US 20010032904A1

(19) United States

(12) Patent Application Publication (10) Pub. No.: US 2001/0032904 A1

Liu (43) Pub. Date: Oct. 25, 2001

(54) HOLDERS FOR A ROLL CORE

(76) Inventor: An-Hsia Liu, Torrance, CA (US)

Correspondence Address:
Patent Law & Venture Group
3151 Airway Ave., Suite K-105
Costa Mesa, CA 92626 (US)

(21) Appl. No.: 09/772,398

(22) Filed: Jan. 29, 2001

Related U.S. Application Data

(63) Non-provisional of provisional application No. 60/179,382, filed on Jan. 31, 2000.

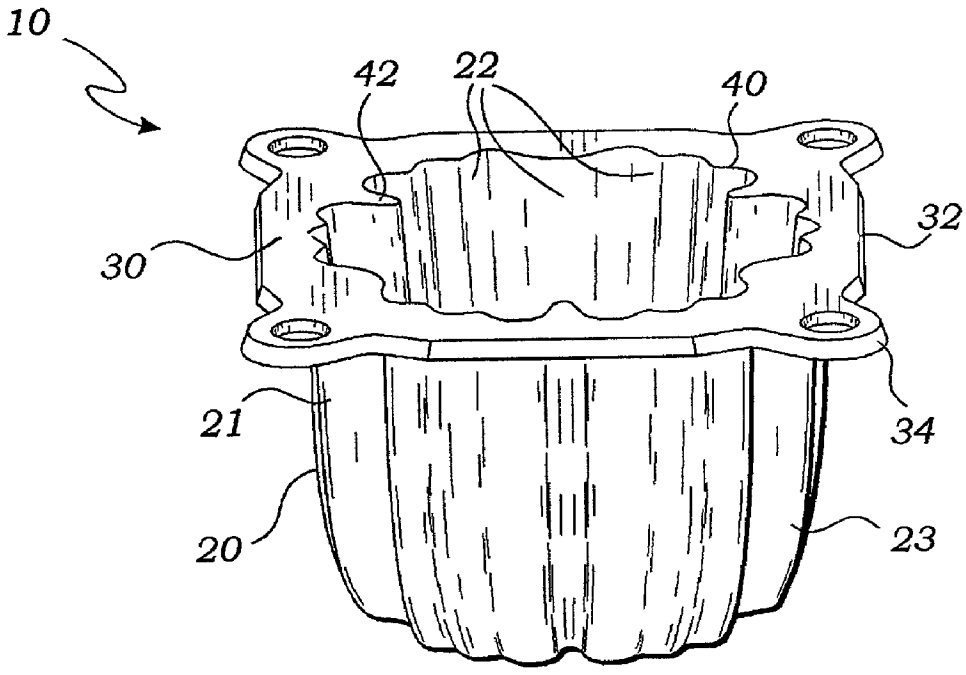
Publication Classification

(51) Int. Cl.[7] B65H 16/06; B65H 75/24

(52) U.S. Cl. 242/571.4; 242/588.2; 242/613.5

(57) ABSTRACT

A roll core supporting apparatus comprises a pair of cylindrical handles. Each of the handles provides a generally circular side wall having a plurality of arcuate side wall segments adapted for compressive constraint within the roll core and outward spring bias deflection for gripping the roll core interiorly at one end. The pair of handles, then, are placed in each end of the roll core. The arcuate side wall segments may be axially oriented or circumferentially oriented. The side wall further provides a plurality of spaced-apart, axially-directed stiffening ribs. The roll core is supported by the two handles which allows the film to be dispensed from the roll as it rotates about the handles.



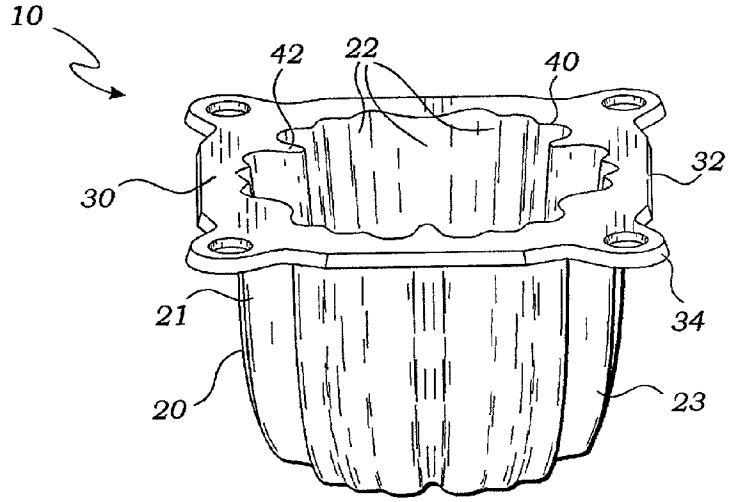


Fig. 1

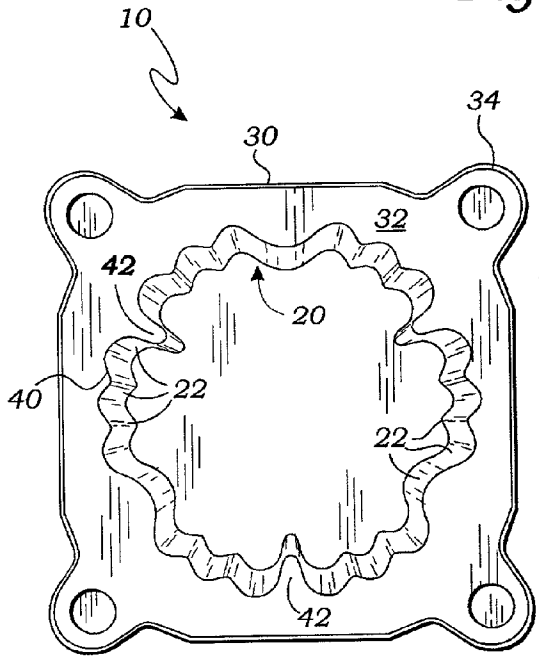


Fig. 2

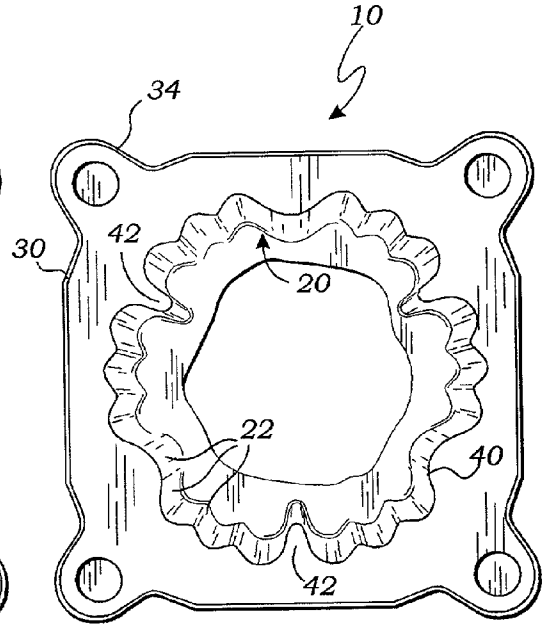


Fig. 3

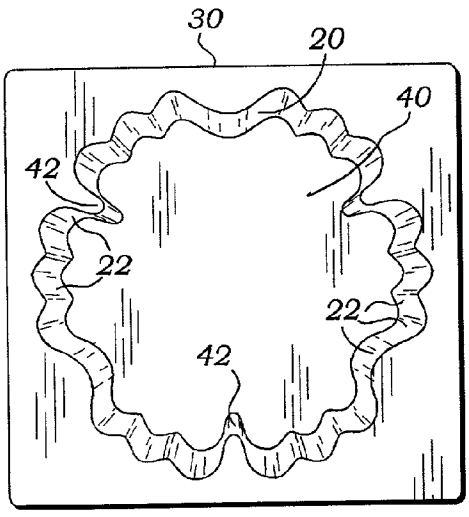


Fig. 4

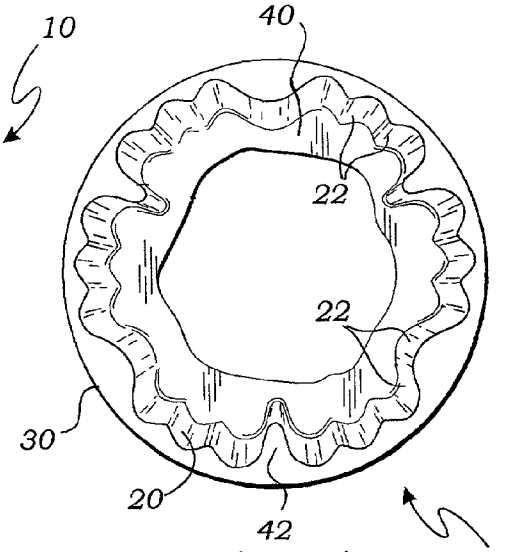


Fig. 5

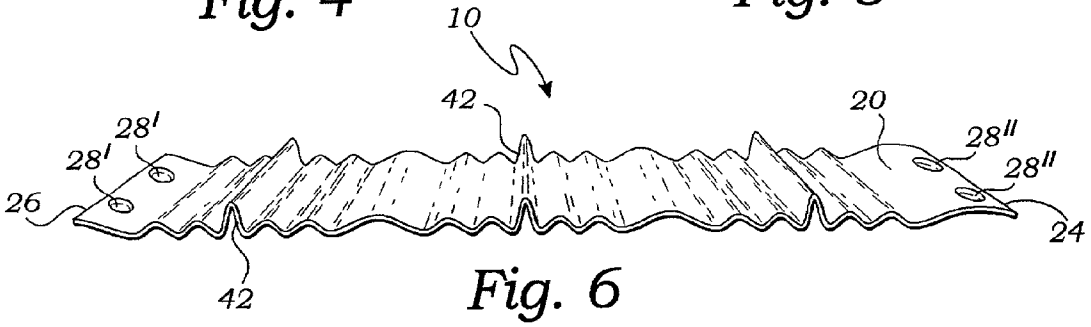


Fig. 6

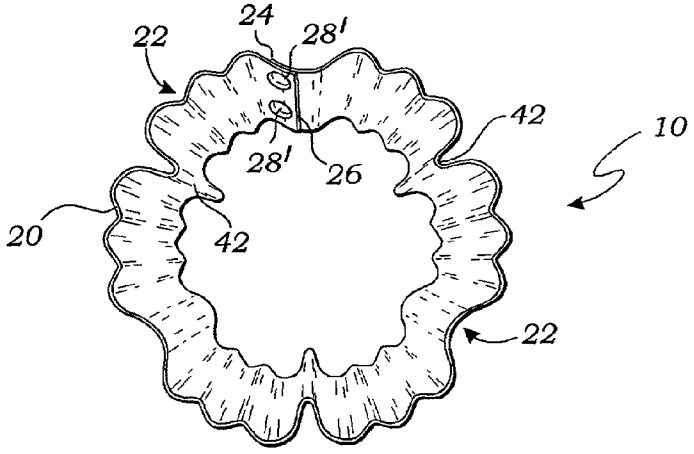


Fig. 7

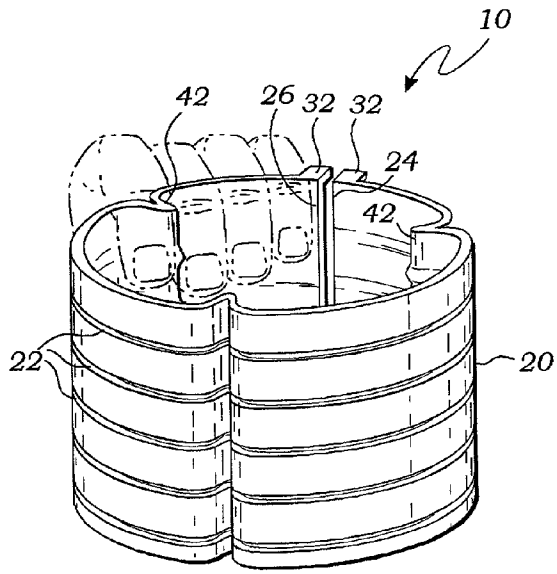


Fig. 8

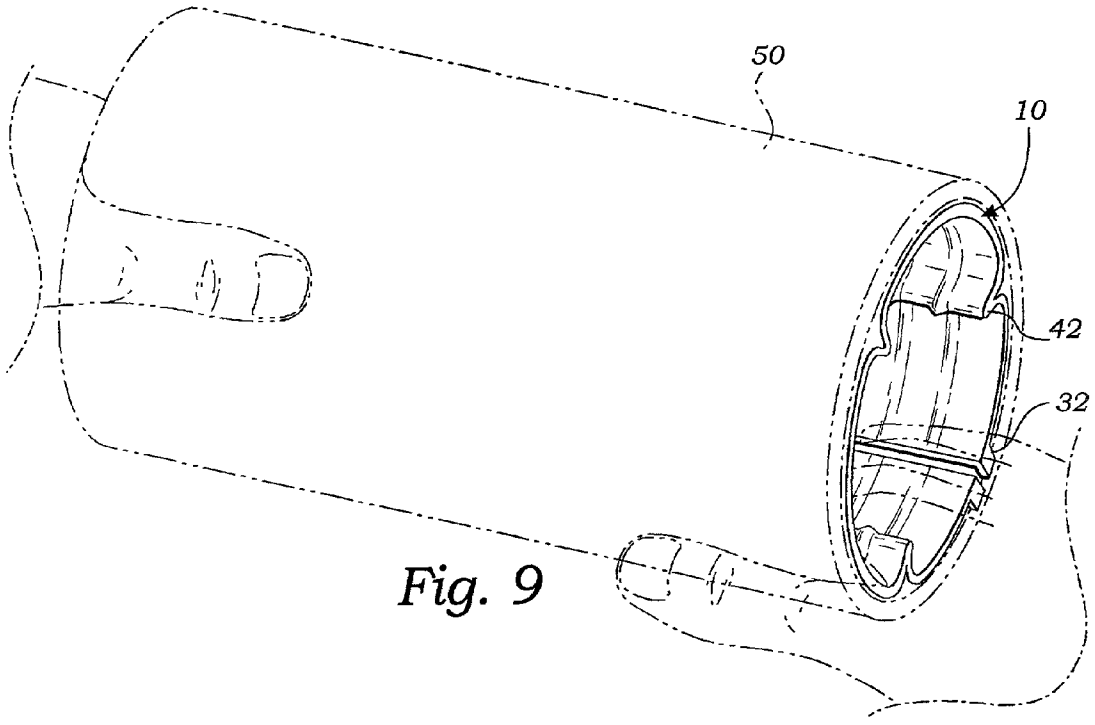


Fig. 9

HOLDERS FOR A ROLL CORE

[0001] The present invention claims the priority date of a prior filed provisional patent application having Ser. No. 60/179,382 and an official filing date of Jan. 31, 2000 and which discloses substantially the same material as described herein.

BACKGROUND OF THE INVENTION

[0002] 1. Field of the Invention

[0003] This invention relates generally to roll core holders and more particularly to a cup-shaped flexible handle adapted for insertion into an open end of a film dispensing roll.

[0004] 2. Description of Related Art

[0005] The following art defines the present state of this field:

[0006] Parry, U.S. Pat. No. 4,179,081 describes an improved apparatus for the manual application of plastics stretch films to materials and items to be packaged and secured as a unit or packaged and secured to a shipping and transporting means. The apparatus consists of an extended core for the supply of plastics stretch film and a pair of tubular-like grip means for said extended core. Said grip means serving as a manual control means for the speed of paying out the plastics stretch film material, and as a manual means for applying tension on the film during the course of applying it to materials and items.

[0007] Parry, U.S. Pat. No. 4,248,392 describes an improved apparatus for the application of plastics stretch films to materials and items to be packaged and secured as a unit or packaged and secured to a shipping and transporting means. The apparatus consists of a pair of insertable adapters for the ends of a cylindrical core which holds a supply of plastic stretch films and a pair of tubular-like grip means for said insertable adapters. The grip means serves as a control means for the speed of paying out the plastics stretch film material, and as a means for applying tension on the film during the course of applying it to materials and items. The apparatus may be used for manual or machine application of film to materials. Brake shoe equivalents of the grip means may be used for machine applications.

[0008] Parry et al., U.S. Pat. No. 4,722,493 describes a holder for dispensing stretch film from a roll comprising a cylindrical body and an arbor rotatably supported on the body. A flexible grip having internal ribs covers the body and the arbor, so that one can, by applying finger pressure to the grip, brake rotation of the arbor and thus control film tension.

[0009] The prior art teaches the use of roll core holders but does not teach a relatively flimsy cylindrical handle held within a roll core at either end by compressive elastic material bias. The present invention fulfills these needs and provides further related advantages as described in the following summary.

SUMMARY OF THE INVENTION

[0010] The present invention teaches certain benefits in construction and use which give rise to the objectives described below.

[0011] A roll core is made of compressed paper stock or plastic. It is used to wind up plastic, metal and paper sheets into rolls. These sheet materials are subsequently dispensed from the rolls. Rolls of this sort may be supported on a core chuck or similar equipment whereby the roll goods are pulled from the roll core by revolving the core on the core chuck. This may be a mechanized or manual operation. In some cases the roll goods is dispensed by simply holding the roll core and pulling the sheet roll goods from the roll core. This is difficult and can cause burns as the roll slips in the hands of one holding the core. The several Parry references teach that a manually held support can be used with a core for the dispensing step. The present invention improves on the state of the art in this field by providing a very low manufacturing cost roll holder which is effective and may be discarded after use. In fact, the cost of the present invention is low enough to supply a pair of the present invention handles with every roll of goods that is shipped without driving up the cost of this commercial product. The present inventive supporting apparatus comprises a single or pair of cylindrical handles. For a short length core, a single handle may be used. For longer cores, a pair of the handles are necessary. Each of the handles provides a generally circular side wall having a plurality of arcuate side wall segments adapted for compressive constraint when inserted into an end of the roll core and provides outward spring bias deflection for gripping the roll core interiorly. The pair of handles, then, are placed in each end of the roll core. The arcuate side wall segments may be axially oriented or circumferentially oriented. The side wall of the invention further provides a plurality of spaced-apart, axially-directed stiffening ribs. These ribs are used to apply finger pressure to prevent the handles from revolving with the roll core. The roll core is supported by the one or two handles which allows the film to be dispensed from the roll as the roll rotates about the stationary handle(s).

[0012] A primary objective of the present invention is to provide an apparatus and method of use of such apparatus that provides advantages not taught by the prior art.

[0013] Another objective is to provide such an invention capable of being produced at low cost.

[0014] A further objective is to provide such an invention capable of compressing into a roll core and this providing support while the core is rotated.

[0015] A still further objective is to provide such an invention capable of being formed from a flat strip and rolled into a cylindrical for use as a roll core handle.

[0016] Other features and advantages of the present invention will become apparent from the following more detailed description, taken in conjunction with the accompanying drawings, which illustrate, by way of example, the principles of the invention.

BRIEF DESCRIPTION OF THE DRAWINGS

[0017] The accompanying drawings illustrate the present invention. In such drawings:

[0018] **FIG. 1** is a perspective view of a first embodiment of the present invention;

[0019] **FIG. 2** is an end elevational view thereof;

[0020] **FIG. 3** is a further embodiment thereof wherein an end wall provides an aperture;

[0021] **FIGS. 4 and 5** are still further embodiments thereof having square and round flanges respectively; and

[0022] **FIG. 6** is a perspective view of a further embodiment thereof shown unrolled;

[0023] **FIG. 7** is the embodiment of **FIG. 6** shown rolled into a cylinder with the seam fastened;

[0024] **FIG. 8** is a perspective view of a still further embodiment of the invention having circumferential ribs encircling the side wall; and

[0025] **FIG. 9** is a perspective view of a roll of goods with the invention inserted in one end.

DETAILED DESCRIPTION OF THE INVENTION

[0026] The above described drawing figures illustrate the invention in several of its preferred embodiments, which are further defined in detail in the following description.

[0027] A roll core **50** (not a part of the invention) is supported by one or a pair of cylindrical handles **10** preferably made of thin-wall plastic. Such roll cores are made of paper or plastic and are simple tubes with open ends. The handles **10** may be formed by injection molding, vacuum forming or spin molding. Each handle **10** is an integral, one-piece part providing a generally circular side wall **20** having a plurality of side-by-side arcuate side wall segments **22** adapted for compressive constraint within the roll core **50** and derives from such compressive constraint, an outward spring bias deflection which is used for gripping the roll core **50** interiorly at one of its ends. In compressing, each of the arcuate segments **22** flex to form a smaller radius of arc, thereby diminishing the overall outside diameter of the side wall **20**. The handles **10**, are placed in one end or alternately, in each end of the roll core **50** and are manually gripped to support the roll core while the core is rotated for unwinding the film previously wound on the core. This is best seen in **FIG. 9**, The arcuate side wall segments **22** may be axially oriented as shown in **FIG. 7** or circumferentially oriented, as shown in **FIG. 8**. The side wall **20** further provides a plurality of spaced-apart, axially-directed stiffening ribs **42**.

[0028] Preferably, an integral, outwardly directed flange **30** is positioned at a proximal end of the side wall **20** and preferably provides a peripheral stiffening lip **32**. This flange **30** preferably provides a plurality of integral spaced-apart corner ears **34** which extend radially outwardly, as clearly shown in FIGS. **1-3**. Preferably, an integral end wall **40** is positioned at a distal end of the side wall **20**, and may be filly closed **(FIG. 4)**, or it may provide a finger access aperture **(FIG. 5)**. The side wall **20** may be formed with an axially directed parting seam **24** enabled for parting the side wall **20** so it may be unrolled as is shown in **FIG. 6**. This seam preferably incorporates a means for sealing **26** the seam **24** such as the embossed dimples **28'** and corresponding surface depressions **28"** shown in **FIG. 6**. When the side wall **20** is rolled-up as shown in **FIG. 7**, the embossed dimples **28'** are pressed into the surface depressions **28"** to secure or fasten the parting seam **24**.

[0029] Preferably a proximal portion **21** of the side wall **20** is generally non-tapered while a distal portion **23** of the side wall **20** is tapered inwardly. The distal tapered portion **23** is sized so that it provides a sliding fit within the roll core **50**, and the proximal non-tapered portion **21** provides a compression fit within the roll core **50**. To illustrate this, the internal diameter of certain standard core rolls is exactly 3 inches. Correspondingly, the side wall is approximately 3 inches in length. The proximal portion **21** of the side wall **10** is preferably between 3 1/16 and 3 1/64 inches in diameter for a distance of about 1.5 inches from the flange **30** measured axially. For the distal 1.5 inches the side wall **20** tapers uniformly to 2¾ inches. Other dimensions may be used as well to achieve a handle that is easily slipped into the roll core and which is secured in it.

[0030] As shown in **FIG. 8**, the inventive device may comprise primarily the side wall **20** with circumferentially directed arcuate ribs **22** as previously stated. In this embodiment, the flange **30** may comprise several small tabs **32**. the compressive flexing of the side wall **20** when inserted into the roll core is primarily accomplished when the stiffening ribs **42** move radially inwardly. This causes a strong spring force to apply gripping power to the interior of the roll core **50**.

[0031] In use, the apparatus enables holding a spinning core without finger contact so that friction burns are avoided. The arcuate ribs **22** provide spring-like action which absorbs vibration forces which would otherwise be passed to the hands. The low friction material used in construction of the invention enables the roll core to slip as it rolls, yet also enables holding the roll core securely. The invention is preferably light in weight such that the total weight is not significantly changed by using the handles. The side wall is typically 0.020 in thickness or less. Thus the cost of the handles is insignificant allowing them to be discarded after use. The flanges may be used as a brake against the roll core, and otherwise protects the hands from burns.

[0032] While the invention has been described with reference to at least one preferred embodiment, it is to be clearly understood by those skilled in the art that the invention is not limited thereto. Rather, the scope of the invention is to be interpreted only in conjunction with the appended claims.

What is claimed is:

1. A roll core supporting apparatus comprising at least one cylindrical handle, the at least one handle providing a generally circular side wall, the side wall comprising a plurality of side-by-side arcuate side wall segments adapted for outward spring bias deflection for gripping a roll core interiorly at one end thereof.

2. The apparatus of claim 1 wherein the arcuate side wall segments are axially oriented.

3. The apparatus of claim 1 wherein the arcuate side wall segments are circumferentially oriented.

4. The apparatus of claim 1 wherein the side wall further provides a plurality of spaced-apart, axially-directed stiffening ribs.

5. The apparatus of claim 1 further providing an integral outwardly directed flange at a proximal end of the side wall wherein the outwardly directed flange providing a peripheral stiffening lip.

6. The apparatus of claim 5 wherein the outwardly directed flange provides a plurality of integral spaced-apart corner ears extending radially outwardly therefrom.

7. The apparatus of claim 1 further providing an integral end wall at a distal end of the side wall.

8. The apparatus of claim 7 wherein the end wall provides a finger access aperture.

9. The apparatus of claim 1 wherein the side wall provides an axially directed seam enabled for parting the side wall.

10. The apparatus of claim 9 further comprising a means for sealing the axially directed seam.

11. The apparatus of claim 1 wherein a proximal portion of the side wall is generally non-tapered and a distal portion of the side wall is tapered, the tapered portion providing a sliding fit within the roll core, the non-tapered portion providing a compression fit within the roll core.

12. The apparatus of claim 1 constructed of a material having a low coefficient of friction for sliding in contact with a roll core.

* * * * *