July 1, 1941. J. DOHNAL 2,247,750

TAPE DISPENSING DEVICE

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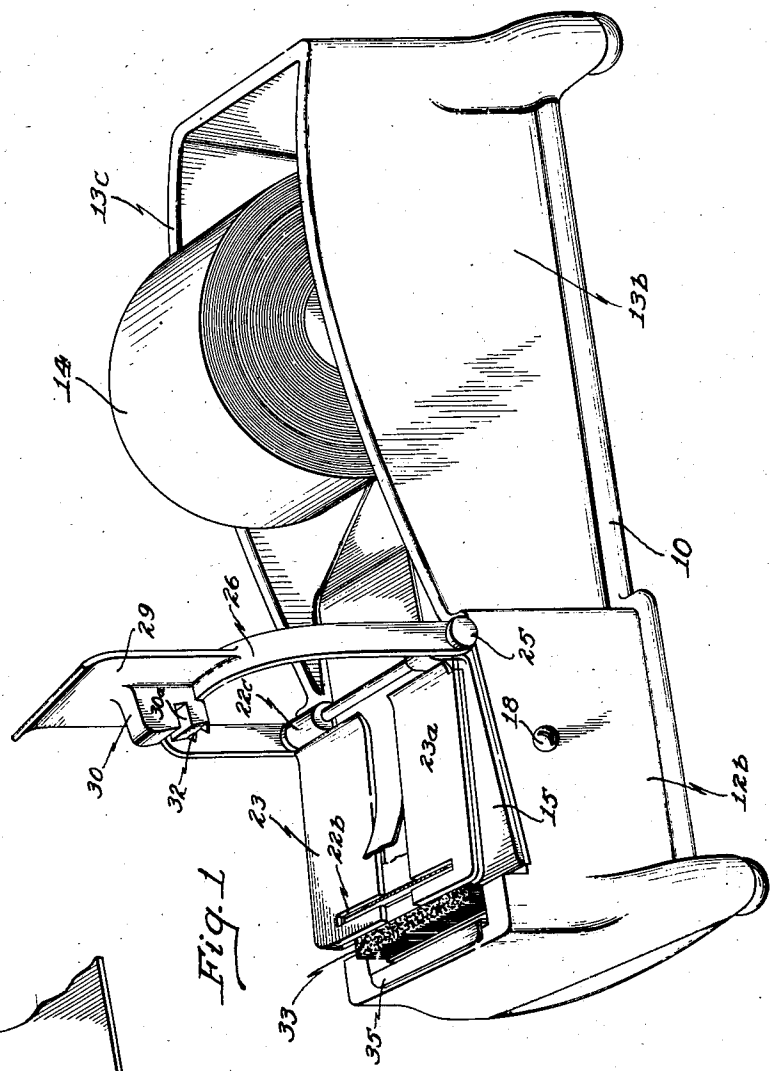


Fig. 1

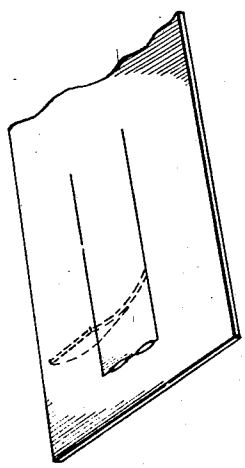


Fig. 2

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Fig. 4

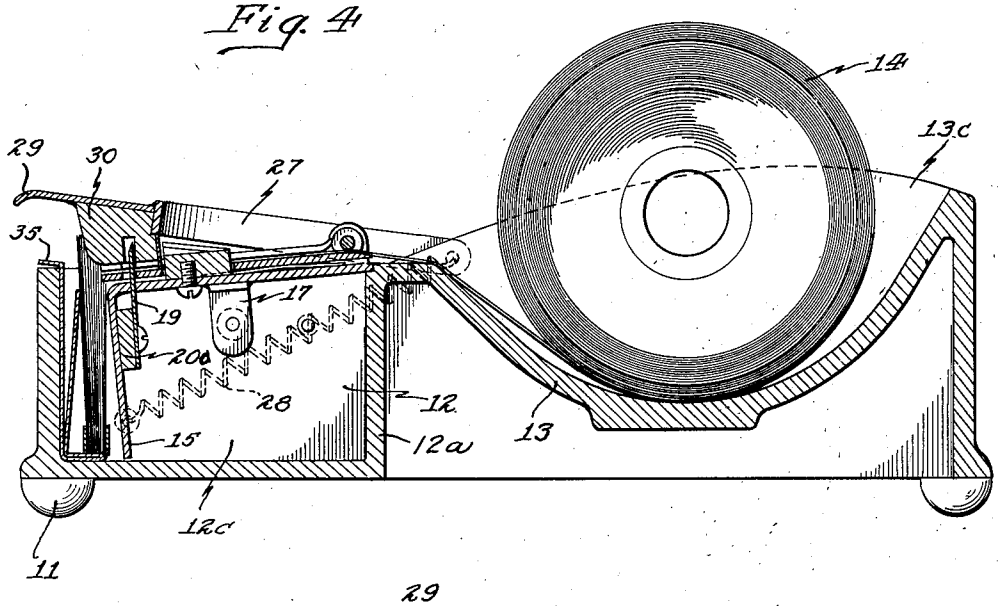
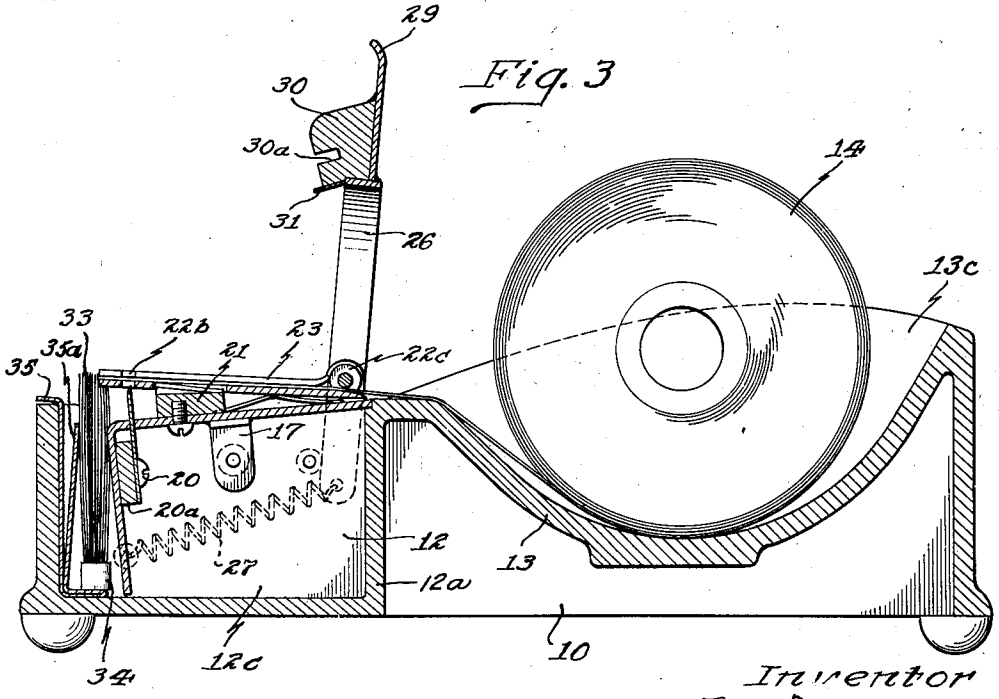


Fig. 3



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Fig. 5

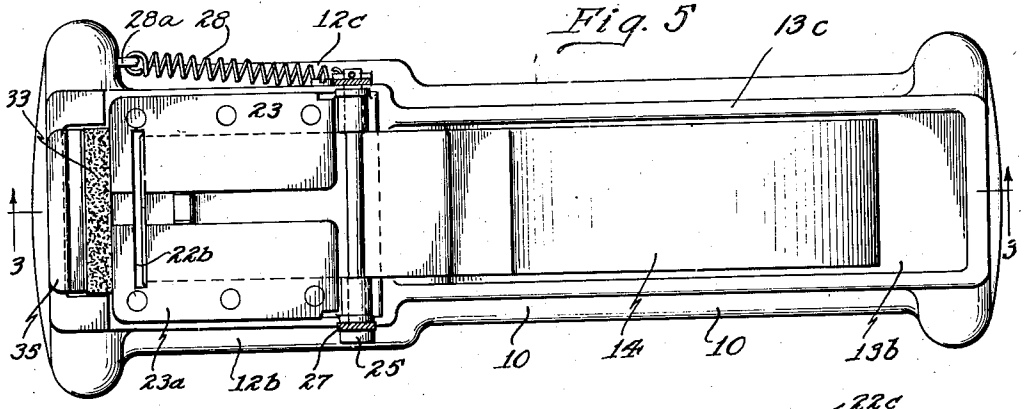


Fig. 6

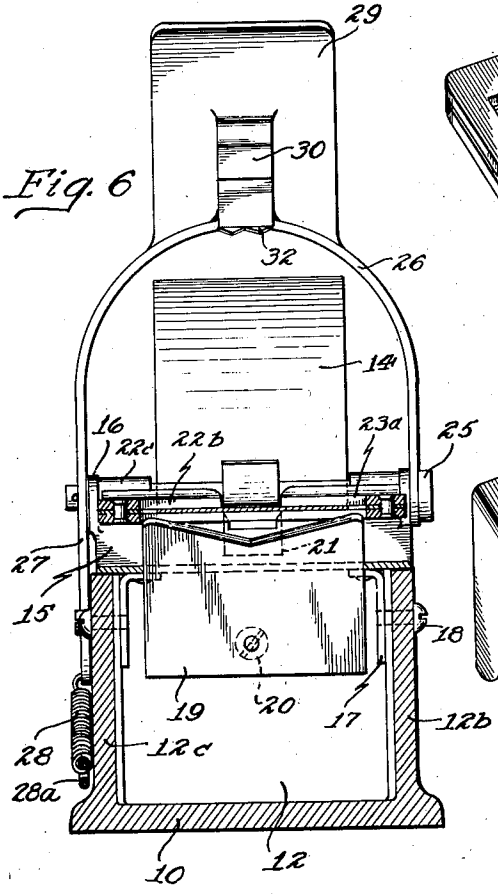


Fig. 7

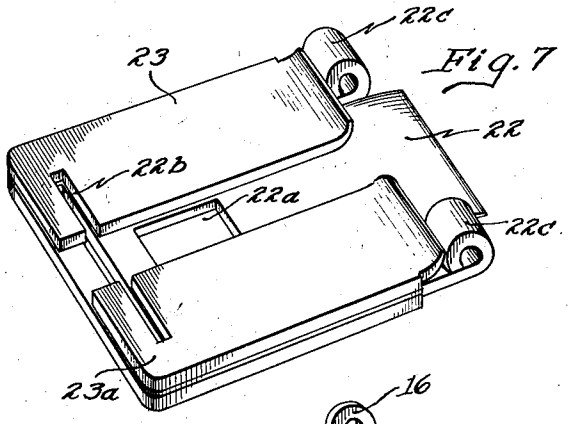
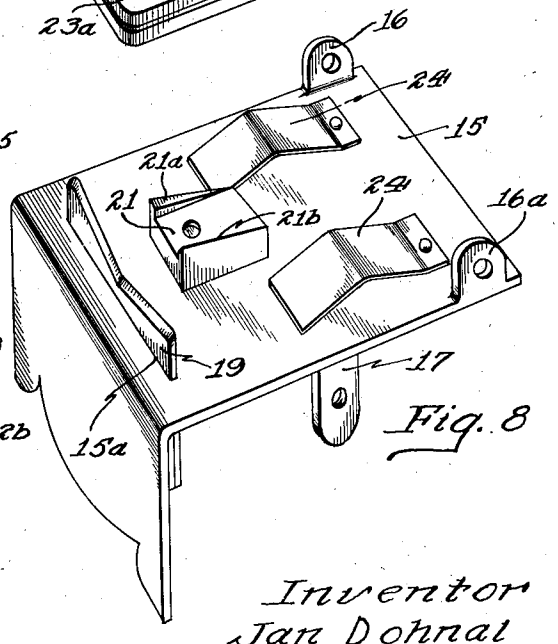


Fig. 8



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UNITED STATES PATENT OFFICE

2,247,750

TAPE DISPENSING DEVICE

Jan Dohnal, Dobris, Bohemia, Czechoslovakia

Application August 19, 1939, Serial No. 291,017

14 Claims. (Cl. 164—36)

My invention is directed to a novel device or machine for dispensing tape, that is, units of the type from which the desired length of tape may be manually withdrawn, cut and used.

The important object of my invention is the provision of a tape dispensing unit including a tape holding receptacle and an adjacent chamber or well containing tape moistening means and other structural parts and having separate means for transversely cutting or severing the tape, separate means for slitting the tape in a longitudinal direction and separate means for causing flexing and projection of a portion of the tape to form a grippable tab.

A further object of my invention is the provision, in combination with a tape roll holding and tape dispensing unit, of a tape guiding platform or member of tunnel-like form through which the tape is withdrawn, and manually actuable means for pivotally moving said tape guiding means to cause the tape to be cut by a transverse blade or knife and to cause the tape to be cut, punctured and drawn along a U-shaped path and to also cause the flexing and projection of such tab for convenient gripping.

A further object of my invention is the provision of an inexpensive and novel tape dispensing receptacle, including a means for holding a gummed tape roll and an enclosure for mechanical parts and tape moistening means, in combination with pivotally or hingedly mounted tunnel-like tape guiding element which is pivoted adjacent one end thereof and providing for manual depression of said tape guiding means and contained tape to cut, shear or sever the tape transversely in cooperation with a stationary knife.

A further object of my invention is the provision of a tape dispensing unit embodying the structural and functional characteristics recited in the last preceding paragraph and having in addition thereto a normally stationary tape slitting element and manually actuable carrier member or means adapted to be moved to depress and pivot the tape guiding member to both cut the tape transversely and to cut, form and project an integral portion of the tape to provide a conveniently grippable tab.

A further object of my invention is to provide suitable mechanism, in combination with a gummed tape dispensing device wherein the tape is guided along a desired path and suitably moistened on its under surface, of stationary means which form a pair of spaced apart longitudinally extending slits in the tape, separate means for piercing and tearing the tape between said slits, and also providing for flexing and projecting the tab thereby formed from the normal plane of the tape.

Other and further important objects of my invention will be apparent in the following description and claims.

This invention, in a preferred and illustrated form only, is illustrated in the accompanying drawings and described in the accompanying specification, it being understood that the structural features and essence of my invention may assume various modifications and structural changes without departing from the essence and spirit of my invention.

On the drawings—

Fig. 1 is a perspective view of the tape dispensing device of my invention taken substantially from a side.

Fig. 2 is a perspective view of a fragment of a piece of tape which has been withdrawn and cut and tab formed and projected from my device.

Fig. 3 is a cross sectional view taken through its central longitudinal plane as indicated on line 3—3 of Fig. 5.

Fig. 4 is a longitudinal cross-section taken on the same line as Fig. 3, though illustrating the device in lowered position after cutting the tape and cutting, tearing and projecting a tab.

Fig. 5 is a top plan view of my tape dispensing device.

Fig. 6 is a partially cross-sectional view taken through a vertical section of the well.

Fig. 7 is an enlarged perspective view of the pivotally movable tab guiding and supporting platform removed from the device.

Fig. 8 is an enlarged perspective view of the bracket and other parts supported thereby, and normally contained in the well.

As shown on the drawings—

The reference numeral **10** designates a casing preferably made of suitable metal which has downwardly extending integral supporting legs **11**, and which forms a suitable compartment or well **12**, defined by integral vertically extending walls **12***a* and **12***b*, **12***c*, and **12***d*. The longer portion of the casing is so formed so that it defines a concave bottom **13** and vertically extending integral opposite side walls **13***c* and **13***b* respectively, said concave bottom and said side walls forming a suitable elongated receptacle for holding a roll of paper tape, preferably of the type having one surface gummed. Numeral **14** illustrates a roll of gum tape mounted within the tape receptacle.

Reference numeral 15 designates an angular metal bracket preferably of metal, and of right angle cross-section, which has a pair of perpendicularly extending ears 16 and 16a integral with the opposite lateral edges and adjacent the end of its upper portion, as clearly indicated in Fig. 8 and which also has connected to its upper portion a pair of right angle metal securing brackets 17 which are suitably apertured for the reception of a pair of removable securing bolts or rivets 18. Said securing bolts 18 pass through suitably located apertures formed in the walls 12b and 12c of the casing 10, and these brackets 17 firmly mount the right angle bracket 15 in the well 12 preferably in the slightly inclined position illustrated in Figs. 3 and 4, and wherein the lower end of the bracket rests upon the bottom of the well. It is to be noted that the upper portion of the bracket 15 substantially traverses the upper portion of the well 12 and is preferably inclined with relation to the upper peripheral edges of the well.

As shown in Figs. 3, 4 and 8, the angled bracket 15 is provided with a transversely extending slot 15a through which the upper portion of a substantial flat cutting blade 19 extends, the lower end of the cutting plate being suitably mounted with respect to the downwardly extending portion of bracket 15, by means of suitable threaded screws 20 and spacing block 20a. The upper bevelled and sharpened edge of the cutting blade 19 is preferably V-shaped, that is, converging and inclined downwardly toward a central apex.

Securely mounted upon the central portion of the bracket plate 15 is a tab cutting, severing or forming element 21 which is preferably a substantially rectangular area and which is provided with a pair of spaced-apart integral upwardly extending rearwardly inclined side edges 21a and 21b, said block-like cutting, slitting and tab forming element being secured to the bracket 15 by a suitable rivet as shown.

An important feature of my invention consists in the tape guiding means or tape guiding unit or element which cooperates with other physical parts as hereinafter more fully described, this being designated generally by the reference numeral 22 and consisting principally of a substantially flat plate having a central aperture 22a and a transversely extending slot 22b formed adjacent its free end and forwardly of said central aperture. Said central aperture 22a is preferably rectangular and of a size so that its opposite lateral edges will effect a shearing action with the inclined sharpened cutting blades or cutting edges 21a and 21b of the tab forming cutter and unit 21.

The pivotally mounted tape guide means aforesaid includes a pair of spaced-apart substantially rectangular metal side plates 23 and 23a, as shown in enlarged view in Figs. 1 and 7, and whose inner edges are so spaced-apart as to expose the longitudinal central portion of the tape being passed therethrough, and further to substantially coincide with the opposite lateral edges of the rectangular aperture 22a. The side and guide plates 23 are preferably secured to the main plate 22 along the outer edges by means of welding, rivets or equivalent fastening means. The tape guide plate 22 aforedescribed is provided along one edge with spaced-apart aligned hinged knuckles 22c as clearly indicated in the drawings and which provide means whereby said plate and guide member is pivotally mounted with respect to the margin and well in the manner illustrated in the drawings.

Reference numeral 24 represents a pair of spaced-apart springs which are preferably secured at one end to the top portion of the bracket plate 15, and which are flexed upwardly and which are adapted to normally hold the tape guiding plate 22 and associated parts in elevated positions such as illustrated, particularly in Fig. 3. Referring to Figs. 1, 3, 4, and 5, it will be seen that the tape is normally passed from the surface of the roll lying upon the bottom 13 of the tape receptacle and into the longitudinally extending channel or passage formed by the pivoted plate 22 and the spaced-apart side guide plates 23 and projecting forwardly, at least as far as the point at which the tape has been cut off or severed transversely. It will further be apparent that manual depression of the pivoted guide plate 22 on its horizontally extending pintle 25 first causes the forward portions or ends of the inclined spaced-apart cutting blades 21a and 21b to begin to slit the paper along two spaced-apart lines. As the downward depression of the guide plate 22 continues with the contained tape, the spaced apart cutting edges or cutting blades 21a and 21b form two spaced apart slits in the tape of substantially equal length, and as said downward movement and slitting action has taken place, the tape has been pressed against the transversely extending cutting knife or cutting blade 19, which cuts off said tape first from its outer edges and gradually toward a central point until it is completely cut off. The downward movement of the guide plate 22 with a tape guide therein is, of course, against the normal spring action of springs 24, and when guide plate 22 and its associated parts and the contained tape have been moved to only partially lowered position by direct manual actuation without the aid of any hereinafter described structure, the tape will have been cut off transversely by the knife 19 and the spaced apart slots will have been made by the aforedescribed penetration or cutting action of the side cutting edges 21a and 21b. However, while the aforedescribed construction provides a satisfactory tape dispensing unit and means for cutting off lengths of tape, it is to be understood that my complete invention includes parts hereinafter described which cooperate with the aforesaid tape slitting means to pierce, tear and to sever a portion of the tape between said longitudinal slits to form a grippable tab.

My complete invention includes a yoke-like carrier member 26 which is somewhat similar to an inverted U which is provided at one side with an extended portion 27 which is apertured and which is connected by a suitable spring 28 to the lower and outwardly extending eyelet 28a on the projecting leg portion of the well 12a. Formed integral with the intermediate and normally upper portion of the yoke 26 is a handle portion 29 in the form of a substantially flat plate and which also has thereon, preferably formed integral therewith a perpendicularly extending recessed boss 30 as clearly shown in Figs. 1, 3 and 4. Said boss 30 is provided with the transverse recess 30a which when the yoke 26 is lowered to tape cutting position, will register with and receive the central portion of the transverse cutting blade 19, as indicated in the position illustrated in Fig. 4.

The projecting boss 30 is provided at one end with a relatively small plate or blade 31 which terminates in integral projecting teeth 32 as

clearly illustrated in Figs. 1 and 6. The teeth 32 are so positioned that when the carrier member 26 is pivoted toward the lowermost position illustrated in Fig. 4, thereby pivoting the top guide unit 22 and tape downwardly, the teeth 32 penetrate and pierce the tape between the spaced apart slits which have first been formed by the depression of the tape against the longitudinally extending cutting blades 21*a* and 21*b*, and continued depression upon the carrier member (that is, the latter portion of the downward movement) causes an actual tearing of the portion of the tape between the forward ends of the two slits formed by the cutting blades 21*a* and 21*b*, that is, the path of said tear is a continuation from the holes formed by the penetration of the relatively pointed teeth 32 to the side slits. This tearing action is principally due to the fact that as the guide tape is depressed toward lowermost position, the teeth 32 are in a position immediately adjacent the forward edge of the block 21, and the block 21 with its spaced apart blades 21*a* and 21*b* forces the tongue or tab to bend upwardly for convenient gripping.

When the carrier member 28 and the tape guiding means aforedescribed have been lowered to the lowermost position, a length of tape has been severed, that is, the length which has been manually pulled beyond the transverse knife 19, the tongue or tab has been slit, torn and flexed upwardly to provide a convenient grippable extension so that when the operator desires to pull out another length of tape, the upwardly bent tab will not come in contact with the moistening device, and the fingers gripping such tape will be maintained out of contact with the moistening device to maintain them dry and free from glue and moisture.

As clearly shown in the drawings, I provide a moisture device which preferably works upon the capillary principle and which includes the suitable soft bristle brush 33 which is suitably bound by a band or clamp 34 and mounted in the well 12 in an inverted position so that the ends of the bristles will preferably be at a height to constantly contact the undergummed surface of the tape passing through the machine. As the tape is always drawn toward the operator, and in order to maintain the bristles of said brush in a position substantially adjacent to the downwardly extending portion of the bracket 15, as illustrated in Figs. 3 and 4, I provide a flat metal spring 35 which is preferably formed of a single piece of spring steel which has been doubled back upon itself as indicated and a doubled back portion again bent at right angles to form a support for the bound end of the brush 33. One of the free ends designated by reference numeral 35*a* of said spring is preferably shorter and bent slightly inwardly toward the brush in order to maintain the bristles of the brush in a desired position so that when the gummed tape is pulled from the machine, the bristles will not undesirably bend over, but will properly engage the gummed surface to moisten the same. A spring of this construction also provides for quick and convenient removal both of the spring and of the brush either when the brush is to be cleaned or when the machine is to be partly disassembled.

Referring to Fig. 2, this illustrates a segment of tape which has been withdrawn from the machine, and in which the upwardly extending or projecting tab was partially cut and partially torn upon the withdrawal and cutting off and removal of a previous piece of tape; in other words, as one length or segment of tape is withdrawn to the desired length beyond the transverse cutting knife 19, the manual movement described hereinbefore of the carrier member 26 moves the guided tape against the cutting knife 19 to sever the same transversely and simultaneously causes the parallel inclined cutting edges 21*a* and 21*b* to first form parallel slits and to immediately thereafter cause penetration of teeth 32 through the tape between the ends of said parallel slits, the path of which tear includes the punctures or holes formed by teeth 32. It will be obvious that the continued downward depression upon the handled portion or plate of carrier member 28 causes the tab thereby slit and torn to be projected upward for convenient gripping to permit withdrawal of the next length of tape.

Removal of the hand from the flat plate of carrier member 28 causes the return of same to its upward elevated position such as shown in Fig. 3, from which the aforedescribed operation may be repeated as described.

Various changes may be made in the embodiment of the invention herein specifically described without departing from or sacrificing any of the advantages of the invention or any features thereof, and nothing herein shall be construed as limitations upon the invention, its concept or structural embodiment as to the whole or any part thereof except as defined in the appended claims.

I claim:

1. In a tape dispensing unit, a casing including a tape roll receptacle, said tape receptacle opening upwardly; a bracket in said casing and extending across the top thereof; a cutting blade connected to said bracket and extending transversely of said casing; a projecting member mounted on top of said bracket and carrying a pair of inclined cutting blades extending in a direction substantially perpendicularly to said transverse cutting knife; a depressible platform above said bracket pivoted for vertical movement, said platform having a central aperture and a transverse slot, said transverse cutting blade being adapted upon downward movement of said platform, to cause said transverse recess to receive said cutting blade and to cause said projecting member and inclined cutting blades to project through said central aperture; and manually actuable means for partially piercing a portion of a tape between the slits formed by said inclined cutter blades and for causing a tearing of such tape portion to thereby cause said projecting member to project the cut and torn tab upwardly from the plane of the tape.

2. In a package sealing machine comprising a casing including a compartment for a paper roll, a bracket in said casing and traversing the same across the upper portion thereof; a block-like member mounted on said bracket; a pair of inclined substantially parallel cutting blades on the opposite lateral sides of said block-like member; a pivotally mounted platform pivoted at one edge; means on said platform for guiding tape therethrough and leaving the central portion of the tape exposed, said platform having a central aperture and a forward transverse slot; a substantially transverse cutting knife mounted with respect to said bracket; and manually actuable means pivotally connected with respect to said casing and including a projecting boss and projecting teeth and adapted, when

pivoted, to depress said platform, to cause said tape to be cut transversely and to cause said cutter blades to form spaced apart slits; said projecting teeth and said boss causing cutting and tearing of said tape between the said slits and upward projection of the tab thereby formed.

3. In a tape dispensing machine comprising a casing including a paper roll compartment; a pivotally mounted platform; means for guiding a tape on said platform, said platform having a transverse forward slot and a rectangular aperture; spring means for normally holding said platform in upper position; a cutting element mounted below said platform in its normal position and in registry with said rectangular aperture and adapted to form a pair of longitudinal, spaced apart slits in the tape; a transverse cutting knife mounted below said slot of said platform; a manually actuable carrier member pivotally mounted adjacent to the upper edge of said casing; a projecting member on said carrier member; a plurality of taper severing elements on said carrier member; the downward pivoting movement of said carrier member causing said tape contained therein to be cut transversely by said cutting knife and causing said cutting element to form spaced apart slits in said tape, said plurality of tape severing elements being adapted to pierce or sever the tape between said slits, and the downward movement of said platform causing said rectangular block to project the formed tab upwardly.

4. In a package sealing device comprising a casing forming a tape roll receptacle; means for supporting and guiding a tape across a top portion of said casing, said means including a pivotally mounted longitudinally tunneled platform having a transverse slot and a substantially central aperture; a transversely extending cutting knife mounted below the transverse slot of said platform; a cutting element below the central aperture of said platform and adapted to form spaced apart slits in the portion of a tape overlying said cutting element when said platform is depressed; and a manually actuable pivotally mounted carrier member adapted to partially sever the area of the tape between said slits, the extreme downward movement of said platform being adapted to cause the tape to be severed transversely and being adapted to form a grippable tab and project said tab upwardly.

5. A package sealing device having a casing including a tape roll holding receptacle; a bracket having a portion thereof extending across the top of said casing; a stationary transversely extending cutting knife on said bracket; a cutting element on said bracket and including a pair of spaced apart cutting blades; means for normally guiding and supporting the tape over said well and including a slot and apertured pivotally mounted platform, said spaced apart cutter blades being adapted to form slits in a tape; manually actuable means for puncturing and tearing the portion of the tape between said spaced apart slits to thereby form a grippable tab; the depression of said platform and said manually actuable means being adapted to form said tab and project the same upwardly and cut said tape transversely.

6. In a sealing machine for dispensing gum tape; a casing having a pair of upwardly opening compartments, one of said compartments being adapted to receive a tape; a metal mounting plate extending across said second compartment; a transversely extending blade projecting above said mounting plate; a tape guiding member having a longitudinal and a transverse recess and a central aperture, said tape guiding member being pivoted adjacent its edge nearest said tape compartment; a tab cutting element mounted on said mounting plate and below said central aperture of said tape guiding member; spring means for normally holding said tape guiding member in position above said tab cutting device and said transverse blade, the depression of said pivoted tape guiding member causing said tape to be pressed against said tab cutting element at the area of said central aperture to form and project a tab thereof and to cut said tape transversely.

7. In a sealing machine for dispensing gum tape; a casing having a pair of upwardly opening compartments, one compartment being adapted to receive a tape; a metal mounting plate extending across said second compartment; a transversely extending blade projecting above said mounting plate; a tape guiding member having a longitudinal and a transverse recess and a substantially central aperture, said tape guiding member being pivoted adjacent one of its edges; a tab cutting element mounted on said mounting plate and below said central aperture of said tape guiding member; spring means for normally holding said tape guiding member in position above said tab cutting and severing device and said transverse blade and manually actuable means for depressing said tape guiding member to cause said tape to be pressed against said tab cutting element and to cause said tab cutting element to cut the sides of a tab, said last mentioned manually actuable means being adapted to puncture and sever said tape between said slits and to cause upward projection of said tab above the tape.

8. In a device for dispensing gum tape including a casing having a gum tape roll receptacle and an adjacent chamber; a supported transverse blade mounted within said chamber; means for guiding a tape over the upper portion of said chamber, said tape guiding means having a transverse slot and a centrally aligned aperture; means for forming a pair of spaced-apart slits upon depression of said tape and supported in said chamber; a manually depressible carrier member pivotally mounted adjacent the upper edge of said chamber; and a plurality of projecting teeth carried by said carrier member and adapted when lowered to pierce said tape between said slits, the full downward movement of said carrier member and said tape guiding means being adapted to cause slitting, tearing and upward projection of a grippable tab.

9. In a device for dispensing gum tape or the like, a casing including a chamber, a stationary knife for cutting tape transversely; and means for guiding the tape above said cutting knife, said tape guiding means being pivotally mounted along one edge and adapted to press a tape therein against said knife to sever the same transversely.

10. In a device for dispensing gum tape or the like, a casing including a chamber, a stationary knife for cutting tape transversely; and means for guiding the tape above said cutting knife, said tape guiding means being pivotally mounted along one edge and adapted to press a tape therein against said knife to sever the same transversely, and means for slitting and tearing

a portion of the tape and projecting said portion to form a grippable tab, upon downward movement of said tape guiding means and contained tape.

11. In a device for dispensing gum tape or the like, a casing including a roll tape chamber, a stationary knife for cutting tape transversely; means for guiding the tape above said cutting knife, a tab cutting and severing element before the path of said tape, said tape guiding means being pivotally mounted along one edge and adapted to permit pressing of a tape therein against said tab cutting and severing element to sever a segment of the tape to form a projecting tab and to cause said knife to sever said tape transversely; and a manually operable carrier member pivotally mounted adjacent said tape guiding means and adapted to be pivoted downwardly to transmit depressing movement to said tape guiding means to cause forming of said tab and severing of said tape.

12. In a tape dispensing device a casing having a receptacle for loosely holding a tape roll and having an adjacent wall; an angular bracket member mounted adjacent one wall of said receptacle and having an upwardly extending portion; a transversely extending stationary cutter blade mounted on said bracket and extending above said bracket; a stationary element on the top of said bracket and having inclined cutting blades on the opposite lateral sides thereof; a transversely slotted platform disposed above said bracket and above said stationary element and hingedly mounted at the edge thereof adjacent to the wall of said tape roll receptacle; springs below said hinged platform for normally holding same in its upper position above said cutter blade, means on said platform for guiding a tape thereon; a pivotally mounted yoke straddling said platform; a recessed projecting boss on said yoke; a plurality of teeth carried by said boss, the manual actuation of said yoke being adapted to cause said boss to pivot said platform and the tape therein downwardly to cause said cutter blade to cut off a length of tape and to cause said lateral cutting blades to slit said tape longitudinally and to cause said teeth on said boss to pierce and tear said tape between said longitudinal slits to thereby form a grippable tab.

13. In a sealing machine for packages or the like comprising a compartment for holding a roll of tape; and a second adjacent compartment; a subtsantially flat metal top plate extending across said second compartment; a transversely extending cutter-blade projecting above said plate; a transversely recessed and longitudinally channelled guide member pivoted adjacent the juncture of said tape compartment and said second compartment and adapted to guide the tape; spring means for normally holding said tape guiding member in uppermost position; means on said top plate for forming a tab in the tape upon downward depression of said guide member including a pair of spaced apart upwardly projecting cutter-blades adapted to slit the tape and means for severing the tape between said slits and adapted to flex such tab upwardly.

14. In a device for dispensing gum tape or the like, a casing including a roll tape chamber; a stationary knife for cutting tape transversely; a tab cutting element mounted below said tape guide member; a slotted and pivotally mounted guide member for guiding the tape above said cutting knife and above said tab cutting element, means for returning said pivotally mounted guide member to normal upper position; a manually actuable element pivotally connected to said casing for depressing said tape guiding member against said knife and against said tab cutting element, the depression of said tape guide member being adapted to press a tape therein against said tab cutting and severing element to sever a segment of the tape and to form a projectable tab in a portion of the tape in said guide member.

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