Sept. 19, 1967 J. H. YERKEY 3,342,017

PACKAGING MACHINE

Filed Dec. 15, 1964

4 Sheets-Sheet 1

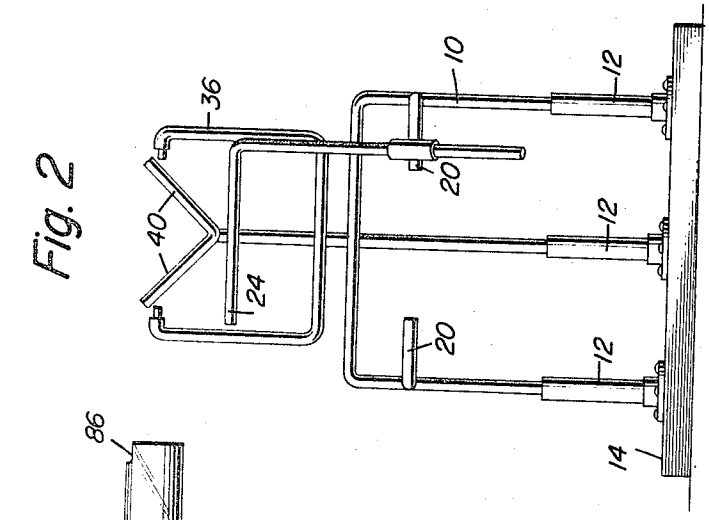


Fig. 2

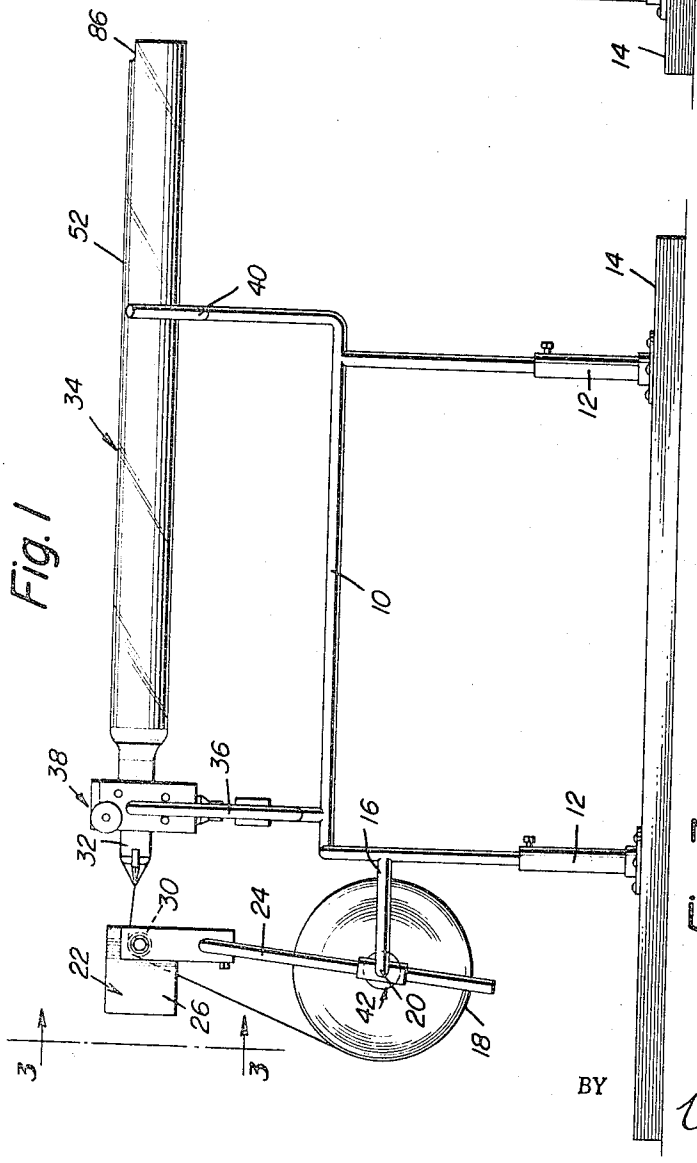


Fig. 1

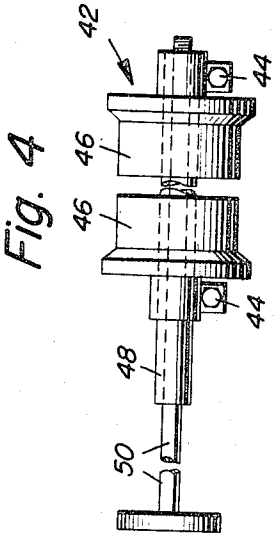


Fig. 4

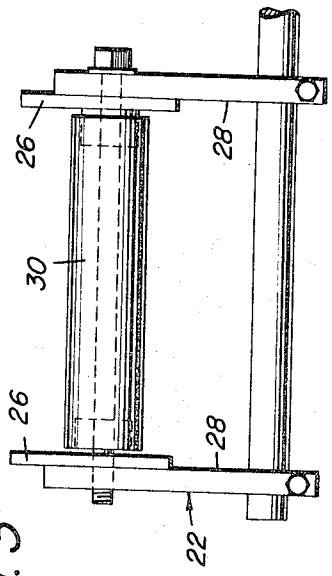


Fig. 3

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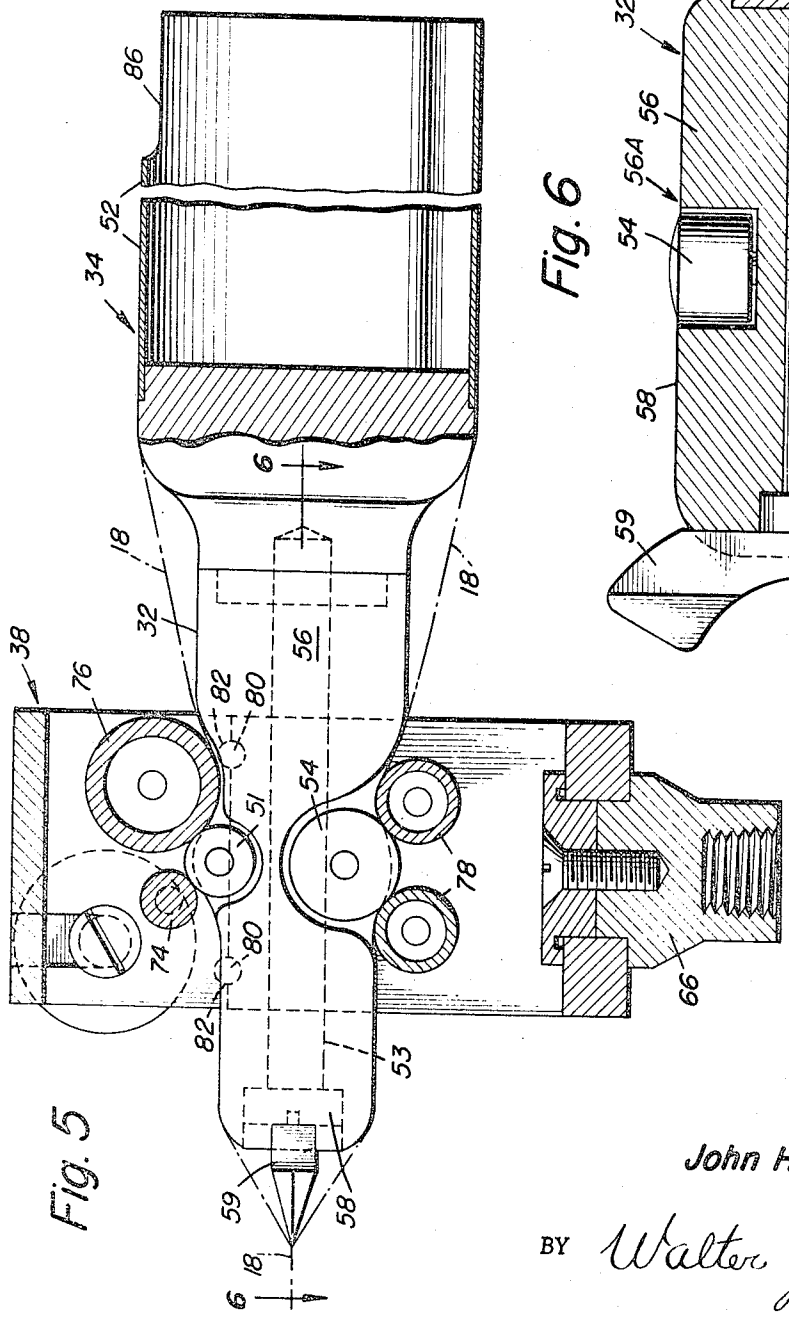


Fig. 5

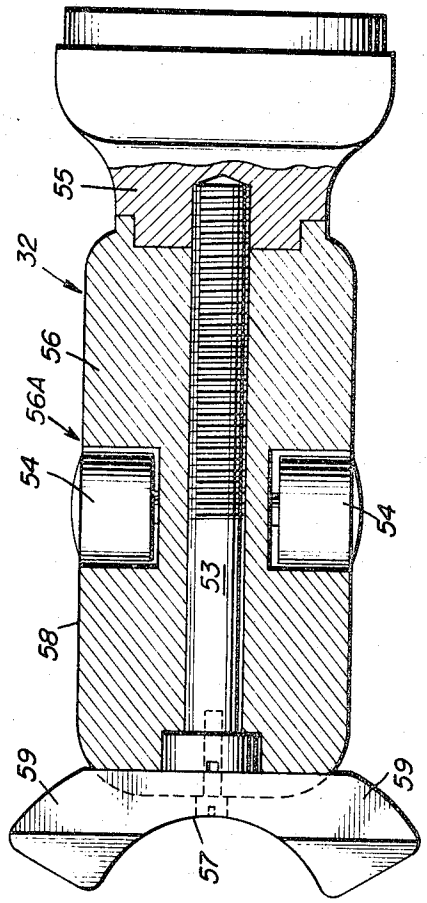


Fig. 6

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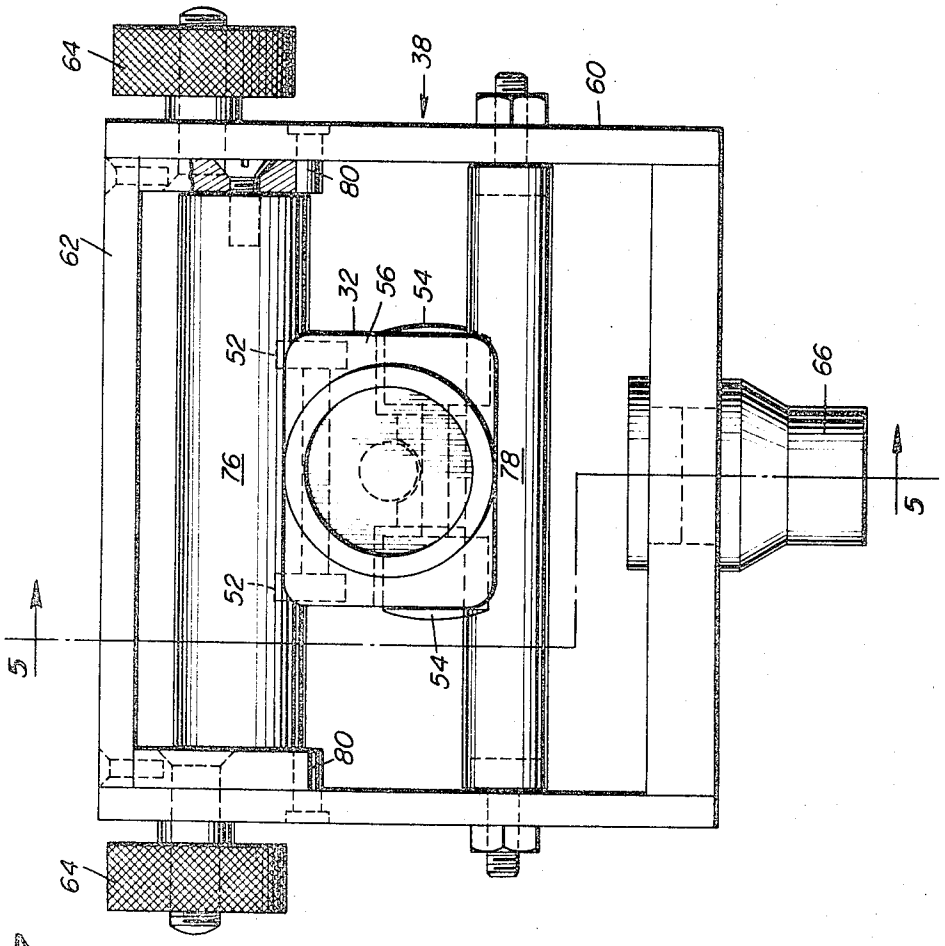


Fig. 7

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Fig. 8

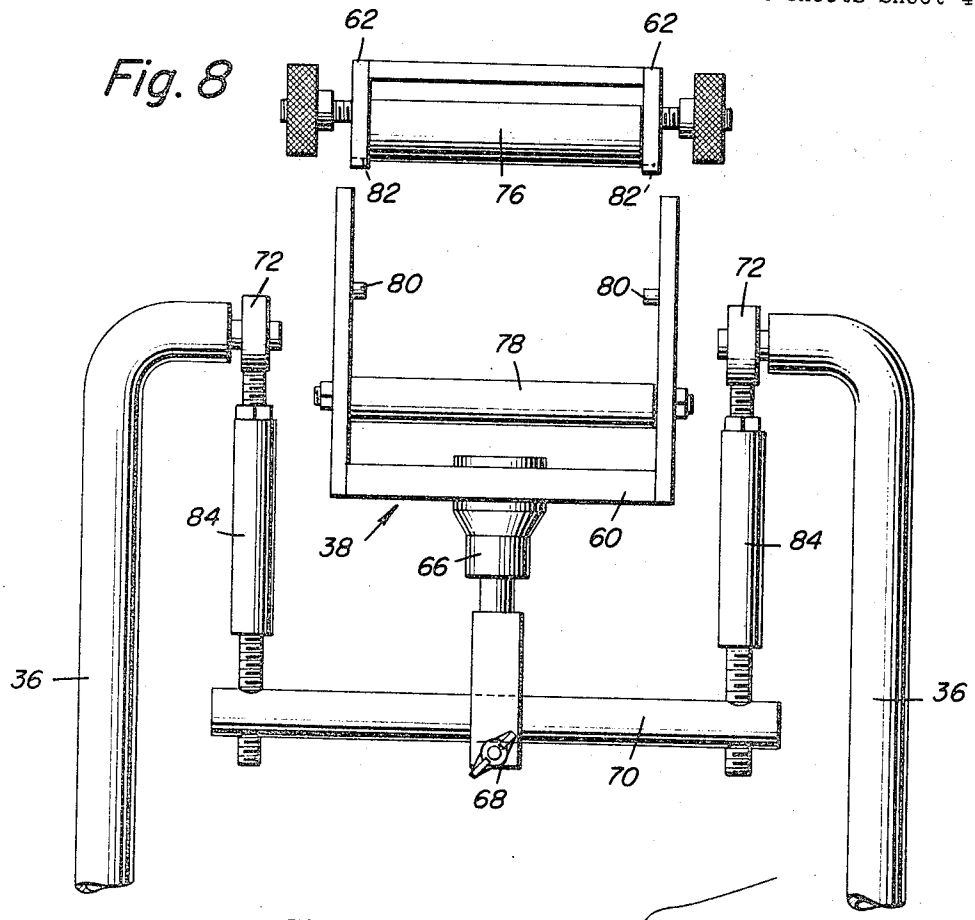
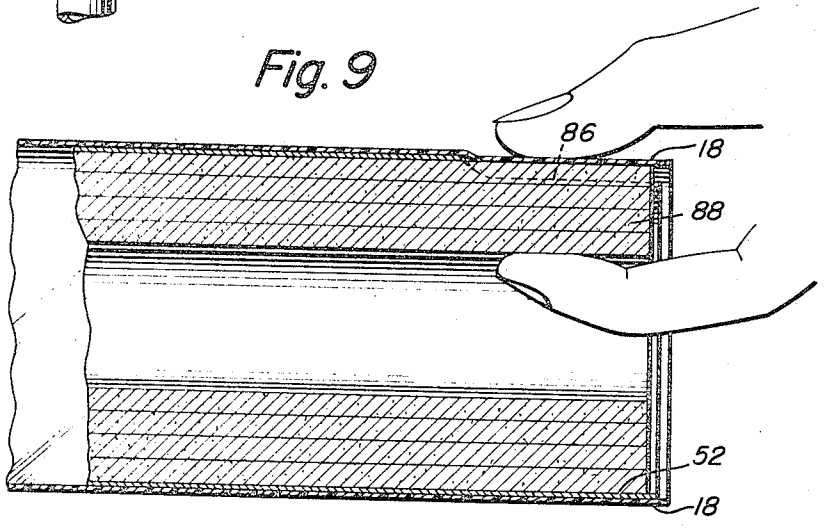



Fig. 9

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3,342,017

# PACKAGING MACHINE

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10 Claims. (Cl. 53—255)

## ABSTRACT OF THE DISCLOSURE

An apparatus is provided for encasing an article in a tubular wrapper, the apparatus having a drawsleeve for containing the article and fitting within the tubular wrapper, a support on which to rest the wrapping end of the drawsleeve, a pivotal support for the opposite end of the drawsleeve so that the drawsleeve can be pivoted away from the rest support to facilitate moving the tubular wrapper along the drawsleeve, with said opposite end of the drawsleeve having rollers mounted thereon and with the pivotal support including rollers which embrace the drawsleeve rollers to prevent longitudinal movement of the drawsleeve.

This invention relates generally to the art of packaging. More particularly, this invention pertains to a machine for encasing elongated articles in a slip-over wrapper.

Many articles of merchandise are difficult to wrap because they are too long for standard widths of wrapping stock. In such circumstances, the articles are usually encased longitudinally in the wrapper stock. In either case, there always results an unsightly seam which distracts from the appearance of the package.

A seamless (or neatly factory seamed) tubing stock of plastic and the like is available in rolls for the packaging industry. This, however, is very difficult to draw over an elongated article of much length and yet have a close fit. Consequently, such tubing stock has been mainly used for small packets.

It is an object of this invention, therefore, to provide an arrangement for rapidly encasing elongated objects with a close fitting tubular wrapper from a continuous roll of stock.

Another object of this invention is to provide an anchored drawsleeve applicator to facilitate the encasement of an article with a close fitting tubular wrapping stocking wherein the drawsleeve is held against moving longitudinally with the drawing force.

Another object of this invention is to provide an anchored internal dilater for expanding continuously moving tubular stock.

Other objects and attendant advantages of this invention will become more readily apparent and understood from the following detailed specification and the accompanying drawings in which:

FIG. 1 is a side elevation of a packaging machine incorporating features of this invention;

FIG. 2 is a left end elevation of the framework of the machine of FIG. 1;

FIG. 3 is an enlarged detail view of the material guide assembly viewed in the direction of the arrows 3—3 of FIG. 1;

FIG. 4 is an enlarged detail view of a stockspool assembly;

FIG. 5 is a vertical section of the control center assembly taken on line 5—5 of FIG. 7;

FIG. 6 is a horizontal section, somewhat enlarged, taken on line 6—6 of FIG. 5 showing details of the drawsleeve head;

FIG. 7 is an enlarged view of the control center with



the head shown in an operative position therein and the spreader omitted for clarity;

FIG. 8 is a view of the control center above showing its swivel mount and the removable upper roller mount; and

FIG. 9 is a longitudinal section, through the right end portion of the drawsleeve illustrating the use of the finger notch for withdrawal of wrapper sleeve with the article.

Referring now to the details of the drawings as depicted in FIGS. 1 and 2, it will be noted the packaging machine of this invention consists of a pipe frame **10** which stands with adjustable feet **12** on a base **14**. At one end of this frame **10**, members **16** extend to support a roll of flattened tubular encasing stock **18** on a pair of journals **20**.

The stock **18** unwinds from a split spool assembly **42**, as indicated in FIG. 4, as it is used and passes over a guide assembly **22** clamped to a support **24**. A pair of spaced check plates **26** are mounted on the side pieces **28** of the guide assembly **22** as shown best in FIG. 3. These keep the stock **18** centered on the roller **30** and guide it over the head end **32** of a drawsleeve assembly **34**.

A yoke **36** of the frame **10** supports one end of the drawsleeve assembly **34** by means of a swiveled control center **38**. The other end of the drawsleeve rests on a Y-shaped support **40** at the other end of the frame **10**.

The stock **18** may be of any tubular material but transparent plastic is preferred for neat packaging. The stock **18** is obtained flattened and in large rolls. These are placed on the spool assembly **42** by loosening a clamp **44** on one spool half **46**, and sliding it off of the hollow axle **48**. When re-assembled, the spool assembly **42** and roll of stock rotates on a shaft **50** extending through the journals **20** and the hollow axle **48**.

With reference now to FIGS. 5 and 6, the drawsleeve assembly **34** consists of the previously mentioned head end **32** secured to a larger diameter polished thin wall tube **52** by means of a smoothly rounded reducing adapter **55**.

The head end **32** consists of two parts, adapter **55** and piece **56A** (shown as made up of parts **56** and **58** which would be formed integrally) held together by a machine screw **53**. Optionally a threepiece assembly **55**, **56** and **58** may be used, where parts **56** and **58** are separate pieces. In either case, an upper inner roller **51** and a lower inner roller **54** are loosely captivated intermediate the ends of the assembly and extend above the surface thereof. These are designated as "inner" because they operate within the tubular stock **18** when it is drawn over the head end **32**. Also within the stock **18**, operating to open or dilate the flat stock, is a spreader **57** secured on the tip of the head **32** and having smooth contoured wings **59**.

As the flat stock opens it passes over the head **32** and rollers **51**, **54**, and thence over the adapter **55** and finally the tube **52**. This is a manually performed operation as will be described later.

The control center **38** consists of an open rectangular frame comprising a lower roller mount **60** and an upper roller mount **62** as best shown in FIGS. 7 and 8. The upper mount **62** is held to the lower mount **60** by knurled clamping nuts **64**. The lower mount **60** is mounted upon a pivot post **66** coincident with the vertical center line of the control center **38**. This post **66** is secured to a clamp block **68** on a crosspiece **70** which depends from horizontal journals **72** in the upper ends of the yoke **36** of the machine frame **10**.

With special reference to FIG. 5, it should be noted that the drawsleeve assembly **34** is captured by the outwardly protruding rollers **51** and **54** of the head **32** even

though these parts are covered by the tubular stock **18**. This is done by providing embracing rollers **74, 76** (upper outside) and a pair, reference numeral **76** (lower outside). The "outside" nomenclature refers to their operating exteriorly of the tubular stock **18**.

When the upper roller mount **62** is firmly pressed down so that it engages pins **80** in its notches **82**, the head **32** is initially centered with the axis of the journals **72** by adjusting threaded rod assemblies **84** on which the control center **38** swings. It will be noted the latter is free to swivel and tilt when the drawsleeve assembly **34** is raised from its cradle or yoke **40** without unduly distorting the flow of tubular stock **18** over the head end **32** because the pivoting is centered there.

The machine is prepared for service by pushing the tubular stock **18** all the way over the tube **52** and extending over a finger notch **86** cut in its end.

In operation an article to be wrapped, **88**, such as a rug, curtain or the like is rolled up and inserted into the tube **52** (see FIG. 9). The article **88** and tubular stock **18** are grasped together by the fingers at the notch **86** and both are drawn from the tube **52**. This pulls more stock from the supply roll on spool assembly **42** onwardly over the spreader **56**, the head **32**, and tube **52**, ready for the insertion of the next article **88**. Although this action may tend to pull the drawsleeve assembly **34** in the same direction, the control center **38** effectively retains it in position.

The tubular stock **18** is cut with scissors at the end of each article when it is withdrawn and the stock tucked inside or heat sealed or tied in a pucker as desired.

Obviously many modifications and variations of the present invention are possible in light of the above teachings. It is, therefore, to be understood that within the scope of the appended claims the invention may be practiced otherwise than as specifically described.

What is claimed is:

**1.** Apparatus for encasing an elongated article in a slip-over wrapper, comprising an elongated hollow member for receiving said wrapper as an envelope and for housing said elongated article and having an opening at one end for permitting simultaneous withdrawal of said elongated article and said wrapper from said elongated member to obtain encasement of said article, roller means mounted to said elongated member for engaging the interior of said wrapper, and stationary roller means for engaging the exterior of said wrapper in embracing relationship with respect to said first mentioned roller means to thereby anchor said elongated member, said elongated member including a head end and consisting of two sections and means for clamping said two sections together, with said first mentioned roller means each having a journal shaft element encompassed by the junction of said two sections to thereby obtain mounting of said roller means.

**2.** The apparatus as recited in claim **1** wherein said first mentioned roller means consists of upper and lower pairs of rollers.

**3.** The apparatus as recited in claim **1** wherein said head end is of smaller diameter than the said one end of said elongated member.



**4.** The apparatus as recited in claim **1** wherein said head end includes a spreader element positioned at one end for facilitating the insertion of said wrapper thereover.

**5.** Apparatus for encasing an elongated article in a slip-over wrapper, comprising a frame structure, an elongated hollow member for receiving said wrapper as an envelope and for housing said elongated article and having an opening at one end for permitting simultaneous withdrawal of said elongated article and said wrapper from said elongated member to obtain encasement of said article, means for removably supporting said elongated member adjacent said one end thereof to said frame structure, and means for pivotally mounting the other end of said elongated member to said frame structure, with the pivotal mounting means including roller elements mounted to said elongated member for engaging the interior of said wrapper and additional roller elements mounted thereto for engaging the exterior of said wrapper in embracing relationship with respect to said first mentioned roller elements to thereby anchor said elongated member from longitudinal movement.

**6.** The apparatus as recited in claim **5** wherein the pivot axis of said pivotal mounting means is substantially perpendicular, with respect to the axis of said elongated member, to the wrapper which is encompassed by said first mentioned and said additional roller elements, whereby said elongated member can be pivoted away from the removable support means without distortion of said wrapper along said elongated member.

**7.** The apparatus as recited in claim **6** and additionally, means rotatably mounted to said frame structure for supplying a roll of said wrapper.

**8.** The apparatus as recited in claim **7** and additionally, means for guiding the wrapper from said rotatably mounted means to said elongated member.

**9.** The apparatus as recited in claim **5** wherein said one end of said elongated member has a notch to permit said wrapper to contact said article when housed by said elongated member.

**10.** The apparatus as recited in claim **5** wherein said pivotal mounting means includes a support structure having said additional roller elements journalled thereto, a pair of vertically adjustable elements pivotally mounted to said frame structure and depending on opposite sides of said support structure, and structure securing said support structure on an axis substantially coincident with its vertical centerline to said frame structure.


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