July 30, 1929. L. F. HAGEMANN 1,722,290

STRIP FOLDER FOR MANIFOLDING MACHINES

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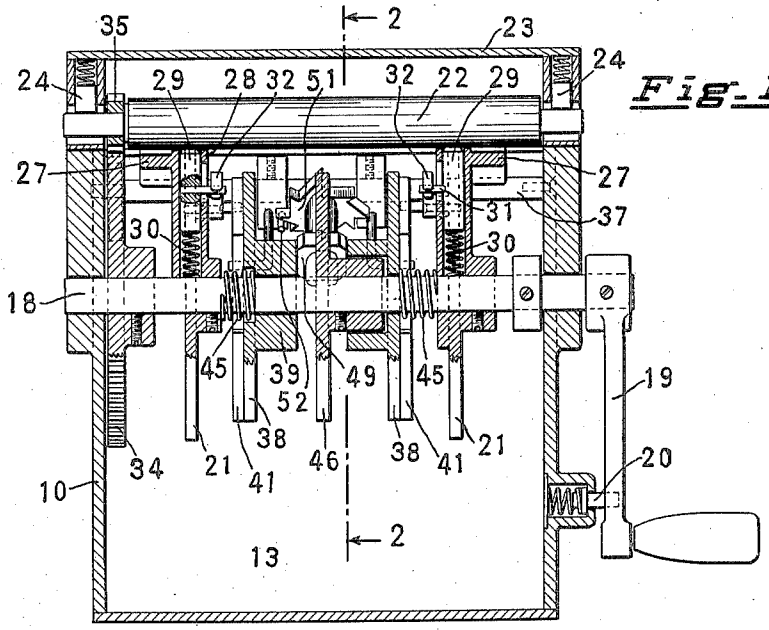


Fig. 1.

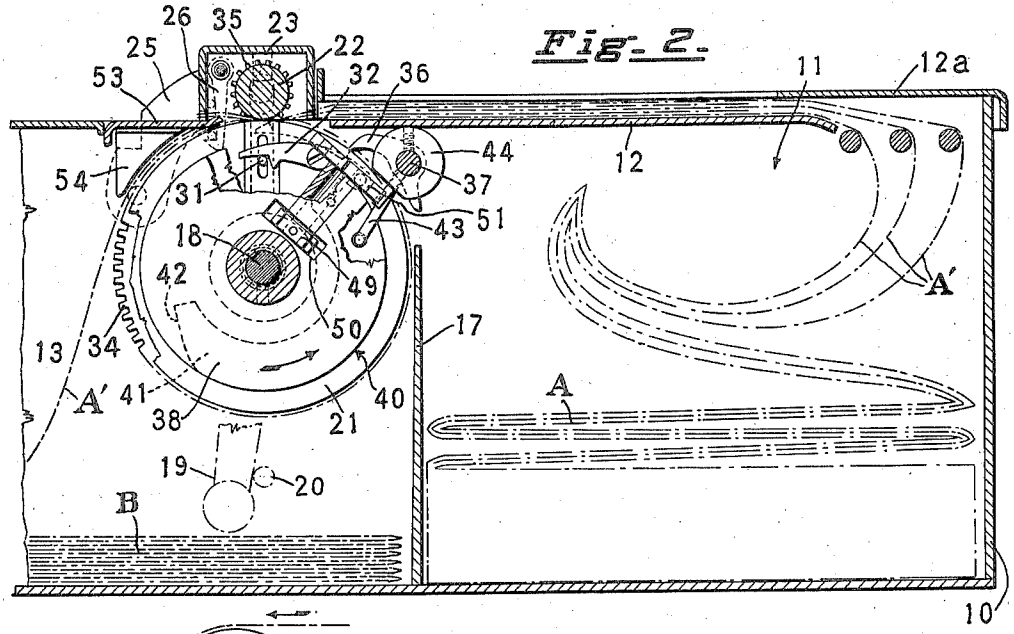


Fig. 2.

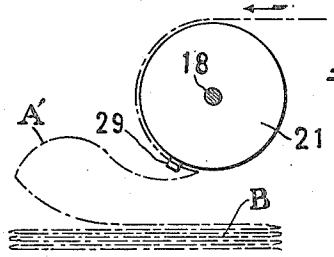


Fig. 3.

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STRIP FOLDER FOR MANIFOLDING MACHINES

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Fig. 4.

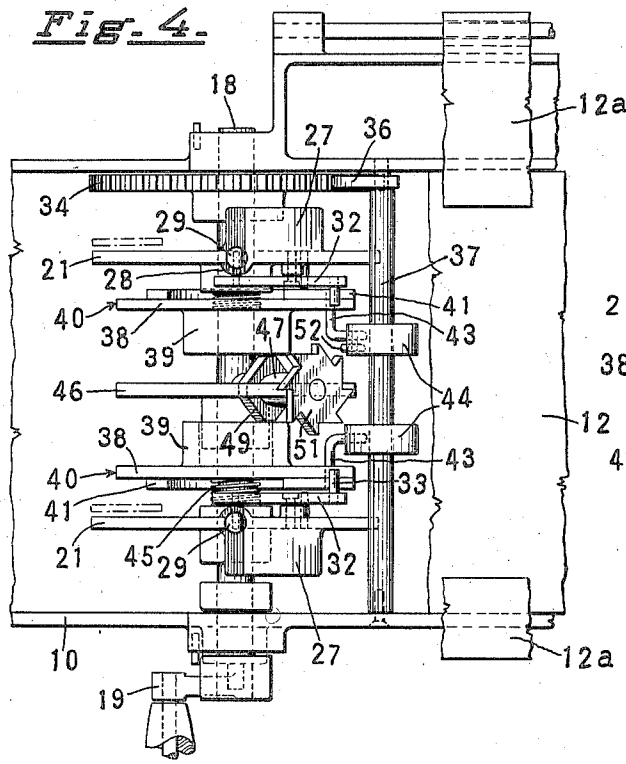


Fig. 5.

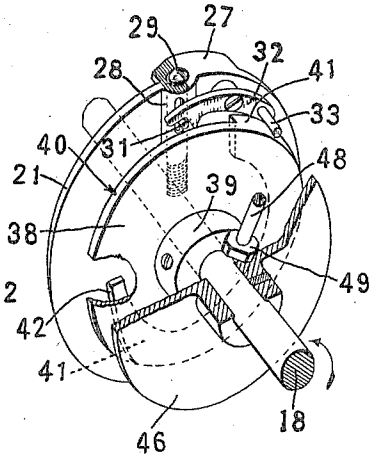
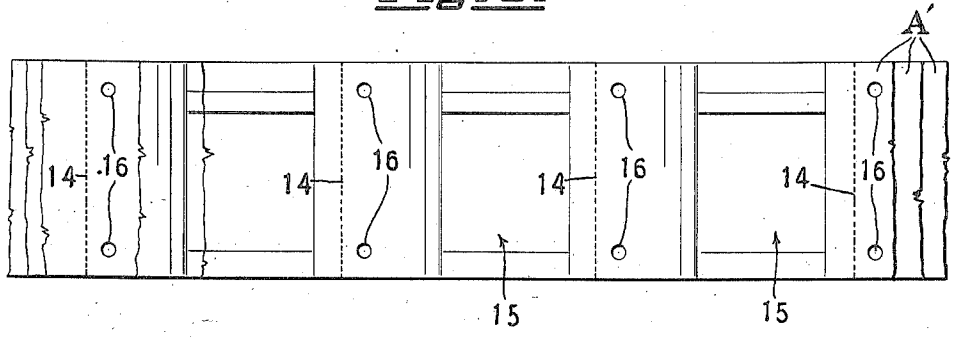


Fig. 6.



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UNITED STATES PATENT OFFICE.

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STRIP FOLDER FOR MANIFOLDING MACHINES.

Application filed February 29, 1928. Serial No. 258,084.

This invention relates to improvements in strip folding and feeding mechanism, and with reference to more particular features thereof, it relates to improvements in folding and feeding mechanism for the record strips of writing machines such for example, as autographic registers.

It is the general object of the invention to provide, in a machine of the class mentioned, an improved record strip feeding and folding mechanism including a simple arrangement whereby apertures formed in the strips are utilized for deflecting a record strip toward folded position in a zigzag folded pad.

A further and more particular object of the invention is to provide, in a machine of the class mentioned, an improved record strip feeding and folding mechanism wherein apertures provided in the strip for controlling the feed thereof may be also utilized for folding the strip neatly into a zigzag folded pad.

Still another object of the invention is to provide, in a machine of the class mentioned, an improved strip folding mechanism for record strips having a longitudinal series of feed controlling apertures and being adapted to coact, in its folding cooperation with the strip, only with the alternate successive feed controlling apertures, and functioning to deflect certain predetermined parts of the strip at one end of a zigzag folded storage pack or pad which may be housed within the machine and protected against unauthorized access.

A further object is to provide, in a machine of the class mentioned, record strip feed discs which are modified in such a manner as to cooperate with a record strip to deflect successive parts thereof into folded condition.

Another object of the invention is to provide an improved record strip folding mechanism automatically controlled by strip feeding mechanism to selectively deflect certain parts of the strip into folded condition.

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

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

Fig. 1 is a vertical transverse section through the record strip feeding and folding mechanism of an autographic register embodying the features of the invention;

Fig. 2 is a longitudinal vertical section substantially on the line 2—2 of Fig. 1, looking in the direction of the arrows;

Fig. 3 is a partially diagrammatic sectional view similar to Fig. 2 but showing the strip folding apparatus in a different position;

Fig. 4 is a top plan view of the feeding and folding mechanism;

Fig. 5 is an enlarged detail perspective of the feeding and folding mechanism; and

Fig. 6 is a plan of the record strips arranged in superposed relation and constructed for use in the improved machine.

Referring more particularly to the drawing for a detailed description of the illustrative form of the invention, the novel features of construction thereof are there shown as embodied in a machine of the autographic register type, but it will be readily understood by those skilled in the art that the invention may be applied to other types of machines.

As shown, a casing 10 is provided for housing and supporting the strip feeding and folding mechanism and at one end of said casing, there is preferably provided a storage compartment 11 in which may be housed a storage supply book or pad A which may be of any desired known form, but for convenience in handling and satisfactory use in operation, the zigzag type of supply pad is preferred in which a plurality of record strips A′ are arranged in superposed relation and interfolded zigzag. The strips A′ are led from this supply pad over appropriate guiding mechanism to the platen 12 of the machine upon which it is supported for manifold inscription. It will be understood that a cover plate 12^a may overlie this platen and carbon or transfer sheets may be supported in position for interleaving with the record strips over the platen.

At the forward part of the machine, a compartment 13 is provided in the casing in which one or more of the record strips may be refolded zigzag in a compact pad B and retained in this compartment from unauthorized access. For this purpose, the compart-

ment may be provided with a closure (not shown) having a lock.

An improved feeding and folding mechanism is provided for feeding the record strips forwardly from the supply pad into inscription receiving position over the platen, this feeding mechanism being preferably located intermediate the length of the machine adjacent to and partially overlying the refolded or storage compartment. This feeding and folding mechanism is arranged to align the strips with each other and with the platen and to refold one or more of the strips, as more fully described below.

The form of record strip especially adapted for use in the improved machine is shown in Fig. 6 in which three-strips are shown arranged in superposed relation but a greater or smaller number may be utilized. As shown, it is preferred that each strip be formed with transverse weakened lines 14 which may be in the form of cuts or perforations which decrease the resistance of the strip to folding thereof and also provide severance lines along which the recorded portions of the strip may be severed. The transverse weakened lines are spaced apart longitudinally of the strips so as to lie substantially at the ends of the zigzag pack when in folded condition, the strips being ordinarily folded at said lines and the consecutive folds being oppositely directed as shown in Fig. 2. When the strips are refolded the refolding tendency engendered by these weakened fold lines will aid in refolding the strip provided, of course, the strip is refolded in the same direction. The spaces or lengths of strip between consecutive weakened lines 14 forms inscription receiving areas which may be provided with one or more blank forms 15 for facilitating inscription entry and these spaces or lengths may be termed form leaves or pad leaves. Aligning apertures 16 are formed in the strips, being preferably arranged in two longitudinal series spaced apart longitudinally of the strip and parallel with each other and preferably arranged so that one aperture of each series is positioned toward the forward end of each form leaf. These apertures are utilized in the record machine for controlling strip feed for aligning the blank forms with each other and with the writing platen and also, by cooperation with a mechanism forming an important part of this invention, for folding the strip into the storage compartment 13.

As clearly shown in Fig. 2, the feeding and folding mechanism may be located adjacent to an intermediate partition 17 dividing the supply compartment from the filing compartment and partially overlying the latter. The main feed shaft 18, disposed transversely of the machine, is mounted in bearings carried by the frame and an exterior operating handle 19 is attached thereto and positioned to contact with a spring projected retractible stop or lug 20 mounted in the casing and adapted to contact with the handle to check operation of the feeding mechanism at the end of each feeding cycle.

Spaced circular feed discs 21 are rigidly mounted upon the shaft 18 for rotation therewith having strip engaging peripheral surfaces lying in juxtaposition to the surface of a feed roll 22 rotatably mounted in a carrier or housing 23 and spring pressed by means of springs 24 into cooperative relation with the feed discs. This carrier is preferably mounted on supporting arms 25 pivoted to the machine whereby the carrier with the feed roll may be swung to or from cooperative relation with the feed discs. The carrier may be held in operative position by means of a releasable latching mechanism 26, and when in such position it will be seen that the roll provides a feeding grip with each feed disc for gripping the strips for forward feeding thereof.

Each of the feed discs is provided with peripherially arranged feed or starting lugs 27 having strip gripping surfaces substantially in extension of the feed surfaces of the feed discs, but laterally disaligned or offset therefrom, so as to engage the record strips at points thereon laterally disaligned from the feed controlling apertures, it being understood that the feed discs are normally spaced apart so that the feeding grips thereof are respectively aligned with the series of feed controlling apertures.

Each disc is also formed with a tubular enlargement or bearing 28, which may as shown be integral with the disc and positioned adjacent to the starting lug 27 and extending inwardly from the periphery of the disc. Mounted within this tubular bearing 28 is an extensible and retractible member or folding finger 29 shown in the form of a pin urged toward extended position by means of a spring 30. A lug 31 mounted upon the folding finger 29 extends through a slot in the guiding bearing 28 for cooperation with finger operating mechanism. A finger operating lever 32 is pivoted to each feed disc having operative engagement at one end with the respective lug 31, while a pin 33 at the opposite end is positioned for operative engagement with mechanism for controlling the projection and retraction of the folding finger in timed relation in the feeding cycles of the strip feeding and folding mechanism.

Driving connections between the feed shaft 18 and the feed roll 22 may be provided in the form of a gear 34 carried by said shaft and a pinion 35 carried by the roll shaft and meshing with the gear 34 when the roll is in operative position. A pawl 36 is provided for engagement with the teeth of the gear 34 to prevent retrograde movement of the feed shaft, this pawl being shown as pivotally carried by

a transverse rod 37 mounted in the machine casing.

Operating cam discs 38 are mounted upon the feed shaft 18 for sliding movement longitudinally thereof, each disc being provided for this purpose with a hub 39 bored to receive the shaft. These cams are of similar construction, one for use at the right and the other at the left, and a detailed description of one will be sufficient.

Each cam disc 38 has a substantially circular peripheral cam face 40 and a laterally disposed cam face 41 which for a part of its area forms substantially an extension of the cam face 40 but also has a contact surface 42 leading inwardly of the cam disc from the peripheral surface thereof. The cam face 42 and the opposite terminal of the surface 41 are angularly spaced apart a considerable distance, the purpose of which will later appear. The operating lug or pin 33 of the operating lever 32 is positioned for cooperation with the cam faces of the cam disc, engaging different faces thereof dependent upon the rotative and lateral positions of the cam disc. Although each of the cam discs 38 is mounted for free sliding movement on the main feed shaft 18 it is anchored to restrain rotary motion with said shaft by means of an anchor rod 43 extending parallel to the feed shaft and engaging the cam disc in an aperture therein in such a manner as not to obstruct the lateral sliding movement of the cam disc. Each anchor may be appropriately supported as by means of a supporting hub 44 detachably attached to the supporting bar 37. Each cam disc is positioned adjacent to one of the feed discs 21 and is normally urged away from the same by means of a centrally arranged coiled compression spring 45 which may surround the feed shaft and be compressed between the adjacent faces of the cam disc and feed disc.

Automatic cam controlling mechanism, controlled by operation of the feed mechanism, is provided to adjust the cam discs 38 in one direction, adjustment being effected in the opposite direction by means of the springs 45. As shown in the illustrative embodiment, this mechanism includes a carrier or support 46 in the form of a disc secured to the feed shaft 18 through an apertured hub and a set screw whereby the carrier rotates with the feed shaft and feed discs. A cam shifter is rotatably mounted upon this carrier through a hub or bearing 47 in which a shaft 48 is rotatably mounted and carries a shifter cam 49 secured thereon with its plane extending transversely to the plane of the carrier disc in an opening 50 in the latter and positioned between the adjacent faces of the hubs 39 so as to operatively engage the latter for sliding the cam discs. The shifter cam 49 may be of desired form for controlling shifting of the cam discs in timed relation to the feeding operation, but it is convenient to construct it substantially as shown with flattened cam faces arranged so as to contact with the hub faces in such a manner as to cooperate therewith to retain the shifter cam in a position to which it has been moved by the shifting mechanism. The cam as shown is substantially square, having truncated corners so as to form flat corner cam faces alternating with the flat cam faces formed by the sides of the square. The successive flat cam faces are thus positioned at different distances from the center of rotation of the cam whereby the cam discs will be moved from one position to another when the shifter cam 49 is rotated to bring consecutive faces thereof into cooperative relation with the hubs 39.

For rotating the shifter cam 49 step by step, a toothed or star wheel 51 is secured to the shaft 48 and a trip pin or lug 52 is carried by one of the supports 44 and positioned to contact with the teeth of the star wheel as the latter is carried in its orbital movement by operation of the feed shaft. In the embodiment shown, the star wheel is provided with eight teeth cooperating to rotate the shifter cam 49 one-eighth of a complete revolution at each revolution of the feed shaft, thus at each step bringing the next successive cam face of cam 49 into cooperative relation with the respective hub 39. It will, therefore, be seen that the cam discs 38 will be forced outwardly by action of shifter cam 49 at each alternate revolution of the feed shaft, and will be positioned inwardly through coaction of the springs 45 at the other alternate revolutions of the feed shaft. It will be observed that the shifter cam 49 will be retained during substantially a complete revolution of the feed shaft, in position to which it has been previously shifted by the shifting mechanism because of the cooperation of the flattened cam faces with the flat faces of the hubs 39, said cam faces sliding upon the hub faces during this period.

A strip separator plate 53 may be provided, being positioned at the forward side of the roll carrier 23, and having one edge thereof extending slightly under said carrier, as clearly shown in Fig. 2, and lying substantially in the path of the fed strips as they emerge from the grip of the feeding mechanism. This separator, preferably in the form of a plate extending transversely of the casing, is suitably attached to the machine frame and carries on its under side one or more brackets 54 having downwardly curved downwardly directed strip guiding surfaces positioned in the vicinity of the feed disk peripheries so as to restrain and guide the file record strip in position close against the disc periphery whereby it may more satisfactorily cooperate with the strip folding mechanism.

The complete operation of the improved feeding and folding mechanism will now be understood by those skilled in the art, and for clearness and emphasis may be thus summarized. The strips are positioned over the platen 12 and in the grips of the feed mechanism substantially as shown in Fig. 2 with the lower record strip A', which in this case is the file strip, positioned under the edge of the separator plate 53 while the other record strips are positioned above said separator plate emerging through an aperture or slot in the forward wall of the roll housing 23. If it is desired to refold or file more than one strip, the desired number of file strips will be positioned beneath the edge of the separator plate 53.

The feeding of the strips forwardly into inscription receiving position is effected, as understood by those skilled in the art, by the friction grip exerted upon the strips by the feeding mechanism when the feed shaft 18 is rotated in a forward feeding direction. The shaft 18 is checked after one complete revolution by the stop 20, and the circumference of the feed discs 21 is of sufficient length to feed the strips forwardly a distance greater than the length of the form or pad leaves, that is, the length of strip between consecutive transverse weakened lines 14. However, when the apertures 16 of the several strips come into alignment with the feed grips the feeding pull upon the respective strip is stopped, and the strips are thus all brought into correct registry with each other and in correct alignment over the platen for the reception of an inscription. Just prior to engagement of the handle 19 with stop 20, and after strip alignment has been effected, the starting lugs 27 may move into position to engage the strips out of longitudinal alignment with the feed controlling apertures, thus gripping the strips against the feed roll 22 and jogging them forward slightly. The strips are thus gripped and held in correctly aligned position at the time the feeding operation is checked.

In order to initiate the next feeding cycle the stop lug 20 must be retracted, whereupon the feed shaft 18 may be turned to feed the strips forwardly. The feed control apertures 16 now having passed beyond the feed grips, the strips will be fed forwardly as before.

Assuming a part of the file strip A' which is to be placed at the inner end of the zigzag folded file pad B, is at this time being fed forwardly from the feed grip under the edge of the separator plate 53, the cam discs 38 will have been shifted by the shifter mechanism above described so as to be urged by their respective springs 45 away from the respective feed discs 21, the lateral faces or sides of the shifter cam 49 being at this time positioned so as to engage the end faces of hubs 39. Therefore, the folder finger operating pins or lugs 33 will be positioned relatively to the cam faces 40 so as not to engage the latter but will be in position to engage the cam faces 41. Therefore, when the pins 43 are carried past the terminals of cam faces 41, the restraint exerted upon the folding fingers or pins 29 will be removed and said fingers will be projected outwardly by the compression springs 30 into position to engage in the apertures 16 of the file strip, which at this moment are fed forwardly by the feeding mechanism in position to receive said folding fingers. In other words, the strip feed is synchronized with the aperture-engaging movement or actuation of the folding fingers whereby the latter are positioned to enter the desired apertures. When thus engaged in the apertures 16 the folding fingers are carried forwardly with the feed discs, carrying with them the part of the strip which is to be folded at the inner end of the file pack B as will be clear upon reference to Fig. 3, showing the position assumed just prior to strip disengagement by the pins 29. The folding fingers 29 will be retracted by engagement of the lugs 33 with the inclined cam faces 42 at such time as the strip is carried thereby into position for lying in folded position upon the pad B. The strip falls naturally in folded position upon said pad as soon as the folding fingers 29 are retracted.

Continued rotation of the feed shaft moves the folding fingers to fully retracted position as the pins 33 are carried outwardly as far as the cam surface 40. Then the shifter cam 49 is operated by engagement of the star wheel 51 with its operating lug 52, thus moving the cam discs 38 outwardly so that the cam faces 40 engage and cooperate with the lugs 33 to maintain said folding fingers 29 retracted during the next succeeding rotation or feeding cycle of the feeding disc. The result of this action is that there is no folding coaction between the folding fingers and the apertures 16 at this time brought into alignment therewith, and the file strip A' therefore is not carried to the inner end of the file pack B, but is projected to the outer end thereof through the forward impulse exerted on the file strip by the feeding mechanism. The fold at this part of the strip thus falls into folded position at the outer end of the refold pack. This phase of folding the file strip may also be aided by the folding tendency engendered by the fold creases of the strip.

At the next succeeding feeding cycle the folding coaction first described is repeated, and the folding operation is thus continued during operation of the machine, the file strip being first moved to fold at one end of the file pad and then at the other, in alternating relation, and the strip is thus laid in a zigzag pad. It will be observed that the control of the feeding fingers 29 is selective in its action

to cooperate in folding relation only with alternate apertures 16 of each series, folding coaction with the other apertures being automatically omitted.

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 drawing shall be interpreted as illustrative and not in a limiting sense.

It is also to be understood that the following claims are intended to cover all of the generic and specific features of the invention herein described, and all statements of the scope of the invention which, as a matter of language, might be said to fall therebetween.

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 feeding record strips each having a longitudinal series of feed controlling apertures therein, said feeding means having a feeding grip adapted to engage the strips in alignment with the feed controlling apertures thereof, and a strip folding device operatively controlled by said feeding means and having a folding member adapted to enter into said feed controlling apertures to exert folding action upon one of the strips.

2. In a machine of the character described, in combination, means for feeding record strips each having a longitudinal series of feed controlling apertures therein, said feeding means having a feeding grip adapted to engage the strips in alignment with the feed controlling apertures thereof, a strip folding device operatively controlled by said feeding means and having a folding member adapted to enter into said feed controlling apertures to exert folding action upon one of the strips, and means for controlling said folding member so as to preclude its entry in folding relation into predetermined feed controlling apertures of said series.

3. In a machine of the character described, in combination, means for feeding a record strip having a longitudinal series of apertures therein, a strip folding device operatively controlled by said feeding means and including a movably mounted folding member with which the apertures of said series are normally in alignment in the direction of strip feed and being adapted to enter certain of the apertures to exert folding action upon the strip, and means for controlling said folding member so as to preclude its entry in strip folding relation into predetermined apertures of said series.

4. In a machine of the character described, in combination, means for feeding a record strip having a longitudinal series of feed controlling apertures therein, said feeding means having a feeding grip adapted to engage the strips in alignment with the feed controlling apertures thereof, and a strip folding device operatively controlled by said feeding means and having a folding member adapted to enter into said feed controlling apertures to exert folding action upon one of the strips, said feeding means including a rotary shaft and said folding member being mounted for rotary movement with said shaft so as to be brought periodically into aperture engaging position relatively to the strip.

5. In a machine of the character described, in combination, means for feeding a record strip having a longitudinal series of feed controlling apertures therein, said feeding means having a feeding grip adapted to engage the strips in alignment with the feed controlling apertures thereof, a strip folding device operatively controlled by said feeding means and having a folding member adapted to enter into said feed controlling apertures to exert folding action upon one of the strips, and means for controlling said folding member so as to preclude its entry in folding relation into predetermined feed controlling apertures of said series, said feeding means including a rotary shaft and said folding member being mounted for rotary movement with said shaft so as to be brought periodically into aperture engaging position relatively to the strip.

6. In a machine of the character described, in combination, means for feeding a record strip having a longitudinal series of apertures therein, a strip folding device operatively controlled by said feeding means and including a movably mounted folding member with which the apertures of said series are normally in alignment in the direction of strip feed and being adapted to enter certain of the apertures to exert folding action upon the strip, and means for controlling said folding member so as to preclude its entry in strip folding relation into predetermined apertures of said series, said feeding means including a rotary shaft and said folding member being mounted for rotary movement with said shaft so as to be brought periodically into aperture engaging position relatively to the strip.

7. In a machine of the character described, in combination, means for feeding a record strip having a longitudinal series of feed controlling apertures therein, said feeding means including a rotary feed disc and a roll cooperating therewith to provide a feeding grip with the strip in longitudinal alignment with the said series of apertures, a strip folding finger carried by said feed disc and being mounted for projection and retraction through the peripheral strip gripping surface thereof, and automatic means for projecting said strip folding finger into strip folding engagement with one of said aper-

tures as the latter is fed forwardly from said feed grip so as to deflect the strip toward folded position.

8. In a machine of the character described, in combination, means for feeding a record strip having a longitudinal series of feed controlling apertures therein, said feeding means including a rotary feed disc and a roll cooperating therewith to provide a feeding grip with the strip in longitudinal alignment with the said series of apertures, a strip folding finger carried by said feed disc and being mounted for projection and retraction through the peripheral strip gripping surface thereof, automatic means for projecting said strip folding finger into strip folding engagement with one of said apertures as the latter is fed forwardly from said feed grip so as to deflect the strip toward folded position, and automatic means for retaining said folding finger in retracted position so as to prevent strip folding cooperation with predetermined apertures of said series.

9. In a machine of the character described, in combination, means for feeding a record strip having a longitudinal series of feed controlling apertures therein, said feeding means including a rotary feed disc and a roll cooperating therewith to provide a feeding grip with the strip in longitudinal alignment with the said series of apertures, a strip folding finger carried by said feed disc and being mounted for projection and retraction through the peripheral strip gripping surface thereof, an automatic mechanism controlled by operation of the feeding means for projecting said folding finger into coactive strip folding relation with an aperture of said series so as to deflect the strip toward folded position, and means for subsequently retracting said folding finger to release the strip.

10. In a machine of the character described, in combination, means for feeding a record strip having a longitudinal series of feed controlling apertures therein, said feeding means including a rotary feed disc and a roll cooperating therewith to provide a feeding grip with the strip in longitudinal alignment with the said series of apertures, a strip folding finger carried by said feed disc and being mounted for projection and retraction through the peripheral strip gripping surface thereof, a finger operating member mounted for movement relatively to said feed disc operating connections between said operating member and said finger, and means for rendering said operative connections effective or ineffective to operate said finger.

11. In a machine of the character described, in combination, means for feeding a record strip having a longitudinal series of feed controlling apertures therein, said feeding means including a rotary feed disc and a roll cooperating therewith to provide a feeding grip with the strip in longitudinal alignment with the said series of apertures, a strip folding finger carried by said feed disc and being mounted for projection and retraction through the peripheral strip gripping surface thereof, a rotary feed shaft, a finger operating member movably mounted adjacent to said disc upon said shaft but restrained against rotation therewith, and means for moving said finger operating member into operative or inoperative position relatively to said finger.

12. In a machine of the character described, in combination, means for feeding a record strip having a longitudinal series of feed controlling apertures therein, said feeding means including a rotary feed disc and a feed roll cooperative therewith to provide a feeding grip with the strip in longitudinal alignment with said series of apertures, a strip folding finger carried by said feed disc and being mounted for movement relatively to the disc to and from strip engaging position, a rotary feed shaft, a cam mounted upon said shaft for sliding movement toward and away from said feed disc but restrained against rotation therewith, and finger operating connections cooperative with said cam to move the finger into fold coactive relation with the feed controlling apertures when the cam is in one position, but being idle to so move said finger when said cam is in another position.

13. In a machine of the character described, in combination, means for feeding a record strip having a longitudinal series of feed controlling apertures therein, said feeding means including a rotary feed disc and a feed roll cooperative therewith to provide a feeding grip with the strip in longitudinal alignment with said series of apertures, a strip folding finger carried by said feed disc and being mounted for movement relatively to the disc to and from strip engaging position, a rotary feed shaft, a cam mounted upon said shaft for sliding movement toward and away from said feed disc but restrained against rotation therewith, finger operating connections cooperative with said cam to move the finger into fold coactive relation with the feed controlling apertures when the cam is in one position, but being idle to so move said finger when said cam is in another position, and shifting means automatically controlled upon operation of the feed means for shifting said cam alternately into operative and idle positions.

14. In a machine of the character described, in combination, means for feeding a record strip having a longitudinal series of feed controlling apertures therein, said feeding means including a rotary feed disc and a feed roll cooperative therewith to provide a feeding grip with the strip in longitudinal alignment wtih said series of apertures, a a strip folding finger carried by said feed disc

and being mounted for movement to and from strip engaging position, a rotary feed shaft, a cam mounted upon said shaft for sliding movement toward and away from said feed disc but restrained against rotation therewith, finger operating connections cooperative with said cam to move the finger into fold coactive relation with the feed controlling apertures when the cam is in one position, but being idle to so move said finger when said cam is in another position, a shifter carrier mounted upon and rotatable with said feed shaft, a shifter rotatable upon said carrier and positioned in cooperative relation with said cam, and automatic means for operating said shifter so as to shift the cam into operative or idle positions.

15. In a machine of the character described, in combination, means for feeding a record strip having a longitudinal series of feed controlling apertures therein, said feeding means including a rotary feed disc and a feed roll cooperative therewith to provide a feeding grip with the strip in longitudinal alignment with said series of apertures, a strip folding finger carried by said feed disc and being mounted for movement relatively to said disc to and from strip engaging position, a rotary feed shaft, a cam mounted upon said shaft for sliding movement toward and away from said feed disc but restrained against rotation therewith, finger operating connections cooperative with said cam to move the finger into fold coactive relation with the feed controlling apertures when the cam is in one position, but being idle to so move said finger when said cam is in another position, a shifter carrier mounted upon and rotatable with said feed shaft, a shifter rotatable upon said carrier and having successive cam faces cooperative with the first mentioned cam to position the latter in operative or idle positions, said cam faces being flattened so as to retain the shifter in holding position with reference to said cam, and automatic means for operating said shifter so as to shift the cam alternately into operative or idle positions.

16. In a machine of the character described, in combination, means for feeding record strips, one or more of which has a longitudinal series of apertures therein, a strip folding device including a folding finger adapted to enter certain of the apertures as the strip is fed forwardly, means for imparting movement to said finger when in an aperture so as to exert folding action upon the strip, and means whereby said finger selects only predetermined apertures of said series for folding coaction therewith and precludes such coaction with other apertures of said series.

17. In a machine of the character described, in combination, means for feeding record strips, one or more of which has a longitudinal series of apertures therein, a strip folding device including a folding finger adapted to enter certain of the apertures as the strip is fed forwardly, means for imparting movement to said finger when in an aperture so as to exert folding action upon the strip, a rotary feed shaft included in said feeding means, a finger operating member movably mounted upon said shaft but restrained against rotation therewith, and means for shifting said finger operating member whereby control is exerted thereby to position the finger for folding or non-folding coaction.

18. In a machine of the character described, in combination, means for feeding record strips, one or more of which has a longitudinal series of apertures therein, a strip folding device including a folding finger adapted to enter certain of the apertures as the strip is fed forwardly, means for imparting movement to said finger when in an aperture so as to exert folding action upon the strip, a rotary feed shaft for the feeding means, a cam mounted upon said shaft for sliding movement but restrained against rotary movement therewith, and finger operative connections cooperative with said cam to move the finger into fold coactive relation with the feed controlling apertures when the cam is in one position, but being idle to so move the said finger when said cam is in another position.

19. In a machine of the character described, in combination, means for feeding record strips, one or more of which has a longitudinal series of apertures therein, a strip folding device including a folding finger adapted to enter certain of the apertures as the strip is fed forwardly, means for imparting movement to said finger when in an aperture so as to exert folding action upon the strip, a rotary feed shaft for said feeding means, a cam mounted upon said shaft for sliding movement thereon but restrained against rotation therewith, operating connections cooperative with said cam to move the finger into fold coactive relation with the feed controlling apertures when the cam is in one position, but being idle to so move said finger when said cam is in another position, a shifter carrier mounted upon and rotatable with said shaft, a cam shifter mounted upon said carrier and positioned in cooperative relation with said cam, and automatic means for operating said shifter to shift the cam into operative or idle positions.

2. In a machine of the character described, in combination, means for feeding record strips, one or more of which has two spaced longitudinal series of apertures therein, a strip folding device including spaced folding fingers respectively aligned with the series of apertures and adapted to enter the same as the strips are fed forwardly, means for imparting movement to said fingers when

positioned in the strip apertures so as to exert folding action on the strip, a rotary feed shaft for said feeding means, a pair of spaced cams mounted on said shaft for independent sliding movement thereon but restrained against rotation therewith, operative connections whereby each of the folding fingers may be controlled by its respective operative cam, a shifter carrier mounted upon said feed shaft and rotatable therewith, a shifter rotatable upon said carrier and positioned between said cams for simultaneous actuation of the latter, and automatic means for operating said shifter so as to shift the cams for controlling the folding fingers for strip folding engagement or for idle action with respect to the strip.

21. In a machine of the character described, in combination, means for feeding record strips each having a longitudinal series of feed controlling apertures therein, said feeding means having a strip gripper disc adapted to enter an aperture in the strip and thereby relieve the feed grip, and a strip folding device including a folding finger adapted to enter said feed controlling apertures to exert folding action on one of the strips.

22. In a machine of the character described, in combination, means for feeding record strips each having a longitudinal series of feed controlling apertures therein, said feeding means having a strip gripper disc adapted to enter an aperture in the strip and thereby relieve the feed grip, a strip folding device including a folding finger adapted to enter said feed controlling apertures to exert folding action on one of the strips, and means for controlling said folding finger for selective cooperation with said apertures.

In testimony whereof I affix my signature.

LOUIS F. HAGEMANN.