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3,434,591

PANCAKE TYPE PACKAGE HAVING CONTROLLED UNWINDING

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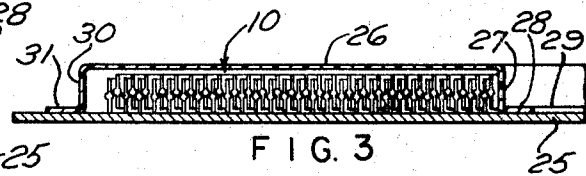
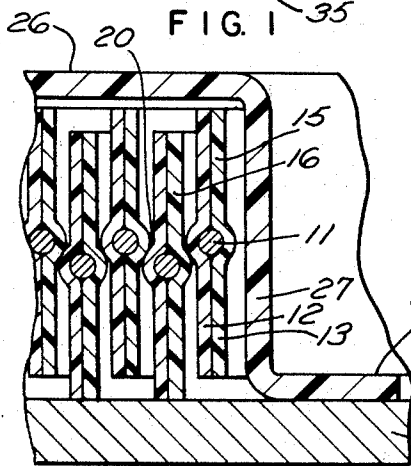
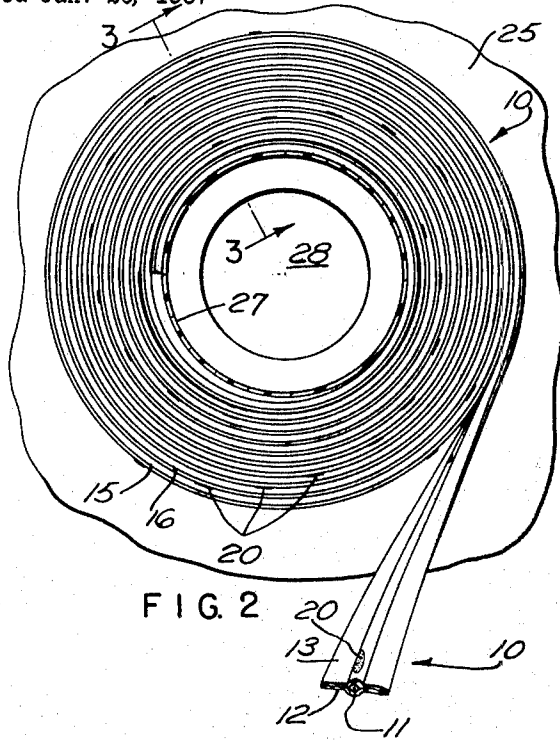
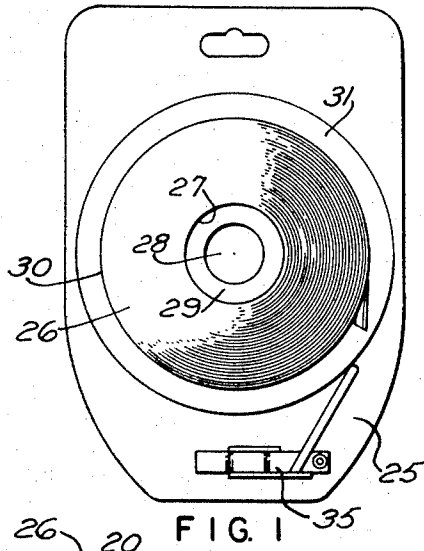


FIG. 4

FIG. 3

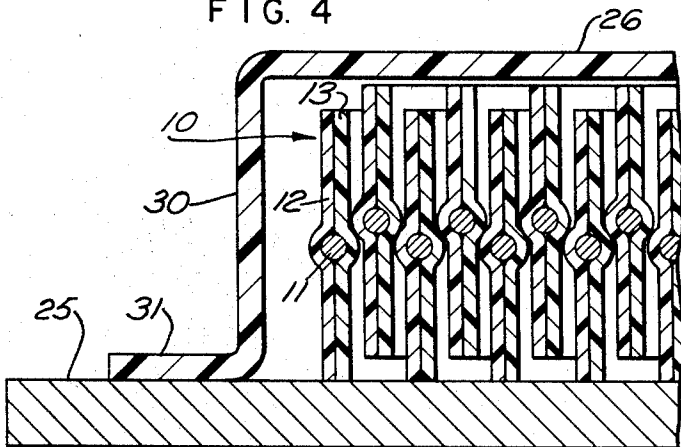


FIG. 5

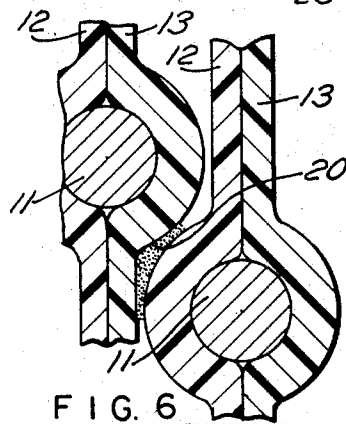


FIG. 6

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PANCAKE TYPE PACKAGE HAVING CONTROLLED UNWINDING

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3 Claims

ABSTRACT OF THE DISCLOSURE

A spirally wound tape having no core with one convolution breakably adhered to the next convolution at least at a plurality of locations on each convolution with the tenacity of adherence of the adjacent convolutions being such that the package may be unwound by pulling upon the free end of the outer convolution.

Cross-reference to related applications

A package of this general form is shown in applicant's copending application Ser. No. 503,611, filed Oct. 23, 1965, issued Apr. 11, 1967, No. 3,313,194 in which claims are made to the cutter for severing the tape.

Background of the invention

Tapes which may take a variety of forms may be composed of material which has little surface adhesion. For contrast purposes, if one were to consider a cotton fiber tape, it will be apparent that there are several fibers projecting therefrom which interlock so that juxtaposed tape convolutions would cling together and thus present some natural resistance to unwinding or axial shifting. On the other hand, tapes made from artificial fibers, paper and plastics offer but little adhesion at the surface to adjacent tape convolutions. Also if the tape is a paper or plastic tape with a reinforcing wire sandwiched between two layers, the reinforcing wire will have a certain permanent set which will tend to open up the convolutions. Consequently when it is desired to dispense a tape which is spirally wound with the aforementioned materials, the convolutions will tend to open up, and when encased, will engage the case and apply an unwanted amount of friction on the inner walls of the case. Some attention has been given to preventing this in a helical coil where the problems are somewhat different in that there is no enclosing casing. One instance of this helical coil is illustrated in my Patent 3,044,614, issued July 17, 1962.

Summary of the invention

A pancake type of tape package is provided having a plurality of layers of tape in a spiral coil in which one convolution is superimposed on another convolution radially outward of the pancake type package. Each convolution is breakably adhered to the tape of the next convolution at least at a plurality of locations of each convolution. The tape thus wound is sandwiched between two flat surfaces such as a base and a transparent blister with a flange formed on one of these, usually the blister, extending through the hollow center of the package to form a bearing or hub about which the package may rotate and with another flange extending from one flat surface to the other to form a closure for the package. This flange also is usually formed on the transparent blister and is itself flanged again to engage the surface of the base and is there secured forming a closure for the package.

Brief description of the drawings

FIG. 1 is a top plan view of the package;
FIG. 2 is a fragmental top view with the top of the blister (cover) removed illustrating a portion of the base plate and the spirally wound tape thereon, also showing the construction of the tape;

FIG. 3 is a sectional view on line 3—3 of FIG. 2;
FIG. 4 is a fragmental sectional view on line 3—3 of FIG. 2 but greatly enlarged illustrating the blister in place and showing only the center part of the package;

FIG. 5 is a similar greatly enlarged view showing the outer part of the package; and

FIG. 6 is a section on an enlarged scale showing contacting portions of the tape.

Description of the preferred embodiment

The tape which is to be wound is designated generally 10 and comprises a metallic wire core 11 sandwiched between narrow layers 12 and 13 forming the composite tape. The metallic wire 11 has a tendency to spring back if flexed and therefore has a tendency to expand any circular form which may be given the tape. The opposite layers between which the wire 11 is sandwiched are or may be paper or plastic or may be other materials.

The tape of this form may be wound between two plates without traverse about a removable core gluing at least the first two convolutions to each other and then winding into a spiral form with the layers of tape of one convolution radially superimposed upon another convolution as seen at 15 and 16, but in the form which is taken the convolutions 15 and 16, as seen in FIG. 4, do not become exactly superimposed upon one another due to the bulging of the tape at the center where the wire 11 is sandwiched in. Accordingly, the layers become somewhat staggered as shown in FIG. 4 in order that the center portion of the tape may lie off of the center line slightly as seen in the magnified view in FIG. 4. The touching points (see FIG. 6) are usually at the arch formed by the bulging of the layers which sandwich the center wire. This gives rise to a formation of pancake coil which is somewhat unstable, and as this pancake coil is to be transferred from its wound position to a mounting base for completion of the package, its convolutions are adhered together by some breakable adhesive 20. The adhesive may be at the spots 20 located variously about each convolution but sufficiently close so that there will be a plurality of adhesion in each convolution. The adhesions may be continuous throughout the convolutions if desired. The adhesive has less strength than the adhesion of the layers 11 and 12 to each other and is of a strength not to break or rupture the layers as broken therefrom.

The adhesive should be a material which will have the property of quick drying. For instance, the adhesive may be water soluble type, such as animal glue, or emulsion type, such as an emulsion of polyvinyl chloride acetate, or an emulsion of polyvinyl acetate or a solvent of methyl ethyl ketone or a hot melt type or a solvent, especially where the tape is in the form of a plastic layer upon which such solvent will operate. The main constituents or physical properties which the adhesive should have to be successful is that when hardened it becomes somewhat brittle, and then after application, it dries extremely fast to a tacky surface. One method by which this adhesive may be applied is illustrated in my heretofore mentioned Patent 3,044,614.

A coil of this pancake type when so formed is now sufficiently stable so that it may be placed upon a base 25, which may conveniently be a sheet of cardboard, which has a flat surface, while a plastic blister which is transparent may be placed over the coil. This plastic blister has a sheet 26 of a dimension substantially the

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diameter of the coil. It is flanged inwardly at its center at 27 providing a circular bearing support which may enter the hollow center 28 of the package. This flange 27 has a lip which engages the base 25 and is secured thereto. This flange 27 is of such a dimension as to allow freedom of rotation of the tape package and therefore is of a dimension greater than the width of the tape which is spirally coiled. A second flange 30 of substantially the same axial dimension as the flange 27 extends from the outer periphery of the plate 26 of the blister and is turned outwardly providing a lip as at 31 so as to engage the base 25 of the package and is secured thereto. Thus, the annular spiral coil package is contained between two flat surfaces 25, 26 in such a manner that it may rotate about a bearing 27 for dispensing. Also by reason of the fact that the convolutions are secured one to the other these convolutions cannot expand into engagement with the flange 30 to apply a friction undesired for dispensing the coil.

It will be understood that the tape is dispensed from the package and cut by the cutter 35 more fully disclosed in my above-mentioned copending application Ser. No. 503,611, Patent No. 3,313,194.

I claim:

1. A pancake type tape package comprising a coreless spiral coil of a plurality of layers of tape having a bulging area intermediate its edges protruding on both faces with one convolution superimposed in staggered relation on another convolution radially outwardly, the tape of one convolution being breakably adhered to the tape of the next convolution at said bulging areas at a plurality of locations of each convolution whereby the tape is maintained in its pancake form and yet may be unwound by breaking the adherence of the convolutions.

2. A pancake type tape package comprising a spiral coil of a plurality of layers of tape with one convolution

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superimposed on another convolution radially outwardly providing a coil with opposite faces, a substantially flat base engaged by one face of said coil, and a blister of sheet stock covering the opposite face of the coil, and provided with a flange secured to said base and surrounding and adjacent but in spaced relation to the outer convolution of said coil, said flange having an opening through which the tape may be drawn from the blister, said coil having an inherent tendency to expand radially and separate said convolutions, said tape having one convolution breakably adhered to the tape of the next convolution at a plurality of locations of each convolution whereby the tape is maintained against its inherent tendency to expand against said flange to friction thereagainst as drawn from said blister.

3. A package as in claim 2 wherein said coil has a hollow center and the blister has a flange extending through the hollow center and acts as a center bearing about which the coil can rotate.

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