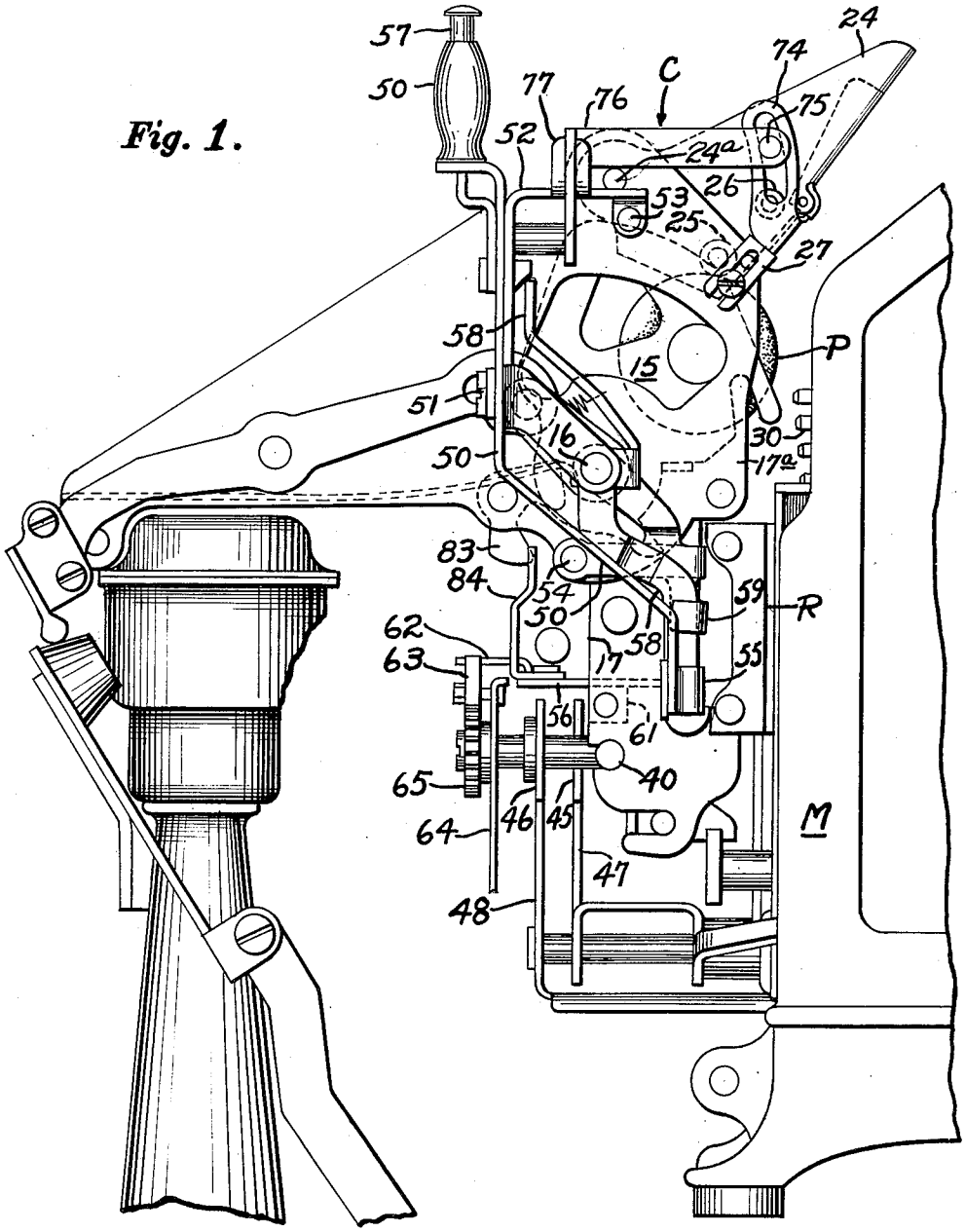
Feb. 12, 1952 A. J. FETTIG 2,585,102

PAPER GUIDE MEANS FOR BUSINESS MACHINES

Filed Jan. 24, 1950 3 Sheets-Sheet 1

Fig. 1.



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Fig. 2.

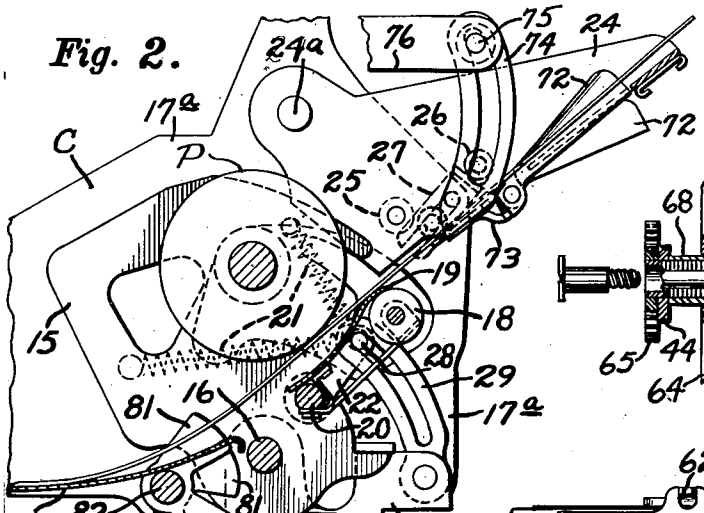


Fig. 5.

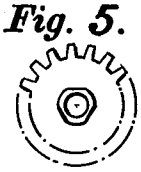


Fig. 6.

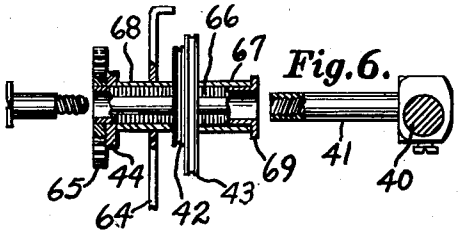


Fig. 7.

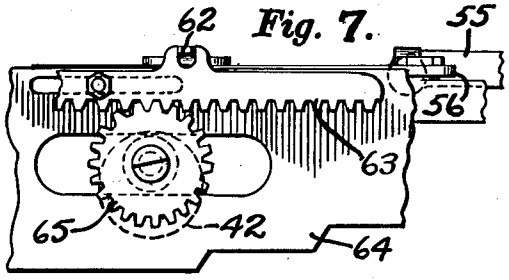
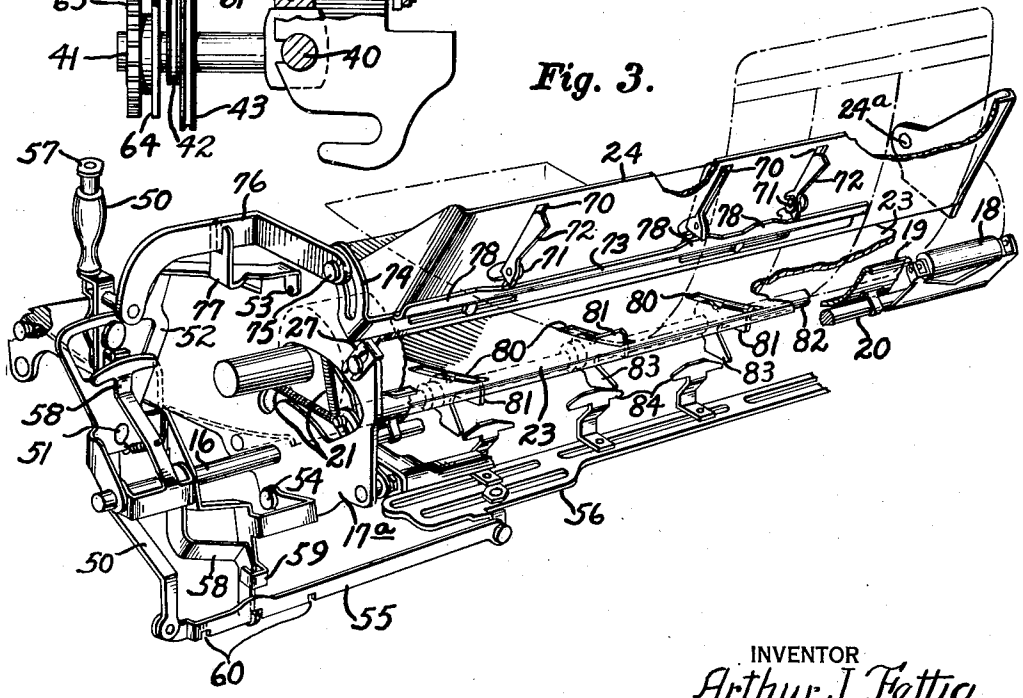


Fig. 3.



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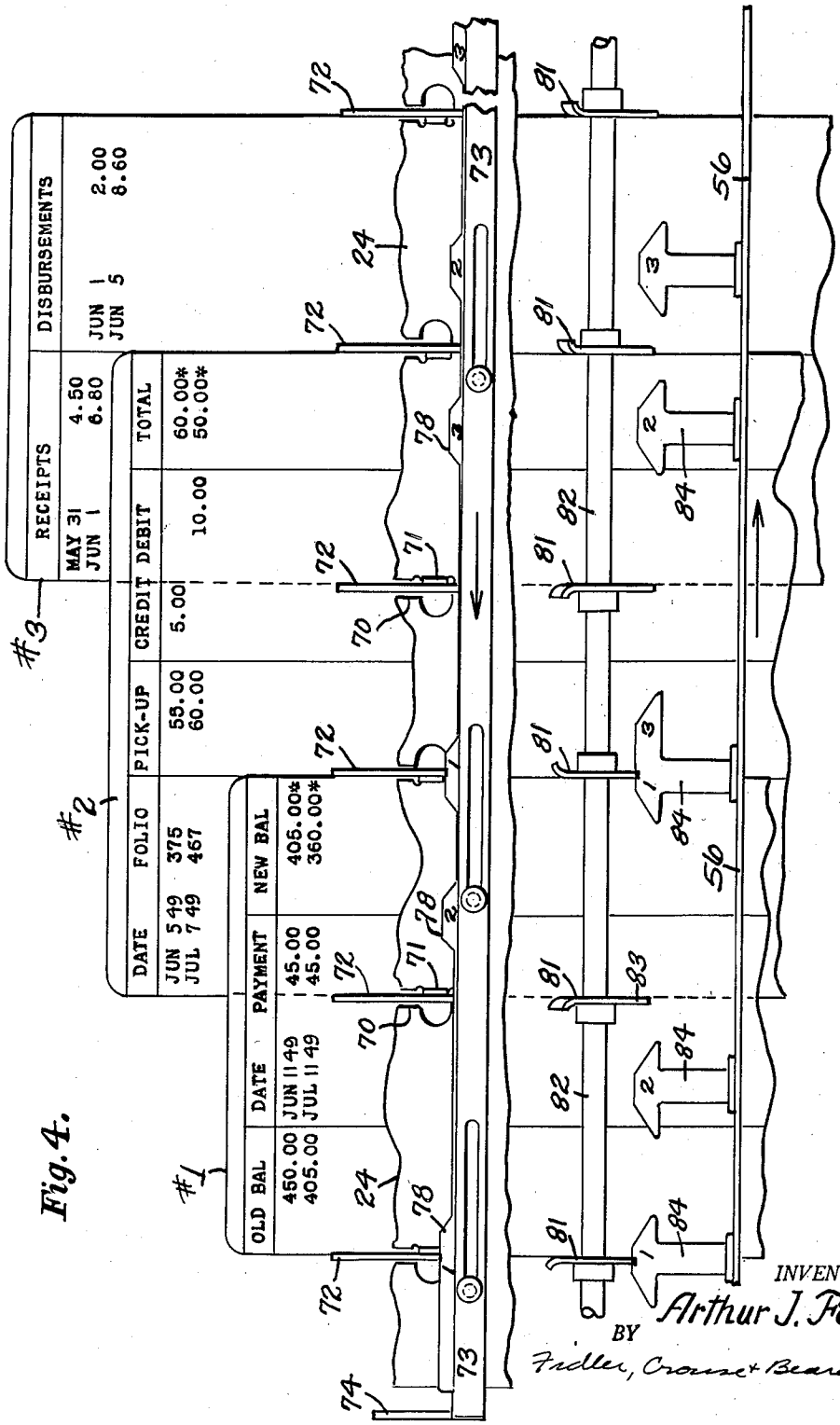


Fig. 4.

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Patented Feb. 12, 1952 2,585,102

UNITED STATES PATENT OFFICE

2,585,102

PAPER GUIDE MEANS FOR BUSINESS MACHINES

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Application January 24, 1950, Serial No. 140,173

5 Claims. (Cl. 197—142)

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The present invention relates to an improvement in accounting machines whereby the individual machines are enabled more expeditiously to perform a number of varieties of accounting work.

A great many businesses require accounting work of several different varieties, the volumes of some or all of which varieties may fluctuate, even to an extreme extent, periodically. Also, the volume of one or more varieties of required accounting work may not be sufficient to require full-time use of even a single machine even in cases where the volume of such work does not fluctuate greatly. In all such cases, it is desirable to adapt accounting machines to as many of the required varieties of work as will provide each machine with a total volume of work available at such times and in such quantities as to keep the machine and its operator working as nearly continuously as possible. To this end, accounting machines have been provided with control mechanism permitting mechanically unskilled operators easily and quickly to effect the necessary alterations in the kinds of calculation and printing operations performed by the machines and in the sequences in which such kinds of operations are automatically performed. The same or additional control devices also permit easy and quick alteration of the columnar positions and of the automatic tabulating and return movements of the paper carriage of such machines to suit the widths and arrangements of the columns on the different forms or sets of forms required for the different varieties of work. Such machines have also been provided with paper edge guide devices which can be laterally adjusted manually by the operators to suit the widths and positions of the different forms or sets of forms but such manual adjustment of the paper guides has, heretofore, been required to be effected by the operator separately from and in addition to the adjustment of the means to alter the program of automatically performed calculating and printing operations and paper carriage movements and has required the expenditure of considerable time and care of the machine operators.

An object of the present invention is to provide accounting machines with means to effect the adjustment of the paper guides as required for the different forms or sets of forms easily and quickly and, more particularly, by simple movement of a single control member.

A further object of the invention is to provide accounting machines with means to effect the required adjustment of the paper guides by the same movement of the same control member by which the program of automatic calculating and printing operations and carriage movements and positions is effected to suit the different varieties

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of accounting work to be performed on the machine.

Other objects and advantages of the invention will become apparent from the following description of the specific embodiment of the invention illustrated in the accompanying drawings in which—

Fig. 1 is a left side elevation of the paper carriage and portions of the carriage-governed control mechanism of a machine equipped with an embodiment of the invention;

Fig. 2 is a partial vertical section through the paper carriage along a line running from front to rear;

Fig. 3 is a perspective view of the paper guides and control means therefor, as viewed from above and the front of the left-hand end of the carriage, with some parts broken away for clearness;

Fig. 4 schematically illustrates the arrangement of the paper guides and portions of the control means relative to some illustrative record forms; and

Figs. 5, 6 and 7 show some details of the machine function and carriage position control means.

In the drawings, the invention is illustrated as applied in one specific embodiment to the paper carriage of a well-known Burroughs "High Keyboard" machine which, as shown in numerous prior patents, has a paper carriage C laterally movable across the rear of the machine M on races R. A platen P is rotatably supported in a platen frame comprising side plates 15 pivoted on a shaft 16 carried in the side plates 17 of the main frame of the paper carriage. Pressure or feed rolls 18 and a lower front paper guide plate 19 are supported on a shaft 20 carried in the platen frame and are normally urged toward the platen by springs, such as 21, connected to an arm 22 secured to the shaft 20. A rear paper guide plate 23 is supported in the carriage frame. A front feed paper chute 24 is pivotally supported at the rear ends of its side portions on studs 24a on the carriage frame.

The platen and platen frame are rockable between the normal, closed carriage or printing position of Fig. 1 and the open carriage or front feed position of Fig. 2 in the manner and by the means disclosed in the Muller Patent No. 2,202,595. When the platen is in printing position, the upper edge of the left-hand side plate 15 of the platen frame engages a roller 25 supported on the left-hand side portion of the paper chute 24 to hold the chute upwardly in the position of Fig. 1 and the springs 21 hold the rolls 18 against the papers on the platen. When the platen is rocked upwardly and rearwardly to the front feed position of Fig. 2, the paper chute drops forwardly and downwardly to its front feed position where a

second roller 26 thereon rests on a stop 27 adjustably secured to the left-hand carriage frame side plate 17 and the rolls 18 and plate 19 are pulled away from the platen when a stud 28 on the arm 22 reaches the upper end of a slot in a link 29 pivoted on the carriage frame. Thus, as the platen is rocked to front feed position, the paper throat between the platen and the rolls and plate 18 and 19 is opened and the front feed chute 24 rocks to position to guide papers into the throat from above and in front of the platen. As the platen is returned to printing position, the throat is closed by the springs 21 to grip the inserted papers and the chute 24 is rocked away from the paths of the printing types 30.

The calculating, printing, carriage-positioning and carriage-opening functions are automatically controlled in accordance with the columnar positions of the carriage in manners and by means of the kind shown in various prior patents, such, for example, as Muller Patent No. 1,397,774 and Fettig Patent No. 2,291,154. The carriage frame nonrotatably supports a shaft or bar 40 to which are secured a number of rearwardly extending stub shafts or rods 41 each carrying control cam rollers, such as indicated at 42 to 46, which, in respective ones of the carriage positions, act on control cam levers, such as 47 and 48, to condition control mechanisms of the machine governing the kinds of calculations performed, the disabling and enabling of the printing elements in various orders and sections, the tabulating, skipping and returning of the paper carriage, etc. The movements and positioning of the carriage may, alternatively, be controlled in the manner and by the means disclosed in the Fettig Patent No. 2,291,154.

A control lever 50, Figs. 1 and 3, corresponds to the lever 159 of Fig. 6 of the Fettig Patent No. 2,229,154 and is similarly pivoted on a stud 51 carried by a bracket 52 supported on the extended left end of the shaft 16, and also secured as at 53 and 54 to the left-hand carriage frame plate 17. As in the Fettig patent, the lever 50 is connected through a link 55 to a slide 56 which is similar to the slide 157 of the Fettig patent but in the present case performs an additional function as described hereinafter. As in the Fettig patent, a button 57 slidable in the handle of the lever 50 controls a latch lever 58 which is rockable on the shaft 16, is guided by an extension 59 of the bracket 52 and cooperates with notches 60 in the link 55 to releasably lock the slide 56 in its several positions of adjustment. Also as in the Fettig patent, the slide 56 is supported on a rod 61 (Fig. 2) carried between the side plates 17 of the carriage frame and has a projection 62 (Figs. 2 and 7) engaged in a notch in a rack 63 slidably supported on a register selection control cam plate 64 which is similar to the cam plate 230 of the Pasinski Patent No. 1,911,768 and is mounted on the rear ends of certain of the stub shafts 41. The rack 63 meshes with pinions 65 which, by their rotation, adjust the positions of the control rolls or cams such as 42 to 46, either in the manner in which the arms 20, 32 and 43 of the Muller Patent No. 1,397,774 adjust the control cam rolls of the machine disclosed in that patent, or in the manner in which the pinions 154 of the Fettig Patent No. 2,229,154 adjust the control cams and rolls shown therein, or in the manner illustrated in Fig. 6 herein. In Fig. 6, the control rolls or disks 42 to 44 are eccentrically mounted on a sleeve 66 which is rotatable on the stub shaft 41 and is of peripherally non-circular section so that the sleeve 66 and the disks 42 to 44 are rotatable by rotation of the pinion 65. The positions of the disks 42, 43 and 44 lengthwise of the sleeve 66 are determined with the aid of spacing collars or sleeves, such as 67 and 68, by the pinion 65 on the one end of the sleeve 66 and a flange 69 on the other end of the sleeve 66. Thus, by rocking the lever 50, the eccentric disks 42 to 46 are rotated selectively from inactive positions where they cannot depress the cam levers such as 47 and 48, to one or more active positions such that, in the respective carriage positions, they depress the cam levers to the required extents.

In the present structure, the front feed paper chute 24 has a plurality of slots 70 (Fig. 3) in its transverse front portion and a forwardly bent ear 71 at one edge of the lower end of each slot. Generally sector-shaped paper guide plates 72 are pivoted on studs secured in the ears 71 and have shoulders resting on the upper edge of a cam slide 73 supported on the lower front side of the chute 24. The slide 73 has a rearwardly bent left end portion 74 formed with an arcuate slot the curvature of which centers on the axis of the studs 24a. A headed stud 75 engaged in the slot is carried by a link 76 which is guided by a slotted projection 77 of the bracket 52 and is pivotally connected to the lever 50. Cam elevations 78 are so located on the upper edge of the slide 73 that, as the slide 73 is shifted lengthwise by the rocking of the lever 50 to set the function and carriage controlling mechanism of the machine as required by the work to be recorded on the various forms or sets of forms to be used, the particular guides 72 required for properly guiding and locating the lateral edges of those forms in the proper positions in the carriage are rocked rearwardly through the slots 70 into effective position while the other members 72 remain forwardly in inactive position where they do not interfere with the movement of the forms through the chute 24 into the paper throat.

The lower guide plate 23 is also formed with slots 80 aligned with the slots 70 for paper guide members 81 rotatable on a supporting shaft 82 supported in the carriage frame end plates 17. The guide members 81 have arms 83 engageable by the cam ends of cam members 84 secured on the slide 56 in such positions that the guides 81 will be moved from their lower inactive positions through the slots 80 in the plate 23 into their active positions and be permitted to return to their inactive positions when the corresponding guides 72 are similarly moved.

Thus, by means of the structure shown, the operator, by a simple shifting of the lever 50 which selects the desired program of automatic machine functions and carriage movement, also, without any additional attention or act, selects and positions the lateral edge guides for the work forms to be used for the particular variety of work to be performed on the machine, whereby time and effort are saved and possible errors in the positioning of the lateral paper guides are obviated.

Fig. 4 shows schematically the arrangement of the guides 72 and 81 and of the cams 78 and 84 for a machine intended to perform the three kinds of work indicated by the three forms shown. The slides 73 and 56 are shown in the positions which they occupy while the lever 50 of Fig. 3 is in its rightward position and where

the first and third cams 78 (counting from the left) hold the first and third guides 72 and the first and third cams 84 hold the first and third guides 81 in active position to locate the edges of form #1 while the lever 50 also conditions the automatic function control elements on the carriage to cause the machine to perform the required functions when the carriage positions the several columns of form #1 in printing position. Movement of the lever 50 leftward to its middle position shifts the first and third cams 78 and 84 clear of the first and third guides 72 and 81, permitting those guides to return to their normal inactive positions, and causes the second and fifth cams 78 and 84 to rock the second and fifth guides 72 and 81 into active position to locate the edges of form #2 while the automatic function control elements on the carriage are adjusted as required to condition the machine for the various functions to be performed in the several columnar positions of form #2. Movement of the lever 50 to its leftward position permits the second and fifth guides 72 and 81 to return to inactive position and projects the fourth and sixth guides 72 and 81 into position to locate the edges of form #3 while the automatic function control elements are adjusted as required for the latter form. It will be apparent that the parts may be arranged and located as required for various combinations of work forms. It will be clear also that one or both ends of the front feed paper chute 24 may be utilized to locate an edge of one or two of the work forms instead of providing extra guides 72 for that purpose.

I claim:

1. In a calculating machine having controllable function performing means, adjustable control elements controlling said means, means to receive and hold various work forms to receive entries in various columns thereon, a manually adjustable control member, and means operable by said control member to adjust said control elements to vary the program of functions to be performed by the function performing means, the combination of adjustable work form locating members on said receiving and holding means, and adjusting means operable by said manually adjustable control member to adjust said locating members to properly locate selected ones of said work forms in the receiving and holding means.

2. In a printing calculating machine adapted to be given cycles of operation and having controllable function performing mechanisms, a travelling paper carriage for receiving and holding work forms to receive entries in various columns thereon, adjustable control elements carried on said paper carriage, control means governed by said control elements to vary the performance of said function performing mechanisms in cycles of machine operation performed with the paper carriage in selected columnar positions, a manually adjustable control member, and means operable by said control member to adjust said control elements to vary the program of functions performed by said mechanisms in successive machine cycles performed with said carriage in successive columnar positions, the combination of guide means on said carriage to guide various work forms into said carriage, adjustable work form locating elements supported on said carriage, and adjusting means operable by said control member to adjust said form locating elements to locate selected forms in correct position in said carriage to receive entries in correct columnar positions on said selected forms.

3. In a printing calculating machine adapted to be given cycles of operation and having controllable function performing mechanisms, a travelling paper carriage for receiving and holding work forms to receive entries in various columns thereon, adjustable control elements carried on said paper carriage, control means governed by said control elements to vary the performance of said function performing mechanisms in cycles of machine operation performed with the paper carriage in selected columnar positions, a control member manually adjustable to a plurality of positions, and means operable by said control member to adjust said control elements to vary the program of functions performed by said mechanisms in successive machine cycles performed with said carriage in successive columnar positions, the combination of guide means on said carriage to guide various work forms into said carriage, adjustable form-edge locating elements supported on said carriage in alignment with the proper positions of the lateral edges of the several work forms to be inserted in said carriage and movable relative to said guide means to effective and ineffective positions, and adjusting means operable by said control member to place the form-edge locating elements for selected forms in effective position and the remaining form-edge locating elements in ineffective position in the several positions of said control member.

4. In a machine of the class specified, a paper carriage, means on said carriage for supporting work forms as they are inserted into said carriage, a plurality of form-edge locating elements supported on said carriage in alignment with the proper edge positions of different ones of said work forms, each of said elements being movable from an effective form-edge locating position to an ineffective position out of the path of forms being inserted, means to position said form-edge locating elements in their effective and ineffective positions selectively, and a single manipulative member to operate said positioning means.

5. In a machine of the class specified, a paper carriage, means on said carriage for supporting various work forms as they are inserted into said carriage, a plurality of form-edge locating elements supported on said carriage in alignment with the proper edge positions of the respective work forms, said elements being movable to the paper supporting side of said supporting means from the opposite side thereof, and reversely, means to so move said elements selectively, and a single manipulative member to operate said moving means.

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