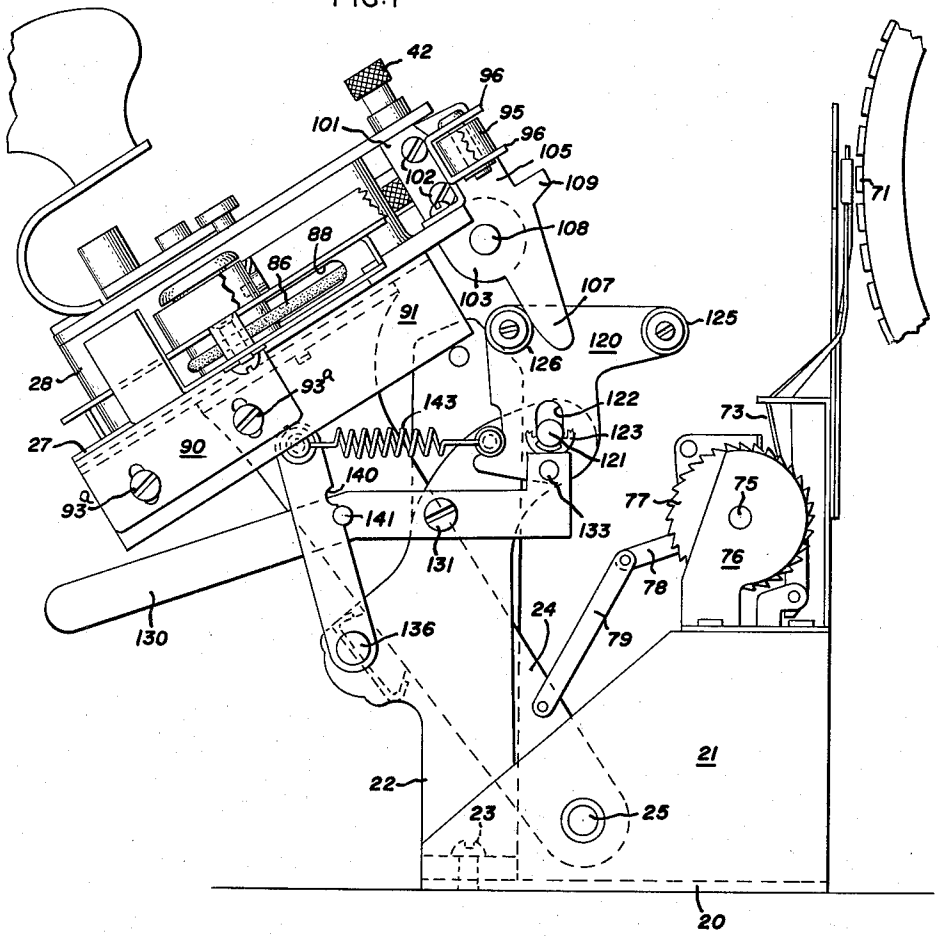
July 9, 1963 J. F. FILSINGER 3,096,712

TAG PRINTING MACHINE

Filed Oct. 11, 1961 4 Sheets-Sheet 1

FIG. 1



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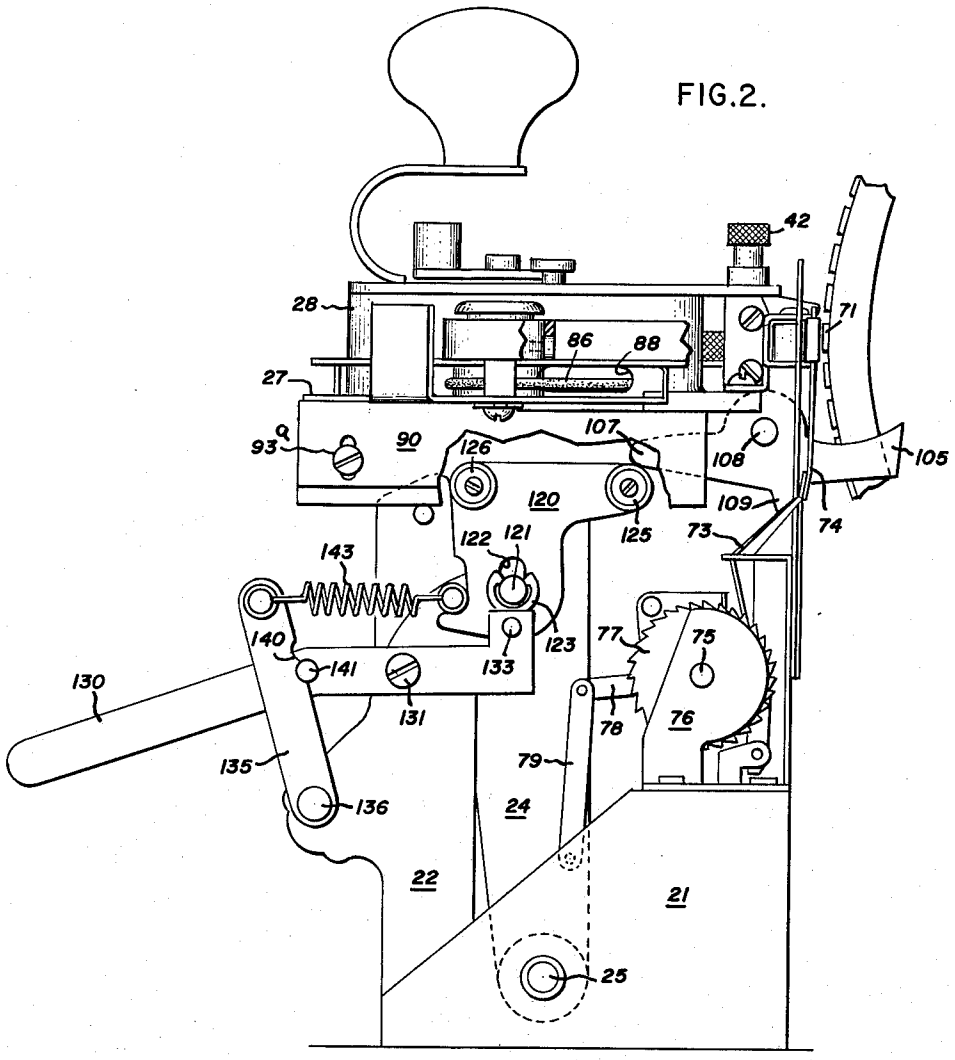
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TAG PRINTING MACHINE

Filed Oct. 11, 1961 4 Sheets-Sheet 2

FIG.2.



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TAG PRINTING MACHINE

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FIG.3

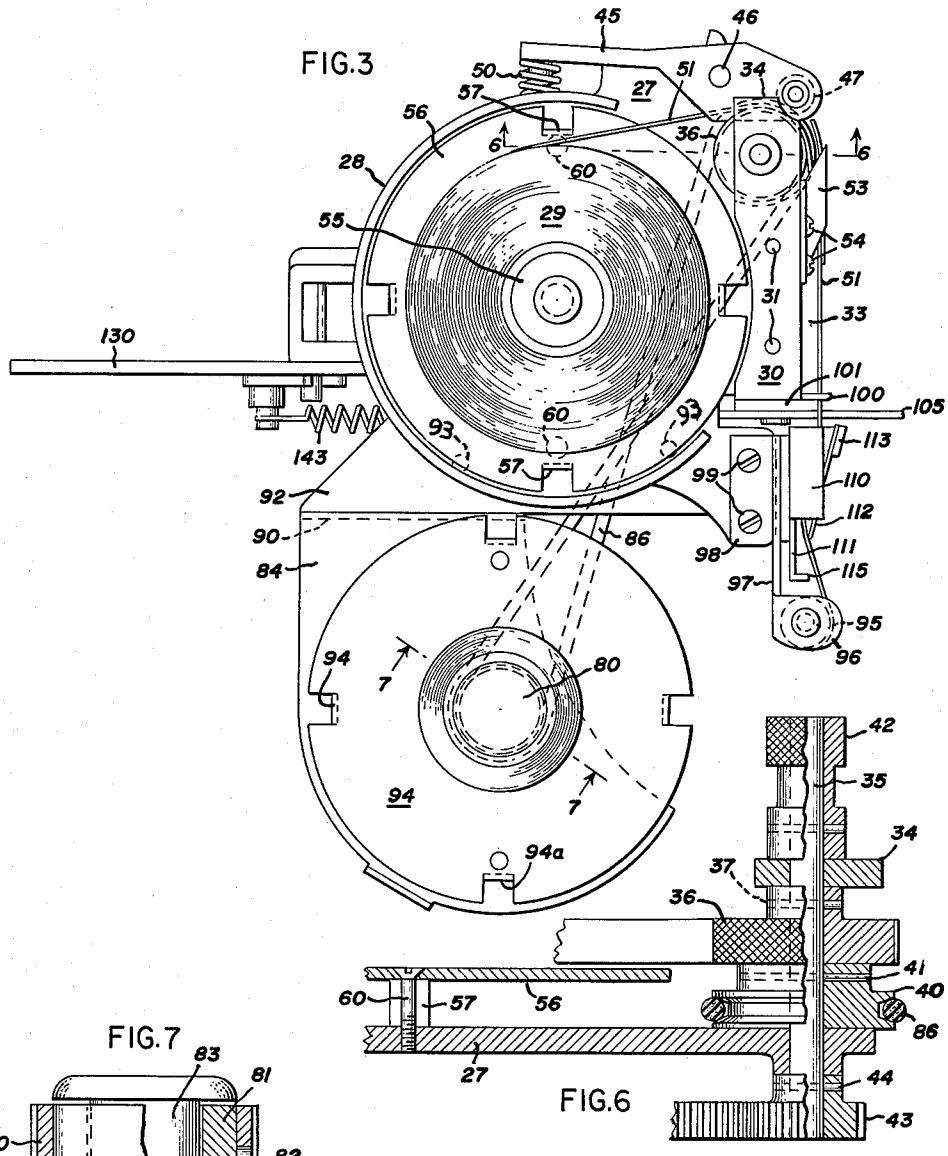
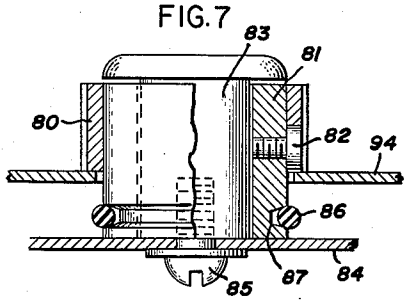


FIG.6

FIG.7



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July 9, 1963 J. F. FILSINGER 3,096,712

TAG PRINTING MACHINE

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FIG.4.

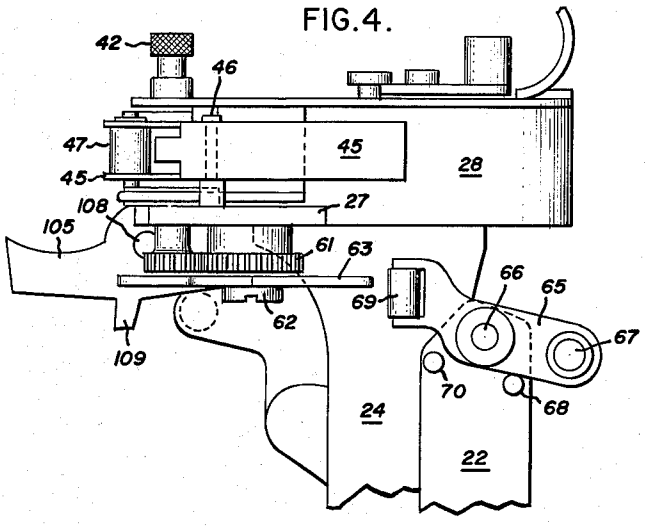
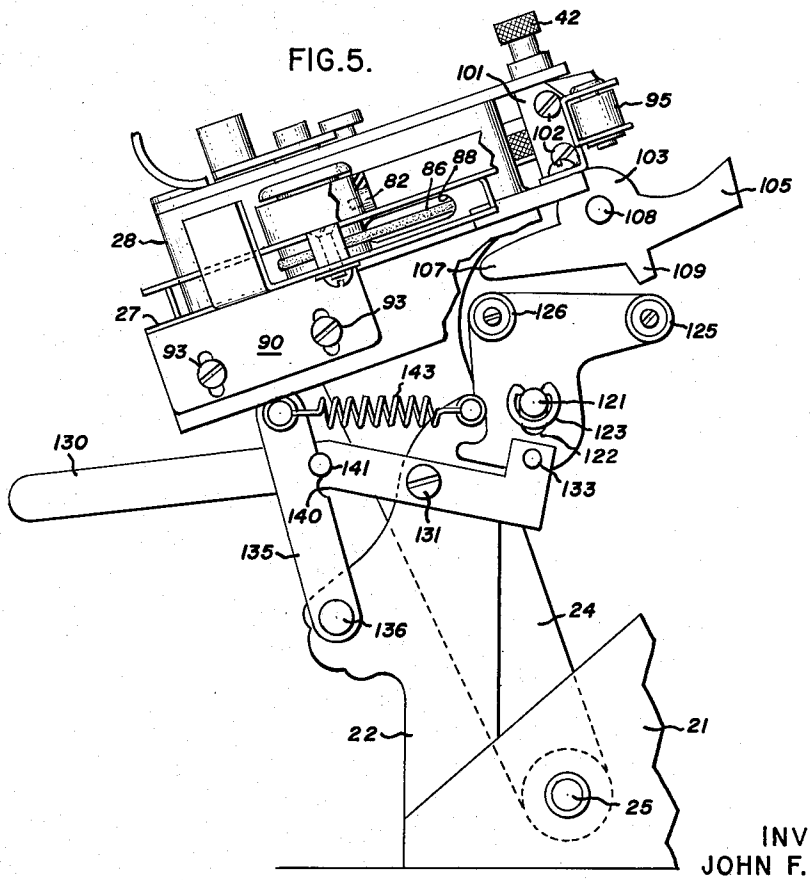


FIG.5.



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United States Patent Office 3,096,712 Patented July 9, 1963

3,096,712

TAG PRINTING MACHINE

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Filed Oct. 11, 1961, Ser. No. 144,344
4 Claims. (Cl. 101—288)

This invention relates to a machine for forming printed tags individually, or in strip form. A machine of this type is disclosed in Patent No. 2,575,407, to Philip N. Braun, November 20, 1951. That machine is employed to form identification tags which are attached to articles to be laundered, or dry-cleaned.

This invention has as an object a tag forming machine embodying a structural arrangement which functions to form printed tags from a supply of tape individually, or joined together, in tape form as desired.

The invention consists in the novel features and in the combinations and constructions hereinafter set forth and claimed.

In describing this invention, reference is had to the accompanying drawings in which like characters designate corresponding parts in all the views.

In the drawings—

FIGURE 1 is a side elevational view of a tag forming machine embodying my invention, the carrier and platen being shown in rearward position from the print means.

FIGURE 2 is a view, similar to FIGURE 1, with the platen moved in juxtaposition to the print means.

FIGURE 3 is a top plan view omitting the print means.

FIGURE 4 is a side elevational view looking downward in FIGURE 3.

FIGURE 5 is a view, similar to FIGURE 1, showing the knife actuator in down position.

FIGURE 6 is a view taken on line 6—6, FIGURE 3.

FIGURE 7 is a view taken on line 7—7, FIGURE 3.

The invention comprises generally a frame having print means, such as type adjustable to a print line, a carrier, a platen mounted on the carrier, the carrier being movable toward and from the print means to press the tape thereagainst for printing. The carrier is provided with means for supporting a supply of tape in the form of a roll, and tape feed means for feeding a predetermined length of the tape across the face of the platen upon each actuation of the carrier. There is also provided a re-wind roll mounted on the carrier and operable upon actuation thereof to re-wind the printed tape. A shear, or knife, is mounted on the carrier, and a knife actuator is mounted on a fixed support and is shiftable into and out of position for engagement by the knife upon actuation of the carrier, whereby printed tags may be severed from the tape, or the printed tape may be wound on the re-wind roll.

The frame of the machine consists of a base plate **20** having up-turned end portions forming side plates **21**, a fixed support **22** is mounted on the base plate **20** intermediate the side plates **21**, as by screws **23**. A carrier **24** is mounted between the side plates **21** for pivotal movement about a shaft **25** fixed in the side plates.

The carrier **24** extends upwardly from the shaft **25** and has affixed to its upper end a plate **27** formed with an upstanding circular flange **28** forming an enclosure encircling a major portion of a supply roll **29** of tape, from which the tags are formed, see FIGURE 3. A block **30** is secured to the forward edge portion of the plate, as by screws **31**, FIGURE 3, and a platen **33** of yieldable material, such as rubber, is fixedly secured to the outer face edge of the block **30**. The block **30**, at one end, is formed with a continuing or overhanging portion **34** spaced upwardly from the plate **27**. The portion **34** of

the platen block and the plate **27** are formed with aligned apertures in which a shaft is journalled and on which there is fixedly secured a tape feed roll **36**, as by pin **37**. The roll **36** is spaced upwardly a distance from the plate **27** by a belt pulley **40** fixed to the shaft, as by pin **41**. A finger knob **42** is fixed to the upper end of the shaft **35** to permit the shaft and the roll **36** to be rotated by hand.

A pinion gear **43** is fixedly secured to the lower end of the shaft **35** below the plate **27**, as by pin **44**. A bracket **45** is pivotally mounted on a pin **46** fixedly extending upwardly from the plate **27**. An idler roll **47** is journalled in the forward end of the bracket **45** and is yieldingly urged toward the tape feed roll **36** by a compression spring **50** acting against the rear end portion of the bracket **45**, see FIGURE 3, to assure proper frictional engagement between the tape feed reel **36** and the tape **51** extending from the supply roll **29**. Upon rotation of the feed roll **36**, the tape **51** is advanced across the face of the platen **33**. It is directed in its course by a guide member **53** fixed to the platen block **30**, as by screws **54**.

The tape roll **29** is mounted for rotation about a stud **55** fixedly mounted at the center of the plate **27** and extending upwardly therefrom. A circular plate **56** is positioned within the circular flange **28**. This plate is apertured to pass over the stud **55** and is formed with four downwardly bent flange legs **57** positioned on the plate **27**. The disk **56** is secured to the plate **27**, as by screws **60**. The purpose of thus positioning the tape supply roll **29** spaced above the plate **27** is to provide an area for motion transmitting means between the tape feed roll shaft **35** and the re-wind roll, hereinafter referred to.

The tape feed roll **36** is rotated to feed a predetermined length of tape **51** in overlying relation to the face of the platen **33** upon movement of the carrier **24** in a rearward direction. This rotation is effected by a gear **61** journalled on a stud **62** secured to the under side of the plate **27**, see FIGURE 4. Fixedly secured to the gear **61** is a star wheel **63**. A pawl **65** is mounted for oscillation about a pin **66** carried on the fixed support **22**. The rear end of the pawl **65** is provided with a weight **67** to normally maintain the pawl positioned against a stop pin **68**, as shown in FIGURE 4. The rear end of the pawl is provided with a roller **69**. When the carrier **24** is moved rearwardly, one of the arms of the ratchet wheel **63** engages the roller **69** and upon further rearward movement of the carrier, rotation is imparted to the ratchet wheel and thus to the gear **61**, to effect rotation of the tape feed roll shaft **35**. Upon forward movement of the carrier, the next adjacent arm of the ratchet wheel engages the pawl **65**, swinging it downwardly against the stop pin **70** so that the ratchet wheel is not rotated in retrograde direction.

The printing of the tag portion of the tape **51** overlying the face of the platen **33** is effected by moving that portion of the tape against an ink ribbon extending across type **71** positioned at a print line. The type are mounted on arcuate segments adjustable to bring different type to the print line to print the desired indicia on the tape. The printed portion of the tape is subsequently attached to a garment, or other article, being laundered, or dry-cleaned. The inking ribbon **73** is fed from one spool and re-wound on a second spool, and is directed transversely across the print line by guide members **74**. The spools are mounted upon a shaft **75** mounted in brackets **76** secured to the side plates **21**. The spools are rotated in proper direction by pawls **77** actuated by links **78**, **79**, upon movement of the carrier **24** about its mounting pivot **25**. The tape feeding mechanism and the ink ribbon mechanism is more particularly described in Patent No. 2,575,407, previously referred to, and in Patent No. 2,563,513, to Philip N. Braun, August 7, 1951.

After the tape overlying the platen has been printed and the carrier 24 moved rearwardly away from the printing means, the tape is re-wound on a core 80. This core is positioned on a cylindrical sleeve 81, see FIGURE 7, the core being formed with a notch to register with the head of a screw 82 threaded into the sleeve to effect rotation of the core upon rotation of the sleeve 81. The sleeve 81 is journalled on a stud 83 fixedly secured to a plate 84, as by a screw 85. The motion transmitting means for effecting rotation of the sleeve 81 consists of a rubber belt 86 trained about a groove 87 formed in the sleeve 81 and extending through an aperture 88, see FIGURE 1, formed in the flange 28 of plate 27. The belt is also trained about the pulley 40 on the feed roll shaft 35. With this arrangement, rotation imparted to the shaft 35, as previously described, effects rotation of the sleeve 81, re-winding the tape 51 on the core 80. The friction belt drive provides for slippage to compensate for increasing diameter as the printed tape accumulates on the re-wind roll 80.

The plate 84 is formed with a down-turned flange 90 positioned against the vertical flange 91 of an angle plate 92 secured to the under side of the plate 27, as by screws 93, see FIGURE 3. The flange 90 is secured to the flange 91, as by screws 93, see FIGURE 1. The core 80 is positioned above the plate 84 and the re-wound roll of tape is supported by a plate 94. This plate is substantially identical to the plate 56 and is likewise formed with bent-down leg flanges 94a corresponding to the flanges 57 of plate 56, these flanges being positioned on the plate 84. The tape 51 is guided to the core 80 by a guide roll 95 journalled between flanges 96 of a bracket 97 having a flange 98 secured to the plate 27, as by screws 99, see FIGURES 1 and 3. A U-shaped member 100 is fixed to the end of the platen block 30 and through which the tape 51 passes and serves to hold the tape in juxtaposition across the face of the platen. Adjacent the member 100 is a shear plate 101 fixed to the end of the block 30, as by screws 102. The plate 101 is formed with a depending circular portion 103 to which is pivotally mounted a knife 105 and which normally lies in horizontal position, as shown in FIGURES 3, 4 and 5. The knife 105 has a portion 107 extending rearwardly from the mounting shaft 108, and the knife is also formed with a depending projection 109. In the horizontal position, the knife extends below the run of the tape to permit the tape to pass between horizontally extending flanges 110 formed on a tag collecting plate 111 fixed to the bracket 97. A leaf spring 112 is fixed at one end to an ear 113 turned upwardly from the bottom flange 110. When the machine is used to produce individual tags, the knife 105 is actuated following each advancement of the tape which, as previously explained, takes place in the structure described upon the initial portion of the rearward movement of the carrier from the print type. During the remainder of the rearward movement of the carrier, the knife 105 is swung up into vertical position, as shown in FIGURE 1, to sever the printed portion of the tape which has now been advanced in the tag collector 11. The purpose of the spring 112 is to retain the severed tags between the flanges 110 and direct them against the forwardly bent end portion 115 of the member 111.

When the machine is employed to form tags not severed from the strip and re-wound on the core 80, the shear 105 is rendered inoperable. An actuating member 120 is provided for actuating the shear 105. This member is mounted upon a pin 121 fixed to the support 22. The actuator is formed with an elongated slot 122 to receive the pin 121, and the actuator is retained on the pin by a snap washer 123.

The actuator 120 is provided with a pair of spaced apart rollers 125, 126. When the actuator is positioned in up position, FIGURE 1, and the carrier is moved rearwardly from the print line, the projection 109 on the knife engages the roller 125 causing the knife to move in a clockwise direction about its pivot 108. This effects downward movement of the tail portion 107 and upon further rearward movement of the carrier, the tail portion engages the roller 126. The arrangement is such that upon full rearward movement of the carrier, the knife 105 is moved to shearing relationship with the shear plate 101 to sever the printed tag from the tape, the tag at that time being positioned in the tag collector 111.

When it is desired not to sever the printed tag from the tape, the actuator 120 is moved to down position, as shown in FIGURE 5. In this position, it is clear of the projection 109 on the knife and the knife is not moved into shearing engagement with the tape. Vertical movement is imparted to the knife actuator by a lever 130 pivotally mounted at 131 to the support 22. The forward end of the lever is pivotally connected by pin 133 to the actuator 120. Accordingly, movement of the lever 130 about the pivot 131 effects vertical movement of the actuator 120.

Detent means is provided for retaining the actuator 120 in either the up or the down position. As here shown, the detent arrangement is in the form of a link 135 pivotally mounted at its lower end by pin 136 to the fixed support 22. Intermediate its ends, the link 135 is formed with notches 140 for engagement with a pin 141 on lever 130. The link 135 is urged into engagement with the pin 141 by tension spring 143 fixed at one end to the upper end of the link 135 and at its opposite end to the support 22.

It will be apparent that by simply adjusting the position of the actuator 120 by the lever 130, the machine can be employed to print tags individually, or in strip form.

What I claim is:

1. A machine for printing tags individually, or in strip form, comprising a frame, a tag print means, a carrier, a platen mounted on said carrier, a tape supply carried by said carrier, a tape feed roll mounted at one end of said platen drive means for intermittently rotating said tape feed roll, said carrier being pivotally mounted in said frame and being movable forwardly to move the tape overlying the platen into printing engagement with said print means to print a tag portion on said tape, said carrier being movable rearwardly from said print means, said tape feed roll drive means being operable upon initial movement of said carrier to rotate said roll to feed a predetermined tag length of said tape across said platen, a knife pivotally mounted on said carrier at the opposite end of said platen, a knife actuator mounted on a fixed support and positioned for engagement by said knife during the latter portion of the movement of said carrier and being operable upon such engagement to move said knife about its pivotal mounting into cutting engagement with the tape to sever a printed tag therefrom, said knife actuator being mounted for limited movement and being shiftable out of the path of movement of said knife, a tape re-wind roll mounted on said carrier, motion transmitting means operable upon actuation of said tape feed drive means to effect rotation of said re-wind roll to wind the printed tape, and releasable means for holding said actuator in shifted position.

2. A machine for printing tags individually, or in strip form, comprising a frame, a tag print means, a carrier pivotally mounted in said frame for movement toward and away from said print means, a platen mounted on said carrier, a tape supply carried by said carrier, a tape feed roll mounted at one end of said platen, said carrier being movable forwardly to move the tape overlying the platen into printing engagement with said print means to print a tag portion on said tape, said carrier being movable rearwardly from said print means, drive means operable upon said movement of said carrier, said tape feed roll being operable upon actuation of said drive means to feed a predetermined tag length of said tape across said platen, a movable knife mounted on said carrier at the opposite end of said platen, a knife actuator mounted on a fixed support and positioned for engagement by said knife during the latter portion of the forward movement of said carrier and being opera-

ble upon such engagement to move said knife into cutting engagement with the tape to sever a printed tag therefrom, said knife actuator being mounted for limited movement and being shiftable out of the path of movement of said knife, a tape re-wind roll mounted on said carrier, motion transmitting means including a friction drive member operable upon actuation of said tape feed drive means to effect rotation of said re-wind roll to wind the printed tape, and means for holding said actuator in shifted position.

3. A machine for printing tags individually, or in strip form, comprising a frame, a tag print means, a carrier pivotally mounted in said frame, a platen mounted on said carrier, a tape supply carried by said carrier, a tape feed roll mounted at one end of said platen, said carrier being movable forwardly to move the tape overlying the platen into printing engagement with said print means to print a tag portion on said tape, said carrier being movable rearwardly from said print means, said tape feed roll being operable upon initial movement of said carrier to feed a predetermined tag length of said tape across said platen, a knife movably mounted on said carrier at the opposite end of said platen, a knife actuator mounted on a fixed support and positioned in the path of movement of said knife during rearward movement of said carrier and operable upon engagement by said knife to move the same into cutting engagement with the tape to severe a printed tag therefrom, said actuator being shiftable below the path of movement of said knife, a tape re-wind roll mounted on said carrier, motion transmitting means operable upon movement of said carrier to effect rotation of said re-wind roll to wind the printed tape, and means for holding said actuator in shifted position.

4. A machine for printing tags individually, or in strip form, comprising a frame, a tag print means, a carrier

pivotally mounted for oscillation toward and away from said print means, a platen mounted on said carrier, a supply of tape carried by said carrier, a tape feed roll journalled at one end of said platen, said carrier being movable forwardly to move the tape overlying the platen into printing engagement with said print means to print a tag portion on said tape, said carrier being movable rearwardly from said print means, drive means for said tape feed roll being operable upon initial rearward movement of said carrier to rotate said feed roll to feed a predetermined tag length of said tape across said platen, tag accumulating means positioned at the opposite end of said platen for accumulating individual tags, a knife movably mounted on said carrier intermediate said platen and said tag accumulating means, a knife actuator mounted for limited movement on a fixed support and positioned in the path of movement of said knife during the latter portion of the rearward movement of said carrier and being operable upon such engagement to move said knife into cutting engagement with the tape to sever a printed tag therefrom for retention in said tag accumulating means, said knife actuator being shiftable downwardly below the path of movement of said knife, a tape re-wind roll mounted on said carrier, motion transmitting means including a belt operatively connecting said re-wind roll drive means to said tape feed roll, and yieldably releasable means for holding said actuator in downwardly shifted position.

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