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AUTOMATIC WRAPPING MACHINE

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Fig.1

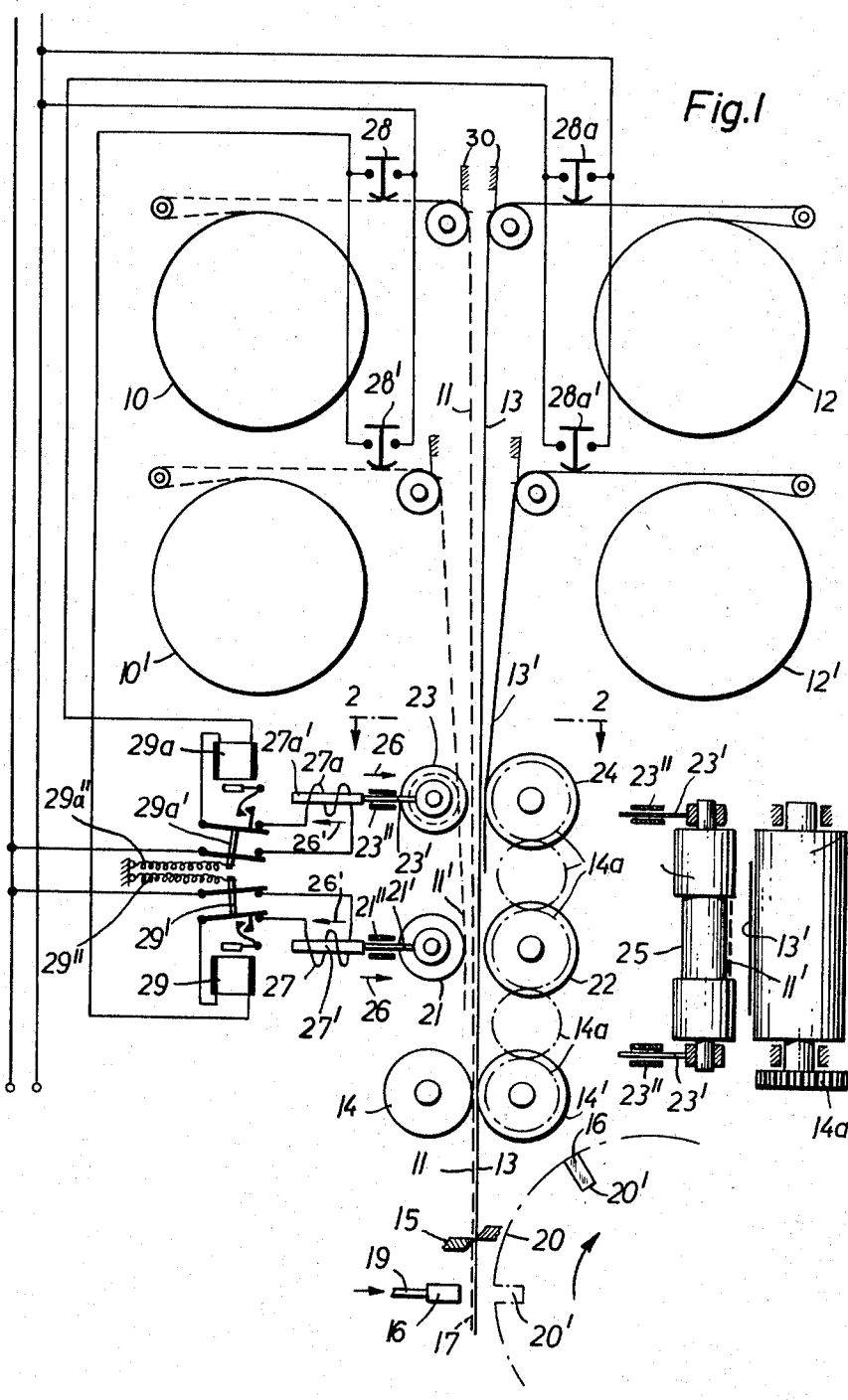


Fig.2

INVENTOR:
HEINZ SCHMITZ

BY

Michael J. Striker

his ATTORNEY

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AUTOMATIC WRAPPING MACHINE

Heinz Schmitz, Efferen, near Cologne, Germany, assignor to Franz Thegarten, Kampchensweg, Cologne-Mungersdorf, Germany

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The present invention concerns an automatic wrapping machine for wrapping articles, particularly mass-production articles as for instance candies or the like in wrappers taken from a strip of paper. In conventional wrapping machines of this type it is customary to unwind at least one strip of paper from a stock roll carried by a reel and to stop the machine operation every time when the stock of paper carried by the reel is exhausted so that then a new stock roll can be placed on the reel for introducing a new strip of paper. By such repeated stopping of the machine operation the continuity of production is severely disrupted. Operating time is lost. These difficulties are particularly aggrevating in the case of automatic wrapping machines for candies because the individual candies to be packed and wrapped are cut from an extruded strand. During the standstill of the wrapping machine the danger exists that the candy mass which is plastic only at elevated temperatures will cool off, particularly as far as it is already extruded into a strand. Consequently, repeated standstills of the wrapping machine will cause substantial waste.

Various systems have been developed for introducing into a machine processing a strip supplied from a stock roll a new strip supply every time a stock roll is exhausted, by introducing the forward end of the new supply into the processing machine or by attaching the forward end of the new supply to the rearward end of the previous supply. However, all these systems have been useful and practical only in those cases where a single strip or web of material is to be handled.

The present invention is concerned with the problem of overcoming the above-mentioned difficulties in spite of the fact that in most cases nowadays candies are wrapped in an inner wrapper and a different outer wrapper. For this system all the known devices and arrangements are entirely useless. In addition, it is to be understood that the known systems are not completely automatic but involve in every case considerable manual operations which would constitute a severe disadvantage in the operation of an automatic wrapping machine of the type contemplated in this application because normally comparatively high operating speeds and high outputs are required which cannot be accomplished if manual operations are involved.

The problem is additionally complicated by the fact that for instance in the conventional way of wrapping articles like candies it is customary to use an inner wrapper of comparatively narrow width and an outer wrapper fo comparatively greater width. Certain attempts have been made to develop wrapping machines which are capable of dealing with two different types of wrapping material but these known devices are comparatively very complicated and involved and have not been found satisfactory.

In view of the above it is one object of the present invention to provide in an automatic wrapping machine for wrapping articles like candies in a comparatively narrower inner wrapper and a comparatively wider outer wrapper devices for feeding the two different types of wrapping material or strips of material to the wrapping station and including means which would automatically feed into the machine new wrapping material of either type as soon as the same type of material from a source of supply at a given moment is almost exhausted.

It is an object of this invention to provide for an arrangement of the above type in an automatic wrapping machine which is comparatively simple and entirely reliable in operation.

It is still another object of the invention to provide a wrapping machine with an automatic supply arrangement which permits of continuous operation at comparatively high continuous speeds.

With above objects in view, the invention includes in an automatic wrapping machine for wrapping articles in a comparatively narrower inner wrapper and a comparatively wider outer wrapper, in combination, a pair of first stock reel means for carrying and supplying a first type of wrapper strip of a first predetermined width suitable for serving as material for the inner wrapper; a pair of second stock reel means for carrying a second type of wrapper strip of a second predetermined greater width suitable for serving as material for the outer wrapper, a wrapping station adapted to consecutively wrap articles with inner and outer wrappers taken from a supply of the first and second types of wrapper strip, respectively, main feed means arranged between the stock reel means and said wrapping station for jointly unwinding the first type and the second type of wrapper strip from the respective stock reel means and for feeding both the types of wrapper strip jointly to the wrapper station irrespective of which of the stock reel means the respective strip is unwound from, first supplementary feed means located along the path of the wrapper strips between the stock reel means and the main feed means for superimposing upon one strip of the first width being unwound from one of the first stock reel means another strip of the first width width unwound from the other one of the first stock reel means and for feeding the two superimposed strips of the first width to the main feed means, the first supplementary feed means being movable between a normal idle position in which the other strip of the first width is permitted to extend idly into the area of the first supplementary feed means alongside the one strip of the first width, and an operative position in which the one and the other strips of the first width are superimposed thereby upon each other and jointly fed into the main feed means, second supplementary feed means located along the path of the strips between the stock reel means and the main feed means for superimposing upon one strip of the second width being unwound from one of the second stock reel means another strip of the second width unwound from the other one of the second stock reel means and for feeding the two superimposed strips of the second width to the main feed means, the second supplementary feed means being movable between a normal idle position in which the other strip of the second width is permitted to extend idly into the area of the second supplementary feed means alongside the one strip of the second width, and an operative position in which the one and said other strips of the second width are superimposed thereby upon each other and jointly fed into the main feed means; and actuating means for individually moving the first and second supplementary feed means, respectively, between the idle and operative positions thereof, so that when the supply of either one of the two types of wrapping strip available on any one of the respective stock reel means is exhausted, a new supply from the other stock reel means of the respective pair thereof can be introduced into the feed means and the wrapping procedure can be continued without interruption.

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 of specific

embodiments when read in connection with the accompanying drawing, in which:

FIG. 1 is a schematic diagram of those portions of an automatic wrapping machine which contain the arrangement according to the invention; and

FIG. 2 is a diagrammatic cross section and plan view of a portion of the arrangeemnt according to FIG. 1, the section being taken along lines 2—2 of FIG. 1.

As can be seen from FIG. 1, there is provided a first pair of stock reels diagrammatically represented by stock rolls **10** and **10'** constituting a supply of a first type of wrapper strip having a comparatively narrow width and therefore suitable for serving as material for the inner wrapper to be applied to the articles. There is further provided a second pair of stock reels also diagrammatically represented by stock rolls **12** and **12'** constituting the supply of a second type of wrapper strip having a greater width and therefore being suitable for serving as material for the outer wrapper to be applied to the articles. The narrow strip unwound from the stock reels **10** and **10'** is marked **11** and **11'**, respectively. The wider strip unwound from the reels **12** and **12'** is marked **13** and **13'**, respectively. Generally, the supply of strip material from the abovementioned stock reels is pulled forward by a pair of main feed rollers **14**, **14'** which convey the narrow and wider strips **11** and **13** to the actual wrapping station which does not constitute part of this invention and is therefore only diagrammatically illustrated. The wrapping station may comprise a periodically operated cutting device **15** which cuts off the supply strip **11** and **13**, desired lengths of wrapper material as indicated at **17** whereafter a periodically operated pusher **19** pushes a piece of material or article to be wrapped **16** against the cut lengths of wrapping material **17** and together with the latter into a recess **20'** of a wrapping machine wheel **20**. This wheel **20** is provided with a plurality of recesses **20'** which are stepwise moved into a position opposite to the pusher **19**. Consequently, with every forward movement of the pusher **19** an article, already surrounded on three sides with the wrapping material **17** is pushed into the respective recess **20'** of the wheel **20** whereafter the latter moves one step forward so that the wrapping of the article may be completed by other means not shown. Of course, there are synchronous intermittent drive means provided which operate in the proper time relation the stepwise moving main feeder rollers **14**, **14'**, the cutting device **15**, the pusher **19** and the wheel **20**.

For feeding the narrower strips **11** or **11'** and the wider strips **13** or **13'** toward the main feed rollers **14**, **14'**, two pairs of supplementary feed rollers are provided and arranged along the path of the strips between the above-mentioned stock reels and the main feed rollers **14**, **14'**, namely the pair of feed rollers **21**, **22** for the narrower strip **11**, or **11'**, and the pair of supplementary feed rollers **23**, **24** for the wider strip **13** or **13'**. The two rollers **21** and **22** may be constructed as completely cylindrical rollers while in the other pair **23**, **24** only the one roller **24** may be completely cylindrical as can be seen from FIG. 2, while the other roller **23** should be provided approximately in its middle with a portion of reduced diameter **25** having an axial length substantially equal to, and in any case not less than, the width of the narrower strip material. The purpose of this reduced diameter portion is to permit at any time the strip **11** or **11'** to pass freely between the rollers **23** and **24**.

A gear train **14***a* connects the roller **14'** with the roller **22** and with the roller **24** so as to provide the necessary drive thereof in synchronism with the stepwise rotary movements of the main feed rollers **14**, **14'**. The other two rollers **21** and **23** of the two pairs of supplementary feed rollers are not driven but rotate only by frictional engagement with the strip material present between them and the respective counter rollers **22**, and **24**, respectively, when one or the other of the rollers **21**, **23** is pushed toward the just mentioned opposite rollers **22**, **24**, respectively.

The movement of the idle rollers **21**, **23** into engagement position as indicated by the arrow **26** is produced preferably in the arrangement illustrated in the drawing by means of electromagnet devices comprising in the case of the roller **21** a solenoid **27** and an armature **27'** connected with a bearing bracket **21'** slidably supported in a stationary bearing **21''**. In the case of the roller **23** there is provided a similar solenoid **27***a* operating an armature **27***a'* connected with a bearing bracket **23'** slidably supported in a stationary bearing **23''**. Of course, as can be seen from FIG. 2 there will be normally required two bearing brackets **23'** and two supporting guides **23''** at either end of the roller **23**. Consequently, there would be normally necessary two electromagnet arrangements **27***a*, **27***a'*, unless the bearing brackets **23'** are so formed that they would be controlled by one single electromagnet arrangement. If there are two solenoids **27***a* then the details of the electric control arrangement described further below and illustrated in FIG. 1 would have to be doubled, which, however, evidently does not require illustration. The same applies of course also to the electromagnet arrangement **27**, **27'** for the roller **21**.

It is to be understood that the rollers **21** and **23** are normally held in idle position by biasing means e.g. springs, not shown, so that the electromagnet devices described above have only to move the respective roller **21** or **23** in the direction of the arrow **26** into operative position while upon de-energization of the respective electromagnet the respective roller would return to idle position as indicated by the arrows **26'**.

The circuit arrangement for energizing the electromagnet **27** of the supplementary feeding device **21**, **22** contains normally open feeler switches **28**, **28'** while the circuit for energizing the electromagnet coil **27***a* contains the normally open feeler switches **28***a*, **28***a'*. As can be seen these feeler switches are of conventional type and rest by their own weight or under the action of biasing means not shown, on the respective strips **11**, **11'** or **13**, **13'** which are unwound from the respective stock rolls **10**, **10'** or **12**, **12'**. It is evident that when the supply from the respective stock reel is exhausted the tension in the strip portion on which the individual feeler switch rests will disappear and the respective feeler switch will move into circuit closing position.

The circuit for the energization of the solenoid **27** comprises a delayed action relay **29** having a pair of relay contacts **29'** which are normally kept in circuit closing position as illustrated. From the current supply shown at the left hand of the FIG. 1, a lead is taken to one of the contacts **29'** and from there to the one end of the solenoid coil **27**, from the other end thereof back to the other contact **29'** and from there through the coil of the relay **29** and to the feeler switches **28**, **28'** which are connected with each other in parallel and from there back to the other terminal of the current supply. The relay **29** is equipped with a biasing means e.g. a spring **29''** which tends to move the contacts **29'** from circuit-closing position to circuit-interrupting position. However, the movable contact members **29'** are in the illustrated circuit-closing position arrested by the engagement of a portion of the relay armature with a pawl attached to the relay contact set **29'** as illustrated. Consequently, when the supply of strip material from either one of the stock reels **10** and **10'** is exhausted and when consequently either one of the feeler switches **28**, **28'** moves to closed position, current will flow through the relay contacts **29'** and through the coil **27** so as to energize the latter and to force the roller **21** in the direction of the arrow **26** into engagement with the strip material existing between the rollers **21** and **22** so as to cause these rollers to feed whatever strip material is between them in direction toward the main feed rollers **14**, **14'**.

After a predetermined time the delayed action relay **29** will cause its armature to disengage from the pawl of the relay contacts whereby the spring **29''** is free to move the contacts **29'** to open position. Hereby the electromagnet arrangement **27**, **27'** is deenergized and the roller **21** will return in the direction of arrow **26'** to its normal idle position. The electrical operation of the circuit for the solenoid **27***a* controlling the feed roller **23** is exactly the same and evidently does not require any description. Also the elements of the delayed action relay cooperating with the solenoid **27***a* are the same as described above except that the elements of this arrangement carrying the same reference numerals have the suffix *a* added thereto.

In practice, it must be understood that the operator or attendant will have the duty that every time when a new stock roll is placed on either one of the stock reels **10**, **10'** or **12**, **12'** the forward end of the strip material of the new roll has to be introduced between the roller sets **21**, **22** and **23**, **24** as illustrated. FIG. 1 shows the situation where at the illustrated moment the strip material is used as it is unwound as strip **11** from the stock reel **10** and as strip **13** from the stock reel **12**. However, a new roll is mounted on stock reel **10'** with the forward end of the strip **11'** being inserted between the roller sets **21**, **22** and **23**, **24**. Similarly a new stock roll is mounted on the stock reel **12'** and the forward end of the strip **13'** is inserted between the roller set **23**, **24**, as shown. If now, in the course of operation, the material on the stock reel **10** or **12** should become exhausted, no matter which happens earlier, the respective feeler switch **28** or **28***a* will close its circuit and the respectively associated roller **23** or **21** will be moved to operative position. Hereby, for instance in the case of the forward movement of roll **23**, the strip **13'** will be superimposed on the strip **13** in joint engagement between the rollers **23** and **24** and moved forward jointly together with the not exhausted strip **11** into engagement with the main feed rollers **14** and **14'**. Similarly, in the case of the roller **21** being moved forward into operative position the strip **11'** will be superimposed on the strip **11** in engagement with the not exhausted strip **13** between the rollers **21** and **22** so that these three strips are moved jointly forward into the area of the main feed rollers **14**, and **14'**. Evidently, in case the situation would be reversed that namely the stock roll **10'** is the one from which the strip **11'** is currently unwound and a new stock roll is placed on the stock reel **10**, or if currently a strip **13'** were being unwound from the stock reel **12'** and a new stock roll is placed on the stock reel **12**, the performance would be exactly the same, except that in this case upon exhaustion of the currently being used strip material, the switches **28'** or **28***a'* would cause the energization of the respective electromagnets.

It will be noticed that for a short period before the tail end of one strip has passed the feed rollers **14**, **14'** while simultaneously the forward end of a new strip of the same material is being fed into the machine, either the inner wrapper or the outer wrapper of the article to be wrapped will be a double layer. However, it is not seen that this causes any trouble or damage because it does not affect the quality of the wrapping applied to the respective articles.

It is to be understood also that, unless a more elaborate automatic delayed action relay is used in the apparatus, it will be the task of the operator to place the one or the other of the delayed action relays **29**, or **29***a* into contact-closing position as illustrated, every time when a new stock roll is placed on one or the other of the stock reels. This is no complicated operation and can be simplified by conventional mechanical means like a push-button or mechanical level arrangement.

It also should be taken into consideration that unless the weight of the feeler switches **28**, **28'**, **28***a*, **28***a'* is very small it may be necessary to add a stationary friction device **30** to each of the illustrated guide rollers between

the individual stock reel and the supplementary feeding devices so as to produce sufficient friction for maintaining the stretch of strip material between the stock reel and the respective guide roller under sufficient tension for supporting the weight of the respective feeler switch. Only when the tail end of the respective strip leaves the stock reel the switch would be able to drop into circuit-closing position. If the friction devices **30** would not be provided it could be that the weight of for instance the feeler switch **28'** or **28***a'* as illustrated would pull up the forward end of the strip **11'** or **13'** and thus the respective feeler switches may prematurely move into closing position.

It can be seen from the above that the arrangement as illustrated and described is entirely satisfactorily suited for assuring a continuous operation of a wrapping machine using two different strips of wrapper material simultaneously.

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 an automatic wrapping machine for wrapping articles in a comparatively narrower inner wrapper and a comparatively wider outer wrapper differing from the types described above.

While the invention has been illustrated and described as embodied in an automatic wrapping machine for wrapping articles in a comparatively narrowed inner wrapper and a comparatively wider outer wrapper with the aid of an automatic electrical control of the supply of new strip material upon exhaustion of the previously available supply, 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 be 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. In an automatic wrapping machine for wrapping articles in a comparatively narrower inner wrapper and a comparatively wider outer wrapper, in combination, a pair of first stock reel means for carrying and supplying a first type of wrapper strip of a first predetermined width suitable for serving as material for the inner wrapper; a pair of second stock reel means for carrying a second type of wrapper strip of a second predetermined greater width suitable for serving as material for the outer wrapper; main feed means arranged between said stock real means and a wrapping station for jointly unwinding said first type and said second type of wrapper strip from the respective stock reel means and for feeding both said types of wrapper strip jointly to said wrapping station irrespective of which of said stock reel means the respective strip is unwound from; first supplementary feed means located along the path of said wrapper strips between said stock reel means and said main feed means for superimposing upon one strip of said first width being unwound from one of said first stock reel means another strip of said first width unwound from the other one of said first stock reel means and for feeding said two superimposed strips of said first width to said main feed means, said first supplementary feed means being movable between a normal idle position in which said other strip of said first width is permitted to extend idly into the area of said first supplementary feed means alongside said one strip of said first width, and an operative position in which said one and said other strip of said first width are superimposed thereby upon

each other and jointly fed into said main feed means; second supplementary feed means located along said path of said strips between said stock reel means and said main feed means for superimposing upon one strip of said second width being unwound from one of said second stock reel means another strip of said second width unwound from the other one of said second stock reel means and for feeding said two superimposed strips of said second width to said main feed means, said second supplementary feed means being movable between a normal idle position in which said other strip of said second width is permitted to extend idly into the area of said second supplementary feed means alongside said one strip of said second width, and an operative position in which said one and said other strips of said second width are superimposed thereby upon each other and jointly fed into said main feed means; and actuating means for individually moving said first and second supplementary feed means, respectively, between said idle and operative positions thereof, so that when the supply of either one of said two types of wrapping strip available on any one of the respective stock reel means is exhausted, a new supply from the other stock reel means of the resepctive pair thereof can be introduced into the feed means and the wrapping procedure can be continued without interruption.

2. In an automatic wrapping machine for wrapping articles in a comparatively narrower inner wrapper and a compaartively wider outer wrapper, in combination, a pair of first stock reel means for carrying and supplying a first type of wrapper strip of a first predetermined width suitable for serving as material for the inner wrapper; a pair of second stock reel means for carrying a second type of wrapper strip of a second predetermined greater width suitable for serving as material for the outer wrapper; main feed means comprising a pair of cooperating first feed rollers arranged between said stock reel means and a wrapping station along a predetermined path of said strips and frictionally engaging from opposite sides and for jointly unwinding said first type and said second type of wrapper strip from the respective stock reel means and for feeding both said types of wrapper strip jointly to said wrapping station irrespective of which of said stock reel means the respective strip is unwound from; first supplementary feed means comprising a pair of cooperating second feed rollers, one of said second feed rollers being operatively connected with one of said first feed rollers for being driven thereby, said second feed rollers being located along said path of said wrapper strips between said stock reel means and said main feed means for superimposing upon one strip of said first width being unwound from one of said first stock reel means and upon at least one strip of said second width being unwound from one of said second stock reel means another strip of said first width unwound from the other one of said first stock reel means and for feeding all of said superimposed strips of said first and second widths jointly to said main feed means, at least one of said second feed rollers being movable between a normal idle position in which said other strip of said first width is permitted to extend idly into the area of said first supplementary feed means alongside said one strip of said first width, and an operative position in which said one and said other strips of said first width are superimposed thereby upon each other and upon said strip of said second width and all of said strips superimposed by said second feed rollers are jointly fed into said main feed means; second supplementary feed means comprising a pair of cooperating third feed rollers, one of said third feed rollers being operatively connected with one of said first feed rollers for being driven thereby, said third feed rollers being located along said path of said strips between said stock reel means and said first supplementary feed means for superimposing upon one strip of said second width being unwound from one of said second stock reel means and upon at least one strip of said first width being unwound from one of said first stock real means another strip of said second width unwound from the other one of said second stock reel means and for feeding said two superimposed strips of said second width to said first supplementary feed means, at least one of said third feed rollers being movable between a normal idle position in which said other strip of said second width is permitted to extend idly into the area of said second supplementary feed means alongside said one strip of said second width, and an operative position in which said one and said other strips of said second width are superimposed thereby upon each other and upon said strip of said first width and said strips superimposed by said third feed rollers are jointly fed into said first supplementary feed means, at least one of said third feed rollers having an intermediate portion of an axial length at least equal to said first strip width but smaller than said second strip width and of reduced diameter so as to permit a strip of said first width to pass freely between said third feed rollers even when in said operative position; and actuating means for individually moving said movable feed rollers of said first and second supplementary feed means, respectively, between said idle and operative positions, thereof, so that when the supply of either one of said two types of wrapping strip available on any one of the respective stock reel means is exhausted, a new supply from the other stock reel means of the respective pair thereof can be introduced into the feed means and the wrapping procedure can be continued without interruption.

3. In an automatic wrapping machine for wrapping articles in a comparatively narrower inner wrapper and a comparatively wider outer wrapper, in combination, a pair of first stock reel means for carrying and supplying a first type of wrapper strip of a first predetermined width suitable for serving as the inner wrapper; a pair of second stock reel means for carrying a second type of wrapper strip of a second predetermined greater width suitable for serving as material for the outer wrapper; main feed means comprising a pair of cooperating first feed rollers arranged between said stock reel means and a wrapping station along a predetermined path of said strips and frictionally engaging from opposite sides and for jointly unwinding said first type and said second type of wrapper strip from the respective stock reel means and for feeding both said types of wrapper strip jointly to said wrapping station irrespective of which of said stock reel means the respective strip is unwound from; first supplementary feed means comprising a pair of cooperating second feed rollers, one of said second feed rollers being operatively connected with one of said first feed rollers for being driven thereby, said second feed rollers being located along said path of said wrapper strips between said stock reel means and said main feed means for superimposing upon one strip of said first width being unwound from one of said first stock reel means and upon at least one strip of said second width being unwound from one of said second stock reel means another strip of said first width unwound from the other one of said first stock reel means and for feeding all of said superimposed strips of said first and second widths jointly to said main feed means, at least one of said second feed rollers being movable between a normal idle position in which said other strip of said first width is permitted to extend idly into the area of said first supplementary feed means alongside side one strip of said first width, and an operative position in which said one and said other strips of said first width are superimposed thereby upon each other and upon said strip of said second width and all of said strips superimposed by said second feed rollers are jointly fed into said main feed means; second supplementary feed means comprising a pair of cooperating third feed rollers, one of said third feed rollers being operatively connected

with one of said first feed rollers for being driven thereby, said third feed rollers being located along said path of said strips between said stock reel means and said first supplementary feed means for superimposing upon one strip of said second width being unwound from one of said second stock reel means and upon at least one strip of said first width being unwound from one of said first stock reel means another strip of said second width unwound from the other one of said second stock reel means and for feeding said two superimposed strips of said second width to said first supplementary feed means, at least one of said third feed rollers being movable between a normal idle position in which said other strip of said second width is permitted to extend idly into the area of said second supplementary feed means alongside said one strip of said second width, and an operative position in which said one and said other strips of said second width are superimposed thereby upon each other and upon said strip of said first width and said strips superimposed by said third feed rollers are jointly fed into said first supplementary feed means, at least one of said third feed rollers having an intermediate portion of an axial length at least equal to said first strip width but smaller than said second strip width and of reduced diameter so as to permit a strip of said first width to pass freely between said third feed rollers even when in said operative position; and electrical actuating means for individually moving said movable feed rollers of said first and second supplementary feed means, respectively, between said idle and operative positions thereof, said actuating means comprising first electromagnet means for moving upon its energization said movable second feed roller into said operative position thereof, and second electromagnet means for moving upon its energization said movable third feed roller into said operative position thereof, and circuit means for energizing said first and second electromagnet means and including in circuit with said first electromagnet means a first and a second normally open feeler switch connected in parallel with each other and sensing the presence of said first width strip being unwound from each of said first stock reel means, respectively, and closing the circuit for said first electromagnet means when the supply of said first width strip from either one of said pair of first stock reel means runs out, and including in circuit with said second electromagnet means a third and fourth normally open feeler switch connected in parallel with each other and sensing the presence of said second width strip being unwound from each of said second stock reel means, respectively, and closing the circuit for said second electromagnet means when the supply of said second width strip from either one of said pair of second stock reel means runs out, so that when the supply of either one of said two types of wrapping strip available on any one of the respective stock reel means is exhausted, a new supply from the other stock reel means of the respective pair thereof can be introduced into the feed means and the wrapping procedure can be continued without interruption.

4. In an automatic wrapping machine for wrapping articles in a comparatively narrower inner wrapper and a comparatively wider outer wrapper, in combination, a pair of first stock reel means for carrying and supplying a first type of wrapper strip of a first predetermined width suitable for serving as material for the inner wrapper; a pair of second stock reel means for carrying a second type of wrapper strip of a second predetermined greater width suitable for serving as material for the outer wrapper; main feed means comprising a pair of cooperating first feed rollers arranged between said stock reel means and a wrapping station along a predetermined path of said strips and frictionally engaging from opposite sides and for jointly unwinding said first type and said second type of wrapper strip from the respective stock reel means and for feeding both said types of wrapper strip jointly to said wrapping station irrespective of which of said stock reel means the respective strip is unwound from; first supplementary feed means comprising a pair of cooperating second feed rollers, one of said second feed rollers being operatively connected with one of said first feed rollers for being driven thereby, said second feed rollers being located along said path of said wrapper strips between said stock reel means and said main feed means for superimposing upon one strip of said first width being unwound from one of said first stock reel means and upon at least one strip of said second width being unwound from one of said second stock reel means another strip of said first width unwound from the other one of said first stock reel means and for feeding all of said superimposed strips of said first and second widths jointly to said main feed means, at least one of said second feed rollers being movable between a normal idle position in which said other strip of said first width is permitted to extend idly into the area of said first supplementary feed means alongside said one strip of said first width, and an operative position in which said one and said other strips of said first width are superimposed thereby upon each other and upon said strip of said second width and all of said strips superimposed by said second feed rollers are jointly fed into said main feed means; second supplementary feed means comprising a pair of cooperating third feed rollers, one of said third feed rollers being operatively connected with one of said first feed rollers for being driven thereby, said third feed rollers being located along said path of said strips between said stock reel means and said first supplementary feed means for superimposing upon one strip of said second width being unwound from one of said second stock reel means and upon at least one strip of said first width being unwound for one of said first stock reel means another strip of said second width unwound from the other one of said second stock reel means and for feeding said two superimposed strips of said second width to said first supplementary feed means, at least one of said third feed rollers being movable between a normal idle position in which said other strip of said second width is permitted to extend idly into the area of said second supplementary feed means alongside said one strip of said second width, and an operative position in which said one and said other strips of said second width are superimposed thereby upon each other and upon said strip of said first width and said strips superimposed by said third feed rollers are jointly fed into said first supplementary feed means, at least one of said third feed rollers having an intermediate portion of an axial length at least equal to said first strip width but smaller than said second strip width and of reduced diameter so as to permit a strip of said first width to pass freely between said third feed rollers even when in said operative position; and electrical actuating means for individually moving said movable feed rollers of said first and second supplementary feed means, respectively, between said idle and operative positions thereof, said actuating means comprising first electromagnet means for moving upon its energization said movable second feed roller itno said operative position thereof, and second electromagnet means for moving upon its energization said movable third feed roller into said operative position thereof, and circuit means for energizing said first and second electromagnet means and including in circuit with said first electromagnet means first delayed action relay means for deenergizing said first electromagnet means a predetermined time after its energization and a first and a second normally open feeler switch connected in parallel with each other and sensing the presence of said first width strip being unwound from each of said first stock reel means, respectively, and closing the circuit for said first electromagnet means when the supply of said first width strip from either one of said pair of first stock reel means runs out, and including in circuit with said second electromagnet means second delayed action relay means for deenergizing said second electromagnet means a pre-

determined time after its energization and a third and fourth normally open feeler switch connected in parallel with each other and sensing the presence of said second width strip being unwound from each of said second stock real means, respectively, and closing the circuit for said second electromagnet means when the supply of said second width strip from either one of said pair of second stock reel means runs out, so that when the supply of either one of said two types of wrapping strip available on any one of the respective stock reel means is exhausted, a new supply from the other stock reel means of the respective pair thereof can be introduced into the feed means and the wrapping procedure can be continued without interruption.

5. A machine according to claim 2, wherein in each of said pairs of second and third feed rollers one roller is mounted stationarily and operatively connected with one of said first feed rollers for being driven thereby, while the second and third rollers which are movable between idle and operative positions are rotatable in said operative position by frictional engagement with the respective strips passing between the particular pair of rollers.

No references cited.

GRANVILLE Y. CUSTER, JR., *Primary Examiner.*