United States Patent

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[54] MULTI-TAPE DISPENSER

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[51] **Int. Cl.** **B65h 35/10,** A47k 10/32

[58] **Field of Search** 242/55.3, 55.2, 55.53, 55.54, 242/55.42, 139, 136, 131; 225/3, 4, 36, 38, 37, 47, 39, 42, 46, 351; 211/106, 121, 181; 248/175, 249, 302

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[57] **ABSTRACT**

A tape dispenser including a supporting framework having at least one open space defined between two plate portions which support a rod member mounting at least one roll of tape. Each of the plate portions has at least one aperture therein and the rod member is C-shaped having a middle portion and two end portions which extend transversely of the middle portion and which are releasably received and firmly held in the apertures.

14 Claims, 4 Drawing Figures

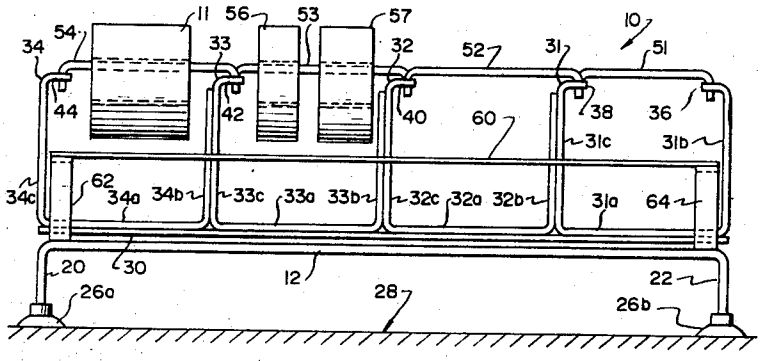


FIG. 1

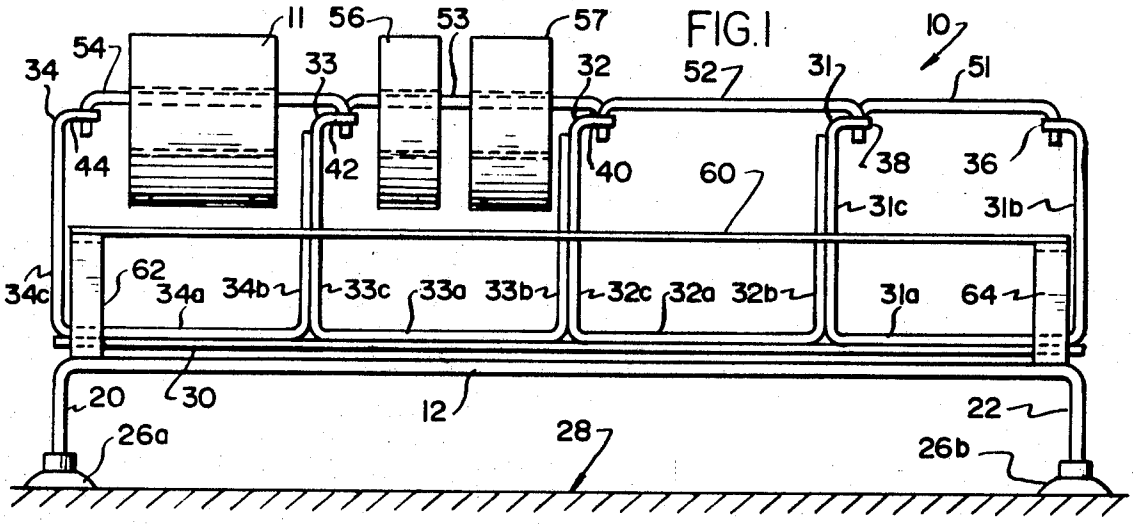


FIG. 2

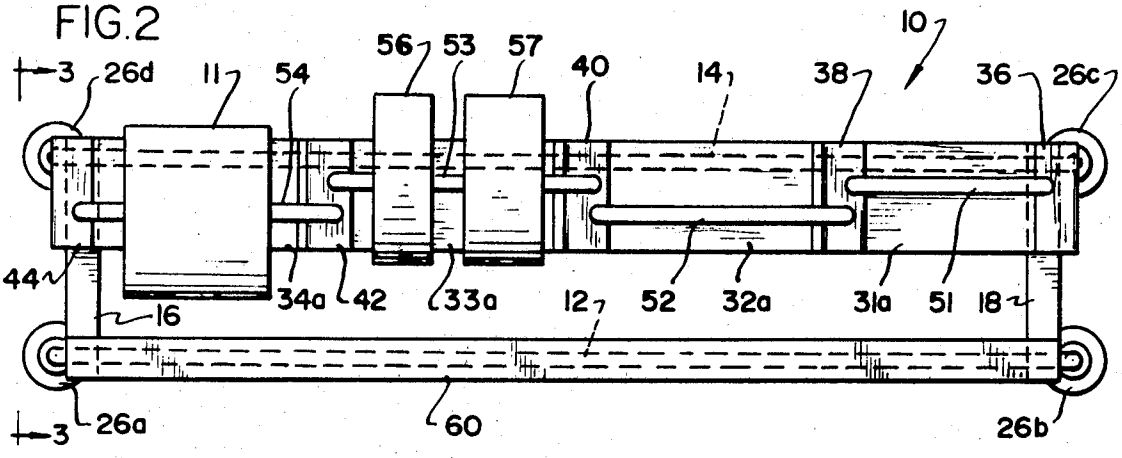


FIG. 3

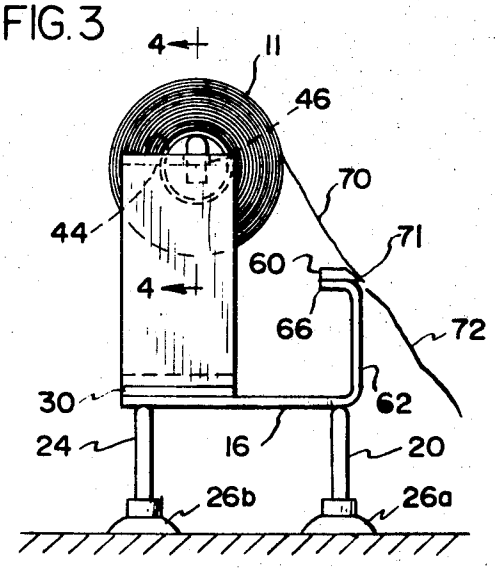
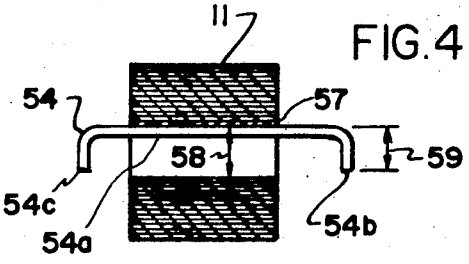


FIG. 4



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MULTI-TAPE DISPENSER

BACKGROUND AND DESCRIPTION OF THE INVENTION

This invention generally relates to a dispenser of material wound in a roll on a spool or reel and particularly to a dispenser of the type which releasably and firmly mounts a plurality of rolls for rotation in the dispenser in such a way that a used roll or an empty spool can be easily removed and replaced without disturbing or removing the other rolls. Such dispensers of different types or colors of tape find advantageous use in a hospital where different colors of tape and different labels (which are printed on some of the tapes) are needed for placement on a patient's wrist band, bed, medical chart, hospital room door, etc., for a variety of purposes, e.g., for identification, for feeding schedule, for medicine required and for indicating the medical test the patient is undergoing.

In the prior art, most dispensers of material wound in a roll on a spool, such as tape wound on a spool, have not always provided convenient means for replacing a used or exhausted roll in a dispenser containing a plurality of rolls of different types of material.

One prior art device provides a plurality of rolls of one type of tape supported on a bar so that when one roll is exhausted of tape, there is at least one additional roll of tape available on the bar. This device, however, does not provide for the dispensing of different types of tape but is merely a multiple roll dispenser of one type of tape.

In another prior art device, a plurality of rolls of tapes of different types are supported on one rod. In this device, the rod is releasably supported on a framework and when a used roll is to be replaced, the rod with all of the rolls thereon must be removed and usually some of the rolls of tape must be taken off the rod to replace the used roll. Accordingly, this device does not provide for the removal of only the used roll from the dispenser for the replacement of same.

To facilitate removal and replacement of a used roll of tape from a dispenser, the present invention provides a dispenser which includes a supporting framework having an open space defined between two plate portions with at least one roll of tape mounted on a rod member supported by and between the two plate portions. The rod member is C-shaped having a middle portion and two end portions which extend transversely of the middle portion of the rod member. The plate portions have apertures therein which are adapted to releasably receive the end portions for firmly holding the rod member to the plate portions of the dispenser.

A general object of the present invention is the provision of a multi-roll dispenser in which used or exhausted rolls of wound material in the dispenser can be easily and simply removed and replaced without disturbing other rolls of material in the dispenser.

Another object of the present invention is the provision of a framework for releasably and firmly holding and supporting a plurality of rolls of different types and colors of tape.

Another object of the present invention is the provision of a tape dispenser of the type described which includes a supporting framework and means for holding the supporting framework to and on a supporting surface.

Another object of the present invention is the provision of a multi-tape dispenser of the type described in which individual rod members in the dispenser each have a middle portion for supporting and holding one or more rolls of tape and end portions which extend transversely of the middle portion and which have a length which is less than the inner diameter of the inner opening of the rolls of tape utilized in the dispenser such that used or exhausted rolls of tape can be easily removed from a rod member for replacement thereof.

Another object of the present invention is the provision of a multi-tape dispenser of the type described in which individual rod members in the dispenser are C-shaped and each have a middle portion for supporting and holding one or more rolls of tape and end portions which extend transversely of the tape and which are releasably received and firmly held in apertures formed in arm portions of the dispenser.

Still another object of the present invention is the provision of a multi-tape dispenser of the type described which includes a cutter bar supported on and above the framework of the dispenser and positioned parallel to the rod members of the dispenser to serve as a severing means for tape pulled from the rolls of tape in the dispenser.

These and other objects and advantages of the present invention will become apparent from the following description taken in conjunction with the accompanying drawings wherein:

FIG. **1** is a front elevational view of the multi-tape dispenser of the present invention;

FIG. **2** is a top plan view of the dispenser shown in FIG. **1**;

FIG. **3** is a side elevational view taken along line **3—3** of FIG. **2**; and,

FIG. **4** is a sectional view of the roll of tape and rod member shown in FIG. **3** taken along the line **4—4** of FIG. **3**.

A multi-tape dispenser embodying the principles of the present invention is generally indicated at **10** in FIG. **1**. The dispenser **10** is adapted to hold a plurality of rolls of tape, such as the roll **11**, and includes a generally rectangular framework formed by two elongated bars **12** and **14** (FIG. **2**) and two cross bars **16** and **18** (FIG. **2**) which extend between and are secured to the bars **12** and **14** in a suitable manner, such as by spot welding.

As shown in FIG. **1**, the bar **12** terminates at each end in two downwardly extending legs **20** and **22**. The bar **14** terminates at each end in similar legs, one of which is shown at **24** in FIG. **3**. Preferably, means are provided on the four legs for holding the dispenser **10** on and to a supporting surface so that tape can be pulled from the dispenser **10** without moving same. For this purpose, in a preferred embodiment of the invention, a suction cup **26***a–d* is secured to the lower end of each of the four legs. The suction cups **26***a–d* are typically of a soft resilient rubber-like material with a concave undersurface so that they can adhere to a generally flat supporting surface, such as the surface indicated at **28** in FIG. **1**. It is to be understood, of course, that other means can be utilized for holding the dispenser **10** on the supporting surface **28**. Also, the dispenser **10** can be held to a vertical surface such as a wall, as well as to a horizontal surface, such as a table top.

As shown in FIGS. **1** and **3**, an elongated base plate **30** extends between the cross bars **16** and **18** above and parallel to the bar **14**. The elongated base plate **30** is suitably fastened to the cross bars **16** and **18**, such as by spot welding. The base plate **30** supports a plurality of U-shaped members **31–34** which, in the illustrated embodiment, are four in number. It is to be understood, of course, that the dispenser **10** can comprise any number of U-shaped members depending upon the number of different types of rolls or spools of wound material required.

Each of the U-shaped members **31–34** includes a bight portion **31***a–34a* and first and second generally upright arm forming plate portions **31***b–34b* and **31***c–34c*. The first and second plate portions **31***b* and **31***c* of the first U-shaped member **31** have flanges **36** and **38** which extend from and transversely of the plate portions **31***b* and **31***c*. Each of the second plate portions **32***c–34c* of the other U-shaped members **32–34** is also provided with a flange similar to flange **38**. These flanges are indicated at **40**, **42** and **44**. Each of the flanges **36** and **44** has one aperture such as the aperture **46** in the flange **44** shown in FIG. **3**. Each of the other flanges **38**, **40** and **42** has two apertures.

A rod member **51** is supported by and between the first and second plate portions **31***b* and **31***c* of the U-shaped member **31** as shown in FIG. **1**. Similar rod members **52**, **53** and **54** are supported respectively between the first and second plate portions **32***b–34b* and **32***c–34c*. Each rod member **51–54** is generally C-shaped. The rod members **52–54** are identical to each other, whereas the rod member **51** is slightly shorter since the flanges **36** and **38** extend toward each other. How-

ever, the bight portion 31*a* of the first U-shaped member 31 can be made longer than the other bight portions 32*a*, 33*a* and 34*a* so that all the rod members 51,52,53,54 can be identical. The rod member 54 is shown in detail in FIG. 4 and includes a middle portion 54*a* and first and second end portions 54*b* and 54*c*. The end portions 54*b* and 54*c* are adapted to be releasably received and firmly held in respective apertures in flanges 42 and 44. For this purpose, the diameter of the end portions 54*b* and 54*c* is only slightly smaller than the diameter of the apertures in the flanges 42 and 44. By way of example, in one working model of a dispenser built in accordance with the principles of the present invention, the diameters of the apertures in the flanges and of the end portions of the rod members were approximately one-eighth inch and the thickness of the flanges was approximately one-sixteenth inch.

Each of the rod members 51–54 is designed to support and hold at least one roll of tape on the middle portion thereof. In the illustrated embodiment, the rod member 53 holds two rolls of tape 55 and 56 and the rod member 54 holds the single roll of tape 11. As shown in FIG. 4, the roll of tape 11 includes a core member or spool 57 upon which the tape is wound. The spool 57 has an inner diameter 58 which is greater than the diameter of the rod member 54 to provide a loose mounting of the roll 11 on the rod member 54. Also, and in accordance with one feature of the present invention, the end portions 54*b* and 54*c* have a length 59 which is less than the inner diameter 58 of the spool 57 so that the spool 57 can be easily slipped over either of the end portions 54*b* or 54*c* when inserting or removing the roll of tape 11 from the rod member 54. It will be understood, of course, that the rod members 51–53 are formed in a similar manner to the rod 54 described above, for receiving and holding one or more rolls of tape similar to the roll 11. Preferably, each rod member 51–54 supports no more than two rolls of tape so that any particular used or exhausted roll of tape can be removed without removing the other rolls of tape mounted in the dispenser 10. Also, the dispenser 10 can be utilized for dispensing other material, besides tape, which are wound in a roll on a spool, such as for example, thread, string, wire, cord, yarn or the like.

To facilitate the severing of a length of tape pulled or peeled from a roll in the dispenser 10, a cutter bar 60 is mounted on two upstanding leg portions 62 and 64 which extend upwardly from the cross bars 16 and 18. Preferably, the leg portions 62 and 64 are extensions of the cross bars 16 and 18 as shown in FIG. 1. The upper end of each leg portion 62 and 64 is bent over to form a supporting flange for one end of the cutter bar 60, such as the upper end 66 of the leg portion 62 as shown in FIG. 3. The cutter bar 60 is positioned generally parallel to the rod members 51–54 so that when a portion 70 of tape is pulled from the roll 11, it can be easily severed on a cutting edge 71 of the cutter bar 60 leaving a cut portion 72 of the tape to be utilized as desired. If desired, the cutting edge 71 of the cutter bar 60 can be serrated to facilitate severing of the portion 70 on the cutting edge 71. As shown in FIGS. 1 and 3, the cutter bar 60 is preferably located below the rolls of tape 11, 56 and 57 so that the portion 70 of tape can be easily pulled from the dispenser in a horizontal direction which is transverse to the end portions 54*b* and 54*c* without engaging the cutter bar 60 and then can be pulled downwardly across the cutting edge 71 to sever the portion 70.

It will be appreciated that the present invention provides a dispenser of simple construction which is relatively inexpensive to manufacture and assemble. Typically, the parts of the assembly are made of metal except for the suction cups which are made of a rubber or rubber-like material.

By virtue of the unique construction of the multi-tape dispenser of the present invention, it not only can be simply and inexpensively manufactured and assembled, but also has the advantage of being easily mounted on a horizontal or vertical surface and sufficiently secured to such surface to permit pulling of tape from the rolls mounted thereon. Moreover, when it is desired to remove a particular roll of tape, that roll can be easily removed and replaced without removing the other rolls. Additionally, the fit of the end portions of the rod members in the apertures in the arm portions provide an effective means for releasably and firmly holding the rod members in the dispenser whereby tape can be pulled from a roll in almost any direction.

Thus, the present invention has a number of advantages and characteristics as described above and others which are inherent in the invention. Accordingly, the scope of the present invention is only to be limited as necessitated by the accompanying claims.

I claim:

1. A dispenser of material such as string, tape, ribbon, thread or the like which is wound on a spool, said dispenser comprising a supporting frame including at least two, generally aligned, spaced apart rod supporting members which define therebetween a spool receiving space, at least one rod member adapted to rotatably support a spool of material between said rod supporting members, said rod member being generally C-shaped with a generally straight middle portion for supporting the spool and first and second end portions which extend transversely of said middle portion, each of said rod supporting members having a socket means formed therein for releasably receiving and firmly holding one of said end portions, each of said socket means having a central axis and having a cross sectional extent which is only slightly larger than the cross sectional extent of said rod end portion received therein, and each of said rod end portions being received in one of said socket means in a direction which is coaxial to said socket means and said rod end portion received therein and which is transverse to said middle portion of said rod member and being releasably mounted in said socket means with said axis of said rod end portion coaxial with said central axis of said socket means.

2. A dispenser according to claim 1 in which said rod member has a diameter which is less than the inside diameter of the spool supported thereon and said end portions have a length which is less than the inside diameter of the spool to facilitate removal of the spool from said rod member for replacement of same.

3. A dispenser according to claim 1 including at least one additional rod supporting member and a second rod member for rotatably supporting a second spool between one of said two rod supporting members and said additional rod supporting member, said second rod member having a middle portion and first and second end portions which extend transversely of said middle portion, and said rod supporting members supporting said second rod member each have socket means for releasably receiving and firmly holding one of said first and second end portions of said second rod member.

4. A dispenser according to claim 1 in which said supporting frame has means for holding said dispenser on and to a supporting surface.

5. A dispenser according to claim 4 in which said holding means comprises a plurality of suction cups.

6. A dispenser according to claim 1 in which said supporting frame includes a cutter bar for severing material wound on said spool, said cutter bar being situated generally parallel to said rod member.

7. A dispenser according to claim 1 in which said supporting frame includes a rectangular framework with four depending legs, one at each corner of said framework, and at least one generally U-shaped member having a bight portion secured to said framework, two generally upstanding arms, and a flange extending from each of said arms and constituting one of said rod supporting members.

8. A multi-tape dispenser comprising a supporting framework, first, second, third and fourth generally U-shaped members, each U-shaped member having a bight portion secured to said framework and first and second generally upstanding arms, the adjacent ones of said arms being secured to each other, said first and second arms of said first U-shaped member each having a flange at the upper end thereof extending transversely of each arm and each of said second arms of

said second, third and fourth U-shaped members also having a flange extending therefrom transversely thereof, said flanges being spaced apart and in general alignment with each other, said flange on said first arm of said first U-shaped member and said flange on said second arm of said fourth U-shaped member each having one aperture therein and the remaining flanges each having two apertures therein, four C-shaped rod members each having a generally straight middle portion and first and second end portions which extend transversely of said middle portion, each of said rod members being adapted to support at least one roll of tape on said middle portion thereof and being positioned respectively between the arms of one of said four U-shaped members with said end portions of said rod members being releasably received and firmly held in respective ones of said apertures, and each of said apertures having a cross-sectional extent which is slightly greater than the cross sectional extent of said rod end portion received therein.

9. A multi-tape dispenser according to claim **8** in which said supporting framework includes four supporting legs extending downwardly therefrom and a suction cup is disposed at the free end of each of said legs for holding said dispenser on and to a supporting surface.

10. A multi-tape dispenser according to claim **8** in which a cutter bar is secured to said framework generally parallel to said rod members to provide a convenient means for severing tape pulled from a roll of tape in said dispenser.

11. A multi-tape dispenser according to claim **8** in which the length of said end portions of each of said rod members is less than the inside diameter of the rolls of tape used in the dispenser whereby a roll of tape can be easily inserted on and removed from one of said rod members.

12. A dispenser according to claim **1** in which said rod supporting members are defined by substantially coplanar plate portions forming part of said supporting frame and each of said socket means is defined by an aperture in one of said plate portions.

13. A dispenser according to claim **12** in which the cross section of each of said apertures and of each of said rod portions is generally circular.

14. A dispenser according to claim **1** in which said supporting frame includes at least two generally upstanding arms each having at least one flange extending therefrom, said flanges constituting said rod supporting members.

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