

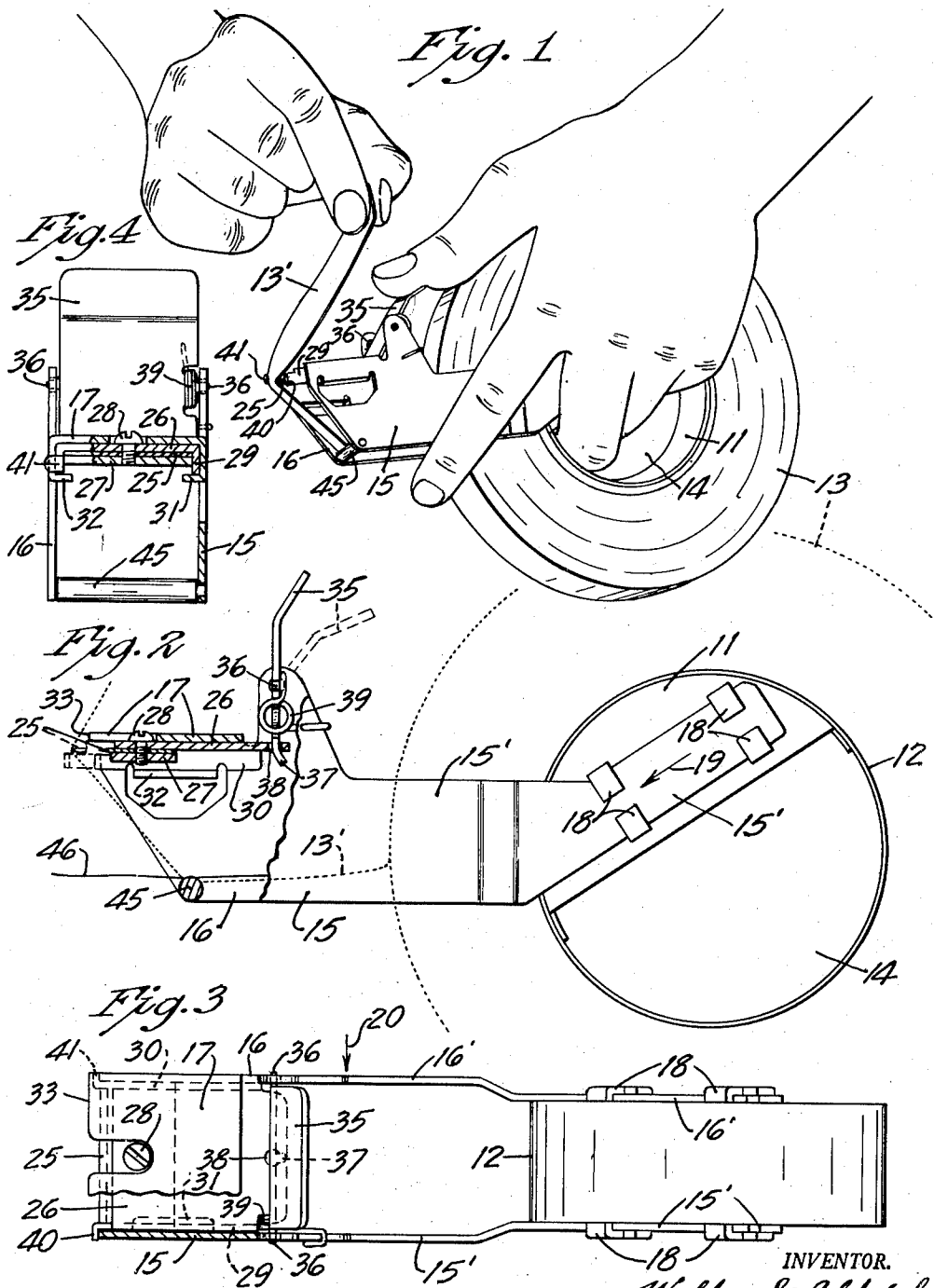
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W. S. ALDRICH

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HEAVY DUTY HAND DISPENSERS

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INVENTOR.

Walter S. Aldrich

BY

Josephine Abbott Mullen & Kinney

ATTORNEYS

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2,798,552

HEAVY DUTY HAND DISPENSERS

Walter S. Aldrich, Moundsview Township, Ramsey County, Minn., assignor to Minnesota Mining & Manufacturing Company, St. Paul, Minn., a corporation of Delaware

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The present invention relates to dispensers for adhesive tape, including pressure-sensitive adhesive tape, and particularly to "hand" dispensers, i. e., dispensers designed to be held in the hand when being operated, as contrasted with dispensers designed to be held by a table, work bench or other support.

Objectives include the provision of hand dispensers that can accommodate relatively large annular rolls of tape; the provision of hand dispensers that can dispense tape having a relatively high crosswise tear resistance; the provision of heavy duty hand dispensers.

The invention provides a hand dispenser having a drum for supporting an annular roll of tape, an arm fixed to the drum and extending outwardly beyond the periphery of the roll, and a passive severing means at the end of the arm for severing a withdrawn length of tape that extends from the roll outwardly beyond the severing means.

An alternative form provides two arms instead of one.

The drum is shaped, designed and/or equipped to permit the drum, or the drum and the tape roll together, to be grasped by the hand of an operator when tape is being dispensed.

The severing means may be a knife, and there may also be a knife guard, with the guard and the knife movable in relation to each other so that the knife edge may be alternately guarded and exposed.

A "passive" severing means is one wherein cutting is accomplished by movement of the object. This is in contrast to an "active" severing means, wherein cutting is accomplished by movement of the severing means.

An illustrative embodiment is described below and shown in the attached drawings in which:

Figure 1 is a perspective view of a hand dispenser of the two-arm type with a movable knife, in operation;

Figure 2 is a side elevation;

Figure 3 is a plan view; and

Figure 4 is an elevation of the outer end or front.

A drum 11 supports upon its periphery 12 an annular supply roll 13 of normally tacky pressure-sensitive adhesive tape 13'. An aperture 14 extends through the drum to accommodate the fingers of the hand of an operator, thus providing means for grasping the drum 11 with the supply roll 13 mounted thereon as shown in Figure 1. The unapertured portion of the drum serves as a handle.

At a point beyond the periphery of the drum and spaced from the periphery sufficiently to accommodate the roll 13, is a tape cutting or severing assembly, the frame of the said assembly being formed of a left side member 15, a right side member 16, and a top member 17 that extends between the upper edges of the side members and connects them, all three of the said members being here shown in the form of plates.

The top member 17 serves as a knife guard in a manner hereinafter described.

At least one of the side members 15 and 16 is elongated to form an arm extending inwardly along one side of the roll 13 to the drum 11.

In the illustrated embodiment both are thus elongated, forming two arms 15' and 16', respectively, which are removably fixed to the drum by pairs of cleats 18 on the sides of the drum. The cutting assembly may be disengaged from the drum to permit mounting fresh rolls of tape on the drum, by withdrawing the arms 15' and 16' from the cleats in the direction of the arrow 19.

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In an alternative construction, only one of the side members, e. g., the member 15, is elongated to form an arm, and the arm 16' is eliminated, the side member 16 terminating at approximately the point indicated by the arrow 20.

An advantage of the one-arm construction is speed in mounting and remounting rolls, so that a variety of sizes, colors and/or kinds of tape may be dispensed in quick succession from a single dispenser.

An advantage of the two-arm construction is greater structural strength.

In either form, the arm or arms may, if desired, be longer than is shown in the illustrated dispenser so as to extend beyond the periphery 12 of the drum 11 opposite the cutting assembly. This helps to keep the roll 13 aligned on the drum.

The cutting assembly includes a knife unit comprising a knife 25 held between an upper knife plate 26 and a lower knife plate 27, the plates 26 and 27 being drawn together and held by a screw 28. The edges of the upper knife plate 26 are turned downwardly on each side to form flanges 29 and 30.

Portions of the side members 15 and 16 are cut and turned inwardly to form flanges 31 and 32 which provide sliding ways for the knife unit.

The knife 25 is thus slidably mounted adjacent the guard plate 17 to reciprocate along the under surface thereof between a retracted position wherein the outer or forward edge 33 of the guard plate 17 extends beyond the cutting edge of the knife, and an exposed cutting position wherein the cutting edge of the knife extends beyond the outer or forward edge of the guard plate as shown in broken lines in Figure 2.

A lever 35, pivoted at 36, has a nib 37 at its lower end which extends through an aperture 38 in the upper knife plate 26, thereby to engage the knife unit. The lever is located in a position to be operated by that hand of the operator which grasps the mounted roll and the drum, as shown in Figure 1. Manual pressure on the free end of the lever moves the knife unit outwardly until the knife 25 is in the above described cutting position. A spring 39 acts upon the lever to return the knife to the retracted position when the manual pressure is released. The said return movement is limited by two nibs 40 and 41 that are formed on the ends of the upper knife plate flanges 29 and 30.

In operation, the tape 13', tacky side down, is drawn outwardly from the roll, between the side plates 15 and 16 to a point beyond the knife until the desired length has been withdrawn. The lever 35 is then manually depressed to thrust the knife 25 out into cutting position, whereupon the end of the tape is severed by drawing it back against the knife, as shown in Figure 1.

A roller 45 which is positioned between the tape roll 13 and the knife 25, serves as a tape rest or anchor. It extends between the side plates 15 and 16 and is journaled therein. When tape is drawn outwardly directly from the supply roll 13 to the knife 25, and severed, the end portion of the unsevered withdrawn tape is usually caught by the roller as it falls and is temporarily anchored by reason of its adherence thereto. A short length or tab 46 of tape extending beyond the roller is thus provided and positioned, by which to grasp the tape for the next succeeding dispensing operation.

To be more certain of the anchorage of the unsevered tape to the roller 45, and of the resulting grasping tab 46, it is preferable in operation to adhere the tape thereto before cutting it, so that it extends from the supply roll 13 to the anchoring roller 45 and thence to the knife, as shown in the drawings, rather than directly from the supply roll to the knife, at the time of severing it.

When tape is being withdrawn, the roll should ordi-

narily be free to turn on the drum. The grip of the operator's hand and fingers on the roll is accordingly relaxed at such a time to allow the roll to slip through the hand, although the grip on the drum continues. When tape is being severed however, it is preferable that the roll be fixed in relation to the drum and firmly held, and the operator accordingly then grips the roll as well as the drum.

Dispensers made in accordance with the present invention possess many advantages over those heretofore known.

For example, the operator's hand, the drum and the mounted roll all become as a single unit when the drum and the mounted roll are both firmly grasped by the hand. This permits the exertion of great force in a severing operation. The operator has a good grip or purchase on both the dispenser and the roll. The positioning of the severing means beyond the periphery of the roll on an arm, provides good leverage. Improved leverage is also secured by positioning the drum aperture 14 in such a location that the grasped portion of the mounted roll 13 is at one side of a plane determined by the axis of the drum 11 and by at least one point on the edge of the knife 25 when the knife is in cutting position (Figure 2) so that the dispenser is grasped from the "top" and held down firmly at arm's length against the tape (Figure 1).

Industrial tapes having heavy, tough or otherwise hard-to-cut backings, can accordingly now be dispensed by hand dispensers. The portability of hand dispensers renders them advantageous over dispensers that require a table, work bench or other support, in that they can be carried about to the various places where lengths of the tape are to be applied. A great deal of time is saved. This saving is now made available, by the present invention, in the field of heavy duty dispensing.

All embodiments within the scope of the invention described and/or claimed herein are contemplated. The invention may take numerous forms. For example, an advantageous construction is shown in the co-pending application of John A. Polster Serial No. 219,295, filed concurrently herewith.

I claim:

1. A portable hand dispenser comprising a drum for supporting an annular roll of tape, an aperture in the drum to accommodate the fingers when a mounted roll and the drum are grasped as a unit by the hand of an operator, an arm fixed to the drum and extending outwardly beyond the periphery of the roll, a passive severing means at the end of the arm for severing a withdrawn length of tape that extends from the roll outwardly beyond the severing means, the severing means comprising a movable knife mounted to reciprocate between a retracted position and an exposed cutting position, the location of the said drum aperture being such that the grasped portion of the mounted roll is at one side of a plane determined by the axis of the drum and by at least one point on the edge of the knife when the knife is in cutting position, and a guard extending beyond the cutting edge of the knife when the knife is in retracted position, the cutting edge extending beyond the guard when the knife is in cutting position, means for moving the knife into cutting position, and means for moving the knife into retracted position, the said means for moving the knife into cutting position being so located as to be operable by that hand of the operator which grasps the mounted roll and the drum.

2. A portable hand dispenser comprising a drum for supporting an annular roll of tape, an aperture in the drum to accommodate the fingers when a mounted roll and the drum are grasped as a unit by the hand of an operator, and a passive tape cutting assembly beyond the periphery of the roll; the said assembly comprising two spaced parallel side members, at least one of the side members being elongated to form an arm extending from the assembly along one side of the roll to the drum, the second side member being positioned to permit a with-

drawn unsevered length of tape to pass between the side members when the tape is drawn outwardly from the roll, a guard plate extending between the side members and connecting the side members, a knife adjacent one surface of the plate between the side members, the location of the said drum aperture being such that the grasped portion of the mounted roll is at one side of a plane determined by the axis of the drum and by at least one point on the edge of the knife when the knife is in cutting position, the knife being mounted to reciprocate along the said surface of the plate between a retracted position and an exposed cutting position, one edge of the guard plate extending beyond the cutting edge of the knife when the knife is in retracted position and the cutting edge extending beyond the said edge of the guard plate when the knife is in cutting position, means for moving the knife into cutting position, and means for moving the knife into retracted position, the said means for moving the knife into cutting position being so located as to be operable by that hand of the operator which grasps the mounted roll and the drum.

3. A dispenser according to claim 2 in which the knife moving means comprises a lever pivotally mounted to move the knife from retracted position outwardly along the plate to cutting position in response to manual pressure on one end of the lever, and spring means for returning the knife to retracted position.

4. A dispenser according to claim 2 having a tape anchoring means between the roll and the knife, the said anchoring means comprising a roller which extends between the side members and is journaled therein.

5. A portable hand dispenser comprising a drum for supporting an annular roll of tape, an aperture in the drum to accommodate the fingers when a mounted roll and the drum are grasped as a unit by the hand of an operator, an arm on each side of the drum extending outwardly beyond the periphery of the roll along the sides of the roll, the arms being removably fixed to the drum, a guard plate beyond the periphery of the roll extending between the arms and connecting the arms, a passive severing means in the form of a knife adjacent one surface of the plate between the arms, the location of the said drum aperture being such that the grasped portion of the mounted roll is at one side of a plane determined by the axis of the drum and by at least one point on the edge of the knife when the knife is in cutting position, the knife being mounted to reciprocate along the said surface of the plate between a retracted position and an exposed cutting position, one edge of the guard plate extending beyond the cutting edge of the knife when the knife is in retracted position and the cutting edge extending beyond the said edge of the guard plate when the knife is in cutting position, means for moving the knife into cutting position, and means for moving the knife into retracted position, the said means for moving the knife into cutting position being so located as to be operable by that hand of the operator which grasps the mounted roll and the drum.

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