Nov. 22, 1927. 1,650,351

F. A. HART

TYPEWRITING MACHINE

Filed July 3, 1926 7 Sheets-Sheet 1

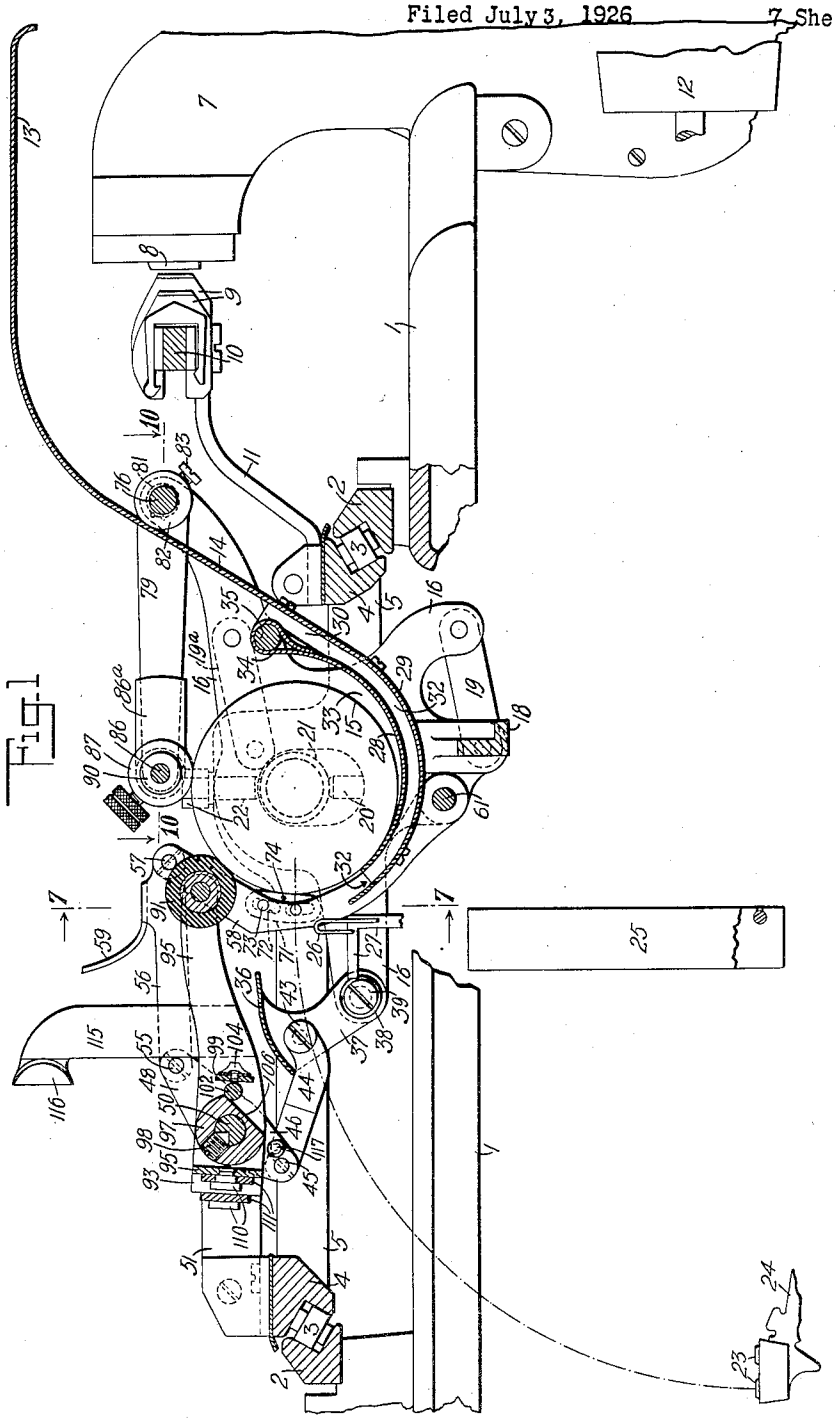


Fig. 1

WITNESSES

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BY Jacob Felbel

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TYPEWRITING MACHINE

Filed July 3, 1926 7 Sheets-Sheet 2

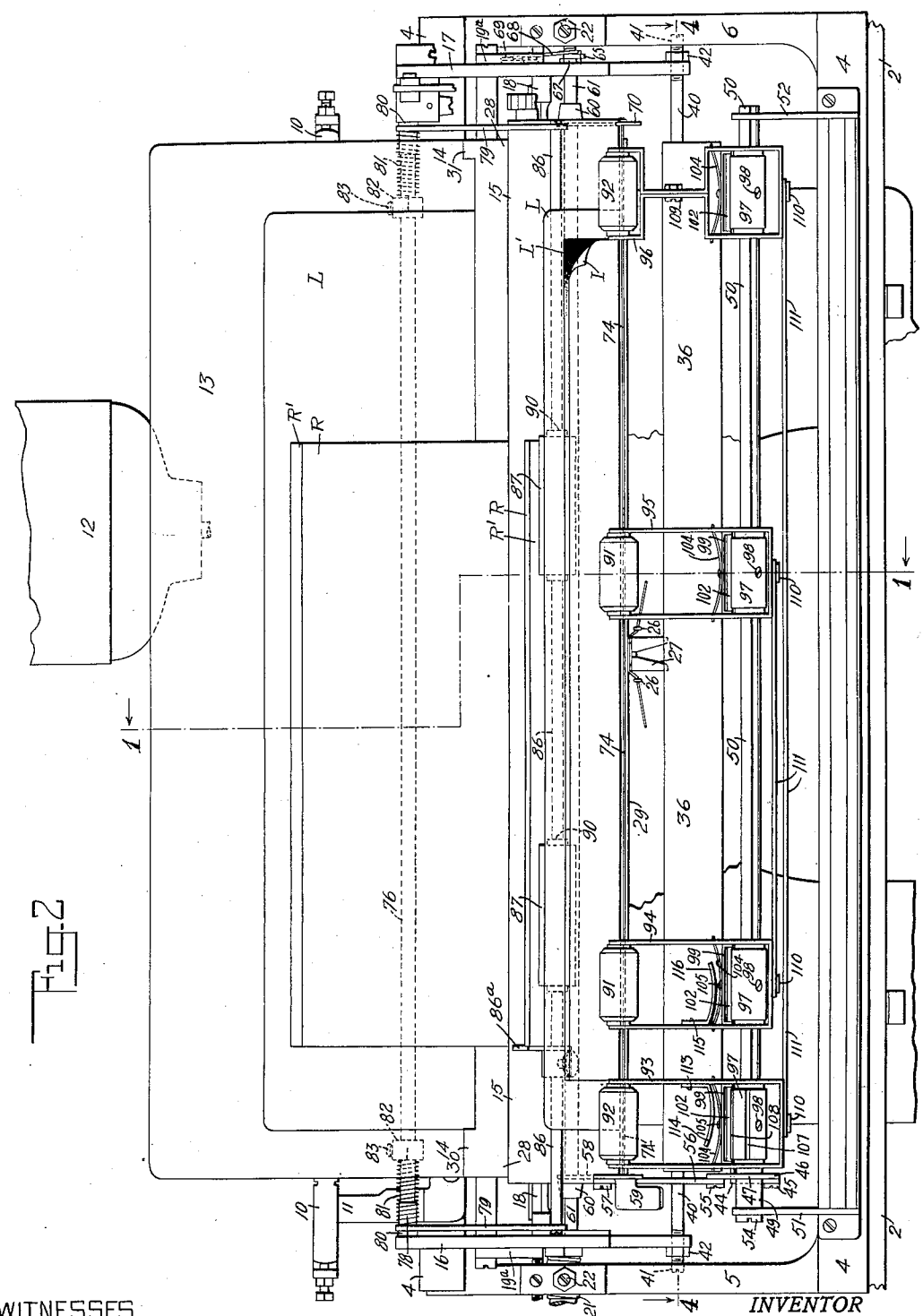


FIG. 2

WITNESSES

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TYPEWRITING MACHINE

Filed July 3, 1926 7 Sheets-Sheet 3

Fig. 3

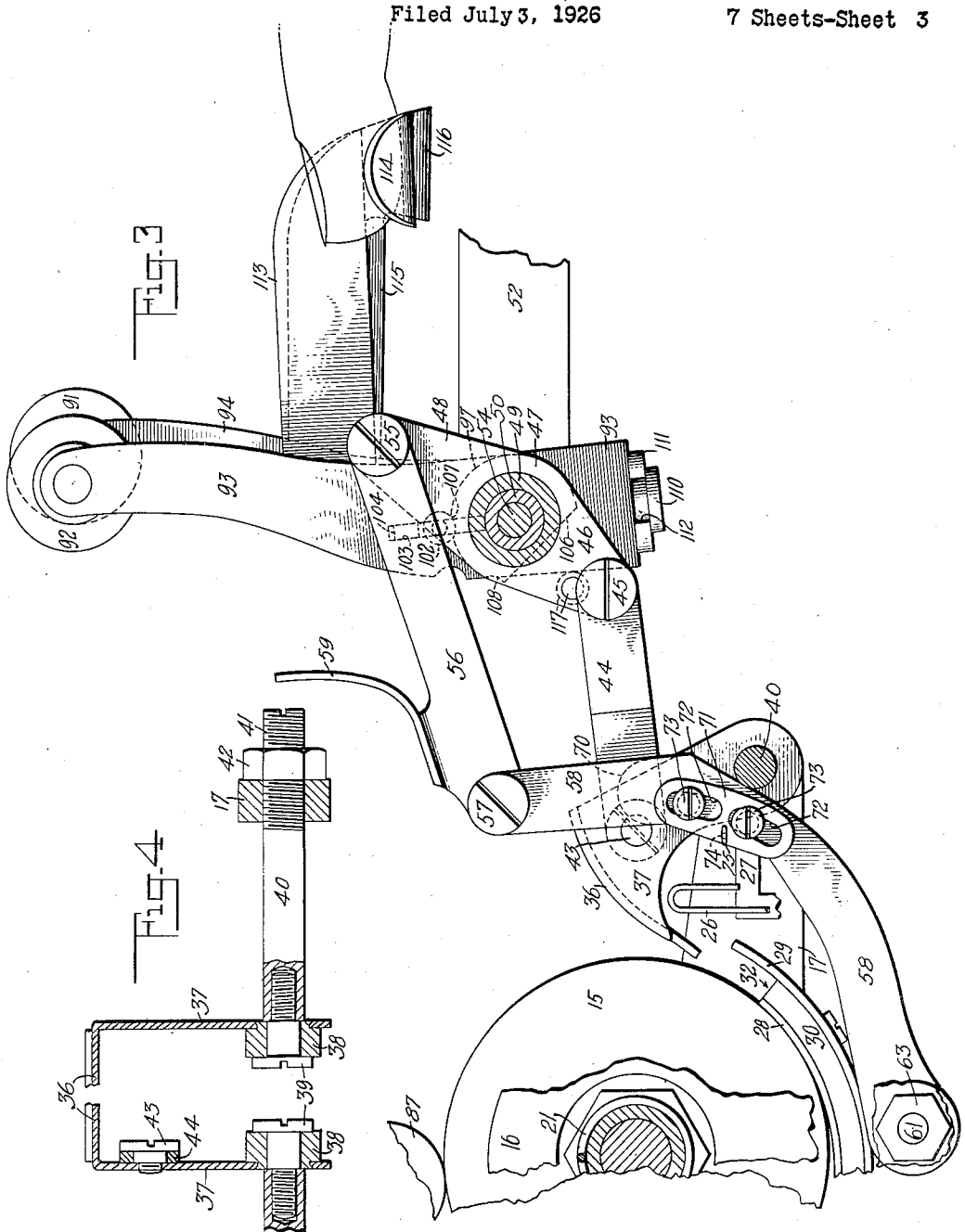


Fig. 4

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TYPEWRITING MACHINE

Filed July 3, 1926 7 Sheets-Sheet 4

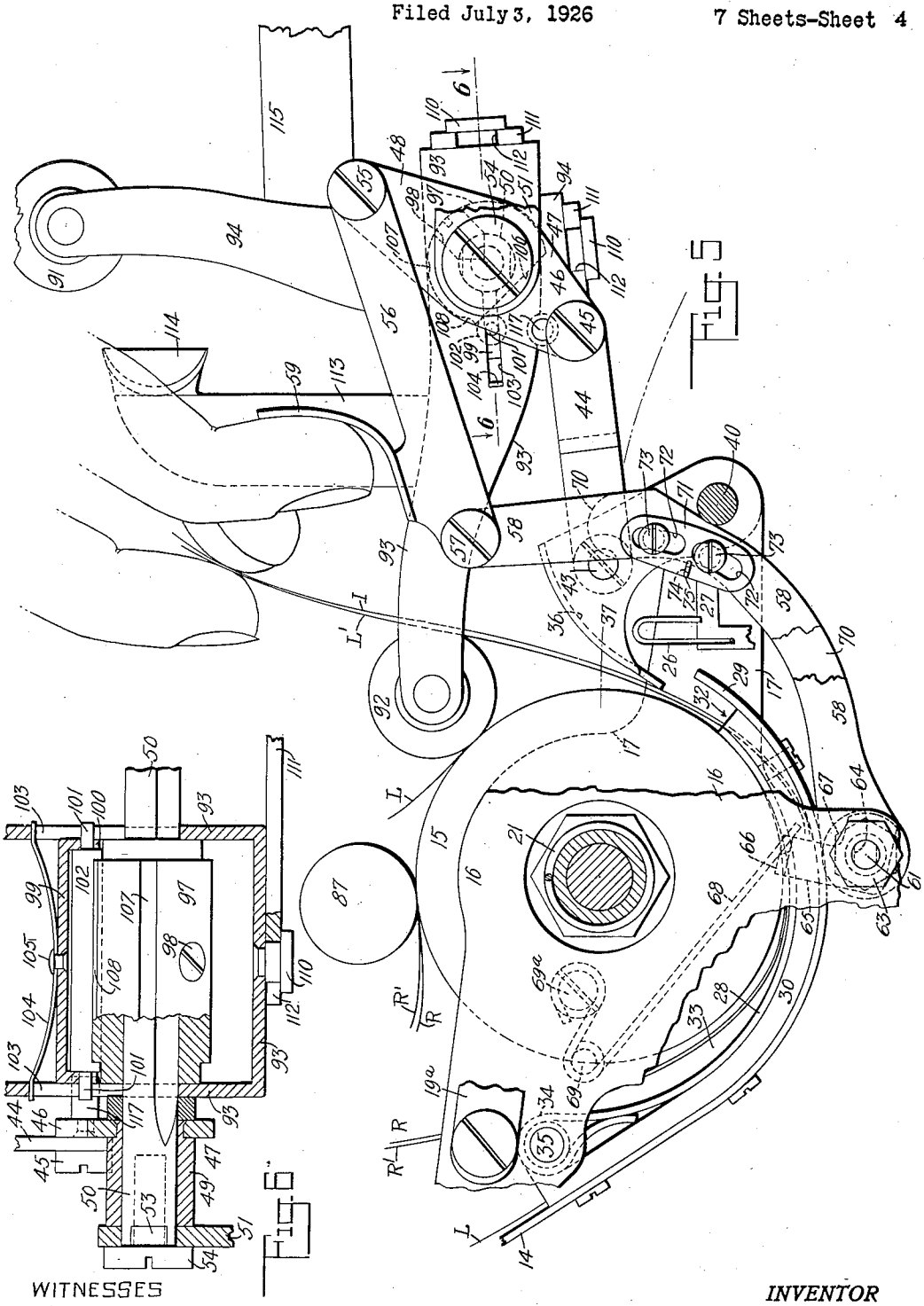


Fig. 5

Fig. 6.

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1,650,351

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TYPEWRITING MACHINE

Filed July 3, 1926

7 Sheets-Sheet 5

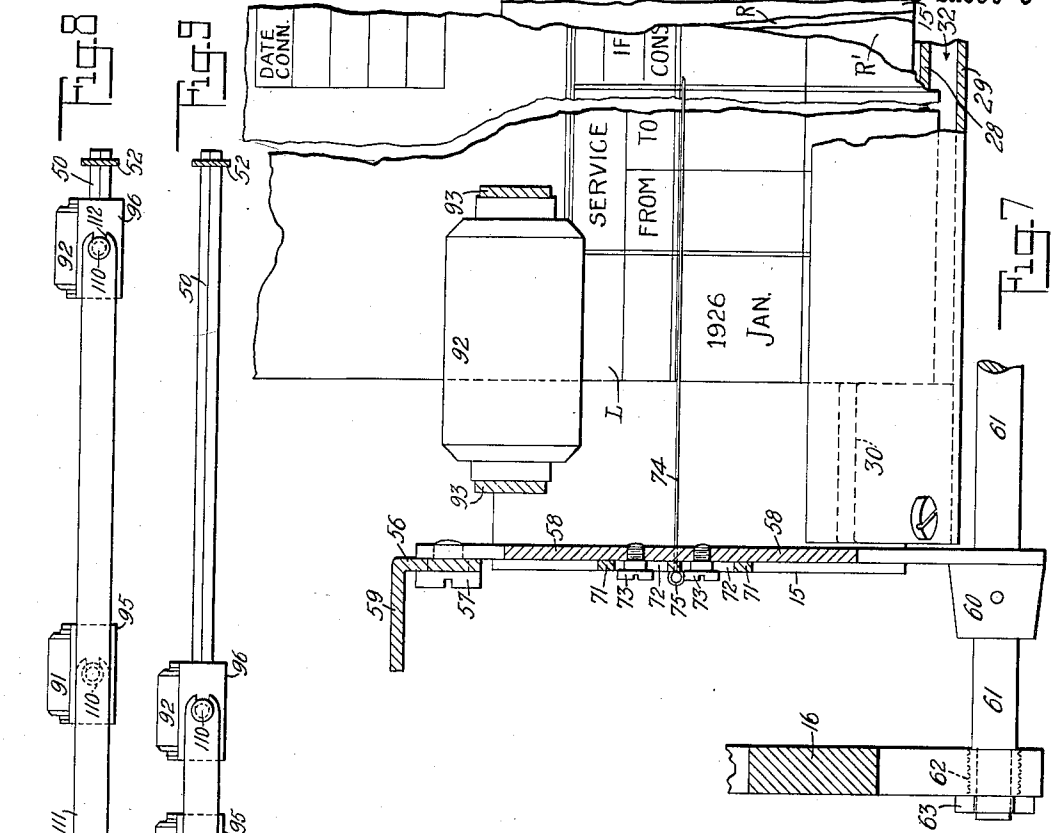


Fig. 8

Fig. 9

Fig. 7

Fig. 10

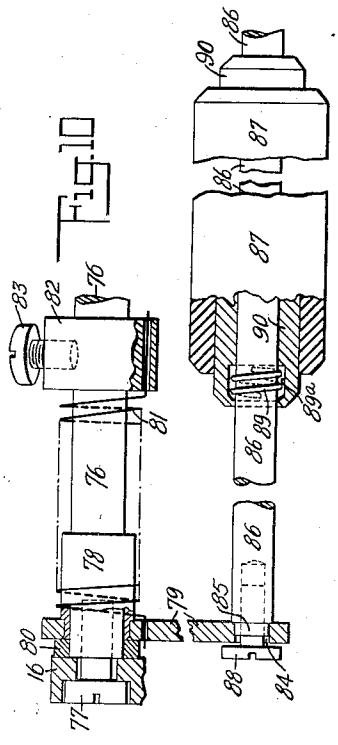
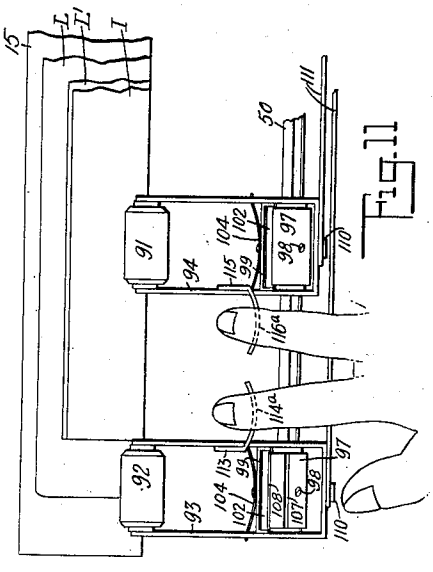


Fig. 11



WITNESSES

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1,650,351

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TYPEWRITING MACHINE

Filed July 3, 1926

7 Sheets-Sheet 6

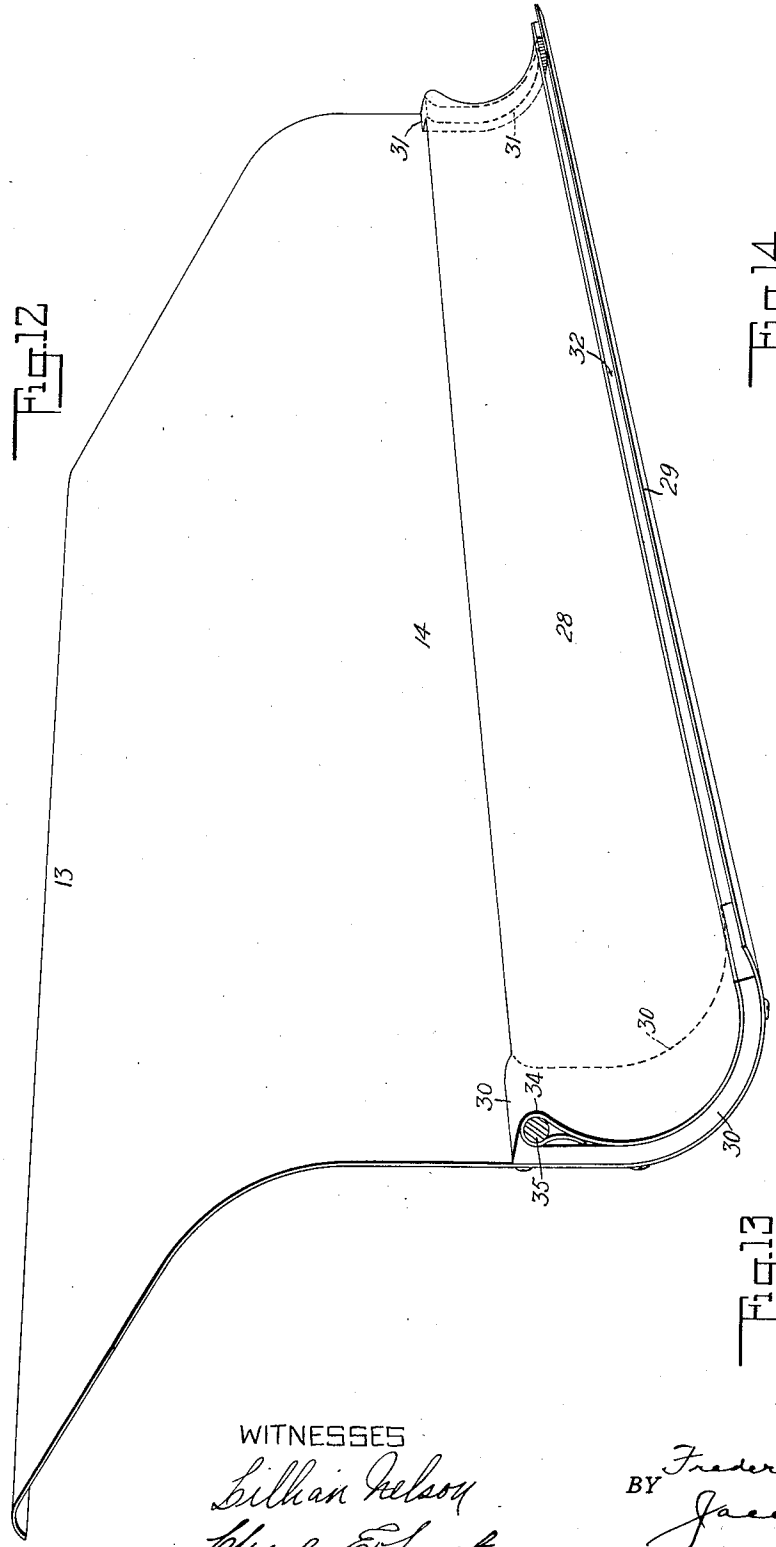


Fig. 12

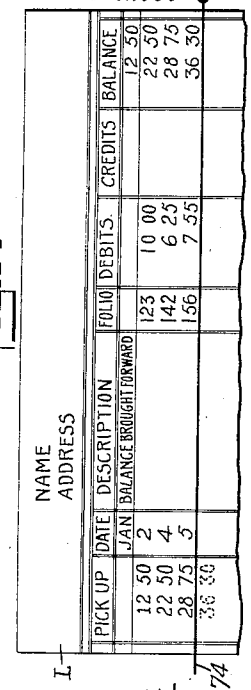


Fig. 14

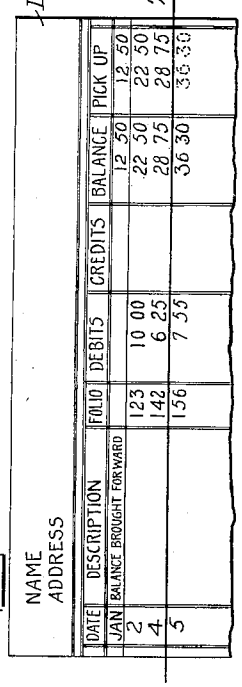


Fig. 13

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Nov. 22, 1927. 1,650,351

F. A. HART

TYPEWRITING MACHINE

Filed July 3, 1926 7 Sheets-Sheet 7

Fig. 17

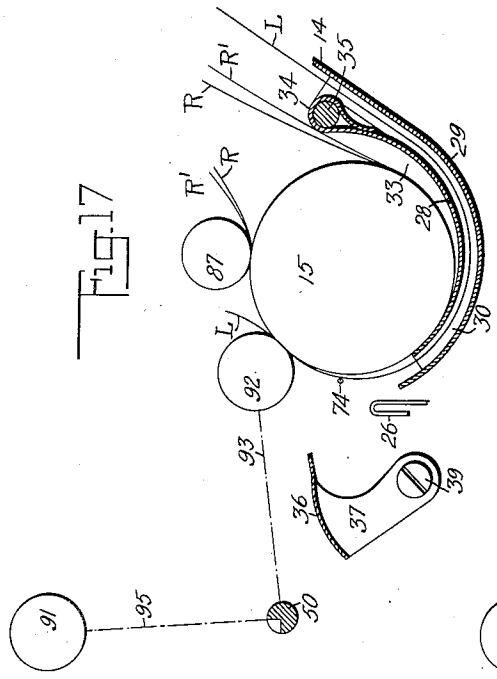


Fig. 16

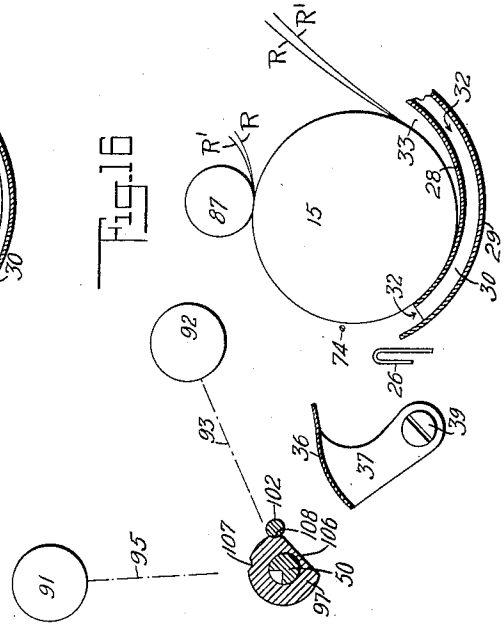


Fig. 15

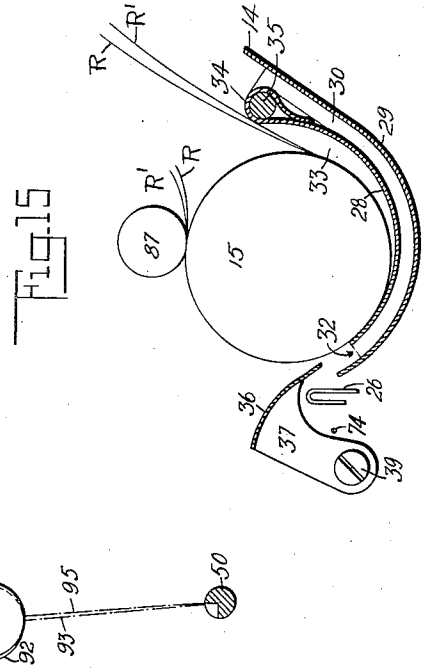
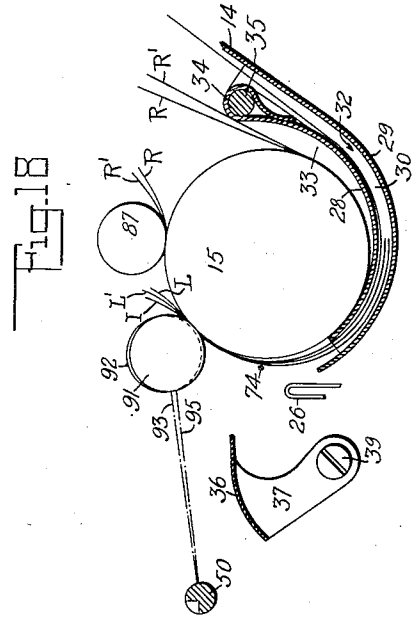


Fig. 18



WITNESSES

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Charles E. Smith

INVENTOR

Frederick A. Hart

BY Jacob Felbel

ATTORNEY

Patented Nov. 22, 1927. 1,650,351

UNITED STATES PATENT OFFICE.

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TYPEWRITING MACHINE.

Application filed July 3, 1926. Serial No. 120,403.

My invention relates to typewriting and like machines, and more particularly to so-called billing mechanism for such machines.

The main objects of my invention, generally stated, are to provide comparatively simple yet highly efficient mechanism of the character specified which may be employed in various kinds of billing operations; by which various features or devices of the construction may be automatically controlled; in which a novel line indicating device is automatically shifted into and out of position for use; in which, in some instances, there may be an independent control of certain of said devices; in which various work sheets may be readily and rapidly introduced into the machine and adjusted therein in proper correlation with other previously introduced sheets; and by which various work sheets may readily be introduced rearwardly into the machine from in front of and beneath the platen.

To the above and other ends which will hereinafter appear, my invention consists in the features of construction, arrangements of parts and combinations of devices set forth in the following description and particularly pointed out in the accompanying claims.

In the drawings which illustrate one form of mechanism embodying my invention, and in which various reference characters designate corresponding parts in the different views,

Fig. 1 is a fragmentary, vertical, fore and aft sectional view showing a sufficient number of parts of a typewriting machine to illustrate my invention in its embodiment therein; the section being taken on the line 1—1 of Fig. 2 and looking in the direction of the arrows at said line, and illustrating the parts in normal position.

Fig. 2 is a fragmentary top plan view of the same.

Fig. 3 is a view corresponding in part to Fig. 1 but showing the parts in abnormal position.

Fig. 4 is an enlarged, detail, vertical, transverse, sectional view of the front paper deflector and the means for mounting the same; the section being taken on the line 4—4 of Fig. 2 and looking in the direction of the arrows at said line.

Fig. 5 is an enlarged, detail, fragmentary, side elevation of a part of the mechanism as seen from the left of the carriage and with the parts positioned to receive a work sheet I and carbon sheet L′.

Fig. 6 is an enlarged, detail, fragmentary sectional view of one of the feed roller carriers and the associated parts; the section being taken on the line 6—6 of Fig. 5 and looking in the direction of the arrows at said line.

Fig. 7 is an enlarged, detail, fragmentary, vertical, transverse, sectional view of a part of the mechanism, the section being taken on the line 7—7 of Fig. 1 and looking in the direction of the arrows at said line.

Fig. 8 is a detail front elevation of the feed rollers 91 and 92 and the carriers and connecting means therefor, with parts sectioned away.

Fig. 9 is a like view of the same showing a different adjustment of the feed rollers, and connecting bars of different lengths coacting therewith to accord with the different adjustment of the rollers.

Fig. 10 is an enlarged, fragmentary, detail, top plan view, with parts in section, of the feed rollers 87 and the means associated therewith for supporting and applying pressure to said feed rollers; the view in part corresponding to a section taken on the line 10—10 of Fig. 1 and looking in the direction of the arrows at said line.

Fig. 11 is a fragmentary top plan view showing a modified form of a part of the construction.

Fig. 12 is a detail perspective view of the combined paper table and double deflector, shown detached from the machine.

Figs. 13 and 14 are fragmentary, diagrammatic, front views of the line indicator, showing in Fig. 13 how it indicates the tops of the printed characters at the printing line without obscuring them, and showing in Fig. 14 how the bottoms of the previously printed characters may be made to register with the line indicator, when desired.

Fig. 15 is a diagrammatic, fore and aft, vertical sectional view illustrating the parts as they appear after the sheets R, R′ have been introduced in place.

Fig. 16 is a like view showing the parts as they appear ready for adjusting the sheets R, R′ (if necessary) as well as other sheets, with the aid of the line indicator.

Fig. 17 is a like view showing the parts

disposed as they appear after the sheet L has been introduced and adjusted in the machine.

Fig. 18 is a corresponding view showing the parts disposed as they appear after the sheets I and L' have been introduced and properly adjusted in the machine and the operator is ready to proceed with the writing.

In the present instance I have illustrated my invention embodied in a Remington bookkeeping machine, Model No. 23, in which the devices of the present invention may be readily incorporated without modifying, or materially modifying, other structural features of said machine as it now exists. It should be understood, however, that the invention is not restricted to use in such machines but may be embodied in typewriting machines generally, wherever found available.

The present invention may be used in various kinds of billing operations, where two or more work sheets are to be correlated in the machine and printed at a single operation. However, I do not deem it necessary to describe specifically the many different forms of billing operations in which the machine may be used. It is sufficient for an understanding of the present invention to specifically describe one mode of billing that may be successfully carried out with the aid of the present machine, and perhaps briefly refer to some of the various other methods in connection with which the machine may be employed.

One method of using the machine which will be specifically referred to is its employment, for example, by a public service corporation such as, say, an electric light or gas company, for simultaneously, or at one writing, making out a bill, making corresponding entries on the ledger sheet carrying the account, and on a record or register sheet which receives the entries written on all of the individual bill and ledger sheets. In the example referred to the register sheet and its accompanying carbon sheet remain in the machine. The ledger sheet, which usually requires but a single cross line entry at a time, say, for the month for which the entry is made, may be in the nature of a blank with different vertically ruled columns to be filled in under appropriate printed headings; each cross line of the sheet being ruled off horizontally and given over to a different month, and the entire sheet covering a period of anywhere from, say, eighteen to thirty-six months. Means are provided to enable each ledger sheet and its accompanying carbon sheet to be quickly introduced and properly positioned to receive the requisite entries in the line allotted for the month in question without disturbing the previously introduced register sheet and its companion carbon sheet. Means also are provided for then quickly entering a bill sheet into the machine in front of the platen, and accurately positioning it in proper correlation with the previously introduced ledger sheet and the printing line. The entries may then be made on the bill sheet and these will be transferred through interposed carbon sheets to the ledger and register sheets. If desired additional entries may be made on the ledger sheet which are not to appear on the bill or register sheet. The bill and ledger sheets are then rapidly withdrawn from the machine without disturbing the register sheet and its companion carbon sheet, and another ledger sheet and a bill sheet may then be quickly introduced as before, and so on.

In some instances the Remington bookkeeping machine, Model #23, is equipped with power driven carriage return mechanism such as is disclosed in my Patent No. 1,567,590 dated December 29, 1925. I have shown my invention embodied in such a machine, but have shown only so much thereof as is necessary to arrive at an understanding of the present invention in its embodiment therein.

The frame of the machine is of the usual construction and includes a top plate 1 carrying fixed guide rails 2, oppositely grooved to receive crossed anti-friction guide rollers 3. These rollers are also received in oppositely grooved carriage rails 4 at the front and rear of the carriage, said rails being connected with the end bars 5 and 6 of the carriage.

The carriage, which is power driven in the usual manner, is thus supported and mounted to travel from side to side of the machine over the top plate under control of the usual escapement mechanism (not shown), and in some instances under control of the usual tabulator mechanism. This latter mechanism is represented in part in Fig. 1 by the tabulator frame 7, the decimal stops 8 and column stops 9. Said column stops are carried by a column stop bar 10, secured to brackets 11 which project rearwardly from and are fixed to the carriage. In the machine in which the present invention is shown embodied, the carriage may be returned by a motor 12, as disclosed in said hereinbefore mentioned patent.

In order to prevent work sheets in the machine from extending back from the carriage and fouling on the tabulator frame 7, and parts of the motor 12, etc., there is provided a sheet metal protecting shield or paper table 13, which is fixed to the carriage and extends substantially throughout the width thereof. In the present instance this shield forms an integral part of a paper table 14 to be hereinafter fully described.

The platen 15 is carried by the platen

frame in the usual manner, said platen frame comprising end plates 16 and 17 united by a cross bar 18. The platen frame is connected to the carriage or truck by links 19 and 19ª in the usual manner, which links ordinarily guide the platen frame in its case shifting movements. The present machine, however, is intended to write only with capital letters or upper case characters, and there are, therefore, no case shifting movements of the platen and platen frame; the platen frame being firmly held on the carriage in the upper case position. This is readily accomplished by screwing up the usual lower case limiting stops 20, so that they will hold the buffers 21 which surround the platen shaft against the upper case shift stops 22. This holds the platen at all times in its upper case position where it will coact with the outermost types 23 on the type bars 24. These type bars are mounted in a type bar segment 25 in the usual manner to swing upwardly and rearwardly to printing position where they strike against the front face of the platen. Due to the fact that in the present machine there is no case shifting movement of the platen, the usual case shift keys and means controlled thereby up to the cross bar 18 of the platen frame may be omitted, leaving room for other devices, as will presently appear.

The usual ribbon vibrator mechanism is employed so as to interpose the ribbon in the path of the types 23 at each actuation of a type bar. Only the upper end portion of the ribbon vibrator 26 is shown, it being understood, however, that the vibrator is guided for up and down movement on the type guide 27 in the usual manner.

Coming now to the means for controlling and guiding the work sheets, it will be observed in the first place that there are no paper feed rollers employed beneath the platen, such feed rollers as are employed being located above the printing line, leaving the space beneath the platen free for the use of other devices.

There are two curved paper deflectors 28 and 29 employed beneath the platen, one arranged above the other and maintained spaced apart by intermediate spacing members or blocks 30 and 31 located near the ends thereof, as shown in detail in Fig. 12. Generally speaking these deflectors beneath the platen conform to the curvature of the latter, or are substantially concentric therewith, and extend substantially throughout the length of the platen. As thus constructed there are two separate channels provided, one of which is the open channel 32 between the two deflectors, and which is bounded at its ends by the separating members 30 and 31, either or both of which may constitute side edge guides or gages for cooperation with one or both side edges of a work sheet or sheets introduced into the channel 32. The other separated channel 33 is provided between the under surface of the platen and the upper deflector 28. It will be seen from an inspection of Figs. 1, 3 and 5 that the forward edge of the deflector 29 terminates in advance of the forward edge of the deflector 28. The deflector 28 is continued up at the rear to form the upwardly and rearwardly extending paper table 14, which terminates at considerable height above the platen. On the other hand, the deflector 28 terminates in the rear of the platen at a much lower point and below the top of the platen, where it is bent to form a loop 34 that loosely surrounds a rod 35 fixedly connected at its ends to the end plates 16 and 17 of the platen frame. In this manner the rigidly united deflectors 28 and 29, together with the paper tables 13 and 14, are mounted on the rod 35 and have a slight pivotal movement around said rod. The construction is such that the heavier parts connected to the paper deflectors in the rear of the pivot rod 35 cause the forward edge portion of the deflector 28, normally, to be lightly pressed against the platen, or against the interposed sheets R, R′. In this manner the sheets R, R′, are held snugly against the platen, and sheets I, L, L′, intended to be introduced rearwardly into the channel 32, are prevented from entering the channel 33. By moving the upper end of the paper table forward, the forward end portions of the deflectors may be moved downward a limited distance, thus carrying the forward contact edge of the deflector 28 away from the platen.

In order to facilitate the backward introduction of work sheets into the channel 32 from in front of the platen, I have provided a guide, shield, or paper deflector 36 that is movable on the carriage from a substantially horizontally disposed ineffective position in front of the platen as shown in Fig. 1, to a downwardly and rearwardly inclined effective position, shown in Fig. 3, and vice versa. In order to receive these movements the deflector 36 is constructed and mounted, in the present instance, as follows: The sheet metal deflector 36 extends substantially throughout the length of the platen and is curved in cross section so as to present a convex outer contact face and an inner or under concave surface. By shaping the deflector 36 in this manner adequate clearance is provided between the deflector and ribbon vibrator 26, when the former is shifted from the normal, ineffective, Fig. 1 position, to the effective, Fig. 3 position. It will be understood from a consideration of Figs. 3 and 4 that, in the present instance, each end of the deflector 36 has a depending supporting arm or ear 37, indicated as formed integral therewith. The

lower end of each arm 37 has a laterally projecting bearing collar or hub 38 riveted thereto, as shown in Fig. 4. A shouldered, headed, pivot screw 39 extends through each hub 38 and is received at its threaded end in a tapped opening in the inner end of a supporting pin 40. One of the supporting pins is secured by suitable means to, and projects inwardly from, the end plate 16 of the platen frame, whereas, the other pin is secured to the end plate 17. In the present instance the outer threaded end-portion 41 of each pin is screwed into a tapped opening in its associated plate 16 or 17 and is firmly held against movement therein by a lock nut 42. In this manner the deflector is mounted on the platen frame for pivotal movement to and from effective position. The means by which such movements of the deflector 36 are effected will now be described.

As best shown in Figs. 1 and 4, a headed, shouldered, pivot screw 43 is received at its threaded end in a tapped opening in the left-hand arm 37 to provide a pivotal connection between said arm and the rear end of an actuating link 44. As best seen in Fig. 3, the forward end of the link 44 is pivoted at 45 to the lower arm 46 of a lever 47, of the first order, pivoted to the carriage and having an upper arm 48. As shown in Fig. 6, the lever 47 has a hub 49 fixed thereto. This hub turns on a fixed pivot rod 50 supported at its ends in fixed bracket arms 51 and 52 secured to the carriage. The end of the pivot rod 50, which is supported in the bracket arm 51, is slabbed-off at 53, where it is received in a correspondingly shaped opening in said bracket arm to hold the rod against turning; a screw 54 holding the rod on the bracket arm. The upper arm 48 of the lever is pivoted at 55 to a rearwardly extending link 56, which in turn is pivoted at its rear end, at 57, to a curved lever or crank arm 58. The link 56 has an upwardly extending finger piece 59, by which the link 56 and the parts connected therewith may be manually actuated. As best shown in Fig. 7, the lower end of the crank arm 58 is provided with a hub 60 fixed to the rock shaft 61 which extends across the carriage and is supported at its ends in bearings in the end plates 16 and 17. In the present instance each reduced end of the shaft is received in a bushing 62 provided with a hexagonal head 63. As shown in dotted lines, Fig. 5, the right-hand end of the shaft 61 extends beyond its bearing and beyond the end plate 17, and is slabbed-off at 64 for reception in a corresponding opening in a crank arm 65 having a laterally extending projection or lug 66. This arm is secured in place on the shaft 61 by a nut 67 threaded onto the right-hand free end thereof. The lug 66 is notched in its forward edge to receive the free end of a wire spring 68. This spring is coiled around a pin 69 and anchored at its opposite end on a screw 69a, the pin 69 and screw 69a projecting outwardly from the end plate 17 of the platen frame. The force of the spring 68 is exerted to return the rock shaft 61 and the parts connected therewith to normal position, shown in Fig. 1. The opposite end portion of the rock shaft 61 from that which carries the crank arm 65 is provided with a second crank arm 70 (Figs. 2 and 5) similar to the crank arm 65, except that there is no train of actuating connections between the arm 70 and the deflector 36, such as exists between the arm 65 and said deflector.

Each of the crank arms 65 and 70 carries a member or carrier 71 adjustably mounted thereon by any suitable means. As shown in Fig. 3, each member 71 consists of a plate slotted lengthwise, or up and down, at 72 to receive the stems of headed screws 73 threaded into tapped openings in the associate arm 65 or 70. By loosening the screws 73, the plates 71 may be adjusted up or down, and a tightening of the screws will cause the heads thereof to bind against and hold the plates in their adjusted positions. Each plate is apertured to receive the end of a relatively fine, wire, line-gage or indicator 74 therethrough. The wire is drawn taut in a straight line between the plates 71 and is headed or bent at each end, as indicated at 75 in Fig. 7, to prevent it from being drawn through the apertures in the plates 71. As thus mounted the line-indicator may be adjusted up and down on the arms 65 and 70 to different set positions in order that an accurate registration with the printing line may be effected when said arms hold the line indicator in the indicating position, shown in Fig. 1. The rear edges of these plates 71 contact with the face of the platen to limit the return movement of the arms 65 and 70 and the parts connected therewith, as shown in Fig. 1.

For reasons which will hereinafter more clearly appear, it is desirable at times to have the line indicator 74 register with top edges of previously written characters at the printing line, or to indicate where the top edges of the characters will appear on a sheet, as indicated in Fig. 13, as well as to register at other times with the bottom edges of the characters in the line next above the writing line, as indicated in Fig. 14. By making the diameter of the line-indicator materially less than the height of a character to be written, or less than the space between the tops of the characters in one line and the bottoms of the characters in the next line above, as indicated in these figures, I am enabled to use the line-indicator in the manner described, it being understood that the indicator cannot obscure any of the writ-

ten characters beneath or below it, thus radically distinguishing the line-indicator from those heretofore used. This, therefore, is an important advantage aside from the fact that the indicator occupies but little space and can be effectively used in combination with the deflector 36 in front of the platen where the parts are closely related and there is but little room in which to mount the parts and produce a shifting of the line-indicator out of effective position when said deflector is shifted to effective position, and vice versa, all as will hereinafter more clearly appear.

Briefly the operation of the parts thus far described is as follows:

A movement of the finger piece 59 from the Fig. 1 to the Fig. 5 position results in shifting the line-indicator 74 to ineffective or non-indicating position, and in shifting the front deflector 36 from the inoperative, or ineffective, Fig. 1, position, to the effective or operative position, shown in Fig. 5. It will be seen from a comparison of these figures that this shifting of the deflector 36 carries it from the Fig. 1 position, where it is out of the path of the types 23, to the Fig. 5 position, where it is interposed in the path of said types and crosses the printing line. This shifting of the deflector 36 changes its angular position, as well as effecting a bodily movement thereof fore and aft of the machine, so that when it reaches the Fig. 5 position it will overlie and extend in the rear of the front edge of the deflector 29 and be positioned where it will direct downwardly inserted work sheets into the channel 32. With the parts disposed in this position, a work sheet L may be readily introduced from the front of the platen and shifted rearwardly beneath the latter through the channel 32 without danger of the paper catching on the ribbon vibrator 26 or type guide 27. When the finger piece 59 is released by the operator the various parts referred to will be returned to normal Fig. 1 position by the spring 68, leaving the line-indicator 74 in position where it may coact with the sheet L to aid in properly positioning the latter to receive a line of imprints on the proper cross line thereof.

It may here be pointed out that the movement of the deflector 36 and indicator 74 described above under control of the finger piece 59 is effected independently of an automatic shifting of said parts by a shifting operation of certain of the paper feed rollers, as will presently appear.

I will now describe the construction and arrangement of one form of paper feed roller mechanism embodying my invention, and the means whereby a shifting of certain of said feed rollers automatically brings about a shifting of the deflector 36 and the indicator 74.

Referring more particularly to Figs. 1, 2 and 10, it will be seen that a cross bar or pivot rod 76 extends throughout the length of the carriage in the rear of the paper table 14, and is secured and held against turning movement at its ends to the end plates 16 and 17 of the platen frame by screws 77. Loosely supported on the left-hand end portion of the rod 76 is an elongated hub or bearing sleeve 78 of a forwardly extending supporting arm 79 which is fixed to the hub. A spacing washer 80 maintains the arm 79 separated from the end plate 16. A coiled spring 81 surrounds the hub 78 and rod 76 and is fixed at one end to a collar 82 on the rod 76, said collar being held in position on the rod by a set screw 83. The other end of said spring is connected to the supporting arm 79, so that the force of the spring is exerted to move said arm downward around the pivot rod. An adjustment of the collar 82 to different set positions around the pivot rod 76 is effective to increase or decrease the force of the spring 81 on the arm 79, depending on the adjustment of the collar in one direction or the other around said rod, thereby giving an individual tension adjustment for said arm. The arm 79 extends forward over the platen and is provided with a bearing opening 84 that receives the reduced end 85 of the cross bar or spindle 86 on which paper feed rollers 87, preferably two in number, are mounted to turn. A shouldered, headed screw 88 is threaded into a tapped opening in the left-hand end of the rod 86 to prevent a disconnection of the rod from its arm 79. It will be seen from Fig. 10 that the head of the screw 88 does not bind against the side of the arm 79. The opening 84 in which the reduced end of the rod 86 is received is large enough to enable said rod to assume different angular relations to the arm 79, for purposes which will presently appear. The manner of mounting the arm 79, individually adjusting its spring 81, and connecting said arm to one end of the roller supporting rod 86 etc., is duplicated at the other end of said rod. Corresponding reference numerals will therefore be used to designate the corresponding parts at the other end of the rod. The rather loose mounting of the roller bearing rod 86 in the bearings 84 enables said rod to change its angular relation to said arms so that it may assume a position out of exact parallelism with the axis of the platen shaft. This construction enables each spring 81 to apply its force individually to the associated end of the roller carrying rod 86, and to the roller 87 nearest said end, and effect an accurate feed of the work sheet R and companion carbon sheet R' under varying conditions of use, and cause a substantially equal pressure to be exerted by said rollers.

Suitable means are shown to enable each feed roller 87 to be adjusted to different positions along the shaft or rod 86 to accord with the width of the work sheet R, and corresponding carbon sheet R', with which the feed rollers 143 coact, preferably at and near the margins thereof. Thus, as seen in Fig. 10, a small coiled spring 89 surrounds the spindle 86 and has a friction-tight binding action thereon, and is contained loosely within a chamber 89a in the bearing member 90 of the companion rubber covered feed rollers 87. The spring 89 retains the roller in the position to which it is adjusted along the rod 86, while allowing the roller to turn freely.

By swinging the rod 86 and arms 79 upward and rearward away from the platen and around the pivot rod 76, the leading edges of the sheets R and R' may be readily introduced beneath the feed rollers 87. The operator then releases the parts and said feed rollers will press the sheets R and R' against the platen, to the exclusion of all other sheets introduced in the machine, as indicated in Figs. 5 and 18.

In addition to the paper feed rollers 87 I employ, in accordance with the present invention, one or more sets of feed rollers depending on the use of the machine as a "two-sheet" biller, or for more than two work sheets. The construction in the present instance is shown and specifically described in one example of its use as a so-called "three-sheet" biller, and consequently I have illustrated two additional sets of paper feed rollers 91 and 92. These rollers are shown arranged above the printing line and preferably are in the nature of two sets of margin feed rollers located in axial alignment forward of the feed rollers 87. The feed rollers 92 are more widely separated than the rollers 91 and are intended to cooperate only with the wider ledger sheet L in the example shown, whereas the rollers 91 coact, in the example shown, with the narrower bill or invoice sheet I. One or more sets of these rollers may be employed, depending on the requirements, and from the broader aspects of my invention, they may be mounted in any suitable manner to attain the ends in view. As shown in the present instance, these paper feed rollers are mounted for individual adjustment longitudinally of the platen; they are arranged so that the rollers of each set or pair may be shifted in unison into and out of contact with the platen or the work sheet with which they coact; they are arranged so that the rollers of either set may be shifted in unison independently of the rollers of the other set, or the rollers of both sets may be shifted in unison at a single operation.

The construction also includes means whereby the deflector 36 and line-indicator 74 are automatically controlled by the shifting of one of the sets (92) of feed rollers 91 and 92 into and out of effective position, all of which will hereinafter more clearly appear.

The specific means disclosed for mounting and connecting these feed rollers and automatically actuating the other parts mentioned to attain the ends specified are illustrative of but one form of construction embodying my invention, and I am aware that other means may be employed for this purpose.

In the present instance each of the feed rollers 91 or 92 is pivotally supported in a yoke-like carrying member 93, 94, 95 or 96, pivotally mounted on the pivot rod 50, hereinbefore described, to swing thereon and thus carry the companion feed roller into and out of effective position. Suitable individual detent or holding mechanism is employed to hold each roller in either of such positions and cause the roller to bear, with a spring pressure, against the appropriate work sheet when the roller is in effective position.

The detent mechanism in question is in each case similar to that disclosed on a large scale in Fig. 6, from which it will be seen that a collar or sleeve 97 surrounds the pivot rod 50 intermediate the arms of the yoke-like carrier and is secured to the rod by a set screw 98. An adjustment of the collar 97 along the pivot rod with the yoke determines the position of the companion feed roller longitudinally of the platen, and when the set screw 98 is tightened, axial movement of the collar and its companion yoke is prevented without interfering with the pivotal movement of the yoke. A follower 99 is slotted at 100 on opposite sides thereof to receive the pivots 101 of a small metal detent roller 102. The pivots 101 slide as well as turn in bearing slots 103 in the arms of the associated yoke. A leaf spring 104 is attached intermediate its ends, at 105, to the follower 99, whereas the outer free ends of the spring bear against the end walls of the bearing slots 103. From an inspection of Fig. 1, it will be understood that the lower rear side of each collar 97 is slabbed-off at 106 forming an inclined contact face with which the companion detent roller 102 coacts when the associated feed roller is in effective position. This causes the companion spring 104 to exert its individual force with considerable pressure on the associated feed roller. When, however, the yoke is swung up to release the feed roller the detent roller will bear against the cylindrical periphery of the collar 97, or in some cases in a notch or groove 107 or 108 formed therein to retain the yoke in the definite predetermined position to which it may be shifted and resist the reaction of a certain returning

spring as will presently appear. It will be understood that the diameter of the collar 97 is much greater than the pivot rod 50, so that the spring detent acts on the collar much more effectively than it would if it contacted directly with the rod 50 of smaller diameter. The detent mechanism described above is substantially the same for each of the feed rollers 91 and 92 except, as indicated above, that in some instances, as for the left-hand yoke 93, retaining grooves 107 and 108 are provided in collar 97 for cooperation with the roller detent 102. Therefore, the same reference characters are employed to designate the different detent devices. The yoke of each feed roller 91 and 92 is much the same except for the yoke 96. This yoke for the right-hand roller 92 may have its side arms brought together and united at 109, as shown in Fig. 1. This is in order to give greater visibility to the right-hand exposed margin of the work sheet L. If desired, the other yokes 93, 94 and 95 may be constructed in a like manner.

From what has been said it will be understood that there is an individual spring pressure exerted on each of the feed rollers 91 and 92. In order that each companion pair of these feed rollers 91 and 92 may be shifted into and out of effective position in unison, and by a single operation, without, nevertheless, impairing the individual spring pressure of the feed rollers on the platen, I provide the following described means:—

Referring more specifically to Figs. 1, 8 and 9, it will be seen that the cross bar of each yoke or feed roller carrier is provided with a forwardly projecting, headed, pin 110. A sheet metal, slightly flexible or resilient, connecting bar 111 is bifurcated or slotted at its ends, as indicated at 112, to receive the stems of the pins 110 on the yokes of the companion pair of feed rollers 91 or 92. The end yokes 93 and 96 extend further forward than the intermediate ones, 94 and 95, so that one set of yokes, and the connecting bar 111 therefor, will not interfere with the pivotal movement of the yokes and bar of the other set. It will be understood that the bars 111 may be readily connected to or detached from their respective carriers or yokes, and that bars of different lengths may be employed, depending on the adjustment of the yokes along the pivot rod 50, or the distance that the rollers of each pair are to be maintained spaced apart on the pivot rod. In Figs. 8 and 9 I have illustrated different relative adjustments of the feed rollers and yokes, the connecting bars 111 in Fig. 9 being shorter than the corresponding bars in Fig. 8.

The left hand yoke 93 is provided with an upwardly extending arm 113 which terminates in a laterally projecting finger piece 114, as best shown in Figs. 2 and 5. A corresponding arm 115 and finger piece 116 is fixed on the left hand yoke 94 of the other set. As shown in Fig. 2, the arms 113 and 115 are secured on adjacent arms of the two left-hand yokes 93 and 94, and the two finger pieces 114 and 116 project outwardly away from each other. This permits, when desired, an adjustment of the two left yokes in close relationship. Such an adjustment is not always necessary or desired, and where the two left-hand rollers are to be maintained more widely separated, as shown in Fig. 11, the finger pieces may be extended towards each other, as indicated at 114^a and 116^a in Fig. 4. In either event, however, the finger pieces are arranged in such close relationship, one to the other, that they may be simultaneously grasped by one hand of the operator, if desired. It is, therefore, easy to turn both yokes to which the finger pieces are connected to an upright position, (see Fig. 3) carrying the companion feed rollers to ineffective position and transmitting motion through the connecting bars 111 to the other yokes, and thus effect a simultaneous shifting of all four feed rollers 91 and 92 away from the platen. On the other hand, a shifting of the finger piece 114 merely results in shifting both feed rollers 92, and a shifting of the finger piece 116 results in a shifting of both feed rollers 91 independently of the feed rollers 92. The slight resiliency in each of the bars 111, while not interfering with the independent spring pressure applied to each of the feed rollers, 91, 92, by its spring 104, nevertheless causes both feed rollers operatively connected by each bar 111 to be thrown off together, or substantially in unison.

The locking groove 107 in which the associated detent roller 102 is seated, when the yoke 93 is in the thrown-off upright position, more effectively holds said yoke and the parts automatically controlled thereby, in their actuated positions and against the reaction of the returning spring 68, as will presently appear. On the other hand, the locking groove 108 and associated detent roller 102, hold the yoke 93 and the feed roilers 92 controlled thereby in the intermediate Fig. 16 position.

The control of the deflector 36 and the line indicator 74 is automatically effected by a shifting movement of certain of the above mentioned feed rollers by the following means: Referring particularly to Figs. 1, 3 and 5, it will be seen that an inwardly extending pin 117 projects from the lever arm 46. This pin extends in the path of the left hand arm of the yoke 93 below the pivotal center 50 on which the yoke turns, and as said yoke is moved from the normal, Fig. 1 position, to the Fig. 3 position to release the feed rollers 92. There is a lost motion of

said yoke arm before the pin 117 is picked up thereby, for purposes which will presently appear. However, when the yoke arm in question reaches the pin the latter will continue its movement with the arm, shifting the lever 47 and the parts connected therewith from the Fig. 1, to the Fig. 3 position. The effect of automatically actuating the lever 47 in this manner is the same as operating the finger piece 59 to the limit of its operating movement. This, as previously described, results in moving the line indicator 74 to nonindicating position and in moving the deflector 36 to effective position, as shown in Fig. 3. The parts will be held in such positions under the action of the companion spring pressed roller detent 102 in the groove 107, and against the reaction of the spring 68, until the margin feed rollers 92 are again returned by hand to effective position. The deflector 36 and line indicator 74 will then be returned to their normal positions disclosed in Fig. 1 by the spring 68.

While, as has previously been pointed out, the machine of the present invention may be used differently under different conditions, I will continue the assumption of a condition of use hereinbefore pointed out, in which a record or register sheet R, a carbon sheet R′ therefor, a ledger sheet L, a carbon sheet L′ therefor, and a bill sheet I, are employed to be simultaneously written on, with possible additions made directly in the right-hand margin of the sheet L only. In some instances a protecting sheet (not shown) is employed in front of the carbon sheet R′, but this is not absolutely necessary and is ignored in the present instance. Assuming that the margin feed rollers 91 and 92 are in the upright ineffective position, the record sheet R and its carbon sheet R′ of the same size (placed with its transfer face next to the record sheet) are first introduced together from the rear of the platen through the channel 33. These sheets are properly positioned widthwise with the aid of any suitable side edge gage, as 86ª, and their leading ends are inserted beneath the feed rollers 87 which alone contact directly with the sheet R. The positions of the parts at this time are diagrammatically illustrated in Fig. 15. In thus introducing the sheets R and R′, they may be fed forward or back with the aid of the platen 15 and feed rollers 87, and if necessary properly adjusted with reference to the printing line. If desired, the line indicator 74 may be used in aiding in the adjustment of these sheets, or any sheets with which the rollers 87 may be used to coact. In order that the line-indicator may be temporarily used at this time, the finger piece 114 is employed to move the feed rollers 92 down to the position indicated in Fig. 16 where they are retained free from the platen by the associated detent 102 seating itself in the locking groove 108, as indicated. By reason of the lost motion between the feed roller carrier or yoke 93 and the pin 117, this is the point where in the releasing motion of said carrier the pin 117 is picked up. It follows, therefore, that at this time, the line indicator 74 and the deflector 36, are in their normal positions, as shown in Fig. 16 with the line-indicator in position for use in front of the sheets R, R′.

Next the ledger sheet L is introduced rearwardly through the channel 32, but before this is done the feed rollers 92 are returned to the Fig. 15 position, thereby automatically restoring the deflector 36 and the line-indicator 74 to the Fig. 15 position, where said deflector will aid in directing the backwardly introduced ledger sheet into the channel 32. As the ledger sheet is then inserted backwardly it will be guided up in the rear of the platen between the deflectors 28 and 29, and with the left-hand side edge of the sheet against the side wall 30 of the channel 32, the sheet will be accurately positioned widthwise with reference to the platen and the previously introduced register sheet R and its carbon sheet R′. Then by moving the rollers 92 down to Fig. 16 position the line-indicator 74 is rendered effective to obtain the proper adjustment of the ledger sheet L in the line space direction. This is attained with the aid of the line-indicator 74 by registering, say, the printed line dividing the first cross column from the printed headings with the line indicator, to write below said indicator in the first or "January" cross column, as indicated in Fig. 7. The margin feed rollers 92 are turned down into effective position to coact with the marginal portions of the sheet L, the parts at this time being disposed as indicated in Fig. 17. Any suitable adjustable end paper stops (not shown) may be provided to coact with the bottom edge of the ledger sheet. All succeeding ledger sheets L introduced into the machine during, say, the same month, may then be quickly and accurately positioned in a line feed direction with the aid of such end stops, and without using the line-indicator. A single adjustment of such end stops for the next month will suffice for all of the ledger sheet entries to be made in that month. The widthwise positioning of each ledger sheet on the carriage is accurately and quickly determined by positioning the left-hand edge of each ledger sheet against the left-hand wall 30 of the channel 32 in introducing the sheet in said channel, as indicated above. Said left-hand wall 30 thus becomes a side-edge gage for accurately positioning the ledger sheets widthwise in the machine. It will, of course, be understood that in some instances either or both side walls 30 and 31

of the channel 32 may operate as side-edge gages. Thus, if the width of the ledger sheet is such as to occupy the entire space in the channel 32 between the end walls 30 and 31, then both of such walls will act as side gages.

Now in introducing a bill sheet I, which is usually of considerably less length than the record and ledger sheets, a carbon sheet L′ of the same length and width as the bill sheet may be introduced with the latter. That is true unless the bill sheet has a carbonized back, in which instance no carbon sheet L′ is required.

With the sheets R, R′ and L held in position by their respective feed rollers 87 and 92, as shown in Fig. 5, the bill sheet I and carbon sheet L′ may be readily introduced downwardly and rearwardly from in front of the platen into the channel 32. At this time the parts are in the position indicated in Fig. 5, being temporarily moved to and held in such position by actuating the finger piece 59 with one hand, while introducing the sheets I and L′ into the channel 32 with the other hand. From the position of the parts indicated in this figure, it will be seen that the line indicator 74 has been moved out of the way to an ineffective position, and that the deflector 36 has been moved to an effective position where it will aid in effectively directing the lower ends of the sheets I and L′ into the channel 32. After introducing the work sheets into the channel, as indicated in Fig. 5, and releasing the finger piece 59, the parts 36 and 74 will return to normal position, as shown in Fig. 18, when said sheets I and L′ may be adjusted for accurately determining the proper position of the sheets in the line feed direction with the aid of the line indicator 74. If desired suitable end stops (not shown) may be employed for positioning the sheet I and L′ after obtaining the initial positioning thereof with the aid of the line indicator. The feed rollers 91 are then moved down to effective position, clamping the sheets I and L′ to the platen, as shown in Fig. 18.

The machine is now in condition to write the bill, and in doing this a manifold copy thereof will be written in its appropriate place on the ledger sheet through the interposed carbon sheet L′. A manifold copy also will be made on the record sheet R through the interposed carbon sheet R′. When the bill sheet is written, the feed rollers 91 and 92 are simultaneously swung upward to the upright ineffective position by the finger pieces 114 and 116, (see Fig. 3) thereby releasing the sheets I, L′ and L while the sheets R and R′ remain clamped in position by their feed rollers 87. The act of throwing the feed rollers 91 and 92 to upright position not only frees the work sheets as described, but also results in moving the deflector 36 to the positions indicated in Fig. 3, thereby enabling the sheets, I, L′ and L to be readily withdrawn, leaving the sheets R and R′ in the machine. The machine is conditioned to receive first a new ledger sheet L and then a new bill sheet I, with an accompanying carbon sheet L′, in the manner hereinbefore indicated, and so on as successive bills are written.

It will be understood that by arranging the feed rollers 87 above the platen and in the rear of the feed rollers 91 and 92 I am enabled to locate said feed rollers 87 so that they will coact only with the sheets R and R′ and that said rollers 87, together with the forward edge of the deflector 28, firmly hold said sheets in position on the platen while the other sheets I, L′ and L are being removed from the machine and other like sheets are being introduced into the machine in place thereof.

It will be understood that in returning the carriage after the last line on a bill is written, the platen will be automatically line spaced, which will feed the record sheet R and companion carbon sheet R′ forward one space ready to receive the manifold copy of the next bill entered on the record sheet.

I have hereinbefore indicated that the present machine is capable of a very wide range of use, and may be employed with or without slight change in almost any character of billing or like work wherein two or more sheets are employed, and where one or more work sheets are introduced into and removed from the machine, while another or other sheets are retained in the machine and a certain correlation is required between the sheet or sheets retained in the machine and those introduced therein from time to time.

For example, let it be supposed that the machine is to be used as a check-writing machine, in which a copy is to be made of all checks as they are written. In this event the checks only would be rearwardly introduced into the channel 32. The record of the checks written would be manifolded through the carbon sheet R′ on the record sheet R, both of which latter sheets are fed through the separate channel 33. In this event the sheet R would constitute a "pay roll" or "register" sheet and there would be no necessity for the feed rollers 91, as the feed rollers 92 would be properly adjusted and arranged to coact with the checks.

Generally speaking the sheet R, if used in book-keeping work with a ledger sheet, may constitute a so-called "register" or "proof sheet." If used when copying invoices it may constitute a "sales sheet" or a "distributing sheet." If used in check-writing it may constitute a "payroll" or "register sheet." In each event, however, the sheets R and R′ remain in the machine while the remaining work sheets I and L (or either of

them as the case may be) are removed after each writing, and new sheets entered in place thereof.

One specific instance of the advantages of the use of the line indicator 74 to coact or register with the tops as well as the bottoms of the written characters is given below.

In the #23 Remington bookkeeping machine, in which the present invention is embodied, as hereinbefore indicated, the carriage is automatically returned at a predetermined point in its forward travel and the platen is automatically line spaced.

In using said machine in ordinary commercial bookkeeping, where a bill sheet and companion ledger sheet are written at one operation, the automatic return of the carriage and line spacing operation are effected at different predetermined points. In one case the return of the carriage is effected immediately after the "balance" is written (see Fig. 14), and consequently the carriage is to the right, and the platen line-spaced when the next ledger sheet is introduced. In another case the new ledger sheet may be introduced while the carriage is at the left and before it is automatically returned. The different cases mentioned above depend on whether the "pick-up" column is on the right-hand or the left-hand side of the ledger sheet, both forms being indicated in Figs. 13 and 14. It follows, therefore, that in some instances a bill sheet and corresponding ledger sheet will be inserted and positioned with the aid of the line indicator 74, and the "pick-up" written when the carriage is near the left-hand end of its travel, whereas in other instances, these sheets will be inserted and positioned, and the "pick-up" written, after the carriage has been returned to the right, and the platen automatically line-spaced. For this reason a newly inserted ledger sheet in one instance will be brought with the upper ends of the characters in the last previously written line on the sheet substantially in register with the line indicator, whereas in another instance the lower ends of said characters will be brought substantially in register with the indicator. This will be brought out even more specifically in the following concrete example illustrated in Figs. 13 and 14.

The first entry made in each instance is entered, usually on the margin of the ledger sheet, and consists in writing the "pick-up", or old balance. This is in order that the old balance may be introduced into the adding machine for addition therein to the amount of the new entries to be made, and thereby correctly give the amount of the new balance when such entries are completed. There is a special column on the ledger sheet for writing the amount of the "pick-up", which column usually extends beyond a side edge of the bill, so that such "pick-up" entries will appear on the ledger sheet, but not on the bill sheet. In some instances the pick-up column is at the right-hand side of the ledger sheet, as shown in Fig. 13, and in other cases the "pick-up" column is at the left-hand side-edge of the ledger sheet, as shown in Fig. 14. In the example shown in Fig. 13, a newly introduced ledger sheet is inserted and adjusted to register the top edges of the numerals of the previous entry, "7.55; 36.30" etc. with the line indicator 74 while the carriage is to the left, where it remained after writing the previously withdrawn bill and ledger sheets. The carriage being positioned to write within the pick-up column the amount of the last "balance" "36.30", in the instance indicated, such amount will be written in said pick-up column beneath the line indicator 74 and in horizontal alignment with the entry to which it applies, as indicated in dotted lines. The carriage is then automatically returned and line-spaced, bringing the bill and ledger sheets in position to receive the next entry, with the amount of the last pick-up set up in the appropriate register of the adding machine to be added to the amounts of the next entries to be made.

On the other hand, when the "pick-up" is to be made at the left-hand side of the sheet, as indicated in Fig. 14, the carriage was automatically returned and the platen line spaced after the old "balance", say "36.60", was written in the last column; the carriage being returned to a position where writing may be produced in the left-hand pick-up column. In introducing and adjusting a new ledger sheet at this time, the operator will bring the sheet into position where the bottom edges of the previously written entry "28.75; 5; 156; 7.55" etc., will substantially register with the line indicator 74, as shown. The operator then enters the amount of the pick-up, as indicated in dotted lines, which amount will be written below the line indicator 74 and in the same line where the other appropriate succeeding entries are to be made; the amount of the pick-up being added in the register as before. It will be seen, therefore, that the foregoing is one example where the line indicator is to be used at one time to register with the tops or upper ends of previously printed characters to attain the desired ends (as indicated in Fig. 13) and at another time with the bottoms or lower ends of the previously printed characters (as indicated in Fig. 14) to attain the desired ends; that in both instances the indicator 74 is equally efficient, and in neither instance obscures the printed characters or interferes with the operation of the type bars.

It also will be understood that, in the example indicated above in connection with Figs. 13 and 14 the distance a sheet is fed

up at each line spacing operation accords substantially with the height of the characters written on the machine. By this arrangement the upper ends of a line of previously written characters may be brought substantially into register with the indicator, and at this time additional characters may be written in the same line with their upper ends substantially in register with the indicator, as shown in dotted lines in Fig. 13. Or, on the other hand, the sheet may be adjusted to substantially register the lower ends of the previously written characters of a line with the indicator, as shown in Fig. 14, and an entry added as shown in dotted lines in its proper place, in the next line below the indicator, and a line space distance below the last previously written line above.

In either instance indicated above the upper ends, say, of characters written in one line will, of course, appear substantially one line-space distance below the upper ends of the previously written characters in the next line above.

The means that enable the line indicator 74 to be adjusted on the arms 58 and 70 enable the indicator to be set, if desired, so that it will substantially register with the lower ends of characters as they are written on the machine, although I prefer to adjust the indicator as shown, so that it will substantially register with the upper ends of the characters as they are written.

By reason of the construction and arrangement of the parts disclosed herein, it has been found in practice that a "pack" of disconnected work and carbon sheets may be effectively fed together with the aid of the feed rollers 91 and 92, or either set of such rollers, without bringing about a relative displacement between said sheets at the printing line. With the ordinary feed mechanism such a displacement is effected due to the bending of the "pack" around the platen and the resultant "fanning" of the sheets of the "pack". Where ruled cross lines are employed on the sheets, and the entries are to be made within given spaces between such lines or on the lines themselves, it becomes of the utmost importance to prevent any such relative displacement between the sheets of the "pack" at the printing line, since otherwise while an entry may be made in its proper place on one sheet of the "pack", such entry may be manifolded on incorrect lines on the remaining sheets. This is a matter to be considered aside from the use of the device for billing purposes, although it may enter into consideration in certain characters of billing operations. It has been found very difficult, if not impossible, heretofore to obtain the above mentioned desired results where a considerable number of sheets are used in the "pack". The effective attainment of the results in the present construction is due to the fact that the "pack" may be introduced rearwardly and downwardly, and guided around the platen from the front thereof while the leading edges of the sheets constituting the "pack" are firmly held together, in register, by the operator; the "fanning" which occurs in the sheets at this time being at the bottom edge portions thereof and remote from the printing line. The attainment of the desired results in the present construction is due to the further fact that there are no paper feed rollers which coact with the platen below the latter, or before the printing line is reached, the feed rollers coacting with the work sheets and platen only at or near the printing line, or at a point beyond or above the printing line and at a distance not too remote therefrom. By this arrangement the sheets are always held and fed in proper register at the printing line, and the "fanning" of the sheets always occurs at the bottom edges of the sheets, and at points thereof which have not yet reached the printing line. As the "pack" is fed forward the "fanned" lower edges of the sheets will straighten and properly register themselves, one with reference to another, before the printing line is reached. Therefore, there is no relative displacement of the sheets of the "pack" at the printing line, or at the point where each line is written and at the time of writing such line. In other words, the fanning of the pack of sheets which inevitably occurs when the pack is applied to the platen as described is gradually corrected as the line-by-line feed of the pack takes place so that at the printing point the ruled lines of all the sheets come into register and hence the printing is done in the same space or on the same line for each sheet of the pack. This is due to the fact that the pack has only one feeding mechanism or set of rollers at or near the printing line and there is nothing back of the same to prevent the fanned ends of the sheets from recovering the initial registered relationship which they had before placement on the platen.

Various changes may be made in the construction, and certain parts thereof may be employed without others, without departing from my invention as it is defined in the accompanying claims. I am aware, moreover, that various features of my construction may be employed in combination with specifically different means from those disclosed herein for controlling the paper feed rollers; and that the means for automatically and independently controlling the line indicator and front deflector may be materially changed without departing from my invention as it is defined in the accompanying

claims, and therefore, from certain aspects of my invention, do not limit myself to the construction shown and described.

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

1. In a typewriting or like machine, a line gage so situated and sufficiently thin to fully expose below the gage printed characters at the printing line and the tops of which register with the gage.

2. In a typewriting or like machine, a thin wire line gage that will not cover characters printed on the machine and may be used to register the tops of printed characters at the printing line as well as the bottoms of printed characters in the next line above the printing line.

3. In a typewriting or like machine, a line gage sufficiently thin to wholly expose below the gage printed characters the tops of which register with the gage, and automatically operating means for shifting said gage out of effective position and away from the platen so as to enable a work sheet to be introduced between said gage and the platen.

4. In a typewriting or like machine, a line gage of less crosswise dimensions than the height of printed characters written on the machine, whereby said gage may register the tops of characters written at the printing line as well as the bottoms thereof and wholly expose below the gage printed characters when registering the top of the printing line, and automatically operating means for shifting said gage into and out of effective position.

5. In a typewriting or like machine, the combination of a line gage above the writing line sufficiently thin to wholly expose below the gage printed characters the tops of which register with the gage, said gage being shiftable into and out of effective position, a paper deflector, means for shifting said paper deflector into and out of effective position, and means controlled by the said shifting movements of said deflector for controlling the shifting movements of said line gage into and out of effective position.

6. In a typewriting or like machine, the combination of a thin wire line gage that will not cover characters printed on the machine and may be used to register the tops of characters at the printing line as well as the bottoms of printed characters in the next line above, said gage being shiftable into and out of effective position, a paper deflector shiftable into and out of effective position, and automatically operating means for shifting said line gage into effective position when the deflector is shifted out of effective position and for shifting the gage out of effective position when the deflector is shifted into effective position.

7. In a typewriting or like machine, the combination of a platen, feed rollers co-operative therewith above the printing line and movable towards and from the platen, a paper deflector arranged in front of the platen and shiftable from an ineffective position out of the path of the types to an effective position in the path thereof where said deflector is effective to guide a work sheet introduced rearwardly past the printing line, and automatically operating means for shifting said deflector to effective position when said feed rollers are moved away from the platen.

8. In a typewriting or like machine, the combination of a platen, feed rollers cooperative therewith above the printing line and movable towards and from the platen, a paper deflector arranged in front of the platen and shiftable from an effective position in the path of the types where said deflector is effective to guide a work sheet introduced rearwardly past the printing line, automatically operating means for shifting said deflector to effective position when said feed rollers are moved away from the platen, and means which enable said deflector to be shifted at will into and out of effective position independently of the movement of said feed rollers towards and away from the platen.

9. In a typewriting or like machine, the combination of a platen, two sets of feed rollers disposed at different points along the platen, the feed rollers of each set being shiftable towards and away from the platen independently of the feed rollers of the other set, a paper deflector carried by the carriage in front of the platen to aid in introducing work sheets from the front of the platen rearwardly around and beneath the platen, said deflector being shiftable from an ineffective to an effective position in which it is in the path of the types, and automatically operating means for shifting said deflector to effective position when one set of said feed rollers is moved away from the platen.

10. In a typewriting or like machine, the combination of a platen, two sets of feed rollers disposed at different points along the platen, the feed rollers of each set being shiftable towards and away from the platen independently of the feed rollers of the other set, a paper deflector carried by the carriage in front of the platen to aid in introducing work sheets from the front of the platen rearwardly around and beneath the platen, said deflector being shiftable from an ineffective to an effective position in which it is in the path of the types, automatically operating means for shifting said deflector to effective position when one set of said feed rollers is moved away from the platen, and

means which enable said deflector to be shifted at will into effective position independently of the operation of said automatically operating means.

11. In a typewriting or like machine, the combination of a platen, paper feed rollers shiftable towards and away from the platen, a paper deflector shiftable from an ineffective to an effective position where it will aid in introducing a work sheet rearwardly around and beneath the platen from the front thereof, a line gage shiftable into and out of effective position, and automatically operating means controlled by a movement of said feed rollers away from the platen for shifting said line gage away from effective position and for shifting said deflector to effective position.

12. In a typewriting or like machine, the combination of a platen, paper feed rollers shiftable away from the platen, a paper deflector shiftable from an ineffective to an effective position where it will aid in introducing a work sheet rearwardly around and beneath the platen, means by which such movements of said feed rollers and deflector may be simultaneously effected, and means that enable said deflector to be shifted at will to effective position independently of the shifting of said feed rollers.

13. In a typewriting or like machine, the combination of a platen, paper feed rollers shiftable away from the platen, a line indicator shiftable away from indicating position, a paper deflector shiftable from an ineffective to an effective position where it will aid in introducting a work sheet rearwardly around and beneath the platen, means by which such movements of said feed rollers and deflector may be simultaneously effected, and means that enable such movements of the deflector and line indicator to be effected at will independently of the shifting of said feed rollers.

14. In a typewriting or like machine, the combination of a carriage, a platen carried thereby, two curved paper deflectors arranged one above the other and extending beneath the platen and with the latter forming two separated channels through which work sheets may pass, and a third deflector carried by the carriage in front of the platen and shiftable from an ineffective position out of the paths of the types to an effective position in the paths thereof where it will coact with one of said first mentioned curved deflectors and direct a work sheet introduced rearwardly past the printing line to one said coacting curved deflector.

15. In a typewriting or like machine, the combination of a carriage, a platen carried thereby, two curved paper deflectors arranged one above the other and extending beneath the platen, means for maintaining said deflectors spaced apart so that they with the platen will form two separated channels through which work sheets may pass, one of said channels being between the platen and the upper deflector, the other channel being between the two deflectors, and a third paper deflector carried by the carriage in front of the platen and shiftable from an ineffective position out of the path of the types to an effective position in the paths thereof and where it will direct a work sheet introduced rearwardly past the printing line to the channel between said curved deflectors.

16. In a typewriting or like machine, the combination of a carriage, a platen carried thereby, two curved paper deflectors arranged one above the other and extending beneath the platen and one of which extends to a greater height than the other in the rear of the platen, means for maintaining said deflectors spaced apart so that they with the platen will form two separated channels through which work sheets may pass, one of said channels being between the platen and the upper deflector, the other channel being between the two deflectors, a third paper deflector carried by the carriage in front of the platen and shiftable from an ineffective position out of the path of the types to an effective position in the paths thereof and where it will direct a work sheet introduced rearwardly past the printing line to the channel between said curved deflectors, and feed rollers which coact with said platen above the printing line.

17. In a typewriting or like machine, the combination of a carriage, a platen carried thereby, two curved paper deflectors arranged one above the other and extending beneath the platen, means for maintaining said deflectors spaced apart so that they with the platen will form two separated channels through which work sheets may pass, one of said channels being between the platen and the upper deflector, the other channel being between the two deflectors, said curved deflectors being pivotally supported on the carriage so that the forward edge of the upper deflector may bear lightly against the platen, and a third paper deflector carried by the carriage in front of the platen and shiftable from an ineffective position out of the path of the types to an effective position in the paths thereof and where it will direct a work sheet introduced rearwardly past the printing line to the channel between said curved deflectors.

18. In a typewriting or like machine, the combination of a platen, and three sets of paper feed rollers which coact with the platen above the printing line, the feed rollers of each set being movable to releasing position independently of the feed rollers of the other sets, the feed rollers of two of said sets being substantially in alignment

longitudinally of the platen when in use, and the third set of rollers being arranged in the rear of the two sets of aligned rollers.

19. In a typewriting or like machine, the combination of a platen, two outermost paper feed rollers which coact with the platen above the printing line, two paper feed rollers which coact with the platen above the printing line and arranged intermediate said outermost feed rollers, means for simultaneously releasing said outermost feed rollers independently of said intermediate feed rollers, and means for simultaneously releasing said intermediate feed rollers independently of said outermost feed rollers.

20. In a typewriting or like machine, the combination of a platen, two outermost paper feed rollers which coact with the platen above the printing line, two paper feed rollers which coact with the platen above the printing line and arranged intermediate said outermost feed rollers, means for simultaneously releasing said outermost feed rollers independently of said intermediate feed rollers, means for simultaneously releasing said intermediate feed rollers independently of said outermost feed rollers, and a third set of feed rollers which coact with the platen above the printing line in the rear of said previously mentioned feed rollers and shiftable into and out of cooperation with the platen independently of said outermost and intermediate feed rollers.

21. In a typewriting or like machine, the combination of a platen, a pair of outermost margin feed rollers arranged to coact with the margins of a relatively wide work sheet above the printing line, a pair of intermediate margin feed rollers arranged to coact with the margins of a relatively narrow work sheet above the printing line, means for operatively connecting said outermost margin feed rollers so that they may be released together independently of said intermediate margin feed rollers, and means for operatively connecting said intermediate feed rollers so that they may be released together independently of said outermost margin feed rollers.

22. In a typewriting or like machine, the combination of a platen, a pair of outermost margin feed rollers arranged to coact with the margins of a relatively wide work sheet above the printing line, a pair of intermediate margin feed rollers arranged to coact with the margins of a relatively narrow work sheet above the printing line, means for operatively connecting said outermost margin feed rollers so that they may be released together independently of said intermediate margin feed rollers, means for simultaneously releasing said intermediate feed rollers independently of said outermost feed rollers, and a third pair of feed rollers which coact with the platen and with another work sheet above the printing line and in the rear of said pairs of margin feed rollers and which are shiftable into and out of cooperation with the platen independently of said margin feed rollers.

23. In a typewriting or like machine, the combination of a platen, a pair of feed rollers which coact therewith, independent spring means for exerting spring pressure on each of said feed rollers independently of the other, and an operative flexible connection between said feed rollers which enables each of said spring means to function independently of the other but nevertheless causes both of said feed rollers to be thrown off the platen together.

24. In a typewriting or like machine, the combination of a platen, a pair of feed rollers which coact therewith, a pivoted carrier for each of said feed rollers, independent spring means coacting with each of said pivoted carriers to press the roller carried thereby against the platen by a pressure independent of that exerted on the other carrier, and a bar which is slightly flexible and by which said carriers are directly connected so as not to interfere with the individual pressure of each roller but nevertheless will cause said carriers and feed rollers to be shifted together away from the platen.

25. In a typewriting or like machine, the combination of a carriage, a platen carried thereby, a pivot rod carried by the carriage, two carriers pivoted on said rod, a margin feed roller carried by each of said carriers and coacting with the platen above the printing line, an independent spring-pressed detent roller carried by each of said carriers and adapted to hold the associated carriers in effective position on said pivot rod and effect an individual pressure of the companion feed rollers against the platen, and an operative connection between said carriers which enables each carrier to force its margin feed roller against the platen independently of the spring pressure exerted on the other carrier but nevertheless causes both of said margin rollers to be thrown off the platen together.

26. In a typewriting or like machine, the combination of a carriage, a platen carried thereby, a pivot rod carried by the carriage, two carriers pivoted on said rod and adjustable thereon longitudinally of the platen, a margin feed roller carried by each of said carriers and coacting with the platen above the printing line, an independent spring-pressed detent roller carried by each of said carriers and adapted to hold the associated carrier in effective position, and a detachable slightly flexible bar which operatively connects said carriers and causes them to be thrown off the platen together without interfering with the independent spring pressure exerted by each margin feed

roller against the platen when the feed rollers are in use.

27. In a tyewriting or like machine, the combination of a platen, a pair of margin feed rollers which coact therewith, a pivoted carrier for each of said feed rollers adjustable longitudinally of the platen, independent spring means coacting with each of said pivoted carriers to press the roller carried thereby against the platen by a pressure independent of that exerted on the other carrier, and a bar separate and distinct from the pivotal support for said carriers and which is slightly flexible and by which said carriers are connected so as not to interfere with the individual pressure of each roller but nevertheless will cause said carriers and feed rollers to be shifted together away from the platen, and means whereby said bar may be readily detached from said carriers to enable another bar of a different length to be substituted and thus compensate for a relative adjustment of said carriers.

28. In a typewriting or like machine, the combination of a platen, a pair of outermost margin feed rollers arranged to coact with the margins of a relatively wide work sheet above the printing line, a pair of intermediate margin feed rollers arranged to coact with the margins of a relatively narrow work sheet above the printing line, means for operatively connecting said outermost margin feed rollers so that they may be released together independently of said intermediate margin feed rollers, means for operatively connecting said intermediate feed rollers so that they may be released together independently of said outermost margin feed rollers, and manually controlled releasing members for said margin feed rollers arranged in comparatively close relationship so that both members may be simultaneously grasped by a single hand of the operator to simultaneously release both pairs of said margin feed rollers.

29. In a typewriting or like machine, the combination of a platen, two pairs of margin feed rollers that coact with the platen above the printing line and at different points in the length thereof so that the margin feed rollers of one pair may coact with a work sheet which is narrower than that with which the margin feed rollers of the other pair coact, and independent means for operatively connecting and controlling the feed rollers of each pair so as to simultaneously release the margin feed rollers of either pair independently of the margin feed rollers of the other pair, and means for retaining the margin feed rollers of either pair in the released position.

30. In a typewriting or like machine, the combination of a platen, two pairs of margin feed rollers that coact with the platen at different points in the length thereof so that the margin feed rollers of one pair may coact with a work sheet which is narrower than that with which the margin feed rollers of the other pair coact, and independent means for operatively connecting and controlling the feed rollers of each pair so as to simultaneously release the margin feed rollers of either pair independently of the margin feed rollers of the other pair, said last mentioned means including manually operated members movable in the same direction from normal position and maintained in such close relationship that they may be simultaneously grasped by a single hand of the operator in order to simultaneously release both pairs of margin feed rollers by a single operation when desired.

31. In a typewriting or like machine, the combination of a platen, two pairs of margin feed rollers that coact with the platen at different points in the length thereof so that the margin feed rollers of one pair may coact with a work sheet which is narrower than that with which the margin feed rollers of the other pair coact, means for simultaneously releasing the margin feed rollers of either pair independently of the margin feed rollers of the other pair, and an additional set of feed rollers that coact with the platen or a work sheet thereon above the printing line and which are unaffected by the release of either pair of margin feed rollers and are releasable independently thereof and hold certain only of said work sheets when they are released from control of said margin feed rollers.

32. In a typewriting or like machine, the combination of a platen, a pair of margin feed rollers that coact therewith, carriers for said feed rollers, individual springs one for each carrier, each spring pressing the associated margin feed roller through its carrier against the platen independently of the pressure applied by the other spring, and a slightly flexible bodily swinging bar operatively connecting said carriers to move together away from the platen and thus release both feed rollers together, the ends of said bar being provided with means whereby the bar may be readily connected with or detached from said carriers.

33. In a typewriting or like machine, the combination of a carriage, a platen carried thereby, two arms supported by the carriage for independent pivotal movement, independent springs one for each of said arms, independently adjustable adjusting means for each spring for individually adjusting the force thereof on the associated arm, a cross bar between said arms having a connection therewith that enables said bar to have a slight swinging motion relative to each of said arms, and feed rollers carried by said cross bar.

34. In a typewriting or like machine, the

combination of a carriage, a platen carried thereby, two arms supported by the carriage for independent pivotal movement and extending forward from their pivoted ends over the platen, independently acting springs one for each of said arms, independently adjustable adjusting means for each spring for individually adjusting the force thereof on the associated arm, a cross bar over the platen between said arms and having a connection therewith that enables said bar to have a slight swinging motion relative to each of said arms, feed rollers carried by said cross bar, and means which enable said feed rollers to be adjusted to different positions along said cross bar.

35. In a typewriting or like machine, the combination of a carriage, a platen carried thereby, paper feed rollers shiftable to and away from the platen, a line indicator shiftable to and from effective position, a paper deflector shiftable to and from effective position, and automatically operating means for shifting said line indicator from effective position and for shifting said deflector to effective position when said feed rollers are moved away from the platen.

36. In a typewriting or like machine, the combination of a carriage, a platen carried thereby, paper feed rollers shiftable to and away from the platen, a line indicator shiftable to and from effective position, a paper deflector shiftable to and from effective position, automatically operating means for shifting said line indicator from effective position and for shifting said deflector to effective position when said feed rollers are moved away from the platen, and additional paper feed rollers coacting with the platen and which are unaffected by said first mentioned feed rollers and the said parts which are automatically moved in conjunction therewith.

37. In a typewriting or like machine, the combination of a platen, a printing-line indicator movable from an effective to an ineffective position and vice versa, paper feed rollers, and means which enables said feed rollers to be released from the work sheet with which they coact without displacing the line indicator from its indicating position and which by a further movement of said feed rollers away from the platen causes said line indicator to be shifted out of effective position.

38. In a typewriting or like machine, the combination of a platen, a printing-line indicator shiftable to and from effective or indicating position, a paper deflector shiftable to and from effective position, paper feed rollers, and means which enables said feed rollers to be released from the work sheet with which they coact without displacing the line indicator from effective position and without displacing said deflector from ineffective position but which by a further movement of said feed rollers away from the platen cause the line indicator to move from its indicating position and the deflector to move to effective position.

39. In a typewriting or like machine, the combination of a platen, a paper deflector shiftable from an ineffective to an effective position in the path of the types where it will aid in directing a work sheet introduced rearwardly from the front of the platen across the printing line and beneath the platen, two additional paper deflectors arranged one above the other beneath the platen and providing a channel between them to which the first mentioned paper deflector when in use guides a work sheet, and means for shifting said first mentioned paper deflector into effective position.

40. In a typewriting or like machine, the combination of a platen, a paper deflector shiftable from an ineffective to an effective position in the path of the types where it will aid in directing a work sheet introduced rearwardly from the front of the platen across the printing line and beneath the platen, two additional paper deflectors arranged one above the other beneath the platen and providing a channel between them to which the first mentioned paper deflector when in use guides a work sheet, paper feed rollers, a finger piece and means controlled by a single operation thereof for shifting said feed rollers away from the platen and for shifting said shiftable deflector to effective position.

41. In a typewriting or like machine, the combination of a platen, a paper deflector shiftable from an ineffective to an effective position in the path of the types where it will aid in directing a work sheet introduced rearwardly from the front of the platen across the printing line and beneath the platen, two additional paper deflectors arranged one above the other beneath the platen and providing a channel between them to which the first mentioned paper deflector when in use guides a work sheet, a printing-line indicator shiftable from effective to ineffective position, paper feed rollers shiftable from effective to ineffective position, a finger piece, and means controlled by a single operation thereof for shifting said feed rollers and line indicator to ineffective position and for shifting said shiftable deflector to effective position.

42. In a typewriting or like machine, the combination of a platen, a paper deflector shiftable from an ineffective to an effective position in the path of the types where it will aid in directing a work sheet introduced rearwardly from the front of the platen across the printing line and beneath the platen, two additional paper deflectors arranged one above the other beneath the

platen and providing a channel between them to which the first mentioned paper deflector when in use guides a work sheet, the uppermost of said additional deflectors and the platen forming between them a separate channel to receive a work sheet introduced from the rear of the platen, and means for shifting said shiftable deflector to effective position where it will direct a rearwardly introduced work sheet only to the channel between said additional deflectors.

43. In a typewriting or like machine, the combination of a carriage, a platen carried thereby, means for aiding in directing a work sheet rearwardly beneath the platen from in front thereof including a paper deflector carried by the carriage and movable from an ineffective position out of the paths of the types to an effective position in the paths thereof, paper feed rollers shiftable into and out of effective positions, means for controlling the shifting of both the feed rollers and said deflector by a single operation, and means by which said deflector may be controlled without shifting said feed rollers from effective position.

44. In a typewriting or like machine, the combination of a carriage, a platen carried thereby, means for aiding in directing a work sheet rearwardly beneath the platen from in front thereof including a paper deflector carried by the carriage and movable from an ineffective position out of the paths of the types to an effective position in the paths thereof, paper feed rollers shiftable into and out of effective positions, a printing-line indicator shiftable to and from effective position, paper feed rollers shiftable to and from effective position, means operable at a single operation for shifting said feed rollers, deflector and line indicator, and means that enable said deflector and line indicator to be shifted independently of said feed rollers.

45. In a typewriting or like machine, the combination of a carriage, a platen carried thereby, a paper deflector carried by the carriage and shiftable from an ineffective to an effective position, a printing line indicator shiftable to and from effective position, and intermediate actuating connections between said deflector and indicator for causing the indicator to be shifted to ineffective position when the deflector is shifted to effective position.

46. In a typewriting or like machine, the combination of a platen frame, a platen carried thereby, arms pivoted to the platen frame near opposite ends of the platen, and a printing-line indicator adjustably attached at its ends to said arms and extending substantially throughout the length of the platen, the pivotal movements of said arms carrying said line indicator to and from indicating position.

47. In a typewriting or like machine, the combination of a platen frame, a platen carried thereby, arms pivoted to the platen frame near opposite ends of the platen, and a fine wire line indicator stretched between said arms, the pivotal movements of said arms carrying the wire line indicator to and from indicating position.

48. In a typewriting or like machine, the combination of a platen frame, a platen carried thereby, arms pivoted to the platen frame near opposite ends of the platen, a plate-like carrier adjustably secured to each of said arms, and a fine wire line indicator secured at its ends to said carriers and stretched to a straight line between them, the pivotal movements of said arms carrying the wire indicator to and from indicating position.

49. In a typewriting or like machine, the combination of a carriage, a platen carried thereby, a paper deflector carried by the carriage and shiftable from an ineffective to an effective position, a printing-line indicator shiftable to and from effective position, intermediate actuating connections between said deflector and indicator for causing the indicator to be shifted to ineffective position when the deflector is shifted to effective position, a paper feed roller shiftable to and from effective position, a shiftable carrier on which said feed roller is mounted, an abutment on certain of said intermediate actuating connections which is in the path of movement of and is adapted to be engaged by said carrier when the latter is shifted away from the platen and thereby cause the paper feed roller, indicator and deflector to be shifted in unison, and a finger piece connected to said intermediate actuating connections and by which the indicator and deflector may be shifted independently of said feed roller.

50. In a typewriting or like machine, the combination of a platen, a printing-line indicator shiftable to and from effective position, a paper deflector shiftable to and from effective position, and intermediate connections between said deflector and indicator including motion reversing means by which the indicator is moved from effective position when the deflector is moved to effective position and by which the indicator is moved to effective position when the deflector is moved from effective position.

51. In a typewriting or like machine, the combination of a platen, a printing-line indicator shiftable to and from effective position, a paper deflector shiftable to and from effective position, and intermediate connections between said deflector and indicator including motion reversing means by which the indicator is moved from effective position when the deflector is moved to effective position and by which the indicator is moved

to effective position when the deflector is moved from effective position, said intermediate connections including a lever of the first order, a link connected to one end of said lever and operatively connected at its other end to said deflector, and a second link connected at one end to the other end of said lever, the opposite end of said second link being operatively connected to said indicator.

52. In a typewriting or like machine, the combination of a platen; a printing-line indicator shiftable to and from effective position; a paper deflector shiftable to and from effective position; intermediate connections between said deflector and indicator including motion reversing means by which the indicator is moved from effective position when the deflector is moved to effective position and by which the indicator is moved to effective position when the deflector is moved from effective position, said intermediate connections including a lever of the first order, a link connected to one end of said lever and operatively connected at its other end to said deflector, and a second link connected at one end to the other end of said lever, the opposite end of said second link being operatively connected to said indicator; a paper feed roller; means that enable said feed roller to be shifted into and out of effective position; and an operative connection between said last mentioned means and said intermediate connections that enable a shifting movement of said feed roller to control the shifting of said indicator and deflector.

53. In a typewriting or like machine, the combination of a platen; a printing-line indicator shiftable to and from effective position; a paper deflector shiftable to and from effective position; intermediate connections between said deflector and indicator including motion reversing means by which the indicator is moved from effective position, when the deflector is moved to effective position and by which the indicator is moved to effective position when the deflector is moved from effective position; said intermediate connections including a lever of the first order, a link connected to one end of said lever and operatively connected at its other end to said deflector, and a second link connected at one end to the other end of said lever, the opposite end of said second link being operatively connected to said indicator; a paper feed roller; and means that enable said feed roller to receive a limited extent of independent movement into and out of effective position and in a further movement thereof to control the movements of the indicator and deflector into and out of effective position.

54. In a typewriting or like machine, the combination of a platen; a printing-line indicator shiftable to and from effective position; a paper deflector shiftable to and from effective position; intermediate connections between said deflector and indicator including motion reversing means by which the indicator is moved from effective position when the deflector is moved to effective position and by which the indicator is moved to effective position when the deflector is moved from effective position, said intermediate connections including a lever of the first order, a link connected to one end of said lever and operatively connected at its other end to said deflector, and a second link connected at one end to the other end of said lever, the opposite end of said second link being operatively connected to said indicator; a paper feed roller; means for shifting said feed roller into and out of effective position; a projection on said intermediate connections which extends into the path of said feed roller shifting means and a finger piece on a member of said intermediate connections, whereby the deflector and indicator may be independently controlled by said finger piece and may be automatically controlled by a shifting of the feed roller.

55. In a typewriting or like machine, the combination of a platen; a printing-line indicator shiftable to and from effective position; a paper deflector shiftable to and from effective position; intermediate connections between said deflector and indicator including motion reversing means by which the indicator is moved from effective position when the deflector is moved to effective position and by which the indicator is moved to effective position when the deflector is moved from effective position, said intermediate connections including a lever of the first order, a link connected to one end of said lever and operatively connected at its other end to said deflector, and a second link connected at one end to the other end of said lever, the opposite end of said second link being operatively connected to said indicator; a paper feed roller; means for shifting said feed roller into and out of effective position; a projection on said intermediate connections which extends into the path of said feed roller shifting means but affords a lost motion before the feed roller shifting means pick up said projection; and a finger piece on a member of said intermediate connections, whereby the feed roller may receive a limited shifting movement independently of the deflector and indicator and a further shifting movement of said feed roller will automatically shift said deflector and indicator, and whereby a shifting of the deflector and indicator may be effected by said finger piece independently of the shifting of said feed roller.

56. In a typewriting or like machine, the combination of a platen, a feed roller carrier having supporting arms maintained

spaced apart, a rod on which said arms are pivoted, a sleeve surrounding said rod between said arms, a set screw for securing said sleeve to said rod and thereby holding said sleeve and carrier in the position to which they may be adjusted along the rod, and a paper feed roller carried by said arms.

57. In a typewriting or like machine, the combination of a platen, a feed roller carrier having supporting arms maintained spaced apart, a rod on which said arms are pivoted, a sleeve surrounding said rod between said arms, a set screw for securing said sleeve to said rod and thereby holding said sleeve and carrier in the position to which they may be adjusted along the rod, a paper feed roller carried by said arms, and a spring-pressed member carried by said carrier and exerting its force against a face on said sleeve to turn the carrier and apply the force of the spring to said feed roller when the latter bears against the platen.

58. In a typewriting or like machine, the combination of a platen, a feed roller carrier having supporting arms maintained spaced apart, a rod on which said arms are pivoted, a cylindrical sleeve having a recess in its periphery and also slabbed off at another point thereof, said sleeve surrounding the rod between said arms, a set screw for securing said sleeve to said rod and thereby holding the sleeve and carrier in the position to which they may be adjusted along said rod, a paper feed roller carried by said arms, and a spring-pressed roller detent carried by said carrier and when coacting with the slabbed-off portion of the sleeve applying the force of the spring to hold the feed roller against the platen and when seated in said recess holding the feed roller a predetermined distance away from the platen.

59. In a typewriting or like machines, the combination of a cylindrical platen, means for facilitating a backward introduction of a "pack" of sheets from the front of the platen while the leading edges of said sheets are held firmly in register by the operator and for guiding such "pack" in a curved path under and around the platen to the rear thereof, and paper feed rollers which coact with the "pack" and bear against the platen only at or near the printing line, the pack being free from pressure of any other paper feed rollers or paper pressing mechanism between such first mentioned feed rollers and the bottom ends of the sheets.

60. In a typewriting machine, the combination of a carriage, and a line gage carried thereby and positioned to register with the tops of printed characters at the printing line and fully exposing such printed characters below the said gage.

61. In a typewriting machine, the combination with a platen, of a line gage which extends throughout its length longitudinally of the platen, and is positioned to register with the tops of printed characters at the printing line and fully expose such printed characters below such gage.

62. In a typewriting machine, the combination of a carriage, a platen, and a fine wire line gage carried by the carriage and normally extending longitudinally of the platen substantially throughout the length of the latter above the printing line and registering with the tops of printed characters at the printing line and exposing such printed characters below such gage.

63. In a typewriting or like machine, a line gage of less crosswise dimensions than the space between the characters in two successive lines of writing, said gage being situated to register with the tops of printed characters at the printing line, whereby said printed characters will be fully exposed below the gage and a line space advance of the work sheet will bring the bottoms of such printed characters in register with said gage.

64. The combination with a platen, and a printing line gage consisting of a wire extending lengthwise of the platen between the line of characters being printed at the printing line and the next preceding line of printed characters.

65. The combination with a platen and cooperating paper feed devices, of a line gage, a paper deflector, and means for moving said deflector into position to guide a work sheet into the space between said platen and said feed devices at the front of the platen and for simultaneously moving said line gage away from the platen.

Signed at the borough of Manhattan, city of New York, in the county of New York and State of New York this 2nd day of July, A. D. 1926.

FREDERICK A. HART.