July 12, 1966 F. WACH ETAL 3,260,030

AUTOMATIC WRAPPING APPARATUS

Filed June 29, 1962 3 Sheets-Sheet 1

Fig. 3.

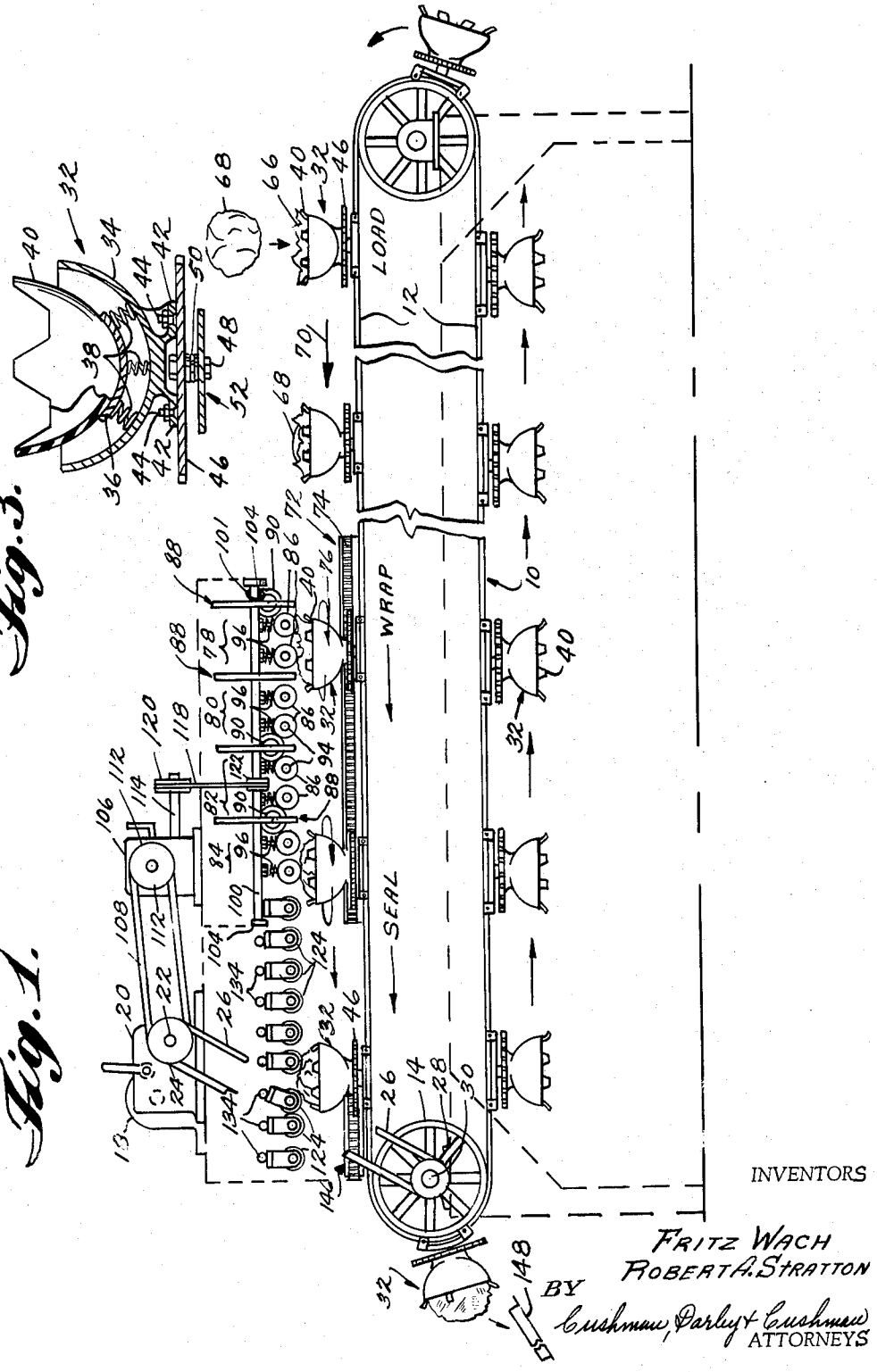


Fig. 1.

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Fig. 2.

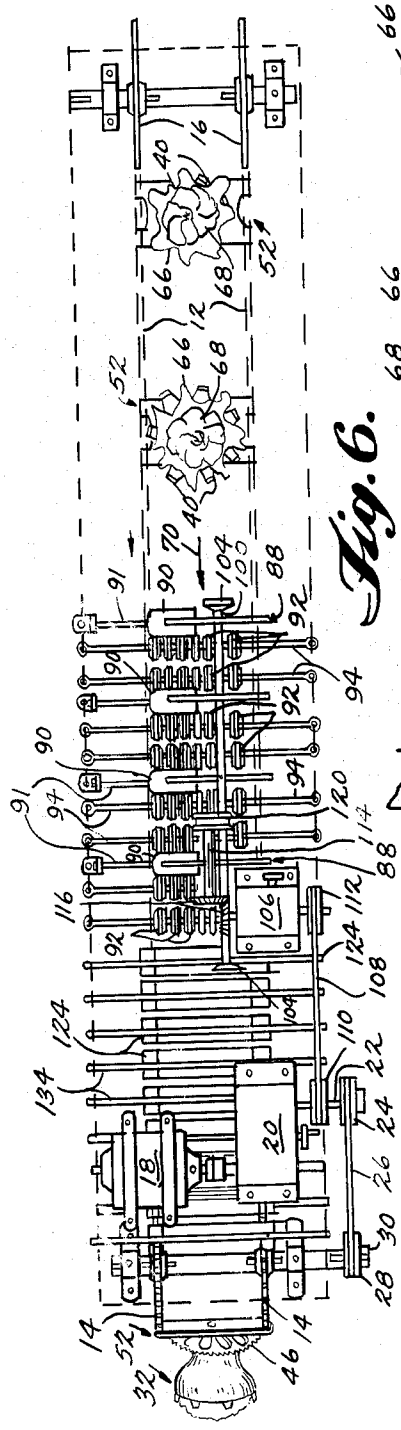
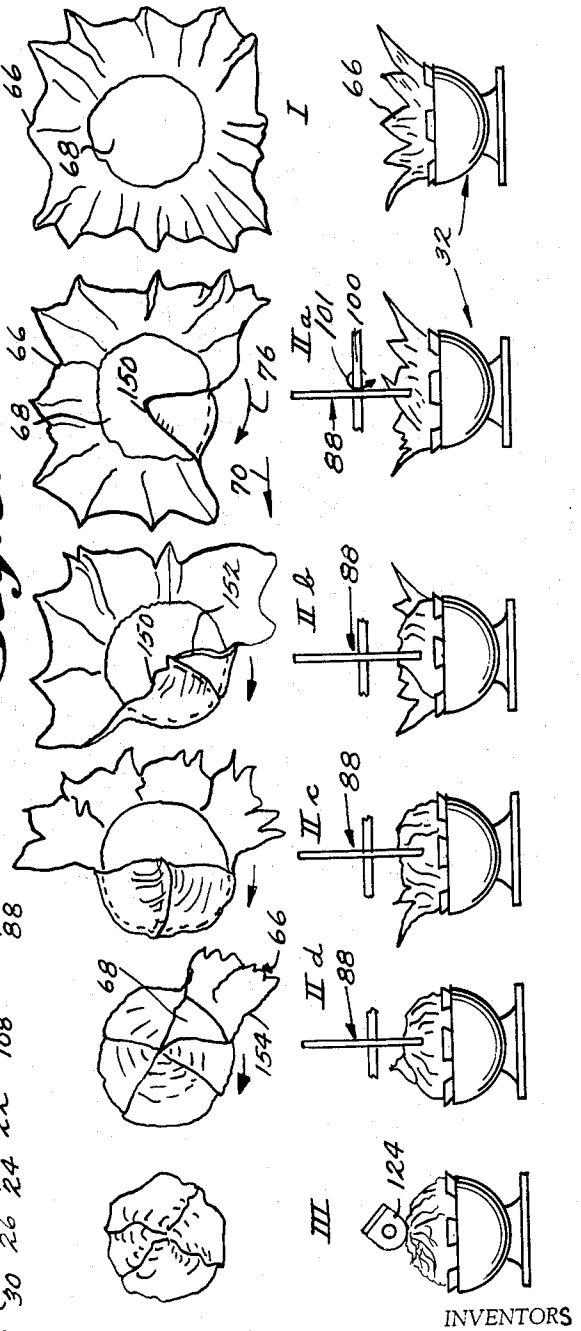


Fig. 6.



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AUTOMATIC WRAPPING APPARATUS

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Fig. 5

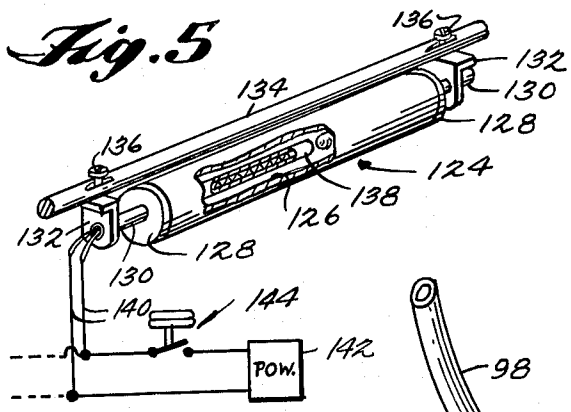
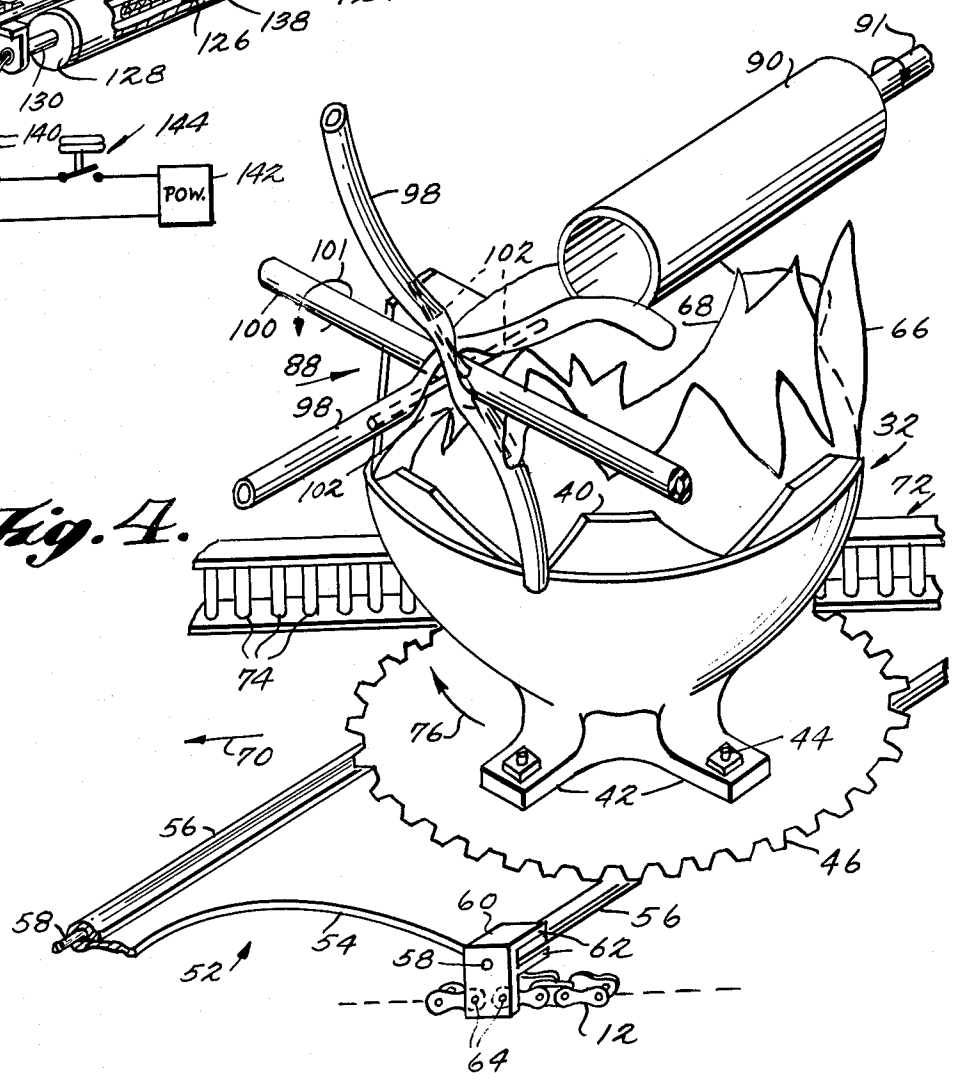


Fig. 4.



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3,260,030

AUTOMATIC WRAPPING APPARATUS

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Filed June 29, 1962, Ser. No. 206,212
24 Claims. (Cl. 53—34)

This invention relates to automatic wrapping apparatus and particularly to such apparatus for wrapping rounded surface or generally spheroidal-shaped articles with flexible wrapping material.

The invention has experienced exceptional utility in the automatic wrapping of field produce, articles such as lettuce, endives, cabbage, cauliflower, egg plant and grapefruit having been successfully wrapped by apparatus made in accordance with this invention. Additionally, boxed items such as grapes, strawberries, or the like in half-pint, pint, or quart, plastic or wood boxes or baskets may be fully wrapped by apparatus made according to this invention. Limitation is not intended, however to such products since other edible products as well as non-edible products may be automatically wrapped thereby.

It is, therefore, an object of this invention to provide improved automatic apparatus for wrapping articles with flexible wrapping material.

The invention also has as an object sealing the wrapping material after the article has been fully wrapped.

In one embodiment of the apparatus wrapping is accomplished by effectively twisting the wrapping material that extends from underneath the article upward, closingly flatwise against the upper surface of the article. Alternatively, the flatwise twisting operation may be considered as effecting pleats in the wrapping material over the top surface area of the article, to provide a fully wrapped article. In a more detail embodiment, the article is wrapped by inwardly pushing the wrapping material that extends outwardly from the article, while simultaneously rotating the article and moving it forward under rollers to roll the pushed-up wrapping material down onto the top surface of the article. This may be carried out by several stations of pushing and rolling means through each of which the article moves while being continuously rotated.

Other objects of the invention are, therefore, to provide apparatus of the type referred to in the preceding paragraph, and as set forth in greater detail in the following description and attached drawings, in which:

FIGURE 1 is a partially diagrammatic elevational view of the apparatus;

FIGURE 2 is a plan view, also partially diagrammatic, of the FIGURE 1 apparatus;

FIGURE 3 is a cross-sectional view showing details of the container and sprocket assembly used in the apparatus of FIGURES 1 and 2;

FIGURE 4 is a perspective view of a portion of one wrapping station of the apparatus;

FIGURE 5 details particulars relating to a sealing roller; and

FIGURE 6 is a diagrammatic illustration in two rows depicting successive steps in effecting a fully wrapped and sealed article.

The apparatus as shown in FIGURES 1 and 2 includes an endless conveyor **10** having on opposite sides of its longitudinal path endless drive chains **12**, meshed with the teeth of drive sprockets **14** at one end and idler or driven sprockets **16** at the other end of the conveyor line. Electrical motor **18** (FIG. 2) drives the sprockets **14** via an adjustable gear box **20**, shaft **22**, pulley **24**, belt **26**, and pulley **28** rotatably secured to shaft **30** on which the sprockets **14** are carried.

As will be noted in FIGURE 1, there are a plurality of article containers **32** connected to chains **12**, there being twelve such containers illustrated. Each container may simply be an appropriate sized pot such as is readily available in most kitchens, but is preferably a bowl-shaped structure that has a free-floating internal base as shown in FIGURE 3.

In the container **32** of FIGURE 3, the exterior or bowl-shaped structure **34** has an interior base **36** supported by springs **38**. This base in turn supports a liner **40** that conforms to the interior of the container and projects beyond its rim. This liner is made of rubber or like material which will present a friction surface to an article positioned in the container, thereby achieving stability of the article and preventing it from having rotational movement relative to the remainder of the container. As may also be readily seen in FIGURE 4, the bottom of container structure **34** forms into a plurality of legs **42**, which are secured, as by bolts **44**, to a pinion or sprocket **46**. In turn, the container and sprocket assembly are mounted by a shaft **48** and roller bearing **50** to a carriage **52** which includes metal plate **54** (FIG. 4). The forward and rear sides **56** of the plate are wrapped around respective rods **58** that extend outwardly at each end into an aperture in a respective chain clip **60**. This clip has two inwardly protruding jaws **62** that contain the respective end portion of the folded sides **56** of the metal plate, and are secured by pins **64** to the links of chain **12**. Therefore, as the conveyor chains **12** move forward in response to rotation of the driving sprocket wheels **14**, each container and sprocket assembly **32** also moves forward therewith.

As indicated in FIGURE 1, near the driven sprocket **16** is a loading station whereby the container thereat is manually, or automatically if desired, filled with flexible wrapping material **66** and an article **68** to be wrapped thereby. This filled container then moves forwardly in the direction of arrow **70** as sprocket wheels **14** are driven counterclockwise. The length of the conveying path between the loading station and the beginning of the wrapping station may be any desired distance, according to (inter alia) the total number of containers **32** it is desired the conveyor carry. As a container **32** moves into the wrapping station, the teeth of its sprocket **46** mesh with the effective teeth of a sprocket guide **72**, which as shown in FIGURE 4 may be comprised of a series of vertically disposed round metal bars **74** so spaced as to mesh properly with the sprocket teeth. The sprocket guide is mounted on one side of the path of the container assembly, so that as the teeth of sprocket **42** mesh with the bars **74** of the ratchet-like guide **72**, the container is caused to rotate in a direction of arrow **76**, i.e., clockwise in the plan view of FIGURE 2. Instead of guide **72** being comprised of vertical bars **74**, it may be a toothed fabricated ratchet of circular pitch and configuration, so that it and sprocket **46** effect a rack and pinion-like arrangement.

Due to the engagement of sprocket **46** with the vertically disposed bars **74** in the sprocket guide, the article and its container **32** rotates about a vertical axis which is perpendicular to their forward movement path effected by conveyor chains **12**. To effect the full wrapping of the article by the part of the wrapping material **66** that extends outwardly from the upper rounded or spheroidal surface of the article **68** in the container, four successive roller assembly groups **78**, **80**, **82** and **84**, each containing a plurality of roller assemblies **86**, are disposed overhead the contained article in the path of its forward movement. Preceding each of these groups of roller assemblies is a pushing means **88** and disposed transversely therefrom is a respective roller **90**.

Each of the roller assemblies **86** may be a solid roller that extends substantially the full width of path **70**, i.e.,

the path width of a container, but preferably each roller includes a plurality of discs or ball bearing wheels **92**, separated by spacers and freely individually rotatable on shaft **94**. Preferably, as indicated in FIGURE 1, each roller assembly **86** is spring mounted, as by a pair of suspension springs **96** supporting a respective shaft **94** at its opposite ends. Roller assemblies **86** are positioned above the contained article at a vertical dimension sufficient to effect rolling contact between the discs **92** and the wrapping material and article being wrapped so as to exert a downward pressure and effect in combination with the forward and rotary motion of the container a folding of the wrapping material **66** over the top of the article. It will be appreciated that the free mounting of each disc **92** on its respective shaft **94** allows individual movement of each such disc according to the force exerted upon it, giving the advantage of a more efficient folding influence on the wrapping material, as opposed to solid rollers which because of the lack of adaptability of some segments of any one such roller to the folding tendencies of the wrapping material may tend to produce an unwrapping effect.

As above mentioned, ahead of each group of roller assemblies is a pushing means **88**, which as shown in FIGURE 4 includes four flexible fingers or arms **98** that project from a rotatable shaft **100** in four different angular directions, for example 90° apart, generally in the same plane which is substantially perpendicular to the axis of shaft **100**. These arms **98** are made of any suitable flexible material, such as rubber, in the form, for example, of a rubber hose. Diametrically opposite arms **98** may effectively be the continuation of one another, with each arm containing adjacent shaft **100** a side aperture through which respectively extend rigid rods **102** which are affixed to shaft **100** in any suitable manner to cause the arms **98** to revolve when shaft **100** is rotated in the direction of arrow **101**.

As indicated in FIGURES 1 and 2, shaft **100** is secured at its opposite ends in bearings **104** and is rotatively driven by motor **18** via the adjustable gear boxes **20** and **106**, which are interconnected by belt **108** and respective pulleys **110** and **112**. Gear box **112**, in turn, rotates shaft **114** via a set of bevel gears **116**, and shaft **114** is rotatively connected to the pushing means shaft **100** by belt **118** and respective pulleys **120** and **122**.

Instead of the belt driving arrangement referred to above for rotating the pushing means shaft **100**, as well as that for driving sprockets **114**, any desired equivalents such as chain link drives may be employed.

By the time a container passes from under the last roller assembly **86** in group **84** thereof, the article in the container is fully wrapped, and the container moves forward into the sealing section of the apparatus. At this point, sprocket guide **72** preferably ends, thereby ending the rotational movement of the container for the time being. In the sealing section, the folds effected on top of the article in the wrapping section, are now sealed to effect a fully sealed enclosure of the wrapping material. It is presumed for purposes of giving a detailed embodiment that the wrapping material is of the type which may be sealed onto itself by the application of heat and pressure. Wrapping material of this type is well known in the art, for example, flexible plastic film sheets, made of polyethylene for example.

In the sealing, or annealing section as it also may be called, there is a plurality of heatable rollers **124**, nine such rollers being illustrated for exemplary purposes; more or less may be used as required. These rollers extend transversely of the forward path of the wrapped article and its container **32**, and may themselves be disposed on an endless conveyor arrangement so as to be movable between two different level horizontal planes in the lower of which contact is made with the wrapper article during movement in a direction opposite to the direction of the container movement.

Preferably, however, each roller **124** is pivotally mounted. This may be accomplished in the manner shown in FIGURE 5, wherein roller **124** includes cylinder **126** freely rotatable on end bearings **128** from which extend outwardly the jack shafts **130** into an aperture in the bracket hangers **132**. These hangers in turn are secured to the suspension shaft **134**, as by screws **136** through respective transverse apertures in the shaft. Shaft **134** is then rotatably mounted at opposite ends, as on the frame of the apparatus. Heating of each roller **124** is preferably accomplished by including internally of cylinder **126** a heating element such as a "Calrod" heat unit **138**, with electrical connections thereto being made by conductors **140** that extend through one of the jack shafts **130**. Conductors **140** in turn are connected to a power source **142**, including a breaker box if desired, through a thermostat **144**. The heating units of the different sealing rollers **124** may all be connected in parallel with power source **142**, if desired.

In this manner, each of the sealing rollers **124** is heated and pivotally mounted at the proper height so as to apply not only heat but also the proper amount of pressure to the upper surface area of the wrapped article in a container **32** as same passes under the rollers **124**. Preferably, there is a second gearing rack **146**, similar in all respects, as desired, to the aforedescribed sprocket guiding rack **72**, for similarly engaging sprocket **46** and effecting rotation of the container and its contents under the last few rollers **124**. The amount of rotation effected by rack **146** may be 45°, for example, and in any event this last rotary movement improves the final annealing process.

As a container **32** and its contents continue to move forward beyond rack **146**, the container starts turning upside down due to its following the downwardly curving path of conveyor chains **12**. As the container approaches an upside down position, its wrapped and sealed contents are discharged by gravity into a tunnel or chute **148**. Following this, the sealed product may be passed through a conventional heat chamber (not shown) which further anneals and shrinks the wrapping material.

In an effort to portray, perhaps somewhat theoretically, the steps that are effected during the closing of the wrapping material upon the upper surface of the article being wrapped, reference is now made to FIGURE 6 which diagrammatically represents in two rows the loading section I, four wrapping sections II*a*, II*b*, II*c* and II*d*, and the sealing section III, with the upper row of FIGURE 6 depicting a plan view of the product and its wrapping material as successively operated on by the equipment partially diagrammed in the lower row of FIGURE 6. At the loading station I, wrapping material **66** extends in the container **32** underneath the article **68** that is to be wrapped, with edges of the wrapping material extending outwardly from the article. At the first folding station, the pushing means **88** revolves its arms so as to push the outwardly extending wrapping material upwardly and inwardly onto the top of the article as the article is rotated. It will be understood that successive sections of the wrapping material are pushed upwardly by successive ones of the arms of the pushing means **88** at station II*a*. During this time the pusher shaft **100** is rotating in the direction of arrow **101** while the article is rotating in the direction of arrow **76** and moving forward along the path denoted by arrow **70**. The section **150** of wrapping material that has been pushed up by pushing means **88** at station II*a* proceeds under successive rollers **86** of that station due to the forward movement of the container. Then, at wrapping station II*b*, pusher **88** thereat continues to push more wrapping material onto the top of the forwardly moving article **68**, thereby causing the newly pushed-up section **152** to be rolled under the next roller assembly **86** and pleatingly folded relative to section **150**. By the time the article comes into wrapping station II*c*, it has rotated a

total of approximately 180°, using an exemplary figure of 90° per station, so that the article is now approximately half-wrapped. At station IIc, the third pusher **88** causes additional wrapping material to be directed vertically and over onto the top surface of article **68** as the article continues to rotate clockwise and simultaneously move forward. At wrapping station II*d*, the last pusher **88** also effectively sweeps or whips the remaining section **154** of wrapping material up onto the top of article **68**, while the subsequent roller assemblies **86** cause the pushed-up material to be rolled flatwise against the upper surface of the article effecting pleats by one section overlapping another. The article is thereby fully wrapped.

As previously indicated, the explanation just given relative to the folding process that occurs in stations II of FIGURE 6, may be somewhat on the theoretical side since in actual operation of the equipment perfect folding and pleating is not necessarily effected, because folding tendencies of the wrapping material may vary from one wrapping station to the next according to various factors including the shape and topography of the surface of the article and its angular orientation at the different stations. In one view, the operation may be described as closing the wrapping material over the remainder of the surface of the article being wrapped, by effectively twisting the directed wrapping material flatwise against the article.

At station III in FIGURE 6, the fully wrapped article is indicated being sealed by a pivoted one of the annealing rollers **124** which apply heat and the proper amount of pressure to effect a seal of the wrapping material onto itself.

As a representative example, it has been above indicated that there are two roller assemblies **86** per pusher **88**, but this number of roller assemblies may be increased or decreased as desired. Further, it has been indicated that in passing through each of the wrapping stations II*a–d*, the article is rotated approximately 90°. However, this amount of rotation may be varied in accordance with the number of wrapping stations and as desired to effect the full wrap required. An exemplary revolution rate of the pushing means shaft **100** is twenty revolutions per revolution of container **32**, but this ratio is not exactly required since successful operations may be accomplished with significant variations in that ratio. There is no particular limit on the lineal speed of chains **12**, since the wrapping process takes place successfully at any speed within the capacity of a reasonable power source.

Essentially, one pushing means **88**, with its plurality of arms **98**, which may of course be increased or decreased in number as desired, act on the wrapping material as a container passes through its sphere of influence. If there is an unusual displacement of the wrapping material, the material may be acted upon simultaneously by two pushers **88** in adjacent wrapping stations. Generally, each pusher may effect approximately twenty to thirty upward strokes on the wrapping material as the container passes through any particular one of the wrapping stations, though more or less than this number of strokes may be effected as required.

Short rollers **90**, which rotate on transversely extending fixed shafts **91** that are parallel to the axis of roller assemblies **86** but slightly elevated therefrom, do not extend the full width of path **70**. These rollers are generally termed "half" rollers and operate to maintain the position of the wrapped material by restricting it. The folding process takes place on the side of the conveying line where the pushers **88** are located. The folds formed by the action of the pushing arms and the pressure of the full length rollers **86** may have a tendency to become unfolded in the spaces between groups of rollers **86**. These spaces are necessary to allow for the rotary motion of the pushers **88**, so in order to prevent any possible unfolding of the wrapping material, the half rollers **90** are placed on the side of the conveying line opposite the pushers. The pressure of these half rollers maintains the folded position of the wrapping material in such spaces, and the wrapping material therefore reaches the sealing section in proper condition for successful annealing.

It will be appreciated from the foregoing that there is therefore provided by this invention an automatic wrapping device which is practical, rapid and economical of manufacture and maintenance, for enclosing variable-shaped objects, such as fresh produce, in a suitable wrapping or packaging material, with a minimum of manual operation and with speed and efficiency far surpassing manual wrapping or any prior art wrapping devices.

It will be appreciated by those of ordinary skill in the art after reading this disclosure, that many variations may be made in the apparatus without departing from the spirit or scope of the invention, which is defined in the appended claims.

What is claimed is:

1. A method of wrapping with flexible wrapping material an article which has at least a portion of its periphery in the form of a generally rounded surface, comprising the steps of:

partially wrapping said article by disposing said wrapping around the article except for a given area of said rounded surface portion, where it extends outwardly from the article,

moving the partially wrapped article forward along a given path,

rotating the so moving article about an axis generally perpendicular both to the forward direction and to the width of said path, and

closingly forcing the outwardly extending wrapping material on the rotating forwardly moving article inwardly over said given area and flatwise thereagainst to effect a fully wrapped article.

2. A method of wrapping a partially wrapped article having flexible wrapping paper around it except for a given area of a generally rounded surface portion of the article, comprising the steps of:

moving the partially wrapped article forward along a given path,

rotating the so moving article about an axis generally perpendicular both to the forward direction and to the width of said path, and

closingly forcing the outwardly extending wrapping material on the rotating forwardly moving article inwardly over said given area and flatwise thereagainst to effect a fully wrapped article.

3. Apparatus for wrapping with flexible material an article of the type that has at least a portion of its periphery in the form of a generally rounded surface, comprising:

means for rotatingly moving a said article forward along a given path with the said wrapping material disposed around that article except for a given upper area of said rounded surface portion, where it extends generally outwardly from the article, and

means, including downwardly pressing means disposed over said moving means and operative on said wrapping material as said article rotatingly moves forward as aforesaid, for closing the wrapping material flatwise against said rounded surface to effect a fully wrapped article,

wherein said closing means includes means disposed ahead of said downwardly pressing means for forcing said outwardly extending material inwardly over said upper area of said article whereby the said downwardly pressing means operates on the so forced wrapping material.

4. Apparatus for wrapping with flexible material an article that is at least roughly of spheroidal shape, comprising:

means for rotating a said article about a given axis and for simultaneously moving that article forward

along a given path perpendicular to the axis of rotation with the said wrapping material disposed around that article except for a given surface area thereof which generally faces a direction parallel to said rotation axis and from which area the wrapping material surrounding that area generally extends outwardly, and

means, including at least one roller means freely rotatable about an axis which is substantially perpendicular to both the path and article rotation axes, for folding the said outwardly extending wrapping material closingly flatwise against the said given surface area of the article as it rotates and moves forward as aforesaid.

5. Apparatus for wrapping with flexible material an article that is at least roughly spheroidal shape, comprising:

means for rotating a said article about a given axis with the said wrapping material being disposed around that article except for a given surface area thereof which generally faces a direction parallel to said rotation axis and from which area the wrapping material surrounding that area generally extends outwardly,

roller means freely rotatable substantially perpendicularly to the said article rotation axis,

means for relatively moving said roller means and said rotating article in a path substantially perpendicular to both the aforesaid axis and roller means to cause the roller means to roll over the aforesaid surface area, and

means including said roller means when relatively moved as aforesaid, for causing the said outwardly extending wrapping material to be closingly wrapped flatwise against the said given surface area to effect a fully wrapped article.

6. Apparatus as in claim 5 including at least one article container and wherein said relative moving means causes said article to move forward along said path in said container, said article rotating means including a pinion on said container and an effective rack cooperating with the pinion to rotate the container and article because of the said forward movement of the container.

7. Apparatus as in claim 5 wherein the means for rotating an article with the wrapping material disposed as aforesaid includes a container and means for rotating the container.

8. Apparatus as in claim 7 wherein said container includes means for preventing relative motion between the container and an article contained therein.

9. Apparatus as in claim 7 wherein said container includes resilient means for biasing the article it holds toward said roller means.

10. Apparatus as in claim 5 wherein said roller means includes at least one roller assembly comprising a shaft carrying a plurality of spaced, individually freely rotatable discs.

11. Apparatus as in claim 10 wherein said shaft is resiliently mounted to bias said wheels against the wrapping material over the said given surface area of the article being wrapped.

12. Apparatus as in claim 5 wherein the said means for causing the outwardly extending material to be closingly wrapped flat against the said given surface area of the article being wrapped includes means preceding certain said roller means for pushing the said outwardly extending wrapping material inwardly over the said given surface area.

13. Apparatus as in claim 12 wherein said roller means extend in full length substantially the width of said path, said pushing means being disposed toward a side of the path, said apparatus including a partial length roller disposed transversely of each pushing means for assisting the wrapping by said roller and pushing means.

14. Apparatus as in claim 12 wherein each pushing means includes a rotatable shaft carrying a plurality of flexible arms extending in different directions generally in a plane substantially perpendicular to said shaft and substantially parallel to the said article rotation axis and means for rotating said shaft to effect repeated pushing of the said wrapping material over the said given surface area as an article rotates and moves relative to said roller means as aforesaid.

15. Apparatus as in claim 5 and further including means for sealing the said fully wrapped article.

16. Apparatus as in claim 15 wherein the said fully wrapped article is rotated at least part of the time while the wrapping material is sealed.

17. Apparatus as in claim 15 for use with wrapping material of the type that is sealable by heat and pressure, said sealing means including means for applying heat and pressure to the wrapping material in the said given surface area.

18. Apparatus as in claim 17 wherein said sealing means includes heatable roller means.

19. Apparatus as in claim 18 wherein said heatable roller means includes a plurality of rollers each having heating means and being pivotally mounted sequentially downstream in said path for effecting a sealing heat and pressure onto the aforesaid fully wrapped article.

20. Apparatus for wrapping with flexible wrapping material, an article of the type that has a generally rounded surface area comprising:

means for holding a said article with said surface area protruding upwardly as the top of the article with said wrapping material underneath and extending therefrom generally upward and outward on all sides along the top of the article,

means for moving said holding means along a given path,

means for rotating said holding means and consequently the article held as aforesaid while same move along a given length of said path,

a plurality of roller means extending transversely of said path at spaced points along said given length above the height of the said holding means so as to contact the wrapping material and article and roll the wrapping material down thereon as the article is rotated and moved along said given length of path to effect a fully wrapped article,

and a plurality of means respectively ahead of certain ones of said roller means for pushing successive sections of said wrapping material inwardly down onto the top of the rotating article as and just before the said moving means causes the article being held to move under the next roller means.

21. Apparatus as in claim 20 for use with flexible wrapping material that seals onto itself under the application of heat and pressure, said apparatus further including a plurality of heatable rollers disposed overhead successively downstream in said path beyond said given path length to apply sealing heat and pressure to the area of the pushed and rolled wrapping material to seal the fully wrapped article.

22. Apparatus as in claim 21 including means for rotating the said holding means at least part of the time it is under the said heatable roilers.

23. Apparatus as in claim 20 wherein each of said roller means is a roller assembly comprising a shaft resiliently biased towards the said article holding means path and carrying a plurality of freely rotatable spaced wheels, there being a plurality of such roller means following each of said pushing means and a plurality of further roller means disposed part way across said path respectively opposite at least certain of said pushing means for preventing unfolding of rolled down wrapping material while the respective pushing means is operating, each said pushing means comprising a plurality of flexible arms extending generally perpendicular in different angular directions from and rotatable with a rotatable shaft common to all the pushing means.

24. Apparatus as in claim 20 including resilient compression means for biasing said held article and roller means toward each other as the former passes under the latter.

References Cited by the Examiner

UNITED STATES PATENTS

980,329	1/1911	Northrup	53—227 X
2,060,986	11/1936	Gaubert	53—221
2,375,144	5/1945	Stephano et al.	53—380
2,915,861	12/1959	Voullaire	53—217 X
2,938,319	5/1960	Nystrand	53—380 X
2,970,417	2/1961	Parks	53—226

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