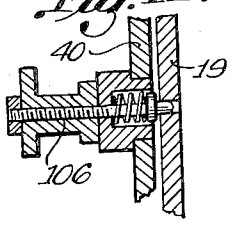
Sept. 13, 1949. G. STIEGLER 2,482,035

TAPE FEEDING AND MARKING MACHINE

Filed July 13, 1946

2 Sheets-Sheet 1

Fig. 11.



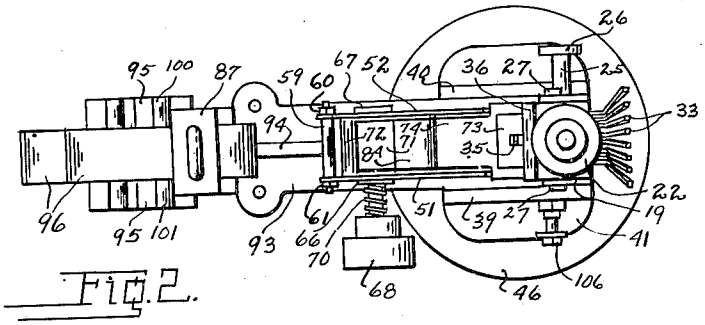


Fig. 2.

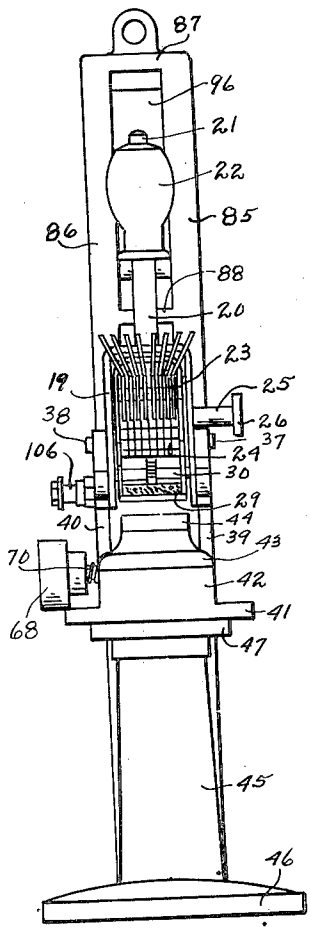


Fig. 3.

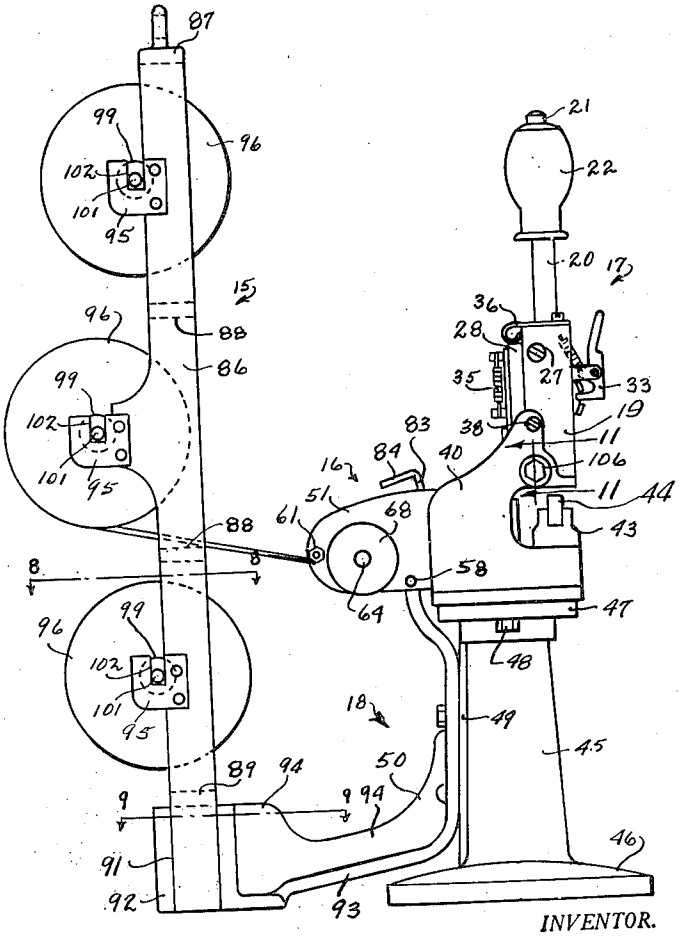


Fig. 1.

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Sept. 13, 1949. G. STIEGLER 2,482,035

TAPE FEEDING AND MARKING MACHINE

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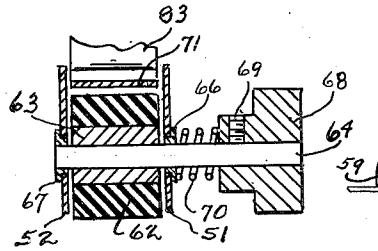

Fig. 5.

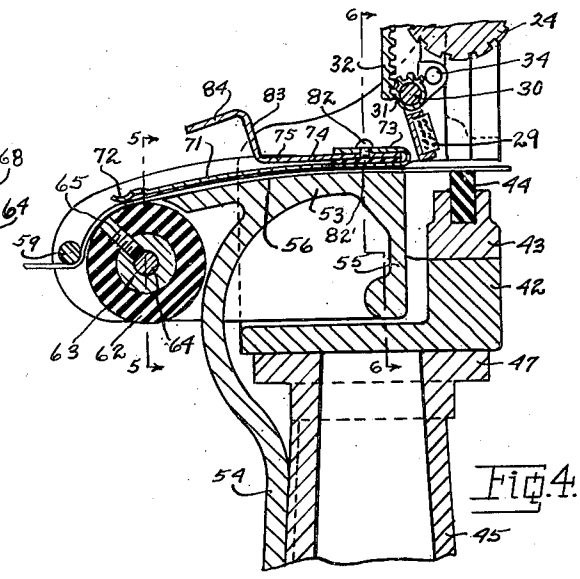

Fig. 4.

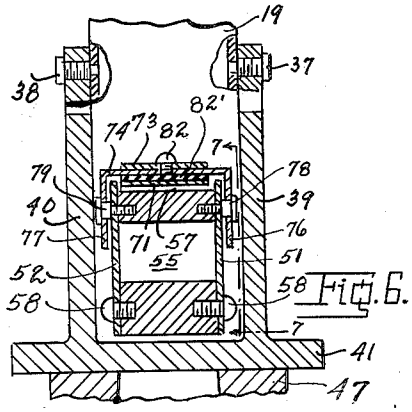

Fig. 6.

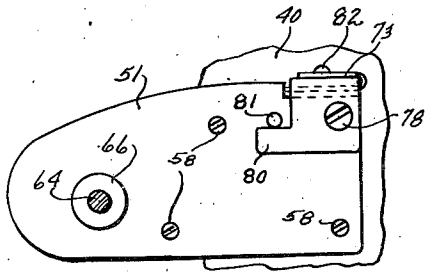

Fig. 7.

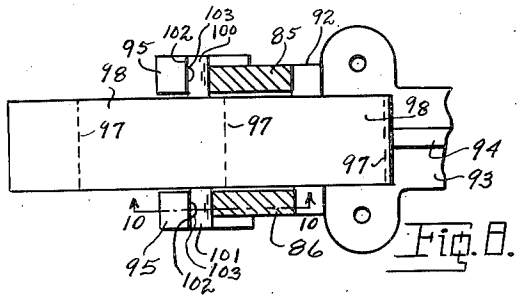

Fig. 8.

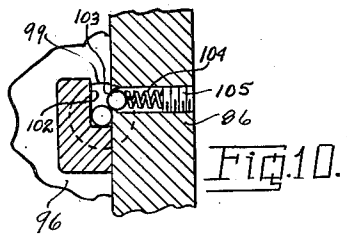

Fig. 10.

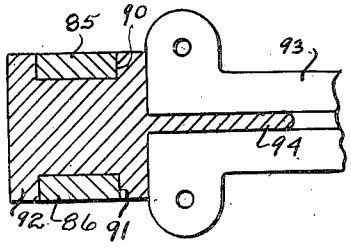

Fig. 9.

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2,482,035

TAPE FEEDING AND MARKING MACHINE

George Stiegler, Cincinnati, Ohio

Application July 13, 1946, Serial No. 683,466

6 Claims. (Cl. 271—2.3)

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This invention relates to improvements in a machine or device for feeding tape to be marked for attachment to articles, goods and the like.

One of the chief uses for the present invention will be in laundries wherein tags having a number or other marking is employed and attached to garments and the like prior to their cleaning so that the said article may be identified after such cleaning, pressing and the like.

The chief object of the present invention is the provision of a device for feeding the tape to a marking machine and which feeding device is economical to manufacture and use.

Another object of this invention is the provision of a device for feeding a continuous strip of material, tape, to be marked and which device holds the said material after marking to permit separation thereof from the remainder of the strip.

A further object of the present invention is the provision of a unitary machine or device for use in laundries, dry cleaning establishments, and similar institutions for feeding or supplying and marking individual tickets or tags with an identifying number, letter or the like which tickets are to be attached to garments or articles being worked upon.

Another object of this invention is the provision of a machine as set forth in the preceding paragraph but which may be used without feeding to it a ticket but marking directly on the article itself.

Other objects and advantages of the present invention should be readily apparent by reference to the following specification considered in conjunction with the accompanying drawings, forming a part thereof, and it is to be understood that any modifications may be made in the exact structural details there shown and described, within the scope of the appended claims, without departing from or exceeding the spirit of the invention.

In the drawings:

Fig. 1 is a side elevation of the feeding and marking machine of this invention.

Fig. 2 is a top plan view of the machine as illustrated in Fig. 1.

Fig. 3 is a front elevation of the machine as seen from the right hand side of Fig. 1.

Fig. 4 is an enlarged vertical sectional view through the feed mechanism of the machine illustrated in Fig. 1.

Fig. 5 is a fragmentary sectional view taken transversely of Fig. 4 on line 5—5 on said Fig. 4.

Fig. 6 is a vertical sectional view similar to

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Fig. 5 taken through a plane ahead of that of Fig. 5 on line 6—6 on Fig. 4.

Fig. 7 is a fragmentary elevational view of certain parts of Fig. 6 as seen from line 7—7 on said Fig. 6.

Fig. 8 is an enlarged horizontal sectional view through the tape supporting mechanism as seen from line 8—8 on Fig. 1.

Fig. 9 is an enlarged horizontal sectional view similar to Fig. 8 taken through a plane below that of Fig. 8 on line 9—9 on Fig. 1.

Fig. 10 is a fragmentary sectional view taken on line 10—10 on Fig. 8.

Fig. 11 is a view taken on line 11—11 on Figure 1.

Throughout the several views of the drawings similar reference characters are employed to denote the same or similar parts.

The complete tape feeding and marking mechanism or machine of this invention comprises essentially a tape supporting mechanism 15, a tape feeding mechanism 16, a tape marking mechanism 17, and a supporting and connecting bracket and stand 18.

The tape marking device or mechanism 17 is essentially the marking machine disclosed in United States Patent 1,993,461 which issued on March 5, 1935, to the present applicant. This marking machine forms no part of the present invention except in combination with the tape feeding mechanism and supporting mechanism and it will be but briefly described.

The marking machine utilizes a U-shaped frame 19 which in practice is inverted and supports upwardly thereof a tube 20 housing an operating rod and coiled spring. Secured to the upper end of the rod as by means of nut 21 is a handle or knob 22. The upper end of the tube 20 is received in the lower end of the knob 22 wherefore the tube and knob 20 and 22 telescope during the operation of the device.

Within the marking device frame 19 is a second inverted U-shaped frame 23 which is secured to the above referred to operating rod and moves with said rod and knob 22 in effecting the marking.

Carried by the inner U-shaped frame 23 are a plurality of adjustable dials 24 which are mounted on and frictionally attached to a shaft 25 whereby said dials may be individually adjusted to vary the combinations of printing indicia. The shaft 25 is provided on its outer end with a knob 26 whereby the dials are adjusted.

Pivotally carried by the main frame, as at 27, is a plate 28 which in turn has pivotally con-

nected to its lower end an inking pad 29. The inking pad 29 is rotatably or oscillatably mounted on a pivot shaft 30 supported by the lower end of the plate 28. Associated with the inking pad 29 is a segmental gear 31 having its teeth meshing with that of a slidable rack 32 carried by the plate 28.

Associated with the marking frame 19 are a plurality of yieldably actuated fingers 33, there being one finger for each dial which locks its dial in any position of adjustment.

The plate 28 is adapted to be oscillated about its pivot 27 and to effect this oscillation it has projecting from its lower end, near the pivot bar 30, abutments 34 adapted to be engaged by the dial carrying frame 23 during its movement relative to the main frame 19.

The slide or rack 32 has its upper end connected to a spring 35 which has its other end anchored to the main frame for retracting the rack or slide 32 after the inking pad has performed its function as will later be made clear. Secured to the main U frame 19 is a leaf spring 36 which engages the upper end of the plate 28 for returning it to its normal position after it has been oscillated by the dial frame 23.

The operation of the marking device elements is as follows:

Downward pressure on the knob 22 causes a downward movement of the rod secured thereto and thereby the dial carrying frame 23. This movement of the frame 23 carries with it the slide or rack 32 thereby actuating the inking pad from the position illustrated in Fig. 4 to a position to be contacted by the dials 24. Continued movement of the dial frame 23 causes it to engage the abutments 34 of plate 28 and outwardly swing said plate about its pivots 27; this swinging of the plate 28 being in a clockwise direction on the pivot 27 as seen in Fig. 1. The said swinging or oscillation of plate 28 breaks the connection of the dial frame 23 and slide or rack 32 whereupon the spring 35 retracts the slide or rack 32 to its upper position and through the said rack 32 and segmental gear 31 removes the inking pad 29 from the path of the dials and the said pad is then returned to the position illustrated in Fig. 4. The dials continue downwardly to engage the tape or article being marked.

The marking device 17 is pivoted by pivot screws 37 and 38 to projections projecting from the upper ends of arms 39 and 40 of U-shaped bracket or cradle 41. The bracket 41 is provided at its front end with an upstanding support portion 42 on which is secured anvil 43 having a relatively soft top portion 44. The soft portion 44 is conveniently formed of rubber and constitutes the surface on which the tape or other article being marked rests while being engaged by the dials 24. In other words the support or abutment 44 is in line with the dials and limits their movement as effected by the knob 22.

The bracket 41 is secured to the upper end of a pedestal 45 which constitutes a portion of the above referred to supporting and connecting bracket 18. The pedestal 45 is conveniently formed with an enlarged base flange 46 on which it rests and the pedestal 45 has at its upper end an attaching flange 47 through which bolts, screws or the like 48 pass for securing thereto the bracket 41. In addition the pedestal 45 is provided along its rear surface with a pad 49 to which is secured a connecting bracket 50

which carries at one end the tape feeding mechanism 16 and at its other end the tape supporting mechanism 15.

The tape feeding mechanism 16 illustrated most clearly in Figs. 4, 5, 6 and 7 comprises a pair of side plates 51 and 52 having a configuration as illustrated in Fig. 7. Said side plates 51 and 52 are respectively secured to opposite sides of the tape feeding head 53 which is formed integral with the upper end of vertical arm 54 of bracket 50. The head 53 has a forward depending portion 55 and an arcuate supporting surface 56 thereabove. The arcuate supporting surface 56 forms the lower surface of a throat 57 through which the tape is fed to be marked, as will presently be made clear. Any suitable or desirable means may be employed for securing the plates 51 and 52 to the head 53 there being illustrated in the drawings screws 58 for this purpose.

A considerable portion of said side plates 51 and 52 project rearwardly of the head 53 and which portions are connected to one another and properly spaced by a shouldered stud 59 receiving on opposite ends thereof nuts 60 and 61.

Mounted between the spacing and connecting stud 59 and head 53 is a feed roller 62 preferably formed of material whose surface has a relatively high coefficient of friction. It has been found that rubber forms an ideal material from which the said wheel or roller 62 may be formed. The wheel or roller 62 is provided axially thereof with a metal bushing 63 through which extends a shaft 64. The roller 62 is secured to the shaft 64 by means of a dog screw 65 threaded through the metal bushing 63 to impinge on the shaft 64.

The shaft 64 is journaled in bushings 66 and 67 pressed, respectively, into apertures in the side plates 51 and 52. In order to actuate the feed roller 62 the shaft 64 projects beyond one of said plates 51 and 52 to receive an actuating knob 68 secured to said shaft 64 by dog screw or the like 69. Surrounding the shaft 64 between the knob 68 and flange of adjacent bushing 66, for example, is an expansion coil spring 70 which yieldably removes play that may be between the parts forming the assembly of the feed wheel.

Overlying the supporting surface 56 of the head 53 and forming the upper wall of throat 57 is a leaf spring 71 whose free end is bent to form a finger 72 pressed into engagement with the periphery of the feed roller 62. As will later be made clear the tape to be printed is pressed into frictional engagement with the feed roller 62 by the finger 72. The inner end of the leaf spring 71 is turned on itself as at 73 to embrace the base 74 of an actuating bracket 75. The actuating bracket 75, see Figs. 6 and 7, has the portion thereof beyond the leaf spring end 73 turned downwardly exteriorly of side plates 51 and 52 to form arms 76 and 77. Each of said arms is provided with an aperture to respectively receive pivot screws 78 and 79 threaded into the head 53 at points near the upper right hand corner thereof. Each of said bracket arms 76 and 77 has a rearwardly projecting tail 80, one of which is illustrated in Fig. 7. Projecting from the bracket side plates 51 and 52 are abutment pins 81 to be engaged by said tails 80 to limit the oscillation of the bracket 75. In other words the leaf spring 71 is under tension, due to engagement of its finger 72 with the surface of feed roller 62, which tends to oscillate the bracket 75 about the pivot screws 78 and 79 and which oscillation is limited

by the abutments 81 for thereby maintaining tension between the finger 72 and feed roller 62. It will be noted from Fig. 4 that the leaf spring 71 and bracket 75 are connected to one another by a screw 82 with a felt or compressible filler 82' interposed between said bracket and leaf spring body 71 to insure movement of the leaf spring upon movement of bracket 75.

The bracket 75 as at its forward end an upwardly projecting portion 83 and a rearwardly projecting portion 84 which act as a means for increasing the tension between the leaf spring finger 72 and feed roller 62 for the purpose of holding the tape while the portion which was previously marked is being removed. It is believed that this operation is obvious since pressure on the bracket foot 84 will tend to oscillate the bracket in a counter-clockwise direction about the pivot screws 78 thereby actuating the leaf spring 71 in a similar direction but which movement is resisted due to the pressing of the leaf spring finger 72 against the feed roller 62.

The tape supporting mechanism 15 comprises a pair of upstanding sides or standards 85 and 86 connected to one another at their upper ends by top 87 and intermediate their ends by transverse braces 88. The lowermost transverse brace 89 is positioned above the lower ends of the sides 85 and 86 thereby affording arms adapted to be received in grooves 90 and 91 formed in the upstanding portion 92 at the outer end of base 93 of connecting bracket 50. It should be noted that the base 93 has considerable width centrally of which extends an upstanding web 94 to reinforce the same.

At spaced intervals along the upstanding sides 86 and 87 there is provided tape roll supports 95 there being two such supports for each roll of tape utilized.

The tape may be formed of any suitable or desirable material, preferably cloth since it will be subjected to the washing and dry cleaning liquids and fluids the same as the articles to which it is attached. As intimated above the tape is in the form of a roll 96 and preferably perforated at intervals as illustrated at 97 in Fig. 8. In other words the tape while being continuous is transversely perforated or weakened so that individual portions, tickets or the like 98 may be readily torn therefrom. As illustrated in Figs. 1 and 4 the end of the tape is brought between the supporting standards or sides 85 and 86 and passed under the spacing and connecting stud 59 before being inserted between the leaf spring finger 72 and feed roller 62. The tape is positioned or arranged on the feed roller 62 by the said spacing and connecting stud 59 so as to have engagement therewith for a portion of the periphery of said feed roller. It will be readily understood that rotation of the feed roller 62 in a clockwise direction, as seen in Fig. 4, will feed the tape into the throat 57 and through said throat to the anvil 44. Depression of the marking machine will stamp a number, letter or the like onto the said tape. It has been found that the tension between the leaf spring finger 72 and feed roll 62 is normally sufficient to hold the tape so that a tearing or side wise jerk on the ticket portion thereof which has been marked will sever it from the roll at the weakened or perforated line 97. Should, however, it be found that this tension is not sufficient to hold the tape while a ticket is being torn therefrom pressure on the bracket foot 84 will supply sufficient tension to permit the severance of a ticket 98 from the roll.

Each of the rolls 96 is mounted on a spool 99 which has projecting from its opposite ends a journal 100 and 101 respectively received in the vertical slot 102 of the supporting brackets 95 which are mounted diametrically of one another on the support sides 85 and 86. To prevent the inadvertent disassociation of the roll spool 99 from the brackets 95 use is made of a yieldable abutment shown in the drawings in the form of a ball 103 yieldably held in position by spring 104 backed up by screw 105. It will of course be understood that any other suitable or desirable means may be employed for yieldably retaining the spools and their rolls 96 in position.

While the drawing illustrates the tape supporting mechanism 15 as including three rolls of tape it is to be understood that the number of rolls may either be increased or decreased depending upon the use to which it may be put or the desire of the user. With the arrangement illustrated in Fig. 1 different color tapes may be mounted on the tape supporting mechanism for selective use.

The foregoing description has dealt with the marking of tickets for use in laundries and dry cleaning establishments, it is to be understood that tickets for other purposes may likewise be marked. For example, tickets to indicate price and for lot of new merchandise can just as readily be marked with the machine of this invention.

It should also be evident that the marking device may be actuated without first feeding a tape or ticket onto the anvil 44 as when marking directly on the goods itself.

It should also be noted that the connection of the marking device 17 to the cradle or bracket 41 by means of pivot screws 37 and 38 enables the marking device to be actuated to a position whereby the dials 24 can be adjusted. To prevent the said marking device from being inadvertently oscillated on its pivot screws 37 and 38 use is made of a spring pressed plunger 106 which has its innermost portion entering a suitable retaining depression, not shown, in the main frame 19 of the marking device.

It is believed that the operation of the tape feeding and printing device is readily understood from the foregoing description and the illustrations in the drawings. It is also believed now evident that there has been provided a machine for accomplishing the objects initially set forth.

What is claimed is:

1. In a device of the class described for feeding tape relative to the marking anvil of a marking machine the combination of a head having an upper surface forming a tape support in substantially the plane of the marking anvil, side plates on said head projecting above and rearwardly of the supporting surface, a leaf spring above said supporting surface and forming between its under surface and the upper surface of the tape support a passageway for the tape, a feed wheel rotatably carried by the side plates for feeding the tape through the passageway, manually operable means exteriorly of the side plates for actuating the feed wheel, means carried by said side plates for positioning the tape on said feed wheel to be moved thereby, and means for mounting said leaf spring on the head so that it projects beyond said head supporting surface to overlie the feed wheel and yieldably hold the tape against the feed wheel.

2. In a device of the class described for feeding tape relative to the marking anvil of a marking

machine the combination of a head having an upper surface forming a tape support in substantially the plane of the marking anvil, side plates on said head projecting above and rearwardly of the supporting surface, a leaf spring above said supporting surface and forming between its under surface and the upper surface of the tape support a passageway for the tape, a feed wheel rotatably carried by the side plates for feeding the tape through the passageway, manually operable means exteriorly of the side plates for actuating the feed wheel, means carried by said side plates for positioning the tape on said feed wheel to be moved thereby, means for mounting said leaf spring on the head so that it projects beyond said head supporting surface to overlie the feed wheel and yieldably hold the tape against the feed wheel, said connection of the leaf spring with the head being a pivotal one, and means for limiting the oscillation of the leaf spring about its pivotal connection with the side plates to establish a desired flex in the leaf spring and the desired yielding tension thereof on the feed wheel.

3. In a device of the class described for feeding tape relative to the marking anvil of a marking machine the combination of a head having an upper surface forming a tape support in substantially the plane of the marking anvil, side plates on said head projecting above and rearwardly of the supporting surface, a leaf spring above said supporting surface and forming between its under surface and the upper surface of the tape support a passageway for the tape, a feed wheel rotatably carried by the side plates for feeding the tape through the passageway, manually operable means exteriorly of the side plates for actuating the feed wheel, means carried by said side plates for positioning the tape on said feed wheel to be moved thereby, means for mounting said leaf spring on the head so that it projects beyond said head supporting surface to overlie the feed wheel and yieldably hold the tape against the feed wheel, said connection of the leaf spring with the head being a pivotal one, means for limiting the oscillation of the leaf spring about its pivotal connection with the head to establish a desired flex in the leaf spring and the desired yielding tension thereof on the feed wheel, and manually operable means for further flexing the leaf spring to increase the yielding tension of said leaf spring on the feed wheel.

4. In a device of the class described for attachment to a tap marking machine for supporting and feeding tape relative to the marking anvil of the machine, said tape being in the form of a roll transversely perforated at intervals whereby individual tickets are formed for manual separation from the roll, the combination of a connecting bracket, a head integral with one end of the connecting bracket and having an upper surface forming a tape support in substantially the plane of the marking anvil, side plates on said head projecting above and rearwardly of the supporting surface, a leaf spring above said supporting surface and forming between its under surface and the tape support surface a passageway for the tape, a tape roll support at the other end of the connecting bracket, a feed wheel rotatably carried by the side plates for feeding the tape through the passageway, manually operable means exteriorly of the side plates for actuating the feed wheel, means carried by said side plates for positioning the tape on said feed wheel to be moved thereby, and means for mounting said leaf

spring on the head so that it projects beyond said head tape support to overlie the feed wheel and yieldably hold the tape against the feed wheel and against movement during the manual separation of the individual tickets.

5. In a device of the class described for attachment to a tape marking machine for supporting and feeding tape relative to the marking anvil of the machine, said tape being in the form of a roll transversely perforated at intervals whereby individual tickets are formed for manual separation from the roll, the combination of a connecting bracket, a head integral with one end of the connecting bracket and having an upper surface forming a tape support in substantially the plane of the marking anvil, side plates on said head projecting above and rearwardly of the supporting surface, a leaf spring above said support and forming between its under surface and the upper surface of the tape support a passageway for the tape, a feed wheel rotatably carried by the side plates for feeding the tape through the passageway, manually operable means exteriorly of the side plates for actuating the feed wheel, a pair of uprights at the other end of the connecting bracket spaced from one another to receive between them a tape roll, means on said uprights for rotatably supporting the tape roll, means carried by the head side plates for positioning the tape from the roll onto said feed wheel to be moved thereby, means for mounting said leaf spring on the head so as to project beyond said head supporting surface to overlie the feed wheel and yieldably hold the tape against movement during the manual separation of the individual tickets, said connection of leaf spring with the head comprising a carrying bracket pivotally mounted on the said head, and means for limiting the oscillation of the leaf spring carrying bracket about its pivotal connection with the head to establish a desired flex in the leaf spring and the desired yielding tension thereof on the feed wheel.

6. In a device of the class described for attachment to a tape marking machine for supporting and feeding tape relative to the marking anvil of the machine, said tape being in the form of a roll transversely perforated at intervals whereby individual tickets are formed for manual separation from the roll, the combination of a connecting bracket, a head integral with one end of the connecting bracket and having an upper surface forming a tape support in substantially the plane of the marking anvil, side plates on said head projecting above and rearwardly of the supporting surface, a leaf spring above said support and forming between its under surface and the upper surface of the tape support a passageway for the tape, a feed wheel rotatably carried by the side plates for feeding the tape through the passageway, manually operable means exteriorly of the side plates for actuating the feed wheel, a pair of uprights at the other end of the connecting bracket spaced from one another to receive between them a tape roll, means on said uprights for rotatably supporting the tape roll, means carried by the head side plates for positioning the tape from the roll onto said feed wheel to be moved thereby, means for mounting said leaf spring on the head so as to project beyond said head supporting surface to overlie the feed wheel and yieldably hold the tape against the feed wheel and against movement during the manual separation of the individual tickets, said connection of the leaf spring with the head comprising a car-

rying bracket pivotally mounted on the said head, means for limiting the oscillation of the leaf spring carrying bracket about its pivotal connection with the head to establish a desired flex in the leaf spring and the desired yielding tension thereof on the feed wheel, and manually actuated means for actuating the leaf spring carrying bracket in a direction to increase the flexion and tension of the leaf spring on the feed wheel and tape mounted thereon.

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