

[54] **BOX WITH INWARDLY TAPERING
GUIDE CONES FOR UNIVERSAL WIND
PACKAGE WITH RADIAL PAY-OUT**

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242/171

[51] Int. Cl. **B65h 55/00**

[58] Field of Search 242/163, 159, 170, 171, 172;
206/52 R, 52 W, 59 R, 59 A, 59 B

[56] **References Cited**

UNITED STATES PATENTS

2,634,922 4/1953 Taylor, Jr. 242/163

2,767,938 10/1956 Taylor, Jr. 242/163
2,828,092 3/1958 Taylor, Jr. 242/163

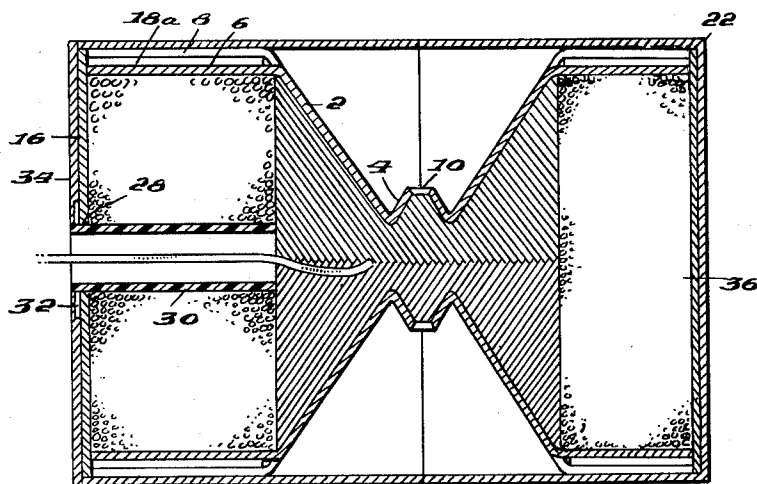
Primary Examiner—Stanley N. Gilreath

Attorney—Jennings Bailey, Jr.

[57] **ABSTRACT**

A package for a wind of flexible material wound with a universal wind but having a radial opening into the axial opening through which the inner end of the material is brought out is enclosed in a box having end-forming flaps hinged about axes perpendicular to the axial opening of the wind. The coils being pulled off of the interior of the wind are controlled by inwardly tapering members, such as truncated pyramids, projecting inwardly from the end walls. These pyramids are formed by the folding of a blank of cardboard, which has extending flaps which are interengaged with the end flaps of the box to hold the pyramids in position.

7 Claims, 6 Drawing Figures



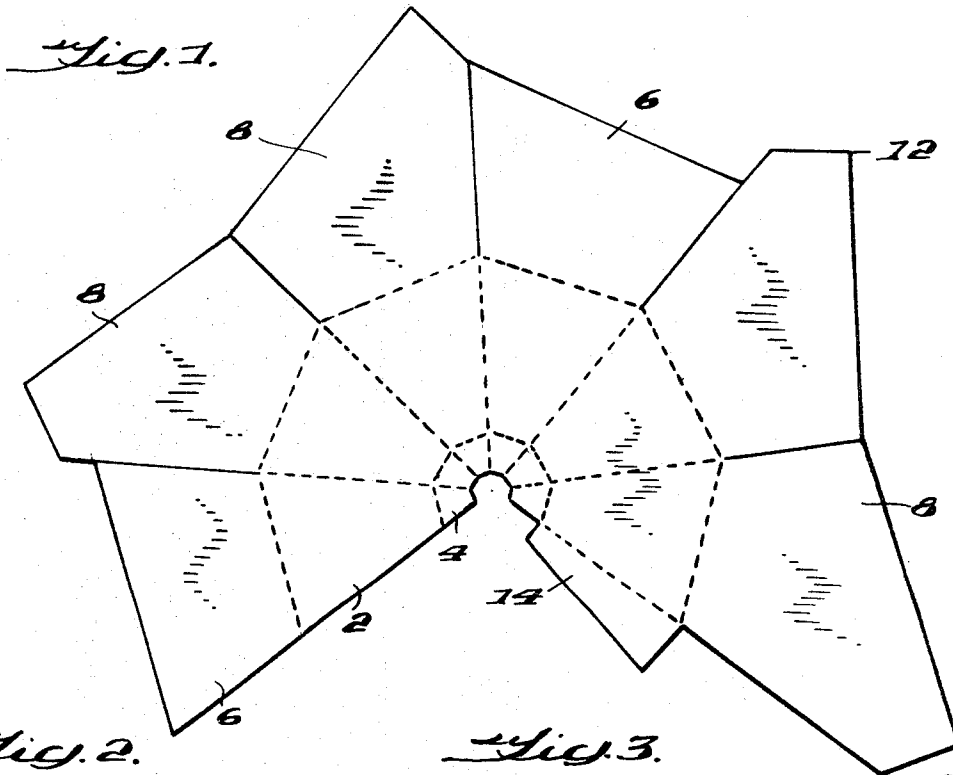


Fig. 2.

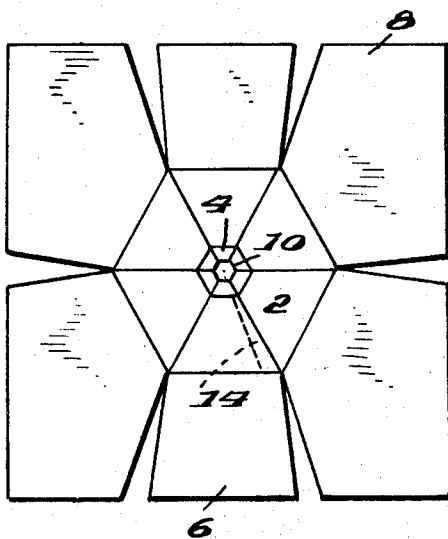
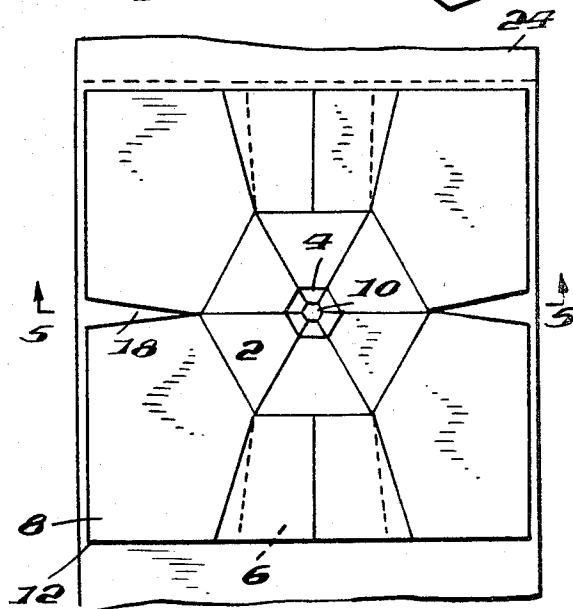


Fig. 3.



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Fig. 4.

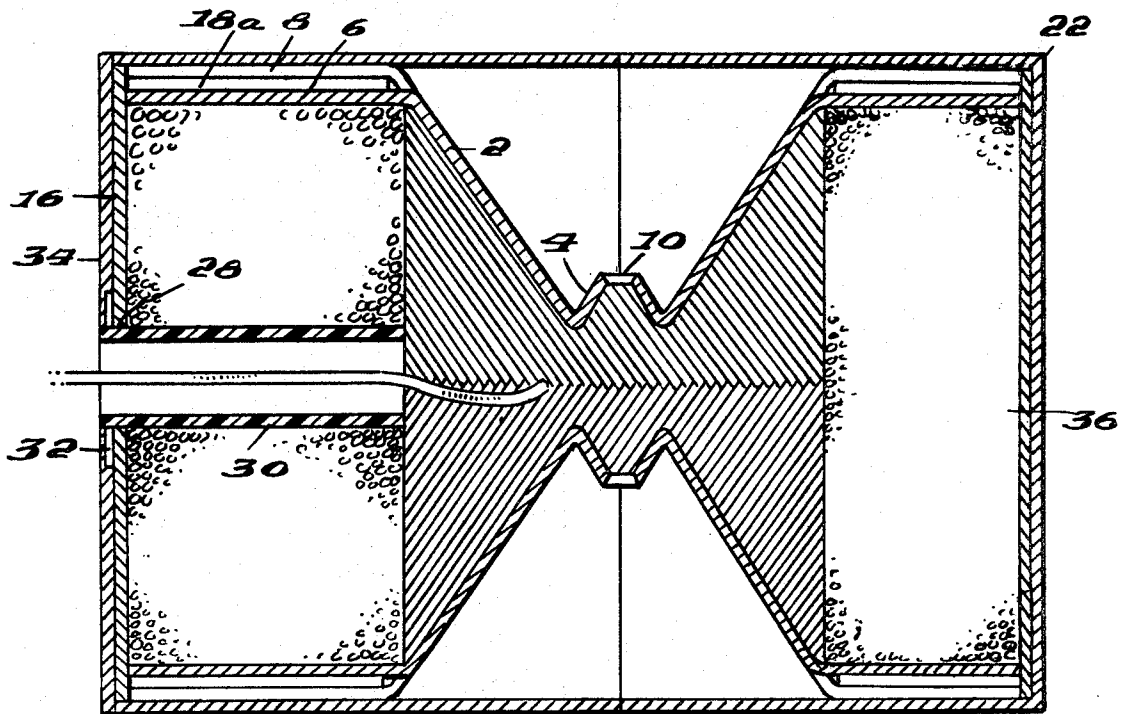


Fig. 5.

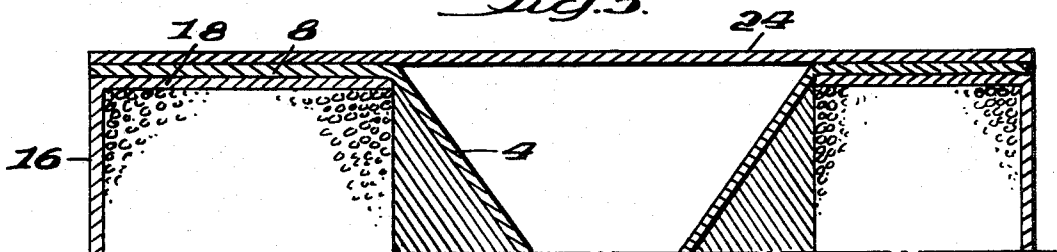


Fig. 6.

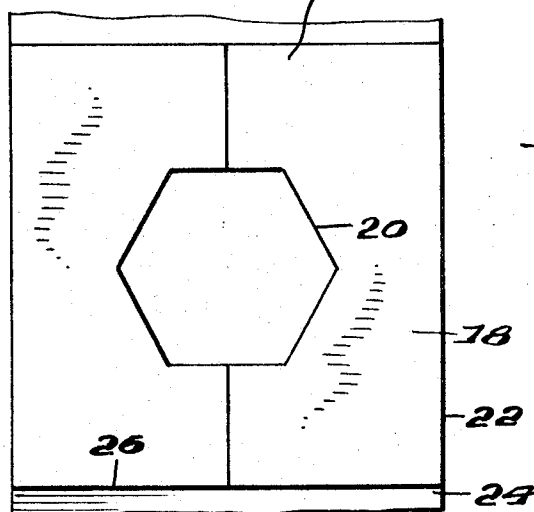


Fig. 6.

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BOX WITH INWARDLY TAPERING GUIDE CONES FOR UNIVERSAL WIND PACKAGE WITH RADIAL PAY-OUT

PRIOR RELATED APPLICATIONS

Application Ser. No. 819,777, filed Apr. 28, 1969 shows broadly the use of cones terminating adjacent the radial opening in a wind of this nature.

BACKGROUND OF THE INVENTION

1. Field of the Invention

The invention relates to packages of flexible material of a universal type having a radial opening through which the inner end of the material is led out for twistless payout.

2. The Prior Art

Taylor U.S. Pat. No. 2,767,938 shows a package of flexible material formed of layers each composed of a plurality of FIG.-8s, with the free inner end of the material led out through a radial opening.

Taylor U.S. Pat. No. 2,828,092 shows a wind in which the inner surfaces of the end portions of the internal surface of the axial opening are frusto-conical and are supported during handling by short conical members extending partly into the package.

As is explained in application Ser. No. 819,777, packages of the type shown in the Taylor patents referred to have proven satisfactory for twistless payouts at low speeds. However, at high speeds there appears to be no way to insure that, in the course of a payout of substantial yardage from such packages, a working loop will not half-hitch a loose loop before the payout through the hole is effected. This results in interference with a smooth payout of the material, and may stop it altogether.

The prior application Ser. No. 819,777 discloses the control of the coils within the wind by the use of conical inserts into the ends of the air core which almost meet one another or meet one another with separable contact opposite the position of the radial hole and which perform a function which prevents the half-hitch from forming and yet does not provide significant resistance to payout if the surfaces of the cones are smooth at all points.

SUMMARY OF THE INVENTION

The present invention is directed to a package which conveniently provides these controlling inwardly tapering members for a wind of the nature set forth, and particularly, which provides a blank which can be stamped from cardboard and which after assembly can be interleaved with the end flaps of a box in which the wind is placed so as to provide a convenient package in which the material is guided by the cones during the withdrawal.

BRIEF DESCRIPTION OF THE DRAWINGS

In the drawings:

FIG. 1 shows a blank from which the tapering members are formed;

FIG. 2 shows a plan view of the blank in assembled position ready to be placed in the box;

FIG. 3 is a top plan view of the box with one pair of end flaps folded outwardly and the assembled blank of FIG. 2 in position;

FIG. 4 is a cross-section on the line 4—4 of FIG. 3, with the end flaps folded in;

FIG. 5 is a cross-section on the line 5—5 of FIG. 3;

FIG. 6 is a plan view of the box with the outer flaps operated.

Referring now to FIG. 1, the blank shown therein is composed of a plurality of portions 2 composed of frustra of triangles, with similar inward extensions 4 and outward extensions 6 and 8. The members 4 terminate short of the center of the blank, leaving a space 10. The lines separating the members 2 and 4, and separating each member 2 from its adjacent member, and separating members 2 from members 6 and 8 are

provided with crease or fold lines indicated by the broken lines in FIG. 1. The members 6 and 8 are separated from each other by cuts represented by solid lines.

The members 6 are constituted by what is substantially a frustrum of a triangle. The members 8 have a somewhat different shape, with right angles 12 at their corners.

There is also along one free edge of the blank a pair of extensions 14, for the purpose of securing the blank in assembled position.

In order to assemble the blank, the parts 2 are folded inwardly out of the plane of the blank and the parts 4 upwardly from the ends of the parts 2, the free edges of the lowermost parts 2 being brought together along with the free edges of the lowermost parts 4, after which the flaps 14 are glued to the adjacent parts 2 and 4 so as to secure the blank in the condition shown in FIG. 2. In this, it will be noted that the corners 12 of the parts 8 are at the corners of a square, which square has substantially the area of the interior of the box in which the resulting pyramids are to be fitted.

The box itself has side walls 16 forming a closed container, inner flaps 18 in which are formed cutouts providing a hexagonal opening 20, hinged along the lines 22, and outer flaps 24 hinged along the lines 26.

The box is also provided in one of the side walls, that is, one of the walls parallel to the axis of the wind, with a hole 28, in which fits a tube 30 which may be of solid material or of rubber or of other similar flexible material. This tube is held in position by a pin 32 which passes through it, and which is held against the wall 16 by a sheet 34 of cardboard or the like which is glued onto the face of the wall 16 in which the tube is mounted.

The wind itself is indicated at 36. It is a universal wind with a radial opening of its central axial opening, such as is described in the Taylor patents referred to above.

The assembled blank shown in FIG. 2 is secured in the box in a position in which the corners 12 coincide with the corners of the box, by engaging the two flaps 6, which are opposite each other, beneath the end portions 18a of one of the inner flaps 18, this flap being in raised position, and then swinging the flap and the pyramid-forming member inward while inserting the end 18a of the other flaps 18 under the outer half of flap 8. The condition then is that the parts 6 of the pyramid-forming member lie beneath the ends 18a of the flaps 18 while the parts 8 of the cone-forming member overlies the flaps 18. The outer flaps 24 are then folded over and secured, and assembled by glue or the like.

The package then has the form shown in FIG. 4.

In assembling the package, one of the guide members is inserted in the manner just described. The wind is then placed in the package, with the lower pyramid extending into its axial opening. The tube 30 is inserted into the radial opening of the package, and the inner end of the material is brought out through the tube 30 to the outside of the package for withdrawal. The upper pyramid-forming member is then assembled in the manner described previously, and is secured in position by securing the flaps 24.

The package is then ready for shipment.

I claim:

1. A blank for forming an inwardly tapering guide for packages of flexible material in which a wind of flexible material is enclosed in a container, such wind having a radial opening into its axial opening through which the inner end of the material is drawn out, said blank comprising a plurality of substantially triangular adjacent parts having a common apex, the sum of the apical angles of said triangles being substantially less than 360° said triangles being separated by fold lines, flaps extending outwardly from the base of the triangles separated from each other, and means for securing the blank with the free edges of two of the triangles adjacent each other and the triangles bent downwardly out of the plane of the blank into a tapering shape.

2. A blank as claimed in claim 1, the portions of the triangles nearest to the common apex being truncated and being di-

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vided from the remainder of the triangles by fold lines substantially parallel to the base of the triangles.

3. A blank as claimed in claim 1 in which four of the flaps have rectangular outer corners, said corners when the triangles are bent out of the plane to form a pyramidal member coinciding with the corners of a square.

4. An insert for a container for holding a wind comprising a blank as claimed in claim 3, in which the triangles are bent out of the plane of the blank and the free edges of the triangles are secured together to form a pyramidal body.

5. An insert for a container for holding a wind comprising a blank as claimed in claim 1, in which the triangles are bent out of the plane of the blank and the free edges of the triangles are secured together to form a pyramidal body.

6. A package comprising a box having side walls and end walls, a wind of universal type of flexible material within the box having a radial opening into its axial opening, the container having an opening in its side wall opposite said radial

opening and the inner end of the material being brought out through said radial opening and said hole, a pair of inserts as claimed in claim 5 secured in the box with their perpendicular axes directed axially of the wind and with the apices of the pyramids substantially opposite the radial opening, said rectangular corners coinciding with the corners of the box.

7. In a package as claimed in claim 6, said container having inner and outer flaps at each end constituting said end walls, said inner flaps being hinged about axes at right angles to the axes of said outer flaps, said cone-forming member having two additional flaps between pairs of said four square-cornered flaps, said inner container flaps having opposed recessed therein forming a polygonal opening into which said pyramids fit, said additional flaps of the cone forming member being positioned beneath the inner end flaps and the square-cornered flaps being positioned between the inner end flaps and the outer end flaps of the container.

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