

Dec. 5, 1944.

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2,364,051

TAPE DISPENSER

Filed Nov. 27, 1941

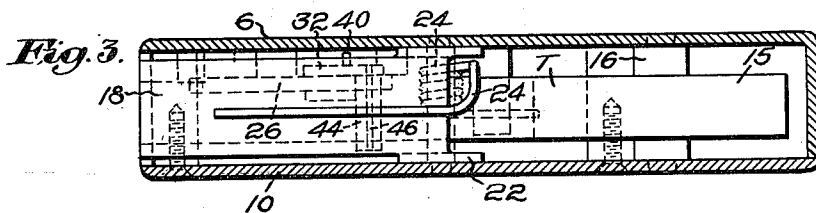
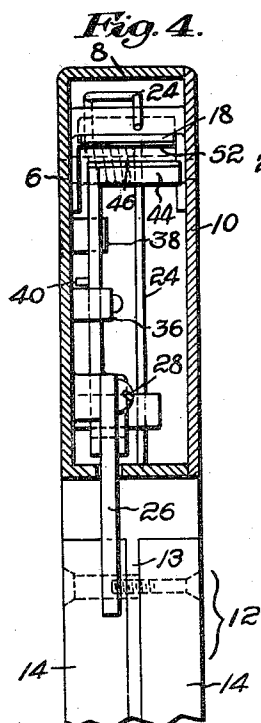


Fig. 1.

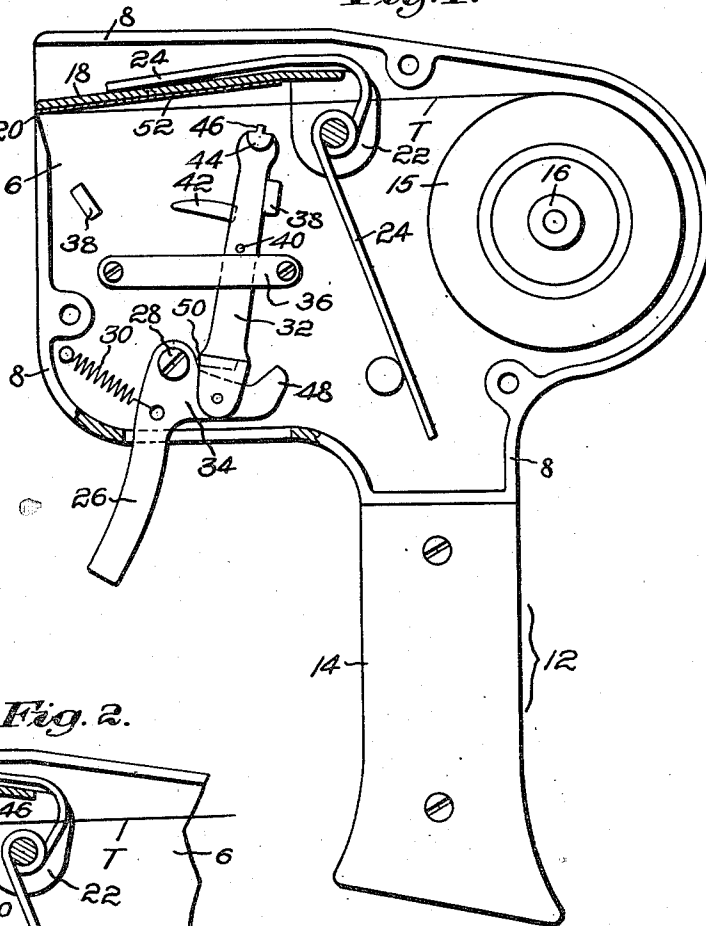
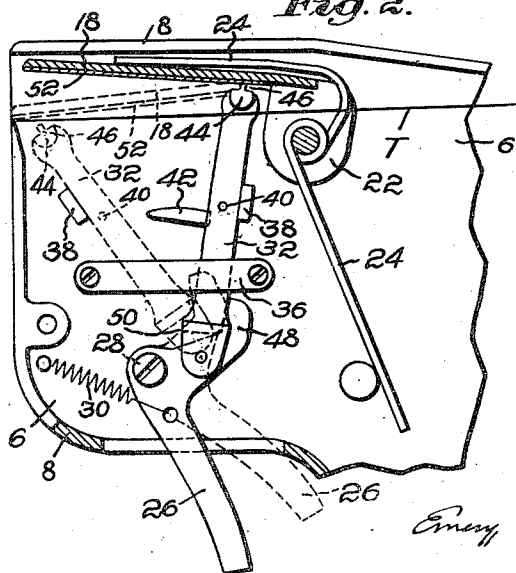


Fig. 2.



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UNITED STATES PATENT OFFICE

2,364,051

TAPE DISPENSER

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Application November 27, 1941, Serial No. 420,696

2 Claims. (Cl. 271—2.5)

This invention relates to a machine for dispensing adhesive tape, more particularly one adapted for use with so-called pressure-sensitive tape, and the primary object is to provide a simple and effective mechanism for drawing a length of such tape from a roll or similar supply in response to an actuating impulse, conveniently manually effected or manually initiated, and delivering it in position for severance. A coordinate object of the invention is to provide a conveniently portable machine adapted to be held and manipulated by a single hand and thus to be brought to the work to which the tape is to be applied for dispensing tape segments in close position relative thereto, and I therefore herein show such a machine as a preferred embodiment of my invention although it will be clear to those skilled in the art that in various aspects thereof my invention is not limited thereto but that constructions similar to that shown may be embodied in machines designed primarily for counter or desk use and either manually or power driven.

My invention will be well understood by reference to the following description taken in connection with the accompanying drawing wherein by way of example I have shown such an embodiment of a machine such as I have previously referred to and wherein:

Fig. 1 is a side elevation with a cover plate removed from the nearer side;

Fig. 2 is a similar view, partly broken away and showing parts in different positions;

Fig. 3 is a top plan view broken away to disclose interior mechanism; and

Fig. 4 is a view from the left of Fig. 1 similarly broken away.

Referring now to the drawing, the machine there shown comprising a base plate 6 on which various elements about to be described are mounted, the plate having a peripheral flange 8 against which may be received a cover plate 10 to form a chamber which encloses such elements. Projecting from the plate 6 is a portion 12 adapted to be grasped and held by one hand in the manner of a pistol butt, the remaining portion then being exposed at one side of the hand and preferably as herein shown projecting over the forefinger and outwardly in the manner of the barrel of a pistol. I herein show (see Fig. 4) grip 12 as formed by a central tang or web 13 depending from the flange 8, to either side of which are secured cheek pieces 14 of wood or the like. It will be understood that the machine is of such weight and contour as to permit it readily to be supported and manipulated by the hand grasping it, the

construction which I am about to describe more in detail permitting its design and manufacture in proportions to permit it to be handled in this manner.

The supply of tape T, which I have illustrated and will herein refer to as a roll 14 since pressure-sensitive tape at the present time is usually packaged in that manner, is mounted on the plate 6 on a spindle 16 and thence may extend along the under-side of an elongated plate 18, hereinafter more fully described, the end of the tape being received between the end portion of the plate 18 and an abutment block 20, herein fixed and located toward the distal end of the machine as a whole relative to the hand, that is, in a position corresponding roughly to the muzzle of a pistol, it being formed in the present instance by the margin of flange 8 where the latter is cut away to form an exit opening for the tape. We may consider in Fig. 1 that any end portion of the tape which at one time may have been to the left of the abutment has been severed from the main supply as by tearing it off against the edge of the plate 18 or the abutment 20 which might serve as a ledger blade for that purpose. The machine, as shown in Fig. 1, is then in what may be considered normal position and ready for operation. The plate 18 is here shown as pivoted to base plate 6 by a lateral ear 22 of the latter remote from abutment 18 and resiliently pressed against the latter by spring 24.

To release the grip of the plate 18 and the abutment 20 on the tape and to feed a length thereof toward the left in Fig. 1 to expose it at the exterior of the casing I utilize a mechanism which in the form of the invention shown is adapted to be actuated by a motion of part of the hand which holds and supports the dispensing mechanism as a whole, preferably by a grasping or closing motion thereof, and I have herein shown an actuating lever or "trigger" 26 pivoted at 28 and projecting downwardly through a slot in flange 8 at a location opposite the portion 12 which provides the hand grip and adapted to be engaged by the forefinger and drawn toward the grip in the manner of the trigger of a firearm to effect the dispensing action. Spring 30 normally positions the trigger in the position of Fig. 1.

In the embodiment of the invention shown, since the abutment 20 is fixed, the dispensing operation as initiated by movement of the lever acts initially to release the end of the tape by rocking upwardly the plate 18 against spring 24, thus opening the normally closed clamp formed by the plate and abutment, and then feeding the

tape along the guideway provided by that plate to project the end portion of the tape beyond the end thereof. For this purpose I may provide a feeding finger 32, the lower end of which is pivoted to a rearwardly extending crank arm 34 at the inner end of the trigger 26. This arm can swing beneath the guiding and retaining strap 36 carried by the base plate 8 and between the opposed stops 38, and it is also provided with a rearwardly projecting pin 40, best seen in Fig. 4, which cooperates with a projecting guide or cam 42 on the base plate in the manner herein-after to be more fully explained. Overhanging forwardly, viewing Fig. 1, from the upper end of the finger is an arm 44 having a rib-like upper engaging portion 46 to engage the tape in the feeding action.

In the operation of the parts when the trigger is pulled the finger 32 first rises to the full line position of Fig. 2, the rib 46 engaging the tape on the under side of the guide plate 18 near the pivot of the latter and swinging the plate upwardly against the action of its spring 24, thus releasing the tape where clamped against the abutment 20. The finger then swings to the left, viewing Fig. 1, feeding a determined length of tape toward the left and out from the casing of the machine, and at the extreme of this swinging movement its normal arc of travel carries its upper end downwardly to the dotted line position of Fig. 2, permitting the plate 18 to reclose on the tape and the finger thereafter returns to the position of Fig. 1, the feed being in the nature of a so-called four-motion feed.

It will be apparent from Figs. 1 and 2 that as the trigger 26 is drawn to the right in Fig. 1, the crank arm 34 will raise the finger which slides along stop 38 to the full line position of Fig. 2 and in so doing will raise pin 40 above the guide 42. The projecting ear 48 on the end of arm 34 then engages the right-hand side of the finger and swings it toward the left, viewing Figs. 1 and 2, the pin then moving over or above the guide 42 until the finger is checked by engaging the left-hand stop 38. On the completion of this movement the engaging portion 46 of the finger has moved downwardly along its arc below the upper end of the abutment 20 to the dotted line position of Fig. 2, permitting the plate 18 to close against the abutment and clamp the tape at the conclusion of the feeding movement. The lower end of finger 32 is formed as a yoke to receive the pivot and, as seen in the figures, this yoke projects, forwardly of the finger in Figs. 2 and 3 or to the right in Fig. 4, so that its web provides a shoulder 50 which opposes the projecting ear of trigger 26 through which passes the pivot 28 as appears from Fig. 4, these surfaces being closely approximated in the dotted line position of Fig. 2. Therefore, when the trigger is released and swings clockwise in response to the spring, the engagement of these shoulders serves to swing the finger back to the position of Fig. 1. As this movement starts pin 40 passes under guide 42 which prevents any upward displacement of the finger during its return movement. The right-hand stop 38 cooperating with finger 32 thus serves as a stop for the trigger against the action of its spring 30 and also positions the finger at the proper angle for initiation of the dispensing cycle as described.

Otherwise to describe the action it might be said that the lower end of finger 32 moves with slight play between the ear 48 and the shoulder 50 on the trigger, the amount of this play per-

mitting the longitudinal upward movement of the finger between the full line positions of Figs. 1 and 2 before it begins to be swung forwardly.

I have here illustrated the under side of the plate 18 as covered with a fabric 52 which I have found facilitates the feeding action.

After a portion of the tape has been projected outwardly of the casing in the manner described, it may be severed at or near the abutment 20, it being held there against ordinary forward draft or against retraction toward the roll, and while any suitable severing means may be provided, for simplicity I have here illustrated the abutment 20 as tapered to a relatively sharp edge providing a sort of ledger blade against which the tape may be torn. Obviously, in the absence of an automatic severing device operating at the conclusion of the feeding movement, repeated retractions of the trigger would serve to dispense a multiple length of tape.

It will be understood that the cover plate 10 is readily removable, permitting the insertion of a roll 15 of tape when it is desired to load or reload the machine, and it will be seen that the parts project in overhanging relation from the plate 6, leaving the nearer side unobstructed so that when the cover plate is removed the tape T may be threaded through the mechanism under the plate 18 and out over the abutment 20 in a convenient manner. The cover plate serves to protect the operating parts and to improve the appearance of the complete machine. Herein I have shown the cover plate (see Fig. 3) as providing an outboard bearing for the tape roll spindle 16 to ensure proper alignment of the roll and easy feeding of the tape.

As already suggested, a major field of application of my device is in handling so-called pressure-sensitive tape which has on one side a permanently tacky adhesive coating, the other side usually being treated to provide a smooth surface to which the coating does not adhere so that the tape may be packaged in a roll and dispensed therefrom. This smooth surface underlies the plate 18 and the sticky face of the extended length of tape is free of adjacent parts of the machine in the position of Fig. 1 and is contacted with only along a thin transverse line by abutment 20. The feeding finger engages the coated face at a single point of its length and feeds it forward with the smooth back sliding along plate 18. The tape thus does not become stuck to parts of the machine, nor can these be gummed up by adhesive transferred thereto. Moreover, the mechanism does not objectionably disrupt or impair the adhesive coating in the operation of feeding it.

I am aware that the invention may be embodied in other specific forms without departing from the spirit or essential attributes thereof, and I therefore desire the present embodiment to be considered in all respects as illustrative and not restrictive, as is in fact clear in several matters from the description itself. Reference is to be had to the appended claims to indicate those principles of the invention exemplified by the particular embodiment described and which I desire to secure by Letters Patent.

I claim:

1. A tape dispenser applicable for use with pressure-sensitive tape comprising a casing having means for supporting a roll of tape and remote therefrom adjacent the exterior of the casing an abutment to support a length of tape withdrawn from the roll and extended between

the package and abutment and over which the end of the tape may be fed to the outside of the dispenser for severance and removal, the space between the roll and abutment being open and free of parts with which the lower face of the so extended tape may make contact, a support overlying said extending portion of the tape having an end portion yieldably pressed against said abutment to retain the tape end, a tape-engaging device normally spaced therefrom, and means for actuating the same through an orbital stroke in a portion of which it engages the lower portion of the tape to press it against the support remote from the abutment and lifts the former from the latter and then traverses along the raised support to the vicinity of the abutment to feed the tape therealong and retracts from the support to reposition the parts.

2. A tape dispenser applicable for use with pressure-sensitive tape comprising a casing having means for supporting a roll of tape and re-

mote therefrom adjacent the exterior of the casing an abutment to support a length of tape withdrawn from the roll and extended between the package and abutment and over which the end of the tape may be fed to the outside of the dispenser for severance and removal, the space between the roll and abutment being open and free of parts with which the lower face of the so extended tape may make contact, means opposing the abutment for clamping the tape thereagainst, a supporting surface overlying the back of the length of tape extended between the roll and the abutment, and means including a feeding finger operable to separate the clamping means and abutment and substantially simultaneously to engage the finger with yielding pressure against the support to press the tape thereagainst and then to traverse the finger along the support to the vicinity of the abutment and there to retract the same.

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