May 25, 1971 H. POLLMEIER ET AL 3,580,790

APPARATUS FOR THE AUTOMATIC WRAPPING OF ROTATABLE BODIES

Filed April 23, 1969 5 Sheets-Sheet 1

FIG.1a

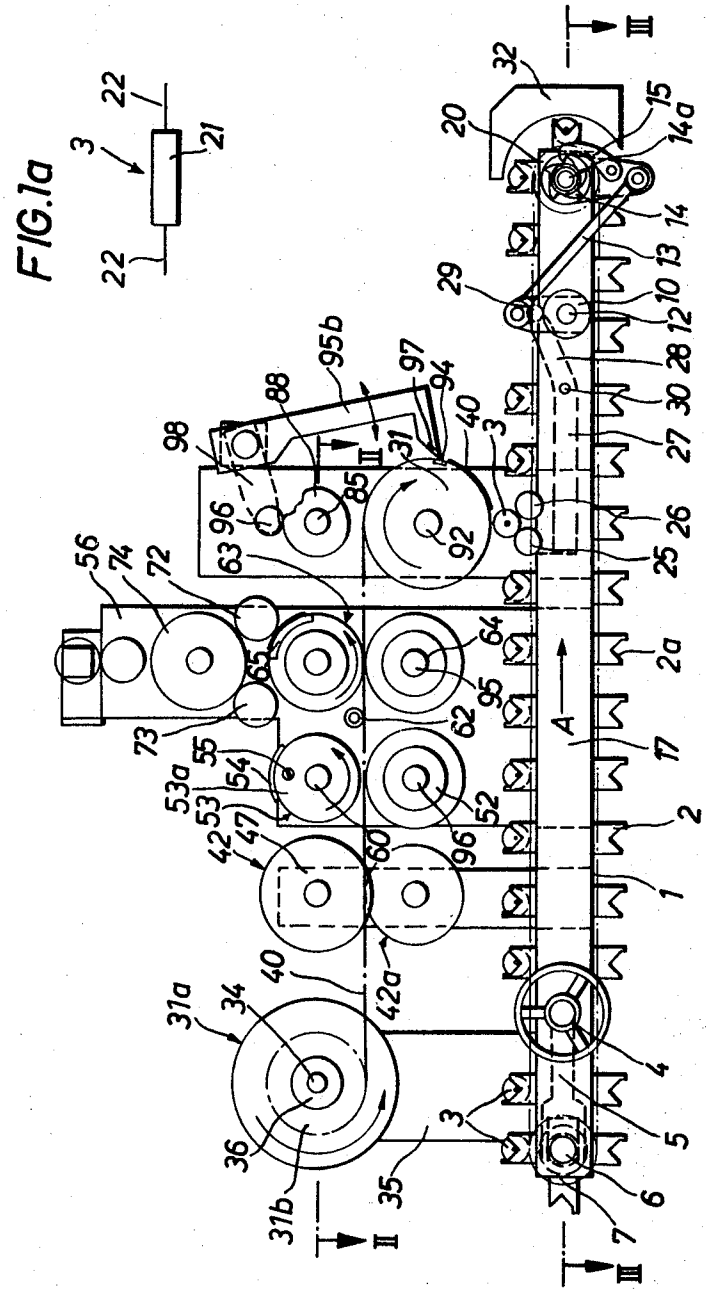


FIG.1

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Filed April 23, 1969 5 Sheets-Sheet 2

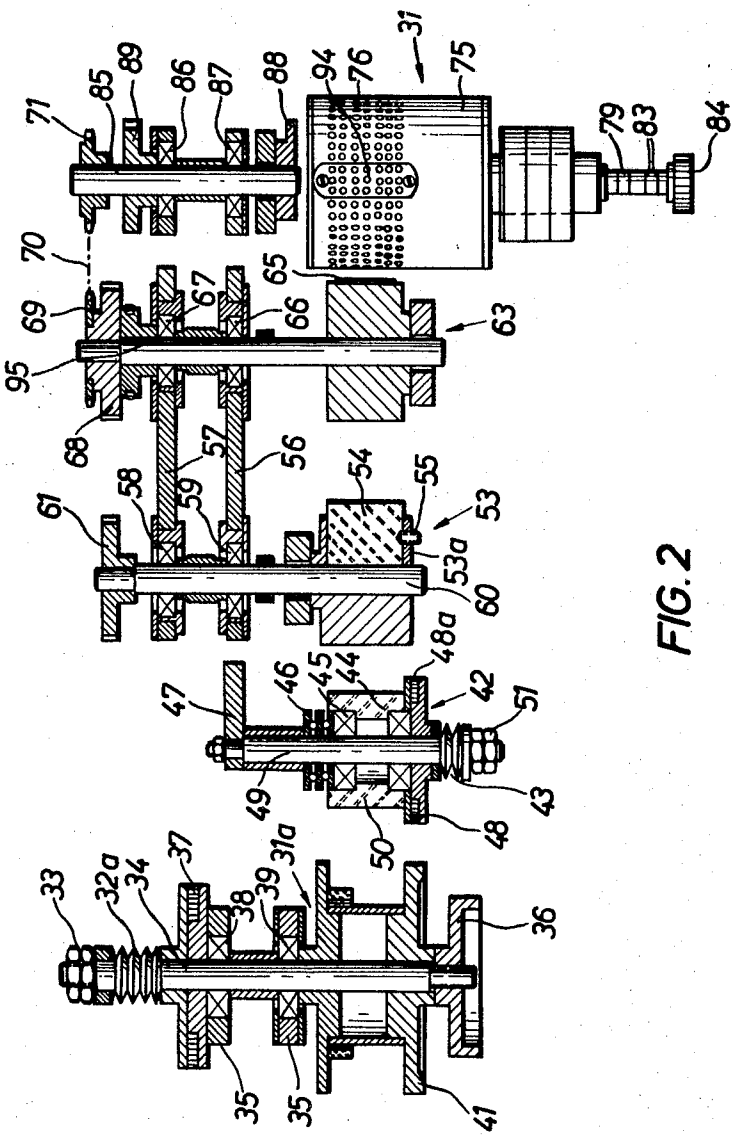


FIG. 2

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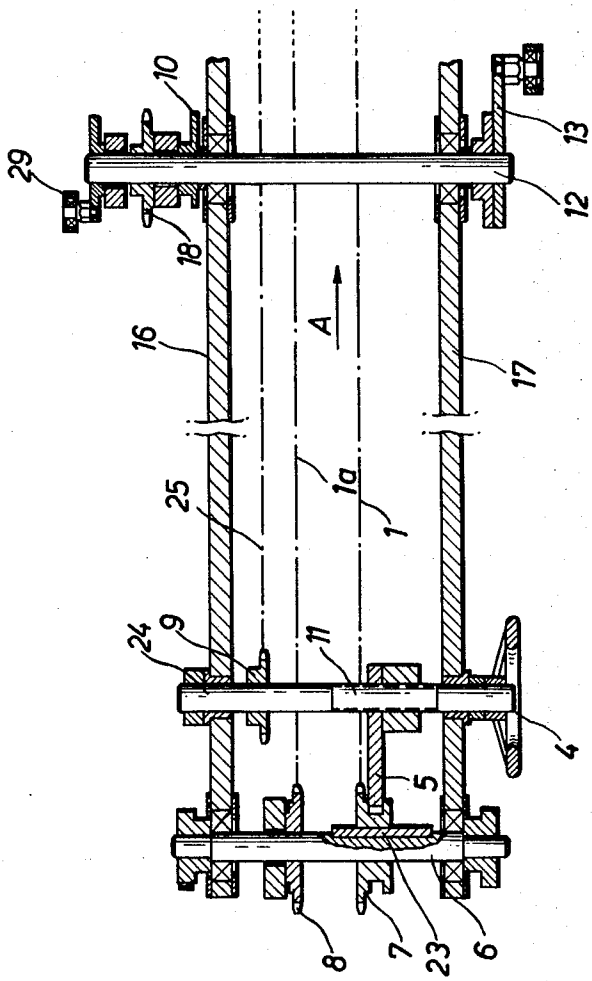


FIG. 3

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APPARATUS FOR THE AUTOMATIC WRAPPING OF ROTATABLE BODIES

Filed April 23, 1969 5 Sheets-Sheet 4

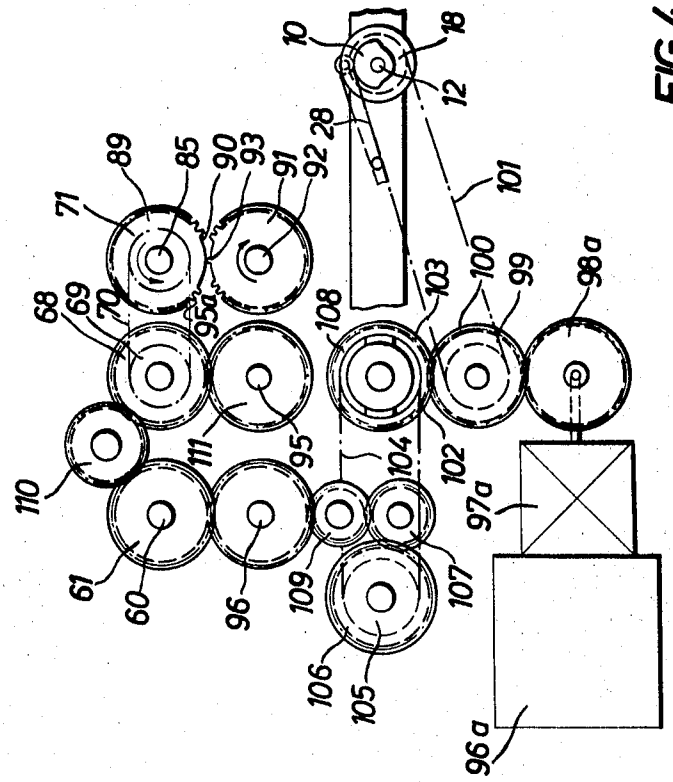


FIG. 4

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APPARATUS FOR THE AUTOMATIC WRAPPING OF ROTATABLE BODIES

Filed April 23, 1969 5 Sheets-Sheet 5

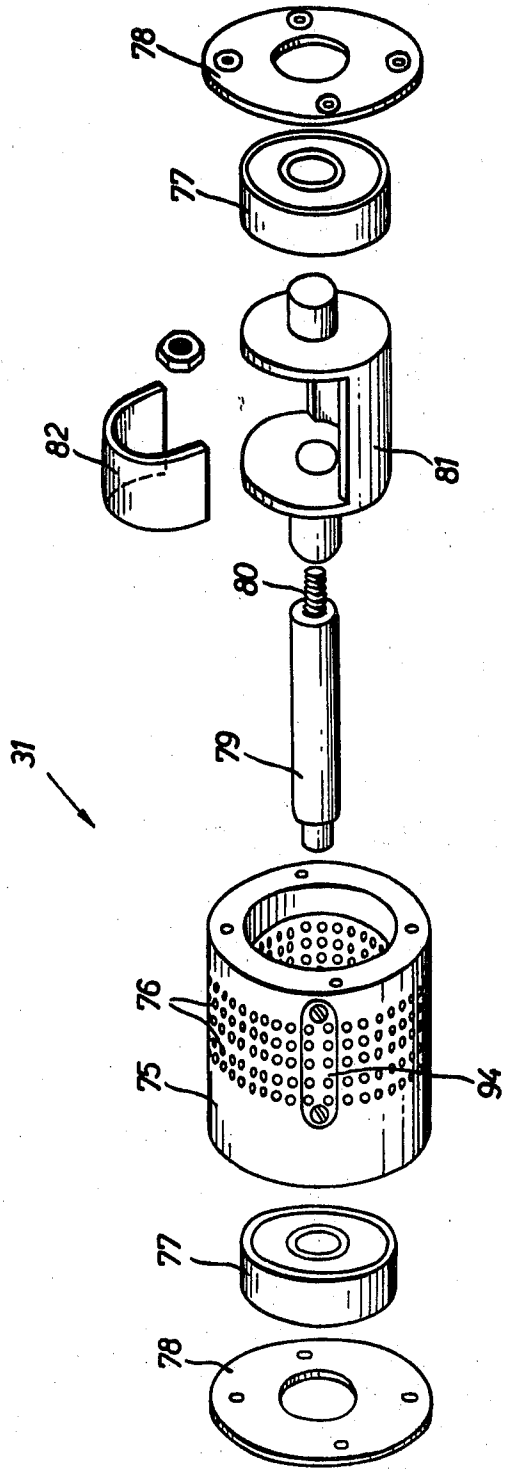


FIG.5

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APPARATUS FOR THE AUTOMATIC WRAPPING OF ROTATABLE BODIES

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Int. Cl. B65c 3/16, 9/04
U.S. Cl. 156—521 12 Claims

ABSTRACT OF THE DISCLOSURE

Apparatus for the automatic wrapping of rotatable bodies. The bodies are supported and moved into a wrapping position located beneath a suction roller which applies a foil strip to the rotatable body. The foil strip may be printed on and is automatically fed to the suction roller by various roller pairs. All of the operations are correlated so as to intermittently feed a single rotatable body to a wrapping work station simultaneously with the foil strip. The wrapped rotatable body is then carried to a discharge point on the apparatus.

BACKGROUND OF THE INVENTION

Industrial products such as electrical components are frequently protected against mechanical, electrical or chemical influences by enclosure in a web of foil wrapping material. This material may be later removed or may actually become a permanent part of the component being produced and packaged for the consumer. Suitable foil materials used for wrapping under these circumstances have included various sorts of self-adhesive foil and plastic foil material. The self-adhesive foil has an adhesive substance on one side thereof and is coiled into rolls which may be readily stored and transported. The mechanical withdrawal of the adhesive foil from these rolls can lead to difficulties. The necessary force to withdraw the adhesive foil from a supply roll is variable and cannot be predetermined. Therefore the withdrawal of the adhesive foil from the roll is extremely difficult especially if the withdrawal is intermittent. Another obvious difficulty is in having the adhesive side of the foil remaining stuck to the various portions of the apparatus as it is being advanced toward the wrapping position of the apparatus. This problem not only deleteriously affects the adhesive foil but also lowers the efficiency of the apparatus. Adhesive material sticking to working portions of the apparatus commonly occurs in the cutting operation. Here the adhesive builds up on the cutting blades thereby requiring regularly repeated cleaning or changing of the blades.

PURPOSE OF THE INVENTION

The primary object of this invention is to provide an apparatus for the automatic wrapping of rotatable bodies with a web of foil material.

Another object of this invention is to use the commonly known self-adhesive foil material in a mechanical wrapping process in a manner to overcome the disadvantages as enumerated hereinabove.

A more specific object of this invention is to provide a mechanical means including a suction roller which will advance an adhesive strip intermittently without the adhesive side of the foil material being adversely affected after it has left the supply roll.

A further object of this invention is to provide a suction roller which has a novel means for intermittently and synchronously feeding an adhesive strip and a rotatable body to a wrapping work position immediately adjacent said suction roller.

A still further object of this invention is to provide a suction roller which is adaptable to foil material having various widths.

Another object of this invention is to provide an apparatus using a suction roller which may wrap rotatable bodies automatically and effectively on a mass production basis without requiring a highly skilled or experienced operator.

SUMMARY OF THE INVENTION

The apparatus for automatic wrapping of rotatable bodies comprises a rotatably mounted suction roller working in cooperation with a foil material feed means and a rotatable body advancing means. Short strips of foil material are applied to a body rotating between the suction roller and a cooperating pressure producing means. The suction roller includes means for applying a vacuum to the web of foil material to hold the foil directly on the surface of the suction roller. Movement of the suction roller is synchronized with the adhesive foil material feed means and the rotatable body advancing means. A foil cutting means includes a knife edge to cut the foil material into appropriate lengths for wrapping the rotatable bodies.

A further embodiment of the suction roller includes the use of an axially movable slide which works in cooperation with openings located in the side wall of the suction roller. This movable slide controls the suction along various web widths of foil material.

The apparatus of this invention includes feed means which will intermittently advance the web of foil to the suction roller. The advancing rolls include material in their construction that will not adversely affect the adhesive characteristics of the foil. Plastic material such as acetyl resin may be used on those portions which will necessarily require contact with the adhesive on an adhesive carrying foil material. This type of material may also be used on the wrapping apparatus which may come in contact with the adhesive.

BRIEF DESCRIPTION OF DRAWINGS

Other objects of this invention will appear in the following description and appended claims, reference being made to the accompanying drawings forming a part of the specification wherein like reference characters designate corresponding parts in the several views.

FIG. 1 is a side elevational view of an apparatus made in accordance with this invention, and

FIG. 1*a* is a plan view of a condenser body which is being wrapped in this apparatus,

FIG. 2 is a sectional view along the line II—II of FIG. 1,

FIG. 3 is a partial sectional view along the line III—III of FIG. 1,

FIG. 4 is a rear elevational view of the apparatus made in accordance with this invention, and

FIG. 5 is an exploded view of a suction roller made in accordance with this invention.

DESCRIPTION OF SPECIFIC EMBODIMENTS

The feed track of the apparatus in the specific embodiment includes conveyor chains **1** and **1***a* which rotate in synchronism with respect to each other. Uniformly spaced supports **2** are mounted on the conveyor chains **1** and **1***a*. Condensers **3** which are the rotatable bodies to be wrapped in this specific embodiment are set in notches **2***a*. The conveyor chains **1** and **1***a* are mounted over freely rotatable chain wheels **7**, **8** and **20** and move in the direction A as indicated by the arrows. The cylindrical body **21** of the condenser **3** is wrapped with the

two terminal wires 22 projecting outwardly from the ends thereof. The terminal wires 22 are placed in the notches 2*a* of the supports 2. As the conveyor chains 1 and 1*a* move, the cylindrical condensers 3 are carried to a wrapping work station as shown in FIG. 1. After being wrapped, the condensers 3 are carried to a discharge point located at the end of said conveyor chains 1 and 1*a*.

Chain wheel 8 is rigidly attached to the shaft 6 which is rotatably mounted at one end of frame sections 16 and 17. Chain wheel 7 is movably mounted on the shaft 6. The spring and groove combination 23 is used to displace the chain wheel 7 in the direction of the axis of the shaft 6. A chain setting bolt 24 is mounted on the frame sections 16 and 17 in a laterally displaced and parallel relationship to the shaft 6. A hand wheel 4 is mounted at one end of the setting bolt 24. A fork-shaped setting lever 5 is mounted on the threaded portion 11 of the setting bolt 24. The setting lever 5 is in contact with the chain wheel 7. Movement of the lever 5 along the threaded portion 11 moves the chain wheel 7 along the shaft 6. The control chain wheel 9 is rigidly mounted to setting bolt 24. By turning the hand wheel 4, the control chain wheel 9 rotates the control chain 25. At the other end of the feed track, the drive chain wheel 20 is adjusted through the use of control chain 25 and another control chain wheel (not shown) which is mounted on another control belt (not shown). The drive chain wheel 20 is movably mounted on shaft 14*a* as the chain wheel 7 is mounted on shaft 6. The drive chain wheel 20 moves along its shaft in synchronism with the movement of the control chain wheel 7 as it moves along the shaft 6. Conveyor chain 1 is mounted over chain wheels 20 and 7. The turning of the hand wheel 4 thereby controls the parallel relationship between the conveyor chains 1 and 1*a* which must always be in parallel relationship with each other. In addition, the spaced relationship of the conveyor chains 1 and 1*a* with respect to each other is adjustable by turning the hand wheel 4. These adjustments enable the apparatus of this invention to be readily adaptable to various sized cylindrical bodies which are to be wrapped at the wrapping work station. It is important in this specific embodiment that the chain wheel 8 which is fixedly mounted on the shaft 6 operate with a corresponding counter wheel (not shown) at the other end of the feed track with the same chain 1*a* mounted thereon forming to some extent a fixed stop. That is, the adjustment of the distance between the conveyor chains 1 and 1*a* can only be effected by movement of the conveyor chain 1.

The conveyor chains 1 and 1*a* are actuated by drive means which include a crank gear 13. The shaft 12 is rotatably mounted on the frame sections 16 and 17 and carries means to actuate the pawl 15 in rhythym with the operation of the apparatus. A ratchet wheel 14 is mounted on the shaft 14*a* which carries the chain drive wheel 20. The wheel (not shown) which works in cooperation with the chain wheel 8 is also mounted on shaft 20. Actuation of the pawl 15 which cooperates with the ratchet wheel 14 rotates the chain drive wheels mounted on shaft 20. This operation thereby moves the conveyor chains 1 and 1*a* through one operating step in the feed direction of the apparatus. The shaft 12 is driven by the chain wheel 18 mounted thereon. A cam disc 10 mounted on the shaft 12 is used to control the pressure rolls 25 and 26 which are freely rotatable below the suction roller 31. The pressure rolls 25 and 26 are rotatably mounted on lever arm 27 which extends along the feed direction A. The lever arm 27 includes a slightly cranked portion 28 which carries a control roller 29. The arm may be fixed to either of the frame sections 16 and 17 by a bearing 30 in any well known manner. The cam disc 10 is shaped to carry the control roller 29 in rolling contact so that the pressure rolls 25 and 26 lift a condenser 3 against the suction roller 31. The shape of the cam disc 10 is effected in any manner known in the prior art. The cylindrical portion 21 of the condenser 3 rolls against the suction roller 31 until it is wrapped in adhesive foil 40. Once the condenser 3 has been wrapped, it is lowered to its support 2 by way of the movement of the lever arm 27 and pressure rolls 25 and 26 in a downward direction. The wrapped condensers 3 are dropped by way of a guide plate 32 at the discharge end of the apparatus. The wrapped condensers 3 may be either placed into a container or fed to a conveyor belt, neither of which are shown but which may be used in an obvious manner at the discharge end of the apparatus.

While the condensers 3 are being moved along the apparatus of this specific embodiment, the web of adhesive foil 40 is moved along in a synchronous manner therewith. The web of adhesive foil 40 is withdrawn from a supply roll 31*b* which is mounted on a roller generally designated 31*a*. The roller 31*a* is fixedly mounted on a shaft 34 which is rotatably supported by the frame member 35. Brake means are operably connected to the roller 31*a* to enable the supply roll 31*b* to rotate only under an adjustable withdrawal force. By this arrangement, the withdrawal force which exceeds a specifically high friction force can be kept exceedingly small.

The brake means in this particular embodiment includes a combination of plate springs 32*a* and a friction brake 37. The plate springs 32*a* are mounted on shaft 34 to place the said shaft 34 under axial tension. The tension of the plate springs 32*a* is adjustable by the setting screws 33. This tension from the plate springs 32*a* is transmitted to the friction brake 37 by way of the axially tensioned shaft 34. The withdrawal roller 31*a* is rotatably mounted with bearings 38 and 39 located in spaced relationship on the frame structure 35. The adhesive strip 40 can be easily inserted or changed from the side of the apparatus as shown in this specific embodiment due to this manner of mounting the said withdrawal roller 31*a*. The construction of this apparatus enables all parts to be clearly visible and readily accessible if trouble develops in the operation of the apparatus. To change the supply roll 31*b*, the nut 36 is removed from shaft 34. The flange 41 is then drawn from the withdrawal roller 31*a* so that the supply roll 31*b* is accessible.

The adhesive strip 40 is fed to a pair of rolls generally designated 42 and 42*a*. The roll 42 is on the adhesive side of the tape 40 and comprises an acetyl resin. The other roll 42*a* is made of flexible rubber in this specific embodiment. The pair of rolls 42 and 42*a* act as a friction brake. Movement of the adhesive foil 40 is effected by a feed device which is subsequently located in the strip feed direction and overcomes a specific pre-tension in the foil 40. To accomplish this purpose, the roll 42*a* is freely rotatable. The roll 42 is rotatably mounted by bearings 44 and 45 on shaft 49 which is rigidly attached to the frame portion 47. Spring plates 43 are mounted on the same shaft 49 and apply a tension to the roll 42. This tension provides a braking moment which is adjustable through the setting screw 51. The spring plates 43 act on friction brake 48 having one brake disc 48*a* in contact with the rubber cylinder 50 carried by roll 42. Axial bearings 46 are mounted on the side of the cylinder 50 remote from the spring plates 43. These axial bearings 46 absorb the axial pressures applied by the spring plates 43.

The adhesive foil 40 next passes between a lower rubber roll 52 and an upper roll 53 mounted at a slightly dissplaced distance from each other. Each of the rolls 52 and 53 are cylindrical. The upper roll 53 has an acetyl resin cylindrical segment 54 projecting beyond the cylinder casing 53*a*. The upper roll 53 cooperates with the sticky side of the adhesive strip 40. The cylindrical segment 54 is detachable and therefore very easily changed. The segment 54 is held in the cylinder casing 53*a* by a screw 55. The shaft 60 is rotatably mounted in the bearings 58 and 59 on the frame parts 57 and 56, respectively.

The shaft **60** carries the roll **53** and is driven from the drive side of the apparatus by way of the cog wheel **61**. Each time the roll **53** rotates, the adhesive strip **40** is contacted by the cylindrical segment **54**. The adhesive strip **40** adheres to the surface of the cylindrical segment **54** and is moved along by an amount corresponding to the peripheral length of the cylindrical segment **54**. The movement of the adhesive strip **40** is effected against the frictional force of the pair of rolls **42** and **42***a* and the frictional force of the supply roll **31***a*. The length of adhesive strip **40** which may be fed at each stroke of the apparatus can clearly be varied by replacing the cylindrical segment **54** with other segments having a larger or smaller size along its periphery.

A small rotatably mounted roll **62** is disposed above the web of foil **40** immediately following the pair of rolls **52** and **53**. As the adhesive strip **40** continues to move in the feed direction, the roll **62** serves to draw down any of the foil strip **40** which adheres to the cylindrical segment **54**.

A further feature of this embodiment includes a pair of rolls **63** and **64** which cooperate to produce printing on the web of adhesive foil **40**. The printing roll **63** of this embodiment carries a printing plate **65**. This printing roll **63** rotates in synchronism with the roll **53** carrying the cylindrical segment **54** and exerts very little or no feeding force at all. The printing roll **63** is rotatably mounted in bearings **66** and **67** within the frame portions **56** and **57**, respectively. The cog wheel **68** is mounted on shaft **95** and used to drive the printing roll **63**. Shaft **95** also carries a chain wheel **69** which drives a further chain wheel **71** with a chain **70** to effect movement of the suction roller **31**. A set of inking rolls **72**, **73** and **74** effects the ink coating of the printing plate **65** during each revolution of the printing roll **63**. An obvious alternative of providing any printed material on the particular product being wrapped is to print directly on the product itself and then use transparent adhesive foil in the wrapping process.

After printing, the adhesive strip **40** moves in the feed direction to the suction roller **31** which is shown in detail in FIG. 5. The suction roller **31** comprises a cylindrical roller body **75** having one-half of its casing provided with a plurality of openings **76**. The roller **31** includes bearings **77** and airtight sealed end walls **78** at each end face thereof. The roller **31** is rotatable about a rigidly mounted shaft **79**. A partial cylinder member **81** is fixedly attached to the shaft **79** with the threaded member **80**. The hollow cylinder member **81** has a partially open casing and is axially adjustable within the body **75**. Means are provided to reduce the pressure within the partially open casing of the hollow cylinder member **81** to thereby suck external air into the roller **31** through the openings **76**. A vacuum pump (not shown) may be connected to the suction roller **31** in a manner known in the prior art to obtain the desired suction effect at the openings **76**. Therefore, when a segment of the adhesive strip **40** lies on the roll **75** over the opening **76**, a suction is exerted thereon along the area of the roll **75** cooperating with the open partial cylinder member **81**. The partial cylinder member **81** is equal to about one-half the length of the suction roller body **75**. The rows of openings **76** also extend over about one-half the length of the suction roller body **75**. Therefore, when the partial cylinder member **81** is opened toward all the rows of openings **76**, the suction roller **31** is effective for the maximum width of the adhesive foil strip **40** contacting the said roller body **75**. On retraction of the partial cylinder member **81** into the unperforated portion of the roller **75**, no suction is applied to the adhesive strip **40**. When the apparatus of this invention is used with a narrow foil strip **40**, the partial cylinder member **81** is located in about the middle portion of the roller body **75**. Those openings **76** covered by the foil strip **75** are effectively applying suction thereto.

The partial cylinder member **81** of this specific embodiment does not turn with the suction roller body **75**. The open section of the cylinder member **81** always points in the direction of the hole openings **76** onto which the foil strip **40** is being held by a suction force. This relationship always provides an effective suction that is fully utilized on the adhesive foil strip **40**. No air can enter the suction roller **31** through the openings **76** which are disposed beyond the edges of the adhesive foil strip **40**.

A further embodiment of the structure of the suction roller **31** contemplates the use of a tunnel-shaped masking member **82** which is axially displaceable inside the opening of the partial cylinder member **81**. The masking member **82** is used to mask off part of the surface of the open casing in the cylinder member **81**.

The shaft **79** projects from the housing of the suction roller **31** and carries marking rings **83**. These marking rings **83** are displaced with respect to each other a distance substantially equal to the spacing between the rolls of suction openings **76**. In this way it is possible for the machine operator to tell from the outside of the roller body **75** which rows of openings **76** are not under the influence of the reduced pressure in the partial cylinder member **81**. An operating handle **84** is mounted at the end of the shaft **79** so as to effect movement of the cylinder member **81** within the cylindrical roller body **75**.

Cog wheel **89** is mounted on the shaft **85** as a further means for driving the suction roller **31**. The chain **70** passing over the chain wheels **69** and **71** is used to turn the shaft **85** and thereby rotate the cog wheel **89**. A number of teeth are omitted along a disengaged position **90** on the cog wheel **89**. The cog wheel **91** which cooperates and meshes with cog wheel **89** is fixedly mounted on shaft **92** which carries the suction roller **31**. Cog wheel **91** has a large tooth gap including a tooth **93** disposed at about the center of the gap. When the disengaged position **90** of cog wheel **89** and the tooth gap of cog wheel **91** are in corresponding relationship, the suction roller **31** is held in a desired position for a specific period of time.

The suction roller **31** is held in position as shown in FIG. 1 while the hardened plate **94** cooperates with the cutter blade **95***b* during the cutting operation. This cutting period in the operation of the apparatus is maintained until the next tooth **95***a* strikes the tooth **93** as shown in FIG. 4. Once the tooth portion of cog wheel **89** comes in contact with the tooth **93**, cog wheel **91** is rotated thereby turning the suction roller **31** through the drive shaft **92**. A segment of the web of foil **40** is formed in a layer along the surface of the suction roller **31**. During the cutting period, the cutter **95** acts in cooperation with the hardened metal **94** to break the foil **40** before it is applied to the rotatable body **3**. As the suction roller **31** continues to rotate, the foil **40** is wrapped about the rotatable body **3** which is under pressure between the pressure rollers **24** and **26** and the suction roller **31**.

The control means for the cutting bade **95***b* includes a cam disc **88** which is contacted by the control wheel **96**. Cam disc **88** is fixedly mounted on shaft **85**. Movement of the cam disc **88** is effected by rotation of shaft **85**. Control wheel **96** is mounted on lever arm **98**. When the suction roller **31** is in a position as shown in FIG. 1, the cutter blade **95** is actuated by the lever arm **98** which is moved when the control wheel **96** moves over the cam disc **88**. The hardened knife tip **97** of the cutting blade **95***b* strikes against the hardened plate **94** to effect the cutting of the foil **40**. The cutting blade **95***b* as used in this specific embodiment falls under its own weight from a relatively small height onto the hardened plate **94** of suction roller **31**. No additional force is required for cutting in this specific embodiment. Once the cutting has been accomplished, the blade **95***b* lifts due to the cooperating surfaces of the cam **88** and control roll **96**. The cutting knife tip **97** meets the adhesive side of the foil **40** very briefly and only linearly. In this manner, the adhesive on the foil **40** can only smear the knife tip **97** very slightly. Therefore, the cutting blade **95***b* need not be cleaned as

frequently as those cutting devices used in other operations involving the cutting of adhesive strips.

The power for driving the apparatus in accordance with this invention is supplied by a motor **96***a* which drives the cog wheel **98***a* through the gearing **97***a* as schematically shown in FIG. 4. Cog wheel **98***a* engages cog wheel **99** which is mounted with chain wheel **100** on a common shaft (not numbered). The drive chain **101** passes around the chain wheel **100** and the chain wheel **18** to drive the shaft **12**. Movement of the shaft **12** rotates the cam disc **10** to thereby actuate the pawl **15** through the action of the crank drive **13**.

As soon as the power motor **96***a* is switched on, the conveyor chains **1** and **1***a* are intermittently advanced by a distance equal to the space existing between the successively placed supports **2**. This moves a rotatable body **3** into the wrapping position between the pressure rollers **25** and **26** and the suction roll **31**. Cog wheel **99** also engages the cog wheel **102** which is operably connected with a magnetically actuable coupling **103**. The output side of the magnetically actuable coupling **103** is coaxially fastened to the drive chain wheel **108**. The magnetically actuable coupling **103** is activated in response to an output signal of a feeler (not shown) which detects the presence of a rotatable body **3** below the suction roller **31**. That is, the feeler determines when a rotatable body **3** is in the wrapping position. The magnetically actuable coupling **103** thereby effectively drives pressure roll **52** when the rotatable body **3** is detected in the wrapping position. The drive chain **104** passes over the drive chain wheels **108** and **105**. The chain wheel **105** turns the cog wheel **106** which engages cog wheel **107** which drives cog wheel **109**. Contact between the cog wheel **109** and the corresponding driving means of shaft **96** thereby rotates the pressure roll **52**. The shaft **60** which carries roll **53** is simultaneously driven by cog wheel **61** in a direction opposite to the direction of rotation for roll **52**. The movement of the pair of rolls **52** and **53** effects the advance of adhesive strip **40**. The cog wheel **68** is driven in the same direction of rotation as cog wheel **69** by way of the intermediate cog **110** placed therebetween. The chain **70** which is placed over chain wheels **69** and **71** is moved when the cog wheel **68** rotates. Movement of the chain **70** actuates the turning of the shaft **85** through the chain wheel **71** thereby rotating the cog wheel **89**. The cog wheel **68** engages the cog wheel **111** which turns shaft **95** thereby rotating the pressure roll **64** for printing on the foil adhesive strip **40**. The suction roller **31** starts moving at the same time as the printing rolls **63** and **64** and the pressure feed rolls **52** and **53**. The arrows on each of the rolls indicate the direction of rotation. The rotation of the feed rolls **52** and **53** causes the adhesive strip **40** to be fed to the suction roller **31** by way of the roll segment **54**. Once the cutter blade **95***b* has separated a segment from the adhesive foil strip **40**, the suction roller **31** contines to move. The adhesive strip **40** is thereby pressed aginst the rotatable body **3** which is located in the wrapping position as shown in FIG. 1. Once the wrapping has been completed, the pressure rolls **25** and **26** lower the rotatable body **3** through the crank drive mechanism which includes the crank drive **13** to thereby effect the beginning of another cycle. It is emphasized that the conveyor chains **1** and **1***a* act to move the rotatable bodies to the wrapping position in an intermittent manner as soon as the main drive motor **96***a* is switched on. The rest of the operations providing the feeding of the adhesive roll **40**, the subsequent printing, cutting and wrapping are initiated by the magnetic coupling **103** once the rotatable body **3** is located in the wrapping position.

It is obvious that the apparatus as described and claimed in this invention may be used to wrap any type of rotatable body. The precise fitting of the wrapping to the contours of the workpiece may or may not be of significance. This is obviously dependent upon the rotatable object being wrapped. In packaging many articles it does not matter if the foil does not lie against the entire periphery of the packaged article.

While the apparatus for automatic wrapping of rotatable bodies has been shown and described in detail, it is obvious that this invention is not to be considered as being limited to the exact form disclosed, and that changes in detail and construction may be made therein within the scope of the invention, without departing from the spirit thereof.

Having thus set forth and disclosed the nature of this invention, what is claimed is:

1. An apparatus for the automatic wrapping of rotatable bodies with a web of foil material comprising

(a) a rotatable body transport means to intermittently move said rotatable bodies to a wrapping work station,

(b) a suction roller at said wrapping work station including a body casing having openings therethrough extending over a portion of the periphery,

(c) means to produce a suction along the surface of the roller for holding a web of foil material against said roller surface,

(d) pressure producing means to remove each of said rotatable bodies from said transport means at said work station and to press each of said rotatable bodies against the surface of said suction roller in rotatable relationship therewith, said pressure producing means including a pressure element located below said suction roller and means to move said suction roller and said pressure element toward each other, and

(e) web feed means to intermittently feed segments of a web of foil material to said wrapping work station synchronously with said rotatable body transport means, said web feed means including means for supporting a storage supply roll of the foil material and a pair of feed rolls to withdraw the web of foil material from the supply roll and advance it toward the suction roller, said feed rolls comprising means to intermittently advance said web of foil material including a segmental portion projecting beyond at least one of the feed rolls to contact the web of foil material,

(f) whereby said body rotates against the surface of said suction roll while carrying the web of foil material causing said foil material to be wrapped around said rotatable body.

2. An apparatus as defined in claim **1** wherein

said apparatus includes sensing means located at said wrapping work station to feel a rotatable body when present at said work station,

means responsive to said sensing means to actuate said web feed means to cause said suction roller to contact said rotatable body with a segment of said web of foil material.

3. An apparatus as defined in claim **1** wherein

said web of foil material comprises an adhesive strip having an adhesive material on one side,

said feed roll having said segmental portion and being located on the adhesive side of the strip,

said segmental portion being composed of a plastic material which will not adversely affect said adhesive when the segmental portion is in contact therewith during a foil feeding operation of the apparatus.

4. An apparatus as defined in claim **1** further comprising a crank drive, said pressure element including a pair of freely rotatable rolls which carry the rotatable body free of the transport means, and said pressure producing means including a lever arm which moves in response to said crank drive to actuate said pair of rolls for lifting the rotatable body at the work station upwardly into contact with the suction roller.

5. An apparatus as defined in claim **1** wherein said suction roller includes an axially extending plate of hardened material and said apparatus includes blade means having

a cutting edge mounted and operative to strike and cut said foil material in cooperation with said hardened plate and means to control said blade means.

6. An apparatus as defined in claim 5 wherein

said suction roller includes an axially movable, partially open member located within said casing,

said partially open member directing a suction effect to a limited number of holes to provide for the handling of webs of foil material having differing widths.

7. An apparatus as defined in claim 5 wherein

said apparatus includes drive means to rotate said suction roller when said pressure element is in contact therewith.

8. An apparatus as defined in claim 7 wherein

said suction roller drive means include a driven cog wheel mounted with the suction roller on a first shaft and a driving cog wheel mounted on a laterally displaced second shaft,

said driven cog wheel has a substantially tooth-free gap along its periphery with a single tooth located at substantially the center of said gap,

said driving cog wheel has a completely tooth-free position along its periphery,

said blade means operates to cut said web of foil material when said tooth-free gaps are adjacent each other during the operation of the respective cog wheels.

9. An apparatus as defined in claim 1 wherein

said apparatus includes a pair of brake rollers located between the supply roll and said feed rolls to provide a tension in the web of foil material.

10. An apparatus as defined in claim 9 wherein

said apparatus includes a pair of rolls located between the feed rolls and suction roller to provide means for printing on the web of foil material passing therebetween.

11. An apparatus as defined in claim 9 wherein

said feed rolls and said brake rolls are mounted in bearings on a frame member along one side of the rolls only,

the boundary of the rolls adjacent the bearing side acts as a reference edge for the web of foil.

12. An apparatus as defined in claim 1 wherein said pressure producing means comprises pivoted lever means, two pairs of rolls mounted on said lever means, said pairs being axially spaced apart, and means to move said lever means and cause said pairs of rolls to lift a rotatable body from said transport means, press said rotatable body against said suction roller during wrapping and then return the wrapped rotatable body to said transport means.

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