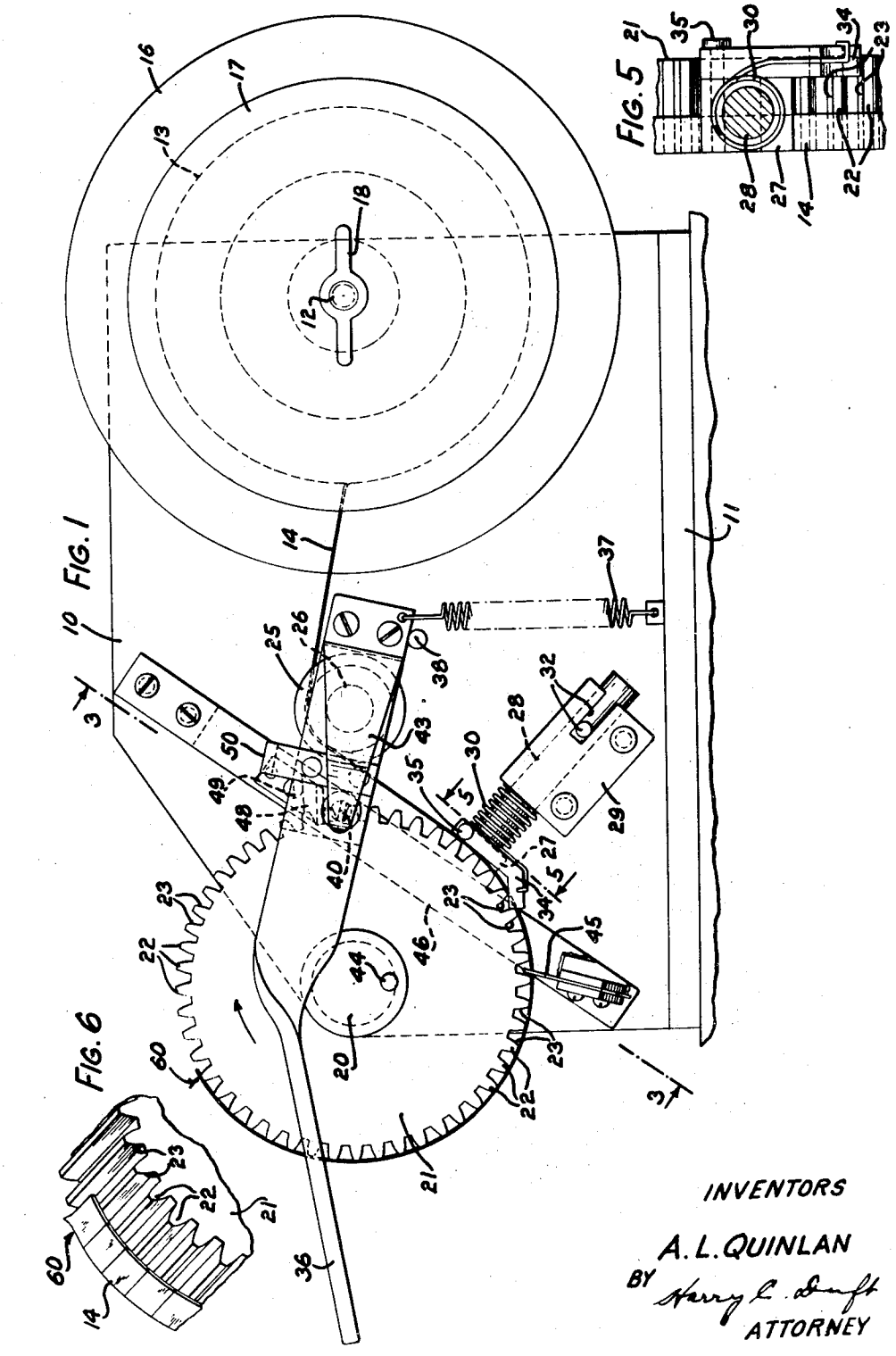
Dec. 27, 1949 A. L. QUINLAN 2,492,593

TAPE DISPENSER

Filed Nov. 26, 1941 2 Sheets-Sheet 1



INVENTORS
A. L. QUINLAN
BY Harry C. Lamb
ATTORNEY

Dec. 27, 1949 A. L. QUINLAN 2,492,593

TAPE DISPENSER

Filed Nov. 25, 1941 2 Sheets-Sheet 2

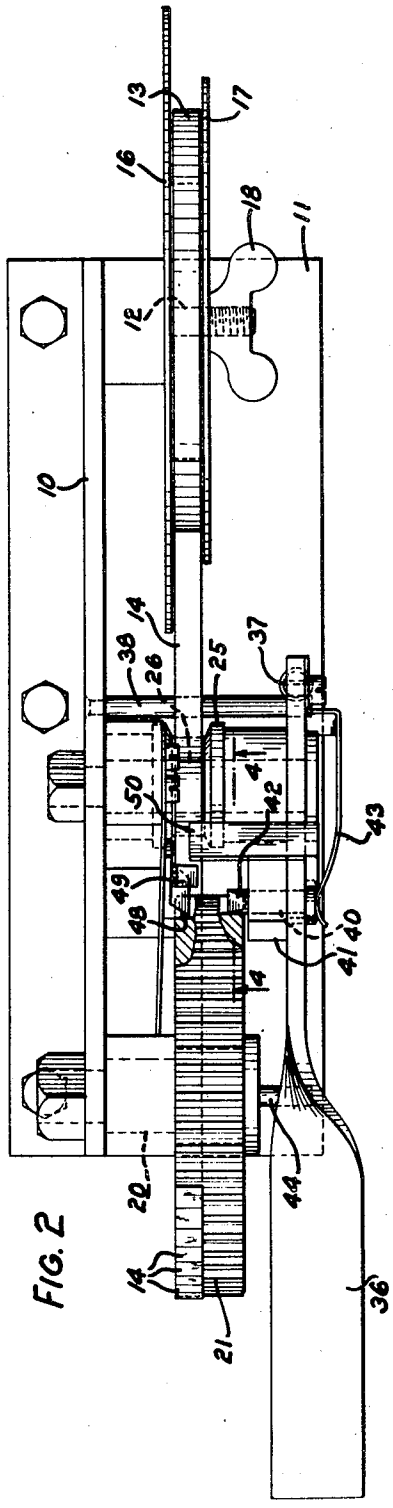


FIG. 2

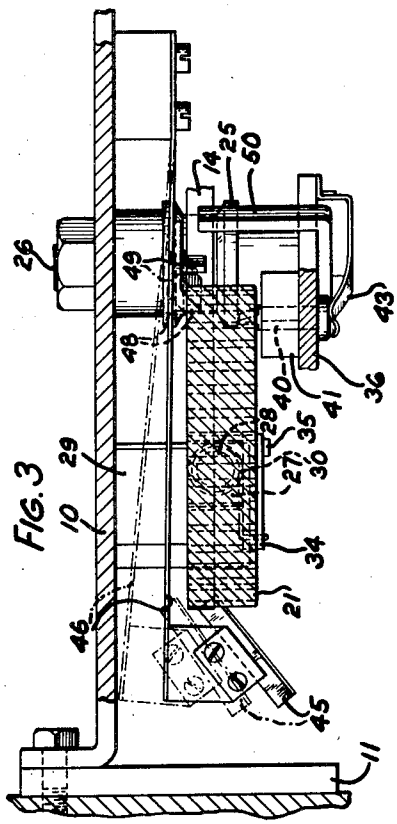


FIG. 3

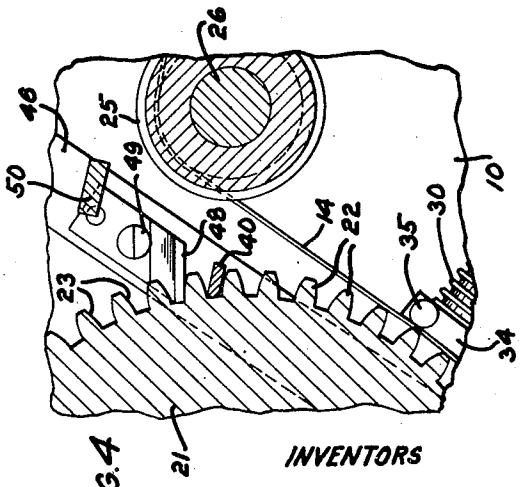


FIG. 4

INVENTORS

A. L. QUINLAN

BY Harry L. Duff

ATTORNEY

Patented Dec. 27, 1949 2,492,593

UNITED STATES PATENT OFFICE

2,492,593

TAPE DISPENSER

Amos L. Quinlan, La Grange Park, Ill., assignor to Western Electric Company, Incorporated, New York, N. Y., a corporation of New York

Application November 26, 1941, Serial No. 420,464

11 Claims. (Cl. 164—42)

1

This invention relates to a tape dispenser, and more particularly to a device for dispensing a tape having a non-drying adhesive surface.

An object of the invention is to provide a simple, inexpensive and reliable device for dispensing predetermined lengths of adhesive tape from a supply roll thereof.

In accordance with one embodiment of the invention, there is provided an adhesive tape dispensing device, in which the tape is withdrawn from a supply roll by a manually rotated toothed wheel, and is severed into predetermined lengths by means of a reciprocatory knife adapted to operate in the transverse grooves between adjacent teeth of the wheel, the knife being operated by a cam engaged by the ends of the teeth. The transverse grooves render the severed lengths of tape conveniently accessible for removal from the toothed wheel.

Other features and advantages of the invention will become apparent from the following detailed description when read in conjunction with the accompanying drawing, in which

Fig. 1 is a side elevational view of a tape dispensing device embodying the features of the invention;

Fig. 2 is a plan view thereof;

Fig. 3 is a sectional view taken on line 3—3 of Fig. 1;

Fig. 4 is an enlarged fragmentary section taken on line 4—4 of Fig. 2;

Fig. 5 is an enlarged fragmentary section taken on line 5—5 of Fig. 1, and

Fig. 6 is a perspective view of a portion of the toothed tape dispensing wheel.

Referring now to the drawings, the tape dispenser illustrated therein includes a supporting frame comprising a vertical plate 10 attached to a base plate 11. Near the rear end of the vertical supporting plate, there is provided a horizontal stub shaft 12, upon which a roll 13 of adhesive tape 14 is rotatably supported between spaced retaining disks 16 and 17. The outer disk 17 is removably held in position by a thumb nut 18 threaded on the roll supporting shaft.

Near the front end of supporting plate 10, there is secured a fixed horizontal stub shaft 20, upon which a toothed wheel 21 is rotatably supported. This wheel is arranged so that its toothed peripheral surface is in line with the tape supply roll. In the illustrated embodiment of the invention, the toothed wheel comprises a standard gear having a series of equidistantly spaced teeth 22, 22 separated by transverse grooves 23, 23.

A grooved tape guiding roller 25 is rotatably

2

mounted on a stud shaft 26 fixed to the vertical plate 10 between the toothed wheel and the tape supply roll. The tape passes from the supply roll over the top of this guide roller and then around the bottom of the toothed wheel, as shown in Fig. 1, and it will be noted that the dry back side of the tape engages the guide roller while the adhesive side of the tape comes in contact with the toothed periphery of the wheel. At the point where the tape first comes in contact with the wheel, a spring pressed pad 27 (Figs. 1 and 5) is provided for pressing the tape into intimate contact with teeth of the wheel, thus insuring the adherence of the tape thereto so that upon rotation of the wheel in the direction indicated by the arrow in Fig. 1, the tape is withdrawn from the supply roll and pulled over the top of guide roller 25. The pad 27 has an integral cylindrical shank 28, which is slidably mounted in a block 29 attached to the supporting plate. A coil spring 30 surrounds the shank 28 and is compressed between the pad 27 and block 29 so as to yieldably press the pad against the toothed wheel. In order to prevent rotation of the pressure pad in the block 29, a pin and slot connection 32 is provided between the block and the shank of the pad, as shown in Fig. 1.

A holding pawl 34 is pivotally mounted on a pin 35 mounted in the pressure pad 27 and the free end of this pawl is bent toward the toothed wheel so that it is adapted to enter the grooves 23 between the teeth of the wheel. One end of the coil spring 30 extends toward the free end of the pawl and is bent so as to press the pawl toward the toothed wheel and thus yieldably hold the wheel against rotation. It will be noted that the tape is considerably narrower than the toothed wheel and is applied to the peripheral surface of the wheel adjacent one side thereof, so that a substantial portion of the toothed peripheral surface of the wheel remains exposed for interlocking engagement with the holding pawl 34.

A hand lever 36 is provided for rotating the toothed wheel to withdraw the tape from the supply roll. The hand lever is pivoted near its rear end upon the guide roller shaft 26. A coil spring 37 serves to yieldably hold the lever in its retracted position, as shown in Fig. 1, in which the rear end of the lever engages a stop pin 38 attached to the supporting plate. A horizontally slidable pawl 40 is mounted in a block 41 (Fig. 2) attached to the inner side of the hand lever. One end of this pawl is adapted to extend into the grooves 23 between adjacent teeth of the tape dispensing wheel, as best shown in Fig. 4. so that by

depressing the forward end of the hand lever, the wheel is rotated by the pawl, the inner end of which is yieldably held in driving engagement with the wheel by means of a flat spring 43. One end of this spring is attached to the hand lever and its opposite end presses inwardly against the enlarged outer end of the pawl.

A stop pin 44 is attached to the fixed wheel supporting shaft 20 for limiting the downward movement of the hand lever. This stop pin is, of course, positioned so as to permit the hand lever to be depressed just sufficiently to impart the desired amount of rotary motion to the wheel by depression of the lever.

The wheel driving end of pawl 40 has a beveled upper surface 42 adapted to ride over the ends of the teeth of the wheel and thereby retract the pawl against the opposing force of spring 43 as the hand lever returns to its normal position.

After passing beyond the pressure pad 27, the tape on the wheel is advanced past a severing device comprising a razor-like cutting blade or knife 45 mounted on the free end of a flat spring 46, which is attached at its opposite end to the supporting plate 11. The knife is arranged to operate in the grooves 23 between adjacent teeth of the wheel. A cam 48 and a stop pin 49 are secured to the knife carrying spring on the side facing the toothed wheel. The cam is arranged so that it is engaged by the ends of the teeth of the toothed wheel and upon rotation of the wheel the teeth cooperate with the cam to bend the knife carrying spring away from the wheel and thereby withdraw the knife to the position indicated in broken lines in Fig. 3. A bracket 50 on the hand lever engages the stop pin 49 when the hand lever is depressed, an by the cooperation of these parts the knife is held in the retracted position until the hand lever is released, whereupon the previously tensioned knife carrying spring 46 propels the knife along the groove between adjacent teeth of the wheel and across the tape to thereby sever it along a line intermediate the adjacent teeth. The severed sections of tape adhere to the teeth of the tape dispensing wheel, and are carried upwardly by the wheel to the position indicated at 60 in Figs. 1 and 6, where they are conveniently removable by the operator.

From the above description, it will be obvious that each time the tape dispensing wheel is indexed by depressing the hand lever 36, a previously severed section of adhesive tape is advanced to the position 60, where it is convenient for removal by the operator as he releases the hand lever. During the indexing of the tape dispensing wheel, the knife 45 is withdrawn to its retracted position where it is held by the cooperating stop members 49 and 50. Upon release of the hand lever, it is restored by the spring 37, and as soon as stop member 50 slides past stop member 49, the previously tensioned spring 46 moves the knife across the tape to sever another section thereof from the continuous strip.

It will be noted that the grooves 23 between the teeth 22 of the tape dispensing wheel not only serve as operating or clearance passageways for the knife, but also serve to expose the forward end portions of the severed tape sections so that they are conveniently accessible for removal by the operator.

It should be understood that the invention is not limited to the specific embodiments thereof herein illustrated and described, except in so far as is defined by the appended claims.

What is claimed is:

1. In a device for dispensing adhesive tape, means for supporting a supply roll of tape, a rotary tape dispensing wheel in peripheral engagement with the adhesive side of the tape as it is withdrawn from the supply roll, said wheel having a transverse peripheral groove, a severing means adapted to move through the said groove to cut the tape, a resilient member for supporting and moving the severing means, means for rotating the wheel, means actuated by the wheel to move and tension the resilient member to place the severing means in operative position to sever the tape, and means cooperating with the means for rotating the wheel to release the tensioned resilient member to sever the said tape.

2. In a device for dispensing adhesive tape, means for supporting a supply roll of tape, a tape dispensing wheel mounted for peripheral engagement with the adhesive side of the tape as it is withdrawn from the supply roll, said wheel having a series of transverse peripheral teeth, and means for cooperating with said teeth to rotate said tape dispensing wheel including a pawl movable parallel to the axis of said wheel to engage said teeth, and means for actuating said pawl.

3. In a device for dispensing adhesive tape, means for supporting a supply roll of tape, a rotary tape dispensing wheel having a circumferential series of equidistantly spaced teeth for engaging the adhesive side of the tape as it is withdrawn from the supply roll, means for pressing the tape against the wheel, means for cooperating with the teeth to rotate the wheel to withdraw the tape from the supply roll, means mounted for movement between adjacent teeth of the wheel for severing the tape into predetermined lengths, and means actuated by said teeth to stress the severing means to move between the teeth, and means under control of said means to rotate said wheel to cause operation of the severing means after the wheel has come to rest.

4. A tape dispenser for pressure adhesive tape comprising a feed wheel having a plurality of peripherally spaced surfaces to receive a continuous length of pressure adhesive tape through successive contact of said surfaces with said continuous length of tape incidental to rotation of said feed wheel, a cutter mounted for movement into engagement with the edge of and laterally across the tape and in a path substantially parallel to the axis of said feed wheel for cutting said tape into sections with each section adhering to at least one of said feed surfaces, means for actuating said cutter preparatory to cutting said tape and by the rotation of said feed wheel, and means effective to cause said cutter to cut the tape after said feed wheel has come to rest and is stationary.

5. A tape dispenser for pressure adhesive tape comprising a feed wheel having a plurality of peripherally spaced surfaces to receive a continuous length of pressure adhesive tape through successive contact of said surfaces with said continuous length of tape incidental to rotation of said feed wheel, a cutter movable in a predetermined path substantially parallel to the axis of said feed wheel and into engagement with the edge of and laterally across the tape for cutting said tape into sections with each section adhering to at least one of said feed surfaces, an oscillatory lever for rotating said feed wheel when moved in one direction, and means effective upon

the return movement of said lever to actuate said cutter.

6. A tape dispenser for pressure adhesive tape comprising a feed wheel having a plurality of peripherally spaced surfaces to receive a continuous length of pressure adhesive tape through successive contact of said surfaces with said continuous length of tape incidental to rotation of said feed wheel, a cutter, means mounting said feed wheel for rotation relative to said cutter, a spring for moving said cutter in one direction in a predetermined path substantially parallel to the axis of said feed wheel, means for rotating said feed wheel to advance the tape, means responsive to the rotation of said feed wheel to tension said spring, and means for releasing said spring to cause the cutter to cut the tape.

7. A tape dispenser for pressure adhesive tape comprising a feed wheel having a plurality of peripherally spaced surfaces to receive a continuous length of pressure adhesive tape through successive contact of said surfaces with said continuous length of tape incidental to rotation of said feed wheel, a cutter movable transversely to the direction of movement of said tape in a path substantially parallel to the axis of said feed wheel into engagement with the edge of the tape and laterally across the tape for cutting said tape, a spring for moving said cutter in one direction, means for rotating said feed wheel and for tensioning said spring, and means for releasing said spring to cause the cutter to cut the tape after said feed wheel has come to rest.

8. A tape dispenser for pressure adhesive tape comprising a feed wheel having a plurality of peripherally spaced surfaces to receive a continuous length of pressure adhesive tape through successive contact of said surfaces with said continuous length of tape incidental to rotation of said feed wheel, a cutter mounted for reciprocable movement in a path substantially parallel to the axis of said feed wheel and into engagement with the edge of and laterally across the tape for cutting said tape into sections with each section adhering to at least one of said feed surfaces, means including an actuating member movable in a predetermined path in forward and reverse directions for rotating said feed wheel in response to forward movement of said actuating member, and means effective in response to the reverse movement of said actuating member to actuate said cutter to cut said tape.

9. A tape dispenser for pressure adhesive tape comprising a feed wheel having a plurality of peripherally spaced surfaces to receive a continuous length of pressure adhesive tape through successive contact of said surfaces with said continuous length of tape incidental to rotation of said feed wheel, a cutter for cutting said tape into sections with each section adhering to at least one of said feed surfaces, means including an actuating member movable in forward and reverse directions for rotating said feed wheel in response to forward movement of said actuating member, means operable in response to the rotation of said feed wheel to move said cutter in one direction, and means operable in response to the reverse movement of said actuating member to move said cutter in the opposite direction to cut said tape.

10. A tape dispenser for pressure adhesive tape comprising a feed wheel having a plurality of peripherally spaced surfaces to receive a continuous length of pressure adhesive tape through successive contact of said surfaces with said continuous length of tape incidental to rotation of said feed wheel, a cutter for cutting said tape into sections with each section adhering to at least one of said feed surfaces, means mounting said feed wheel for rotation relative to said cutter, means responsive to the rotation of said feed wheel for actuating said cutter preparatory to cutting said tape, and means effective to cause said cutter to cut the tape after said feed wheel has come to rest.

11. A tape dispenser for pressure adhesive tape comprising a feed wheel having a plurality of peripherally spaced surfaces to receive a continuous length of pressure adhesive tape through successive contact of said surfaces with said continuous length of tape incidental to rotation of said feed wheel, a cutter for cutting said tape into sections with each section adhering to at least one of said feed surfaces, spring means mounting said cutter for movement through a predetermined path substantially parallel to the axis of said feed wheel and into engagement with the edge of and laterally across the tape to cut said tape, means operable to rotate said feed wheel and to stress said spring means, and means operable under control of said last-mentioned means to release said spring and cause the cutter to cut said tape after said feed wheel has come to rest.

AMOS L. QUINLAN.

REFERENCES CITED

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

UNITED STATES PATENTS

Number	Name	Date
1,799,533	Remmsnider	Apr. 7, 1931
2,241,658	Engberg	May 13, 1941
2,274,623	Hawkins	Feb. 24, 1942
2,298,360	Fitch	Oct. 13, 1942