

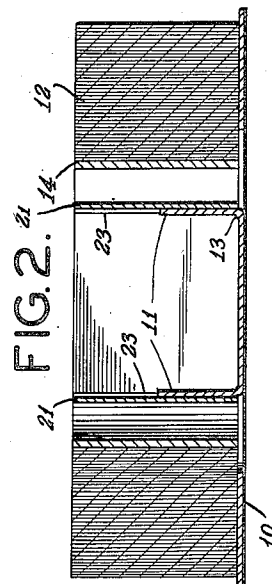
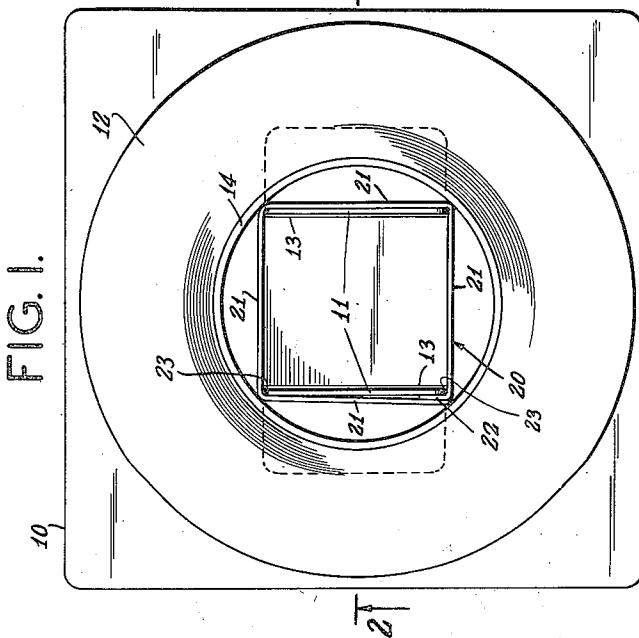
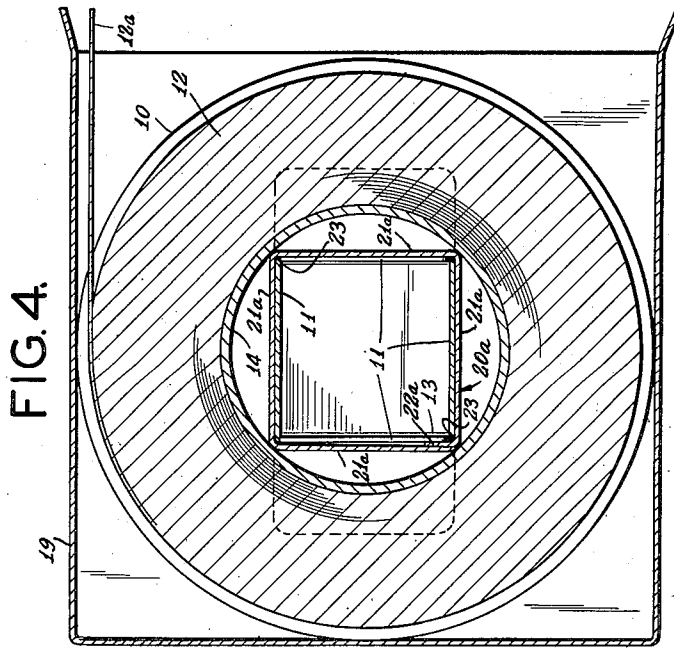
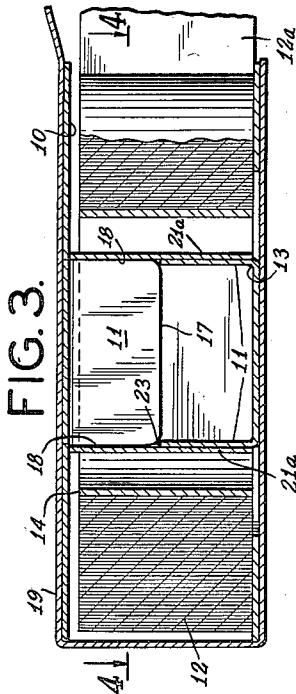
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HOLDER FOR ROLLS OF TAPE WITH INSERTS

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HOLDER FOR ROLLS OF TAPE WITH
INSERTS

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3 Claims. (Cl. 206—52)

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This invention relates to an improved holder for rolls of tape such as masking tape and other re-usable tapes.

This application is a continuation-in-part of my U. S. application Serial No. 154,808 for a "Holder for a Roll of Tape," filed April 8, 1950.

Masking tapes and other re-usable tapes are commonly wound in cylindrical form on a hollow cardboard center core. The tape is frequently sensitive to pressure thereon and deteriorates from such pressure. This raises difficulties in the shipment and handling thereof.

In order to meet these difficulties, it is preferable to pack each roll of tape in its carton in such a manner that the longitudinal side wall of the roll is prevented from abutting the side walls of the carton. It is possible to design a special carton with flaps which cooperate with the core of the roll of tape and prevent it from touching the side walls of the carton. However, such a construction is not satisfactory when it is desired to pack a plurality of rolls of tape in one carton, and furthermore the roll of tape is subject to undue handling when it is removed from the carton.

My above-mentioned U. S. application Serial No. 154,808 discloses an individual holder insert for each roll of tape. The invention disclosed in the instant application relates to a holder insert of modified construction which is particularly suitable for use with rolls of tape of a thickness of two inches or more, which are the heavier commercial types of re-usable tape rolls.

The improved holder comprises a base member with a pair of complementary opposed integral flaps. These flaps are substantially rectangular and may be respectively bent under tension at right angles to the base. An insert with a square cross-section is also provided. It may be brought into abutment with the base with the outer surfaces of the flaps bearing outwardly against respective opposite walls of said insert. Also, the side edges of the flaps respectively abut the other two walls of the insert.

One of the end faces of the roll of tape may be placed in abutment with the base member, with said insert extending through the core opening of said roll. The longitudinal corner edges of the insert respectively abut the longitudinal side wall of said core opening and permit the roll to turn with respect to the holder. However, the construction is such that lateral movement of the roll with respect to the holder is strongly resisted.

If a still stronger construction is desired, a

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second holder may be mounted on the other end face of the tape roll, with the flaps of this second holder preferably oriented at right angles to the flaps of the first holder. Optionally, the height of the insert may be made slightly greater than the thickness of the roll; and as a result the roll may be turned with almost no pressure being exerted on its end faces.

Other objects and advantages of this invention will be apparent from the following description and the annexed drawings, in which preferred embodiments are disclosed.

In the drawings:

Fig. 1 is a plan view showing a roll of tape mounted on a holder insert;

Fig. 2 is a section on line 2—2 of Fig. 1;

Fig. 3 is a vertical section showing a roll of tape mounted on upper and lower holders and packed in a carton; and

Fig. 4 is a section on line 4—4 of Fig. 3.

Upon reference to the drawings in detail, and in particular to Figs. 1 and 2, it will be seen that the improved holder comprises a base 10 with integral flaps 11 which are interfitted with insert 20. Tape roll 12 is in turn interfitted with this insert 20.

This tape roll 12 is conventional and comprises tape of any suitable type, which is wound in layers around center core 14. This core 14 is generally made of cardboard or other material and is cylindrical in shape with open ends. Tape roll 12 is also cylindrical in shape with substantially parallel and planar end faces.

The invention is particularly useful when tape roll 12 is a masking tape or other type of tape which is sensitive to pressure thereon. This is because the holder tends to prevent the longitudinal side wall of roll 12 from coming into contact with the wall of any container in which said roll 12 might be placed.

Base 10 and flaps 11 are preferably punched from a single blank, with flaps 11 integral with base member 10. Insert 20 is preferably punched from a second blank and suitably scored so that it may be folded and secured in its final shape. These blanks may be made of a suitable material which is relatively inexpensive, and which is stiff but permits sufficient articulation of flaps 11 and insert 20. Such a material may be one of a number of types of paper board, including kraft board, fibre board, corrugated board and cardboard. Vulcanized fibre may also be used. However, the invention is not limited to these materials.

The blanks may be unfinished, but the blank

from which base 10 is formed is preferably coated or impregnated with wax or other suitable material to prevent roll 12 from sticking to base 10 by reason of the exuding from between the layers of the tape of the rubber adhesive compositions used in making pressure sensitive tapes. Any suitable material may be used to make this exuded material non-adherent to the surface of base 10. If rolls of tape, as mounted on these holders, are to be stacked, both surfaces of base 10 will abut end face of a tape roll 12; and therefore both faces of base 10 should be treated in the above manner.

One important advantage of this treatment of the blank with wax is that it permits free turnability of roll 12 with respect to base 10.

Base 10 may be of any desired size and shape, so long as roll 12 nowhere protrudes over the edge of said base 10 when mounted thereon. Base 10 may be square with rounded corners, as clearly shown in Fig. 1, or round as clearly shown in Fig. 4. However, the invention is not limited to these shapes of base 10.

Flaps 11 oppose each other and are respectively cut out from base 10 and are connected thereto by means of respective hinge lines 13. These hinge lines 13 are preferably parallel and equidistant from the center of base 10. Each flap 11 is preferably substantially rectangular in shape, save that its detached corners may optionally be rounded. Each flap 11 has detached peripheral side edges 18 and a detached peripheral connecting edge 17.

Hinge lines 13 are so formed that flaps 11 tend to return to the plane of base 10 when their respective detached edges 17 are held away from said plane. When flaps 11 are respectively bent 90° from the plane of base 10, until said flaps 11 are substantially parallel, they exert a considerable force in opposite directions.

When flaps 11 are thus bent until they are parallel, they are adapted to be inserted in insert 20. This insert 20 comprises four substantially rectangular wall panels 21 and a glue flap 22. These walls 21 are joined at three corner edges by respective scored hinge lines 23. Glue flap 22 is hingedly connected to one of the walls 21 at the fourth corner edge by means of a fourth scored hinge line 23. Glue flap 22 is glued or secured by other suitable means to the inside of the other wall 23 which is adjacent to said fourth corner edge.

As a result of this construction, insert 20 may be folded until it is substantially flat, and it may also be folded into a position in which it is substantially square in cross-section. When insert 20 is in this latter position, it may be interfitted with base 10 and flaps 11, with the base edges of walls 21 in abutment with said base 10 and said flaps 11 respectively bearing against respective opposed walls 21. In this interfitting position, the side edges 18 of flaps 11 respectively approximately abut the walls 21 adjacent to the walls 21 against which these flaps 11 bear.

After the holder has been thus formed by the assembly of base 10 and flaps 11 with insert 20, the holder may be assembled with tape roll 12, with one end face of roll 12 adjacent base 10 and with insert 20 inserted within core 14. The four corner edges of insert 20 respectively approximately abut the inner wall of core 14. Core 14 is sufficiently loosely held by insert 20 so as to be turnable with respect thereto, but lateral movement of roll 12 is limited.

The above construction resists transverse force

on the longitudinal side wall of roll 12. Any force on one of the two walls 21 against which a respective flap 11 bears is resisted by the outward force exerted by that flap 11. Any force on either of the other two walls 21 is strongly resisted, because that wall 21 bears against respective side edges 18 of the flaps 11.

This holder may be constructed for use with tape rolls 12 of varying dimensions. Thus the diameter of the inner wall of core 14 may be of any value d . In that case, each wall 21 is of a width approximately $\frac{1}{2}\sqrt{2d}$. Making allowance for the thickness of score lines 13 and of walls, 21, the length of each score line 13 is also approximately $\frac{1}{2}\sqrt{2d}$, and the distance between said score lines 13 is approximately $\frac{1}{2}\sqrt{2d}$.

The height of insert 20 may be any desired fraction of the height or thickness of core 14. In Fig. 2, holder 21 is shown as having the same height as core 14. This facilitates stacking of a plurality of tape rolls 12, each mounted on holders. Optionally, the height of insert 20 may be less than that of core 14.

The distance between hinge line 13 and edge 18 of each flap 11 may be any desired fraction of the height of insert 20, this distance being shown in the drawings as one-half said height of insert 20.

It has been found good practice for certain tape rolls to apply holders to each end face thereof. This is shown in Figs. 3 and 4, in which identical holders are shown respectively applied to the upper and lower end faces of tape roll 12. These holders utilize a common insert 20a which is entirely similar to insert 20, save that the walls 21a of this insert 20a are higher than core 14.

As in the construction of Figs. 1 and 2, a base member 10 is applied against one end face of roll 12, with flaps 11 extending inside insert 20a and respectively bearing against one pair of opposed walls 21a.

A second base member 10 is similarly applied to the other end face of roll 12 and is turned 90° with respect to the first base 10, so that the second pair of flaps 11 respectively abut the other pair of opposed walls 21a.

As a result of this construction, force against any of the walls 21a is resisted as a result of the said wall 21a bearing against side edges 18 of a respective pair of flaps 11, as well as by the resistance of a flap 11 bearing against this wall 21a. The holder protects even very heavy rolls of tape against transverse movement into abutment with the walls of any container in which they might be placed.

Furthermore, roll 12 may be readily turned without removing it from its holder. Any necessary holding force on respective members 10 of the assembly may be exerted on the areas of these members 10 within walls 21a. As a result almost no force is exerted on the end faces of roll 12, thereby further protecting it from damage.

Tape roll 12, together with either one or two holders mounted on its respective end faces, may be packed in individual cartons. This is shown in Figs. 3 and 4, in which roll 12 is packed in carton 19. Base 10, flaps 11 and insert 20a hold roll 12 spaced from the side walls of said carton 19.

When this method of packing is used, roll 12 may optionally be unrolled without being removed from carton 19. Figs. 3 and 4 show one

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flap of carton 19 open and the free end 12a of roll 12 extending outside carton 19. As described above, core 14 is then turnable on insert 20a. Vertical movement of the holder is limited by the upper and lower walls of carton 19, and undue pressure on the end faces of roll 12 may be prevented by handling these upper and lower walls of carton 19 within the area thereof bounded by walls 21a.

Optionally, as shown in Figs. 3 and 4, base 10 may be round, and this is advantageous if for some reason roll 12 does not turn freely with respect to insert 20a. In that case, base 10 also turns, and roll 12 unrolls freely. Base 10 may also be of suitable polygonal or other shape so that it turns freely in carton 19.

Optionally, a plurality of tape rolls 12, each mounted on a single holder or on two holders, may be packed in a single carton.

Preferred embodiments of the invention, as well as various changes, omissions, substitutions and variations which can be made therein, have been disclosed. Numerous other changes, omissions, substitutions and variations can be made without departing from the scope and spirit of the invention.

The improved holder may be used with rolls of tape, including pressure-sensitive tape, and with other types of rolls, such as rolls of ribbon. Any roll can be used, so long as it has an end wall and an opening communicating with that end wall, said opening having a cylindrical side wall.

Optionally, the distance between hinge lines 13 may be less than $\frac{1}{2}\sqrt{2d}$, and flaps 11 may bear against respective walls 21 at an angle.

In the construction of Figs. 3 and 4, the distance between flap edges 17 and 18 may optionally be greater than one-half the height of wall 21a. As an example, this may be possible if the width of each flap 11 is slightly less than the inside width of wall 21a.

I claim:

1. A holder for turnably holding a roll which has an end wall and a cylindrical opening communicating with said end wall, said holder comprising a base member, a pair of opposed and complementary cut-out rectangular flaps whose inner edges are connected to said base by means of respective scored hinge lines, and an insert member, said insert having four side walls which are transverse to said base, said flaps extending within said insert and exerting force outwardly against opposed side walls of said insert, said flaps having side edges which serve as stop means to the movement of the other walls of said insert, said holder being adapted to be turnably interfitted with said roll with said base adjacent said end wall of said roll and said insert extending within said opening.

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2. A holder for turnably holding a roll which has an end wall and a cylindrical opening of diameter d communicating with said end wall, said holder comprising a base member, a pair of opposed and complementary cut-out rectangular flaps of width slightly less than $\frac{1}{2}\sqrt{2d}$ whose inner edges are connected to said base by means of respective scored hinge lines, said hinge lines being spaced apart a distance slightly less than $\frac{1}{2}\sqrt{2d}$, and an insert member, said insert member having four side walls of respective approximate width $\frac{1}{2}\sqrt{2d}$ which are transverse to said base, said flaps extending within said insert and exerting force outwardly against opposed side walls of said insert, said holder being adapted to be turnably interfitted with said roll with said base adjacent said end wall of said roll and said insert extending within said opening.

3. A holder for turnably holding a member which has a cylindrical core opening having an axis, said holder comprising a hollow axle member which has a longitudinal axis and four longitudinal side walls, said axle member being substantially square in cross-section and being adapted to be held turnably inserted in said core with said core axis and said axle axis in substantial alignment, end stop walls which are transverse to said axle axis, first and second connecting means respectively connecting said end walls to the respective ends of said axle member, each of said connecting means comprising a pair of opposed and complementary rectangular flaps whose inner edges are hingedly connected to a respective end wall, said flaps being bent on their respective hinge lines transversely to said end wall and extending into said axle, the flaps of said first connecting means being turned 90° with respect to the flaps of said second connecting means, the flaps of each of said connecting means exerting force outwardly against opposed side walls of said axle and having side edges which serve as stop means to the movement of the other walls of said insert.

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