6, said means comprises a narrow metal strip 100 which is fixed at its ends by soldering or otherwise to the outer face of the shell 84. Said strip 100 extends lengthwise of said shell and forms with the latter a slot 101. The end of the tally strip may be passed over the strip 100 and then back under it through the slot 101, after which the front carrier may be turned forwardly and the tally strip will be compelled to turn with and wind upon it because of frictional engagement of said tally strip with the strip 100 and the outer face of the body 84. It will be seen that the tally strip devices, comprising the supporting bracket, the carriers, and the combined shield and guide, are in the nature of an attachment which may be

readily removed from or applied to the machine by removing or replacing the screws 77 and 63.

The bill sheet or main work sheet which is shown in Figs. 2, 3, 5 and 6 of the drawings and designated by the numeral 102 is introduced into the machine as has been described and so that its right-hand side portion, containing the daily total column, passes down over the rear portion of the combined shield and guide and between said shield and the platen, so that the shield separates the bill sheet or main work sheet 102 at the right-hand side from the tally strip or supplementary work sheet 75 save at the printing opening 79. It will be understood that after the bill sheet has been introduced and alined against the leading edge stops 47 and the latter have been withdrawn as has been described, said bill sheet may be fed forward in line spacing direction by operating the usual line spacing lever 27. It will further be understood that though the bill sheet and tally strip overlap or are superposed one on the other, yet the operation of the line spacing lever 27 and the consequent feeding of the bill sheet in line spacing direction will not affect the tally strip or its rotary carriers, so that during the regular line spacing operations and during the operations of the printing instrumentalities and the consequent step by step longitudinal movements of the carriage in printing direction, the relation between the tally strip and its carriers will remain unaltered and the same portion of the tally strip will remain in the printing line.

From a practical standpoint it is essential that in billing work of the character hereinbefore outlined the bill sheet and the tally strip should be line spaced separately and independently of each other as it is very frequently desirable to write several lines or items on the bill sheet before writing the daily total or other item which is the only portion of the entry on the bill sheet which it is commonly desired to duplicate on the tally strip. It will be apparent, therefore, that if the tally strip should be line spaced each time the bill sheet is line spaced there would frequently be long unused or blank spaces between the daily total entries on the tally strip. This would not only result in a waste of the tally strip but would also consume a great deal of time on the part of employees using the tally strip after it had been written and forwarded to the bookkeeping department, since it would require an examination of long lengths of the tally strip to obtain a comparatively few daily totals which if condensed would occupy but a short length of the tally strip and could be rapidly run over and compared. In fact the disadvantages of the construction just referred to in which the tally strip is line spaced each time the bill sheet is line spaced, are so great as to render such a construction highly undesirable for practical commercial work. On the other hand, if an independently operative line spacing device for the tally strip were provided, and it were essential to the proper operation of the mechanism that the operator should operate said independent line spacing devices between each of the entries on the tally strip, this also would not prove successful in practical commercial work, because the operator could not be depended upon to remember to operate the independent line spacing devices each time it was proper to do so.

From what has been said it will be clear that it is highly desirable to superpose the tally strip and bill sheet one on the other and also to line space the tally strip independently of the bill sheet by providing means for effecting such line spacing of the tally strip which shall be necessarily operated between the ending of the writing on one bill and the beginning of the writing on the next succeeding bill without depending on the operator to actuate said means independently of other steps which are necessary in the handling and writing of the bill sheets. Accordingly in addition to the arrangement already described for permitting the overlapping of the two work sheets, I provide means for turning the forward or receiving tally strip carrier and thereby line spacing the tally strip, unwinding it from the rear or delivery carrier and winding it on the receiving carrier, which means are connected with the leading-edge stop mechanism and paper releasing mechanism hereinbefore described and are operated automatically by the actuation of the arm 53. In carrying out this latter feature of my invention in the present instance, an arm 103 (see Figs. 2, 5 and 6) is arranged on the rock shaft 40 just to the left of the rear part 76ª of the combined shield and guide, said arm being secured to said rock shaft by a set screw 104. The arm 103 extends upwardly and forwardly from the rock shaft at the rear of the platen and terminates about on a line with the top of the platen. The upper end portion of said arm is slotted as indicated at 105, the slot being bridged by a cross pin 106 which coöperates with a slot 107 formed at the rear end of a line spacing bar or pawl member 108, said bar, which is slightly curved at its rear portion extends forwardly over the top of the platen in a substantially horizontal direction and terminates at its forward end in a pawl tooth 109 which is coöperative with the crown ratchet teeth 94 on the right-hand head 83 of the forward tally strip carrier. Below the extension or boss 95 the bracket 61 is provided with an inward extension or

boss 110 and an outward extension or boss 111 in line with the boss 110. The inner boss 110 is cut away or slotted as indicated at 112 to permit the line spacing bar or pawl member 108 to pass through it fore-and-aft of the machine, while the outer boss 111 is counterbored as indicated at 113, the counterbore extending from the slot 112 through the body of the bracket 61 and into the outer boss. The counterbore 113 receives a plunger 114 which is counterbored at 115 to receive a coiled spring 116, said spring being contactive at one end with the plunger and at the opposite end with the bottom of the counterbore 113. The spring constantly presses the plunger 114 leftward, said plunger engaging with the side of the bar 108 and maintaining the pawl 109 on said bar in engagement with the crown ratchet teeth 94. The bar or pawl member is guided at its forward end portion between the top and bottom of the slot 112. The normal position of the supplementary line spacing devices for the tally strip is shown in Figs. 1 and 6, the arm 103 being maintained in the position shown in said figures by the springs 33 which act on said arm through the lugs 35ª on the arms 35, said lugs transmitting the pressure of the springs 33 to the fins 39 and thence to the rock shaft 40. The pin 106 on the arm 103 acts through the slot 107 on the bar 108 to maintain said arm pressed forwardly so that a lateral stop pin 117 near its forward end engages a depression 118 in the under face of the bracket 61 (Fig. 6).

It will be understood that when the arm 53 is pressed rearwardly to position the leading edge stop and release the feed roll, a movement of the lever 53 is transmitted to the arm 103 through the rock shaft 40 to which both said arms 53 and 103 are fixed. When the arm 53 has been pushed back to its full extent and locked by the engagement of the lug 57 with the notch 17ª, as shown in Fig. 7, the arm 103 will have been moved to the position indicated in said figure. During the first part of the rearward swing or movement of the arm or pawl member 103 the pin 106 traverses the slot 107 without affecting the bar 108, but when the pin reaches the rear end of the slot further rearward movement of the arm 103 will be transmitted to the arm 108, causing the latter to move longitudinally rearward and the pawl tooth 109 to coöperate with the ratchet teeth 94 to effect a turning movement of the forward or receiving tally strip carrier, causing a portion of the latter to wind onto the forward carrier, and a corresponding portion to unwind from the rear carrier and effect a corresponding movement of the tally strip past the printing point. When the arm 53 is released the parts of the paper releasing and controlling mechanism will be restored to normal position in the usual way and the supplementary or tally strip line spacing devices will be restored to normal position with said paper controlling devices chiefly through the action of the springs 33. The peripheries of the flanges or heads of the forward and rear tally strip carriers or spools may be knurled so that said carriers may be turned thereby to wind or otherwise adjust the tally strip without operating the supplementary line spacing devices.

It will be apparent that each time the arm 53 is operated to position the leading edge stop device and release the work sheet, the tally strip will be line spaced forwardly, this line spacing movement of the tally strip taking place independently of the line spacing or turning movements of the platen over which the main work sheet or bill sheet is fed; and that this line spacing movement of the tally strip is also independent of longitudinal movements of the platen and the carriage on which said platen is mounted and takes place while both the carriage and the platen are stationary.

After what has been said it will, it is thought, be sufficient to refer only briefly to the operation of my improvements. As has been said, each bill sheet 102 as it is introduced into the machine is positioned lengthwise of the platen to overlap the tally strip and so that the daily total column or columns of said bill sheet passes over the curved body portion 78 of the combined shield and guide (Figs. 2 and 5). Consequently at the type opening 79 in said body portion 78, the bill sheet is interposed between the platen and the tally strip 75 and the tally strip is there imposed on the bill sheet and lies between it and the printing types (not shown) as will be clear from a consideration of Fig. 3. In the present instance the daily total column is assumed to be the final column at the right-hand side of the bill sheet 102, and the bracket 61, carrying the tally strip, is so arranged lengthwise of the platen carrier as to bring the tally strip in register with or cause it to overlie the final column at the right of the bill sheet. If, however, the daily total column on the bill sheet is not at the extreme right-hand side thereof it will be understood that the tally strip may be arranged on the platen carrier so that it will register with or overlie the daily total column whatever the position of the latter may be widthwise of the bill sheet. The usual ribbon of the Remington machine, of course, underlies the tally strip at the type opening 79, although it has not been thought necessary to illustrate said ribbon in the drawings, so that when the type bars (not shown) are actuated in the usual way they will coöperate with the tally strip through said ribbon.

The impressions of the printing types may

be transmitted through the tally strip to the bill sheet by any suitable transfer medium interposed between the two. Said medium, if preferred, may be a separate carbon sheet or strip, but in the present instance I have found it convenient to coat the inner surface of the tally strip, or that surface facing the bill sheet, with carbon, so that the tally strip shown in the drawings is a combined work sheet and transfer medium, the outer surface of the tally strip receiving the inked impressions through the ribbon and the inner surface of said tally strip simultaneously off-setting the impressions in carbon on the outer surface of the bill sheet 102.

It will be understood from what has been said that the various lines or items on the bill sheet may be written in the usual way; that as the bill sheet is fed through the machine to space between the lines or items, the tally strip will not be affected; that when the day's item or items on the bill sheet have all been written and it is desired to print the total amount of the purchases for the day on said bill sheet, the proper type bars are actuated in the usual way to print the daily total; and that said daily total will be printed on the tally strip and through it will be printed on the bill sheet in the daily total column thereon. The bill sheet may next be released and the stop device positioned, and a longitudinal or line spacing movement automatically communicated to the tally strip, the carriage and platen remaining stationary. The tally strip will then be ready without further attention to receive the daily total of the next succeeding bill sheet which may be introduced and written upon. These operations may be repeated until the day's bills have been exhausted.

At the end of the day, that portion of the tally strip which has been printed on and which is forward of the printing point, being wound for the most part upon the forward carrier or spool, is removed from the machine and sent to the bookkeeping or other department. It will be understood that the removed portion of the tally strip contains the daily totals of all the bills that day, and that these totals follow one another on the strip closely and at substantially regular intervals, or in other words are condensed so that they may be readily made use of in the manner hereinbefore outlined or in any other desired way. To again render the tally strip ready for use it is only necessary to lead the free end of it up through the forward slots 81 and over the receiving carrier and to secure said free end to said carrier by passing it over the strip 100 and through the slot 101 as has been already explained.

The advantages of my improvements over prior constructions have already been dwelt upon to some extent and it is not thought necessary to recapitulate them at this point.

It will be understood that though I have outlined one method of making use of these improvements, nevertheless this method may be departed from in various respects and the improvements may be made use of in other ways. It will also be understood that various parts of my invention may be employed without other parts, and that various changes in the details of construction and arrangements may be made without departing from the spirit of my invention.

What I claim as new and desire to secure by Letters Patent, is:—

1. In a typewriting machine, the combination with a movable carriage and a platen mounted on said carriage, of means for supporting a work sheet on the platen; other means for supporting a separate work sheet on the carriage, one of said work sheets being superposed on the other; and line spacing means for independently advancing each of said work sheets around the platen.

2. In a typewriting machine, the combination with a movable carriage and a platen mounted on said carriage, of means for supporting a work sheet on the platen; other means for supporting a separate work sheet on the carriage; and means for independently advancing either of said work sheets around the platen while the carriage remains stationary; the platen remaining stationary during the advance of said separate sheet.

3. In a typewriting machine, the combination of a carriage, a unitary rotary platen thereon with which platen coöperates two work sheets, one a narrow sheet superposed on the other work sheet near one end of the rotary platen, means for turning the platen step by step, means coöperating with the platen to feed the wider work sheet when the platen is turned, and separate means operating automatically to advance the narrow work sheet over the wider work sheet and over the rotary platen.

4. In a typewriting machine, the combination of a carriage, a unitary rotary platen mounted on the carriage and supporting a work sheet; and means operating automatically to advance a second work sheet over the platen and over the first sheet while both the platen and carriage are stationary, said work sheets being superposed one on the other.

5. In a typewriting machine, the combination of a platen; a paper stop device coöperative with a work sheet to square or aline it relatively to the platen, said paper stop device being normally in inoperative position; means for moving said paper stop de-

vice to operative position; and means operative by said last named means to line space a second work sheet already in the machine.

6. In a typewriting machine, the combination of a platen; a paper stop device coöperative with a work sheet to square or aline it; paper feeding devices for said work sheet, said paper stop device being normally in inoperative position and said paper feeding devices being normally in operative position; means for moving said paper stop device to operative position and said paper feeding devices to inoperative position; and means operative by said last named means to line space a second work sheet already in the machine.

7. In a typewriting machine, the combination of a platen; a paper stop device coöperative with a work sheet to square or aline it; paper feeding devices including a main feed roller for said work sheet, said paper stop device being normally in inoperative position and said paper feeding devices being normally in operative position; means for moving said paper stop device to operative position; and means operative by said last named means to line space a second work sheet already in the machine.

8. In a typewriting machine, the combination of a unitary rotary platen; paper releasing mechanism operative to release a work sheet on said platen; and means operative by said paper releasing mechanism to line space over said unitary platen, a second work sheet superposed over said first recited work sheet near one end thereof.

9. In a typewriting machine, the combination of a unitary rotary platen over which a plurality of work sheets are fed over said unitary platen, said work sheets being superposed one on another; paper releasing mechanism operative to release one of said work sheets from said platen; and means operative by said paper releasing mechanism to line space a second work sheet.

10. In a typewriting machine, the combination of a unitary rotary platen; a paper feed device for feeding a work sheet over said unitary platen; means for rendering said paper feeding device inoperative; and means operative by said last named means to line space a second work sheet over said rotary platen, said second work sheet being superposed on the first recited work sheet.

11. In a typewriting machine, the combination of a unitary rotary platen; paper feeding devices including a main feed roller for feeding a work sheet over said unitary platen; means for releasing said main feed roller; and means operative by said last named means to line space a second work sheet over said rotary platen, said second work sheet being superposed on the first recited work sheet.

12. In a typewriting machine, the combination of a carriage; a platen; a normally inoperative paper stop device pivoted on said carriage; a hand controlled rock shaft on said carriage operative to move said paper stop device to working position; and means operative by said rock shaft for advancing a work sheet in line spacing direction over said platen.

13. In a typewriting machine, the combination of a carriage; a rotary platen thereon; a stop frame pivoted on said carriage and provided with a plurality of leading edge stops normally in inoperative position; a hand-controlled rock shaft operative on said stop frame to move said stops to operative position; a work sheet holder or carrier mounted on said carriage; line spacing devices operative to advance the work sheet carried by said holder over the platen; and connections between said devices and said rock shaft.

14. In a typewriting machine, the combination of a carriage; a rotary platen; a normally operative main feed roller pivotally mounted on said carriage; normally inoperative paper stops mounted on a stop frame pivoted on said carriage; a hand-controlled rock shaft on said carriage operative on said paper stops and main feed roller to render the former operative and the latter inoperative; a work sheet holder or carrier mounted on said carriage; line spacing devices operative on the work sheet carried by said holder to advance said work sheet over the platen while the latter is stationary; and connections between said line spacing devices and said rock shaft.

15. In a typewriting machine, the combination of a carriage; a platen; a work sheet holder or carrier mounted on the carriage and supporting a work sheet; a paper stop device on the carriage and normally in inoperative position; means for moving the paper stop device to position to coöperate with work sheets introduced by hand into the machine; and means for line spacing the work sheet on said holder when said first named means is operated.

16. In a typewriting machine, the combination of a carriage; a platen equipped with a paper stop device and paper feeding devices; a work sheet holder or carrier mounted on the carriage and supporting a work sheet; means for moving the paper stop device to position to coöperate with the work sheet introduced by hand into the machine and for releasing certain of said paper feeding devices; and means for line spacing the work sheet on said holder when said first named means is operated.

17. In a typewriting machine, the combination of a carriage; a unitary rotary platen supporting a main work sheet; a work

sheet holder or carrier mounted on the carriage; and step-by-step line spacing devices coöperative with said work sheet holder to line space the work sheet carried by it, said last named work sheet being superposed on the main work sheet, and said devices operating independently of movements of the carriage and also of the platen.

18. In a typewriting machine, the combination of a carriage; a unitary rotary platen supporting a main work sheet; a work sheet holder or carrier mounted on the carriage; and step-by-step line spacing devices coöperative with said work sheet holder to line space the work sheet carried by it, said last named work sheet being superposed on the main work sheet at one side of the latter and between it and the printing types, and said devices operating independently of movements of the carriage and also of the platen.

19. In a typewriting machine, the combination of a carriage; a unitary rotary platen supporting a main work sheet; line spacing devices therefor; a rotary work sheet carrier mounted on the carriage and carrying a supplementary work sheet superposed on the main work sheet and between it and the printing types; and supplementary step-by-step line spacing devices for turning said carrier to line space the supplementary work sheet, said line spacing and supplementary line spacing devices being independently operative, and said supplementary step-by-step line spacing devices operating independently of movements of the carriage and also of the platen.

20. In a typewriting machine, the combination of a carriage; a unitary rotary platen on said carriage supporting a main work sheet; line spacing devices therefor; a pair of rotary carriers spaced apart and mounted on said carriage and supporting a supplementary work sheet which passes over said main work sheet; and line spacing devices coöperative with one of said carriers to wind the supplementary work sheet on one of said carriers and unwind it from the other.

21. In a typewriting machine, the combination of a carriage; a unitary rotary platen on said carriage supporting a main work sheet; line spacing devices therefor; a rotary receiving carrier mounted on said carriage and provided with ratchet teeth; a rotary delivery carrier mounted on said carriage; a ribbon-like work sheet wound on said carriers and passing from one to the other across the rotary platen and over said main work sheet; and a hand-controlled line spacing pawl coöperative with the ratchet teeth on said receiving carrier, said pawl being operative independently of the line spacing devices for the main work sheet.

22. In a typewriting machine, the combination of a carriage; a unitary rotary platen thereon; a supporting bracket on said carriage; a pair of rotary carriers on said carriage and carrying a ribbon-like work sheet which passes from one carrier to the other across the platen near one end of the latter; a paper controlling device mounted on the carriage coöperative with a main work sheet and controlled by a hard-actuated rock shaft; line spacing devices operative to turn said carriers and line space the ribbon-like work sheet which is superposed on said main work sheet at one side thereof; and connections between said rock shaft and said line spacing devices.

23. In a typewriting machine, the combination of a carriage; a unitary rotary platen thereon; a supporting bracket on said carriage; a pair of rotary carriers on said carriage and carrying a ribbon-like work sheet which passes from one carrier to the other across the platen near one end of the latter; a paper controlling device mounted on the carriage coöperative with a main work sheet and controlled by a hand-actuated rock shaft, said main work sheet and said ribbon-like work sheet overlapping one another; line spacing devices, said line spacing devices comprising a set of ratchet teeth on one of said carriers and a pawl arm operative on said ratchet teeth; and connections between said rock shaft and said pawl arm.

24. In a typewriting machine, the combination with a carriage and platen, of tally strip devices comprising a supporting frame or bracket detachably secured to the carriage and provided with a pair of axles; spool-like tally strip carriers rotatable on said axles, the delivery carrier being frictionally controlled and the receiving carrier being provided with ratchet teeth with which cooperates a spring-pressed detent; and a hand-controlled line spacing pawl coöperative with said ratchet teeth.

25. In an under-strike typewriting machine, the combination with a carriage and platen, of tally strip devices comprising a bracket detachably secured to the carriage and provided with a pair of axles arranged above the platen and one forward of and the other in the rear of the platen; spool-like tally strip carriers rotatable on said axles and carrying a tally strip which passes from one carrier to the other around and under the platen; a friction spring controlling the rear carrier; a spring-pressed detent coöperating with the ratchet teeth on the front carrier; and a hand-controlled line spacing pawl guided on said bracket and coöperating with said ratchet teeth.

26. In a typewriting machine, the combination with a carriage and a platen supporting a main work sheet, of tally strip devices comprising a support for a tally strip and

a combined shield and guide, the tally strip and main work sheet being superposed one on the other at the printing point and the combined shield and guide being interposed at both sides of the printing line between said tally strip and the main work sheet.

27. In a typewriting machine, the combination with a carriage and a platen supporting a main work sheet, of tally strip devices comprising a support for a tally strip, and a combined shield and guide, the tally strip being arranged at one end of the platen and passing over the outside of said combined shield and guide, the main work sheet passing between the platen and said combined shield and guide, the latter being interposed at opposite sides of the printing point between the tally strip and the main work sheet.

28. In a typewriting machine, the combination with a carriage and a platen supporting a main work sheet, of tally strip devices comprising a support detachably secured to the carriage, a tally strip carrier on said support, and a guide on said support, the tally strip passing over said guide and being separated by said guide from the main work sheet.

29. In a typewriting machine, the combination with a carriage, and a platen supporting a main work sheet, of tally strip devices comprising a bracket detachably secured to the carriage; a pair of tally strip carriers rotatable on said bracket; and a curved shield and guide supported on said bracket and partially surrounding the platen, the tally strip passing from one carrier to the other over said guide and shield and being separated by it from the main work sheet, one side portion of which the tally strip overlies.

30. In a typewriting machine, the combination with a carriage and platen, of tally strip devices including a rotary carrier comprising a bearing sleeve, a head integral with the sleeve, a detachable head, a shell-like body, and means for clamping said body between the heads.

31. In a typewriting machine, the combination with a carriage and platen, of tally strip devices including a rotary carrier comprising a cylindrical body and means for holding the tally strip on said body, said means comprising a strip raised from said body to form a slot, said strip being secured at its ends to said body.

32. In a typewriting machine, the combination with a carriage and platen, of tally strip devices including a detachable support, a delivery carrier and a receiving carrier both rotatable on said support, the delivery carrier comprising a sleeve and head, said sleeve being frictionally connected with the tally strip roll, and the receiving carrier comprising a bearing sleeve, a head integral with the sleeve, a detachable head, a shell-like body and means for clamping said body between the heads.

33. In a typewriting machine, the combination of a paper carriage, a platen mounted thereon, means on said carriage coöperative with the platen for feeding a work sheet in line space direction, means mounted on said carriage for carrying a tally strip superposed over part of said work sheet but always out of control of the line space devices for the work sheet, and an independent step-by-step line spacing device for said tally strip, said line spacing device being operative independently of movements of said platen.

34. In a typewriting machine, the combination of a paper carriage, a platen thereon, means on said carriage coöperative with said platen, for feeding a work sheet step-by-step in line space direction, means on said carriage for supporting a tally strip superposed over part of said work sheet but outside of the paper feed devices for said work sheet, whereby said tally strip is not fed by said paper feed devices, and means for feeding said tally strip, said last named means operating independently of said platen.

35. In a typewriting machine, the combination of a paper carriage, paper feed devices for a work sheet, means for supporting a tally strip superposed over part of said work sheet but out of control of said paper feed devices, and means for automatically line spacing said tally strip once for each work sheet that is put into the machine.

36. In a typewriting machine, the combination of a platen, a paper shield partly surrounding the platen and provided with a type opening, and devices coöperating with said shield to guide a pair of superposed work sheets so that the paper shield is interposed between said superposed work sheets.

37. In a typewriting machine, the combination of a platen carrier, a platen thereon, a paper shield supported on the platen carrier and extending partly around the platen, said paper shield extending transversely of the printing line and being provided with a type opening through which the types are adapted to coöperate with the platen, and devices coöperating with said paper shield to guide two superposed work sheets at opposite sides of said shield.

38. In a typewriting machine, the combination of a platen carrier, a platen thereon, and a paper shield supported on the platen carrier and extending partly around the platen, said paper shield passing transversely of the printing line and being provided with a type opening through which the types are adapted to coöperate with the

platen, said shield being further provided with guides for the side edges of a work sheet.

39. In a typewriting machine, the combination of a carriage; a rotary platen; means coöperative therewith for supporting and feeding a main work sheet; releasing devices for said means; a work sheet holder or carrier mounted on the carriage; and step-by-step line spacing devices operative automatically by said releasing devices, said line spacing devices coöperating with said work sheet holder to line space the work sheet carried by it, said last named work sheet being superposed on the main work sheet.

Signed at the borough of Manhattan, city of New York, in the county of Kings, and State of New York, this 1st day of April, A. D. 1907.

CLIO B. YAW.

Witnesses:
E. M. WELLS,
M. F. HANNWEHER.