

Nov. 24, 1964

A. C. PETITTO  
TAPE DISPENSER

3,158,303

Filed Aug. 16, 1963

2 Sheets-Sheet 1

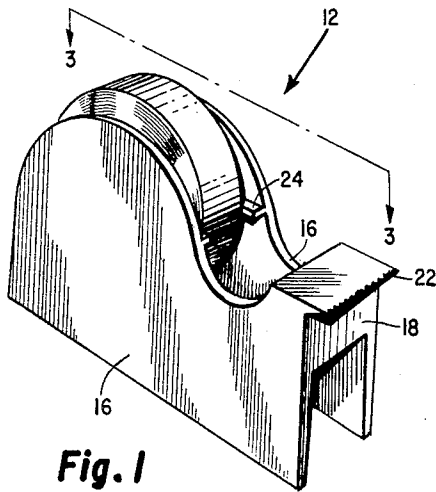


Fig. 1

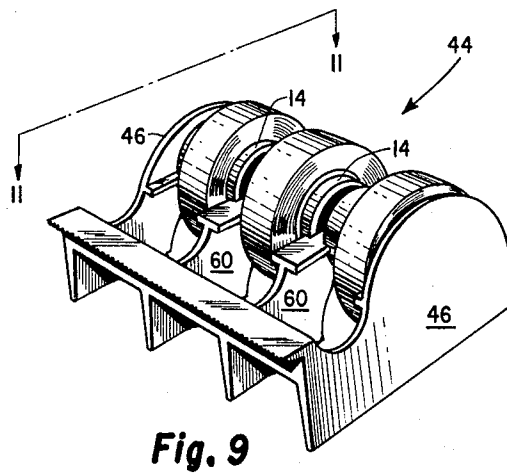


Fig. 9

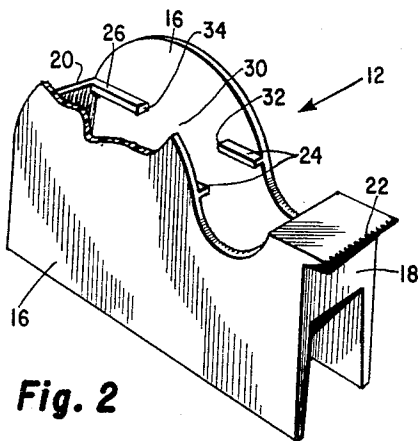


Fig. 2

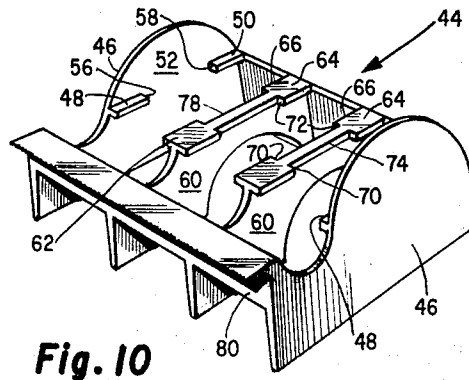


Fig. 10

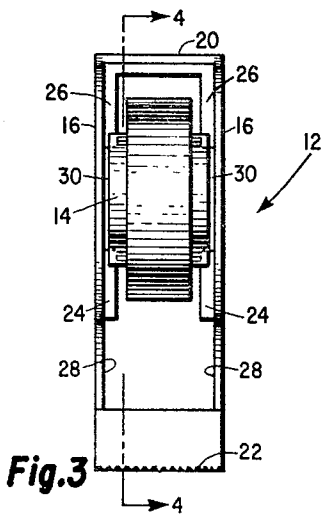


Fig. 3

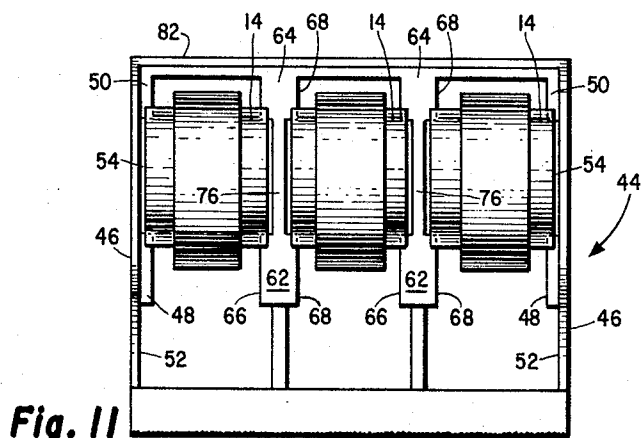


Fig. 11

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2 Sheets-Sheet 2

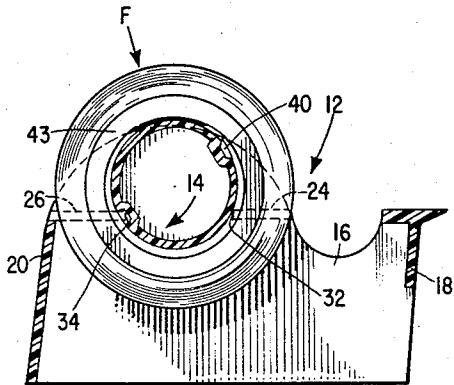


Fig. 5

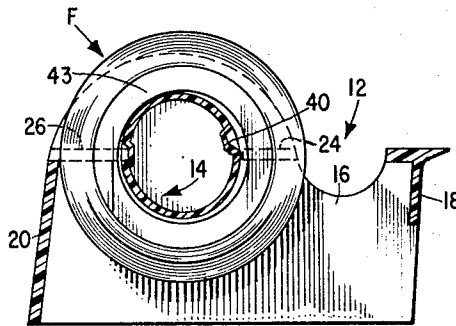


Fig. 6

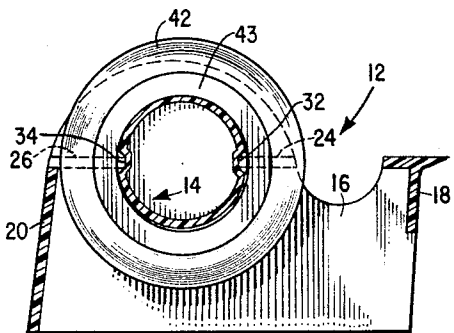


Fig. 4

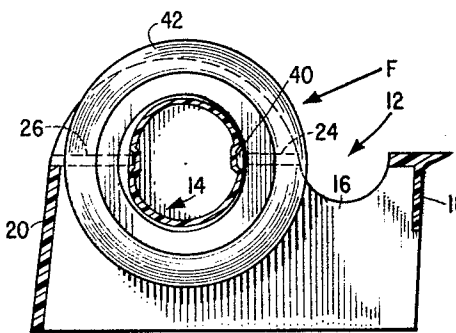


Fig. 7

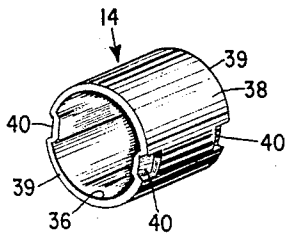


Fig. 8

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TAPE DISPENSER

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11 Claims. (Cl. 225-66)

This invention relates to a dispensing apparatus; and more particularly to tape dispensers having easily removable bearing spools to support the tape rolls.

The invention is especially adapted for use in an environment wherein several different types of rolled material may be used. The invention comprehends the use of removable bearing spools on single or multiple roll dispensers so as to adapt the dispensers for interchangeable rolls, and provide them with a means to allow refills to be inserted easily and quickly. While the preferred embodiment is disclosed as a tape dispenser, it will be apparent that the device may be used in conjunction with any type of rolled material such as string, packaging ribbon, film and the like. The bearing spools can be furnished as part of the dispenser, or they may be inserted in each roll of tape to be discarded when the tape or the like is used up.

One object of the invention is to provide a roll dispenser which can be easily and economically made.

Another object of the invention is to provide a tape dispenser which can be molded in one piece, and bearing spools therefor which can be quickly and easily inserted and removed.

Still another object of the invention is to provide a tape dispenser with easily removable bearing spools for the rolls of tape, so that the rolls of tape can be quickly and easily inserted and removed at will.

Still another object of the invention is to provide a removable deformable elastic bearing, said bearing being adapted to be quickly and easily locked in place and removed.

The foregoing and other objects are achieved by providing a tape dispenser made of a stiff elastic thermoplastic material such as high impact polystyrene, or nylon or polypropylene which may be easily molded into a body portion and a bearing spool by conventional molding operations such as injection molding machines. The body portion has a plurality of support projections adapted to support and removably lock bearing spools therebetween on the dispenser. The bearing spools have slots on the circumference thereof adapted to coact with notches in the support projections to lock the spools in place. The bearing spools, being made of elastic material, are inserted and removably by temporarily deforming them so that they may be moved into and out of locking engagement with the notches in the support projections.

By the above outlined apparatus, several advantages are obtained. An economical tape dispenser is provided. This dispenser has bearing spools which can be quickly and easily inserted and removed so that rolls of tape may be interchanged at will. This provides an economical dispenser which can be adapted to a variety of tapes and uses.

Other objects and features of the invention will become apparent by reference to the following specification and to the drawings.

In the drawings:

FIG. 1 is a perspective view of the roll dispenser embodying the present invention.

FIG. 2 is a perspective view similar to FIG. 1 with the bearing spool removed and one side wall broken away to show the support projections.

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FIG. 3 is a plan view of FIG. 1 taken in the direction of arrows 3-3 of FIG. 1.

FIG. 4 is a sectional view taken along line 4-4 of FIG. 3.

FIG. 5 is a sectional view similar to FIG. 4 showing a bearing spool with a roll of tape thereon about to be moved into locking engagement with the support ridges, with the slots on one side of the bearing being engaged with the support projections.

FIG. 6 is a sectional view similar to FIG. 4 showing the bearing spool in its deformed condition just prior to the non-engaged locking slots being moved into alignment with the support projections.

FIG. 7 is a sectional view similar to FIG. 4 showing a bearing spool being deformed prior to being pushed out of locking engagement with said support projections.

FIG. 8 is a perspective view of a bearing spool.

FIG. 9 is a perspective view of a modification showing a multiple roll dispenser.

FIG. 10 is a perspective view similar to FIG. 9 with the tape rolls and bearing spools removed.

FIG. 11 is a top plan view of FIG. 9.

In the preferred embodiment a tape dispenser body portion 12 is provided with a deformable elastic bearing spool 14 which is adapted to be easily inserted and removed.

The dispenser comprises a molded thermoplastic body portion 12 having spaced side walls 16, a front bridging member 18, and a rear bridging member 20 for holding the walls 16 in parallel spaced relationship. The front bridging member 18 also supports a serrated cutting edge 22 to aid in tearing the tape dispensed from the dispenser.

The side walls 16 are formed with front and rear support projections 24, 26 on the interior portions 28 thereof. These projections cooperate to form notches 30 delineated by the interior portions 28 of the side walls and the inner ends 32, 34 of the projections 24, 26. The interior portions 28 of the spaced walls define the edges of the notches, the rearwardly facing inner ends 32 of the front support projections 24 define the front ends of the notches, and the forwardly facing ends 34 of the rear support projections 26 define the rear ends of the notches 30.

The removable bearing spools 14 as well as the dispenser are molded from a stiff elastic thermoplastic material such as high impact polystyrene, nylon or polypropylene. Each bearing spool is presently formed of a hollow cylinder having an internal surface 36 and an external surface 38, and ends 39. The bearing spool 14 also has locking slots 40 formed in the external surface 38 thereof and extending axially along the external surface 38. These locking slots 40 are adapted to mate with the inner ends 32, 34 of the support projections 24, 26 so as to removably lock the bearing spools 14 in place on dispenser body 12.

### Operation

Referring now to FIGS. 4-7, the operation of the invention is as follows. When a roll of tape 42 having a core 43 is to be inserted into the dispenser body 12, a bearing spool 41 is inserted into a roll of tape 42. The outer diameter of the bearing spool 14 is preferably smaller than the internal diameter of the core 43 of the tape roll 42 so that a loose fit is provided. The bearing spool is subsequently placed in position so that the locking slots on one side of the bearing are in engagement with either the forwardly or rearwardly facing inner ends 32, 34 of the support projections 24, 26. For purposes of example it will be assumed that the locking slots 40 on one side of the bearing spool 14 have been placed in engagement with the forwardly facing inner ends 34 of projec-

tions 26 (see FIG. 5). Having done this, a force F is applied on the periphery of the roll of tape. The force F is preferably applied on the periphery of the roll of tape in the vicinity of the top thereof, said force being applied in a downwardly direction (FIGS. 5 and 6). As the force F tends to move the roll of tape with the bearing spool and the locking slots downwardly toward the locked position, the rearwardly facing inner ends 32 of the front support projections act to cam the bearing spool into an elliptical-like shape (FIG. 6). This deforming of the elastic bearing spool allows it to be moved into position wherein the slots 40 in the periphery of the cylinder are aligned with the rearwardly facing inner ends 32 of the front projections 24. When the locking slots of the bearing spool and the inner ends 32 of the support projections 24 become aligned, the elasticity of the bearing spool causes it to spring outwardly, moving the locking slots 40 into engagement with the inner ends 32 of the front projections 24 (FIG. 4). The bearing spool 14 is now firmly locked in place, and the tape roll 42 is rotatably mounted thereon due to the loose fit between the spool 14 and the core 43 of the roll of tape 42. To dispense tape, the tape is pulled from the roll 42 and torn across the serrated edge 22 when the desired length is attained.

When it is desired to remove a roll of tape or bearing spool, one merely has to press rearwardly with the thumb to again deform the bearing spool 14 so as to move the locking slots 40 out of engagement with the support projections 24 (FIG. 7) and subsequently move the deformed bearing spool upwardly or downwardly past the support projections 24, 26.

#### Modification of FIGS. 9-11

FIGS. 9-11 show a modification of the invention wherein the bearing spools 14 are utilized in a multiple roll dispenser 44.

In this modification, the side walls 45 are formed with front and rear support projections 48, 50 on the interior portions 52 thereof. These projections cooperate to form notches 54 delineated by the interior portions 52 of the side walls 46 and the inner ends 55, 53 of the projections 48, 50. The interior portions 52 of the spaced walls 46 define the edges of the notches 54, the rearwardly facing ends 56 of the front support projections 48 define the front ends of the notches and the forwardly facing ends 58 of the rear support projections 50 define the rear ends of the notches.

The intermediate walls 60 also carry front and rear support projections 62, 64 at the top thereof. These intermediate walls 60 are spaced from the side walls by a front bridging member 80 and a rear bridging member 82. While the walls 46, 60 are shown as being evenly spaced, they could obviously be spaced an unequal distance to support rolls of different widths. The intermediate support projections 62, 64 are wider than side support projections 48, 50; thus enabling them to act as common supports for two bearing spools 14. Each intermediate support projections 62, 64 is composed of longitudinal edges 66, 68, terminating in forwardly and rearwardly facing inner ends 70, 72 which cooperate with the longitudinal edges 74 of the spanning webs 76 to define notches 78. The spools are inserted in, locked between, and removed from the support projections 62, 64 in the same manner as shown in FIGS. 4-7.

#### Summary

As is apparent from the drawings and the above specification, a tape dispensing device has been provided which is easily and economically manufactured, and which has bearing spools which may be quickly inserted and removed so as to facilitate quick interchange of rolls.

While exemplary embodiments of the invention have been set forth in detail, it will be apparent to those skilled in the art that the disclosed embodiments may be modi-

fied. Therefore, the foregoing description is to be considered exemplary rather than limiting and the scope of the invention is to be determined from the appended claims.

What is claimed is:

1. A device for dispensing material from a roll; comprising a body portion including at least two spaced walls; bridge means spacing said walls; deformable bearing means removably mounted between said walls; supporting means on said walls adapted to cooperate with said bearing means to releasably lock said bearing means between said spaced walls.

2. A device for dispensing material from a roll; comprising a body portion including at least two spaced walls; a hollow deformable elastic bearing member adapted to rotatably support a roll of material thereon; supporting projections extending transversely of said walls; locking slots formed in the outer periphery of said hollow member; said locking slots adapted to cooperate with said support projections to removably lock said hollow bearing means between said walls on said support projections; said hollow bearing member being inserted into the body portion by deforming said hollow member, aligning said locking slots and said support projections, and allowing said hollow member to spring back to its normal position so as to engage said locking slots with said support projections.

3. A device for dispensing material from a roll; comprising a body portion including two spaced side walls; intermediate walls spaced between said side walls; bridge means spacing said side walls and said intermediate walls; deformable bearing means removably mounted between said side walls and said intermediate walls; supporting means on said side walls and said intermediate walls adapted to cooperate with said bearing means to releasably lock said bearing means between said spaced side walls.

4. The device as claimed in claim 3, wherein the dispensing device includes a serrated edge to sever the material when it is unwound from a roll.

5. A device for dispensing material from a roll; comprising a body portion including two spaced side walls; intermediate walls spaced between said side walls; bridge means spacing said side walls and said intermediate walls; support projections extending inwardly from said side walls; each of said side walls including front and rear projections having inner ends cooperating to form notches; said intermediate walls having front and rear support projections extending laterally from each side thereof; said front and rear projections terminating in inner edges on each side of the intermediate walls, and cooperating to form notches; hollow deformable elastic bearings adapted to be removably locked in place on the support projections between said walls; said bearings having locking slots formed on the external surface thereof; at least two of said slots being located at each end of said bearing spool; said slots being substantially diametrically opposed to each other; said elastic bearings being removably lockable between said walls on said support projections by deforming said bearings, aligning said slots with said inner ends of said support projections, and allowing the elastic bearings to spring back into shape to engage said slots with said projections.

6. The device as claimed in claim 5, wherein the elastic bearings are removed by deforming said bearings so that the locking slots are disengaged from at least one set of support projections, and then removing said bearings from said dispenser.

7. The device as claimed in claim 5, wherein there are two intermediate walls, each having a front and rear support projection extending laterally to each side thereof; each of said intermediate walls and the projections thereon supporting a bearing between itself and a side wall, and itself and the other intermediate wall; whereby the device may support three rolls to be dispensed.

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8. A device comprising in combination; support means; a hollow, open-ended, elastic bearing member; said bearing member having locking members provided in the outer periphery thereof; at least two of said locking members being provided at each end of said bearing, and being substantially diametrically opposed to each other; said bearing member adapted to be removably locked on said support means by deforming said elastic bearing, aligning said locking member with said support means, and allowing the elastic bearing member to spring back into its normal position to engage said locking members with said support means.

9. A bearing comprising a hollow, cylindrical, elastic member; said cylindrical elastic member having slots formed in the exterior surface thereof; at least two slots being formed at each end thereof and being diametrically opposed to each other.

10. The bearing recited in claim 9 wherein the member is made of high-impact polystyrene.

11. A bearing member adapted to be locked in place

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on a support; said bearing member comprising a deformable elastic member, locking means formed on the external surface of said elastic member, said bearing member being locked into position on a support by deforming the bearing member and allowing it to spring back into position whereby the bearing is positively but removably retained in position on the support by reason of the locking means of the bearing member being engaged with cooperating mating locking means on the support.

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UNITED STATES PATENT OFFICE  
CERTIFICATE OF CORRECTION

Patent No. 3,158,303

November 24, 1964

ALBERT C. DORR

It is hereby certified that the following correction is required in the patent and is hereby made as shown below.

In the heading to the sheets of this patent, the name of the inventor, as shown on line 1, name of inventor, for "A. C. DORR"; column 1, line 33, for "removably" read -- removed --.

Signed and sealed this 22nd day of June 1965.

(SEAL)

Attest:

ERNEST W. SWIDER  
Attesting Officer

EDWARD J. BRENNER  
Commissioner of Patents