June 3, 1952 C. K. RAINEY 2,598,939

FRONT FEED CARRIAGE FOR TYPING, PRINTING, AND COMPUTING MACHINES

Filed Feb. 28, 1945 3 Sheets-Sheet 1

FIG. 1.

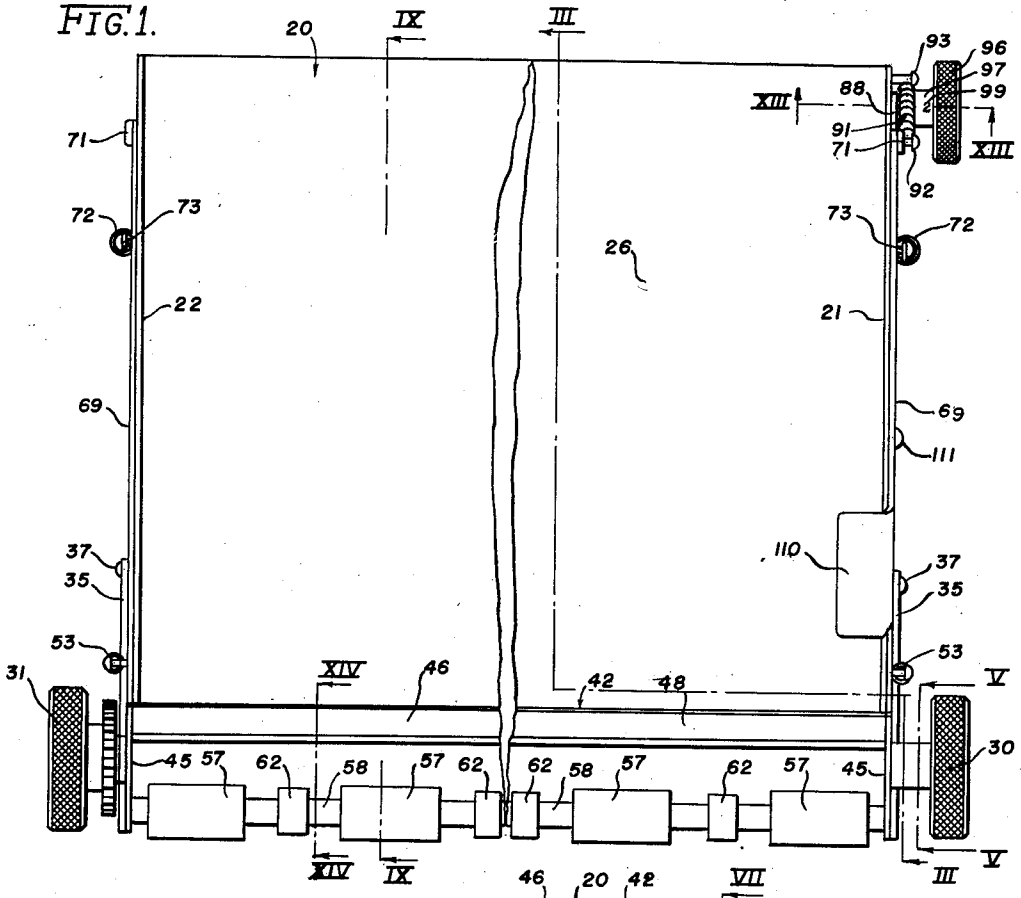
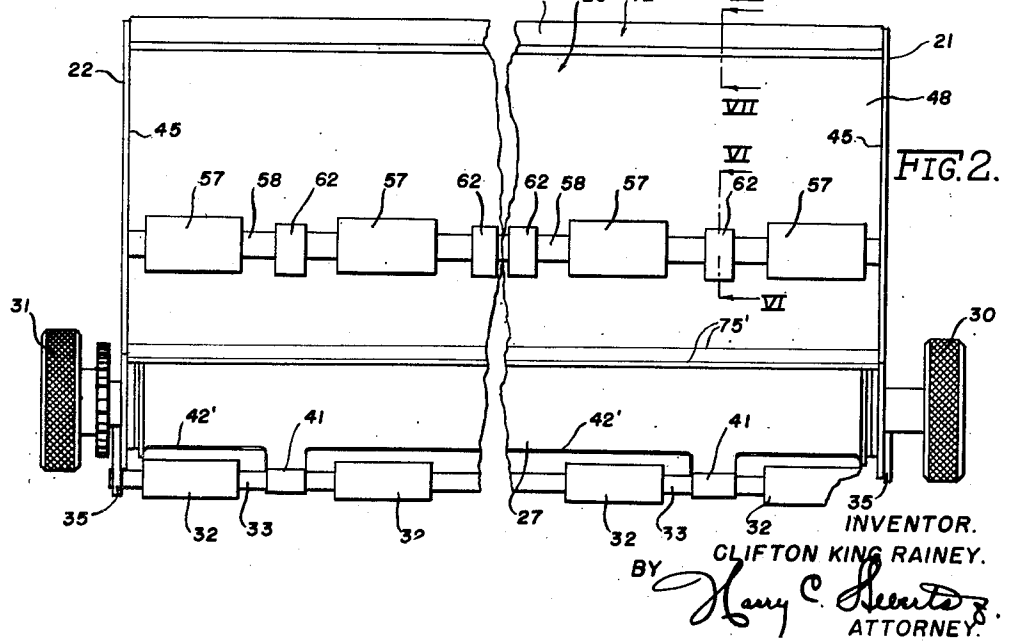


FIG. 2.



INVENTOR.
CLIFTON KING RAINEY.
BY Harry C. Leonard
ATTORNEY.

June 3, 1952 C. K. RAINEY 2,598,939

FRONT FEED CARRIAGE FOR TYPING, PRINTING, AND COMPUTING MACHINES

Filed Feb. 28, 1945 3 Sheets-Sheet 2

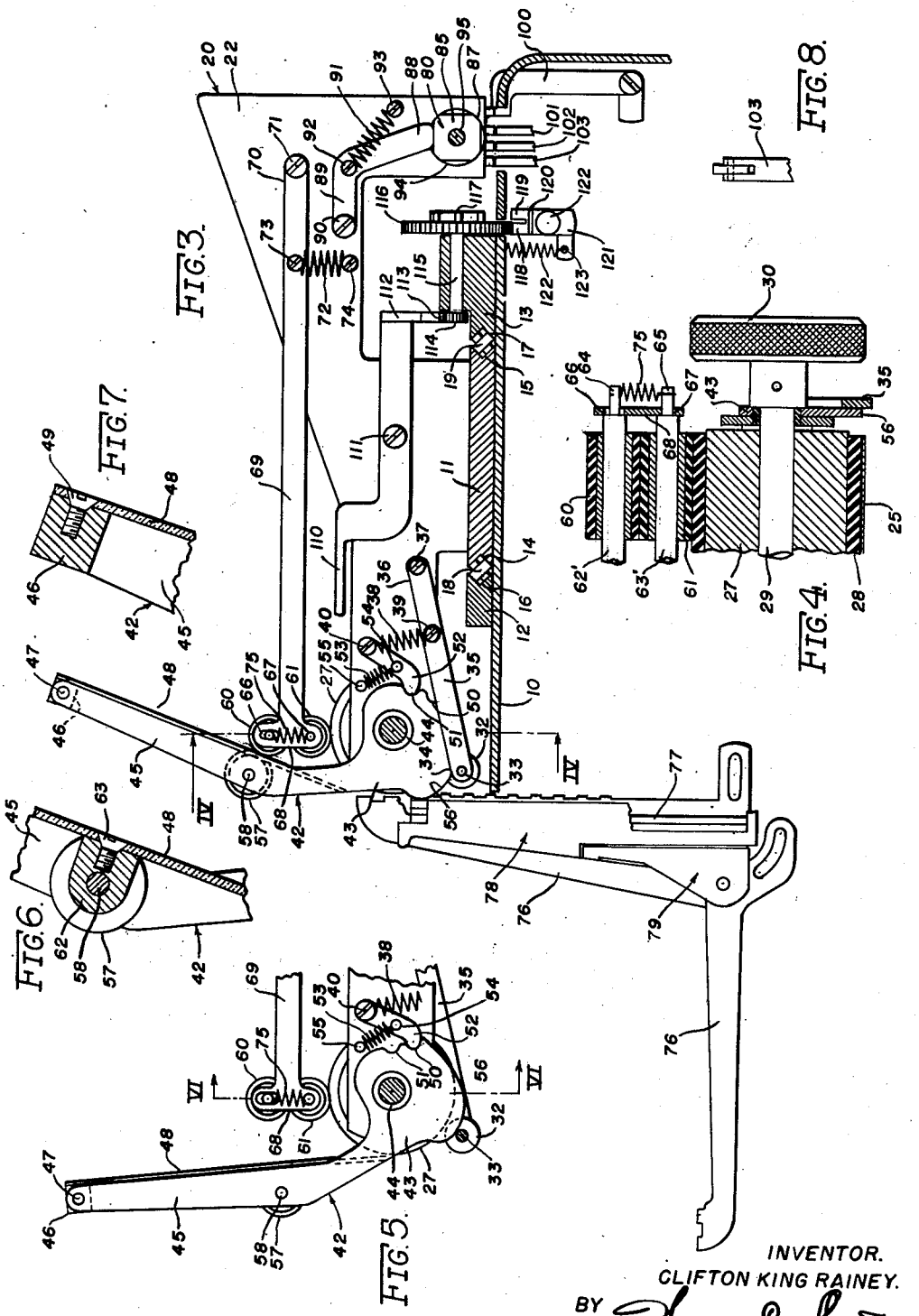


FIG. 3.

FIG. 7.

FIG. 6.

FIG. 5.

FIG. 4.

FIG. 8.

INVENTOR.
CLIFTON KING RAINEY.
BY Harry C. Lucas
ATTORNEY.

June 3, 1952 C. K. RAINEY 2,598,939

FRONT FEED CARRIAGE FOR TYPING, PRINTING, AND COMPUTING MACHINES

Filed Feb. 28, 1945 3 Sheets-Sheet 3

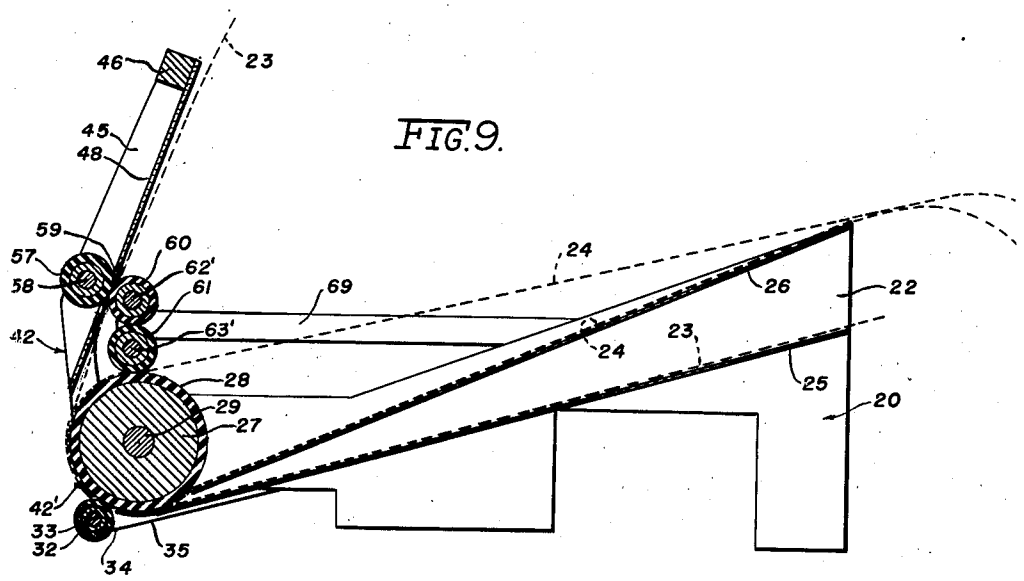


FIG. 9.

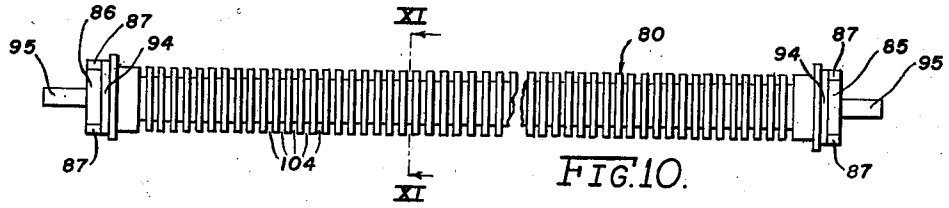


FIG. 10.

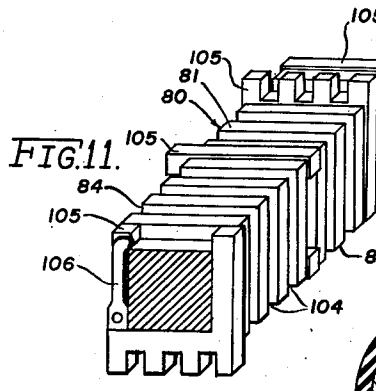


FIG. 11.

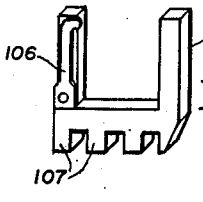


FIG. 12.

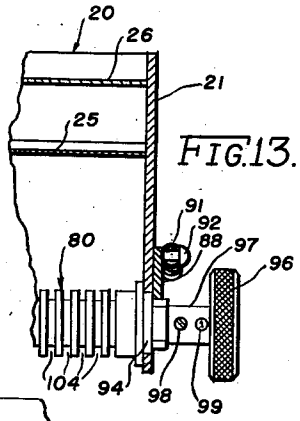


FIG. 13.

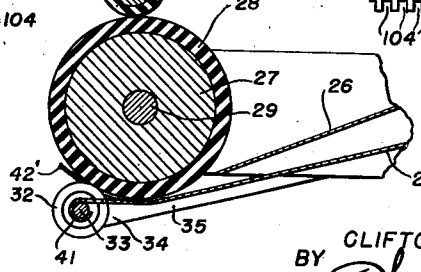


FIG. 14.

INVENTOR.
CLIFTON KING RAINEY.
BY Harry C. Hearitage
ATTORNEY.

Patented June 3, 1952

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UNITED STATES PATENT OFFICE

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FRONT FEED CARRIAGE FOR TYPING, PRINTING, AND COMPUTING MACHINES

Clifton King Rainey, Knoxville, Tenn., assignor, by mesne assignments, to Rainey Accounting Machine Company, Inc., Knoxville, Tenn., a corporation of Tennessee

Application February 28, 1945, Serial No. 580,117

13 Claims. (Cl. 197—128)

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This invention relates to typing, printing and computing machines and more particularly to an improved paper feeder therefor, although it may be employed with equal advantage for other purposes.

It contemplates more especially the provision of a simplified, improved and more effective front feed carriage for machines of the character mentioned and more particularly for combined typewriting and accounting machines such as illustrated in my United States Letters Patent No. 2,183,920, issued December 19, 1939.

Front feed carriages for typing, computing and accounting machines are common, but these are intricate, involve many parts, and for practical and commercial reasons, applicable to elaborate accounting and similar devices. In machines involving plural sheets for recording impressions and computations of mechanical devices, the front feed carriage is very suitable and usually deemed best from a time and labor saving standpoint, intricacy, maintenance and expense being secondary to the results sought. With the teachings of the present invention plural independent sheets are capable of front feed response without involving substantially more than the standard back-feed devices from a structural and cost standpoint.

One object of the present invention is to improve the construction and operation of devices of the character mentioned.

Another object is to provide an improved and simplified front feed carriage for typing, printing, computing machines, and the like.

Still another object is to provide an improved manual front feed carriage for machines of the character mentioned.

A further object is to provide an improved roller friction paper feed for machines of the character mentioned.

A still further object is to provide improved sheet holding means in conjunction with a simplified front paper feeder to securely hold paper sheets so that the mechanism can print to the bottom thereof without any waste space.

Still a further object is to provide a multiple control bar to vary the functions of the machine to which it is applied.

Other objects and advantages will appear from the following description of an illustrated embodiment of the present invention.

In the drawings:

Figure 1 is a fragmentary top plan view of a front feed carriage for typing and accounting machines embodying features of the present invention.

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Figure 2 is a fragmentary front view in elevation of the device shown in Figure 1.

Figure 3 is a fragmentary sectional view in elevation taken substantially along broken line III—III of Figure 1 with the front feed roll frame arm shown in its rearward closed position.

Figure 4 is a fragmentary sectional view in elevation taken substantially along line IV—IV of Figures 3 and 5.

Figure 5 is a detail sectional side view in elevation of the front feed roll frame arm taken substantially along line V—V of Figure 1 with the arm displaced to its forward open position.

Figure 6 is a fragmentary sectional view in elevation of the front feed roll taken substantially along line VI—VI of Figure 2.

Figure 7 is a fragmentary sectional view in elevation of the handle cross-bar along the top edge of the front feed frame taken substantially along line VII—VII of Figure 2.

Figure 8 is a fragmentary detail side view in elevation of a control lever roller end that coacts with the stops of the control bar shown in Figure 3.

Figure 9 is a fragmentary side sectional view in elevation of the paper chutes and feed roll assembly taken substantially along line IX—IX of Figure 1.

Figure 10 is a front view in elevation of a multiple control bar shown assembled in Figure 3.

Figure 11 is a sectional perspective view of the multiple control bar taken substantially along line XI—XI of Figure 10 with a stop set-up thereon for illustrative purposes.

Figure 12 is a detail perspective view of a control stop that is detachably associated with the multiple control bar.

Figure 13 is a fragmentary sectional view taken substantially along line XIII—XIII of Figure 1.

Figure 14 is an enlarged fragmentary view of the platen and chutes to guide the sheets thereto, taken substantially along line XIV—XIV of Figure 1.

The structure selected for illustration is not intended to serve as a limitation upon the scope or teachings of the invention, but is merely illustrative thereof. There may be considerable variations and adaptations of all or part of the teachings depending upon the dictates of commercial practice. The present embodiment comprises a carriage frame 10 having a cast or otherwise shaped bearing plate 11 (Figure 3) welded or otherwise fixed thereto for cooperation with carriage rails 12 and 13. The bearing plate 11 has its transverse edges 14—15 substantially V-grooved to confront correspondingly shaped com-

plemental V-shaped grooves 16—17 in the adjacent edges of the carriage rails 12—13, respectively. Ball or roller bearing raceways 18—19 are disposed between the complemental V-grooves 14—16 and 15—17, respectively, so that the rails 12—13 will movably support a carriage 20.

The carriage 20 is provided with upstanding side plates 21—22 for supporting the instrumentalities which are required to secure, feed, and print plural sheets of paper according to the purpose or purposes for which the mechanism and instrumentalities have been designed, assembled and integrated irrespective of the particular term or terms that may be utilized to identify the machine or mechanism for illustrative purposes. In the present embodiment plural sheets such as a ledger sheet 23 and a journal sheet 24 (Figure 9) are supported and guided along a substantially straight line on inclined chute plates 25 and 26, respectively, which extend between the carriage side plates 21—22 at an angle of less than forty-five degrees or at an acute angle to the horizontal plane, and converge downwardly toward a platen 27 having the usual rubber friction producing sleeve 28 thereon. The platen 27 is supported by an axial rod 29 which is journaled in the carriage side plates 21—22. Platen knobs 30—31 are fixed to the extremities of the rod 29 (Figure 2) to afford manual rotation of the platen 27—28.

The plural sheet front feeding mechanism cooperates with the platen 27—28 which has constant frictional contact with a series of lower rubber covered feed rolls 32 mounted in spaced relation on a rod 33 which is journaled in the extremities 34 of levers 35 (Figures 3 and 14). The levers 35 are pivoted at their other extremities 36 to screw pins 37 anchored in the carriage side plates 21—22 and a coil spring 38 is anchored at one end as at 39 to the levers 35 while the other end thereof is anchored as at 40 to the carriage side plates 21—22 to normally urge the feed rolls 32 upwardly in a clockwise direction (viewed from Figure 3) against the rubber platen surface 28 so that the plural sheets 23—24 which may consist of any number of different forms, will be frictionally engaged therebetween. For instance, a statement form will usually overlie the ledger sheet 23 with a carbon sheet therebetween, and similarly other sheets may be superposed therewith and also with the journal sheet 24. For that matter, additional chute plates may be arranged on either or both sides of the chute plates 25—26 should commercial practice so dictate.

The lower chute plate 25 extends to and around the lower feed roll rod 33. To this end the chute plate 25 terminates in spaced curved rod engaging end loops 41 which are interposed between the spaced lower feed rolls 32 to alternate therewith so that the ledger, journal and any other sheets superposed thereon will be guided between the platen surface 28 and the surfaces of the lower feed rollers 32 (Figure 14). The chute 25 has upwardly curved extension 42' (Figure 14) which alternate with the rod engaging end loops 41, and these conform in curvature with the platen surface 28 to guide the ledger sheets 23 around the platen 28 and upwardly as will appear more fully hereinafter. The upper chute plate 26 terminates at the lower edge line of the carriage side plates 21—22 (Figure 14) to direct the journal sheet and any other sheets superposed therewith between the surfaces of the platen 27—28 and feed rollers 32 with the ledger sheet 23 and its associated sheets below the journal and its associated sheets, all of these passing between the platen 27—28 and feed rollers 32 which are in frictional contact therewith.

The plural sheets 23—24 are progressively fed by the platen 27—28 which is manually rotated by the platen rod 29 having knobs 30—31 thereon for that purpose. The platen mechanism 27—28—29 not only cooperates with the lower feed rolls 32 which binds all the plural sheets 23—24 therebetween, but also cooperates with a front feed frame 42 consisting, in this instance, of confronting platen rod hub plates 43 which are eccentrically bored as at 44 for journaled connection with the platen rod 29. The front feed frame plates 43 have angularly offset levers 45 extending therefrom to project upwardly. The front feed frame levers 45 are maintained in rigid spaced relation by a cross-bar 46 (Figures 3, 5, and 7) having longitudinally extending pintles 47 for connection with the upward extremities of the levers 45. A transparent visor and guide plate 48 of transparent plastic or other suitable material extends between the levers 45 for attachment thereto and along the top cross-bar 46 by means of suitable fasteners such as the machine screws 49 (Figure 7).

The top cross-bar 46 also serves as a manual grasping element to displace the front feed frame 42 about the platen rod 29 to open and close the front feed frame as will appear more fully hereinafter. The open and closed positions of the front feed frame 42 are indexed by means of spaced notches 50—51, in this instance two, on the peripheral edge of the front feed frame mounting hub plates 43 comprising, in this instance, an integral part of the levers 45. The notches 50—51 on each of the hub plates 43 cooperate with a pawl 52 pivoted to each of the spring anchor screws 40 carried by the carriage side plates 21—22. A coil spring 53 is connected to the pawl 52 as at 54 while its other end is anchored as at 55 to the carriage side plates 21—22 (Figures 3 and 5) to normally urge the pawls 53 into engagement with the notches 50 or 51 to maintain the front feed frame 42 in its closed or open position (Figures 3 or 5, respectively).

The front feed frame hub plates 43 have a camming edge 56 of increasing radius in a clockwise direction (viewed from Figure 5) to cooperate with the lower feed roll rod or shaft 33 so that the feed rolls 32 will be displaced from contact with the platen surface 28 when the front feed frame 42 has been displaced in a counterclockwise direction (viewed from Figure 5) to assume its open or disengaged relation with the platen surface 28 or the plural sheets 23—24 disposed between rollers 28—32. This is effected against the urge of the spring 38 (Figure 3) and this open position is maintained by the pawl 52 which meshes with the hub plate notches 50 (Figure 5). The plural sheets 23—24 may be manually displaced along the chute plates 25—26 when the front feed frame 42 is in its inoperative open position in that the lower feed rolls 32 which normally hold the plural sheets against the platen 27—28, are removed therefrom and permit free displacement of the plural sheets 23—24 without rotating or turning the platen 27—28.

In the closed position of the front feed frame 42 when it is in its extreme clockwise position (viewed from Figure 3), the pawls 52 register with the notch 51 on each of the hub plates 43 and the lower feed roller rod 33 recedes along the

cam edges 56 to permit the springs 38 to raise the lower feed rolls 32 to either contact the platen surface 28 or the plural form sheets 23—24 therebetween. In this position, front feed ledger sheet rolls 57 mounted on a rod 58 carried between the front feed frame levers 45 to project through the visor cut-outs 59 (Figure 9), operatively engage feed rollers 60 either directly or through the upturned ledger sheet 23. The front feed roll supporting rod 58 is supported between the rolls 57 by means of bearing brackets 62 (Figures 2 and 6) fixedly carried by the transparent visor guide plate 48 by means of machine screws 63 (Figure 6).

As shown, the feed rollers 60—61 are in vertical alignment for mounting on shafts 62—63 which have reduced extremities 64—65 (Figure 4) for registry with vertically disposed slots 66 and apertures 67, respectively, provided in the substantially T-shaped ends 68 of two elongated and horizontally extending feed roll bails 69 (Figure 3). The elongated feed roll bails 69 are pivoted at their extremities 70 to the carriage side plates 21—22 by means of pivot screws 71. Coil springs 72 connected as at 73 to the feed roll bails 69 and anchored to the carriage side plates 21—22, supplement the urge of gravity in normally displacing the feed roll bails 69 in a counterclockwise direction (viewed from Figure 3) to maintain frictional contact between the rolls 61 and the platen surface 28 (Figure 4) or with the journal and its associated sheets 24 turned backwardly around the platen 27—28 and beneath the rolls 61 (Figure 9).

The rolls 60—61 are maintained in frictional contact by means of coil springs 75 which are anchored to the roller rod extremities 64—65 (Figure 4) beyond the T-shaped ends 68 of the feed roll bails 69 to normally supplement the urge of gravity in maintaining the upper feed rolls 60 down against the lower feed rolls 61. The vertical slots 66 in the T-shaped feed roll bail ends 68 permits this displacement so that the upper portions of the plural sheets 23—24 will be held and displaced between the rolls 57—60 and 28—61 which are all rotated in unison with the lower feed rolls 32 responsive to the spacing or manual rotation of the platen 27—28. It will thus be apparent that the mere shifting of the front feed frame 42 to its extreme clockwise position (viewed from Figure 9) will bring all the feed rolls in operative frictional contact to feed the plural sheets 23—24 from their chutes 25—26, around the platen surface 28, and between the rollers 57—60 and 28—61.

This is accomplished with extreme simplicity of structure and operation. One or more fine visible hair-lines 75' are etched in the transparent visor 48 (Figure 2) to insure the proper alignment of the plural sheets 23—24, provide for their initial indexing in the front feed frame 42, and to enable the operator to set the forms 23—24 in the proper position for the next posting line thereon. When two lines 75' are utilized, one line will be just under the last posting or printing, and the other line will be under the next succeeding posting or printing that results from the contemplated operation. With the front feed frame 42 in open position, the two lines 75' define the space along which the instrumentalities will post or print. When the feed frame is in its closed position, the plural form sheets 23—24 will be held by the feed rolls 28—32, 57—60, and 61—28 both below and above the platen 27—28. In this closed operative position of the front feed frame 42, the visor or window 48 and the etched hair-lines 75' thereon will move upward out of the path of the pivotal typewriter print bars 76 and the vertical reciprocal posting bars 77 (Figure 3), the former being manual key-operated and the latter actuated by the motor bar (not shown). The print and posting bars are mounted on a housing 78 having ears 79 for the pivotal connection of the print bars 76 and vertical guides for the interfitting posting bars 77.

In order to expeditiously control the operating characteristics and function of the instrumentalities comprising any particular combination of elements, a multiple control bar 80 (Figures 10, 11 and 13) is provided on the carriage 10. In the present embodiment, there are four separate bar surfaces 81, 82, 83, and 84 comprising the sides of a polygonal bar which for purposes of illustration comprises a bar 80 of square configuration, although other polygonal shapes could be utilized depending upon the number of independent control stops that are desired for particular forms to be printed and posted with a machine. The control bar 80 has square side hubs 85—86 whereon the sharp corners are tangentially removed to provide slightly curved intermediate rounded corners 87 (Figures 3 and 10). The intermediate rounded corners 87 provide a smooth path for an indexing lever arm 88 which is downwardly offset from a normally horizontal arm portion 89 (Figure 3). The lever arm portion 89 has its free extremity pivoted as at 90 to the carriage side plate 22 to normally engage one of the four flat sides of the control bar hub 85. This is accomplished by normally urging the lever arm 88 in a clockwise direction (viewed from Figure 3) owing to a coil spring 91 which is connected at the jointure of the lever arms 88—89 by a screw fastener 92 while the other end thereof is anchored as at 93 to the side plate 22 of the carriage frame 10.

The multiple control bar 80 terminates at its extremities in enlarged circular stepped shoulders 94 from which the indexing hubs 85—86 and reduced axial stub shafts 95 extend (Figure 10). The control bar 80 is journaled on its circular shoulders 94 in the carriage side plates 21—22 to rotatively effect the support thereof with their indexing hubs 85—86 adjacent thereto and exteriorly thereof. A finger grasping knob 96 with a tubular shank 97 (Figure 13) telescopically receives one of the control bar stub shafts 94—95 for attachment thereto with a set-screw 98 or any other suitable fastener (Figs 1 and 13). This enables the multiple control bar 80 to be rotated or turned in a clockwise direction (viewed from Figure 3) against the indexing lever arm 88 which pivotally moves to clear the flat surfaces on the shoulders 85—86 until one position or another thereon is selected by the operator to control the operating characteristics of the machine. To this end, the knob sleeve or shank 97 is numbered as at 99 to designate the different sides, in this instance four, of the control bar 80. The indexing lever arm 88 will retain the control bar 80 in the selected position to place either surface 81, 82, 83, or 84 in the path of the control levers 100, 101, 102 and 103, in this instance four although any number may be utilized within a wide range depending upon the character of any particular mechanism and its intended functions.

It should be noted that the surfaces 81, 82, 83 and 84 of the multiple control bar 80 are each provided with closely spaced transverse grooves

104 (Figures 10, 11, and 13). These transverse parallel grooves 104 are continuous around the control bar 80 on all sides or surfaces 81, 82, 83 and 84 thereof, to receive a set-up of control stops 105 (Figure 12) which are of substantially U-shaped configuration to readily slip into and from the transverse grooves 104. Suitable flat springs 106 are attached to each of the control stops 105 to resiliently attach and enable ready detachment of the control stops 105 relative to the particular groove 104 wherein it is placed on any or all of the multiple sides 81, 82, 83 and 84 of the control bar 104. Each of the stops 105 have a plurality of lugs 107, in this instance four, to align with the control levers 100, 101, 102 and 103 for actuation thereof.

While the lugs 107 are for illustrative purposes shown to be of uniform length and number on each control stop 105, these may be provided with one or more lugs 107 of varying lengths, shapes and with different contact surfaces to depress control and tabulating levers 100, 101, 102 and 103 to cause the instrumentalities to add or subtract, print a date, tabulate to some other column, shift the instrumentalities from adding or subtracting to typing and vice-versa, non-add or non-print or to numerous other functions, both manual and automatic. The multiple control bar 80 permits the operator to quickly change the instrumentalities for posting and printing on different forms and to automatically control the functions in printing and posting that particular set of plural form sheets 23—24 which are chute guided to the front feed frame 42. Consequently, the instrumentalities are rendered very flexible for enabling the efficient use thereof for accounts receivable ledger, statements and journal posting; for accounts payable ledger, remittance advice and journal; general ledger accounts and payroll; and employees ledger, checks and journals.

While the instrumentality operating mechanism forms no part of the present invention, there is shown for illustrative purposes standard carriage operating elements such as a carriage release lever 110 (Figure 3). The carriage release lever 110 is pivoted as at 111 to the carriage side plate 22 to present a rack bar 112 having a linear series of rack teeth 113 to mesh with a pinion 114. The pinion 114 is fixed to the extremity of a stud shaft 115 journaled in the upstanding shoulder of the carriage rail 113 to rotatively support an escapement wheel 116 and a ratchet wheel 117. The escapement wheel 116 cooperates with spacing dogs 118—119 which are connected together by a pin 120. A shank 121 extends downwardly for support on a pivot 122 to oscillate the spacing dogs 118—119 so that one and then the other engages the escapement wheel 116. A spring 122 which extends downwardly from the carriage frame 10, is connected to an arm 123 offset from and fixed to the shank 121 to normally retain dog 118 in engagement with the escapement wheel 116. The actuation of the spacer mechanism is well known on accounting and typewriter machines so that further explanation thereof would serve no useful purpose in so far as the present invention concerns itself with an improved front feed frame and a multiple control bar for facilitating the posting and printing on the plural form sheets 23—24 in connection with the front feed mechanism.

While I have illustrated and described a preferred embodiment of this invention, it must be understood that the invention is capable of considerable variation and modification without departing from the spirit of the invention. I, therefore, do not wish to be limited to the precise details of construction set forth, but desire to avail myself of such variations and modifications as come within the scope of the appended claims.

I claim:

1. In a device of the character described, the combination with a frame, of a carriage on said frame, a platen carried by said carriage, spring mounted feed rollers cooperating with said platen to support plural form sheets against said platen, a front feed frame pivotally connected to said platen to assume an open and a closed paper feeding position relative thereto, means on said front feed frame to coact with said spring mounted feed rollers to effect their release from said platen in the open pivoted position of said front feed frame, feed rollers carried by said front feed frame, and other feed rollers yieldingly interposed between said platen and front feed frame rollers to segregate plural sheets held between said first named feed rollers and platen when said front feed frame is in its closed pivoted position.

2. In a device of the character described, the combination with a frame, of a carriage on said frame, a platen carried by said carriage, spring mounted feed rollers cooperating with said platen to support plural form sheets against said platen, a front feed frame pivotally connected to said platen to assume an open and a closed paper feeding position relative thereto, means on said front feed frame to coact with said spring mounted feed rollers to effect their release from said platen in the open pivoted position of said front feed frame, feed rollers carried by said front feed frame, and a pair of friction engaging feed rollers yieldingly interposed between said platen and each of said front feed frame rollers to segregate plural sheets held between said first named feed rollers and platen when said front feed frame is in its closed pivoted position.

3. In a device of the character described, the combination with a carriage, of a platen journaled on said carriage, a paper sheet feeding member pivotally mounted on said carriage relative to said platen, feed rollers mounted to frictionally contact said platen below the imprinting key striking position, pairs of frictionally contacting rollers mounted so that one roller of each of said pairs frictionally contacts said platen above the imprinting key striking position, and an idler roller mounted on said paper sheet feeding member to contact the other roller of each of said pairs of frictionally contacting rollers when said paper sheet feeding member is in its closed pivoted position.

4. In a device of the character described, the combination with a carriage, of a platen journaled on said carriage, a paper sheet feeding member pivotally mounted on said carriage relative to said platen, feed rollers mounted to frictionally contact said platen below the imprinting key striking position, pairs of frictionally contacting rollers mounted so that one roller of each of said pairs frictionally contacts said platen above the imprinting key striking position, an idler roller mounted on said paper sheet feeding member to contact the other roller of each of said pairs of frictionally contacting rollers when said paper sheet feeding

member is in its closed pivoted position, and means associated with said paper sheet feeding member to release said first named feed rollers from contact with said platen when said paper sheet feeding member is shifted to its open pivoted position with said idler rollers removed from operative contact with said other rollers of said pairs of frictionally contacting rollers.

5. In a device of the character described, the combination with a carriage, of a platen journaled on said carriage, a paper sheet feeding member pivotally mounted on said carriage relative to said platen, feed rollers mounted to frictionally contact said platen below the imprinting key striking position, pairs of frictionally contacting rollers mounted so that one roller of each of said pairs frictionally contacts said platen above the imprinting key striking position, spring means for maintaining the rollers of each pair in frictional contact, and an idler roller mounted on said paper sheet feeding member to contact the other roller of each pair of frictionally contacting rollers when said paper sheet feeding member is in its closed pivoted position.

6. In a device of the character described, the combination with a carriage, of a platen journaled on said carriage, a paper sheet feeding member pivotally mounted on said carriage relative to said platen, feed rollers mounted to frictionally contact said platen below the imprinting key striking position, spring means for normally urging said feed rollers against said platen, pairs of frictionally contacting rollers mounted so that one roller of each of said pairs frictionally contacts said platen above the imprinting key striking position, spring means for maintaining the rollers in each pair in frictional contact, and an idler roller mounted on said paper sheet feeding member to contact the other rollers of each of said pairs of frictionally contacting rollers when said paper sheet feeding member is in its closed pivoted position.

7. In a device of the character described, the combination with a carriage, of a platen journaled on said carriage, a paper sheet feeding member pivotally mounted on said carriage relative to said platen, feed rollers mounted to frictionally contact said platen below the imprinting key striking position, pairs of frictionally contacting rollers mounted so that one roller of each of said pairs frictionally contacts said platen above the imprinting key striking position to define one sheet path, idler rollers mounted on said paper sheet feeding members to contact the other rollers of said pairs of frictionally contacting rollers when said paper sheet feeding member is in its closed pivoted position to define another sheet path, means associated with said paper sheet feeding member to release said first named feed rollers from contact with said platen when said paper sheet feeding member is shifted to its open pivoted position with said idler rollers removed from operative contact with said pairs of frictionally contacting rollers, and paper chute defining partitions on said carriage to guide plural form sheets downwardly between said platen and lower feed rollers and thereabove between said idler rollers and said other rollers of said pairs of frictionally contacting rollers and between said one roller of each of said pairs of frictionally contacting rollers and said platen.

8. In a device of the character described, the combination with a carriage, of a platen journaled on said carriage, a paper sheet feeding member pivotally mounted on said carriage relative to said platen, feed rollers mounted to frictionally contact said platen below the imprinting key striking position, pairs of frictionally contacting rollers mounted so that one roller of each of said pairs frictionally contacts said platen above the imprinting key striking position to define one sheet path, spring means for maintaining said pairs of rollers in frictional contact, idler rollers mounted on said paper sheet feeding member to contact the other rollers of said pairs of frictionally contacting rollers when said paper sheet feeding member is in its closed pivoted position to define another sheet path, and paper chute defining partitions on said carriage to guide plural form sheets downwardly between said platen and lower feed rollers and thereabove between said idler rollers and said other rollers of said pairs of frictionally contacting rollers and between said one roller of each of said pairs of frictionally contacting rollers and said platen.

9. In a device of the character described, the combination with a carriage, of a platen journaled on said carriage, a paper sheet feeding member pivotally mounted on said carriage relative to said platen, feed rollers mounted to frictionally contact said platen below the imprinting key striking position, spring means for normally urging said feed rollers against said platen, pairs of frictionally contacting rollers mounted so that one roller of each of said pairs frictionally contacts said platen above the imprinting key striking position to define one sheet path, spring means for maintaining said pairs of rollers in frictional contact, idler rollers mounted on said paper sheet feeding member to contact the other rollers of said pairs of frictionally contacting rollers when said paper sheet feeding member is in its closed pivoted position to define another sheet path, and paper chute defining partitions on said carriage to guide plural form sheets downwardly between said platen and lower feed rollers and thereabove between said idler rollers and said other rollers of said pairs of frictionally contacting rollers and between said one roller of each of said pairs of frictionally contacting rollers and said platen.

10. In a front feed accounting machine, the combination with a frame, of a carriage mounted on said frame, a platen journalled on said carriage, a front paper feed frame movably mounted on said carriage to direct sheets of paper to said platen, paper guide means communicating with said platen in continuity with said front paper feed frame, frictional paper feed rollers superposed above said platen for contact therewith, and rollers mounted on said front paper feed frame for displacement into engagement with said frictional rollers to render the rollers on said front paper feed frame operative with the rotation of said platen responsive to the operative positioning of said movably mounted front paper feed frame to initially feed the paper sheets around said platen to said paper guide means.

11. In a device of the type described, the combination with a carriage, of a platen journaled on said carriage, a paper sheet feeding member pivotally mounted on said carriage for rocking movement relative to the platen, an idler roller mounted on said paper sheet feeding member, and a pair of feed rollers interposed between the platen and the paper sheet feeding member, one of which has a driving relation with the platen and the other of which has a driving relation with the first roller and with the idler roller on the paper

sheet feeding member when in closed pivoted position to establish a simultaneous paper guiding and driving relation therebetween.

12. In a device of the type described, the combination with a carriage, of a platen journaled on said carriage, a front paper feed frame pivotally mounted on the carriage for rocking movement relative to the platen, idler rollers mounted on the front paper feed frame, and pairs of feed rollers interposed between the platen and the front paper feed frame, one roller of each pair frictionally engaging the platen to establish a frictional driving relation therebetween while the other is mounted frictionally to engage one of the idler rollers when the front paper feed frame is rocked to closed pivoted position to establish a frictional driving relation therebetween for guiding and simultaneously feeding paper stock disposed therebetween.

13. In a device of the type described, the combination with a carriage of a platen journaled on said carriage, a front paper feed frame pivotally mounted on said carriage for rocking movement relative to the platen, idler rollers mounted on the front paper feed frame, pairs of feed and guide rollers interposed between the platen and front paper feed frame with one roller of each pair in frictional driving relation with the platen and the other roller of each pair adapted to be

in frictional driving relation with one of the idler rollers on the front feed frame when in closed pivoted position, and spring means for urging the rollers in each pair to establish a frictional driving relation therebetween.

CLIFTON KING RAINEY.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
1,158,608	White	Nov. 2, 1915
1,209,090	Wernery	Dec. 19, 1916
1,229,559	Wernery	June 12, 1917
1,524,756	Smith	Feb. 3, 1925
1,526,844	Dowd	Feb. 17, 1925
1,994,647	Helmond	Mar. 19, 1935
2,160,254	Smith	May 30, 1939
2,185,424	Anderson	Jan. 2, 1940

FOREIGN PATENTS

Number	Country	Date
540,076	Germany	of 1931
596,260	Germany	of 1934
679,613	Germany	of 1939
202,177	Switzerland	of 1939