Aug. 12, 1952 J. W. CUTTER 2,606,682

TAPE DISPENSING MECHANISM

Filed Dec. 16, 1949

Fig. 1

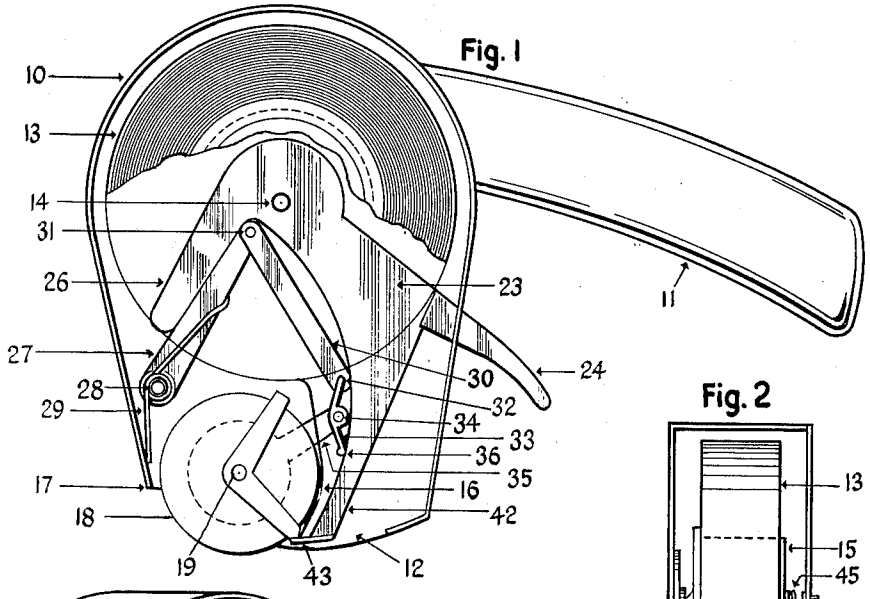


Fig. 2

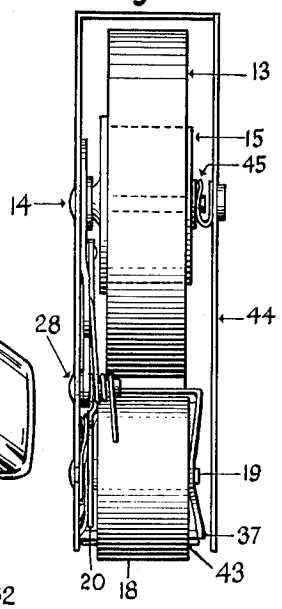


Fig. 3

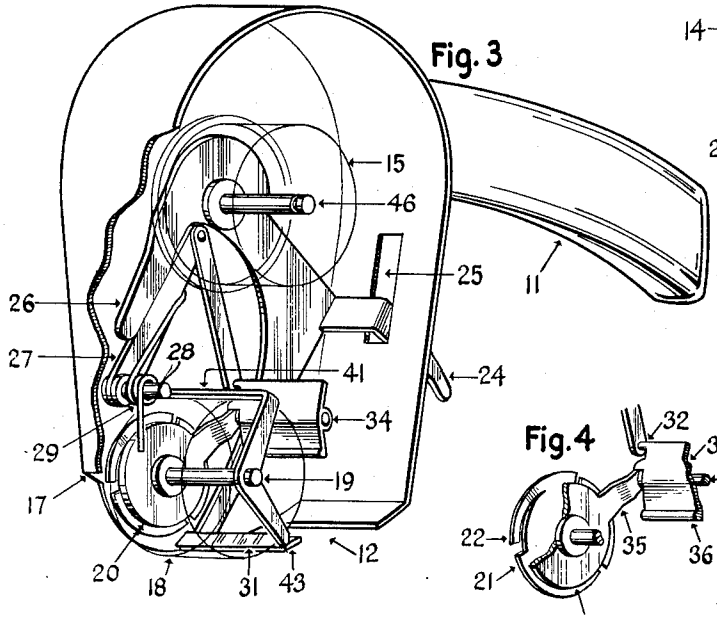


Fig. 4

Fig. 5

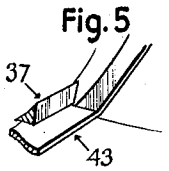
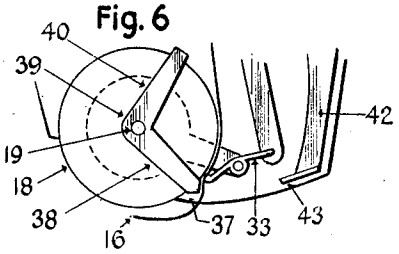


Fig. 6



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TAPE DISPENSING MECHANISM

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8 Claims. (Cl. 216—29)

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The present invention relates to tape dispensing mechanisms and embodies, more specifically, a tape dispensing mechanism by means of which adhesive tapes may be dispensed from a roll or other source without involving any operation in which the fingers necessarily adhere to the adhesive of the tape.

The difficulties of using adhesive tapes, such as the tapes commonly known as "Scotch tape," are well known and almost invariably involve operations in which the fingers adhere to the adhesive side of the tap. These operations have also frequently resulted in the adhesive side of the tape adhering accidentally to another portion thereof, and thus causing a difficult and disagreeable entanglement of adhesive portions of the tape that are intended to be applied to the surface to which it is desired to apply the tape.

In order to avoid the above and numerous other disadvantages that are well known to those who have ever used adhesive tapes of this character, the present invention has been made, and an object of the invention is to provide a dispensing mechanism for tapes of the above character wherein the tape is dispensed without involving the disadvantages of adhering to the fingers, accidentally adhering to other portions of the tape, or to other surfaces than the surface against which the tape is intended to be applied.

A further object of the invention is to provide a device of the above character wherein the tape is maintained at all times in a condition ready to be dispensed so that it may be immediately and effectively applied against a desired surface without requiring contact of the fingers against the tape.

Yet another advantage of the invention is to provide a device of the above character wherein means is provided to apply the tape to any desired extent of a surface without requiring contact of the fingers against the tape at any time.

Yet another object of the invention is to provide a device of the above character wherein any desired length of adhesive tape may be applied to a desired surface by using only one hand.

Other and further objects of the invention will be apparent as it is described in greater detail in connection with the accompanying drawing, wherein

Figure 1 is a view in side elevation, with the cover removed, showing a device constructed in accordance with the present invention;

Figure 2 is a view in end elevation, taken from the left in Figure 1, and showing a portion of the casing cut away and in section to illustrate the operating mechanism within;

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Figure 3 is a view in isometric projection showing the operating components of Figures 1 and 2;

Figure 4 is a detail view illustrating the manner in which the pressure roller is mounted;

Figure 5 is a detail view illustrating the manner in which the shearing mechanism of Figure 1 operates; and

Figure 6 is a partial view illustrating the manner in which the tape is fed from the device during the initial operation thereof.

Referring to the above drawings, a casing is illustrated at 10 and is provided with a handle 11 and an open bottom portion 12. The casing is adapted to receive a roll of adhesive tape 13 upon a spindle 14, a spool 15 being mounted on the spindle to receive the roll of tape 13. The extremity of the tape is illustrated at 16, and the manner in which this extremity is manipulated will be described presently.

The bottom portion or opening of the casing 10 is cut away, as indicated at 17, in order that the periphery of a pressure roller 18 may be exposed, as illustrated in the drawing. The pressure roller 18 may be formed of rubber or any other suitable yielding material, the specific material of which this roller is formed constituting no part of the invention. The pressure roller 18 is mounted upon a shaft 19 and, if desired, a disc 20 likewise provided thereon. A friction disc spring 21 bears against the disc 20 in order to resist rotation of the disc on the shaft 19. The disc spring 21 may be formed with a plurality of pressure arms 22 that engage against the side of the casing 10, the disc 21 thereby being urged against the disc 20 to provide the desired frictional drag to resist rotation.

Upon the spindle 14, a bell crank lever 23 is journalled. This lever is provided with a trigger 24 that extends through an opening 25 in the casing 10, and also with an actuating arm or cam 26 that is adapted to bear against an arm 27 that is pivoted upon a spindle 28 mounted within the casing. A spring 29 normally urges the arm 27 against the cam 26 and, upon movement of the cam in a counter-clockwise direction, the arm 26 is moved in a clockwise direction about its spindle 26, thus actuating a link 30 that is pivoted at 31 to the end of arm 27, and also pivoted at 32 to a pressure plate 33. Pressure plate 33 is mounted upon a spindle 34 that is pivoted to an arm 35 that is formed upon the disc or plate 20. In this fashion, movement of the link 30 downwardly upon clockwise rotation of the arm 27 causes the pressure plate 33 to be moved about its spindle 34 until a pressure rib 36, formed along the lower extremity of the plate 33, en-

gages the extremity 16 of the tape as it rests upon the periphery of the pressure roller 18. Continued downward movement of the link 30 causes the pressure roller 18 to turn in a clockwise direction about its axis 19, and the tape is thus pulled from the roll 13 and advanced until its extremity is exposed, as is illustrated in Figure 6.

In operation, the spring 21 exerts a drag on the disc 20 and thus on the arm 35 and spindle 34 to cause the rib 36 to be advanced against the tape upon initial actuation of the trigger and to be retracted from the tape upon return movement of the trigger.

The completion of the downward movement of the link 30 brings the parts into the relation illustrated in Figure 6, at which time the tape is placed against the surface to which it is to adhere, and the pressure roller 18 applied thereagainst. By advancing the casing 10 to the right, as viewed in Figure 6, the pressure roller 18 continues to remove the tape from the roll 13 and apply it along the surface as long as th casing 10 is moved to the right. During this operation, the pressure plate 33 with its rib 36 is relaxed, and thus does not interfere with the removal of the tape. This relaxation is caused when the tape is drawn over the roller 18 because of a tendency of the rib to adhere to the tape during such movement. When the rib finally breaks away from the tape, its position of relaxation is spaced from the tape.

In order that the tape may be severed when the desired quantity has been removed from the roll, a shear plate 37 is provided at the periphery of the pressure roller 18, as illustrated in Figure 6, the plate being secured at one end to the side of the casing, and at the other end to an arm 38 that is secured at 39 to the extremity of the spindle 19 and is formed with an arm 40 and a lateral extension 41 that is secured to the side of the casing. The bell crank lever 23 is formed with a downwardly extending shearing arm 42 that carries a cutter blade 43 which, when moved in a clockwise direction upon release of the trigger 24, cuts or shears off the tape lying over the shear plate 37. This operation is illustrated in Figure 5.

The casing 10 is provided with a cover 44, having a U-shaped flat spring 45 that engages under a head 46 formed on the spindle 14. The spring 45 thus serves both as a latch for the cover 44, and as a friction element acting upon the spool 15 to prevent back-lash thereof upon movement of the trigger 24 in opposite directions.

While the invention has been described with specific reference to the accompanying drawing, it is not to be limited save as defined in the appended claims.

I claim:

1. A tape dispensing device, comprising a casing, means in the casing for supporting a supply of tape, a pressure roller supported by the casing, a trigger carried by the casing, a pressure plate adapted to engage the tape and hold it against the roller, a supporting arm, means to pivot the pressure plate on the last named arm, a cam arm on the trigger, an arm pivoted on the casing and actuated by the cam arm, a link between the pivoted arm and the pressure plate, a stationary cutter plate mounted adjacent the roller, and a movable cutter blade carried by the trigger whereby, when the trigger is actuated, tape will be dispensed

2. A tape dispensing device, comprising a casing, means in the casing supporting a supply of tape, an opening in the casing, a pressure roller journalled in the casing with a portion of its periphery extending through the opening, an arm coaxial with the roller and extending beyond the periphery of the roller, a pressure plate pivoted on the arm beyond the periphery of the roller and having an edge adapted to engage the periyhery of the roller upon pivoted movement of the plate, a link pivoted to the pressure plate, an actuating arm pivoted to the casing and to the last named link, and means for operating the actuating arm whereby, when the means for operating the actuating arm is actuated, tape will be dispensed.

3. A tape dispensing device, comprising a casing, means in the casing supporting a supply of tape, an opening in the casing, a pressure roller journalled in the casing with a portion of its periphery extending through the opening, an arm coaxial with the roller and extending beyond the periphery of the roller, a pressure plate pivoted on the arm beyond the periphery of the roller and having an edge adapted to engage the periphery of the roller upon pivoted movement of the plate, a link pivoted to the pressure plate, an actuating arm pivoted to the casing and to the last named link, a member pivoted on the casing and formed with a cam for operating the actuating arm, and means to operate the last named pivoted member whereby, when the pivoted member is actuated, tape will be dispensed.

4. A tape dispensing device, comprising a casing, means in the casing supporting a supply of tape, an opening in the casing, a pressure roller journalled in the casing with a portion of its periphery extending through the opening, an arm coaxial with the roller and extending beyond the periphery of the roller, a pressure plate pivoted on the arm beyond the periphery of the roller and having an edge adapted to engage the periphery of the roller upon pivoted movement of the plate, a link pivoted to the pressure plate, an actuating arm pivoted to the casing and to the last named link, a member pivoted on the casing and formed with a cam for operating the actuating arm, means to operate the last named pivoted member, and cutting mechanism actuated by the said last named pivoted member whereby, when the pivoted member is actuated, tape will be dispensed.

5. A tape dispensing device, comprising a casing, means in the casing supporting a supply of tape, an opening in the casing, a pressure roller journalled in the casing with a portion of its periphery extending through the opening, an arm coaxial with the roller and extending beyond the periphery of the roller, a pressure plate pivoted on the arm beyond the periphery of the roller and having an edge adapted to engage the periphery of the roller upon pivoted movement of the plate, a link pivoted to the pressure plate, an actuating arm pivoted to the casing and to the last named link, a bell crank lever pivoted on the casing, a cam arm on the bell crank lever to operate the actuating arm, and a trigger on the bell crank lever whereby, when the trigger is actuated, tape will be dispensed.

6. A tape dispensing device, comprising a casing, means in the casing supporting a supply of tape, an opening in the casing, a pressure roller journalled in the casing with a portion of its periphery extending through the opening, an arm coaxial with the roller and extending beyond the periphery of the roller, a pressure plate piv-

oted on the arm beyond the periphery of the roller and having an edge adapted to engage the periphery of the roller upon pivoted movement of the plate, a link pivoted to the pressure plate, an actuating arm pivoted to the casing and to the last named link, a bell crank lever pivoted on the casing, a cam arm on the bell crank lever to operate the actuating arm, a trigger on the bell crank lever, and cutting mechanism on the bell crank lever whereby, when the trigger is actuated, tape will be dispensed.

7. A tape dispensing device, comprising a casing, means in the casing supporting a supply of tape, an opening in the casing, a pressure roller journalled in the casing with a portion of its periphery extending through the opening, an arm coaxial with the roller and extending beyond the periphery of the roller, a pressure plate pivoted on the arm beyond the periphery of the roller and having an edge adapted to engage the periphery of the roller upon pivoted movement of the plate, a link pivoted to the pressure plate, an actuating arm pivoted to the casing and to the last named link, a bell crank lever pivoted on the casing, a cam arm on the bell crank lever to operate the actuating arm, means to urge the actuating arm against the cam arm, and a trigger on the ball crank lever whereby, when the trigger is actuated, tape will be dispensed.

8. A tape dispensing device, comprising a casing, means in the casing supporting a supply of tape, an opening in the casing, a pressure roller journalled in the casing with a portion of its periphery extending through the opening, an arm

coaxial with the roller and extending beyond the periphery of the roller, a pressure plate pivoted on the arm beyond the periphery of the roller and having an edge adapted to engage the periphery of the roller upon pivoted movement of the plate, a link pivoted to the pressure plate, an actuating arm pivoted to the casing and to the last named link, a bell crank lever pivoted on the casing, a cam arm on the bell crank lever to operate the actuating arm, means to urge the actuating arm against the cam arm, cutting mechanism on the bell crank lever, and a trigger on the bell crank lever whereby, when the trigger is actuated, tape will be dispensed.

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