June 7, 1955

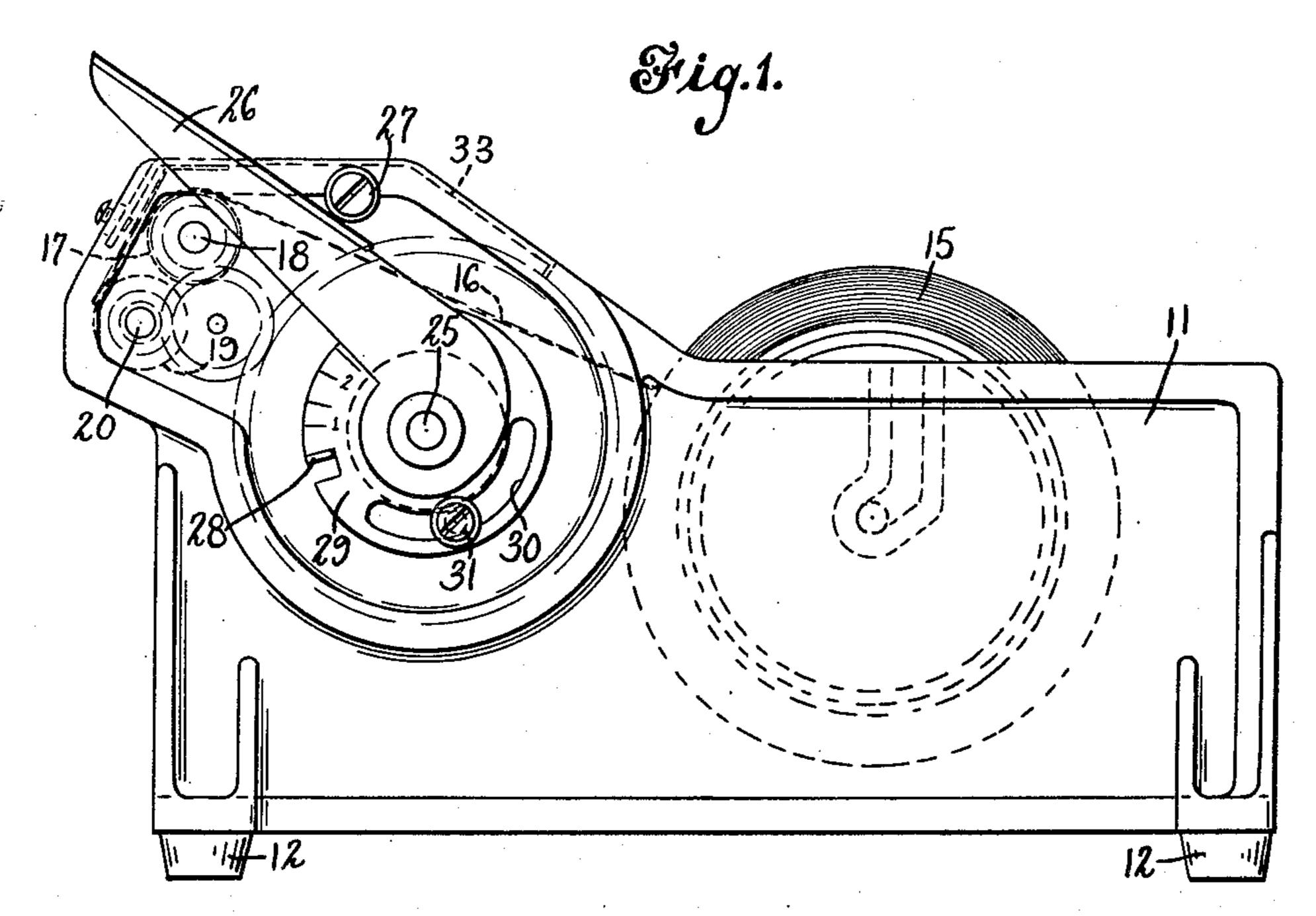
A. P. KRUEGER

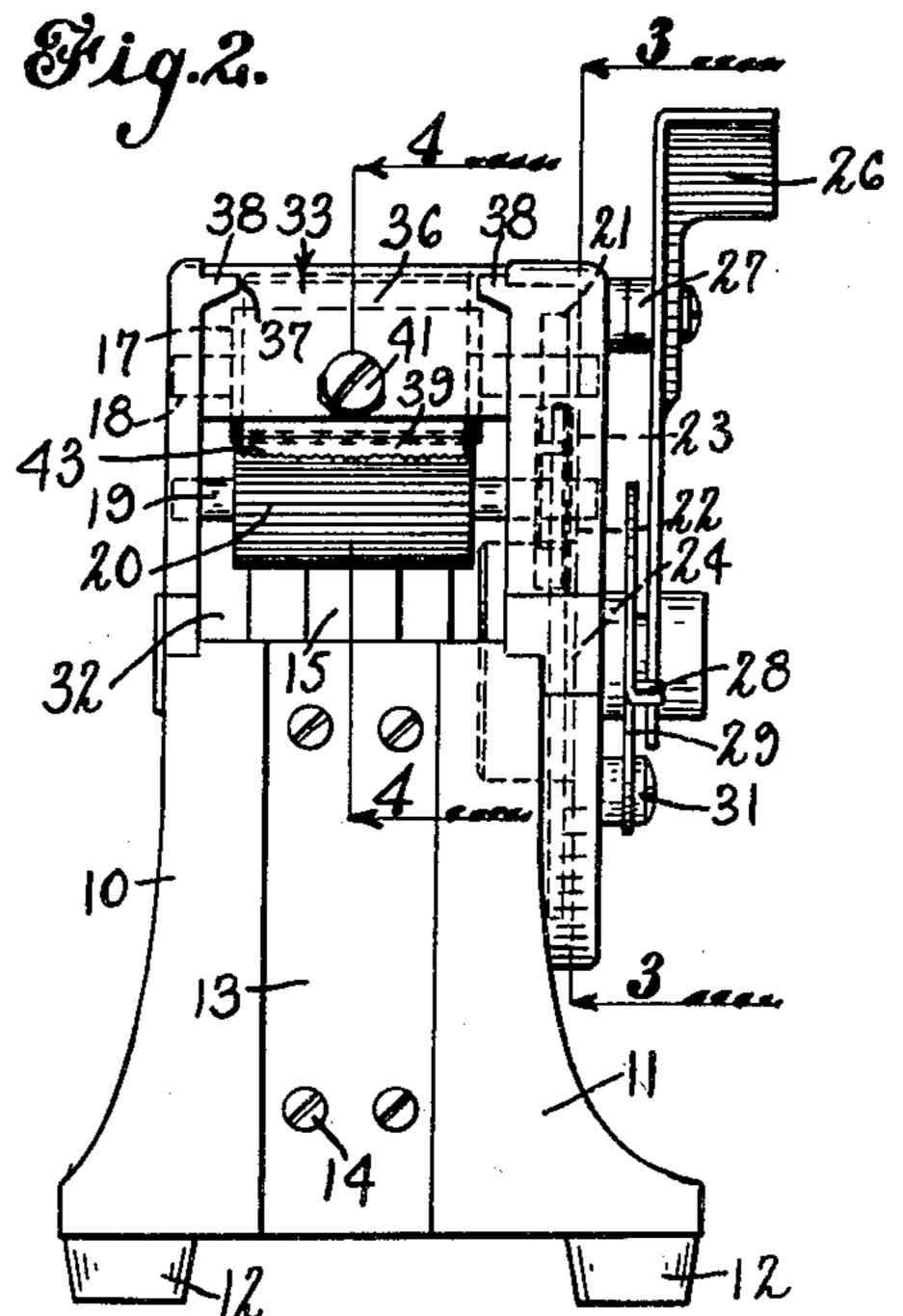
2,710,063

MEANS FOR MAINTAINING TAPE IN TAUT CONDITION BETWEEN A FEED ROLL AND STRIPPER ROLL

Filed Dec. 8, 1951

3 Sheets-Sheet 1





Afred P. Truegue

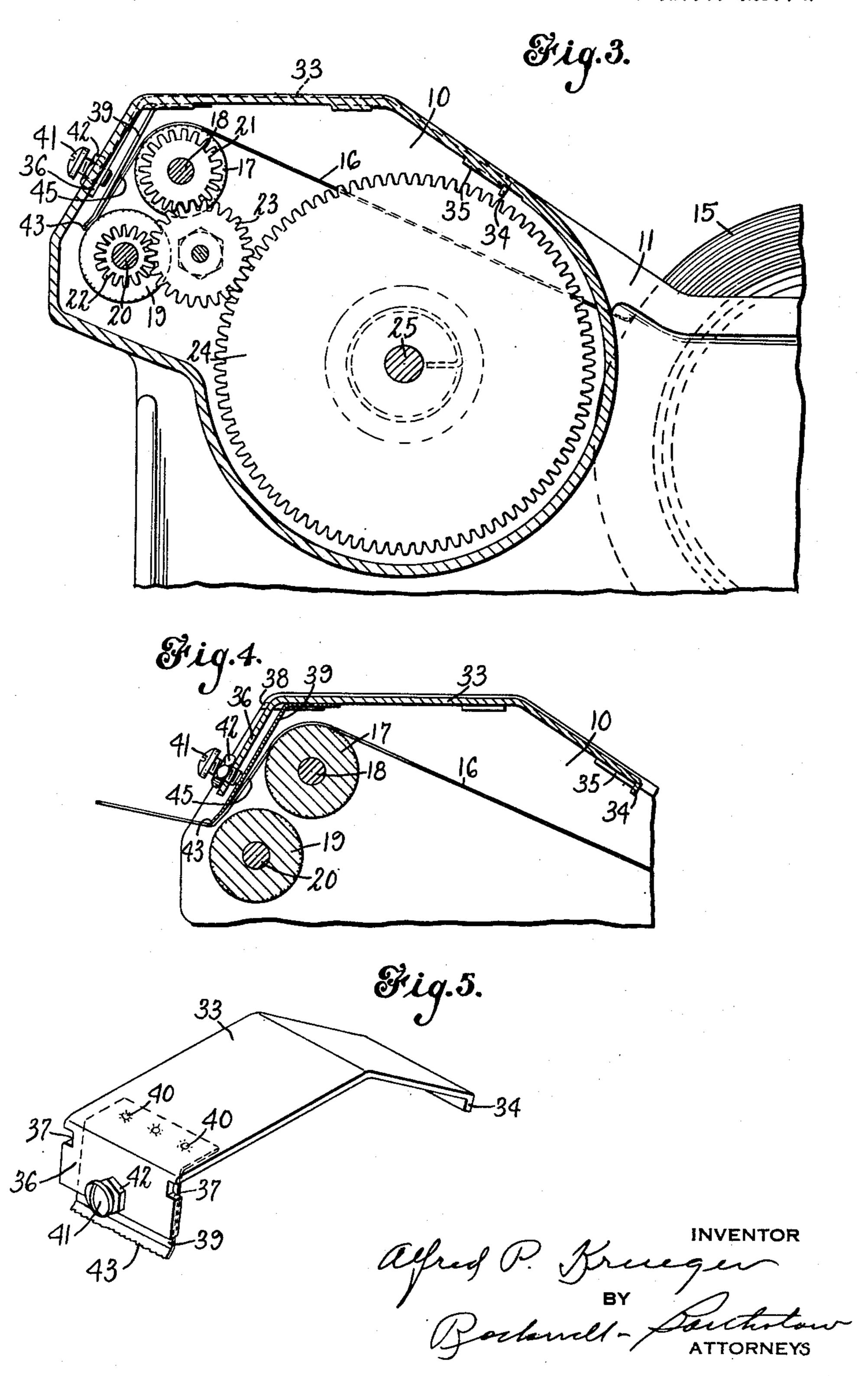
BY

ATTORNEYS

A. P. KRUEGER
MEANS FOR MAINTAINING TAPE IN TAUT CONDITION BETWEEN A FEED ROLL AND STRIPPER ROLL

Filed Dec. 8, 1951

3 Sheets-Sheet 2



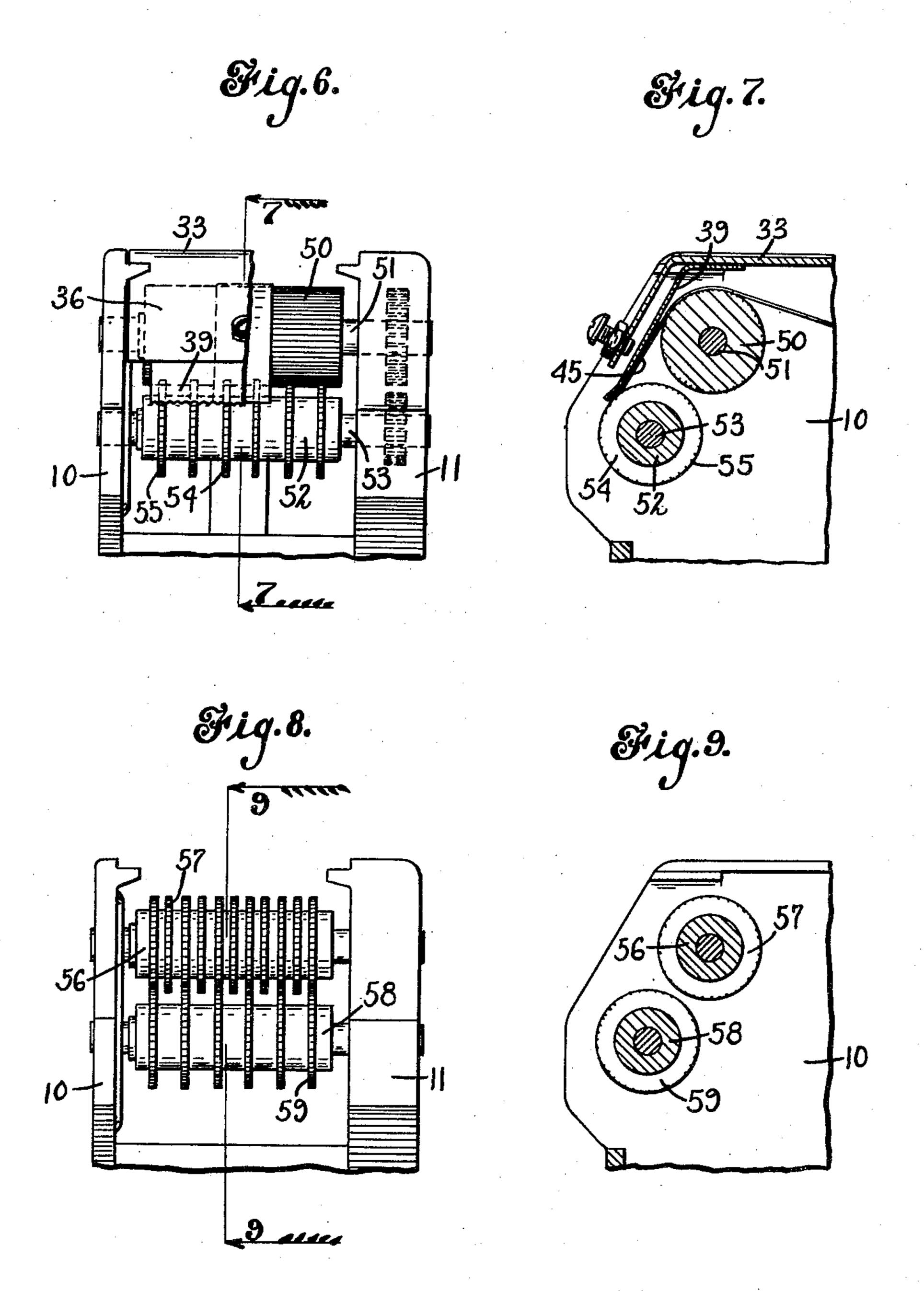
A. P. KRUEGER

2,710,063

EANS FOR MAINTAINING TAPE IN TAUT CONDITION BETWEEN A FEED ROLL AND STRIPPER ROLL

Filed Dec. 8, 1951

3 Sheets-Sheet 3



Rockerly Sankolow Attorneys

2,710,063

Patented June 7, 1955

Array.

## 2,710,063

MEANS FOR MAINTAINING TAPE IN TAUT CONDITION BETWEEN A FEED ROLL AND STRIPPER ROLL

Alfred P. Krueger, Stratford, Conn., assignor to Derby Sealers, Incorporated, Derby, Conn., a corporation of Connecticut

Application December 8, 1951, Serial No. 260,712 16 Claims. (Cl. 164-84.5)

This invention relates to tape-dispensing devices, and 15 more particularly to a device for dispensing pressuresensitive tape or tape that is tacky upon one surface.

At the present time many varieties and kinds of pressure-sensitive tape are available upon the market in order to meet the various requirements of users. The character of tape required depends, generally speaking, upon the use to which the tape is to be put. It is, of course, desirable to provide dispensers for this type of tape so that the tape may be conveniently drawn from a supply roll and severed in desired lengths. The tacky character 25 of one surface of the tape has made the problem of dispensing it somewhat more troublesome than that arising with the dispensing of other tapes or strips of material which do not tend to adhere to any surface with which they come in contact.

Where tape-dispensing devices provide mechanism for drawing the tape from the supply roll, this function is usually performed by a so-called feed roll to which the tacky side of the tape adheres, this adherence providing the tractive force, as the feed roll is rotated, to draw the 35 tape from the supply roll. As the tape tends to cling to the feed roll, it is usually necessary to provide some means to strip it therefrom, and in some instances a stripping roll has been provided which comprises a series of spaced disks. The feed roll may also comprise a 40 series of spaced disks, and the disks of the stripper roll are set between or overlap those of the feed roll so that the tape will be prevented from entering the bite between the rolls and being carried around to the back of the rolls. Such disk rolls are, however, disadvantageous 45 in dispensing some kinds of pressure-sensitive tapes.

It has been determined that pressure-sensitive tape may be drawn from a supply roll by a feed roll and therefrom by a stripper roll without the overlapping of the surfaces of the rolls provided provision is made for maintaining the length of tape between the rolls in a path substantially tangent to both thereof so that the tape will not tend to enter the bite between the two rolls. This may be done by providing pressure means in some form to press the tape against the stripper roll so that it will adhere properly thereto and be stripped from the feed roll, thus maintaining the length of tape between the two rolls in relatively taut condition so that it will be tangent to both rolls and not enter the bite between the two. Thus any limitation is removed as to the type of feed and stripping rolls which may be employed.

The tape can be prevented from following the stripper roll to a considerable extent by rotating this roll at a peripheral speed in excess of that of the feed roll so that the stripper roll will tend to strip itself from the tape as its surface speed will be greater than the speed of the tape as it is drawn from the supply roll. As it is not necessary under these conditions to have the stripper and supply rolls overlap or interengage, solid rolls or rolls having continuous peripheral surfaces may be employed, and reference is made particularly to longitudinally continuous surfaces as distinguished from the

2

spaced disks of prior dispensing devices, as it is desirable to roughen or knurl the surfaces of the rolls in order that the proper amount of adherence of the tape thereto may be secured. If the surfaces of the rolls were perfectly plain and smooth, the tape might in some instances adhere to the rolls with an excess of tenacity. Also, disk-type rolls may be employed without regard to the spacing of the disks, and one roll may be of the disk type and the other of the type having a longitudinally continuous surface. It will be found that when dispensing tapes of narrow width, it is advantageous to use rolls and particularly feed rolls having longitudinally continuous surfaces.

It is also true that when a presser device is used to press the tape against the stripping roll and the tape is prevented from following the surface of the feed and stripper rolls into the bite between them, the tendency of the tape to curl rearwardly will be greatly reduced in the case of some types which have a very strong tendency to curl in this direction. Therefore, by providing means to press the tape against the stripper roll, not only will the tape be prevented from curling rearwardly, but also any desired type of feed and stripper rolls may be used according to the character of the tape being dispensed as it is not necessary to employ the spaced-disk type of rolls, with the disks overlapping, as is the case when a presser device is not employed.

One object of the invention is to provide a new and improved device for dispensing pressure-sensitive tape.

A further object of the invention is to provide a machine for dispensing pressure-sensitive tape in which both a feed roll and a stripper roll are employed, the peripheral surface of one being spaced, at least to a slight extent, from that of the other and providing means for preventing the tape from entering the bite between the rolls.

A still further object of the invention is to provide a tape-dispensing machine of the character described in which the feed and stripper rolls are provided with longitudinally continuous surfaces, and the stripper roll is operated at a greater peripheral speed than that of the feed roll.

A still further object of the invention is to provide a tape-dispensing machine having a feed roll and a stripper roll at least one of which has a longitudinally continuous surface and also having means to press the tape into contact with the stripping roll in order to constrain the length of tape between the two rolls to a path substantially tangent to both thereof.

Still another object of the invention is to provide a tape-dispensing machine of the character described in which the feed and stripper rolls will be provided between two upstanding frame members, and wherein a removable cover will be provided for these rolls, the cover supporting a severing member arranged to press the tape against the stripper roll.

To these and other ends the invention consists in the novel features and combinations of parts to be hereinafter described and claimed.

In the accompanying drawings:

Fig. 1 is a side elevational view of a tape-dispensing mechanism embodying my invention;

Fig. 2 is a front elevational view thereof;

Fig. 3 is a sectional view on line 3—3 of Fig. 2;

Fig. 4 is a partial sectional view on line 4—4 of Fig. 2; Fig. 5 is a perspective view of the removable cover and severing means secured thereto;

Fig. 6 is a partial front view of a tape-dispensing mechanism showing a modification of my invention;

Fig. 7 is a sectional view on line 7—7 of Fig. 6; Fig. 8 is a view similar to Fig. 6 showing a further modification; and

Fig. 9 is a sectional view on line 9—9 of Fig. 8.

To illustrate a preferred embodiment of my invention, I have shown in the drawings a tape-dispensing mechanism comprising a frame consisting of spaced parallel side members 10 and 11 which may be suitably supported from a table or other supporting surface by feet 12. The 5 two frame members may be secured together by a plate 13 secured thereto by screws 14. It will be understood that a similar plate, not shown, is provided at the rear of the frame.

Between the upstanding frame members 10 and 11 is 10 rotatably mounted a supply roll of tape 15 in any suitable manner, the tape 16 being drawn from the roll as shown in Figs. 3 and 4 by a feed roll 17 to which the tacky side of the tape adheres so that by rotation of the feed roll the tape will be stripped from the supply roll. 15 The feed roll 17 is secured to a shaft 18 which is rotatably mounted in the frame members 10 and 11, and adjacent this roll is a stripper roll 19 secured to a shaft 20 likewise rotatably mounted in the frame members 10 and 11. As shown, the rolls 17 and 19 are solid rolls hav- 20 ing continuous peripheral surfaces and, as shown more especially in Figs. 2 and 3, the surfaces of each of these rolls may be knurled, roughened, or provided with longitudinal ridges in order to secure the proper degree of adherence of the tape thereto.

It may also be noted from reference to Figs. 3 and 4 that the peripheral surfaces of the feed roll and stripper roll are spaced slightly apart so that the surface of one roll will not engage or foul the other. As it is not required that these rolls will be so constructed that elements thereof be in overlapping relation, the surfaces may be longitudinally continuous, and it will be understood that the rolls may be hollow, if desired, instead of being solid members as shown.

As shown in Fig. 3, a gear 21 is mounted upon the shaft 18, and likewise a gear 22 is mounted upon the shaft 20 of the stripper roll, the teeth of each of these gears meshing with those of a gear 23 rotatably mounted upon the frame member 11 so that the gears 21 and 22 and likewise the rolls 17 and 19 will be driven in the 40 same direction, which is a counter-clockwise direction as shown in the figure. Also, it will be noted that the gear 22 is smaller than the gear 21 so that the stripper roll 19 will be driven at a speed of rotation in excess of that of the feed roll 17. As the rolls are of substantially the same size, the peripheral speed of the stripper roll will be greater than that of the feed roll.

The teeth of the gear 23 are adapted to mesh with those of a large gear 24 mounted loosely upon a shaft 25 rotatably mounted in the frame members 10 and 11. 50 As shown in Fig. 1, a lever or handle 26 is secured to the shaft 25 so that the shaft may be oscillated by manual movement of the lever. The shaft 25 is provided with a one-way connection of any suitable character with the gear 24 so that when the lever 26 is moved in a counter-clockwise direction, as shown in Fig. 1, the gear 24 will be rotated counter-clockwise, but when the lever 26 is returned to its original position or moved in a clockwise direction, no movement of the gear 24 will be effected. Thus the gear 24 is moved in a counter-clockwise direction in a step-by-step movement by oscillation of the lever 26, and this movement of the gear 24 serves to rotate the rolls 17 and 19 in a counter-clockwise direction to draw the tape from the supply roll.

Movement of the lever 26 in a clockwise direction is limited by a stop 27 secured to the frame member 11, and movement of the lever in the other direction is adjustably limited by a lug 28 upon a measuring disk 29 rotatably carried upon the shaft 25. The disk is provided with an arcuate slot 30 which receives a screw 31 threaded 70 into the frame member 11 so that the disk may be turned to the desired position and secured therein by tightening the screw. It will be seen that the position of the stop lug 28 will determine the length of the strip of tape drawn from the machine by movement of the lever

between the stop member 27 and the stop lug 28. A spring (not shown) may be provided to return the lever to its rest position shown in Fig. 1 against the stop member 27 after it has been moved downwardly against the lug 28 to dispense a length of tape.

As has already been noted, the frame members 10 and 11 are spaced apart and the space between them is left open at the front of the machine, as shown at 32, so that the dispensed tape may issue through this opening. Adjacent the upper front portion of the machine this space is closed by a removable cover member 33, shown more especially in Figs. 2, 4 and 5. This cover member is of the shape shown in Fig. 5, and at its rear end is provided with a downwardly turned flange 34 to engage rearwardly of lugs 35 on the frame members 10 and 11. At its forward end the cover member is provided with a downwardly extending portion 36 in the side edges of which are formed recesses 37 to receive lugs 38 (Fig. 2) provided upon the frame members 10 and 11. The cover may be removably held in place by engagement of the lugs 38 in the recesses 37 and by thereafter moving the rear end of the cover downwardly so that the flange 34 engages rearwardly and frictionally with the lugs 35.

A resilient presser member is secured to this removable cover to press the tape against the surface of the stripper roll 19. This member is in the form of a spring plate 39 of substantially L-shaped form in cross section, the plate being secured to the cover by any suitable means such as by spot welding, as shown at 40. From Fig. 3 it will be seen that the plate extends downwardly in substantial engagement with the stripper roll 19 when the cover is in place. The resilience of the plate 39 and the bearing of its lower end portion against the stripper roll tends to maintain the flange 34 of the cover in frictional engagement with the lugs 35 so that this presser member serves this function as well as serving to press the tape into engagement with the stripper roll.

A screw 41 is threaded into the front portion 36 of the cover 33, the screw being held securely in adjusted position by a lock nut 42, and the inner end of this screw serves as a limiting means to limit the movement of the spring plate 39 in a direction away from the rolls. The plate 39 may be conveniently provided with a severing edge 43 which may, if desired, be serrated, as shown, this edge of the plate being bent slightly forwardly from the body thereof. The tape may be torn off against this edge, as shown in Fig. 4, and the inner end of the screw 41 will limit the movement of the severing edge of the plate 39 so that it will not move away from the rolls during the severing operation to an excessive extent.

The operation of the device is as follows. The lever 26 is, as stated, moved in a counter-clockwise direction 55 from the position shown in Fig. 2 to rotate the gears 24, 23, 21 and 22 and, therefore, rotate the feed roll 17 and stripper roll 19. As shown in Figs. 3 and 4, the tape is trained over the feed roll with its tacky surface adhering thereto so that it is drawn from the supply roll 60 15. The tape is stripped from the feed roll 17 by the stripper roll 19, the surface of which is rotated at a greater speed than that of the feed roll. It will also be seen that the length of tape 45 between the feed roll and stripper roll is maintained in a position substantially tangent to both of these rolls and is prevented from following the feed roll so as to enter the bite between these rolls by the presser plate 39 which is in contact with the non-tacky surface of the tape and presses it against the stripper roll 19. Thus, the tape will be effectively dispensed and will be stripped from the stripper roll on account of the greater speed of rotation of this roll. When movement of the lever 26 has been stopped by the engagement of the lug 28, the lever is released and returned to a position against the stop 27. The operator may then grasp the depending end of the

tape and tear it off against the severing edge 43 of the member 39, as shown in Fig. 4.

It will be seen that with the above arrangement any desired type of feed and stripper rolls may be employed without limitation to those provided with spaced disks, and the feed and stripper rolls may be located in any desired position, the path of the tape between them being maintained in a direction substantially tangent to both. Moreover, the removable cover 33 may be detachable so as to expose the surface of the feed and stripper rolls in order that when a new supply of tape is placed in the device, it may be freely trained about these rolls without having to be threaded through the space between the presser member and the rolls.

As has been previously stated, one advantage of providing means to press the tape against the stripper roll resides in the fact that the tape is thus prevented from entering the bite between the stripper and feed rolls, and it is unnecessary to have portions of one roll overlapping those of the other. Hence, there is no limitation imposed upon the surface configuration of the rolls which may be 20 employed.

In Figs. 1 to 5 of the drawings, I have shown and described a device in which both feed and stripper rolls have longitudinally continuous surfaces. It may, however, be desirable to use other types of rolls in dispensing some types of tapes, and certain other combinations of feed and stripper rolls are shown in Figs. 6 to 9 of the drawings.

In Figs. 6 and 7, I have shown a feed roll 50 secured upon a shaft 51, which shaft is rotatably mounted in the 30 upstanding frame members 10 and 11, and a stripper roll 52 mounted upon a shaft 53 also rotatably mounted in these frame members. The feed roll 50 in this instance is one having a longitudinally continuous surface but its surface is roughened by the provision of longitudinal corrugations. The stripper roll is provided with a plurality of spaced disk-like members 54, the edges of which are serrated, as shown at 55.

From Fig. 7 of the drawings, it will be seen that these rolls are spaced apart to a slight extent, and as means are provided for pressing the tape against the elements of the stripper roll, it will, as previously explained, be prevented from entering the bite between the two rolls. It will be understood that while I have shown the feed roll as having a longitudinally continuous surface and the stripper roll as being provided with disk-like members, the arrangement may, if desired, be reversed and the feed roll provided with the disk-like members and the stripper roll provided with a longitudinally continuous surface. In connection with the feeding of most tapes used at the present time, however, it will usually be preferable to provide a greater adhesive surface on the stripper roll.

It will, of course, be understood that the feed roll 50 and the stripper roll 52 may be rotated by the means shown in Figs. 1 to 5 of the drawings so that the stripper roll will rotate at a greater peripheral speed than that of the feed roll.

In the modification shown in Figs. 8 and 9 of the drawings, the feed roll 56 is provided with a plurality of spaced disk-like members 57, while the stripper roll 58 is provided with a plurality of spaced disk-like members 59, and it will be noted that the members 57 are greater in number than the corresponding elements 59 on the stripper roll 58. Thus, feed rolls and stripper rolls may be used, both of which are provided with the spaced disk-like members to engage the tape, but as the peripheries of the rolls or of these disk-like members are spaced apart, as shown in Fig. 9, there need be no relation between the elements 57 of one roll and the elements 59 of the other roll in relation to the number or spacing. That is, the disk-like members on the stripper roll need not be so arranged that they will lie between the disk-like 75

6

members of the feed roll, and any number desired can be used upon either of these rolls.

While I have shown and described some preferred embodiments of my invention, it will be understood that it is not to be limited to all of the details shown, but is capable of modification and variation within the spirit of the invention and within the scope of the claims.

What I claim is:

1. A mechanism for dispensing pressure-sensitive tape comprising a frame, means thereon for supporting a supply roll of tape, a feeding roll rotatably mounted on the frame to which the tacky side of the tape is adapted to adhere, a stripping roll mounted on the frame adjacent the feed roll to strip the tape from the latter by adherence to the stripping roll, means for rotating both of said rolls, and means for maintaining that portion of the tape between said rolls in a path substantially tangent to both thereof comprising a member for pressing the tape against the stripper roll to increase its adherence therewith.

2. A mechanism for dispensing pressure-sensitive tape comprising a frame, means thereon for supporting a supply roll of tape, a feeding roll rotatably mounted on the frame to which the tacky side of the tape is adapted to adhere, a stripping roll mounted on the frame adjacent the feed roll to strip the tape from the latter by adherence to the stripping roll, means for rotating said feed roll, means for rotating said stripping roll at a greater peripheral speed than that of the feed roll, means for urging the tape against the stripper roll to increase its adherence thereto, and the tape-engaging surface of one roll being spaced radially from that of the other roll.

3. A mechanism for dispensing pressure-sensitive tape comprising a frame, means thereon for supporting a supply roll of tape, a feeding roll rotatably mounted on the frame to which the tacky side of the tape is adapted to adhere, a stripping roll mounted on the frame, both of said rolls having longitudinally continuous surfaces, means for rotating said feed roll, means for rotating said stripping roll at a greater peripheral speed than that of the feed roll, means for urging the tape against the stripper roll, and a severing member carried by said last-named means.

4. A mechanism for dispensing pressure-sensitive tape comprising a frame, means thereon for supporting a supply roll of tape, a feeding roll rotatably mounted on the frame to which the tacky side of the tape is adapted to adhere, a stripping roll mounted on the frame, both of said rolls having longitudinally continuous surfaces, means for rotating said feed roll, means for rotating said stripping roll at a greater peripheral speed than that of the feed roll, means for urging the tape against the stripper roll, said last-named means comprising a resilient member having a portion bearing against the non-tacky side of the tape, and said member having a free edge against which the tape may be severed.

5. A mechanism for dispensing pressure-sensitive tape comprising a frame, means thereon for supporting a supply roll of tape, a feeding roll rotatably mounted on the frame to which the tacky side of the tape is adapted to adhere, a stripping roll mounted on the frame, both of said rolls having longitudinally continuous surfaces, means for rotating said feed roll, means for rotating said stripping roll at a greater peripheral speed than that of the feed roll, means for urging the tape against the stripper roll, said last-named means comprising a resilient member having a portion bearing against the non-tacky side of the tape, said member having a free edge against which the tape may be severed, and means for limiting the movement of said member away from the stripping roll.

tween the elements 57 of one roll and the elements 59 of the other roll in relation to the number or spacing.

6. A mechanism for dispensing pressure-sensitive tape comprising a frame, means thereon for supporting a supply roll of tape, a feeding roll rotatably mounted on the ply roll of tape, a feeding roll rotatably mounted to frame to which the tacky side of the tape is adapted to

adhere, a stripping roll mounted on the frame, both of said rolls having longitudinally continuous surfaces, means for rotating said feed roll, means for rotating said stripping roll at a greater peripheral speed than that of the feed roll, and means for urging the tape against the stripper roll, said last-named means comprising a resilient member secured at one end and having a free end portion disposed adjacent the stripper roll to contact the non-tacky side of the tape and urge it against the stripper roll.

7. A mechanism for dispensing pressure-sensitive tape 10 comprising a frame, means thereon for supporting a supply roll of tape, a feeding roll rotatably mounted on the frame to which the tacky side of the tape is adapted to adhere, a stripping roll mounted on the frame, both of said rolls having longitudinally continuous surfaces, means for 15 rotating said feed roll, means for rotating said stripping roll at a greater peripheral speed than that of the feed roll, means for urging the tape against the stripper roll, said last-named means comprising a resilient member secured at one end and having a free end portion disposed 20 adjacent the stripper roll to contact the non-tacky side of the tape and urge it against the stripper roll, and the free edge of said member constituting a severing edge against which the tape may be severed.

8. A tape-dispensing mechanism as set forth in claim 2 wherein the surfaces of both feed rolls and stripper rolls are roughened.

9. A tape-dispensing mechanism as in claim 1 wherein the distance between the axes of the rolls is greater than the sum of the radii of the rolls.

10. A mechanism for dispensing pressure-sensitive tape comprising a frame, means thereon for supporting a supply roll of tape, a feeding roll rotatably mounted on the frame to which the tacky side of the tape is adapted to adhere, a stripping roll mounted on the frame adjacent 35 the feed roll, said stripping roll having a surface to which the tape adheres to be stripped thereby from the feed roll, the peripheral surface of one roll being spaced from that of the other roll, means for rotating both said rolls, and means pressing the tape against the stripping roll for main- 40 taining the travel of the tape between said rolls along a path substantially tangent to both of the rolls.

11. A mechanism for dispensing pressure-sensitive tape comprising a frame, means thereon for supporting a supply roll of tape, a feeding roll rotatably mounted on the frame to which the tacky side of the tape is adapted to adhere, a stripping roll mounted on the frame, said frame comprising upstanding side members, a removable cover spanning the space between said members and disposed above the rolls, a severing member carried by the cover, and a portion of said member engaging the non-tacky side of the tape to urge it against the stripping roll.

12. A mechanism for dispensing pressure-sensitive tape comprising a frame, means thereon for supporting a supply roll of tape, a feeding roll rotatably mounted on the frame to which the tacky side of the tape is adapted to adhere, a stripping roll mounted on the frame, said frame comprising upstanding side members, a removable cover spanning the space between said members and disposed (1) above the rolls, a severing member carried by the cover, and a portion of said members engaging the non-tacky side of the tape to urge it against the stripping roll, said severing member being resilient and secured at one end to

the cover and having its free end engaging the tape, and means to limit the movement of the free end of said member away from the tape.

13. A mechanism for dispensing pressure-sensitive tape comprising a frame, means thereon for supporting a supply roll of tape, a feeding roll rotatably mounted on the frame to which the tacky side of the tape is adapted to adhere, a stripper roll mounted on the frame adjacent the feed roll, said stripping roll having a surface to which the tape adheres to be stripped from the feed roll, the peripheral surface of one roll being spaced from that of the other roll, means for rotating both said rolls and rotating the stripper roll at a greater peripheral speed than that of the feed roll, and means pressing the tape against the stripper roll for maintaining the travel of the tape between said rolls along a path substantially tangent to both of the rolls, one of said rolls having a longitudinally continuous surface, and the other being provided with spaced disk-like members, the peripheries of which engage the tape.

14. A mechanism for dispensing pressure-sensitive tape comprising a frame, means thereon for supporting a supply roll of tape, a feeding roll rotatably mounted on the frame to which the tacky side of the tape is adapted to adhere, a stripper roll mounted on the frame adjacent the feed roll to strip the tape from the latter by its adherence to the stripper roll, the peripheral surface of one roll being spaced from that of the other roll, means for rotating both said rolls and rotating the stripper roll at a greater peripheral speed than that of the feed roll, and means pressing the tape against the stripper roll for maintaining the travel of the tape between said rolls along a path substantially tangent to both of the rolls, both of said rolls having

disk-like tape-engaging members thereon.

15. A mechanism for dispensing pressure-sensitive tape comprising a frame, means thereon for supporting a supply roll of tape, a feeding roll rotatably mounted on the frame to which the tacky side of the tape is adapted to adhere, a stripper roll mounted on the frame, the peripheral surface of one roll being spaced radially from that of the other roll, means for rotating both said rolls and rotating the stripper roll at a greater peripheral speed than that of the feed roll, means pressing the tape against the stripper roll for maintaining the travel of the tape between said rolls along a path substantially tangent to both of the rolls, both of said rolls having disk-like tape-engaging members thereon, and the disk-like members of one roll being more closely spaced than those of the other roll.

16. A mechanism for dispensing pressure-sensitive tape comprising a frame, means thereon for supporting a supply roll of tape, a feeding roll rotatably mounted on the frame to which the tacky side of the tape is adapted to adhere, a stripping roll mounted on the frame, means for rotating said feed roll, means for rotating said stripping roll at a greater peripheral speed than that of the feed roll, means for urging the tape against the stripping roll, and a severing member carried by said last-named means.

## References Cited in the file of this patent UNITED STATES PATENTS

2,241,658 2,434,996	McCarthy McCarthy Engberg Gautier Krueger	Sept. 4, May 13, Jan. 27,	1934 1941 1948
------------------------	---	---------------------------------	----------------------