

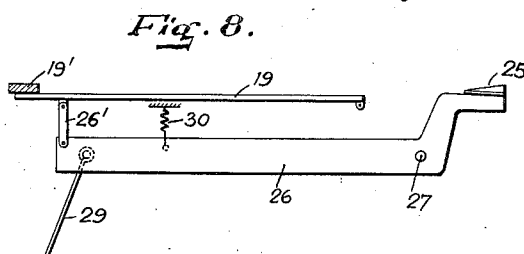
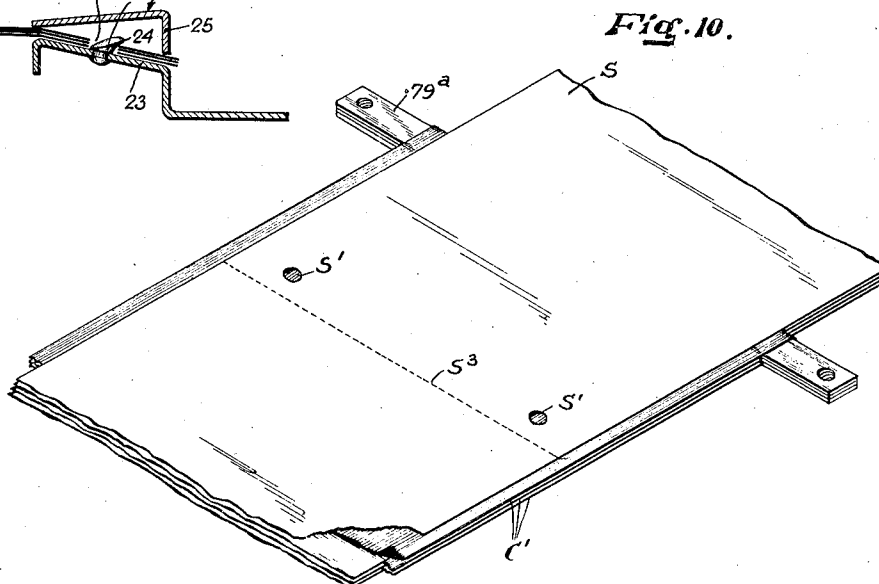
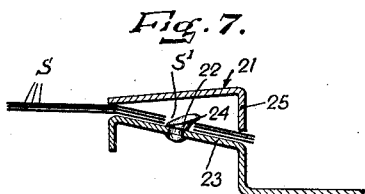
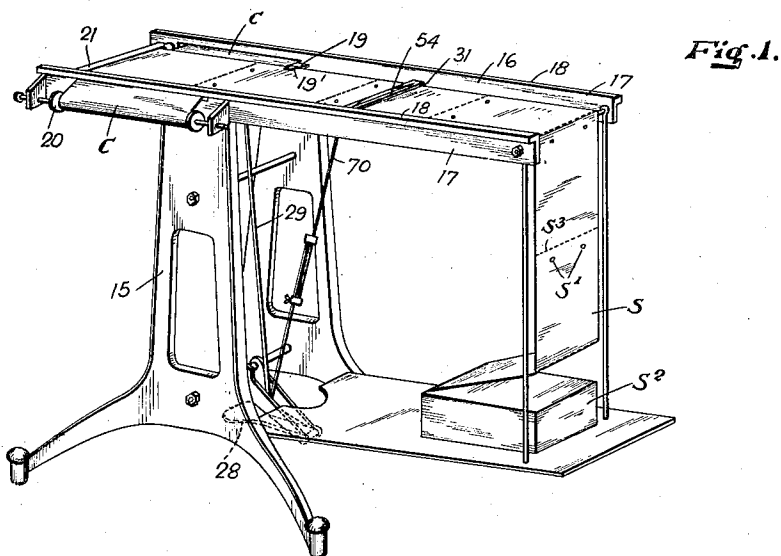
April 16, 1935.

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1,997,737.

ALIGNER FOR BILLING MACHINES

Original Filed April 24, 1931 4 Sheets-Sheet 1



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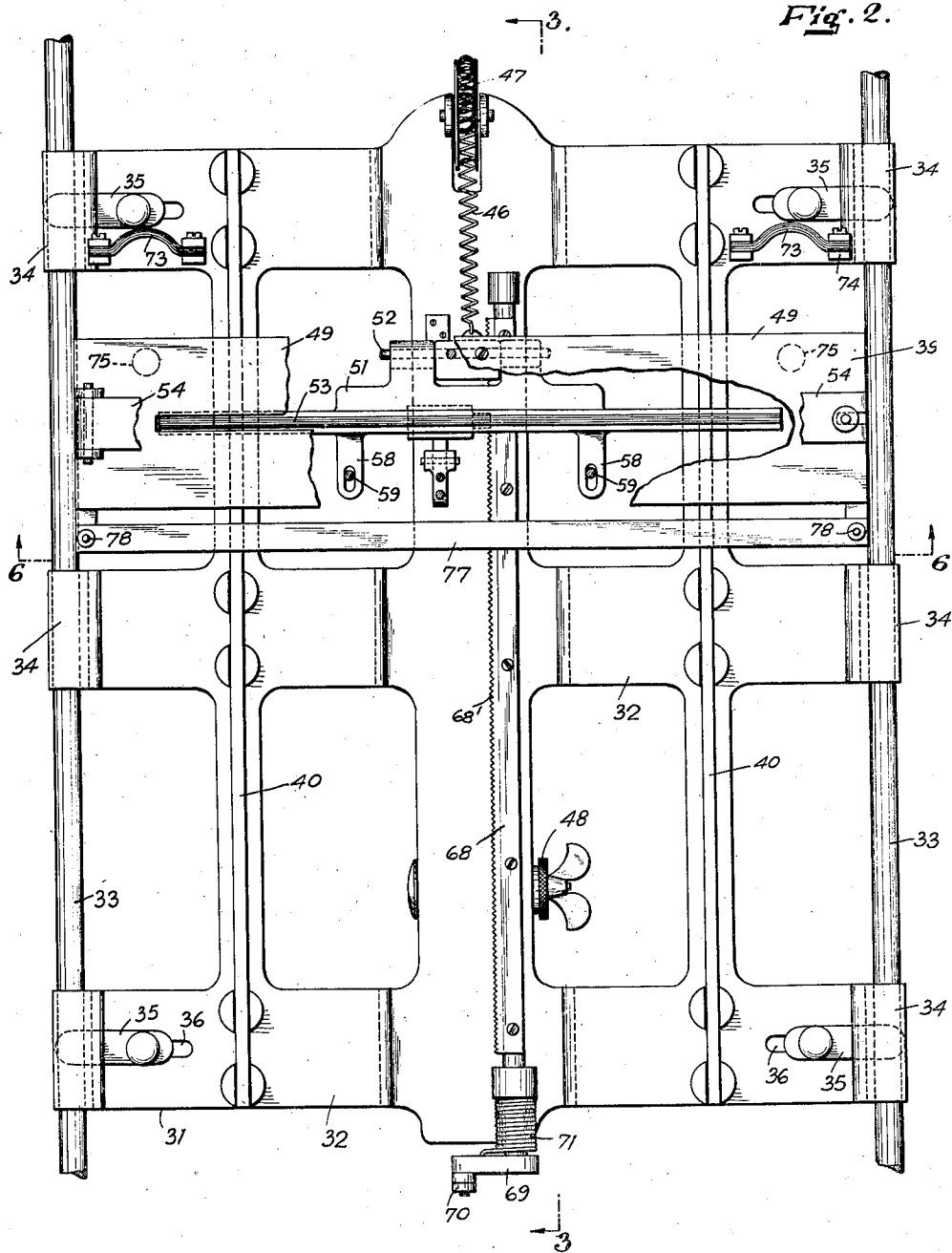
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ALIGNER FOR BILLING MACHINES

Original Filed April 24, 1931 4 Sheets-Sheet 2



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Original Filed April 24, 1931 4 Sheets-Sheet 3

Fig. 3.

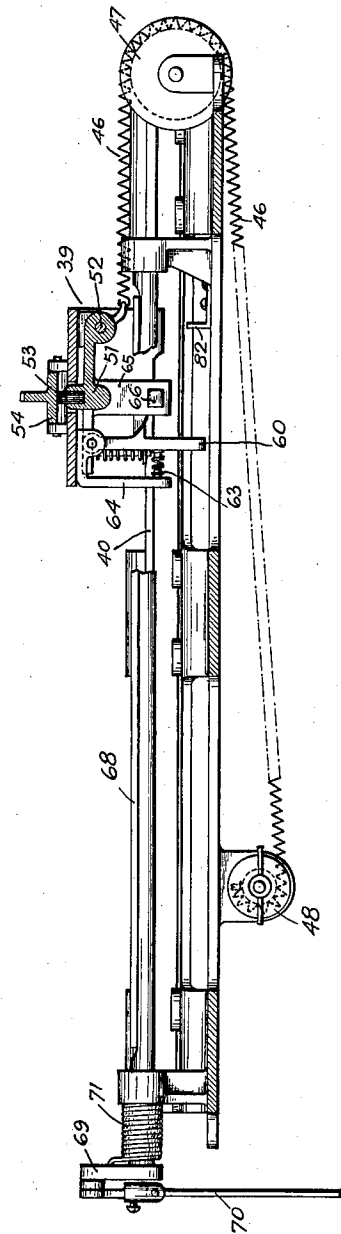
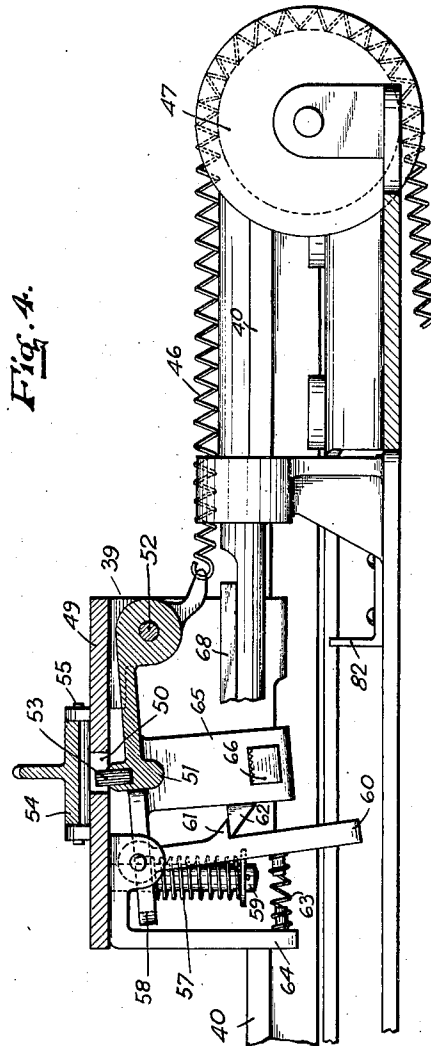


Fig. 4.



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Original Filed April 24, 1931 4 Sheets-Sheet 4

Fig. 5.

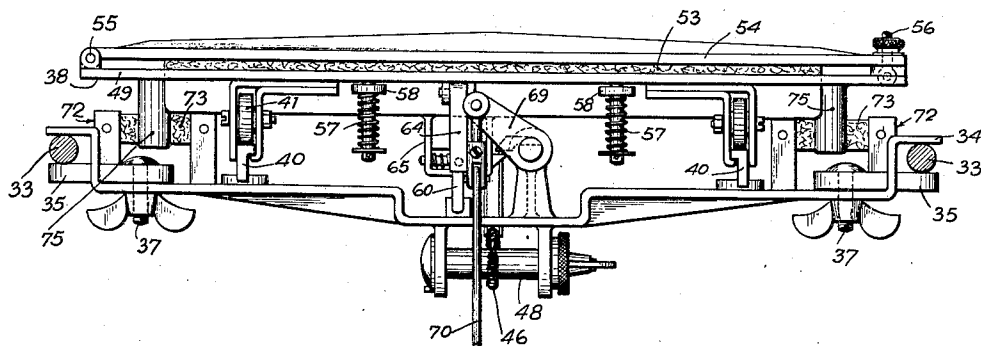


Fig. 6.

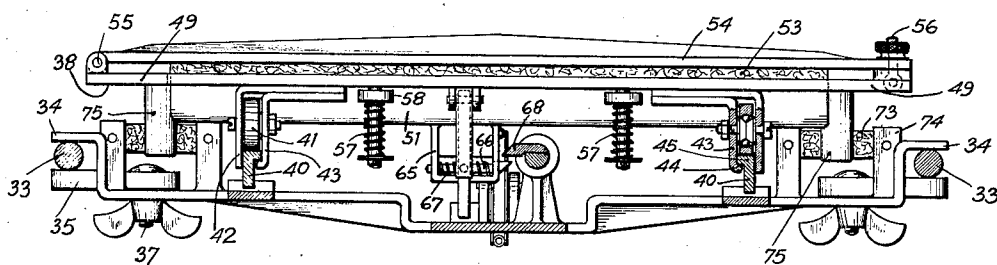
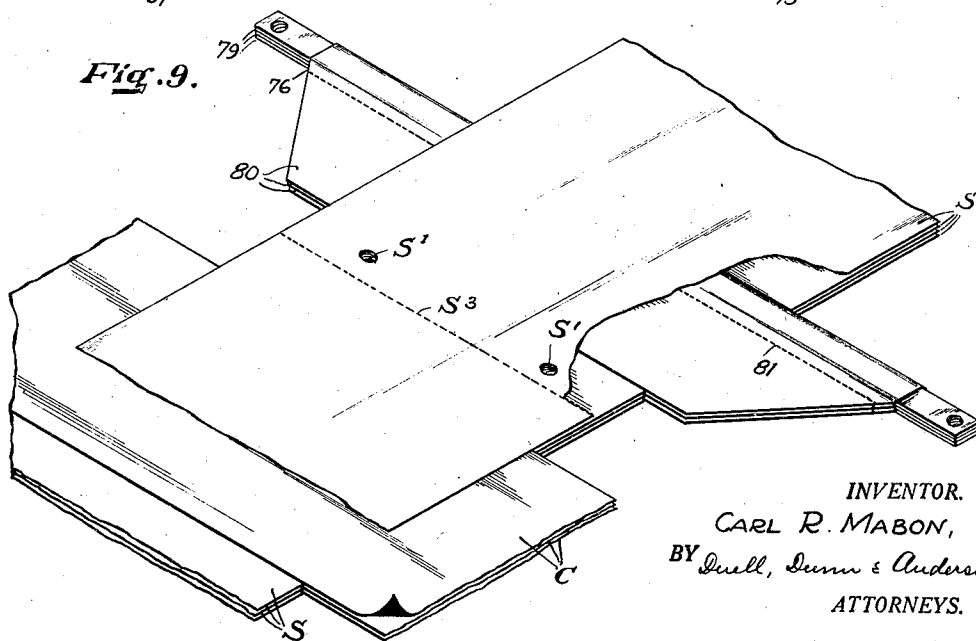


Fig. 9.



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UNITED STATES PATENT OFFICE

1,997,737

ALIGNER FOR BILLING MACHINES

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Application April 24, 1931, Serial No. 532,502
Renewed August 28, 1934

29 Claims. (Cl. 197—133)

This invention relates to improvements in billing and similar manifolding machines wherein a plurality of relatively superposed continuous traveler record strips may be employed and supported in writing position upon a writing platen, whereupon the inscriptions may be entered as, for example, by means of a typewriting machine. With reference to particular features, the invention relates to improvements in means for positioning, smoothing and aligning the record strips upon the writing platen.

It is a general object of the invention to provide in machines of the class mentioned, an improved record strip positioning and controlling mechanism, simple in structure and convenient in operation and well adapted for controlling the record strips and maintaining them in smooth correctly aligned position upon the writing platen, whereby clear and full inscriptions upon all of the superposed record strips are assured.

A further object of the invention is to provide for machines of the class mentioned, an improved record strip controlling and positioning mechanism which is adapted to grip or clamp the record strips at points thereof spaced from the forward ends, so as to tension them and hold them in aligned position.

According to another feature of the invention, an improved record strip aligning and controlling mechanism is provided, embodying a forward strip restraining device which may include strip penetrative pins, and a rearward strip restraining device wherein the use of strip penetrative pins or similar penetrative devices are entirely avoided.

Still another object of the invention is to provide for machines of the class mentioned, an improved record strip controlling mechanism wherein a controlling device or control carriage is yieldingly resisted to tension and control the record strips over the platen, and may be stopped at any position to which it is forwardly moved wherein it can be tripped or released by a manual operation so as to be returned to initial position, thus permitting continuous record strips of different form lengths to be utilized without any special or individual adjustment of the controlling mechanism.

In accordance with another feature of the invention, an improved record strip smoothing and aligning mechanism is provided including frictional strip engaging devices mounted for longitudinal reciprocation, being movable forwardly as a unit with the record strips and movable rearwardly relatively to said strips so as to

align and smooth the latter. These frictional strip aligners are arranged to exert individual aligning action upon the record strips, aligning them against the forward strip engaging pins, or similar forward strip holding means.

Another object of the invention is to provide an improved arrangement whereby the strip gripping or clamping means is maintained released during rearward movement of the controlling mechanism and is automatically reengaged at the termination of said movement.

Other objects of the invention will be, in part, pointed out in the following detailed description of the illustrative embodiments of the invention, and will be, in part, obvious in connection therewith.

The invention accordingly comprises the features of construction, combinations of elements, and arrangements of parts, which will be exemplified in the construction hereinafter set forth and the scope of the application which will be indicated in the claims.

For a more complete understanding of the nature and objects of the invention, reference is had to the following detailed disclosure, and to the accompanying drawings, in which

Fig. 1 is a perspective elevation of a writing machine of the flat platen type equipped with the invention;

Fig. 2 is an enlarged detail plan of the improved record strip controlling mechanism;

Fig. 3 is a longitudinal vertical section substantially on the line 3—3 of Fig. 2 looking in the direction of the arrows;

Fig. 4 is an enlarged vertical longitudinal section similar to that of Fig. 3, the strip gripping or clamping means being in released position;

Fig. 5 is an end elevation of Fig. 2;

Fig. 6 is a transverse, vertical section substantially on the line 6—6 of Fig. 2;

Fig. 7 is a detail fragmentary vertical, longitudinal section showing a detail of the forward strip clamping bar and strip engaging pin.

Fig. 8 is a diagrammatic view of the forward strip holding mechanism together with operating connection therefor.

Fig. 9 is a fragmentary perspective view showing the record strip frictional controlling members or separators, and

Fig. 10 is a view similar to Fig. 9 but showing a slight modification.

For illustrative purposes, the invention is shown as being applied to a writing machine of the flat platen type for which it is well adapted for handling the long continuous traveler record

strips usually employed therein. Machines of this type are well adapted for heavy billing work, especially where large numbers of relatively superposed record strips or work sheets are employed. As applied to such machines, the record strip controlling mechanism of the invention greatly facilitates the positioning and controlling of the strips in correct writing position upon the platen. The improved controlling mechanism is well adapted for application to billing machines already in use, to which it may be readily applied with little effort and with slight modifications or alterations of the machine construction.

Referring to the drawings for a detailed description of the illustrative embodiment, a base or supporting framework 15 is surmounted by a horizontal supporting frame indicated generally at 16. The supporting frame has two longitudinal side frame members 17 providing supporting rails 18 forming a track upon which a typewriting machine of any preferred construction (not shown) may be mounted for forward and rearward movements in line spacing direction over the flat platen 19. Suitable transverse frame members are provided extending between the longitudinal side frame members 17. Thus the type bars of the typewriting machine will be permitted to strike upon the upper surface of the top record strip S, it being understood that as many of these record strips as desired may be arranged in relatively superposed relation with each other, preferably being of the continuous traveler type having longitudinal series of blank forms thereon. Preferably each longitudinal blank form of the record strips is provided with controlling apertures S' for engagement with the forward pins of the machine and for filing purposes. The record strips S are preferably fed from a record supply pack S² which is conveniently of the zigzag folded type in which a plurality of the superposed record strips are folded in zigzag formation. Adjacent forms on each record strip may be separated by weakened transverse lines S³.

Suitable transfer sheets such as the carbon sheets C may be mounted in any preferred manner upon the machine. As shown in Fig. 1, the carbon sheets are extended from a supply roll 20 positioned at the side of the main frame. As many carbon sheets as required may be supplied in this manner, the extended end portions thereof lying transversely of the platen 19 in interleaved relation with the record strips S.

Forward record strip restraining mechanism 21 is provided for controlling the forward ends of the record strip. While this mechanism may be of any preferred construction, it is advantageous for some classes of work to provide strip aperture engaging pins 22, mounted upon a support 23 and spaced apart thereon the same as the spacing of the strip apertures S'. These strip controlling and aligning pins are herein shown as provided with forwardly disposed overhanging lips 24, thus providing hooked formations to effect a more positive engagement with the apertures of the record strip. A clamping bar 25 extending transversely of the strip path is mounted for up and down movement above the pin supporting bar 23. The clamping bar 25 thus cooperates with the pins 22 to restrain the forwardly fed ends of the record strips, while the forward edge of the bar may serve as a tearing edge for the strips.

Swingable supporting arms 26 are provided

for the clamping bar 25 being pivoted at 27 to the frame of the machine as shown in Fig. 8. These supporting arms may form a part of the standard construction of the billing machine and the clamping bar 25 is attached thereto. Operating movement may be transmitted to swing the arms 26 together with the clamping bar, by means of the operating pedal 28 through a link 29. A tension spring 30 may be provided for returning the pedal and operating connections to normal strip clamping position following depression of the pedal.

Positioned to the rearward of the strip controlling device 21 is a second strip controlling mechanism indicated generally at 31. This includes a supporting frame 32 constructed of appropriate material such as, for example, cast metal, being supported in operative position upon side rails 33 which may be secured to the inner sides of the side frame members 17. The frame 32, as shown, is provided with supporting lugs 34 adapted to engage the rails 33, and a clamp 35 is provided adjacent each supporting lug 34 whereby the frame may be firmly secured in any longitudinally adjusted position along the side rails. Each clamping bar 35 may be mounted for longitudinal adjustment in a slot 36 in the supporting frame in which it is secured by a bolt 37. Tightening of this securing bolt will rock the clamping bar 35 about a fulcrum positioned intermediate its ends so as to clamp the supporting rail 33.

Carried by the supporting frame 32 is a record strip gripper or clamp 38 mounted for longitudinal reciprocation substantially in the path of the record strips S. A convenient means for supporting this strip clamp is provided by the carriage 39 mounted for backward and forward movements upon longitudinal supporting rails 40 carried by the frame 32. For this purpose supporting wheels 41 are mounted upon the carriage engaging with the treads of the supporting rails. Guiding and retaining members 42 and 43 are provided for retaining the carriage in its correct operative position, engaging with the rails 40 for this purpose. The retaining member 43 is provided with a retaining flange 44 engaging the underside of the flange 45 of the rail 40.

Means is provided for yieldingly urging the controlling carriage 39 toward its rearward terminal. In the embodiment shown, this means includes a motor spring 46 attached at one end to the carriage, passing over a guide pulley 47 and connected at its opposite end to an adjustable or adjusting anchor 48. This spiral spring is under tension and of considerable length so as to provide for a wide amplitude of movement of the controlling carriage. This spring, therefore, constantly urges the carriage toward its rearward position in any longitudinal position thereof along the supporting rails 40.

The controlling carriage 39 has a top plate 49 positioned substantially in the path of the record strips S and having a longitudinal slot 50 for the reception of the strip gripping and clamping jaw 51. The clamping jaw is preferably pivotally mounted on the carriage as indicated at 52, and is provided with a resilient friction strip gripping shoe 53 which may be made of any suitable yielding friction material such for example as resilient rubber.

Positioned above the clamping jaw 51 is a clamping bar or jaw 54 pivoted as at 55 and cooperating with the lower jaw 51 to provide the strip clamp. At its free end the clamping bar

53 is arranged to cooperate with the releasable holding device 56. The clamping bar may thus be released and swung upwardly to permit placing of the strips in the clamp, and when swung downwardly in clamping position, it is firmly held in position by the securing device or latch 56. The clamp 38 may be of sufficient length, as shown, to extend substantially across the width of the record strips so as to grip and hold them firmly.

One or more clamping springs 57 are provided, being, as shown, under compression and engaging with a forward extension 58 of the clamping jaw 51. While two such springs are shown, it will be obvious that more or less than this number may be provided. Each spring 57 is supported by a post 59 anchored to the carriage top plate 49 and extending downwardly therefrom through a slot in the extension 58. Thus, the clamping jaw 51 is constantly urged into strip clamping position against the strip clamping bar 54.

When the gripping jaw 51 is moved downwardly on its pivot, it may be held in strip releasing condition by means of a pivoted latch bar 60 having a lug 61, engageable with a stationary lug 62 mounted upon the carriage. The latch bar 60 is constantly yieldingly urged into latching position by means of a compression spring 63 stressed between the latch bar and a support 64.

Mounted upon the underside of the clamping jaw 51 is a bracket 65 carrying a longitudinally reciprocable gripper operating bolt 66 urged into a projected position by a compression spring 67. This bolt is positioned for cooperation with an elongated clamp operating bar 68, having its longitudinal dimension extending along and substantially parallel to the path of movement of the controlling carriage 39. The free or swinging edge of the gripper operating bar 68 is thus positioned at all times for cooperation with the retractable gripper operating bolt 66, the cooperating parts of both of these members having inclined engaging surfaces for a purpose described below. The operating bar 68 is mounted for rotation in suitable bearings and is provided with an operating crank arm 69 to which an operating link 70 is connected. At its opposite end the link 70 may be connected to the operating pedal 28 for manual operation. A spring 71 is connected to the crank 69 being stressed to hold the operating bar 68 in its normal operating position in which it is shown in Fig. 6.

In order to terminate the rearward movement of the control carriage 39 a suitable stop mechanism is provided. As shown, there are two such stop mechanisms indicated generally at 72, each including a pliable or yielding strap 73 extending transversely of the carriage path and anchored at opposite ends thereof by suitable clamping lugs 74. These stop strips may be of any suitable pliable material, preferably having a slight yielding tendency, leather being satisfactory for this purpose. Cooperating with these stop straps are stop lugs 75 mounted upon the underside of the top plate 49 of the controlling carriage. As the carriage moves rearwardly under the influence of the motor spring 46, these lugs 75 engage with the stop straps 73 thus limiting rearward carriage movement and providing a yielding buffer for dissipating the momentum of the carriage.

Record strip aligning and positioning means indicated generally at 76 is also preferably utilized, being attached to the controlling carriage 39 so as to move forwardly and rearwardly with

the latter, as best shown in Figs. 2 and 9. A strip guiding plate 77 is positioned upon the carriage just forwardly of the strip gripper being attached to the carriage as by upstanding posts or bolts 78. Transverse bars or blades 79, preferably of thin metal or similar material so as to be somewhat yielding and flexible yet of sufficient strength and stiffness to be self supporting and to support frictional sheet members are positioned above the guiding plate 77 having end apertures for engagement with the supporting posts 78 for holding them in position. Each strip aligning blade 79 has attached thereto in any convenient manner as by folding there around a frictional strip engaging member 80 preferably of some sheet material such as paper. This paper is of sufficient weight and toughness to perform its strip aligning function without tearing and to stand up under the wear incident to this use. Each sheet member may be attached to its supporting blade as described, a line of stitching 81 being used to secure the attachment. While three of these frictional strip aligning members 80 are shown, it will be understood that any number may be employed from one to a relatively large number dependent upon the number of record strips employed.

Instead of utilizing the frictional aligners 80 of manila or similar paper, carbon sheets C' as shown in Fig. 10 may be substituted for a similar purpose so as to perform a similar function. These carbon sheets as shown may be attached to the supporting bars or blades 79 in a manner similar to the attachment of the sheets 80 to the blades 79, the supporting blades being similar in both embodiments. The carbon sheets C' are thus supported in trailing position between the record strips and are positioned in writing position over the platen 19 when the controlling carriage 39 is in its forward position. The carbon sheets C' are preferably carbonized only on their undersurfaces, and when mounted as described they perform an aligning and smoothing function upon the record strips during rearward movement of the controlling carriage 39 just as the sheet members 80 perform a similar function.

The operation of the improved mechanism will now be understood from the foregoing disclosure by those skilled in the art, and may be briefly summarized as follows:

Any desired number of record strips are loaded into the machine as shown in Fig. 1 with the frictional sheet controlling members 80 lying between adjacent record strips so as to frictionally engage the surfaces thereof. Threading of the record strips through the strip gripper clamping device 38 is facilitated by swinging the upper clamping bar 54 upwardly. When the strips are thus in position, the bar 54 is secured in its operative position as shown in Figs. 5 and 6. When the strips are thus clamped, the forward parts thereof are pulled forwardly and the forward strip apertures are placed over the forward aligning pins 22, the pedal 28 being depressed during this operation so as to raise the forward clamping bar 25. This depression of the pedal will swing the gripper operating bar 68 but the grip will not be released at this time due to the fact that the operating bolt 66 is positioned beyond the rearward end of the bar 68, the controlling carriage being in its extreme rearward position when the pedal is depressed. Therefore, the strip clamping gripper is in operative condition to grip the record strips rearwardly of the platen, forward movement of the strips pulling the control

carriage 39 forwardly against the tension of the spring 46. When the pins are in position in the strip apertures, the strips will thus be tensioned against the pins by action of the carriage 39 and the tension spring 46. The pedal 28 will then be released, permitting the forward clamping bar to descend under control of the tension spring 30.

As the pedal is released, the crank arm 69 rises under the action of spring 71, the inclined upper inclined edge surface of operating bar 68 engaging the adjacent inclined face of operating bolt 66, thus retracting the latter against spring 67 until the operating bar assumes the position shown in Fig. 6, the bolt 66 being then projected into position to underly the edge of the bar 68. In this position, it will be observed that the record strips, by the action of the controlling carriage 39, are tensioned and smoothed over the writing platen and held in correct position during the writing operation.

When the writing is completed upon the forward set of forms, the pedal is again depressed whereupon the operating bar 68 engages the bolt 66 depressing the lower jaw 51 of the strip gripper so as to release the clamping grip upon the strips. Immediately the controlling carriage 39 being thus released is moved rearwardly relatively to the strips by action of the motor spring 46. During this return movement of the carriage, the strip clamp is held in released condition by the latch bar 60 which then assumes the holding position shown in Fig. 4. This permits the carriage to move freely rearwardly without corresponding movement of the record strips.

Approximately at the moment the controlling carriage 39 reaches its rearward position in which it is checked by the buffers 73, the lower end of the latch bar 60 engages the trip lug 82, thus releasing the latch bar from its holding position whereupon the gripper jaw 51 is permitted to move upwardly again into strip gripping position by action of the springs 57. The record strips will thus be gripped and clamped at a new position thereof spaced to the rearward of the preceding gripping position a distance corresponding to the rearward travel of the carriage.

During the rearward travel of the carriage just described, the smoothing and aligning functions of the blades 79 and of the frictional sheet aligners 80, or of the carbon sheets C' and blades 79a (Fig. 10), will be accomplished. These aligning members at this time frictionally engage the adjacent surfaces of the record strips smoothing the latter and exerting a rearward aligning pull thereon so as to align the record strips against the forward pins 22, the forward clamping bar 25 being released at this time. It will be observed that this frictional aligning mechanism exerts individual aligning action upon each of the record strips. Each strip is thus individually smoothed and aligned against the forward pins 22 and any slight longitudinal disalignment is thus very effectually corrected.

After the controlling carriage 39 has accomplished its controlling action during rearward movement thereof as described, the forward inscribed forms of the record strips are disengaged from the forward pins and are pulled forwardly to engage the next successive apertures with said pins. During this forward strip movement the controlling carriage 39 will again be moved forwardly in a manner similar to that above described. The distance of forward carriage travel will thus be equal to the length of the successive form sheets of the record strips; that is, it will

be equal to the longitudinal distance between successive control apertures S'. Also, it will be noted that different lengths of form sheets may be accommodated by the elongated clamp operating bar 68. Thus, the operating bar 68 is operative to release the strip clamp throughout a wide amplitude of longitudinal positioning of the control carriage 39. No individual adjustment of the mechanism is therefore required for the accommodation of record strips having different form lengths.

Thus, it will be observed that the improved controlling mechanism not only tensions and holds the record strips in the best condition on the platen for the reception of inscriptions, but it effects individual alignment of the record strips, keeping them always in perfect longitudinal alignment so that the blank forms of the superposed record strips are in perfect registry with each other.

Should the operator wish to release the gripper 38 temporarily for the manipulation or adjustment of the record strip forms without permitting the controlling carriage 39 to move rearwardly under the influence of the motor spring 46, this may conveniently be done by providing the clamp operating bar 68 with teeth or serrations 68' at its edge for engagement with the operating bolt 66. The operating bolt, if desired, can likewise be provided upon its upper surface with serrations preferably extending longitudinally of the bolt in position to engage with the teeth 68' of the operating bar. By virtue of this arrangement, the gripper 38 can be released by depressing the pedal 28 only a sufficient distance to release the clamp but not far enough to cause the latter to be locked in releasing position by operation of the latch bar 60. During this operation, the serrations 68' will engage the bolt 66, thus preventing the motor spring 46 from moving the controlling carriage rearwardly. In other words, this serrated operating bar 68 under the conditions mentioned will function to restrain the carriage against rearward movement. During such temporary release of the gripper the record strips may be moved by the operator to any desired position relatively to the gripper such, for example, as to correct the registration of the forms or for other purposes. When the adjustments have been made, the pedal is allowed to return to its normal position, thus resetting the clamp whereupon the writing may be continued, the controlling carriage during all of this operation remaining in its forward strip controlling position.

It will be observed that the record strips are also gripped at the rear side or edge of the writing platen 18 by means of the clamping device 19' indicated diagrammatically in Figs. 1 and 8. Since this clamping device is commonly employed on machines of this type, it need not be described in detail herein, but it will be understood that a clamp such as 19' is ordinarily employed to engage and grip the record strips at both edges of the latter to the rearward of the inscription receiving areas or forms. Also, it will be understood that the clamps 19' will be released by depression of the pedal through the link 29 and an operating connection 28' indicated diagrammatically in Fig. 8. This operating connection functions to depress the platen slightly so as to release the grip of the clamps 19' upon depression of the pedal as will be understood by those familiar with this art.

Since certain changes may be made in the

above construction and different embodiments of the invention could be made without departing from the scope thereof, it is intended that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

Having described my invention, what I claim as new and desire to secure by Letters Patent, is:

1. In a machine of the character described, in combination, means for restraining forward parts of a record strip, a strip gripper engageable in clamping relation with rearward strip parts, means causing said gripper to clamp said strip to move it forwardly by strip feed in opposition to the later mentioned yielding means, and means yieldingly urging said strip gripper rearwardly when gripping the strip for tensioning and controlling the latter.

2. In a machine of the character described, in combination, means for restraining forward parts of a record strip, a strip gripper engageable in clamping relation with rearward strip parts, a carriage supporting said gripper and being mounted for longitudinal oscillation substantially in the strip path, means whereby the carriage is moved forwardly and held in its forward position by the strip when clamped by said gripper, and means yieldingly urging said strip gripper rearwardly when in strip gripping position and held in its forward position by said record strip for tensioning and controlling the latter.

3. In a machine of the character described, in combination, means for restraining forward parts of a record strip, a strip gripper engageable in clamping relation with rearward strip parts, a carriage supporting said gripper and being mounted for longitudinal oscillation substantially in the strip path, means whereby the carriage is moved forwardly and held in its forward position by the strip when clamped by said gripper, means yieldingly urging said strip gripper rearwardly when held in its forward position by said record strip for tensioning and controlling the latter, and operating mechanism for releasing said strip gripper from strip clamping position when said carriage is in its forwardly held position whereby the carriage may move rearwardly into a new strip clamping position under the influence of said yielding means.

4. In a machine of the character described, in combination, means for restraining forward parts of a record strip, a strip gripper engageable in clamping relation with rearward strip parts, a carriage supporting said gripper and being mounted for longitudinal oscillation substantially in the strip path and being movable forwardly with the strip when clamped by said gripper, means yieldingly urging said strip gripper rearwardly when in strip gripping position and held in its forward position by said record strip for tensioning and controlling the latter, operating mechanism for releasing said strip gripper from strip clamping position when said carriage is in a forward position whereby the carriage may move rearwardly into a new strip clamping position under the influence of said yielding means, and means for maintaining said strip gripper in released condition during rearward return movement of said carriage.

5. In a machine of the character described, in combination, means for restraining forward parts of a record strip, a strip gripper engageable in clamping relation with rearward strip parts, a carriage supporting said gripper and being mount-

ed for longitudinal oscillation substantially in the strip path and being movable forwardly with the strip when clamped by said gripper, means yieldingly urging said strip gripper rearwardly when gripping said record strip for tensioning and controlling the latter, operating mechanism for releasing said strip gripper from strip clamping position when said carriage is in a forward position whereby the carriage may move rearwardly into a new strip clamping position under the influence of said yielding means, means for maintaining said strip gripper in released condition during rearward return movement of said carriage, and automatic means for resetting said gripper in strip clamping condition when it reaches its new clamping position.

6. In a machine of the character described, in combination, means for restraining forward parts of a plurality of relatively superposed record strips, a strip gripper engageable in clamping relation with rearward parts of said strips, a carriage supporting said gripper and being mounted for longitudinal oscillation substantially in the record strip path and being movable forwardly with the record strips when clamped by said gripper, means yieldingly urging said strip gripper rearwardly when in strip gripping position and held in its forward position by the strips for tensioning and controlling the latter, and a frictional strip controlling device supported by said carriage and frictionally engaging the record strips during rearward carriage movement for smoothing and positioning said record strips.

7. In a machine of the character described, in combination, means for restraining forward parts of a plurality of relatively superposed record strips, a strip gripper engageable in clamping relation with rearward parts of said strips, a carriage supporting said gripper and being mounted for longitudinal oscillation substantially in the record strip path and being movable forwardly with the record strips when clamped by said gripper, means yieldingly urging said strip gripper rearwardly when gripping the strips for tensioning and controlling the latter, and a record strip controlling sheet member mounted on said carriage and extending between adjacent record strips, frictionally engaging the latter during rearward carriage movement for individually smoothing and positioning said strips.

8. In a machine of the character described, in combination, means for restraining forward parts of a plurality of relatively superposed record strips, a strip gripper engageable in clamping relation with rearward parts of said strips, a carriage supporting said gripper and being mounted for longitudinal oscillation substantially in the record strip path and being movable forwardly with the record strips when clamped by said gripper, means yieldingly urging said strip gripper rearwardly when in strip gripping position and held in its forward position by the strips for tensioning and controlling the latter, a frictional strip controlling device supported by said carriage and frictionally engaging the record strips during rearward carriage movement for smoothing and positioning said record strips, and operating mechanism for releasing said strip gripper from strip clamping position when said carriage is in a forward position, whereby the carriage may move rearwardly into a new strip clamping position under the influence of said yielding means, at the same time effecting strip

positioning by said frictional strip controlling device.

9. In a machine of the character described, in combination, means for restraining forward parts of a plurality of relatively superposed record strips, a strip gripper engageable in clamping relation with rearward parts of said strips, a carriage supporting said gripper and being mounted for longitudinal oscillation substantially in the record strip path and being movable forwardly with the record strips when clamped by said gripper, means yieldingly urging said strip gripper rearwardly when gripping the strips for tensioning and controlling the latter, and a frictional strip controlling device supported by said carriage and frictionally engaging the record strips during rearward carriage movement for smoothing and positioning said record strips, said strip controlling device including a transfer sheet supported by said carriage in trailing position between adjacent record strips so as to be disposed in operative transfer position when said carriage and gripper are in forward position.

10. In a machine of the character described, in combination, means for restraining forward parts of a record strip, a strip gripper engageable in clamping relation with the rearward strip parts, a carriage supporting said gripper and being mounted for longitudinal oscillation substantially in the strip path and being movable forwardly with the strip when clamped by said gripper, means yieldingly urging said strip gripper rearwardly when in strip gripping position and held in its forward position by said record strip for tensioning and controlling the latter, and operating mechanism for releasing said strip gripper from strip clamping position when said carriage is in a forward position whereby the carriage may move rearwardly into a new strip clamping position under the influence of said yielding means, said releasing mechanism including a longitudinally disposed elongated operating bar positioned for releasing cooperation with said strip gripper in different longitudinal positions of the latter.

11. In a machine of the character described, in combination, means for restraining forward parts of a record strip, a strip gripper engageable in clamping relation with rearward strip parts, a carriage supporting said gripper and being mounted for longitudinal oscillation substantially in the strip path and being movable forwardly with the strip when clamped by said gripper, means yieldingly urging said strip gripper rearwardly when gripping said record strip for tensioning and controlling the latter, operating mechanism for releasing said strip gripper from strip clamping position when said carriage is held by the strip in a forward position whereby the carriage may move rearwardly into a new strip clamping position under the influence of said yielding means, and means whereby said releasing mechanism may cooperate to release said strip gripper in different carriage positions substantially throughout the length of longitudinal travel of said carriage.

12. In a machine of the character described, in combination, a writing platen for record strips, strip restraining means positioned relatively forwardly of said platen, strip restraining means positioned relatively rearwardly of said platen and engaging said strips so as to be moved forwardly and held in forward position thereby, a carriage mounting said rearward restraining means for reciprocating movement longitudinally of the

strip path, means yieldingly urging said rearward restraining means reversely of strip feed so as to tension and smooth the record strips over the platen and to return the carriage rearwardly, and releasing mechanism for said rearward restraining means including an elongated, rotatably mounted releasing bar having its longitudinal axis extending substantially parallel to the path of movement of said rearward restraining means and positioned for cooperation with the latter in different longitudinal positions thereof so as to terminate strip restraint thereby in different longitudinal positions for the accommodation of record strips having different form lengths.

13. In a machine of the character described, in combination, a writing platen for record strips, strip restraining means positioned relatively forwardly of said platen, strip restraining means positioned relatively rearwardly of said platen and engaging said strips so as to be moved forwardly and held in forward position thereby, a carriage mounting said rearward restraining means for reciprocating movement longitudinally of the strip path, means yieldingly urging said rearward restraining means reversely of strip feed so as to tension and smooth the record strips over the platen and to return the carriage rearwardly, and releasing mechanism for said rearward restraining means including an elongated releasing bar having its operative edge extending along and substantially parallel to the path of movement of said carriage, said releasing bar being positioned for cooperation with said rearward restraining means to terminate strip restraint thereby in different longitudinal positions thereof.

14. In a machine of the character described, in combination, a writing platen for record strips, strip restraining means positioned relatively forwardly of said platen, strip restraining means positioned relatively rearwardly of said platen and engaging said strips so as to be moved forwardly and held in forward position thereby, a carriage mounting said rearward restraining means for reciprocating movement longitudinally of the strip path, means yieldingly urging said rearward restraining means reversely of strip feed so as to tension and smooth the record strips over the platen and to return the carriage rearwardly, releasing mechanism for said rearward restraining means positioned for cooperation therewith in different longitudinal positions so as to terminate strip restraint thereby in different longitudinal positions for the accommodation of record strips having different form lengths, and automatic means actuated by rearward carriage movement for resetting said rearward restraining means in strip restraining condition.

15. In a machine of the character described, in combination, a writing platen for record strips, strip restraining means positioned relatively forwardly of said platen, strip restraining means positioned relatively rearwardly of said platen and engaging said strips so as to be moved forwardly and held in forward position thereby, a carriage mounting said rearwardly restraining means for reciprocating movement longitudinally of the strip path, means yieldingly urging said rearward restraining means reversely of strip feed so as to tension and smooth the record strips over the platen and to return the carriage rearwardly, releasing mechanism for said rearward restraining means positioned for cooperation therewith in different longitudinal positions so as to terminate strip restraint thereby in different longitudinal positions for the accommodation of record strips

having different form lengths, and means for maintaining said rearward restraining means in released condition during carriage return movement.

16. In a machine of the character described, in combination, a writing platen for record strips, strip restraining means positioned relatively forwardly of said platen, strip restraining means positioned relatively rearwardly of said platen and engaging said strips so as to be moved forwardly thereby, a carriage mounting said rearward restraining means for reciprocating movement longitudinally of the strip path, means yieldingly urging said rearward restraining means reversely of strip feed so as to tension and smooth the record strips over the platen and to return the carriage rearwardly, releasing mechanism for said rearward restraining means positioned for cooperation therewith in different longitudinal positions so as to terminate strip restraint thereby in different longitudinal positions for the accommodation of record strips having different form lengths, means for maintaining said rearward restraining means in released condition during carriage return movement, and automatic means actuated by rearward carriage movement for resetting said rearward restraining means in strip restraining condition.

17. In a machine of the character described, in combination, a writing platen for relatively superposed traveler record strips having controlling apertures, strip restraining means positioned relatively forwardly of said platen and including strip aperture engaging pins, strip restraining means positioned relatively rearwardly of said platen and engaging said strips so as to be moved forwardly thereby, a carriage mounting said rearward restraining means for reciprocating movement longitudinally of the strip path, means yieldingly urging said rearward restraining means reversely of strip feed so as to return the carriage rearwardly and to smooth and tension the record strips on said platen when said forward pins are in the strip apertures, and a frictional strip controlling member mounted on said carriage and extending between adjacent record strips in frictional engagement with the latter so as to individually align the strips against said pins during rearward carriage movement.

18. In a machine of the character described, in combination, a writing platen for relatively superposed traveler record strips having controlling apertures, strip restraining means positioned relatively forwardly of said platen and including strip aperture engaging pins, strip restraining means positioned relatively rearwardly of said platen and engaging said strips so as to be moved forwardly thereby, a carriage mounting said rearward restraining means for reciprocating movement longitudinally of the strip path, means yieldingly urging said rearward restraining means reversely of strip feed so as to return the carriage rearwardly and to smooth and tension the record strips on said platen when said forward pins are in the strip apertures, a frictional strip controlling member mounted on said carriage and extending between adjacent record strips in frictional engagement with the latter so as to individually align the strips against said pins during rearward carriage movement, and means for releasing said rearward restraining means whereby the latter may return rearwardly automatically under the influence of said yielding means.

19. In a machine of the character described,

in combination, a writing platen for relatively superposed traveler record strips having controlling apertures, strip restraining means positioned relatively forwardly of said platen and including strip aperture engaging pins, strip restraining means positioned relatively rearwardly of said platen and engaging said strips so as to be moved forwardly thereby, a carriage mounting said rearward restraining means for reciprocating movement longitudinally of the strip path, means yieldingly urging said rearward restraining means reversely of strip feed so as to return the carriage rearwardly and to smooth and tension the record strips on said platen when said forward pins are in the strip apertures, a frictional strip controlling member mounted on said carriage and extending between adjacent record strips in frictional engagement with the latter so as to individually align the strips against said pins during rearward carriage movement, means for releasing said rearward restraining means whereby the latter may return rearwardly automatically under the influence of said yielding means, and automatic means actuated by rearward carriage movement for resetting said rearward restraining means in strip restraining condition.

20. In a machine of the character described, in combination, a writing platen for relatively superposed traveler record strips having controlling apertures, strip restraining means positioned relatively forwardly of said platen and including strip aperture engaging pins, strip restraining means positioned relatively rearwardly of said platen and engaging said strips so as to be moved forwardly thereby, said rearward restraining means including a strip gripping clamping device, a carriage mounting said rearward restraining means for reciprocating movement longitudinally of the strip path, means yieldingly urging said rearward restraining means reversely of strip feed so as to return the carriage rearwardly and to smooth and tension the record strips on said platen when said forward pins are in the strip apertures, and a frictional strip controlling member mounted on said carriage and extending between adjacent record strips in frictional engagement with the latter so as to individually align the strips against said pins during rearward carriage movement.

21. In a machine of the character described, in combination, a writing platen for relatively superposed traveler record strips having controlling apertures, strip restraining means positioned relatively forwardly of said platen and including strip aperture engaging pins, strip restraining means positioned relatively rearwardly of said platen and engaging said strips so as to be moved forwardly thereby, said rearward restraining means including a strip gripping clamping device, having a movably mounted spring pressed gripping jaw and a releasable clamping jaw positioned in the strip path, a carriage mounting said clamping device for reciprocating movement longitudinally of the strip path, and means yieldingly urging said carriage reversely of strip feed so as to tension and smooth the record strips on the platen when said forward pins are in the strip apertures and to return the carriage to its rearward position.

22. In a machine of the character described, in combination, a writing platen for relatively superposed traveler record strips having controlling apertures, strip restraining means positioned relatively forwardly of said platen and including

strip aperture engaging pins, strip restraining means positioned relatively forwardly of said platen and engaging said strips so as to be moved forwardly thereby, said rearward restraining means including a strip gripping clamping device having a movably mounted spring pressed gripping jaw and a releasable clamping jaw positioned in the strip path, a carriage mounting said clamping device for reciprocating movement longitudinally of the strip path, means yieldingly urging said carriage reversely of strip feed so as to tension and smooth the record strips on the platen when said forward pins are in the strip apertures and to return the carriage to its rearward position, and a frictional strip controlling member mounted on said carriage and extending between adjacent record strips in frictional engagement therewith so as to individually align the strips against said pins during rearward carriage movement.

23. In a machine of the character described, in combination, a writing platen for relatively superposed traveler record strips having controlling apertures, strip restraining means positioned relatively forwardly of said platen and including strip aperture engaging pins, strip restraining means positioned relatively rearwardly of said platen and engaging said strips so as to be moved forwardly thereby, said rearward restraining means including a strip gripping clamping device having a movably mounted spring pressed gripping jaw and a releasable clamping jaw positioned in the strip path, a carriage mounting said clamping device for reciprocating movement longitudinally of the strip path, means yieldingly urging said carriage reversely of strip feed so as to tension and smooth the record strips on the platen when said forward pins are in the strip apertures and to return the carriage to its rearward position, means for releasing said clamping device whereby said carriage may return rearwardly automatically under the influence of said yielding means, and automatic means actuated by rearward carriage movement for resetting said clamping device.

24. In a machine of the character described, in combination, a writing platen for relatively superposed traveler record strips having controlling apertures, strip restraining means positioned relatively forwardly of said platen and including strip aperture engaging pins, strip restraining means positioned relatively forwardly of said platen and engaging said strips so as to be moved forwardly thereby, said rearward restraining means including a strip gripping clamping device having a movably mounted spring pressed gripping jaw and a releasable clamping jaw positioned in the strip path, a carriage mounting said clamping device for reciprocating movement longitudinally of the strip path, means yieldingly urging said carriage reversely of strip feed so as to tension and smooth the record strips on the platen when said forward pins are in the strip apertures and to return the carriage to its rearward position, a frictional strip controlling member mounted on said carriage and extending between adjacent record strips in frictional engagement therewith so as to individually align the strips against said pins during rearward carriage movement, means for releasing said clamping device whereby said carriage may return rearwardly automatically under the influence of said yielding means, and automatic means actuated by rearward carriage movement for resetting said clamping device.

25. In a machine of the character described, in combination, a writing platen for relatively superposed traveler record strips having controlling apertures, strip restraining means positioned relatively forwardly of said platen and including strip aperture engaging pins, strip restraining means positioned relatively rearwardly of said platen and engaging said strips so as to be moved forwardly thereby, said rearward restraining means including a strip gripping clamping device, a carriage mounting said rearward restraining means for reciprocating movement longitudinally of the strip path, means yieldingly urging said rearward restraining means reversely of strip feed so as to return the carriage rearwardly and to smooth and tension the record strips on said platen when said forward pins are in the strip apertures, a frictional strip controlling member mounted on said carriage and extending between adjacent record strips in frictional engagement with the latter so as to individually align the strips against said pins during rearward carriage movement, means for releasing said clamping device whereby the latter may return rearwardly under the influence of said yielding means, means for maintaining said clamping device in released condition during rearward carriage return movement, and automatic means actuated by rearward carriage movement for resetting said clamping device.

26. In a machine of the character described, in combination, a writing platen for relatively superposed traveler record strips, strip restraining means positioned relatively forwardly of said platen, strip restraining means positioned relatively rearwardly of said platen and including a longitudinally reciprocable strip gripping clamping device adapted to grip the strips so as to be moved forwardly by the latter into normal operating position, and means yieldingly urging said clamping device rearwardly from its said operating position so as to tension and smooth the strips on said platen.

27. In a machine of the character described, in combination, a writing platen for relatively superposed traveler record strips having controlling apertures, strip restraining means positioned relatively forwardly of said platen and including strip aperture engaging pins, strip restraining means positioned relatively rearwardly of said platen and including a longitudinally reciprocable strip gripping clamping device adapted to grip the strips so as to be moved forwardly by the latter into normal operating position, means yieldingly urging said clamping device rearwardly from its said operating position so as to tension and smooth the strips on said platen, and a strip controlling member mounted for movement with said strip clamping device and extending between adjacent record strips in frictional engagement therewith so as to individually align the strips against said pins.

28. In a machine of the character described, in combination, means for restraining one or a plurality of record strips, strip engaging means spaced longitudinally of the strip path from said restraining means, yielding means yieldingly resisting movement of said strip engaging means toward said restraining means, said strip engaging means being mounted for reciprocating movement longitudinally of the strip path and held in its moved position against said yielding means by the strips so as to tension the latter, and a frictional strip controlling thin sheet member mounted for reciprocating movement with

said strip engaging means and positioned between adjacent record strips and in strip-controlling frictional engagement with the surfaces thereof.

29. In a machine of the character described,
5 in combination, means for restraining one or a plurality of record strips, strip engaging means spaced longitudinally of the strip path from said restraining means, yielding means yieldingly resisting movement of said strip engaging means
10 toward said restraining means, said strip engag-

ing means being mounted for reciprocating movement longitudinally of the strip path and held in its moved position against said yielding means by the strips so as to tension the latter, and a pliable fabric friction sheet mounted for reciprocating movement with said strip engaging means and positioned in frictional engagement with the record strip for control thereof.

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