March 23, 1954 G. H. FRITZINGER 2,673,042

TAPE DISPENSING AND CLEANING DEVICE

Filed Aug. 9, 1951

Fig. 1

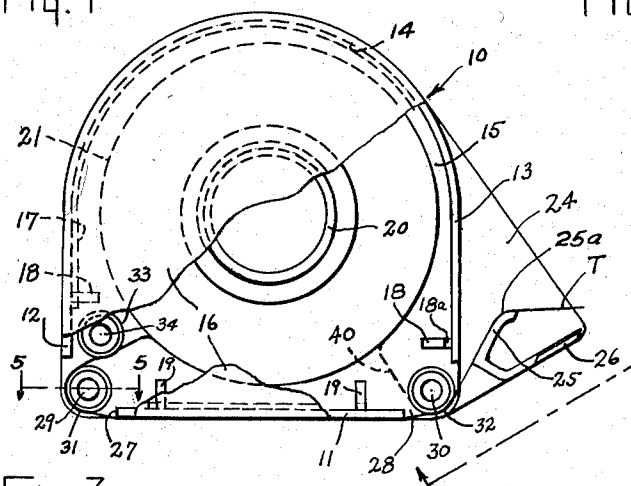


Fig. 2

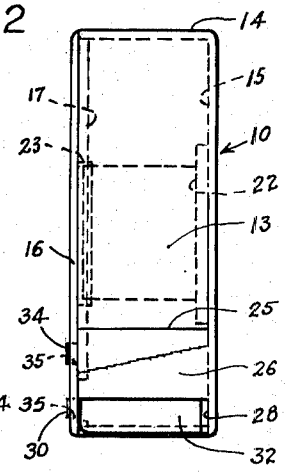


Fig. 3

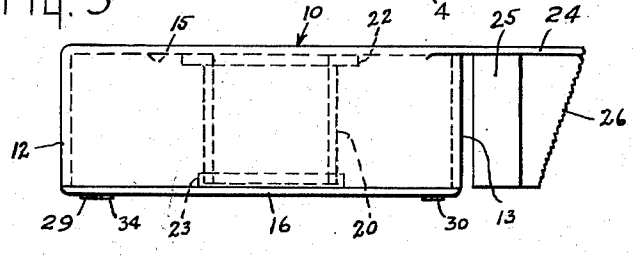


Fig. 4

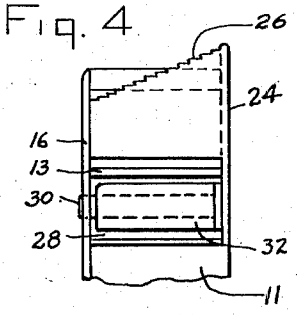


Fig. 6

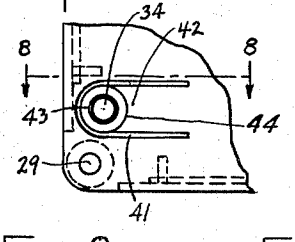


Fig. 7

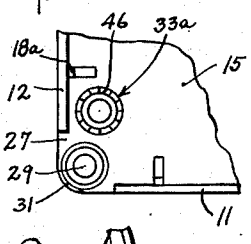


Fig. 5

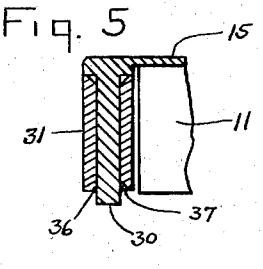


Fig. 8

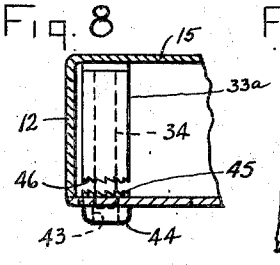
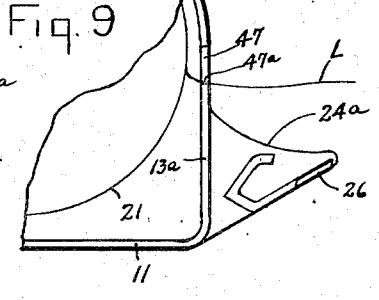


Fig. 9



Inventor

George H. Fritzinger

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TAPE DISPENSER AND CLEANING DEVICE

George H. Fritzinger, West Orange, N. J.

Application August 9, 1951, Serial No. 241,120

12 Claims. (Cl. 242—55.5)

1

This invention relates to a novel dispenser for pressure sensitive tape, which is adapted also to serve as a cleaning device for picking up lint, dirt or other loose particles by the adhesiveness of the tape.

It is well known that pressure-sensitive adhesive tape is a very effective means for removing lint and other loose particles from cloth which is difficult to clean by means of the usual brush. The present device is a novel form of manual dispenser comprising a holder for a supply roll of pressure-sensitive tape adapted to be held in the hand and arranged for exposing the adhesive side of a length of the tape drawn from the supply roll and for holding that length firmly so that it can be brushed against a surface to be cleaned without being displaced in relation to the holder. Also, this device is arranged to enable the end portion of the tape to be gripped to draw off a new length and to cut off the old length in one operation of the hand, whereby to permit the exposed length when loaded with dirt to be replaced conveniently by a fresh length, as needed. Alternatively, the present device may be used conveniently only as a dispenser, as will appear.

It is an object of my invention to provide a simple tape dispenser and cleaning device which can be produced economically to sell at a low cost.

Another object is to provide a novel form of such device which can be used alternatively in convenient manner either as a dispenser or as a cleaner.

Another object is to provide a cleaning device using pressure sensitive tape, which is adapted to back the non-adhesive side of a length of exposed tape drawn from the supply roll, to hold that length firmly yet releasably at the ends so that it can be brushed across a surface to be cleaned without loosening or being displaced sidewise of the device, and to enable that length to be replaced by a fresh length and to be severed from the tape supply by one operation of the hand.

Another object is to provide such device with a latchable means manually controllable for securely holding in position the exposed length of tape.

Another object is to provide such device with a novel arrangement of hold bar and cutter which can be made economically by molding or die casting and which is adapted to enable the tape to be cut in response to a forward pull of the tape ahead of the hold bar and to cause co-

2

incidentally therewith the end portion of the remaining tape supply to be adhesively engaged with the hold bar to enable the free end of the tape to be gripped conveniently for a succeeding dispensing operation.

A still further object is to provide a tape dispenser with a closed housing having an opening and an exterior tear-off cutter so arranged that as tape is drawn through that opening against the cutter the tape at the opening is adhesively engaged with the housing to releasably retain the free end portion of the tape supply in position to be gripped conveniently for a dispensing of a succeeding length of the tape.

These and other objects and features of my invention will be apparent from the following description and the appended claims.

In the description of my invention, reference is had to the accompanying drawings, of which:

Figure 1 is a side elevational view of a dispenser and cleaning device according to my invention, showing a portion of the side cover broken away;

Figure 2 is an end elevational view of this device;

Figure 3 is a top plan view of this device;

Figure 4 is an exterior view of a portion of this device as seen from the line 4—4 of Figure 1;

Figure 5 is a partial section taken on the line 5—5 of Figure 1;

Figure 6 is a side elevation of the lower left-hand portion of this device as it appears in Figure 1, showing a modified embodiment of my invention;

Figure 7 is a view similar to that of Figure 6 but with the side cover removed;

Figure 8 is a fractional section taken on the line 8—8 of Figure 6; and

Figure 9 is a side elevational view of the lower right-hand portion of the device as it appears in Figure 1, with the side cover removed and showing another modification of my invention.

The embodiment of my invention shown in Figures 1–5 comprises a holder in the form of a case 10 having a bottom wall 11 and upright end walls 12 and 13 merging into a semi-circular top wall 14, all of which are joined integrally to a permanent side wall 15. The other side wall 16, which is only partially shown in Figure 1, is a removable cover plate held releasably by friction engagement of an interior rib 17 thereon with the walls 11—14 of the case. Bracing ribs 18 are formed on the end walls and ribs 19 on the bottom wall, and slots 18a are formed in the ribs 18 to receive the rib 17 of the cover plate. At

the center of the case there is a stationary tubular core 20 integral with the side wall 15 for supporting rotatably a supply roll 21 of pressure-sensitive tape. On the side walls 15 and 16 there are circular ribs 22 and 23 which embrace the core to place the supply roll centrally thereon. Extending from the end wall 13, in line with the permanent wall 15, is a V-shaped wall 24 on which are integrally formed a transverse hold bar 25 and a tear-off cutter 26 hereinafter fully described. This case has corner openings 27 and 28 at the ends of the bottom wall. In these openings there are transverse posts 29 and 30 extending from the permanent side wall, on which are journalled guide rollers 31 and 32 respectively. The guide rollers are inset so that they are within the contour of the case. Positioned further inwardly and upwardly from the guide roller 31 is a resistance roller 33 journalled on a transverse post 34 also extending from the side wall 15, which is to place a drag on the tape to hold the tape from unreeling while the exposed length is brushed across a surface to be cleaned, as will more fully appear. The case and the elements thereon are preferably made economically of thermoplastic material by molding.

When the device is used as a cleaner the tape is drawn from the supply roll 21 through the slot between the guide roller 31 and resistance roller 33 at the corner opening 27, across the bottom wall 11 lengthwise thereof with the adhesive side of the tape facing outwardly, and then upwardly around the guide roller 32 through the slot between the end wall 13 and the hold bar 25. This hold bar has a smooth surface 25*a* confronting the end wall 13, which is for releasably holding the tape only by adhesive contact of the tape therewith. The guide rollers are provided to reduce frictional drag on the tape at the corner openings as the tape is drawn from the supply roll in the manner described. The resistance roller 33 engages continuously the adhesive side of the tape and imposes a feed resistance on the tape sufficient to resist the pulling and tugging forces exerted on the exposed length of tape as the latter is brushed against a surface to be cleaned. Also, by reason of this adhesive contact with the resistance roller, the exposed length is prevented from being displaced sidewise at the guide roller 31 as the tape is brushed back and forth across the surface being cleaned. Notwithstanding these holding functions of the resistance roller, it yields to a firm pull on the tape to enable lengths of tape to be drawn from the supply roll to replace exposed used lengths which have become loaded with dirt.

In order to hold the rollers firmly in place, the respective posts are extended beyond the walls 11, 12 and 13 for engagement with respective openings 35 in the cover plate. On these posts just beyond the rollers there are formed projections 36 for firmly retaining the rollers thereon. The outer ends of the rollers may be countersunk as at 37 so that these projections may not engage the rollers while the rollers are retained in position on the respective posts by abutment against the cover plate.

The cutter 26 is positioned ahead of the hold bar 25 to provide a free end portion of tape T after each cutting which can be gripped conveniently to draw off a succeeding length of tape from the supply roll. The cutting edge is serrated and inclined to a plane through the far end of the holding surface 25*a*, as shown in Figures 1, 2, 3 and 4. By so inclining the cutting

edge the same can be formed in the molding of the case with the use of a simple mold. Also, such inclining of the cutting edge has the functional advantage of enabling the tape to be cut in response to a straight forward pull ahead of the hold bar. As shown in Figure 1, the hold bar is positioned above a line drawn from the lowermost edge of the guide roller 32 and the cutter. This is done so that the tape will be engaged adhesively with the hold bar as an incident precedent to pulling the tape across the cutter to be cut. Thus, a length of tape is dispensed by gripping the end portion T, pulling upwardly to detach it first from the hold bar and then to draw off a length from the supply roll, and then sweeping forwardly and downwardly to re-engage the tape with the hold bar and to cut off the outermost length thereof. This dispensing operation is carried out with one sweep of the hand. By setting the cutter below a plane tangent with the outermost portion of the holding surface 25*a*, and by inclining the cutting edge as described, the free end portion T will detach itself automatically from the cutter in response to the natural resilience of the tape and assume a position shown in Figure 1. If for any reason the tape should not so detach itself from the cutter, the user need only to brush the end of his finger upwardly across the cutting edge to do so.

If the present device is to be used only as a dispenser, the tape is led out through the opening 28 around the guide roller 32 as indicated by dotted line 40 in Figure 1. From the roller 32 the tape is led upwardly across the hold bar to the cutter, the same as when the device is used as a cleaner. By leading the tape from the supply roll directly to the guide roller 32 the drag of the resistance roller is eliminated to enable the tape to be dispensed more easily. Also, by insetting the guide roller as described, the device may be supported upright on the bottom wall during a dispensing operation, without the tape adhesively contacting the support.

The outer portion of the surface 25*a* of the hold bar is curved outwardly as shown in Figure 1, so that this portion of the holding surface will contact the adhesive side of the tape at angles less than 180 degrees from the adhesive side of the tape portion leading to the guide roller 32. This is especially important when the device is used as a cleaner because the curved portion of the holding surface 25*a* has a firm grip to the tape to resist the sidewise tugging on the tape which occurs when the exposed length is brushed back and forth across a surface to be cleaned. The positioning of the hold bar in proximity with the guide roller 32 is also important in these respects.

In Figures 6, 7 and 8 there is shown a modification in which the feed resistance roller, now referred to as 33*a*, may be latched to prevent positively any unreeling of the tape from forces exerted on the exposed length during a cleaning operation. This latching means is formed integrally on the side cover by molding a U slot 41 therein to form a cantilever arm 42 the free end of which overlies the resistance roller. In this free end portion there is an over-sized hole 43 receiving the end of the post 34 on which is journalled the resistance roller. Surrounding this oversized hole is a boss 44 at the outer side of the cover and a series of ratchet teeth 45 at the inner side of the cover. The outer end portion of the resistance roller 33*a* is provided with a like set of ratchet teeth 46. In the normal

position of the cantilever arm, these sets of teeth are out of engagement as shown in Figure 8. Upon pressing on the boss **44** to overcome the resilience of the cantilever arm, the two sets of teeth are engaged to lock the resistance roller. This the user will do while holding the device for cleaning operations. However, when a length of tape is to be dispensed from the supply roll, the boss will be released to remove the latch on the resistance roller.

In Figure 9 another embodiment of my invention is shown having a somewhat different form to enable the device to be used differently as a dispenser. The end wall **13***a* of this embodiment has a slot **47** about level with the axis of the supply roll **21**. In order that the lower section of the end wall **13***a* below this slot will be rigid, the corner opening **28** and guide roller **32** are eliminated, and the end wall is joined integrally with the bottom wall. When employed as a cleaner, this embodiment is used in the same way as above described. However, when the device is used only as a dispenser, the tape is drawn through the slot **47**. The positioning of the lower edge **47***a* of this slot is such in relation to the cutter **26** that as the tape is drawn against the cutter it is adhesively engaged with this edge. This leaves a relatively long length L of free tape projecting from the case which can be gripped easily for a succeeding dispensing operation. Moreover, in order to facilitate gripping this free length L, the extending wall **24***a* holding the cutter is hook-shaped to provide access to the length L from the side.

The foregoing embodiments of my invention herein particularly described are intended as illustrative and not necessarily limitative of my invention, since the same are subject to changes and modifications without departure from the spirit of my invention expressed by the following claims.

I claim:

1. A dispenser for pressure-sensitive tape adapted to expose a length thereof for picking up loose particles by the adhesiveness of the tape, comprising a holder for a supply roll of said tape, an exterior wall on said holder for backing the non-adhesive side of said exposed length, said holder having an opening at one end of said wall to enable the tape to be drawn outwardly from said holder across said wall, and a member on said holder in proximity with the other end of said wall for releasably holding the end portion of the tape only by adhesive contact of the tape therewith.

2. The dispenser set forth in claim 1, comprising a feed-resistance roller journalled on said holder at said opening in position to engage the adhesive side of the tape as the tape is drawn outwardly from the holder across said wall, and means on said holder in abutment relation with the outer end of said roller to prevent any substantial longitudinal movement of the roller in directions sidewise of the holder whereby the exposed tape length is held by adhesive contact with said roller against sidewise displacement as said tape length is brushed against an object to be cleaned.

3. The dispenser set forth in claim 1 including a tear off cutter head of said holding member with respect to said other end of said wall in position on said holder to cause the tape to be moved into adhesive contact with said holding member as an incident precedent to drawing the tape against said cutter.

4. A dispenser for pressure-sensitive tape adapted to expose a length thereof for picking up loose particles by the adhesiveness of the tape, comprising a case having means therein for rotatably supporting a supply roll of said tape and having an exterior wall for backing the non-adhesive side of said exposed length, said case having a corner opening at one end of said wall through which the tape can be drawn outwardly from the case across said wall, means on said case at said corner opening for adhesively engaging the tape to add feed resistance to withdrawal of the tape from said roll, and means at the other end of said wall for releasably holding the free end of the tape.

5. A dispenser for pressure-sensitive tape adapted to expose the adhesive side of a length of the tape for cleaning purposes, comprising a holder for a supply roll of said tape, an exterior wall on said holder for backing the non-adhesive side of said exposed length, said holder having an opening at one end of said wall to permit the tape to be drawn from the roll outwardly of the holder and across said wall, means in proximity with the respective ends of said wall and inset with respect to said wall for holding said exposed length against said wall and for preventing sidewise displacement of said length as it is brushed across an object to be cleaned, and means spaced from said holding means at said other end of said wall for cutting off used lengths of the tape.

6. A dispenser for pressure-sensitive tape adapted to expose the adhesive side of a length of the tape for cleaning purposes, comprising a holder for a supply roll of said tape, an exterior wall on said holder for backing the non-adhesive side of said exposed length, said holder having an opening at one end of said wall to permit the tape to be drawn from the roll outwardly of the holder and across said wall, means at said opening to add feed resistance to withdrawal of the tape from said roll, and a hold bar in proximity with the other end of said wall having a surface for holding the free end of the tape only by adhesive contact of the tape therewith, at least a portion of said surface contacting the adhesive side of said tape being at angles less than 180 degrees from the adhesive side of the tape portion leading from said bar to said roll to secure a firm adhesive grip of the tape to said bar sufficient to resist sidewise tugging of the tape caused by brushing said exposed length across an object to be cleaned.

7. A dispenser for pressure-sensitive tape adapted to expose a length of the tape for cleaning purposes, comprising a case having means therein for supporting rotatably a supply roll of said tape and having a base, end walls and a removable side cover, said base being adapted for backing the non-adhesive side of an exposed length of said tape, said case having corner openings between the ends of said base and said end walls respectively, transverse guide rollers on said case in said corner openings respectively across which the tape is moved as it is drawn from said roll through one of said openings across said base and upwardly along the end wall of said case leading from the other of said openings, said guide rollers being inset with respect to said base, another transverse roller on said case at the opening where the tape is drawn therefrom for adhesively engaging the tape to add feed resistance thereto, an exterior transverse hold member on said case adjacent to said end wall and having a surface at least a portion of which confronts said

end wall for holding the end portion of the tape only by adhesive contact of the tape therewith, and a tear-off cutter spaced ahead of said hold member for causing used lengths to be cut off as the tape is drawn against said cutter while leaving a short length projecting ahead of said hold member to be gripped in carrying out a succeeding dispensing operation.

8. A dispenser for pressure-sensitive tape comprising a case having means therein for rotatably supporting a supply roll of said tape and having a removable side cover and a base for seating the dispenser in an upright position, said case having an opening in the end wall thereof at one end of said base through which the tape can be drawn from said supply roll, guide means at said opening inset from said base against which the non-adhesive side of the tape moves as the tape is pulled upwardly along the end wall of said case leading from said opening, a wall extending outwardly from said case, a transverse hold member carried by said extending wall for holding the free end of the tape only by adhesive contact of the tape therewith, and a tear-off cutter on said extending wall ahead of said hold member in position to cause the tape to adhesively engage said hold member as an incident precedent to drawing the tape against said cutter.

9. A dispenser for pressure-sensitive tape comprising a case having means therein for supporting a supply roll of said tape and having a removable side cover and a flat base for seating the dispenser in an upright position, said case having a corner opening at one end of said base, a guide roller in said opening inset from said base so that tape can be drawn from said supply roll partially around said guide roller and upwardly along the end wall of the case which extends from said corner opening without the tape contacting the support on which said base is seated, an exterior wall extending from said end wall, a tear-off cutter on said exterior wall at a distance from said opening, and a hold member between said cutter and said opening for holding the end portion of the tape releasably only by adhesive contact of the tape therewith, said hold member being offset from a line between the lowermost edge of said guide roller and said cutter for causing the tape to adhesively engage said member as it is drawn against said cutter.

10. A dispenser for pressure-sensitive tape adapted to expose a length thereof for picking up loose particles by the adhesiveness of the tape, comprising a holder for a supply roll of said tape, an exterior wall on said holder for backing the non-adhesive side of said exposed length, said holder having an opening at one end of said wall to enable the tape to be drawn out from the holder across said wall, latchable means on said holder at said opening for holding the tape from being unrolled from said supply roll by the forces exerted on said exposed length as said length is brushed against an object to be cleaned, and means at the other end of said wall for holding the free end of the tape firmly to resist said forces.

11. A dispenser for pressure-sensitive tape adapted to expose a length thereof for picking up loose particles by the adhesiveness of the tape, comprising a holder for a supply roll of said tape, an exterior wall on said holder for backing the non-adhesive side of said exposed length, said holder having an opening at one end of said wall to enable the tape to be drawn out from the holder across said wall, a feed-resistance roller journalled on said holder at said opening in position to engage the adhesive side of the tape as the tape is drawn outwardly from the holder across said wall, latching means associated with said roller for locking the latter, manual push means extending from said holder for controlling said latching means, and means at the other end of said wall for releasably holding the free end portion of the tape.

12. A dispenser for pressure-sensitive tape adapted to expose a length thereof for picking up loose particles by the adhesiveness of the tape, comprising a case having means therein for rotatably supporting a supply roll of said tape and having an exterior wall for backing the non-adhesive side of said exposed length, said case having a corner opening at one end of said wall through which tape can be drawn outwardly from the case across said wall, a feed-resistance roller on said case at said opening in position to engage the adhesive side of the tape as the tape is drawn outwardly from the case across said wall, a removable side cover on said case, latch means for said feed-resistance roller comprising a latch member yieldably mounted on said cover and held normally out of engagement with said roller, a push-button on said latch member extending from said cover and pressable to move the latch member in locking engagement with said roller, and means at the other end of said wall for releasably holding the free end portion of the tape.

GEORGE H. FRITZINGER.

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