

[54] **HAND HELD TICKET PRINTER APPLICATOR**

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[51] **Int. Cl.²** **B41L 47/46**

[58] **Field of Search** **101/287, 288, 269, 219, 101/72, 75, 76, 78, 1, 92; 156/384; 197/1**

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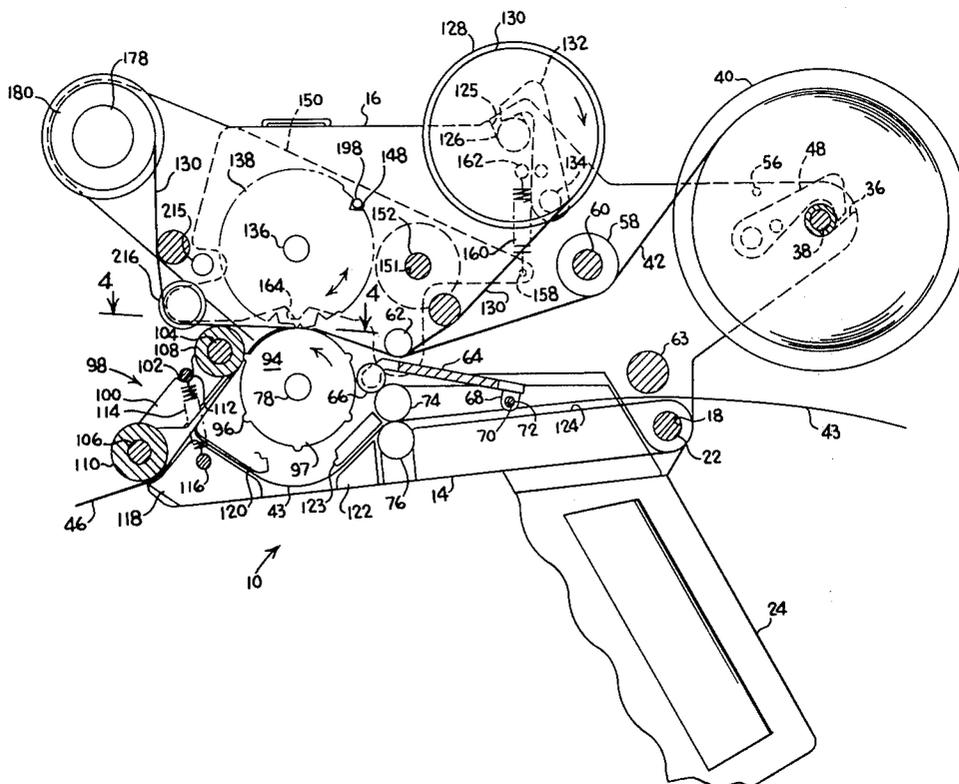
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[57] **ABSTRACT**

A hand held label printer applicator is disclosed which is operative to print bar codes and alpha-numeric characters on a label. The printer applicator is small and compact relative to the length of the printed bar code. This large length is accomplished by providing means to move the label relative to the printing drum while the same are in contact with one another. After the desired length is achieved, means is provided to print a line of alpha-numeric characters on the label below a line of bar code characters.

8 Claims, 10 Drawing Figures



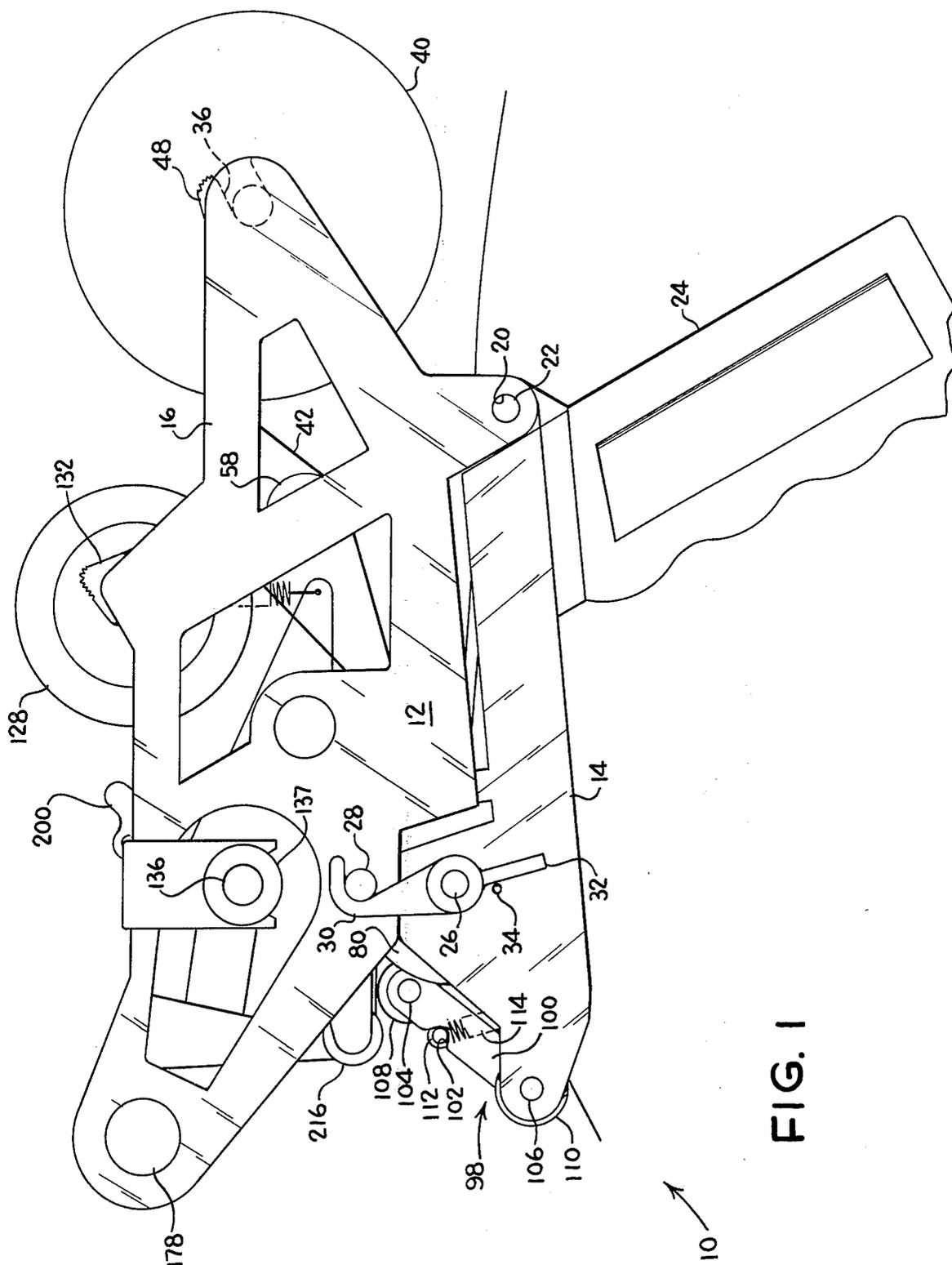


FIG. 1

FIG. 4

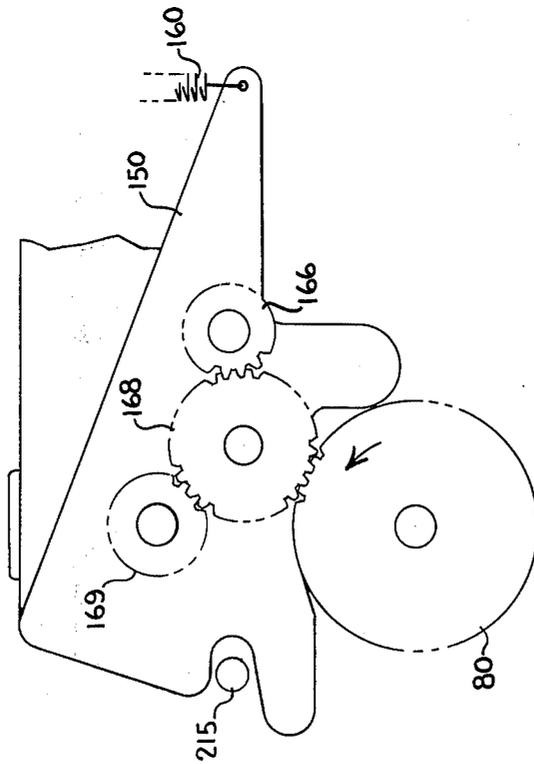
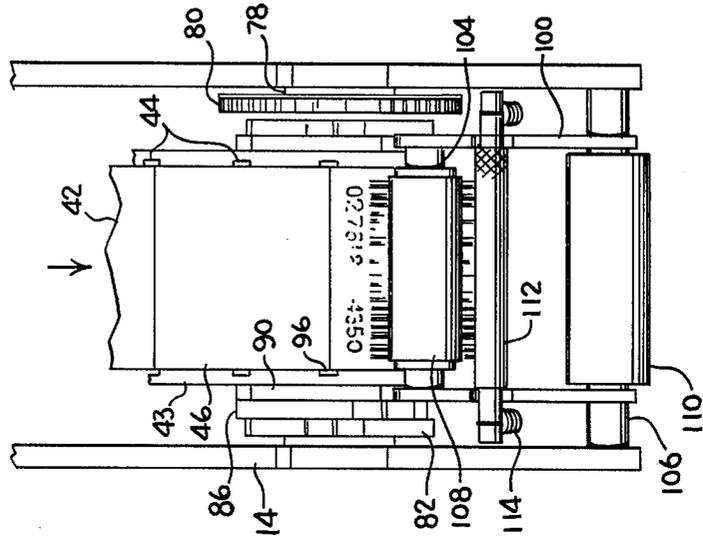


FIG. 8

FIG. 6a

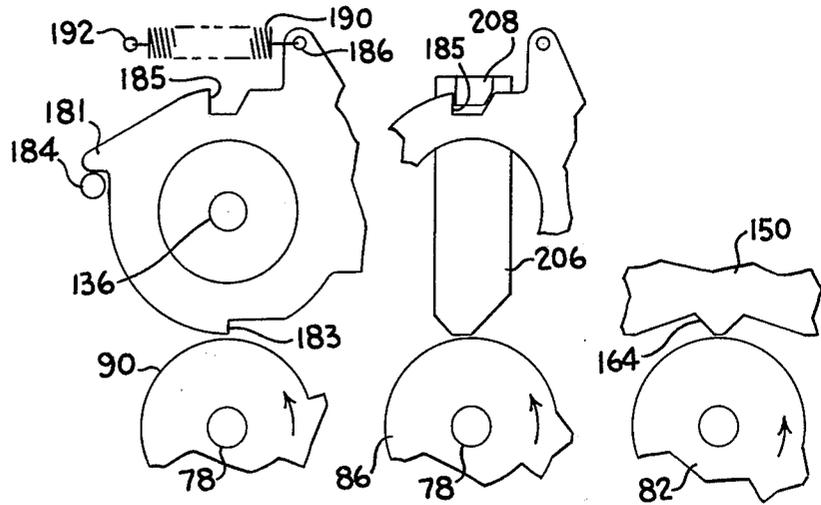


FIG. 5

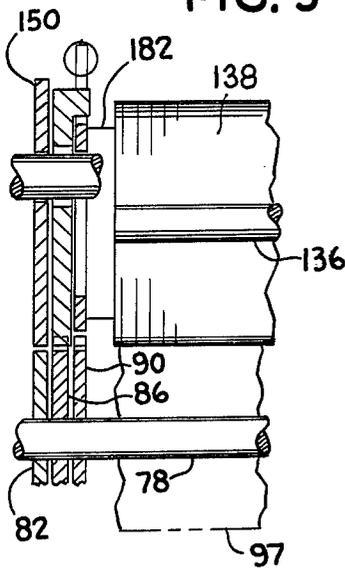


FIG. 6b

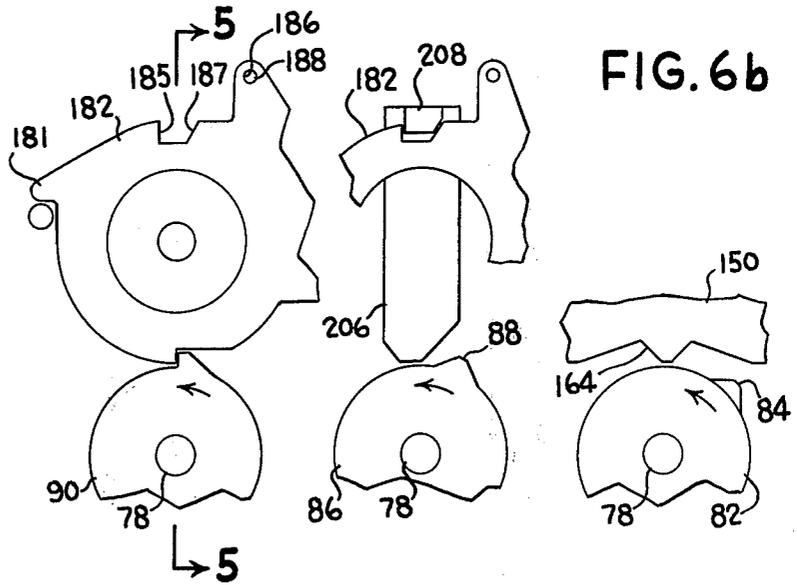
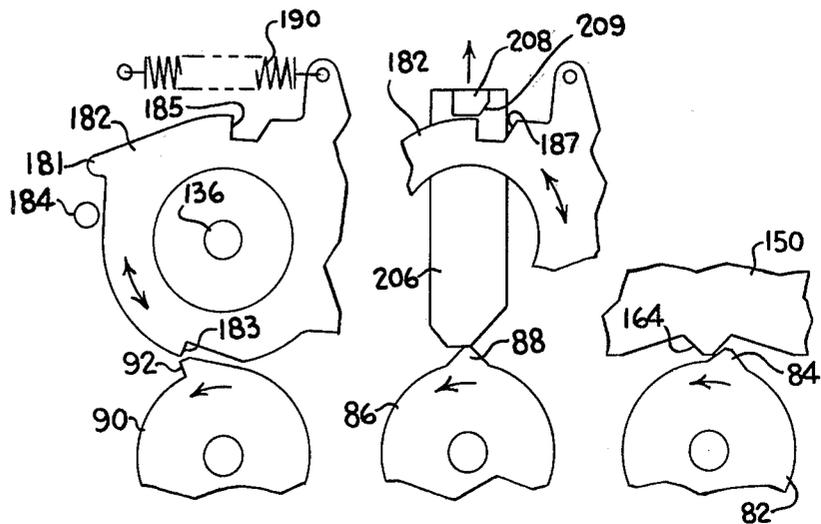


FIG. 6c



HAND HELD TICKET PRINTER APPLICATOR

BACKGROUND OF THE INVENTION

The label with an adhesive backing for adherence to goods has become a modern necessity for the marketing of goods. Through use of such labels, a great amount of information regarding the merchandise may be conveyed to the consumer and inventory control information may be placed thereon, thus greatly increasing operation efficiency and reducing sales costs.

With the advent of the point-of-sale systems, one method of placing a high amount of information on a label is by the use of bar codes. In order that the bar code may be read accurately, it is desirable that it have a sufficiently large length. This is particularly true in those situations where the label is read remotely as by a hand held reader.

One method of printing information on a label and applying the label to goods is through the use of a hand held label printer applicator. In the use of this hand held printer applicator for the printing of bar codes, there are certain disadvantages associated therewith. In order to obtain a bar code with a sufficient length, it would be necessary to have a printing drum on the hand held applicator of rather large diameter in order to obtain the desired length of the bar code as well as a line of alpha-numeric characters. As the printing element of the hand held applicator increases in size, so obviously do the other components, and using a conventional hand held applicator to produce bar codes of an appropriate size would be cumbersome, expensive and impractical.

SUMMARY OF THE INVENTION

A hand held label printer applicator has been invented wherein lines of bar codes of appropriate length can be printed on labels to provide machine readable data for inventory information, pricing, and item identification while at the same time being capable of printing a line of alpha-numeric characters for the benefit of the customer. The code can be read using an appropriate optical reader. This is accomplished by providing a label printer wherein the printing element is held stationary and the label is conveyed relative to the element while the same are in printing engagement with one another to print the bar code in a scribing manner. After the appropriate length of bar code is printed, the element is moved, specifically a drum is rotated, then lifted away from the label. During rotation, a blank space is provided on the label and a line of alpha-numeric characters is printed below the line of bar codes. Subsequent to the printing of the line of alpha-numeric characters, the drum is lifted relative to the label and another label is brought into the printing position. Before engagement between the label and printing drum is affected again, the latter is rotated in the opposite direction so that it returns to its original position.

BRIEF DESCRIPTION OF THE DRAWING

FIG. 1 is a side elevational view of a hand held printer applicator made in accordance with the present invention.

FIG. 2 is a top view of the printer shown in FIG. 1. FIG. 3 is a cross-sectional view taken along the lines 3-3 of FIG. 2.

FIG. 4 is a plan view of a portion of the lower part of the printer taken along the lines 4-4 of FIG. 3.

FIG. 5 is a detailed view of the printing drum and the drive mechanism therefor of the printer shown in FIG. 1.

FIG. 6a-6c are detailed views of the drive mechanism of the print drum shown in various positions.

FIG. 7 is a detailed view in perspective of a segment of the printing drum.

FIG. 8 is a detailed view of a portion of the drive mechanism for the printer.

DESCRIPTION OF THE PREFERRED EMBODIMENT

A hand held label printer applicator is shown generally at 10 and has a frame 12 comprising two portions, a lower frame member 14 and an upper frame member 16. The lower frame member has an opening 18 therein and the upper frame member 16 has a co-axial opening 20. A shaft 22 is received within the openings 18 and 20 to provide pivotal movement between the lower frame member 14 and the upper frame member 16.

Referring now to FIG. 1, integral with the lower frame member 14 are a handle 24 by which the printer may be held in one hand and a pair of studs 26, one located on each side of the lower frame member 14. Integral with the upper frame member 16 are a pair of studs 28, one located on each side of the frame member and spaced relative to the lower studs 26. A hook 30 is pivotably mounted on each of the lower studs 26 and adapted to be received by an upper stud 28. In engagement with each hook member 30 and rotatably supported by each of the studs 26 is a locking member 32 which is limited in its rotation by a pin 34 attached to each side of the lower frame member 14.

Referring now to FIG. 2, located within the upper frame member 16 are a pair of opposed slots 36 that receive a shaft 38 of a spindle 40. Wrapped around the spindle 40 is a roll of pressure-sensitive labels 42 carried on a backing strip 43. The backing strip 43 has a plurality of spaced openings 44 therein. A hook member 48 is pivotably supported on each side of the upper frame member 16 upon a stud 50 integral with the upper frame member, there being another stud 52 spaced relative to each of the first studs 50 which support a spring 54 in cooperation therewith. The hook members 48 are provided to lock the shaft 38 of the spool 40 within the slots 36 once installed.

Referring now to FIG. 3, a roller 58, preferably made of a plastic, is rotatably supported upon a shaft 60 which is received within the upper frame member 16. Also supported by the upper frame member 16 are a pair of stationary rods 62 and 63. Located below the first rod 62 is a plate 64 having a roller assembly 66 at one end thereof and an eyelet member 68 at the other end thereof, which eyelet member has an opening 70 which receives a rod 72 whose ends are received by the lower frame member 14. With this structure the plate 64 with the roller assembly 66 at the end thereof is free to pivot about the rod 72.

Located immediately below the plate 64 are a pair of juxtapositioned rollers 74 and 76, each of which is rotatably supported by the lower frame member 14. Also rotatably received within the lower frame member 14 is a shaft 78 which has fixedly secured thereto a pair of outer cam members 82, each having a riser 84 thereon, a gear 80 which is integral with one of the outer cam members, an intermediate cam member 86 located at one end, which has a rise 88 thereon, and a pair of inner cam members 90 which have a projection 92

thereon. The cam risers 84 and 88 and projection 92 are slightly out of phase with one another as seen in FIGS. 6a-6c. Additionally, a pair of discs 94 having teeth 96 about the perimeter thereof is rotatably mounted on the shaft 78. The teeth 96 are adapted to be received in openings 44 of the strip 43. Located intermediate the discs 94 is a roller 97, preferably made of a resilient material such as rubber, which roller serves as a support surface for the strip 43 and also loosely engages the roller assembly 66 of the plate 64. Spaced relative to the roller 97 is another roller assembly 98 comprising a pair of opposed arms 100, each having a groove 102 therein. A shaft 104 extends between and is received within one end of the arms 100, which shaft supports a roller 108. A second shaft 106 extends through the opposite ends of the arms 100 and is received within the lower frame member 14 thereby allowing the arm 100 to be pivotably mounted thereto. The shaft 106 supports a roller 110. A rod 112 extends across the arms 100 and is received within the grooves 102. The rod 112 is held to the arms 100 by being attached to one end of a pair of spring members 114, whose other ends are attached to a nub 116 located on each side of the lower frame assembly 14.

Located immediately below the roller assembly 98 and secured to the lower frame member 14 is a separator unit 118 which separates the labels 42 from the backing strip 43, each label 42 going between the roller 110 and the separator unit 118 while the backing strip 43 is directed towards the handle 24. A guide 120 is provided to guide the backing strip 43 intermediate the separator unit 118 and the lower frame member 14. Additionally, a support 122 and guide member 123 provide a path for the backing strip 43.

Located within the upper frame member 16 is a slot 125 which receives the shaft 126 of a spool 128. Disposed about the spool 128 is a printing medium in the form of an ink ribbon 130. A hook member 132 is pivotably supported about a hub 134 on each side of the upper frame member 16 and is provided to hold the spool 128 within the slot 125. Also located within the upper frame member 16 is a shaft 136 which has secured to it a handle 137. Mounted upon the shaft 136 is a printing element in the form of a drum 138 comprising a plurality of printing drum discs 140. Means (not shown) is provided for rotating the printing drum discs 140 relative to one another, either individually or in pairs, by rotating the handle 137. Such means are well known in the art and will not be shown nor described herein as it does not form part of the invention. For purposes of this disclosure the printing drum 138 will be considered as a rotatably drivable unit operative to be rotated with the shaft 136. The printing drum discs 140 each has disposed about its periphery an extending font 142 which has alpha-numeric characters or fonts, recessed alpha-numeric fonts 144 and bar code fonts 146 (see FIG. 7). As used in this specification the term alpha-numeric includes letter characters, numerals or a combination of the two. A plurality of peripherally spaced grooves 148 is also provided. Each recessed font 144 is identical to an extended font located on the opposite (180°) side of the segment, and allows the operator to determine the alpha-numeric font in printing position.

A pair of opposed chassis 150 is located on each side of the printing drum 138 and rotatably receives the printing drum shaft 136. Each chassis 150 has an opening 151 through which a shaft 152 is supported by and

extends through the upper frame member 16. Secured to one end of the shaft 152 is a handle 154 that allows manual rotation of the shaft.

Within each chassis 150 is an opening 158 that receives a spring 160, the other end of each spring being attached to a nub 162 integral with the upper frame member 16. Each spring 160 tends to put a biasing force on its associated chassis 150 to bias it in a counterclockwise rotation about the shaft 152. Each chassis 150 also has a projection 164 thereon which is spaced relative to cam member 82, the rise 84 being in a position to engage the projection 164 when the cam member 82 is rotatably in a selected position.

A gear 166 is fixedly secured to one end of the shaft 152 and meshes with an idler gear 168 that is rotatably supported by the upper frame member 16 and which engages the gear 80 that is integral with one of the outer cam members 82. The gear 168 also meshes with another gear 169 that is integral with a pulley 172 that is mounted on shaft 136. A belt 174 is disposed about the pulley 172 which carries a take-up spool 180. The ink ribbon 130 is secured to the take-up spool 180.

A pair of generally annular upper cam members 182 each having a projection 181, a shoulder 183 and a slot 185 are fixedly mounted on the shaft 136 for rotation with the printing drum 138. The slot 185 has an inclined surface 187. The upper cam members are limited in its counterclockwise rotation by a rod 184 in cooperation with the projection 181, which rod is supported by the upper frame member 16. The upper cam members 182 each has an opening 186 therein which receives one end of a rod 188. A pair of springs 190 is supported at one end by the rod 188, each spring 190 having its other end supported by a stud 192 which is mounted on the chassis 150. These springs tend to bias the upper cam members in a counterclockwise direction to urge the projections 181 against the rod 184.

A pair of opposed pivot members 194 are rotatably mounted to the upper cam member 182. An upper rod 196 and a lower rod 198 are disposed between and supported by the pivot members 194. Secured to the rod 196 is a locking member 200 which has a means for receiving the rod 188. This lower rod 198 is adapted to be received within the grooves 148 of the discs 140 thereby locking the segments in place when the rod 188 is received within the locking member 200. When one wishes to change the combination of printing fonts 142, 146 on the printing drum 138, the locking member 200 is lifted and the segment discs 140 may be selectively rotated by means of the handle 137.

Secured to one of the chassis 150 is a support member 202 having a channel 204 which is adapted to receive a key member 206. The key member 206 has a tab 208 integral with the upper end thereof, which tab has an inclined surface 209 that matches the inclined surface 187 of the upper cam member 182.

Another rod member 210 is supported within the upper frame member 16, there being a pair of eyelet members 212 attached thereto. A pair of springs 214 extend from the eyelets to a pair of nibs 192 attached to each of the chassis 150. These springs 214 bias the chassis in a counterclockwise rotation. A second pair of springs extend from each nib 192 attached to each of the nib 192 to the rod 188 to bias the latter into the grooves 148 of the discs 140. Adjacent to the rod member 210 is another rod 215 which is supported by the upper frame member 116 and acts as a stop to limit the counterclockwise rotation of the chassis 150.

Secured to the chassis 150 downstream from the printing drum 138 is a roller 216 which forms part of the path for the ink ribbon 130.

In operation, the printer 10 is held by the handle 24 in one hand as the other hand rotates the handle 154. This rotates the shaft 152 which in turn drives the gear 166. Since the gear 168 is meshed with gear 166, it also rotates and in turn rotates gears 80 and 169. With rotation of the gear 80, shaft 78 and cam members 82, 86 and 90 are rotated therewith.

With the rotation of gear 169, it rotates pulley 172 and drive belt 174 drives pulley 176 which in turn rotates the spool 180. This acts on the ink ribbon 130 in the area downstream from the printing drum 138 to take up the slack.

As the shaft 78 is driven, it also rotatably drives discs 94. The teeth 96 of discs 94 are received within the openings 44 of the label strip 43 thereby driving the strip from the roller 40, past the plate 64, and the rod 62 where it meets with the ink ribbon 130 and passes by driving disc 94 intermediate the disc and the ink ribbon at the junction with the printing drum 138 and then passes between the roller assembly 98 and the disc 94 where it then advances to the separator 118. As the label strip 43 is conveyed, it carries the ink ribbon 130 with it through frictional contacts, thereby conveying the ink ribbon 130 from the spool 128 to the printing drum 138. At the separator 118, the labels 42 advance below roller 110 and the backing strip 43 goes in the other direction. The strip 43 travels between the separator 118 and the guide 120, through the channel defined by the support 122 and guide 123, and across the rod 63 to finally exit from upper frame member 16. As each pre-cut label 42 exits from the printer 110 at the location between the roller 110 and the separator 118, it may be applied to any appropriate article.

As each label 46 is conveyed between the disc 94 and printing drum 138, the ink ribbon 130 being intermediate the label 42 and printing drum 138, the printing drum 138 is in a printing engagement with the ink ribbon which contacts the label. The roller 97 serves as a support to the label 42 during the printing operation. The selected bar code characters 146 and one end of a label 42 are initially in printing position. The printing drum 138 remains stationary while the ink ribbon 130 and the labels 42 are moved relative thereto. During this movement of each label 46 relative to the printing drum 138, the bar code is printed through a scribing action upon the surface of the label. The result of this scribing may be seen partially in FIG. 4. While this scribing is taking place, the lower cam members 82, 86 and 90 are being rotated simultaneously with the discs 94.

At the end of the scribing cycle, the projections 92 of the inner cam members 90 engage the shoulders 183 of the upper cam members 182 thereby overcoming the spring 190 force and tending to rotate the upper cam members in a counterclockwise rotation. With this rotation the tab 208 slides along the incline 187 to begin releasing the key member 206 and the printing drum 138 is rotated in unison with the movement of the tape strip 42. The simultaneous movement rotates the bar code characters 146 away from the printing position and moves the alpha-numeric characters 142 into the printing position to print a line of alpha- numerics with a rolling action. Since there is a short distance from the bar code characters 146 to the alpha-numeric characters 142, see FIG. 7, a space is provided between the

lines of bar codes and lines of alpha- numerics which are printed on the labels 46. While the printing of the line of alpha- numerics is taking place, the intermediate cam member 86 begins to engage the key member 206 by contact with the riser 88. The riser 88 causes the key member 206 to completely rise thereby releasing the tab 208 from the slot 185 of the upper cam member 182. This removal of the tab 208 from slot 185 causes the complete unlocking of the upper cam member 182 thereby leaving it free to be rotated in either direction.

Subsequent to this action, the riser 84 of the outer cam members 82 engages the projections 164 of the chassis members 150 thereby tending to overcome the springs 160 and 214 to rotate the chassis member about the axis 152. With the rotating of the chassis member 150, the printing drum 138, as well as the upper cam member 182, rises, thereby disengaging the same from the ink ribbon 130. While the printing drum 138 is in its raised position, the label strip 42 continues to move with no printing taking place. After the printing cycle is complete the riser 192 become disengaged from the shoulder 183 and the upper cam members 182 snap back due to the action of the springs 190 causing the printing drum 138 to rotate therewith. Another label 42 is placed in position, the riser 84 extends beyond the projection 164 thereby causing the chassis 150, along with it the printing drum 138, to fall through the biasing of springs 160 and 214, thereby again engaging the print drum 138 with the ink ribbon 130. After a complete rotation of the shaft, the risers 84 and 88 and projection 92 are rotated out of the way, the springs 190 have rotated the upper cam member 182 back into a counterclockwise rotation so that the projection 181 rests upon rod 184. The tab 208 will fall back within the slot 185 locking the upper cam member 182. In this position, the bar codes 146 are pressed against the ink ribbon 130 and are in a position to scribe once more. At this point the cycle is repeated and another label may be printed.

What is claimed is:

1. A hand held ticket printer applicator for the printing of bar codes, the combination comprising:
 - a. a frame member having a lower portion and an upper portion pivotably mounted to one another;
 - b. means for releasably holding said upper portion to said lower portion;
 - c. a printing drum supported by said upper portion having at least one line of bar code font and at least one line of alpha- numerics on the perimeter thereof;
 - d. a label strip extending intermediate said frame member portions adjacent said printing drum;
 - e. a printing medium supported within said upper portion and extending intermediate to said drum and said label strip;
 - f. means associated with said frame member for moving said printing medium through said frame member;
 - g. means supported by said frame member for placing said printing drum and said label strip into printing engagement with one another when said printing drum is in an original position where said one line of bar code is adjacent to said printing medium;
 - h. means for holding said printing drum stationary and moving said label strip relative to said printing drum when said label strip and said printing drum are in printing engagement;

- i. means for releasing said printing drum holding means;
 - j. means for partially rotating in a first direction said printing drum in unison with the movement of said label strip when engaged with one another to bring said line of alpha- numerics into printing engagement with said label strip;
 - k. means for disengaging said printing drum and said label strip; and
 - l. means for partially rotating said printing drum opposite to said first direction to return said printing drum to said original position.
2. A hand held label printer applicator for the printing of bar codes and alpha- numerics, the combination comprising:
- a. a frame member;
 - b. a support member pivotably mounted within said frame member and having a projection extending therefrom;
 - c. biasing means supported by said frame member for urging said support member in a rotational direction;
 - d. an annular member rotatably mounted within said frame member and having a shoulder member on the perimeter thereof;
 - e. means supported by said frame member for limiting the rotation of said annular member in a first rotational direction;
 - f. biasing means disposed within said frame member for inhibiting rotation of said annular member in a second rotational direction;
 - g. a printing drum rotatably mounted within said frame member coaxially with said annular member and having at least one line of bar code fonts longitudinally extending along the perimeter thereof, and at least one line of alpha- numeric fonts extending along the perimeter thereof said printing drum being operatively connected with said annular member;
 - h. a first cam member having a riser thereon rotatably mounted on said frame member and being spaced relative to said support member, said riser being operative to engage said projection to overcome said support member biasing means and pivot said support member;
 - i. a second cam member having a projection extending from the perimeter thereof rotatably supported by said frame coaxially with said first cam member, said projection being operative to engage said shoulder of said annular member to rotate said annular member in said second rotational direction; and
 - j. means disposed within said frame member for driving a label strip intermediate said printing drum and said cam members.
3. The printer of claim 2 including means for providing a printing medium between said printing drum and said cam members.
4. A hand held label printer for the printing of bar codes and alpha- numerics, the combination comprising:
- a. a pair of first and second juxtapositioned frame members;
 - b. a first shaft received within said first frame member;
 - c. a chassis member pivotably mounted on said first shaft and having a projection extending therefrom toward said second frame member;

- d. a second shaft generally parallel to said first shaft and rotatably supported by said chassis member;
 - e. biasing means for urging said chassis member toward said second frame member;
 - f. a generally annular member mounted on said second shaft and having a shoulder member on the perimeter thereof addressed toward said second frame member;
 - g. means supported by said first frame member for limiting the rotation of said annular member in a first rotational direction relative to the axis of said second shaft;
 - h. biasing means disposed within said first frame member for inhibiting rotation of said annular member in a second rotational direction;
 - i. a printing drum mounted on said second shaft and having at least one line of bar code fonts and at least one line of alpha- numeric fonts extending along the perimeter thereof, said printing drum being operatively connected with said annular member;
 - j. a third shaft extending generally parallel to said first and second shafts and rotatably received within said second frame member;
 - k. means for rotating said third shaft;
 - l. a first cam member having a riser thereon mounted on said third shaft for rotation therewith and being spaced relative to said chassis member, said riser being operative to engage said projection to overcome said chassis biasing means and pivot said chassis member about said first shaft;
 - m. a second cam member having a projection extending from the perimeter thereof and mounted on said third shaft rotatably therewith, said projection being operative to engage said shoulder of said annular member to rotate said annular member in said second rotational direction; and
 - n. means disposed upon said third shaft for driving a label strip intermediate said printing drum and said third shaft.
5. The printer of claim 4 including means for providing a printing medium between said printing drum and said third shaft.
6. A hand held label printer applicator for the printing of bar codes and alpha- numerics, the combination comprising:
- a. a pair of first and second juxtapositioned frame members;
 - b. a first shaft received within said first frame member;
 - c. a pair of opposed chassis members pivotably mounted on said first shaft, each of said chassis members having a projection extending therefrom toward said second frame member;
 - d. a second shaft generally parallel to said first shaft and extending between and rotatably supported by said chassis members;
 - e. biasing means for urging said chassis members toward said second frame member;
 - f. a pair of opposed, generally annular members mounted on said second shaft, each having a shoulder member on the perimeter thereof addressed toward said second frame member;
 - g. means supported by said first frame member for limiting the rotation of said annular members in a first rotational direction relative to the axis of said second shaft;

- h. biasing means disposed within said first frame member for inhibiting rotation of said annular members in a second rotational direction;
 - i. a printing drum mounted on said second shaft between said annular members and having at least one line of bar code fonts and at least one line of alpha-numeric fonts extending along the perimeter thereof said printing drum being operatively connected with said annular members;
 - j. a third shaft extending generally parallel to said first and second shafts and rotatably received within said second frame member;
 - k. means for rotating said third shaft;
 - l. a pair of opposed first cam members having a riser thereon mounted on said third shaft for rotation therewith and being spaced relative to said chassis members, said riser being operative to engage said projection to overcome and chassis biasing means and rotate and chassis members about said first shaft;
 - m. a second pair of opposed cam members having a projection extending from the perimeter thereof and mounted on said third shaft rotatably therewith, said projections being operative to engage said shoulders of said annular members to rotate said annular members in said second rotational direction; and
 - n. means disposed upon said third shaft for driving a label strip intermediate said printing drum and said third shaft.
7. The printer applicator of claim 6 including means for providing a printing medium between said printing drum and said third shaft.
8. A hand held ticket printer applicator for the printing of bar codes and alpha-numerics, the combination comprising:
- a. a frame having a lower frame member and an adjacent upper frame member pivotably mounted to one another;
 - b. means for releasably holding said upper member to said lower member;
 - c. a first shaft received within and extending through said upper frame member;
 - d. a pair of opposed chassis members pivotably mounted on said first shaft, each of said chassis members having a projection extending therefrom toward said second frame member;
 - e. a second shaft extending between and rotatably supported by said chassis members;
 - f. biasing means for urging said chassis members toward said second frame member;
 - g. a handle located outside said frame and mounted on one end of said first shaft for rotation thereof;

- h. a gear located inside said frame and mounted on the other end of said first shaft for rotation therewith;
- i. a printing drum mounted on said second shaft and having at least one line of bar code characters longitudinally extending along the perimeter thereof, at least one line of alpha-numeric characters extending along the perimeter thereof and a space extending intermediate said line of bar codes and said alpha-numeric characters;
- j. a pair of opposed, generally annular members disposed on opposite sides of said printing drum and operationally connected therewith, said annular members being mounted on said second shaft, each having a shoulder on the perimeter thereof addressed toward said lower member;
- k. means supported by said upper frame portion for limiting the rotation of said annular members in a first rotational direction relative to the axis of said second shaft;
- l. biasing means connected to said upper frame portion and said annular member for inhibiting rotation of said annular members in a second rotational direction;
- m. a third shaft rotatably received within said lower frame member portion and having a gear mounted thereon;
- n. an idler gear rotatably supported by said upper frame member, said idler gear being in engagement with said first shaft gear and said third shaft gear;
- o. a pair of opposed first cam members having a riser thereon mounted on said third shaft rotatably therewith and engageable with said projection member of said chassis members, said riser being operative to engage said projection to overcome said chassis biasing means and drive said chassis members away from said first cam members;
- p. a second pair of opposed cam members having a projection extending from the perimeter thereof and mounted on said third shaft member rotatably therewith, said projections being operative to engage said shoulders of said annular members to rotate said annular members in said second rotational direction;
- q. a spool support means rotatably mounted on said upper frame member;
- r. means disposed upon said third shaft for driving a label strip from said spool support means and intermediate said printing drum and said third shaft;
- s. a pair of spools rotatably supported by and located at opposite ends of said upper frame member; and
- t. means associated with said third shaft for conveying an ink ribbon between said pair of spools and intermediate said printing drum and said third shaft.

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