Feb. 19, 1952 F. L. RIEGER 2,586,563

ADJUSTABLE AND SHIFTABLE FEED FINGER MECHANISM FOR TAG MARKING MACHINES

Filed July 30, 1949 2 SHEETS—SHEET 1

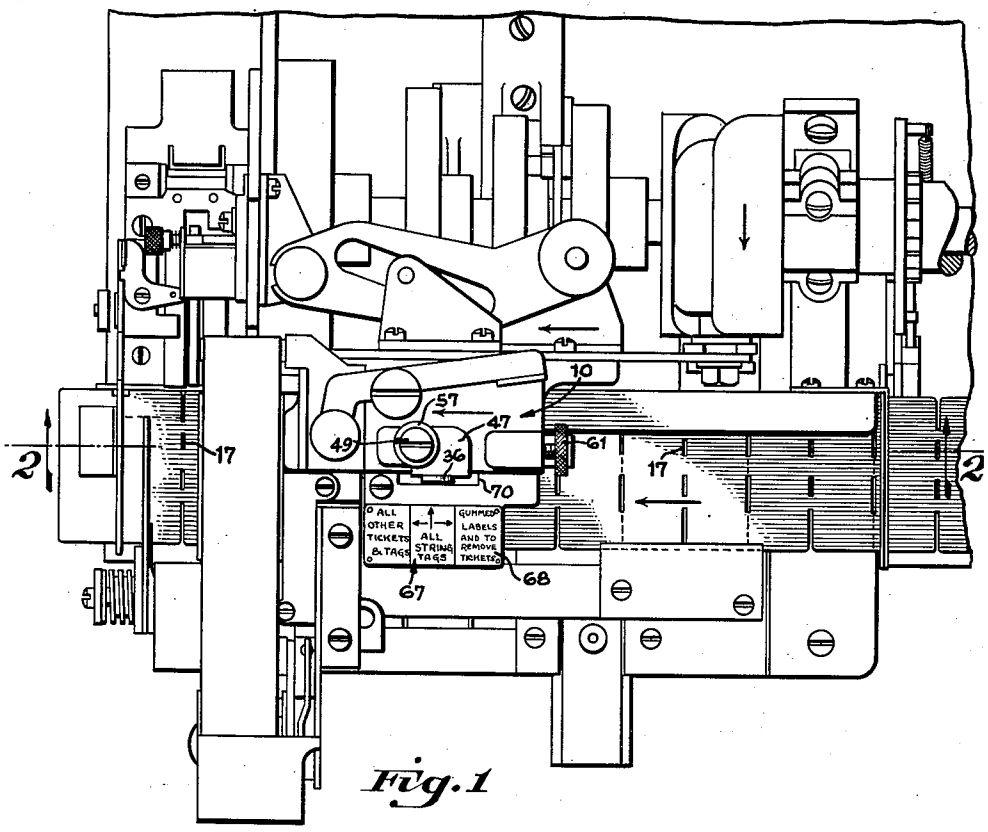


Fig. 1

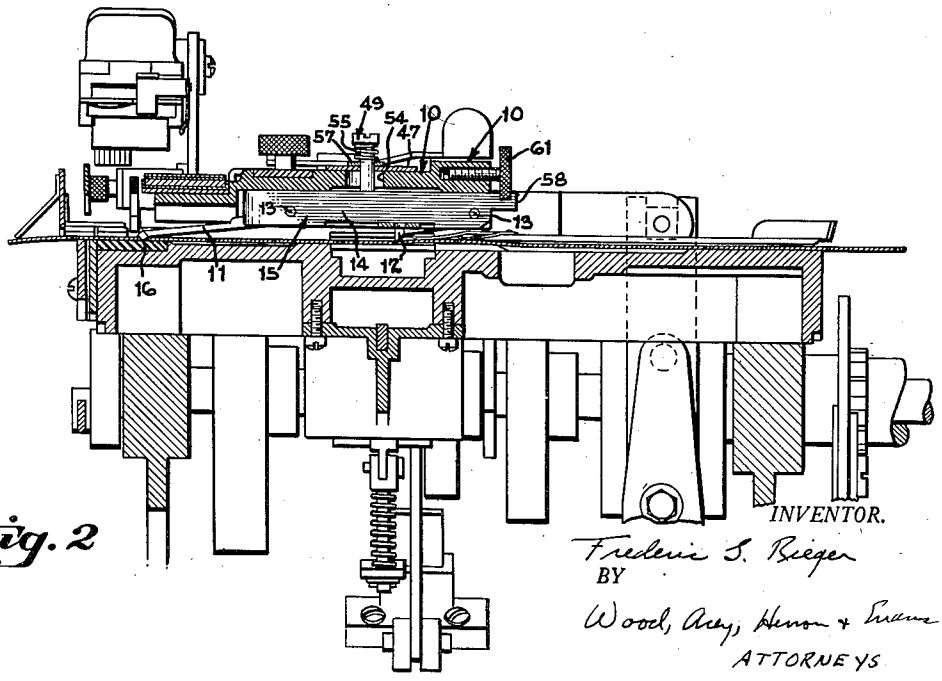


Fig. 2

INVENTOR.
Frederic L. Rieger
BY
Wood, Arey, Henson & Evans
ATTORNEYS

Feb. 19, 1952 F. L. RIEGER 2,586,563

ADJUSTABLE AND SHIFTABLE FEED FINGER MECHANISM FOR TAG MARKING MACHINES

Filed July 30, 1949 2 SHEETS—SHEET 2

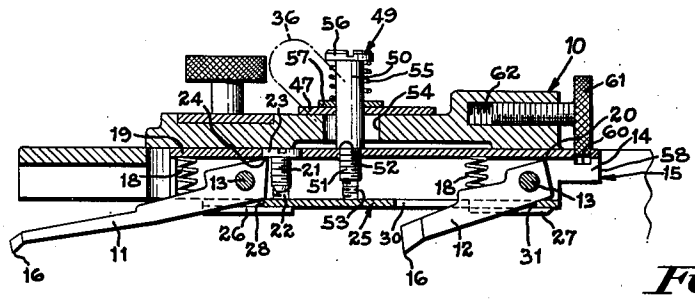


Fig. 3

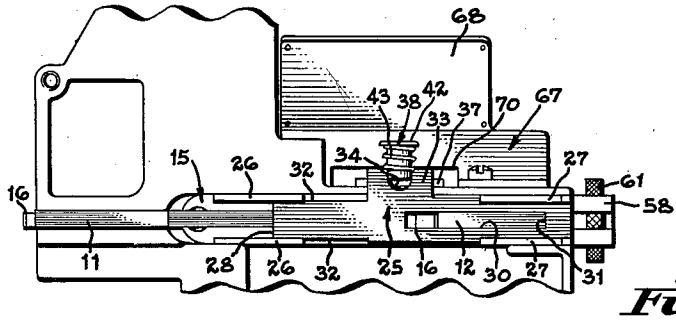


Fig. 4

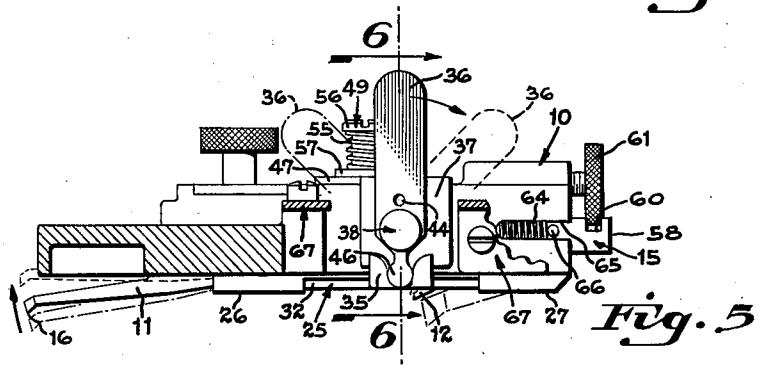


Fig. 5

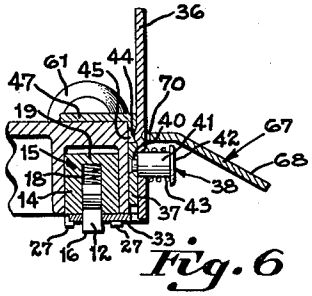


Fig. 6

INVENTOR.
Frederic L. Rieger
BY
Wood, Acey, Heron & Evans
ATTORNEYS

Patented Feb. 19, 1952

2,586,563

UNITED STATES PATENT OFFICE

2,586,563

ADJUSTABLE AND SHIFTABLE FEED FINGER MECHANISM FOR TAG MARKING MACHINES

Frederic L. Rieger, Dayton, Ohio, assignor to The Monarch Marking System Company, Dayton, Ohio, a corporation of Ohio

Application July 30, 1949, Serial No. 107,738

6 Claims. (Cl. 271—2.5)

1

This invention relates to marking tag machines, and is directed in particular to an improved feed finger mechanism and means for shifting and adjusting this mechanism. The improved mechanism is particularly adapted to be utilized in the feed finger carriages of marking machines of the type disclosed by United States Letters Patent No. 2,328,934.

The above referred to patent discloses a tag marking machine that is adapted to feed strips of gummed labels along one path and strips of string tags or wire clip tags along another path. These two paths are at right angles to one another and cross at a platen on which the labels and tags are printed. The present improvement concerns carriages of the type adapted to advance strips of string and wire clip tags, which, in the patented machine are fed along the latter path.

A carriage of this type is disposed above the tag strips and is adapted to reciprocate in timed sequence as part of the operating cycle of the machine. The strips are advanced by a pair of spaced feed fingers that are mounted in the bottom of the feed carriage. In the patented machine, the two feed fingers are required in order to advance the wire clip tag strips against the drag provided by the clips and the clip set-up mechanism. It has been found however, that only one feed finger may be utilized for advancing string tags, this finger being the leading one of the two.

The spacing of the two fingers is fixed so that heretofore the machine has been limited to operate on those tag strips which can be provided with feed finger notches spaced in accordance with the spacing of the feed fingers. Since it is characteristic of these tag strips that the feed finger notches be placed between the tags, it follows that the width of the tags is dependent on the spacing of the feed finger. In the drawings of the referred to patent, four tags are shown between the two fingers. Wider tags can be used so that only three tags are between the fingers, or narrower tags can be used so that five are between fingers. This, of course, limits rather critically the different sized tags that can be operated on by the machine.

It is an object of the present invention to provide means for shifting the feed fingers whereby string tags of any size, within practical limits, may be fed through this type marking machine. With the improved mechanism, the machine operator can change from wire clip tag operation to any sized string tag operation or to gummed label operation by simply shifting a conveniently located lever.

2

Another object of the invention is to provide means for shifting the feed fingers of a marking machine carriage, which means is so arranged that the setting of the shifting mechanism is not disturbed by longitudinal adjusting movement of the fingers relative to the carriage. The adjusting feature is rather important because it has been found that the setting of the fingers changes slightly over long periods of hard usage. The tag strips are of such form that it is critical that they be cut exactly between tags by the cut-off knife. Thus, since the tags are positioned relative to the knife by the fingers, the fingers must be set exactly.

A further object is to provide a shifting and adjusting mechanism for the feed fingers that is adapted to be fitted into the small space available in a feed finger carriage.

In the preferred embodiment of the invention, a shifting lever is provided in a conveniently accessible place at the top of the feed finger carriage. The feed fingers are mounted in a carrier located in the underside of the carriage. This lever can be moved into three different positions. In one position, both feed fingers are lifted out of engagement with the strip, in an intermediate position only the forward feed finger is in engagement, and in the third position both feed fingers are in engagement with the strip. This lever is interconnected with a cam plate slidably mounted underneath the feed finger carrier in such a position that it can engage the feed fingers to change their positions in response to movement of the lever. Although this assembly is mounted on the carriage during adjustment, it moves with the feed finger carrier; and thus, when the position of the feed finger carrier is adjusted relative to the carriage, the interconnection between the adjusting lever and the cam plate is not disturbed.

Other objects and advantages of the present invention will be readily apparent from the following detailed description of the drawings in which:

Figure 1 is a top plan view showing the invention in the environment of a marking tag machine constructed in accordance with the teachings of United States Patent No. 2,328,934.

Figure 2 is a cross sectional view taken on line 2—2 of Figure 1.

Figure 3 is a fragmentary cross sectional view of the feed finger carriage also taken on line 2—2 of Figure 1.

Figure 4 is a fragmentary view showing the bottom of the carriage.

Figure 5 is a side elevation view of the feed finger carriage showing the adjusting lever and the feed fingers in the three positions.

Figure 6 is a cross sectional view taken on line 6—6 of Figure 5.

Referring to Figures 1 and 2, the feed finger carriage is indicated generally at 10. The details of the mounting of this carriage and the manner in which it is connected with the other driven parts of the machine are described in detail in the above referred to patent and will be omitted here inasmuch as this invention is concerned only with the details of the mounting of the feed fingers. Two fingers are provided, the forward one being indicated by 11 and the rear one being indicated by 12. Both fingers are pivotally mounted on pins 13 which are journalled in the side walls 14 of a channel-shaped carrier 15. In cross section, the carrier is in the shape of an inverted U, see Figure 6, with the feed fingers being substantially as wide as the open part of the channel. The ends 16 of the two fingers are V-shaped so as to fit readily into the notches provided in the tag strips, indicated by 17 in Figure 1. In both instances coil springs 18 are provided between the tops of the fingers and the web portion 19 of the channel-shaped carrier so as to urge the ends 16 of the fingers downwardly. The downward movement of the rear feed finger is limited by an abutment 20 which in the lowermost position of the finger engages against the web 19 of the carrier at a point to the rear of the pivot pin 13. The lower limit of the forward feed finger 11 can be adjusted, however, by means of a flat head bolt 21 that is threaded into a bore 22 cut through the carrier from the top and into the side walls of the channeled portion of the carrier, with an enlarged bore concentric with the first bore being provided through the web portion 19 of the carrier to accommodate the large flat head 23 of the bolt. An abutment 24 is provided at the rear end of the forward finger for engagement with the underside of the flat head 23. Thus, by turning the bolt into the bore 21, the forward end of finger 11 is raised. This adjustment is provided for initially setting the position of the feed fingers 11 when the machine is being assembled because, due to the construction of the machine disclosed, the forward feed finger must clear the edge of the platen. The rear finger 12 rides on the tag strip guideway and does not have to be so limited.

Shifting of the feed fingers is accomplished by means of a cam plate indicated generally at 25. This plate is slidably mounted in pairs of dovetail grooves, indicated at 26 and 27, and disposed near the forward and rearward ends respectively of the carriage. The forward edge 28 of the cam plate is adapted to engage the underside of the forward feed finger 11 and raise it as the plate moves forward. The rear feed finger 12 extends down through a slot 30 cut in the central part of the cam plate and is adapted to be raised by means of the rear edge 31 provided at the terminus of the slot 30. The two edges 28 and 31 that provide the cam action for raising the feed fingers are spaced apart in such a way that as the cam plate moves from its rearmost position the rear feed finger 12 is first lifted and then later the forward feed finger 11 is lifted. Thus, three positions can be defined for the plate. In one position, both feed fingers are free of the cam edges and are urged downwardly by the springs 18; in a second or intermediate position, the rear feed finger 12 is raised while the forward feed finger 11 remains in the down position; and in the third position, both feed fingers are raised. It will be noted from Figure 4 that the side edges of the cam plate are cut out as at 32—32 for assembly purposes, the plate being slipped into place from the forwardmost position in which the cut out portions 32 correspond with the forward dovetail portions 26. When in this position, the rear edge of the plate is in front of the dovetail sections 27 and the plate can be fitted up into alignment with the grooves provided in the dovetail slides, and then slid rearwardly into operating position.

Near the center of the cam plate a projection 33 extends from the side and is turned up around the side of the feed finger carriage and split as at 34 to provide a forked end 35, the fork extending up toward the top of the carriage along the side thereof. The cam plate is moved by means of a shifting lever 36. This shifting lever is mounted on a bracket 37 by means of a stud 38. The inner end of the stud is riveted to the bracket 37 as at 40, with the lever being pivotally mounted on the shank 41 of the stud. The head 42 of the stud is larger than the shank portion and a coil spring 43, which surrounds the shank, is under tension between the head 42 and the lever. A detent 44 is struck from the inner face of the lever and is adapted to engage in each of three holes 45 drilled through the bracket and corresponding in their positions to the three positions of the cam plate. At the lower end of the lever, a circular head 46 is provided, this head engaging between the arms of the fork 35. Thus, it will be seen that as the lever is shifted the cam plate is moved with it. Above the lever mounting, the bracket is bent over at a right angle so that it is supported on the top of the feed finger carriage as at 47.

The feed finger carrier is held in place in the carriage by means of a bolt 49. The bolt includes a smooth shank portion 50 and a counter-turned and threaded portion 51 at its lower end, the counter-turning providing a shoulder 52. The bolt is tightened into a threaded bore 53 down into the carrier near the center between the two fingers until the shoulder 52 is snug against the top of the carrier. The shank portion 50 of the bolt above the shoulder 52 extends upwardly through a slot 54 cut through the carriage. The horizontal flange portion of the bracket 37 is also transversed by the shank portion 50 of the bolt through a snug fitting bore provided in this part of the bracket so that the bracket is in a fixed position relative to the carrier. The carrier assembly is held in place by the action of a coil spring 55 which is engaged around the shank 50 of the bolt and is under compression between the head 56 of the bolt and a fiber washer 57 engaged around the shank and lying on top of the horizontal portion of the bracket.

At the rear edge of the carrier a projection 58 is provided, this projection extending beyond the rearward end of the carriage. The upper face of the projection is slotted transversely as at 60, this slot embracing the periphery of the large flat head of a thumb screw 61. The thumb screw is threaded into the end of the carriage as at 62 so that when the screw is tightened into the carriage the carrier is moved inwardly, thus adjusting the positions of the feed fingers relative to the carriage. It will be noted, however, that the adjustment movement moves both the carriage and the bolt 49 on which the bracket 37 is mounted so that both the carrier and the shifting lever are moved together. Therefore, the relative po-

sitions of the bracket, shifting lever, cam plate, and carrier remain unchanged during adjustment of the feed fingers.

In order to take up for any looseness that might occur through wear between the head of the adjusting screw 61 and the slot 60 cut in the carrier, a spring 64 is provided. This spring is seated in a slot 65 cut in the side wall of the carriage and adapted to engage against a pin 66 set in the side wall of the carrier. The spring, therefore, tends to urge the carrier to the right, as shown in Figure 5, maintaining constant engagement between the abutting screw head and the slot. This spring 64 is held in the slot by the indicator plate 67 which is bolted to the side of the carriage and extends toward the front of the marking machine. This indicator plate is bent downwardly as at 68 and is provided with appropriate indicia in three sections corresponding to the three positions of the shifting lever, see Figure 1. Clearance is provided at 70 for the shifting lever where it extends upwardly above the indicator plate.

In the operation of a marking machine to which the present invention is applicable, the carriage is interconnected with the other driven parts of the machine and adapted to reciprocate once during each complete cycle of the machine. During one cycle, the strip is advanced a distance equal to the space between two feed finger notches, the tag on the printed platen is impressed by the printing head, and the last printed tag severed from the strip. When the shifting lever is in the intermediate position for string tag operation, that is, when the rear feed finger of the two is raised and only the forward feed finger is in a position to engage the strip, it will be seen that the widest tag that can be operated on by the feed mechanism is one in which the feed finger notches are spaced apart a distance equal to the reciprocating travel of the carriage. In tags that are less wide than the travel distance of the carriage, during the retracting movement, the V-shape of the forward feed finger permits it to ride over the notch that is to be next engaged. On the next advancing movement of the carriage the spring urges the tip of the finger into the notch when it is advanced to it. It will be noted, therefore, that the narrowest string tag that can be operated on by the present carriage mechanism is one that is is just slightly wider, by the width of a feed finger notch, than one-half of the carriage travel. Thus, the tags may be provided in any size between the full travel distance of the carriage and approximately one-half the travel distance of the carriage, the tag widths not being limited as in the past.

When the carriage is operating on wire clip tag strips or any strip in which the fastening means for the tags provides a great deal of drag, the lever is thrown to the left, as shown in the dot-dash lines in Figure 5, where the cam edges 28 and 31 are out of engagement with the respective fingers and both fingers are down for engagement as shown in Figure 3. When the lever is moved to the right as shown by the dotted lines in Figure 5, both the fingers are lifted. In this position, the strips of tags may be withdrawn from the machine and in the patented machine referred to above, the forward feed finger is lifted to clear the feed path-way of the gummed labels which move across the printing platen at right angles to the finger.

Having described my invention, I claim:

1. Means for selectively raising the feed fingers of a marking machine carriage in which a pair of fingers is pivotally journalled in a carrier in spaced relationship, with means for slidably mounting the carrier in the carriage, and with adjustment means being provided for positioning the carrier relative to the carriage, and with the fingers being normally spring-urged into positions for engagement with a strip of tags disposed beneath the carriage comprising: a cam plate slidably mounted in said carrier beneath the pivots of said fingers, said plate having two finger-engaging edges spaced apart less than the spacing of said fingers, whereby said edges are adapted to engage said fingers one after the other when the plate is moved longitudinally of the carrier toward the leading finger and thereby raise the fingers one after the other out of engagement with the strip, a bracket carried by said carrier mounting means and supported by said carriage, a lever pivotally mounted on said bracket and extending above said carriage at its upper end and having means at its lower end for engaging with said cam plate, whereby movement of said lever moves said cam plate, and detent means provided for said lever in three positions of the lever corresponding respectively to positions of the plate in which, one, both fingers are in contact with the strips, two, the rear finger is lifted, and three, both fingers are lifted.

2. Shifting mechanism for selectively raising the feed fingers of a marking machine carriage in which a pair of fingers is pivotally journalled in a carrier in spaced relationship, with means for slidably mounting the carrier in the carriage, and with adjustment means being provided for positioning the carrier with respect to the carriage, and with the fingers being normally spring-urged into positions for engagement with a strip of tags disposed beneath the carriage comprising; a cam plate slidably mounted in the carrier beneath the level of the pivots of the fingers, said plate having two finger-engaging edges spaced apart less than the spacing of the fingers, and means for moving said plate whereby the edges contact the respective fingers one after the other and thereby raise them one after the other, said means being associated with said carrier mounting means and adapted to move therewith during adjustment of the carrier.

3. Shifting mechanism for selectively raising the feed fingers of a marking machine carriage in which a pair of fingers is pivotally journalled in a carrier in spaced relationship, with means for slidably mounting the carrier in the carriage, and with adjustment means being provided for positioning the carrier with respect to the carriage, and with the fingers being normally spring-urged into positions for engagement with a strip of tags disposed beneath the carriage comprising; a cam plate slidably mounted in the carrier, said plate having two finger-engaging edges spaced apart less than the spacing of the fingers and adapted to engage the respective fingers one after the other when said plate is moved toward the leading finger and thereby raise the fingers one after the other, a bracket carried by said carrier mounting means and supported by said carriage, and a shifting lever pivotally mounted on said bracket and adapted to engage with said cam plate.

4. Shifting mechanism for selectively raising the feed fingers of a marking machine carriage in which a pair of fingers is pivotally journalled in a carrier in spaced relationship, with means for slidably mounting the carrier in the carriage,

and with adjustment means being provided for positioning the carrier with respect to the carriage, and with the fingers being normally spring-urged into positions for engagement with a strip of tags disposed beneath the carriage comprising; a cam plate slidably mounted in the carrier and adapted to be moved longitudinally thereof, said plate including finger engaging edges spaced apart so as to engage the fingers one after the other and thereby raise them one after the other upon longitudinal movement of the cam plate in one direction and release said fingers one after the other upon longitudinal movement in the opposite direction, a bracket coupled with said carrier mounting means and supported by said carriage, a shifting lever pivotally mounted on said bracket with the upper end of the lever extending above the carriage and the lower end engaged with the cam plate, and detent means provided for said lever in three positions of the lever corresponding respectively to positions of the cam plate in which, one, both fingers are in contact with the strip, two, one finger is lifted, and three, both fingers are lifted.

5. Shifting mechanism for selectively raising the feed fingers of a marking machine carriage in which a pair of fingers is pivotally journalled in a carrier in spaced relationship, with means for slidably mounting the carrier in the carriage, and with adjustment means being provided for positioning the carrier with respect to the carriage, and with the fingers being normally spring-urged into positions for engagement with a strip of tags disposed beneath the carriage comprising; means slidably mounted in the carrier and including cam surfaces adapted to engage and lift

the respective feed fingers one after the other upon longitudinal movement of the means relative to the carrier, a bracket coupled with said carrier mounting means and supported by the carriage, and a shifting lever pivotally mounted on the bracket and engaged with the said lifting means, whereby movement of the lever moves said means relative to the carrier.

6. Shifting mechanism for selectively raising the feed fingers of a marking machine carriage in which a pair of fingers is pivotally journalled in a carrier in spaced relationship, with means for slidably mounting the carrier in the carriage, and with adjustment means being provided for positioning the carrier with respect to the carriage, and with the fingers being normally spring-urged into positions for engagement with a strip of tags disposed beneath the carriage comprising; cam means longitudinally slidably mounted in the carrier, said cam means including finger engaging edges spaced apart so as to engage and lift the feed fingers one after the other upon longitudinal movement of the cam means relative to the carrier, and shifting means for moving said cam means, the latter means being associated with said carrier mounting means and adapted to move therewith during adjustment of the carrier.

FREDERIC L. RIEGER.

REFERENCES CITED

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

UNITED STATES PATENTS

Number	Name	Date
2,328,934	Turner	Sept. 7, 1943