The present application is a division of my application Serial No. 473,293, filed December 6, 1954, now Patent No. 2,742,149, which was, in turn, a continuation-in-part of my application Serial No. 445,041, filed July 22, 1954, now Patent No. 2,696,295.

The present invention relates to a machine for forming the stocking packages disclosed and claimed in my aforementioned applications.

The method of marketing stockings heretofore employed has usually been for the manufacturer to secure the two stockings forming a pair to one another by means of paper tape or the like. The stockings are then packaged several to a box and shipped in this manner to the retailer. The retail dealer then mechanizes the stockings by selecting several representative colors and placing them on a display table for examination by customers. Alternatively, he may place his entire stock on a compartmented display table.

This form of marketing possesses several disadvantages. A principal one being the inability of the customer to visualize how a particular stocking will appear or fit when in stretched, wearing condition. This is particularly undesirable with the advent of the so-called "stretch stockings." Another disadvantage is that the form of display now employed requires considerable space to properly present the stockings. Moreover, such a display procedure results oftentimes in a mixing of sizes and colors due to continuous customer handling, which requires continuous re-sorting of the stockings to restore them to their proper place. Further, stockings are quite often separated from their mates which oftentimes requires considerable effort to re-mate them, or results in the loss of a complete pair of stockings.

It has been found that the foregoing and related disadvantages can be eliminated by the provision of a stocking package in which two stockings are applied over a single flat insert by which a complete pair of stockings will be retained therein in a fairly rigid state with no possibility of the stockings becoming separated, and will similarly give to the wearer a visual presentation of how the stocking will appear in worn condition prior to purchasing the same.

It is therefore a principal object of the present invention to provide a new and novel machine for forming stocking packages as disclosed and claimed in my parent application Serial No. 445,041, now Patent No. 2,696,295, as well as improved forms of a stocking package as disclosed in my co-pending application Serial No. 473,293, filed December 6, 1954.

Another object of the present invention is to provide a stocking package that will present a pleasing appearance to a customer, and will permit him to visualize prior to purchase how the stocking will appear in wearing condition.

Yet another object of the present invention is the provision of a stocking package that will visually present "stretch socks" in a wearing condition.

A still further object of the present invention is to provide a stocking package that will permit of full display of various sizes and colors in a very small area.

Another object of the present invention is the provision of a stocking package that permits a retailer to maintain a full complement of stockings in a neat manner for examination by customers without a corresponding disarrangement of the stockings.

Still another object of the present invention is the provision of a machine for forming the new and novel stocking package.

Other and additional objects will become manifest from the ensuing description taken in conjunction with the accompanying drawings.

Broadly stated, the stocking package of the present invention comprises a flat insert, a first stocking carried by said insert, and a second mating stocking carried by said first stocking and said insert.

The package forming machine comprises a pair of front support means mounted on frame means, a pair of rear support means mounted on said frame means, said front and rear support means associated to receive a stocking insert therebetween, said front support means and said rear support means slightly overlapping one another, and means to actuate said support means toward one another.

To the accomplishment of the foregoing and related ends, the present invention then consists of the means hereinafter fully described and particularly pointed out in the claims, the annexed drawings and the following description setting forth in detail certain means in the carrying out of the invention, such disclosed means illustrating, however, but one of the various ways in which the principle of the invention may be employed.

The present invention is illustrated by way of example in the accompanying drawings, in which:

Fig. 1 is a side elevation of an insert for use in forming a stocking package in accordance with the present invention.

Fig. 2 is a side elevation of a form of stocking package made in accordance with the present invention.

Fig. 3 is a side elevation of another form of stocking package made in accordance with the present invention showing the same in folded position.

Fig. 4 is a side elevation of another form of a stocking package made in accordance with the present invention.

Figs. 5 and 6 are fragmentary side elevations of stocking packages made in accordance with the present invention illustrating separate ways for providing information riders to the package.

Fig. 7 is a side elevation of still another form of a stocking package made in accordance with the present invention.

Fig. 8 is a side elevation of an illustrative form of a machine in accordance with the present invention for forming a stocking package.

Fig. 9 is a front elevation of the machine shown in Fig. 8.

Fig. 10 is a side elevation of another form of a stocking package made in accordance with the present invention illustrating the actuation of the machine.

Fig. 11 is a sectional view taken on lines 11-11 of Fig. 12.

Fig. 12 is a side elevation of the form portion of the machine shown in Fig. 10.

Fig. 13 is a front elevation of an improved form of an insert for use in forming a stocking package made in accordance with the present invention.

Fig. 14 is a front elevation of a stocking package using the insert shown in Fig. 13.

Fig. 15 is a front elevation of still another form of a
stocking package using the insert shown in Fig. 13 to form the package of the present invention. Fig. 16 is the stocking package of Fig. 14 in folded position.

Fig. 17 is the stocking package of Fig. 15 in folded position.

Fig. 18 is a fragmentary front elevation of still another form of insert that may be employed to form the package of the present invention.

Referring now to the drawings, and with particular reference to Figs. 1 and 2, an illustrative embodiment of a stocking package made in accordance with the present invention, and generally designated by reference numeral 10, is shown.

The stocking package 10 comprises a flat, oblong strip insert or board 11 of sheet material made preferably from cardboard, chipboard, or related paper-type material. The insert 11 is of a weight and strength sufficient to support the stockings in a flat position, and yet retain its rigidity and original configuration when the stockings are placed thereon and still possess a certain degree of flexibility.

The insert 11 possesses a configuration generally resembling that of a foot and ankle in a flat, vertically straight relation. The insert 11 has a straight, leading or forward edge 12 and an upper trailing edge 13 spaced from and generally parallel to edge 12 which defines the ankle portion of the insert 11. The trailing edge 13 terminates in a heel portion 14 corresponding and adapted to receive the heel portion of a stocking. The lower trailing edge 15 of the insert 11 extends downwardly from the heel portion 14 in general conformity with the configuration of the outline of the foot and terminating in a rounded toe portion 16 at the bottom end of the insert 11. The length of the insert 11 must be of a length at least sufficient to fully support the stockings in a slightly tensioned, flat, laid out state, and, in instances, it will be found advantageous to have the insert 11 somewhat longer than the stockings carried thereby. Similarly, the width of the insert 11 must be sufficient to place the stocking in a flat, slightly tensioned state when placed thereon to facilitate the forming of the package 10 as well as insuring the positive retention of the stockings thereon in their desired state.

While the insert 11 has been described as preferably being in an elongated vertical state, it is to be understood that it is within the spirit and the scope of this invention that an angle type insert can be employed.

The insert 11 is positioned within a first stocking 17 with the foot portion and the ankle portion of the insert 11 supporting and engaging the corresponding parts of the stocking 17. This construction will result in the first stocking 17 being held in a flat, extended, and slightly tensioned state. The insert 11 carrying the first stocking 17 is positioned within a second or mating stocking 18 in the same manner as the insert 11 was positioned within the first stocking 17. This construction results in a flat stocking package 10 providing a pair of stockings in a flat, supported, laid out and slightly tensioned state, and which will present the stocking in a state similar to that when worn and provides for their shipping, stocking and merchandising without the disadvantages herefore encountered.

It will be found advantageous, particularly when the stocking package 10 contains large size stockings, to provide means for reducing the size of the package to facilitate packing, shipping and storing. While, as hereinbefore stated, the insert 11 must be of a strength sufficient to support the stocking in a substantially rigid or partially erect state, the insert 11 may be provided with a score or folding line 19 positioned transverse to the length of the insert 11 which will permit the stocking package 10 to be folded upon itself to reduce the size of the package, as shown in Fig. 3. While the folding line 19 may be positioned at any suitable point on the insert 11, it is preferred that it be so located that the stocking package 10 may be folded along a leading edge 12 of the insert 11 when in the folded state being in alignment. Therefore, it will be found most advantageous to provide a scoring line 19 for the insert 11 which extends across the heel portion 13.

It will be found desirable in instances where high quality stockings are made up and it is impossible to have them excessively handled, with corresponding soiling and the like, to provide protective means. Referring now to Fig. 4, a form of the invention to accomplish this is shown in which the package 10 is inserted within a transparent flexible wrapper 20 made from cellophane or similar material. It is preferred that the wrapper 20 be of the same general configuration of the insert 11, but slightly oversize. The wrapper 20 may be secured at its top by any suitable means such as gluing, heat sealing, or the like, depending upon the material employed.

Similarly, an identifying rider 21 which would carry the brand name, size, and other pertinent information could be secured to the open end of the wrapper 20 to secure same, or alternatively, the rider 21 could be attached to the previously closed end of the wrapper 20 by adhesive, stapling, or the like.

Referring now to Figs. 5 and 6, alternative forms of rider securing means are shown for attaching same to stocking package 10 having no wrapper. In the form shown in Fig. 5, the insert 11 containing the stockings 17 and 18 is somewhat longer than the stockings. A rider 21 is then secured to the free end of the insert 11 by any suitable means, thus providing all necessary identification and advertising for the stocking package 10. Another means of accomplishing this is shown in Fig. 6. In this form of the invention, the insert 11 is of substantially the same length as the stockings 17 and 18. The rider 21 is then placed over the top end of the package 10 and securely to one of the outer stockings 18, or alternatively, to the stocking 18 and the insert 11.

Reference is now to be had to Fig. 7, wherein a form of the invention is shown which has particular utility with so-called teen-age ankle stockings in which detachable grommets and cuff ties are employed for their identification with the stockings. In this form of the invention, the stocking package 10 has a plurality of ankle cuffs 22 placed thereon in embracing or encircling tensioned relationship and carried thereby. The cuffs 22 may be any even number, i.e., two, four, six, and may be, if four cuffs are carried as shown, of different colors. Thus, it will be possible to provide a single package containing a plurality of separate cuffs thereon and shipped and sold as a single unit.

By the term "stocking" used herein and in the appended claims, it is used to define men's women's and children's socks and stockings of the type known as ankle socks, as well as socks extending as far as part way up on the calf of the wearer, such as argyles. The term "stockings" is not to include ladies' full fashioned sheer hosiery normally sold in full leg length as so-called "nylons." It has been found that the sheerness of such hosiery is likely to result in possible damage to the yarn by snagging or the like when a full length insert is positioned therein and placing the stocking in a slightly tensioned state. Moreover, a leg length insert which would properly support full length nylon hosiery in a flat, laid out and slightly tensioned state is practically unfeasible from a shipping and marketing standpoint due to its weight and general bulkiness. However, in view of very recent developments toward the development of stretch ladies' nylon hosiery which corresponds to the men's one size stretch socks, it is possible to form a ladies' nylon hosiery package of the stretchy nylon type, since the nylon hosiery in an unstretched state will be comparatively short in length and will not
be likely to be snagged. However, with hosiery of this type, a transparent covered package such as shown in Fig. 4 should be used. The package-forming machine generally designated by reference numeral 29 comprises a pair of thin, oblong, mating front board members 30 and 31 secured at one end to a supporting frame member 32 in upright relationship, with the opposite free end of each being partially rounded. A second pair of mating rear board members 33 and 34 is similarly secured to the frame member 32 in upright relationship therewith, and in slightly spaced relationship. The rear or trailing edge of each rear board member 33 and 34 has a configuration generally similar to that of the trailing edge of insert 11, while each front edge is straight. The upper free end of each rear board member 33 and 34 is partially rounded.

The front board members 30 and 31 are spaced just slightly apart from and in parallel relationship with one another with their rear vertical portions overlapping the forward vertical portions of each of the rear board members 33 and 34. This construction results in an arrangement in which the two pair of board members 30, 31, 33, and 34 are so associated to correspond to the overall general configuration of the insert 11, but being slightly oversized with respect to one another, and the partially rounded free end of the respective pairs of board members defining a rounded toe portion. This association defines a pocket into which the insert 11 will be positioned to receive the stockings. Similarly, the respective pairs of board members are mechanically controlled, preferably by cam means of the like, to provide a two step operation for positioning the stockings on the insert 11. This cycle of operation will be explained more fully hereinafter. It should be noted that the spacing between the respective pairs of front and rear members be such that the insert 11 will be positively retained therein.

To operate the machine 29 to form the package 10, the insert 11 is placed within the pocket formed by the respective pairs of front and rear board members and held in positive position therein. The first stocking 17 is then pulled over the associated pairs of front and rear board members in the position that it will appear on the insert 11. The insert 11 is now ready to be removed. By means of a cam actuation the two pairs of board members are moved slightly laterally away from one another, releasing the pressure of the board members on the insert 11. Continuing the cam cycle, the pair of board members 30 and 31, and 33 and 34 are moved slightly toward one another transversely with respect to their long axis to reduce the perimetal dimension of the pocket formed by the board members. This action results in freeing the edges of the insert 11 and at the same time bringing the peripheral edge of the insert 11 into engagement with the stocking 17 without any friction being created therebetween. The insert 11 in engagement with the stocking 17 is grasped between the thumb and index finger and vertically withdrawn from the pocket, bringing the stocking 17 in contact with the insert, and with it being placed in a nominally expanded state thereon.

The insert 11, now carrying the stocking 17, is placed in the machine 29 and the operation just described is repeated to place the second stocking 18 thereon. While the operation just described is preferred, it should be noted that both stockings could be placed on the insert at the same time, if desired to maintain the possibility of stretching one stocking more than another, that the two stage operation be employed.

The advantage of the machine just described is that there is no need for the insert to be removed by pulling the stocking over the insert. Similarly, a proper positioning of both stockings on the insert is always attained. That is to say, the pulling of the insert from between the first board members 30 and 31 will cause the stockings to engage the sides and surface of the insert without any friction being created therebetween.

Referring now to Figs. 10, 11, and 12, a modified form of a stocking package machine generally designated by reference numeral 40 is illustrated. The package machine 40 comprises a support or bottom plate 41, and is provided with an elongated vertical mounting post 42 centrally positioned thereon at right angles therewith in fixed rigid relationship thereto. The upper free end of the mounting post 42 is provided with a central axial bore to receive a mounting rod 43 therethrough. The mounting rod 43 is vertically adjustable within the bore of the post 42 and may be locked in place at any desired point by means of set or lock screws 44 carried by the post 42. A base plate 45 is secured to the upper free end of the mounting rod 43 in fixed vertical relationship therewith by any suitable means, such as, for example, riveting, welding, bolting, or the like.

A pair of spaced inner or front thin, oblong, mating board members 46 are each secured at one end to said base plate 45 in fixed vertical relationship therewith and extending upwardly on either side of the base for a short distance front thereto. The front board members 46 have their front and rear edges substantially parallel with respect to one another and are united to one another at the top free ends of the board members 46 by a rounded top portion 46a. The board members 46, as indicated, are in complementary relationship with and spaced from one another. The board members 46 are spaced apart a distance sufficient to permit a cardboard insert to be placed therebetween. As illustrated, the board members 46 are secured one on each side of the base plate 45 with the base plate 45 extending up and between the board members 46 for a short distance. The spaced distance between the inner surface of each of the board members 46, therefore, in the illustrated embodiment equals the thickness of the base plate 45 with the upper free end of the base plate 45 functioning to support one end of the insert when vertically positioned between the front board members 46.

A pair of outer or rear board members 47 are pivotally secured adjacent their lower ends to the front board members 46 and base plate 45 by means of a bolt 48. Each of the rear board members 47 will partially overlap and be in sliding engagement with the outer surface of each of the front board members 46. The outer or rear board members 47 have a configuration generally resembling that of a foot and ankle in vertically extended position, to wit, each front or leading edge 49 of the board members 47 is substantially straight. The trailing edges of the board members 47 are provided with an outwardly extending heel portion positioned between the upper trailing edge 51 and the lower trailing edge 52 of each of the board members 47. The upper trailing edge 51 is united to the leading edge 49 by a rounded toe portion 52a.

The board members 46 and 47 may be formed of any thin material having the necessary strength and which can be finished as to present a smooth surface over which the stockings may be slid without any danger of damage. A preferred material that has been found to meet all of these requirements is polished aluminum.

The lower or bottom end of each of the board members 47 has a foot portion 53 disposed at right angles with respect to the long axis of each of the board members 47. Spring means 54 are connected at one end to each of the lower edges of the foot portions 53 with an opposite end of the spring means 54 being connected to a mounting stud 55 carried by the base plate 45. The spring means 54 function to maintain the support member 47 under tension such that the board members 47 will remain in a normally expanded position with respect to the front fixed board members 46.
A link mechanism, generally designated by reference numeral 56, which will function to actuate the movable board members 47, is secured at one end to the outer free edge of the foot portion 53 of the support members 47 by means of bolt 57. The link mechanism 56 comprises a vertical first rod member 58 secured to each foot portion 53 at one end thereof with the opposite free end of each being secured to a connecting plate 59. A single elongated second rod 60 is connected to the connecting plate 59 and is vertically adjustable with respect thereto by means of a set screw 61 carried by the connecting plate 59. This construction permits the link mechanism 57 to be adjusted to correspond with any vertical adjustment of the mounting rod 43. The opposite end of the elongated second rod 60 is secured to the front end of a foot treadle member 62 in pivotal relationship therewith. The foot treadle member 62 is mounted on a fulcrum rod 63 carried by said base to permit a pivoting of the foot treadle member 62 upon an application of pressure by the foot to either raise or lower the elongated second rod 60 with a corresponding actuation ultimately to the link mechanism of the board members 47. In normal operation the free end of the foot treadle 62 will be up with the forward or front end connected to the second rod 60 being down.

To limit the travel of the movable board members 47 along the surface of the fixed front board members 46, it will be found advantageous to provide a stop bolt 64 for each of the outer faces of the inner board members 46 to be complementary and fixed within guide slots 65 formed in each of the outer board members 47.

In the operation of the package machine 40, the outer board members 47 are in normally expanded position and only partially overlap the fixed inner board members 46. A cardboard insert is then positioned within the spacing between the inner board members 46 and being enveloped or confined therein by the inner and outer board members 47 causing the heel portion of the stocking to engage and fit the heel portion of the insert. The insert and stocking are then grasped along the side edges and pulled vertically upward causing the stocking to slide off and engage the insert in a fitted and slightly stretched and tensioned condition. The insert carrying the stocking in the tensioned state is then re-positioned within the board members 46, and the operation just described is repeated to produce the desired sock package. It is possible to place both stockings on the insert in a single operation. However, the method just described is preferred since it results in a more accurate positioning of the stockings on the insert.

Reference is now to be had to Fig. 13 wherein a different form of an insert generally designated by reference numeral 70 is shown. The insert 70 differs over the insert 11 of Fig. 1 in that it eliminates the heel portion 14. With particular stockings, or particular positioning of stockings on an insert, such omission is possible without departing from the spirit and scope of the invention. The insert 70 may be made of any material of which insert 11 shown in Fig. 1 is made. The insert 11 is provided with a forward or leading edge 71 and a trailing or rear edge 72, each of which are generally straight and substantially parallel with respect to one another. The lower end of the leading edge 71 and the trailing edge 72 are united to one another by means of a substantially straight edge portion 73. The upper end of leading edge 71 and the trailing edge 72 are connected by a substantially straight edge portion 74. A folding line 74a may be provided on the insert 70, if desired. This construction is somewhat similar to the insert 11 of Fig. 1 with the omission of the elimination of the heel portion.

Reference is now to be had to Figs. 14 and 16 wherein one form of a stocking package utilizing the form of insert of Fig. 13 is shown. In this form of the stocking package, the stockings 76 are placed on the insert 70 with the heel portion of the stocking 76 resting against and engaged along the front face of the insert 70. The insert carrying the tensioned or slightly stretched stockings in this condition may then be folded along its folding line 74a upon itself with the heel portion being contained within or between the folded portions of the insert 11. Thus, it is possible to eliminate portion 50. In packaging configuration from the insert without departing from the spirit and scope of the broad invention.

Reference is now to be had to Figs. 15 and 17 wherein another form of a stocking package employing so-called stretchable socks with the insert 70 is illustrated. The stretchable socks 77 are positioned on the insert 70 with the heel portion of the stocking resting against the trailing edge 72 of the insert 70. Thus, it is possible, particularly when using stretchable stockings, such as men's stretch nylon socks, to employ the insert 70 without leaving too large a heel bulge along the trailing edge 72. This is accomplished by the fact that the heel portion 50 may be placed on the insert in an expanded, tensioned state. Thus, with no heel portion with the insert, the heel portion will not be highly stretched in comparison with the remainder of the stocking, resulting in the formation of only a small loose heel portion against the trailing edge of the insert 70.

The package machine that may be employed in packaging stockings with the insert 70 may contain a slight modification, since no heel portion will be present. This modification relates to the rear board members 47, each of which contains a heel portion 50. The stockings with insert 70, the heel portion 50 may be eliminated, resulting in the trailing edge of each of the board members 47 being substantially straight.

Referring now to Fig. 18, a fragmentary upper portion 80 of an insert is shown which will be found to be of general utility, either with the insert 11 of Fig. 1 or the insert 70 of Fig. 12. In this form of the insert, the insert will be of a normal length equal to the length of the stocking to be used. The upper portion 80 of the insert is then provided with a plurality of transverse scored or breaking lines 81. By providing the upper portion of an insert with a plurality of scored lines running transverse to the long axis of the insert, it is possible to use only a single one size insert in the machine to form a stocking package. The remaining portion of the insert that is not utilized in the event a size or range of size stocking less than the largest size is used may be broken along one of the score lines and discarded. Such construction makes it possible to use only a one size machine for all sizes of stockings.

It is to be noted that an identification bearing rider or saddle 82 is applied to the upper portion of the stocking package. It should be noted to further insure the proper retention of the stocking on the insert that the upper free ends of the stocking may be hooked on the upper corners of the stocking and the rider placed thereover. Further, in the formation of the folded stocking package, the insert may be folded and a rider employed to engage the outer surface of the insert 11 with the opposite end engaging the outer surface of the toe portion of the sock.

I claim:

1. A package forming machine comprising a pair of spaced front support members mounted on frame means, a pair of spaced rear support members secured to said frame means, and a movable board member secured to the front support members and means to move and control the relative movement of the said members, all in slightly overlapping relationship with respect to one another and adapted to receive a stocking insert therebe-
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tween, and means to actuate one of said pairs of support members toward the other pair.
2. A package forming machine comprising a pair of upright spaced front board members secured to frame means, said front board members adapted to receive a stocking insert therebetween, a pair of upright spaced rear board members associated with said front board members in pivotal relationship therewith, and means to actuate said rear board members to move one each across the outer surface of each of said front board members.
3. A package forming machine comprising frame means, a pair of upright spaced front board members fixedly secured to said frame means, said front board members adapted to receive a stocking insert therebetween, a pair of upright spaced rear board members associated with said front board members in pivotal relationship therewith, and means to actuate said rear board members to pivot one each across the outer surface of each of said front board members.
4. A package forming machine in accordance with claim 3 in which the front board members have their respective leading and trailing edges straight.
5. A package forming machine in accordance with claim 4 in which the rear board members are provided with an outwardly extending heel portion on each trailing edge thereof.
6. A package forming machine comprising a base, frame means secured to said base, a pair of elongated, thin, upright spaced front board members secured to said frame means, said front board members adapted to receive a stocking insert therebetween, a pair of upright spaced rear board members associated with said front board members in pivotal relationship therewith, spring means to hold said rear board members in expanded position, and means to actuate said rear board members to move one each across the outer surface of each of said front board members.
7. A package forming machine comprising a base, frame means secured to said base, a pair of upright spaced front board members, each of which are fixedly secured to opposite sides of said frame means, said front board members adapted to receive a stocking insert therebetween, a pair of elongated, upright, spaced rear board members pivotally mounted to said frame means, and means to actuate said rear board members to move one each across the outer surface of each of said front board members.
8. A package forming machine in accordance with claim 7 in which stop means are provided to limit the degree of movement of said rear board members.
9. A package forming machine in accordance with claim 8 in which the actuating means comprise foot actuated means associated with said base, rod means secured at one end to said foot actuated means, and at the opposite end connected to said rear board members.
10. A package forming machine in accordance with claim 6 in which the frame means and actuating means are vertically adjustable.

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