May 27, 1952 H. RUMSEY, JR 2,598,073

WRAPPING AND TWISTING APPARATUS

Filed Jan. 25, 1950 2 SHEETS—SHEET 1

Fig. 1

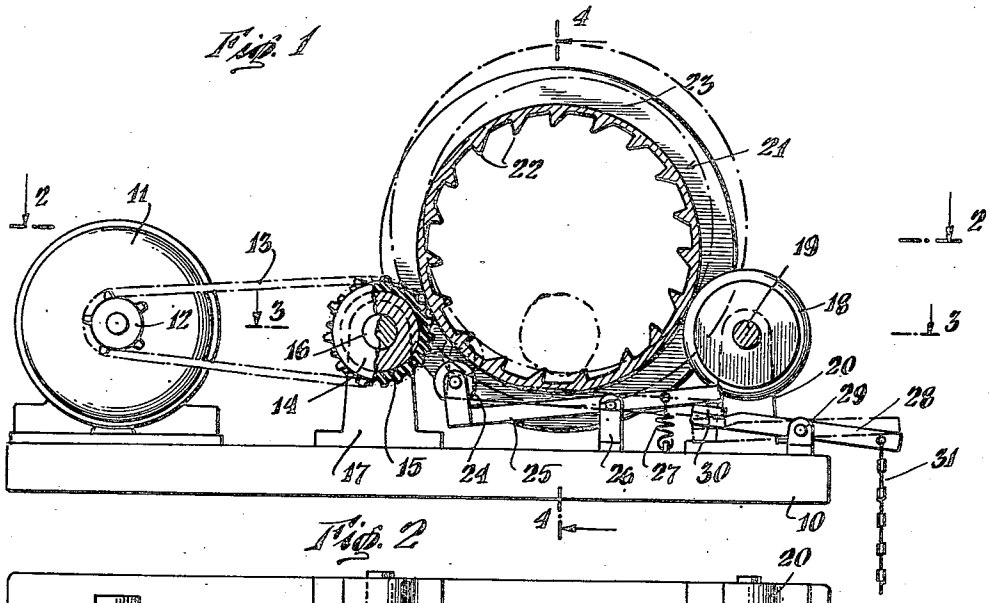


Fig. 2

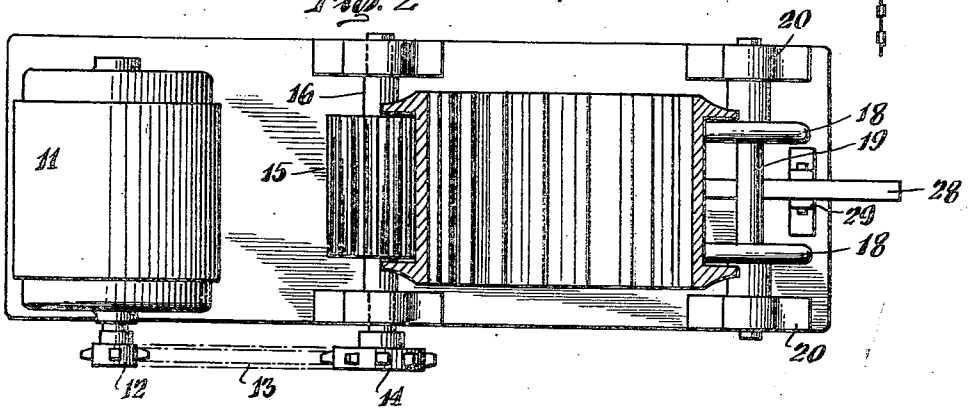
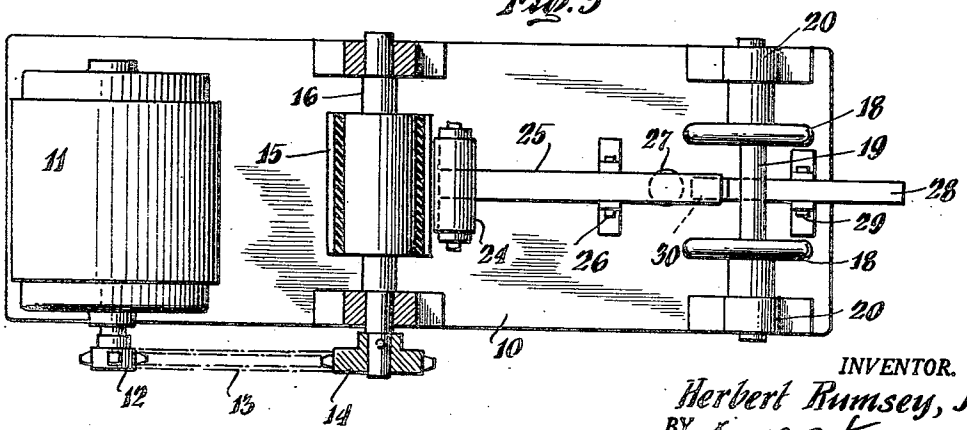


Fig. 3



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Fig. 4

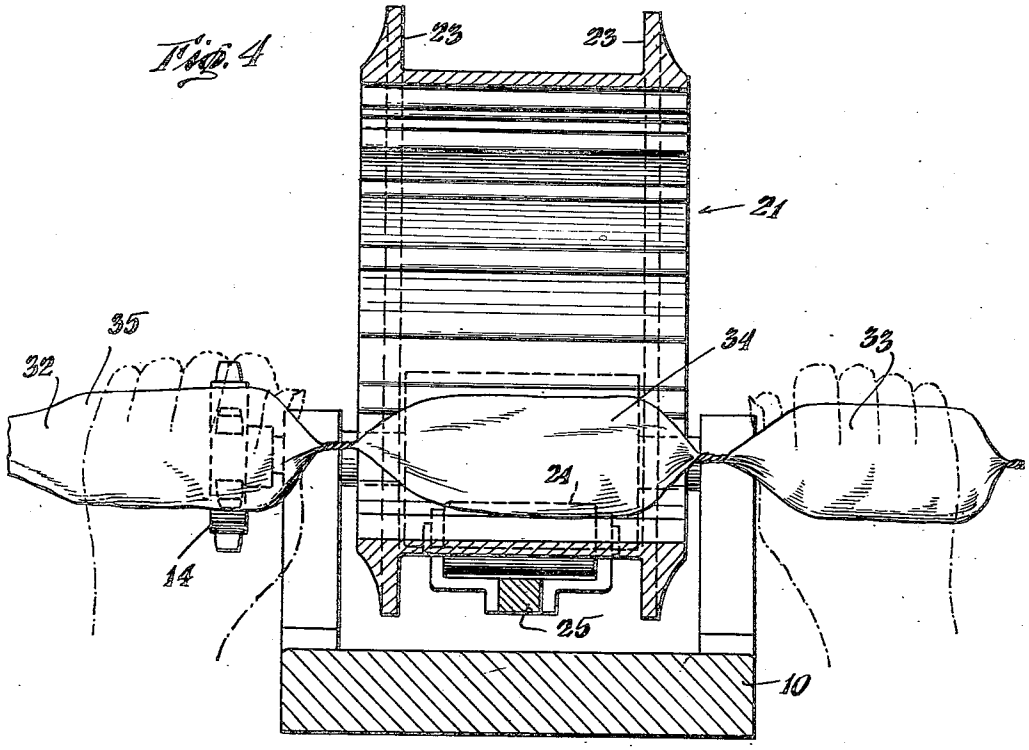


Fig. 6

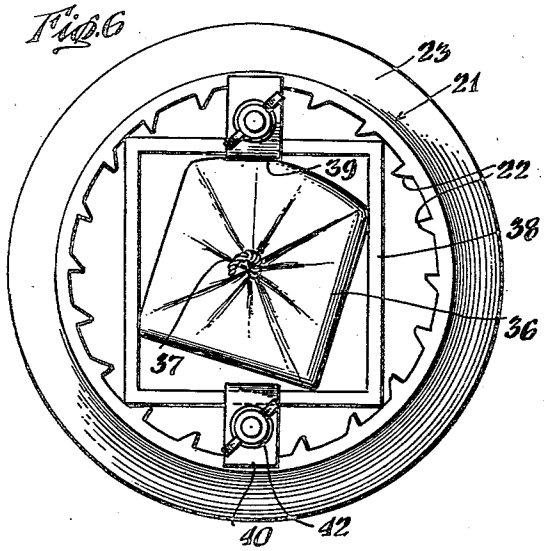


Fig. 7

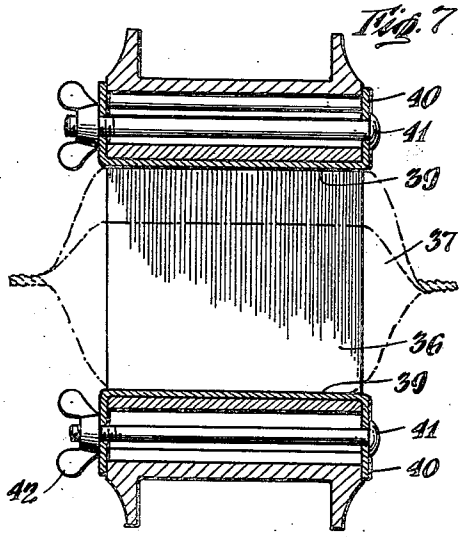
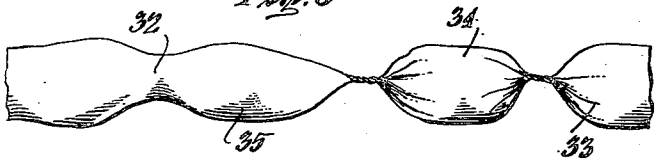


Fig. 5



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WRAPPING AND TWISTING APPARATUS

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Application January 25, 1950, Serial No. 140,398

4 Claims. (Cl. 53—141)

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This invention relates to improved wrapping and twisting apparatus for use in wrapping casing, wrappers and other flexible material around various articles.

It is an object of the invention to provide improved apparatus of the above character which is of relatively inexpensive construction, which is simple to operate and does not require the use of skilled operators and which may be used in wrapping and twisting articles and materials presenting a smooth anti-friction type of surface.

A further object is the provision of improved wrapping and twisting apparatus in which the twisting unit which contacts the article and materials being wrapped or twisted, can be readily removed for cleaning purposes or for the purpose of being replaced by other units.

Another object of the invention is the provision of apparatus of the above character which may be readily adapted or converted for use in wrapping or twisting articles of specific size or having specific configurations.

Other objects will be apparent from the following detailed descriptions of the drawings in which—

Fig. 1 is a side elevational view, partially in section, of wrapping and twisting apparatus embodying my invention;

Fig. 2 is a partially plan and partially elevational view, in the direction of the arrows on the line 2—2 of Fig. 1;

Fig. 3 is a similar view, in the direction of the arrows, on the line 3—3 of Fig. 1;

Fig. 4 is a cross-sectional view, in the direction of the arrows, on the line 4—4 of Fig. 1;

Fig. 5 illustrates one type of product which may be twisted by the apparatus;

Fig. 6 is a side elevational view of the twisting unit of the apparatus showing one type of adaptor for use in twisting or wrapping a specific product; and

Fig. 7 is a cross-sectional view of the twisting unit and adaptor shown in Fig. 6.

My improved wrapping and twisting apparatus consists primarily of a twisting unit in the form of a tubular drum open at both ends and having a friction surface in the interior thereof together with suitable control and operating mechanism on which the drum is supported in a manner that it can be readily removed.

Referring to the drawings, I have illustrated apparatus suitably supported on a base 10 and operated by a prime mover such as the electric motor 11 mounted on the base and having a sprocket 12 connected by sprocket chain 13 to

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sprocket 14 which, in turn, drives the operating mechanism of the apparatus.

The operating mechanism takes the form of a drive roller 15 having a friction type of surface such as the corrugated rubber surface indicated in the drawings. The roller is mounted on the same shaft 16 as the sprocket 14 and the shaft is suitably supported in brackets 17 mounted on the base 10.

Spaced radially from the operating or drive roller 15 and mounted in substantially the same horizontal plane are a pair of idler rollers or discs 18. The discs 18, as shown, are mounted in spaced relationship upon shaft 19 which, in turn, is supported in suitable bearings by brackets 20 which, in turn, is mounted upon the base 10.

The drive roller 15 and idler rollers 18 serves as the operating mechanism and supports for the twisting unit.

The twisting unit is in the form of a tubular drum 21 open at both ends and provided with an interior surface having relatively high frictional characteristics. Thus, as shown, the interior of the drum is preferably formed with ribs 22 presenting a relatively sharp or straight face extending in a generally radial direction on one side and a sloping face or surface on the other side. The ribs extend for substantially the width of the drum, are generally parallel to each other and the sharp radial surface faces in the direction of rotation of the drum. The exterior of the drum is formed with guide means in the form of circumferential projecting flanges 23 disposed adjacent the two lateral edges. The distance between the flanges is slightly greater than the width of drive roller 15 which, in turn, is equal to the distance between the two outer surfaces of the idler rollers 18. The external diameter of the drum 21 is slightly greater than the distance between the drive roller 15 and idler rollers 18. Accordingly, the drum may be placed upon the rollers in the manner indicated and upon rotation of the drive roller 15 it will be seen that the drum will be caused to rotate. The spacing between the rollers should preferably be only slightly less than the diameter of the drum so that the drum depends downwardly between them to thereby give better balance and support. The flanges 23 are disposed beyond the ends of the rollers and serve to retain the drum in place and to prevent accidental dislodgment.

When the drum rests upon the rollers in the manner shown it will rotate as long as drive roller 15 is in rotation. It is preferable not to be required to switch off the motor 11 every time it

is desired to stop the rotation of drum 21. Accordingly, I provide mechanism whereby the motor 11 and drive roller 15 may remain in continuous operation while the apparatus is in use but whereby the operator can readily stop and start the rotation of drum 21.

This mechanism takes the form of a small roller 24 mounted on the end of lever 25 which, in turn, is supported on fulcrum or bracket 26. Spring 27 connected between the base 10 and the opposite end of lever 25 normally serves to hold the left end of the lever and roller 24 in elevated position as indicated in dotted lines in Fig. 1. When in elevated position roller 24 raises drum 21 out of contact with drive roller 15 (also as shown in dotted lines in Fig. 1) with the result that the rotation of the drum will cease. The operation of lever 25 is controlled by means of another lever 28 mounted in fulcrum or bracket 29 and provided with an end portion 30 which engages the right-hand end of lever 25. The opposite end of lever 28 may be connected by suitable means such as chain 31 to a pedal or the like (not shown) whereby the operation of the unit may be readily controlled.

By depressing the right-hand end of lever 28 the right-hand end of lever 25 is elevated and roller 24 will accordingly be lowered out of contact with drum 21 so that the drum will once more rest upon drive roller 15 and will be rotated thereby. When the right-hand end of lever 28 is released spring 27 returns lever 25 and roller 24 to its normal position with the result that drum 21 will be elevated out of contact with drive roller 15 and the rotation of the drum will once again be discontinued.

The apparatus may be used for wrapping and twisting various types of wrappers, casings or other flexible materials around articles. In Figs. 4 and 5 I have illustrated the apparatus being used to twist a stockinette around a meat product such as a pork butt to shape and form the product in the manner taught in my Patent No. 2,247,312, granted on June 24, 1941, for Meat Packing Process. Thus, I have shown a stockinette 32 and several meat products 33, 34, 35 encased therein. The operator inserts one end of the stockinette with its meat product through an open end of the drum 21 while it is stationary and grasps the first and third product in his hands on the two sides of the drum i. e., products 33 and 35 are grasped by the operator while the second product 34 is inside the drum. The operator holds or manipulates the products in the manner shown in Fig. 4 so that the intermediate product 34 is in contact with the ribbed interior surface of the drum. He then depresses the right-hand end of lever 28 by suitable means, such as a pedal, with the result that rotation of drum 21 is initiated and the frictional interior surface of the drum causes rotation of the product 34 and its encasing stockinette so as to twist the stockinette between the products 33 and 34 and between the products 35 and 34.

When the stockinette has been twisted so as to exert sufficient force against the products to form and shape them to the required amount, the stockinette and its products are then drawn through the drum so that the third product is in the position of the first product i. e., product 35 is positioned where product 33 is indicated in Fig. 4. At that point, the third and fifth products are grasped in the hands of the operator and the fourth product is rotated or twisted in the same manner as the second product. This

is repeated so as to twist or rotate every second product until the stockinette, between each of the products, has been twisted to the desired amount.

The wrapping and twisting apparatus may also be used to wrap a casing or wrapper around a single article simply by inserting the article, encased in its wrapping, in the drum in the same manner, then grasping the protruding ends of the casing or wrapping in the hands of the operator and initiating the rotation of the drum with the wrapped article in contact therewith. When the protruding ends of the wrapper have been sufficiently twisted the operator can readily discontinue the rotation of the drum by releasing the right-hand end of lever 28.

It will also be appreciated that the operator may initiate and stop the rotation of drum 21 without applying force, manually or by foot pressure, to the right-hand end of lever 28. This can be accomplished by applying force to the drum through the articles being wrapped. Thus, if the operator presses downwardly with sufficient force on the articles being wrapped the drum will be shifted downwardly into contact with drive roller 15 against the force exerted by spring 27. When the operator releases this downward pressure, the drum will again be returned to its elevated position by means of spring 27.

For certain types of product, particularly those of irregular cross sectional shape, I have found that very satisfactory results are obtained by applying an adaptor to the drum. I have illustrated one form of adaptor in Figs. 6 and 7. In this embodiment of my invention the apparatus is being used to wrap a meat loaf 36 in a wrapping 37 made of flexible plastic sheet material such as cellulose acetate, polyvinyl resin, Pliofilm, cellophane or the like. The meat loaf is shaped somewhat similar to a loaf of bread in cross section i. e., it is generally rectangular. The adaptor accordingly is in the form of a rectangular frame 38 having four walls arranged in rectangular shape and large enough to accommodate the meat loaf 36 but not so large as to permit rotation thereof.

The frame 38 is small enough to permit insertion into the drum 21 and it is inserted therein and held in place by suitable fastening means such as the angle brackets 39 which are extended through the frame on opposite sides thereof and are provided with depending ears 40 which are clamped against the edges of the drum by bolt and wing-nut assemblies 41, 42. By unscrewing the wing-nut and removing the bolt, the angle brackets 39 and frame or adaptor 38 can be readily withdrawn from the drum.

In using the adaptor shown in Figs. 6 and 7, it will be appreciated that the operation of the apparatus is essentially the same as previously described. Thus, the rotation of the drum is initiated and stopped in the same manner.

The adaptor is applied to the drum in the manner previously described and the drum is placed on the rollers as shown in Figs. 1 and 2. The meat loaf is then encased in the wrapping material with the wrapping material 37 projecting beyond the two ends thereof and it is inserted in the adaptor and the projecting ends of the wrapping material grasped in the hands of the operator on the two sides of the unit. Rotation of the drum is then initiated and after the ends of the wrapper have been sufficiently twisted, the operator releases the right-hand end of lever 28 and roller 24 returns to its normal elevated

position stopping the rotation of the drum. The meat loaf is then withdrawn and the operation is repeated as required.

The shape and form of the adaptor may, of course, be varied to suit the particular product to be twisted therein. The adaptor can also be readily removed or replaced by other adaptors as desired.

It will thus be seen that I have provided an improved wrapping and twisting apparatus which is of relatively inexpensive construction, which is simple to operate and which may be used for wrapping and twisting casings, wrappings and other flexible materials around various articles and products including those having smooth anti-friction surfaces. It will be seen that the twisting unit or drum 21 can be readily removed for cleaning or for replacement due to the fact that it merely rests on the supporting rollers. It will also be seen that the rotation of the drum can be readily controlled quite apart from the operation of the motor and of the drive roller. Also, as pointed out above, adaptor units of various types may be readily applied to the drum for twisting articles of specific irregular configurations.

Modifications may of course be made in the illustrated and described embodiment of my invention without departing from the invention as set forth in the accompanying claims.

I claim:

1. In wrapping and twisting apparatus, the combination of a plurality of rollers mounted for rotary motion in radially spaced relationship, one of said rollers being a drive roller a tubular drum open at both ends resting on said rollers, said drum being formed with a pair of circumferential flanges on the outer surface thereof and positioned beyond the opposite ends of the rollers on which the drum rests and serving to retain the drum in place on the rollers and control means for shifting said drum into and out of contact with said drive roller.

2. In wrapping and twisting apparatus, the combination of a drive roller mounted for rotary motion, a tubular drum open at both ends and having a frictional surface in the interior thereof disposed adjacent said roller and shiftable with respect thereto and cooperable to engage said roller to be rotated thereby, and spring pressed means in engagement with said drum so as normally to hold it in spaced relationship with respect to said roller but so that the drum may be shifted into engagement with the roller when a predetermined force is applied thereto.

3. In wrapping and twisting apparatus, the combination of a drive roller and an idler roller mounted for rotary motion in radially spaced relationship, a tubular drum open at both ends disposed adjacent and parallel to said rollers and cooperable to rest on said rollers but being shiftable with respect thereto, and means including a lever pivotally mounted adjacent an intermediate point having spring means connected adjacent one end thereof and the other end being in engagement with the drum for normally holding said drum out of contact with the drive roller but so that the drum may be shifted into engagement with the drive roller when a predetermined force is applied thereto.

4. In wrapping and twisting apparatus, the combination of a drive roller mounted for rotary motion, a tubular drum open at both ends and having a frictional surface in the interior thereof disposed adjacent said roller and shiftable with respect thereto and cooperable to engage said roller to be rotated thereby, and control means for the drum including a shiftable member in engagement with the drum and means applying a force to the shiftable member so that the shiftable member normally holds the drum in spaced relationship with respect to said drive roller but so that the drum may be shifted into engagement with the drive roller when a predetermined force is applied thereto.

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REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
1,234,491	Robinson	July 24, 1917
1,235,660	Crockett	Aug. 7, 1917
1,289,930	Schlerth	Dec. 31, 1918
1,964,259	Green	June 26, 1934
2,009,241	Roberts	July 23, 1935
2,136,839	Brown	Nov. 15, 1938
2,360,153	Noguera	Oct. 10, 1944