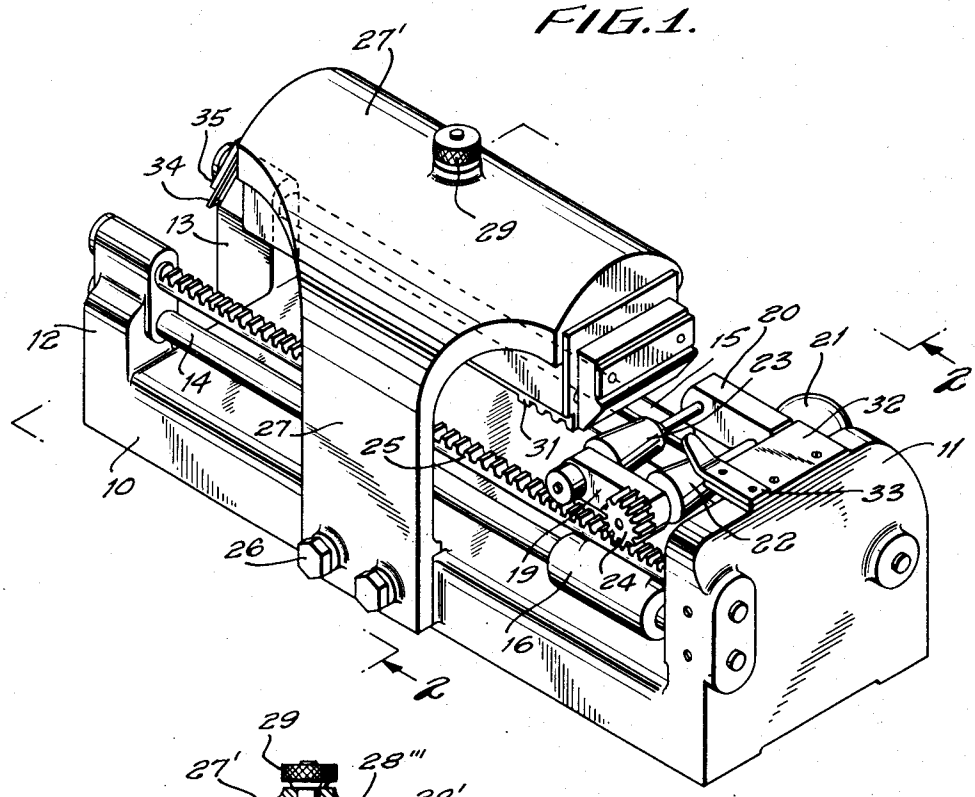
June 23, 1953 A. HESS 2,642,708

WRAPPING APPARATUS FOR ARTICLES OF CIRCULAR CROSS SECTION

Filed Jan. 8, 1952

FIG. 1.



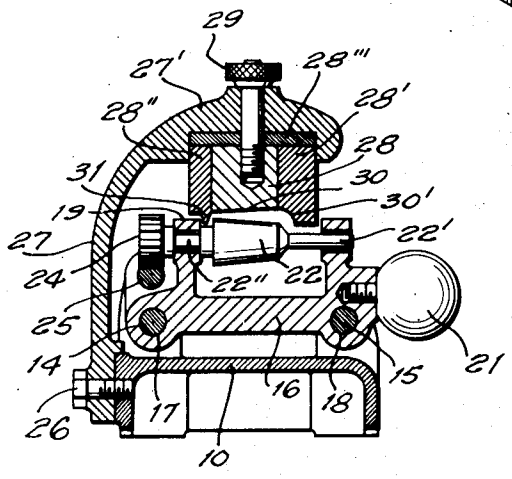




FIG. 2.

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## WRAPPING APPARATUS FOR ARTICLES OF CIRCULAR CROSS SECTION

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12 Claims. (Cl. 53—117)

1

The present invention relates to a wrapping apparatus, and more particularly to an apparatus for wrapping articles having a circular cross-section and shaped as cylinders or cones, such as lipsticks, suppositories, or the like.

It is an object of the present invention to provide a wrapping apparatus having a large output.

It is another object of the present invention to provide an apparatus in which the articles to be wrapped are not subjected to any deforming forces.

A wrapping apparatus according to the present invention comprises in combination a frame, guiding means arranged in the frame, slide means arranged movably along the guiding means, a pair of rollers arranged in the slide means transversely to the direction of motion thereof, a member arranged on the frame above and parallel to the guiding means and the slide means, the member extending over a portion of the length of the guiding means, and means for imparting a positive drive to one of the rollers during the motion of the slide means, the member having a counter face having a side portion curved toward the guiding means and the slide means whereby during the motion of the slide means along the guiding means a foil lying on the slide means is rolled by the rollers about an article lying between the rollers on the foil, the side portion of the counter face rolling a rim portion of the foil about one end of the article.

Preferably, the means for imparting a positive drive to one of the rollers consist of a rack arranged on the frame parallel to the guiding means and a pinion engaging the rack and rigidly connected to one of the rollers.

In a preferred embodiment of the present invention end members form part of the frame and at least one straight guiding rod is supported by the end members so as to form the guiding means.

In a preferred embodiment of the present invention a yoke is attached laterally to the frame and the member is exchangeably arranged on the yoke above and parallel to the guiding means.

Preferably, a device is attached to the member for discharging the article wrapped in the foil from the apparatus.

The novel features which are considered as characteristic for the invention are set forth in particular in the appended claims. The invention itself, however, both as to its construction and its method of operation, together with additional objects and advantages thereof, will be best understood from the following description

2

of specific embodiments when read in connection with the accompanying drawings, in which:

Fig. 1 is a perspective view of a wrapping device according to the invention; and

Fig. 2 is a cross-section taken in the plane II—II of Fig. 1.

Referring now to the drawings a supporting frame 10 consisting preferably of cast material or of metal sheet is provided with an end wall 11 and two supports 12 and 13 formed at the other end of the frame 10. The end wall 11 and the two supports 12 and 13 are termed hereinafter as the front and rear end members, respectively. Two cylindrical guiding rods 14 and 15 are supported by the end wall 11 and the supports 12 and 13, respectively. The two guiding rods 14 and 15 form together a straight guide for a slide comprising a base member 16 having a cross-section as shown in Fig. 2. The base member 16 is provided with two borings 17 and 18 through which the guiding rods 14 and 15 pass with a sung fit, and two flange portions 19 and 20 protruding vertically upward from the base portoin 16.

The slide 16, 19, 20 can be moved along the guiding rods 14 and 15 by means of a handle 21 arranged opposite to a yoke 27 more fully described hereinafter. The flanges 19 and 20 are provided with borings serving as bearings for the journals such as 22', 22'' of two parallel rollers 22, 23 which are adapted to the shape of the article to be wrapped, the rollers 22, 23 being exchangeably arranged in the bearings in order to put rollers of different shape into the slide 16, 19, 20.

A pinion 24 is rigidly connected to the journal 22'' of the roller 22 and engages the teeth arranged on the upper side of a rack 25 which is arranged parallel to, and above, the guiding rod 14 and is supported by bearings in the end wall 11 and the support 12. If desired, the other roller 23 could be provided with a similar pinion (not shown).

A yoke 27 is attached to one of the longitudinal walls of the supporting frame 10 by means of screws 26. The yoke 27 has an upper portion or member 27' which is arranged above the guide for the slide 16, 19, 20 and extends only over the middle portion thereof so as to leave free the end portions thereof. The lower side of the upper portion 27' of the yoke 27 is provided with a groove engaged by a member comprising in the shown embodiment several parts 28, 28', 28'' and 28'''. The member is exchangeably attached to the upper portion 27' of the yoke 27 by means of

a screw 29. The lower side of the part 28 is formed as a counterface 30 being substantially parallel to the straight guide for the slide 16, 19, 20 but being appreciably shorter than the straight guide. The side portions such as 30' of the counterface 30 are shaped so as to correspond to the longitudinal section of the article to be wrapped. For instance the side portion 30' of the counter face 30 which is shown in the drawing has a shape adapted to the tip of a suppository to be wrapped. The part 28'' is provided on its lower side with a plurality of teeth 31 forming the continuation of the counter face 30 so as to form an oppositely curved side portion thereof and serving for bending the wrapping material such as tin foil transversely to the axis of the roller 23 and to fold it around the blunt end of the article to be wrapped.

The end wall 11 carries at its upper end a member 32 having a plane surface, for instance a metal sheet carrying on one side thereof lateral guide means 33.

At the rear end of the upper portion 27' of the yoke 27 or the member 28—28''', a discharging device is arranged which comprises a sheet 34 of flexible material such as rubber or leather and protruding downwards, a carrier 35 being provided for screwing the sheet 34 to the same.

The operation of this apparatus is as follows:

The slide is brought to the position shown in Fig. 1 in which it abuts against the end wall 11 and a foil having a predetermined length is placed on the member 32 so as to cover the rollers 22 and 23, one edge of the foil abutting against the lateral guide means 33. Then the article to be wrapped, for instance a suppository having a circular cross-section is placed on the foil between the two rollers 22 and 23 so that the axis of the article is parallel to the axes of the two rollers 22 and 23. Then the slide is moved on the two guiding rods 14 and 15 toward the supports 12, 13 by means of the handle 21, the roller 22 being rotated by the pinion 24 engaging the rack 25 so that the article to be wrapped and the roller 23 are rotated also. During this operation the foil is wrapped about the article by means of the counterface 30 and the side portion 30' thereof and by the teeth 31 so that the foil rests against the article to be wrapped which, however, is not subjected to any deforming forces because the shape of the counter face 30, 30' and of the rollers 22, 23 is adapted to the shape of the article. If the slide arrives at the rear end of the member consisting of the parts 28—28''', the flexible sheet 34 slides at first over the wrapped article but acts as a discharging device when the slide is moved toward the initial position shown in Fig. 1.

In consequence thereof, a single operator can wrap a great number of articles very rapidly. The guide formed by the two guiding rods 14, 15 is shown in the drawings as a straight guide. It should be understood, however, that the guide could be designed as a circular guide so that the slide is moved in a circle by means of a crank.

Furthermore, the slide need not be driven manually but could be driven mechanically by means of a motor or the like.

It will be understood that each of the elements described above, or two or more together, may also find a useful application in other types of wrapping apparatuses differing from the types described above.

While the invention has been illustrated and described as embodied in an apparatus for wrapping a cylindrical or conical article, it is not intended to be limited to the details shown, since various modifications and structural changes may be made without departing in any way from the spirit of the present invention.

Without further analysis, the foregoing will so fully reveal the gist of the present invention that others can by applying current knowledge readily adapt it for various applications without omitting features that, from the standpoint of prior art, fairly constitute essential characteristics of the generic or specific aspects of this invention and, therefore, such adaptations should and are intended to be comprehended within the meaning and range of equivalence of the following claims.

What is claimed as new and desired to be secured by Letters Patent is:

1. An apparatus for wrapping an article having a substantially circular cross-section in a foil, comprising in combination, a frame; guiding means arranged in said frame; slide means arranged movably along said guiding means; a pair of rollers arranged in said slide means transversely to the direction of motion thereof; a member arranged on said frame above and parallel to said guiding means and said slide means, said member extending over a portion of the length of said guiding means; and means for imparting a positive drive to one of said rollers during the motion of said slide means, said member having a counter face having a side portion curved toward said guiding means and said slide means whereby during the motion of said slide means along said guiding means a foil lying on said slide means is rolled by said rollers about an article lying between said rollers on the foil, said side portion of said counter face rolling a rim portion of the foil about one end of the article.

2. An apparatus for wrapping an article having a substantially circular cross-section in a foil, comprising in combination, a frame; guiding means arranged in said frame; slide means arranged movably along said guiding means; a pair of rollers arranged in said slide means transversely to the direction of motion thereof; a member aranged on said frame above and parallel to said guiding means and said slide means, said member extending over a portion of the length of said guiding means; and means for imparting a positive drive to one of said rollers during the motion of said slide means, said member having a counter face having oppositely arranged side portions curved toward said guiding means and said slide means whereby during the motion of said slide means along said guiding means a foil lying on said slide means is rolled by said rollers about an article lying between said rollers on the foil, said side portions of said counter face rolling oppositely arranged rim portions of the foil about the ends of the article.

3. An apparatus for wrapping an article having a substantially circular cross-section in a foil, comprising in combination, a frame; guiding means arranged in said frame; slide means arranged movably along said guiding means; a pair of rollers arranged in said slide means transversely to the direction of motion thereof; a member arranged on said frame above and parallel to said guiding means and said slide means, said member extending over a portion of the length of said guiding means; a rack arranged on said frame parallel to said guiding means; and a pinion engaging said rack and rigidly connected to one of said rollers so as to impart a positive drive to said one roller during the motion of said

slide means, said member having a counter face having a side portion curved toward said guiding means and said slide means whereby during the motion of said slide means along said guiding means a foil lying on said slide means is rolled by said rollers about an article lying between said rollers on the foil, said side portion of said counter face rolling a rim portion of the foil about one end of the article.

4. An apparatus for wrapping an article having a substantially circular cross-section in a foil, comprising in combination, a frame; guiding means arranged in said frame; slide means arranged movably along said guiding means; a pair of rollers arranged in said slide means transversely to the direction of motion thereof; a member arranged on said frame above and parallel to said guiding means and said slide means, said member extending over a portion of the length of said guiding means; a rack arranged on said frame parallel to said guiding means; and a pinion engaging said rack and rigidly connected to one of said rollers so as to impart a positive drive to said one roller during the motion of said slide means, said member having a counter face having oppositely arranged side portions curved toward said guiding means and said slide means whereby during the motion of said slide means along said guiding means a foil lying on said slide means is rolled by said rollers about an article lying between said rollers on the foil, said side portions of said counter face rolling oppositely arranged rim portions of the foil about the ends of the article.

5. An apparatus for wrapping an article having a substantially circular cross-section in a foil, comprising in combination, a frame; end members forming part of said frame; at least one straight guiding rod supported by said end members; slide means arranged movably along said guiding rod; a pair of rollers arranged in said slide means transversely to the direction of motion thereof; a member arranged on said frame above and parallel to said guiding rod and said slide means, said member extending over a portion of the length of said guiding rod; and means for imparting a positive drive to one of said rollers during the motion of said slide means, said member having a counter face having a side portion curved toward said guiding rod and said slide means whereby during the motion of said slide means along said guiding rod a foil lying on said slide means is rolled by said rollers about an article lying between said rollers on the foil, said side portion of said counter face rolling a rim portion of the foil about one end of the article.

6. An apparatus for wrapping an article having a substantially circular cross-section in a foil, comprising in combination, a frame; end members forming part of said frame; at least one straight guiding rod supported by said end members; slide means arranged movably along said guiding rod; a pair of rollers arranged in said slide means transversely to the direction of motion thereof; a member arranged on said frame above and parallel to said guiding rod and said slide means, said member extending over the middle portion of the length of said guiding rod; and means for imparting a positive drive to one of said rollers during the motion of said slide means, said member having a counter face having a side portion curved toward said guiding rod and said slide means whereby during the motion of said slide means along said guiding rod a foil lying on said slide means is rolled by said rollers about an article lying between said rollers on the foil, said side portion of said counter face rolling a rim portion of the foil about one end of the article.

7. An apparatus for wrapping an article having a substantially circular cross-section in a foil, comprising in combination, a frame; end members forming part of said frame; at least one straight guiding rod supported by said end members; slide means arranged movably along said guiding rod; a pair of rollers arranged in said slide means transversely to the direction of motion thereof; a member arranged on said frame above and parallel to said guiding rod and said slide means, said member extending over the middle portion of the length of said guiding rod; a rack supported by said end members and being arranged parallel to said guiding rod; and a pinion engaging said rack and rigidly connected to one of said rollers so as to impart a positive drive to said one roller during the motion of said slide means, said member having a counter face having a side portion curved toward said guiding rod and said slide means whereby during the motion of said slide means along said guiding rod a foil lying on said slide means is rolled by said rollers about an article lying between said rollers on the foil, said side portion of said counter face rolling a rim portion of the foil about one end of the article.

8. An apparatus for wrapping an article having a substantially circular cross-section in a foil, comprising in combination, a frame; end members forming part of said frame; at least one straight guiding rod supported by said end members; slide means arranged movably along said guiding rod; a pair of rollers arranged in said slide means transversely to the direction of motion thereof; a member arranged on said frame above and parallel to said guiding rod and said slide means, said member extending over the middle portion of the length of said guiding rod; a rack supported by said end members and being arranged parallel to said guiding rod; and a pinion engaging said rack and rigidly connected to one of said rollers so as to impart a positive drive to said one roller during the motion of said slide means, said member having a counter face having oppositely arranged side portions curved toward said guidnig rod and said slide means whereby during the motion of said slide means along said guiding rod a foil lying on said slide means is rolled by said rollers about an article lying between said rollers on the foil, said side portions of said counter face rolling oppositely arranged rim portions of the foil about the ends of the article.

9. An apparatus for wrapping an article having a substantially circular cross-section in a foil, comprising in combination, a frame; guiding means arranged in said frame; slide means arranged movably along said guiding means; a pair of rollers arranged in said slide means transversely to the direction of motion thereof; a yoke attached laterally to said frame; a member exchangeably arranged on said yoke above and parallel to said guiding means and said slide means, said member extending over a portion of the length of said guiding means; and means for imparting a positive drive to one of said rollers during the motion of said slide means, said member having a counter face having a side portion curved toward said guiding means and said slide means whereby during the motion of said slide

means along said guiding means a foil lying on said slide means is rolled by said rollers about an article lying between said rollers on the foil, said side portion of said counter face rolling a rim portion of the foil about one end of the article.

10. An apparatus for wrapping an article having a substantially circular cross-section in a foil, comprising in combination, a frame; guiding means arranged in said frame; slide means arranged movably along said guiding means; a pair of rollers arranged in said slide means transversely to the direction of motion thereof; a member arranged on said frame above and parallel to said guiding means and said slide means, said member extending over a portion of the length of said guiding means; means for imparting a positive drive to one of said rollers during the motion of said slide means, said member having a counter face having a side portion curved toward said guiding means and said slide means whereby during the motion of said slide means along said guiding means a foil lying on said slide means is rolled by said rollers about an article lying between said rollers on the foil, said side portion of said counter face rolling a rim portion of the foil about one end of the article; and a device for discharging the article wrapped in the foil from the apparatus, said discharging device being attached to said member.

11. An apparatus for wrapping an article having a substantially circular cross-section in a foil, comprising in combination, a frame; a front end member and a rear end member forming part of said frame; at least one straight guiding rod supported by said end members; slide means arranged movably along said guiding rod; a pair of rollers arranged in said slide means transversely to the direction of motion thereof; a yoke attached laterally to said frame; a member exchangeably arranged on said yoke above and parallel to said guiding rod and said slide means, said member extending over a portion of the length of said guiding rod; means for imparting a positive drive to one of said rollers during the motion of said slide means, said member having a counter face having a side portion curved toward said guiding rod and said slide means whereby during the motion of said slide means along said guiding rod a foil lying on said slide means is rolled by said rollers about an article lying between said rollers on the foil, said side portion of said counter face rolling a rim portion of the foil about one end of the article; and a device for discharging the article wrapped in the foil from the apparatus, said discharging device being attached to said yoke at the side thereof facing said rear end member.

12. An apparatus for wrapping an article having a substantially circular cross-section in a foil, comprising in combination, a frame; a front end member and a rear end member forming part of said frame; at least one straight guiding rod supported by said end members; slide means arranged movably along said guiding rod; a pair of rollers arranged in said slide means transversely to the direction of motion thereof; a yoke attached laterally to said frame; a handle attached to said slide means on the side thereof being arranged opposite to said yoke; a member exchangeably arranged on said yoke above and parallel to said guiding rod and said slide means, said member extending over a portion of the length of said guiding rod; means for imparting a positive drive to one of said rollers during the motion of said slide means, said member having a plurality of teeth and a counter face having a side portion curved toward said guiding rod and said slide means whereby during the motion of said slide means along said guiding rod a foil lying on said slide means is bent by said teeth of said member and is rolled by said rollers about an article lying between said rollers on the foil, said side portion of said counter face rolling a rim portion of the foil about one end of the article; and a device for discharging the article wrapped in the foil from the apparatus, said discharging device being attached to said yoke at the side thereof facing said rear end member.

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