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ARTICLE WRAPPING APPARATUS

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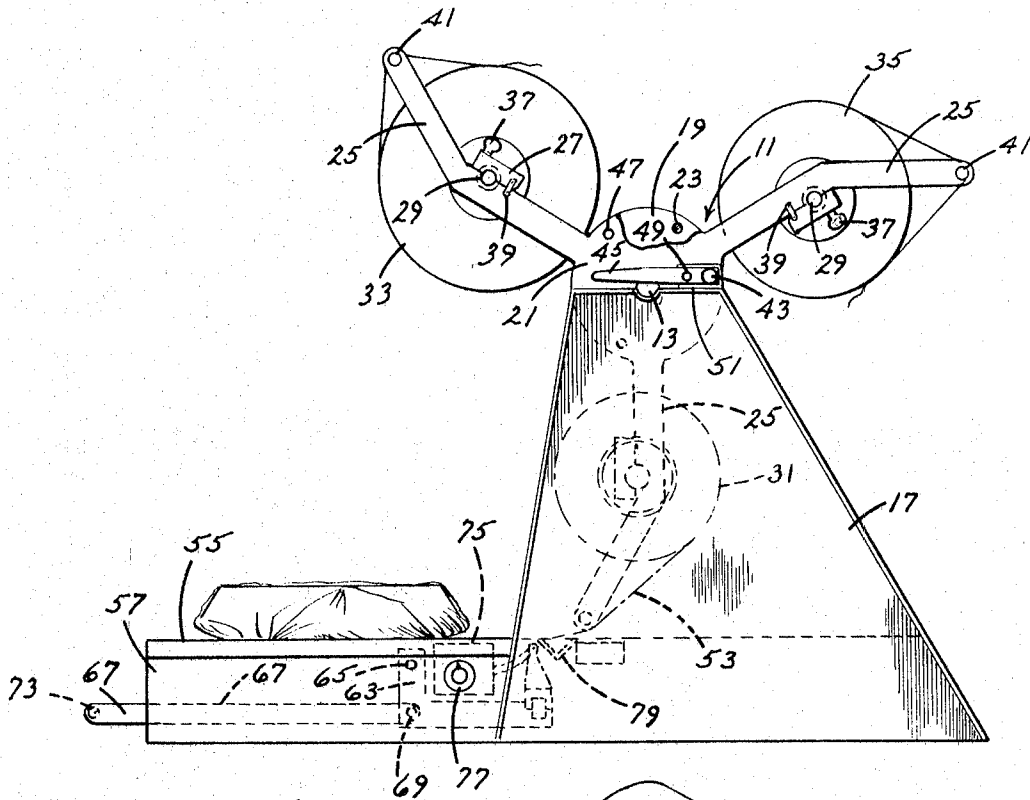


FIG. 1

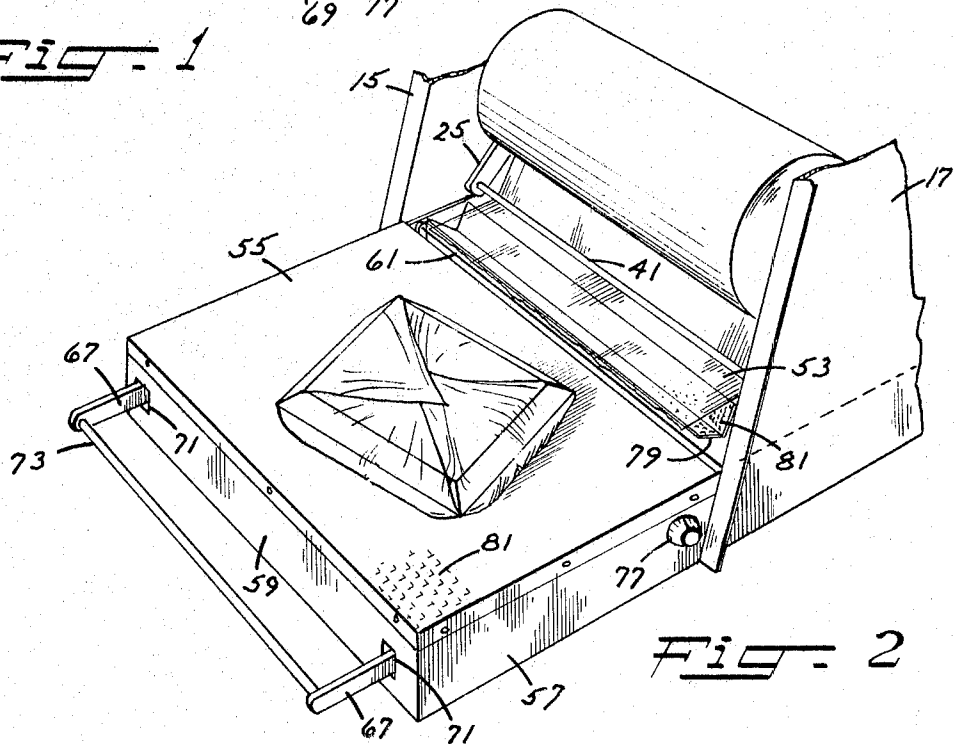


FIG. 2

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ARTICLE WRAPPING APPARATUS

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The present invention relates to an improved article wrapping apparatus.

Meats, produce and other articles are commonly wrapped in transparent, heat-sealable wrapping materials to provide packages which are attractive, neat and protective and yet permit the article to be seen. Such wrapping material is generally provided as individual or pre-cut sheets and thus requires that each article wrapping operator be provided with a supply of different size sheets to accommodate articles which vary in size. Aside from creating inventory problems, the use of individual or pre-cut sheets of wrapping material can be wasteful since reliance is placed upon the skill of the operator to select a sheet of proper size for the particular article being wrapped.

More recently, equipment has been provided which facilitates the use of wrapping material in roll form. With such equipment a roll of wrapping material is rotatably supported and a desired length of wrapping material is drawn from the supply roll and placed over the article to be wrapped. The article and the overlying wrapping material are then lifted upwardly by the operator who first folds the longitudinal side edges and then the transverse edges of the wrapping material beneath the article.

This equipment, while simplifying inventory problems, still requires a supply of rolls of wrapping material of different widths for wrapping articles which vary in size. More important, equipment which is available for use with wrapping materials in roll form requires frequent roll changes when articles of many different sizes are to be wrapped and involves a lacing operation of the wrapping material with each roll change which is not only time consuming but wasteful. Further, with such known wrapping equipment it is often difficult for the operator to locate and/or grip the leading end of the wrapping material, especially when using a wrapping material which tends to cling to itself and/or to the equipment. Accordingly, a primary object of this invention is to provide a generally new or improved and more satisfactory article wrapping apparatus.

Another object is the provision of an article wrapping apparatus in which a plurality of rolls of wrapping material of different widths are made available to an article wrapping operator.

Still another object is the provision of an improved wrapping apparatus in which wrapping materials of different widths are made available to an article wrapping operator without necessitating time-consuming and wasteful lacing operations.

A further object is to provide article wrapping apparatus in which the severed end of the roll of wrapping material is positioned for easier access and gripping by an article wrapping operator at the start of each wrapping operation.

A still further object is to provide an article wrapping apparatus for use in wrapping articles of different sizes which is simple in construction, facilitates economical use of wrapping material and is easy and safe to operate.

These objects are accomplished in accordance with the present invention by an apparatus in which a plurality of supply rolls of wrapping material are mounted for selected movement into the vicinity of a wrapping plat-

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form, adjacent to which is positioned means for supporting the leading end of the supply roll of wrapping material after a desired length has been severed therefrom.

More particularly, supply rolls of wrapping material of different widths are supported on a turret which is adapted to be selectively rotated about a generally horizontal axis to position a roll of wrapping material of desired width adjacent to a platform upon which the article wrapping operation is actually performed. This turret includes a roller adjacent to each supply roll which not only acts as a guide for the wrapping material but also serves to hold the wrapping material in place during severing and to locate the wrapping material adjacent to the supporting means.

Severing of the wrapping material is preferably achieved by a heated wire which is normally positioned below the plane of the wrapping platform and which can be projected across the path of travel of the wrapping material. Once severed the leading end of the roll of wrapping material is supported at longitudinally spaced areas, as by a trough which is positioned beneath the path of the wrapping material and extends beyond its longitudinal edges. With this construction, the ports of the longitudinal edges of the wrapping material which overlie or are suspended across the trough can be easily reached and gripped by an article wrapping operator for unwinding of an additional length of wrapping material for a subsequent wrapping operation.

The apparatus of the present invention is particularly well suited for use with wrapping material, such as polyvinyl chloride film, which exhibits a tendency to cling to itself and/or to the parts of the apparatus with which it is placed in contact. Such clinging tendency of the wrapping material assists in holding the severed end of the roll of wrapping material suspended across the trough and also facilitates storage since the severed ends of wrapping material may be merely draped over the respective turret guide rollers where they remain and prevent unwinding of the roll even during turret rotation.

The exposed surfaces of the platform and trough are preferably formed with a patterned or quilted texture so that the wrapping material, and especially a wrapping material having a high tendency to cling, is supported only at spaced areas.

Of particular interest is that the platform and trough together shield the article wrapping operator from the heated wire as he reaches and grips the severed end of the wrapping material.

From the standpoint of the actual wrapping operation, the apparatus of the present invention enables an article to be wrapped with a "diaper" fold which provides for a snug package having tight corners. Thus, with a desired length of wrapping material drawn from a supply roll and positioned on the wrapping platform, the article to be wrapped is placed diagonally and face down on the wrapping material after which one of the free corners thereof is pulled tight and folded over the article. This length of wrapping material is then severed from the supply roll and the corner thereof which is diagonally opposite the first folded corner is then pulled tight and overlapped onto the article. The remaining two corners of the severed length of wrapping material are likewise pulled tight and overlapped onto the article. All wrapping operations are performed on the wrapping platform itself so that the article wrapping operator has complete control over the wrapping operation and thus can perform the wrapping operation with greater ease and with less fatigue than is occasioned with procedures heretofore employed.

In the drawing, FIGURE 1 is a side view of the apparatus of the present invention; and

FIGURE 2 is a perspective view of the apparatus shown in FIGURE 1.

With reference to the drawing for a more detailed description of the invention, the apparatus includes a turret 11 having a shaft 13 which is rotatably mounted between support plates 15 and 17. The turret itself consists of a pair of end plates 19 and 21 which are connected by tie rods 23 and formed integrally with a plurality of projecting arms 25. The arms 25 of the turret end plates 19 and 21 are aligned with each other and co-operate with pillow blocks 27 in supporting shafts 29 which carry supply rolls 31, 33 and 35 of wrapping material of different widths. The pillow blocks 27 are releasably fixed in place by captive thumb screws 37 and are hinged at 39 to the respective arms 25 to permit the same to swing away during roll changes.

As illustrated in FIGURE 1, the arms of each pair of aligned arms 25 support the ends of an individual roller 41 and are angled so that the respective rollers 41 may be each positioned to perform one of its intended functions, as more fully described hereafter.

The turret 11 is selectively locked in desired positions by a pin 43 which projects from a lever 45 and is adapted to be received in openings 47 provided in the turret side plate 21. The lever 45 is mounted for rocking movement on a stud 49 which is fixed to a bracket 51 carried by the support plate 17. A spring, not shown, is held captive between the bracket 51 and the free end of the pin 43 and resiliently maintains the pin 43 engaged within a desired opening 47 in the turret side plate 21.

Wrapping material 53 drawn from a roll, such as the roll 31, is passed in contact with an adjacent guide roller 41 and positioned on a platform 55 which is supported by a suitable frame having side walls 57 and an end wall 59. Severing a desired length of wrapping material from its supply roll is effected by a wire 61 which is insulated from and carried between the ends of a pair of levers 63 which are hinged at 65 to the platform frame. A pair of links 67 are pivoted at 69 to the levers 63 and pass through openings 71 in the platform frame and are connected by a push bar 73. The wire 61 is electrically heated through a conventional transformer 75 which has a suitable temperature regulating dial 77. The heated wire 61 is normally positioned below the plane of the platform 55 and can be projected across the path of travel of the wrapping material by merely leaning against the push bar 73.

Located adjacent to the wire 61 and fixed to the supporting plates 15 and 17 is a trough 79 which serves to support the leading end of the roll of wrapping material after a desired length has been severed therefrom. More particularly, the severed end of the roll of wrapping material is suspended across the trough, and as shown in FIGURE 2, can be easily gripped along the edges of its suspended portion for unwinding during a subsequent wrapping operation. Preferably, the exposed surfaces of the platform 55 and the trough 79 are provided with a patterned or quilted texture as shown at 81 to minimize the area of contact between these parts and the wrapping material.

In operation, the free end of the lever 45 is first depressed to remove the pin 43 from engagement with the turret end plate 21 after which the turret 11 may be rotated to position a roll of wrapping material of desired width adjacent to the wrapping platform 55. When the lever 45 is released, the captive spring on the pin 43 will automatically project the pin 43 into a turret end plate opening 47 when the desired roll of wrapping material is properly positioned.

With wrapping material having a tendency to cling to itself, such as polyvinyl chloride film, the leading ends of the rolls of wrapping material are merely draped over the respective guide rollers 41 or over and onto the body

of the roll itself, as is shown in FIGURE 1, to prevent unwinding of the same. Thus, at the start of wrapping, the operator needs only to pull the leading end of the wrapping material onto the platform 55 without involving any lacing procedure or waste of wrapping material. The article to be wrapped is placed diagonally and face down on the length of wrapping material which is positioned on the wrapping platform 55, after which one of the free corners thereof, is pulled tight over the article.

The operator then leans against the push bar 73 to elevate the heated wire 61 and thereby sever the length of wrapping material from its supply roll. The corner of this length of wrapping material directly opposite to the first folded corner is then pulled tight over the article, after which the two remaining corners are likewise overlapped. These overlapped portions of the wrapping material may be then sealed in place, as for example by employing a conventional hot sealing plate.

It will be noted that the angular relationship of the turret arms 25 is such as to have the respective guide rollers 41 hold down the wrapping material as it is being severed. More important, the turret arms 25 are designed to locate the respective guide rollers 41 directly adjacent to the trough 79 and thus they assist in suspending the leading end of the roll of wrapping material across such trough following the severing operation. In this position the wrapping material can be easily and safely gripped by the operator who needs only to reach into the trough 79 along the edges of the wrapping material.

While the apparatus of the present invention is particularly well suited for use with wrapping material which has a tendency to cling to itself and/or parts of the apparatus with which it is engaged it is, of course, equally well adapted for use with other materials. In this latter instance, the leading ends of the rolls of wrapping material may be attached to the respective guide rollers by spring clips or other suitable means to prevent the same from unwinding when the turret is rotated to different positions.

It is to be understood that changes and variations may be made without departing from the spirit and scope of the invention as defined in the appended claims.

We claim:

1. An article wrapping apparatus including a turret for carrying a plurality of rolls of wrapping material, an article wrapping platform onto which a length of wrapping material may be positioned after it is drawn from a roll of wrapping material, means supporting said turret for rotation about a generally horizontal axis to permit selective positioning of the rolls of wrapping material adjacent to said wrapping platform, means separate from said turret and located between said turret and platform for severing a length of wrapping material from a roll of wrapping material after it has been drawn over said wrapping platform, and means adjacent to said severing means for supporting in a generally suspended position the severed end portion of a roll of wrapping material whereby it may be easily gripped for unwinding from the roll during a subsequent wrapping operation.

2. An article wrapping apparatus as defined in claim 1 wherein said wrapping material supporting means includes a pair of spaced surfaces over which extends the severed end portion of the roll of wrapping material whereby the portion of the wrapping material extending between said spaced surfaces may be gripped along its longitudinal edges for unwinding.

3. An apparatus as defined in claim 2 wherein said turret further includes a guide roller adjacent to each roll of wrapping material, said guide rollers each serving to hold the unwound portion of the respective rolls of wrapping material in position during the severing thereof and to locate the wrapping material adjacent to said spaced surfaces.

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4. An apparatus as defined in claim 2 wherein said severing means includes a wire which extends across the path of the wrapping material as it is unwound from a roll and positioned onto said platform, means for heating said wire, means normally supporting said wire to one side of the plane of said platform and means for moving said wire supporting means to project said wire to the other side of the plane of said platform.

5. An article wrapping apparatus including a turret for carrying a plurality of rolls of wrapping material, an article wrapping platform onto which a length of wrapping material may be positioned after it is unwound from a roll of wrapping material, means supporting said turret for rotation about a generally horizontal axis to permit selective positioning of the rolls of wrapping material adjacent to said wrapping platform, a wire positioned between said turret and said wrapping platform, means for heating said wire, means for moving said wire across the path travelled by the wrapping material as it is unwound from a roll of wrapping material and positioned onto said wrapping platform to thereby sever the wrapping material, a guide roller carried by said turret ad-

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jacent to each roll of wrapping material for holding the wrapping material in desired position during the severing thereof, and a trough positioned adjacent to said wire across which the severed end portion of the roll of wrapping material may extend whereby the longitudinal edge of the portion of the wrapping material may be easily gripped for unwinding.

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