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(54) **DECORATIVE ELEMENTS PROVIDED WITH A CURLED OR CRIMPED CONFIGURATION AT POINT OF SALE OR POINT OF USE**

(75) Inventor: **Donald E. Weder**, Highland, IL (US)

Correspondence Address:
DUNLAP, CODDING & ROGERS P.C.
PO BOX 16370
OKLAHOMA CITY, OK 73113 (US)

(73) Assignee: **The Family Trust U/T/A**

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Related U.S. Application Data

(63) Continuation-in-part of application No. 10/263,059, filed on Oct. 1, 2002, which is a continuation of application No. 09/799,980, filed on Mar. 6, 2001, now abandoned, and which is a continuation-in-part of application No. 10/068,241, filed on Feb. 6, 2002, now abandoned, which is a continuation of application No. 09/538,412, filed on Mar. 29, 2000, now abandoned, which is a continuation of application No. 09/226,321, filed on Jan. 6, 1999, now abandoned, which is a continuation of application No. 08/796,182, filed on Feb. 7, 1997, now Pat. No. 5,891,286.

Publication Classification

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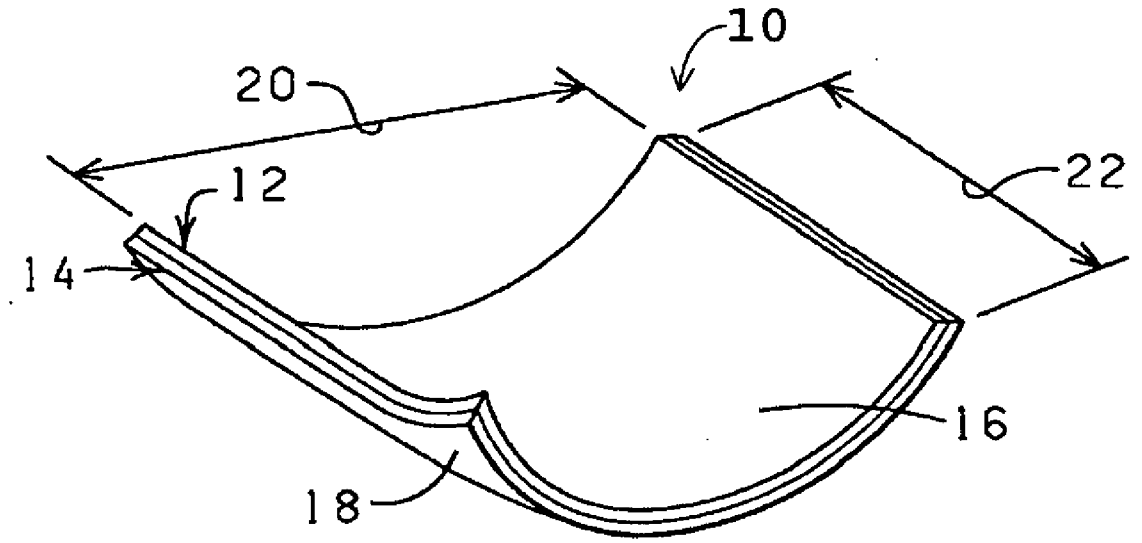
(52) **U.S. Cl.** **156/160**; 156/250; 156/510; 264/160

(57) **ABSTRACT**

Decorative grass and methods of providing same are disclosed wherein the decorative grass is either maintained in flattened configuration until restraint is removed and/or the decorative grass is curled and/or crimp at the point of use and/or sale.



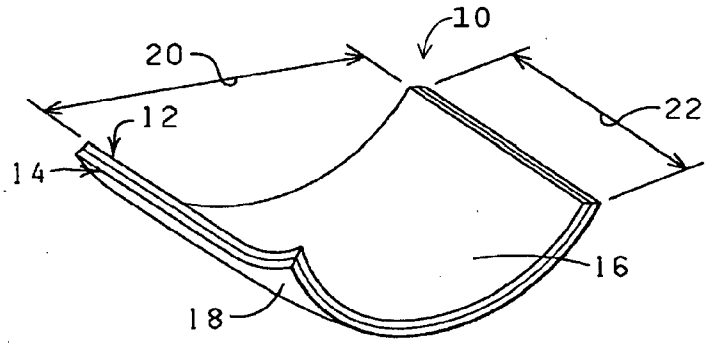


FIG. 1

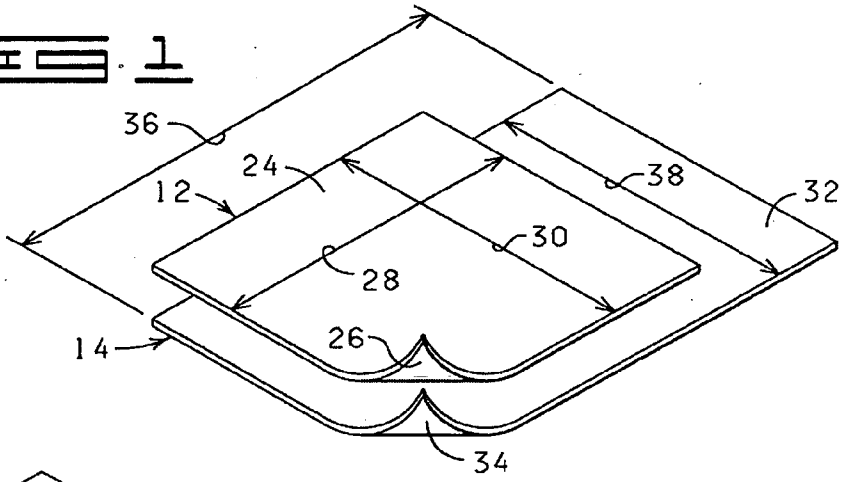


FIG. 2

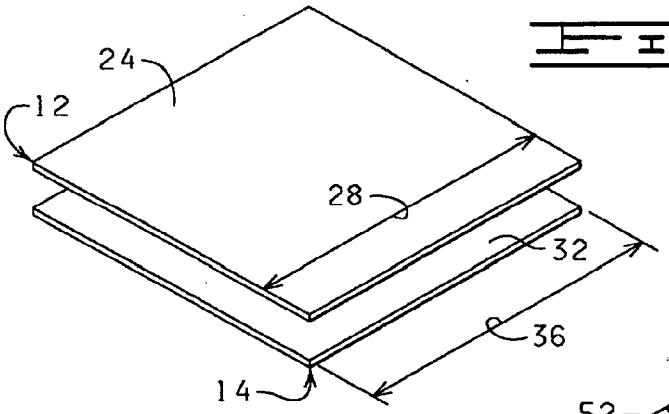


FIG. 3

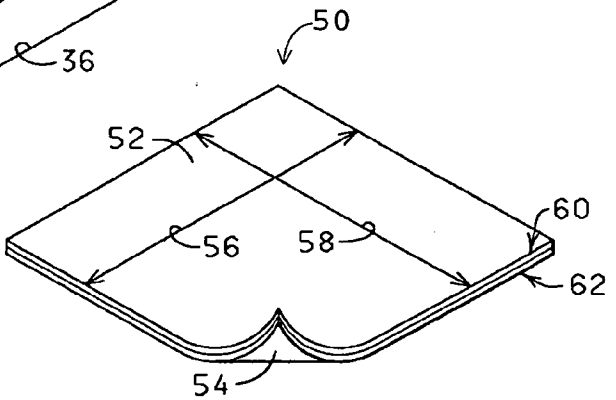


FIG. 4

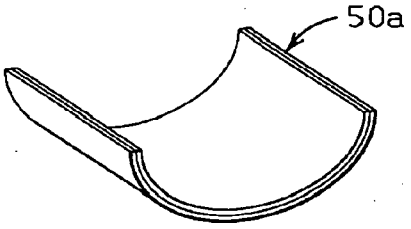


FIG. 5

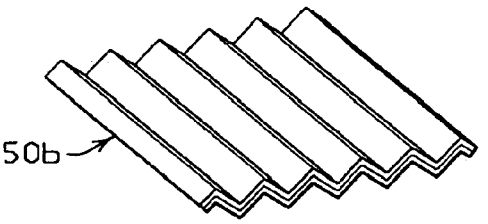


FIG. 6

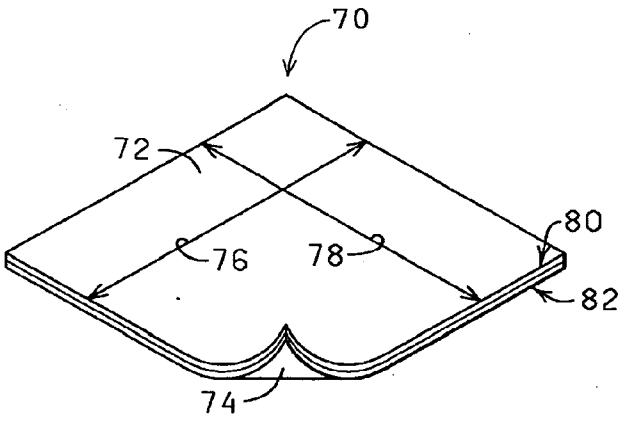


FIG. 7

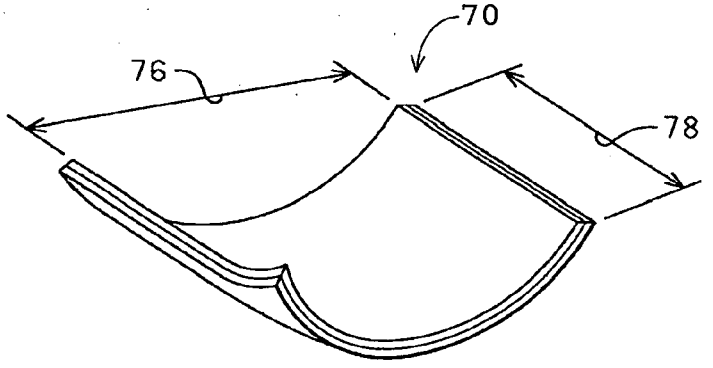


FIG. 8

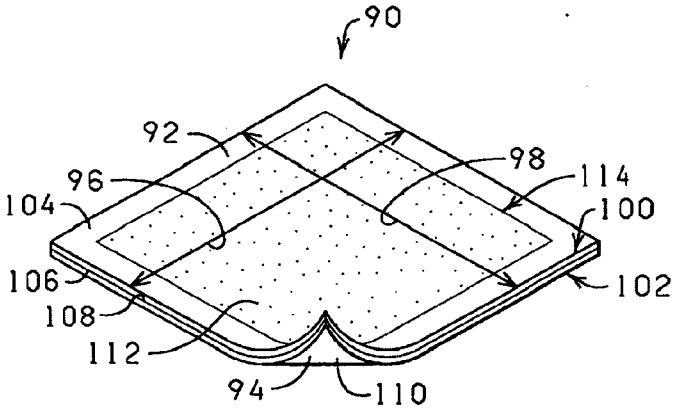


FIG. 9

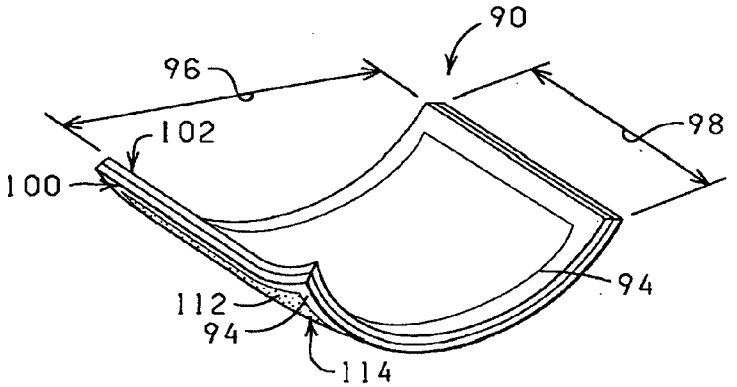


FIG. 10

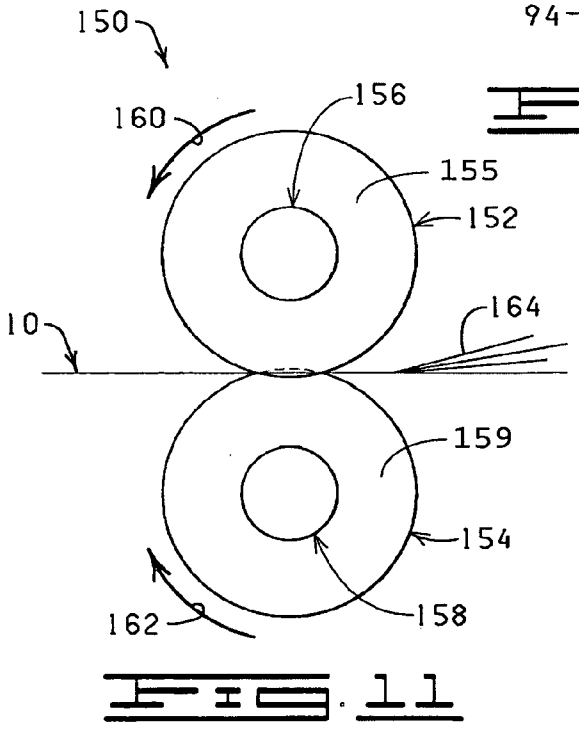


FIG. 11

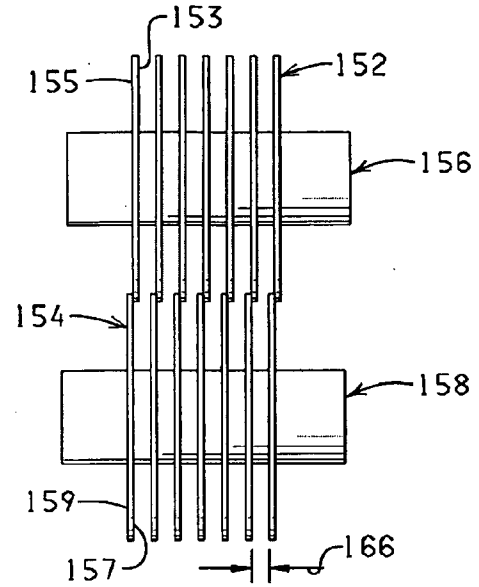


FIG. 11A

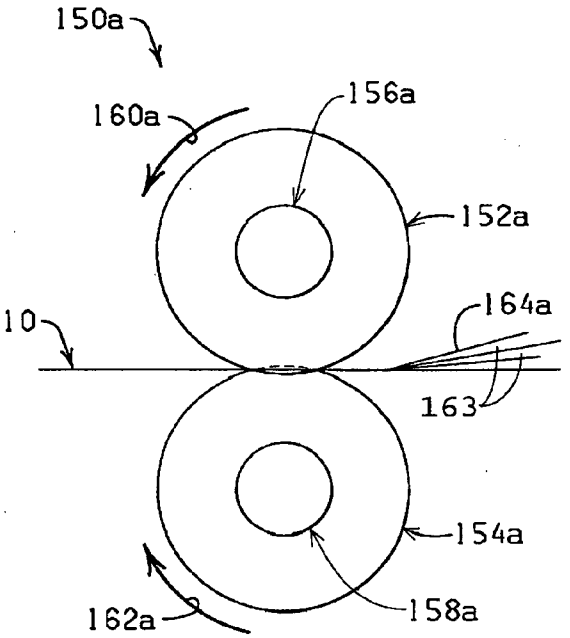


FIG. 12

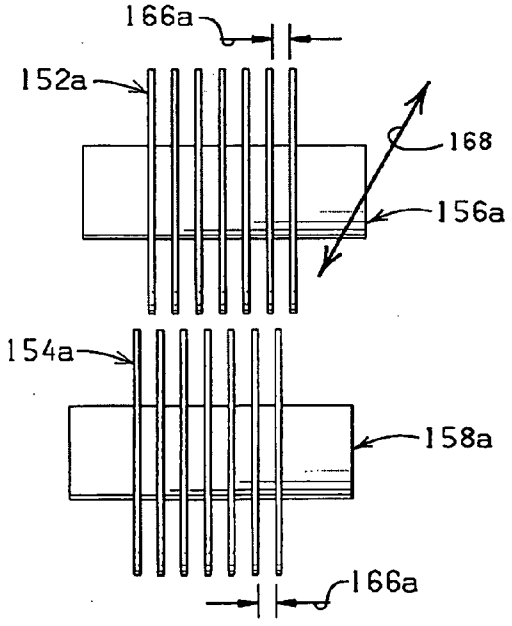


FIG. 12A

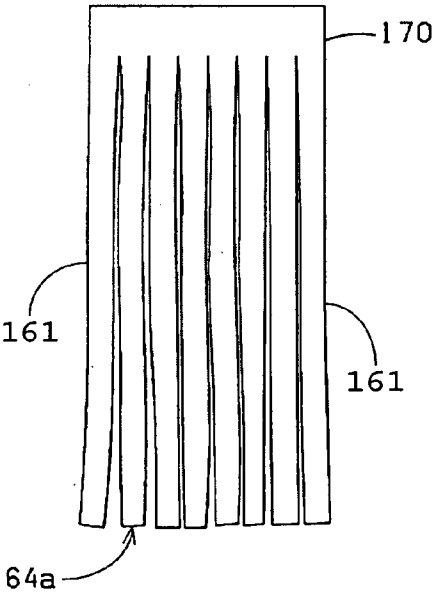


FIG. 12B

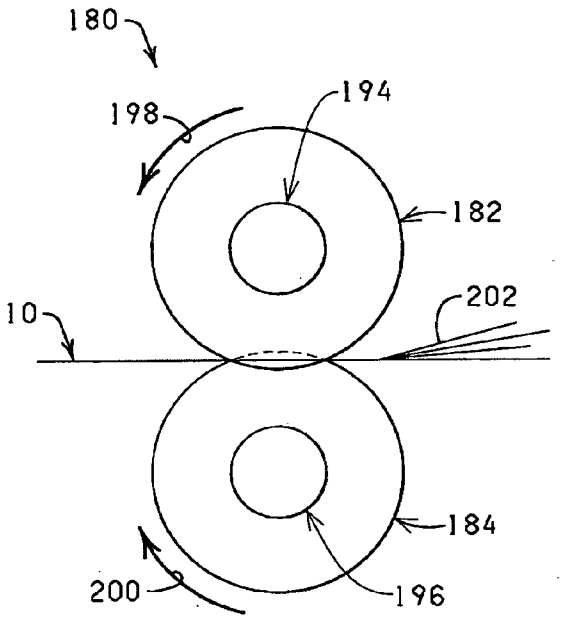


FIG. 13

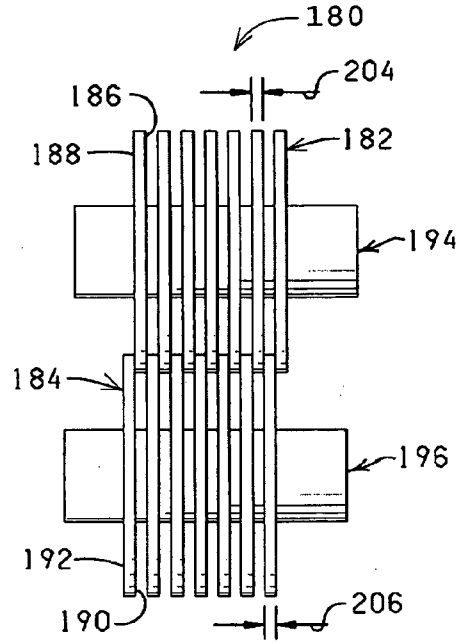


FIG. 13A

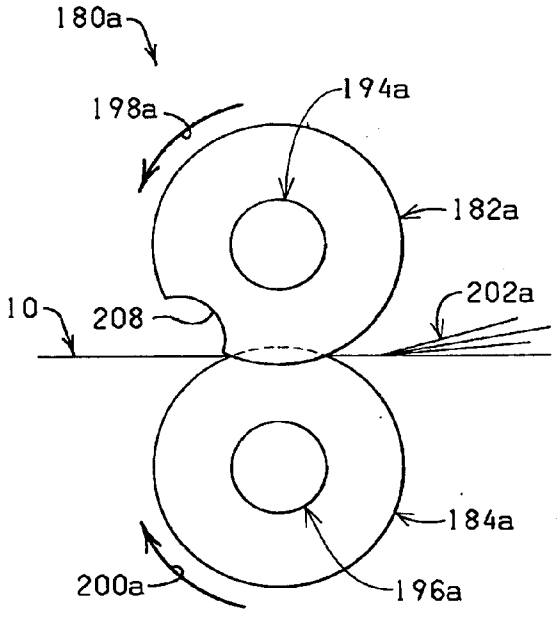


FIG. 14

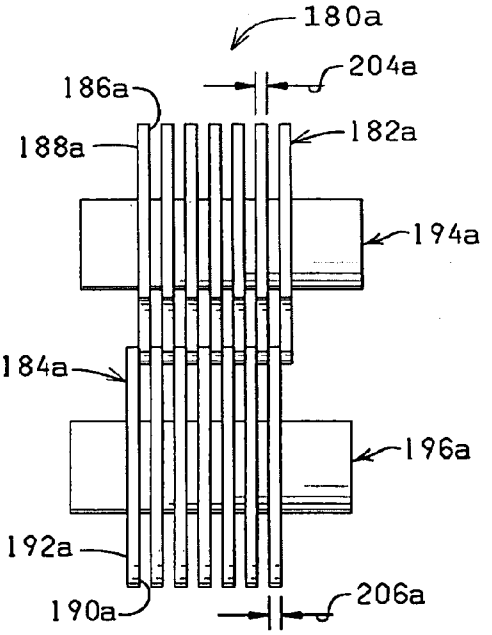


FIG. 14A

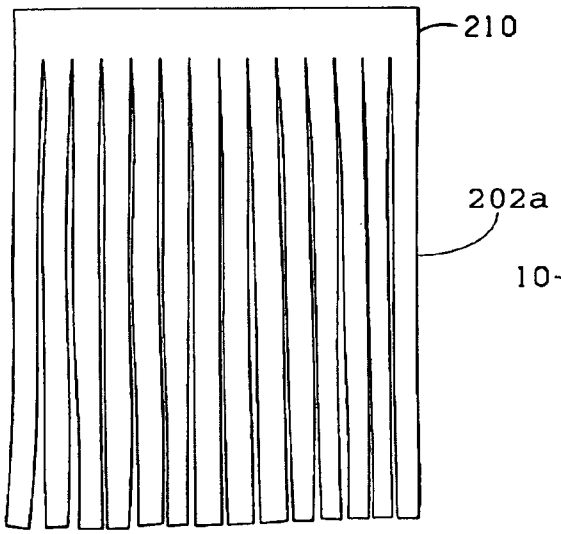


FIG. 14B

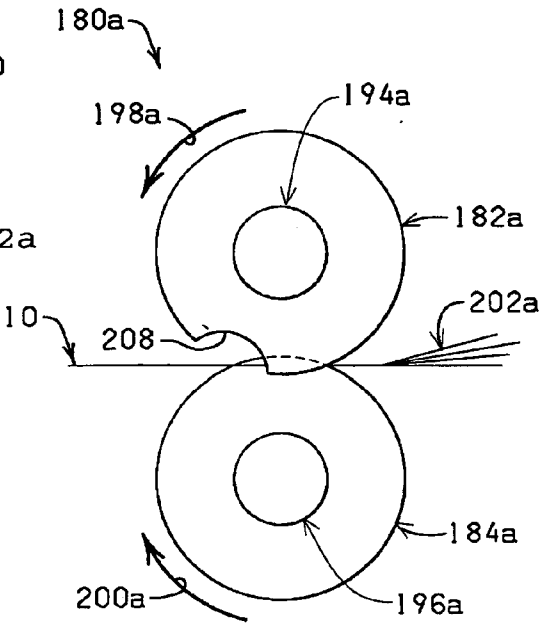


FIG. 15

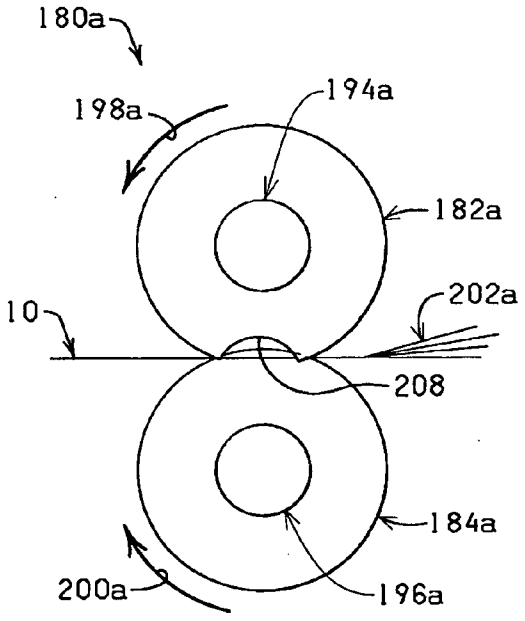


FIG. 16

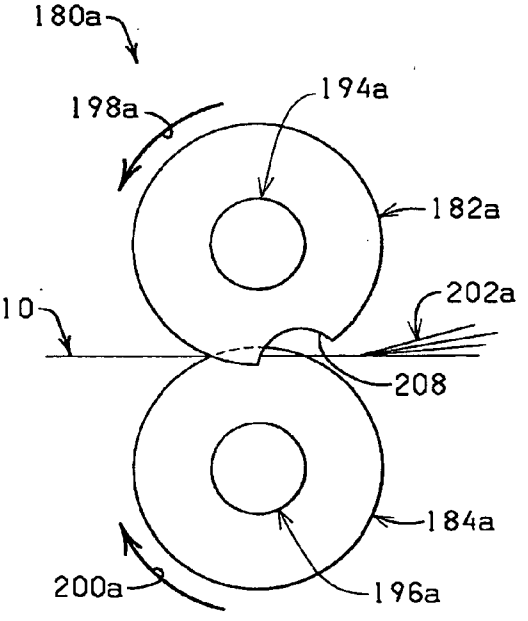


FIG. 17

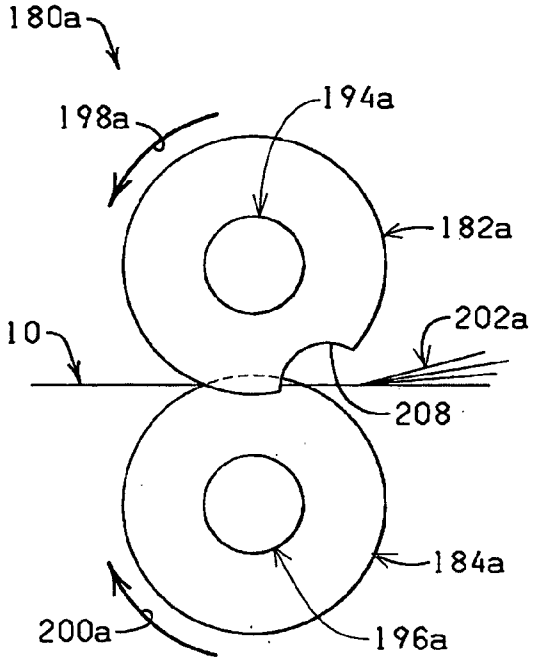


FIG. 18

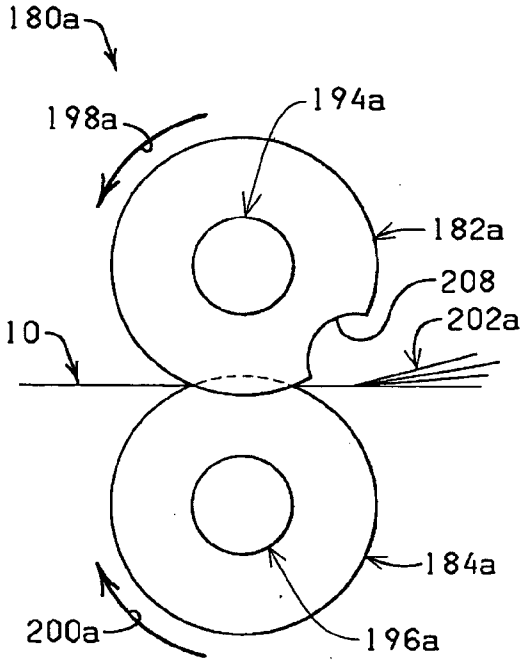


FIG. 19

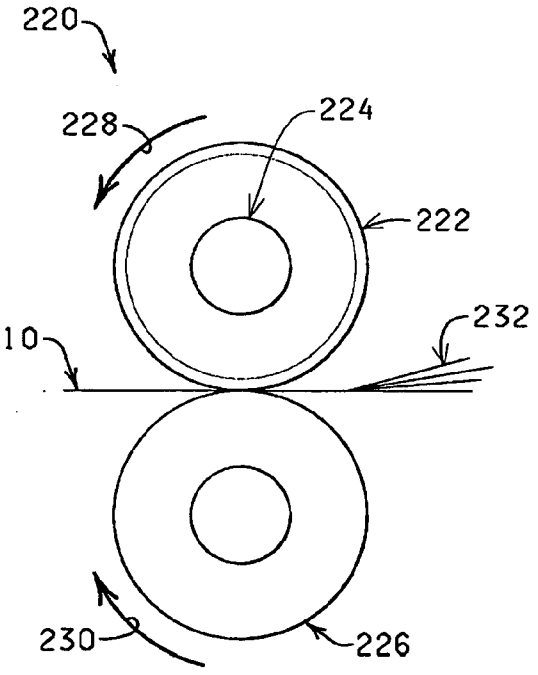


FIG. 20

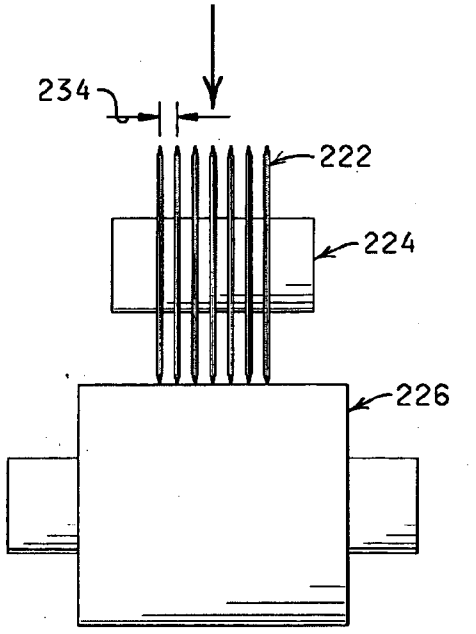


Fig. 20A

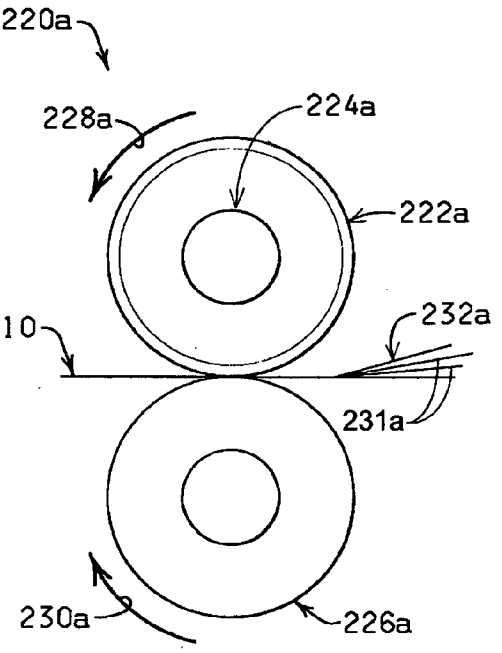


Fig. 21

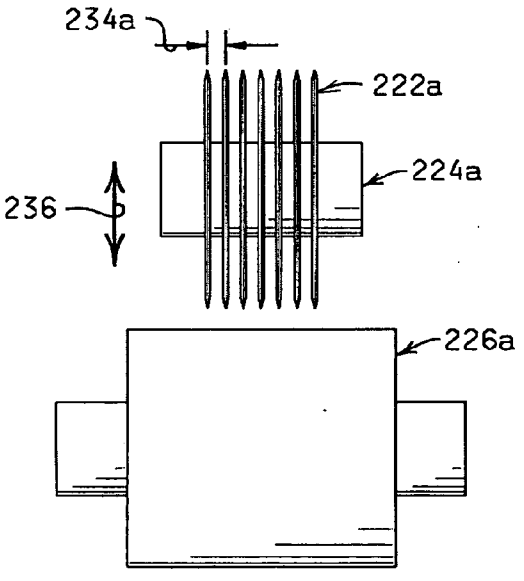


Fig. 21A

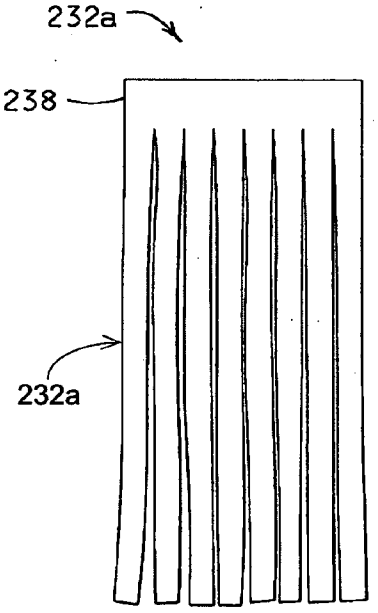


Fig. 21B

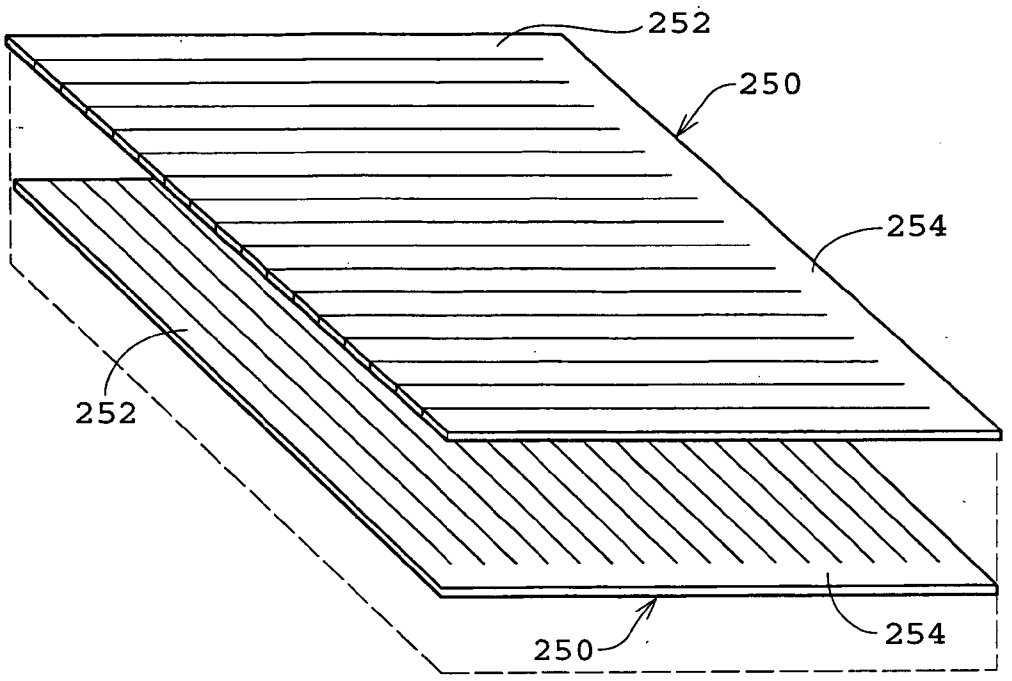


FIG 22

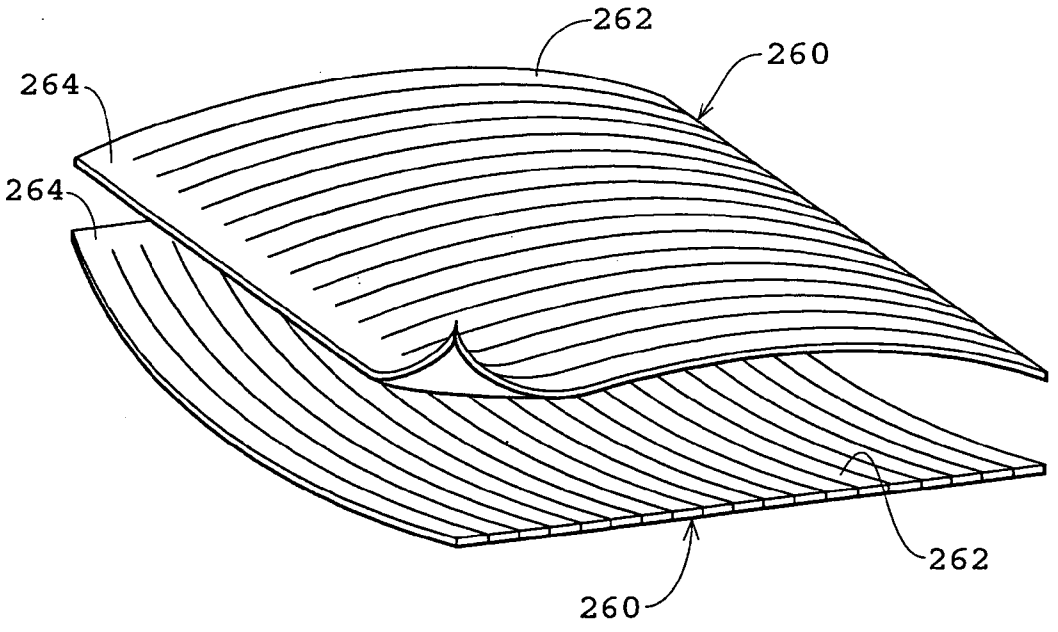


FIG 23

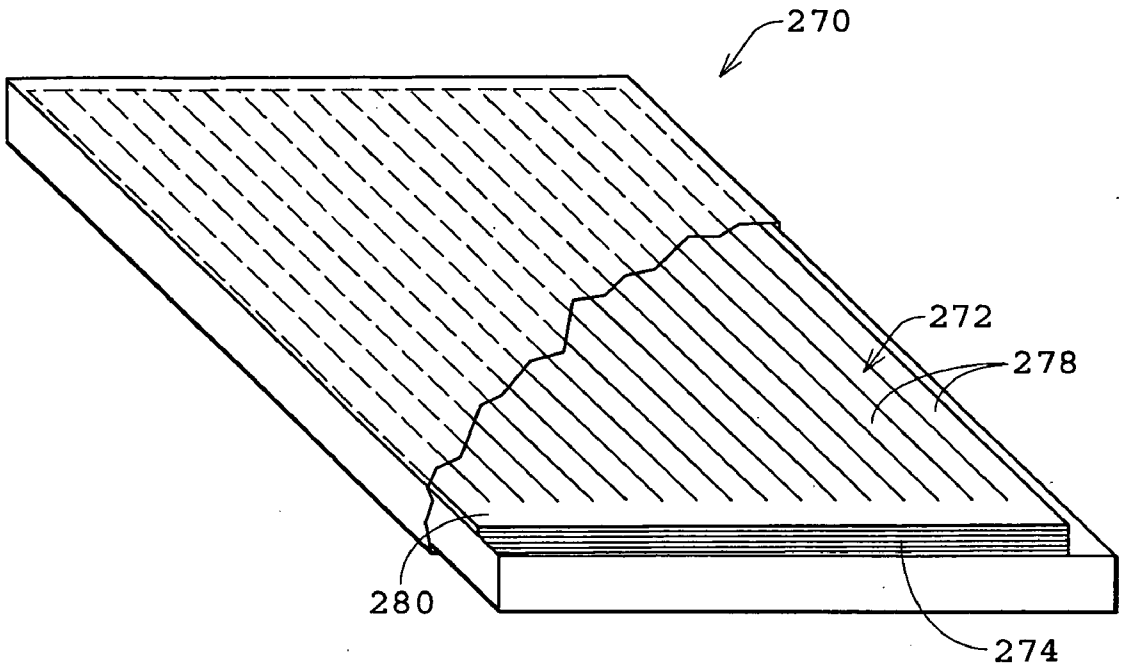


FIG 24

DECORATIVE ELEMENTS PROVIDED WITH A CURLED OR CRIMPED CONFIGURATION AT POINT OF SALE OR POINT OF USE

CROSS REFERENCE TO RELATED APPLICATIONS

[0001] This application is a continuation-in-part of U.S. Ser. No. 10/263,059, filed Oct. 1, 2002; which is a continuation of U.S. Ser. No. 09/799,980, filed Mar. 6, 2001, now abandoned; U.S. Ser. No. 10/263,059 is also a continuation-in-part of U.S. Ser. No. 10/068,241, filed Feb. 6, 2002; which is a continuation of U.S. Ser. No. 09/538,412, filed Mar. 29, 2000, now abandoned; which is a continuation of U.S. Ser. No. 09/226,321, filed Jan. 2, 1999, now abandoned; which is a continuation of U.S. Ser. No. 08/796,182, filed Feb. 7, 1997, now U.S. Pat. No. 5,891,286, issued Apr. 6, 1999.

STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT

[0002] Not Applicable.

FIELD OF THE INVENTION

[0003] The present invention relates to decorative elements and decorative grass and methods for producing same, and more particularly, but not by way of limitation, to decorative elements and decorative grass provided in a substantially flat configuration which, upon activation, assumes a curled or crimped configuration at the point of sale or point of use, as well as methods for producing same.

BACKGROUND OF THE INVENTION

[0004] Decorative grass has been used for many years in Easter baskets and for other decorative purposes. The decorative grass of the prior art has been produced by numerous methods and from a variety of materials such as polymeric materials, paper or the like. Typically, such materials are cut and shredded to produce segments having predetermined dimensions. One such prior art method for making decorative grass is disclosed in U.S. Pat. No. 4,292,266, issued to Weder et al. on Sep. 29, 1981, wherein a plastic film is extruded and cut into plastic strips which are passed through a slow-speed godet, an oven and a high-speed godet so that the strips are drawn down in width and thickness without breaking. From the high-speed godet, the strips or strands are chopped to a desired length and conveyed to a storage area for subsequent bagging and packaging.

[0005] Traditionally, the decorative grasses are provided as individual, unattached segments of decorative grass. Such segments of decorative grass may be provided with certain conformations which provide volume and bulk to the packaging. For example, U.S. Ser. No. 09/586,901, entitled "METHOD AND APPARATUS FOR MAKING CURLED DECORATIVE GRASS", which is hereby expressly incorporated herein by reference, discloses a method of providing curled configurations to decorative grass to provide improved bulk and volume to the decorative grass.

[0006] While the prior art methods for making decorative grass have been widely accepted, new and improved methods for making, packaging, storing, shipping and displaying decorative grasses are being sought. It is to such decorative grasses and methods for producing same that the present invention is directed.

SUMMARY OF THE INVENTION

[0007] The present invention relates to decorative grasses and methods for producing same. Broadly, the present invention relates to decorative grasses produced in a substantially flat configuration which, upon activation, can assume a curled or crimped configuration, preferably at the point of sale or point of use, as well as improved methods of packaging, storing, shipping and displaying such decorative grasses. Such decorative grasses can also be utilized for non-decorative purposes, such as packing material, animal bedding, cat litter, mulch for soil and media for plants. In addition, the present invention also relates to decorative elements, such as glitter, which are produced in a similar manner and which can be activated to assume a three-dimensional configuration, as well as methods for producing same.

[0008] An object of the present invention is to provide a decorative grass having a substantially flat configuration which can be curled or crimped at a point of sale or point of use.

[0009] Another object of the present invention, while achieving the before-stated object, is to provide a method for producing a decorative grass having a substantially flat configuration which can be curled or crimped at a point of sale or point of use.

[0010] Yet another object of the present invention, while achieving the before-stated objects, is to provide a method for producing decorative elements having a substantially flat configuration which can be activated to assume a three-dimensional configuration.

[0011] Other objects, features and advantages of the present invention will become apparent from the following detailed description when read in conjunction with the accompanying drawings and appended claims.

BRIEF DESCRIPTION OF THE DRAWINGS

[0012] **FIG. 1** is a perspective view of a sheet or web of laminated material constructed in accordance with the present invention, the sheet or web of laminated material having a distortion set therein.

[0013] **FIG. 2** is a perspective view of a first sheet or web of material and a second sheet or web of material from which the sheet or web of laminated material of **FIG. 1** is constructed, the first sheet or web of material being provided with a length which is less than a length of the second sheet or web of material.

[0014] **FIG. 3** is a perspective view of the first and second sheets or webs of material of **FIG. 2** wherein the length of the first sheet or web of material has been stretched so that such length is the same as the length of the second sheet or web of material.

[0015] **FIG. 4** is a perspective view of a sheet or web of laminated material having a substantially flat configuration.

[0016] **FIG. 5** is a perspective view of the sheet or web of laminated material of **FIG. 4** wherein the sheet or web of laminated material is curled.

[0017] **FIG. 6** is a perspective view of the sheet or web of laminated material of **FIG. 4** wherein the sheet or web of laminated material is crimped.

[0018] **FIG. 7** is a perspective view of a sheet or web of laminated material constructed in accordance with the present invention, the sheet or web of laminated material constructed from a sheet or web of material having a substantially flat configuration and a sheet or web of heat shrinkable material.

[0019] **FIG. 8** is a perspective view of the sheet or web of laminated material of **FIG. 7** wherein the sheet or web of laminated material has been exposed to heat.

[0020] **FIG. 9** is a perspective view of a sheet or web of laminated material constructed in accordance with the present invention, the sheet or web of laminated material formed of a sheet or web of material having a substantially flat configuration and a sheet or web of material having a hygroscopic agent disposed thereon.

[0021] **FIG. 10** is a perspective view of the sheet or web of laminated material of **FIG. 9** wherein the sheet or web of laminated material has been exposed to moisture.

[0022] **FIG. 11** is a schematic representation of a system for producing decorative grass in accordance with the present invention.

[0023] **FIG. 11A** is a schematic representation of a first set of blades and a second set of blades of the system for producing decorative grass of **FIG. 11**.

[0024] **FIG. 12** is a schematic representation of another embodiment of a system for producing decorative grass in accordance with the present invention.

[0025] **FIG. 12A** is a schematic representation of a first set of blades and a second set of blades of the system for producing decorative grass of **FIG. 12**, wherein the first set of blades may disengage the second set of blades.

[0026] **FIG. 12B** is a perspective view of strands of decorative grass produced from the system for producing decorative grass of **FIG. 12** wherein the strands of decorative grass are connected to a header.

[0027] **FIG. 13** is a schematic representation of another embodiment of a system for producing decorative grass in accordance with the present invention.

[0028] **FIG. 13A** is a schematic representation of a first set of blades and a second set of blades of the system for producing decorative grass of **FIG. 13**.

[0029] **FIG. 14** is a schematic representation of yet another embodiment of a system for producing decorative grass in accordance with the present invention wherein a first set of blades of the system for producing decorative grass are provided with a radius notch.

[0030] **FIG. 14A** is a schematic representation of the first set of blades and a second set of blades of the system for producing decorative grass of **FIG. 14**.

[0031] **FIG. 14B** is a perspective view of strands of decorative grass produced from the system for producing decorative grass of **FIG. 14** wherein the strands of decorative grass are connected to a header.

[0032] **FIG. 15** is a schematic representation of the system for producing decorative grass of **FIG. 14** wherein the radius notch of the first set of blades is partially in contact with the second set of blades.

[0033] **FIG. 16** is a schematic representation of the system for producing decorative grass of **FIG. 14** wherein the radius notch of the first set of blades is in contact with the second set of blades.

[0034] **FIG. 17** is a schematic representation of the system for producing decorative grass of **FIG. 14** wherein the radius notch of the first set of blades is partially in contact with the second set of blades.

[0035] **FIG. 18** is a schematic representation of the system for producing decorative grass of **FIG. 14** wherein a small portion of the radius notch of the first set of blades is in contact with the second set of blades.

[0036] **FIG. 19** is a schematic representation of the system for producing decorative grass of **FIG. 14** wherein the radius notch of the first set of blades is not in contact with the second set of blades.

[0037] **FIG. 20** is a schematic representation of yet another system for producing decorative grass in accordance with the present invention.

[0038] **FIG. 20A** is a schematic representation of a set of blades disposed on a blade mandrel and in contact with a hardened mandrel of the system for producing decorative grass of **FIG. 20**.

[0039] **FIG. 21** is another embodiment of a system for producing decorative grass in accordance with the present invention.

[0040] **FIG. 21A** is a schematic representation of a set of blades disposed on a blade mandrel and in contact with a hardened mandrel of the system for producing decorative grass of **FIG. 21**, wherein the blade mandrel may be raised such that the set of blades are disengaged from the hardened mandrel.

[0041] **FIG. 21B** is a perspective view of strands of decorative grass produced from the system for producing decorative grass of **FIG. 21** wherein the strands of decorative grass are connected to a header.

[0042] **FIG. 22** is a perspective view of a pair of crosslaid layers of curlable segments of decorative grass wherein the curlable segments are connected to a header.

[0043] **FIG. 23** is a perspective view of a pair of crosslaid layers of curled segments of decorative grass wherein the curled segments are connected to a header.

[0044] **FIG. 24** is a partially cutaway perspective view of a package containing a plurality of sheets of curlable material, the sheets containing a plurality of segments connected to a header and the package having a curling tool connected thereto.

DETAILED DESCRIPTION OF THE INVENTION

[0045] The present invention relates to a decorative grass having an activatable curling agent. Such decorative grass is produced by cutting or shredding a sheet or web of material having the activatable curling agent disposed thereon or

incorporated therein. Individual strands of decorative grass produced therefrom are provided with a substantially flat configuration, and the strands of decorative grass will remain flat until heated, wetted, treated with a solvent or other methods known in the art to activate the curling agent and thereby produce curls in the strands of decorative grass. Optionally, upon activation, the strands of decorative grass may be provided with crimps or a combination of crimps and curls, depending on the distribution of activatable curling agent on the strands of decorative grass. Such decorative grass could be shipped and stored in a flattened condition and curled at or near the point of use so as to reduce freight costs, warehousing space and shelf space in a retail outlet.

[0046] The present invention also relates to decorative grass which is produced with a curled or crimped configuration and retained in the flattened form at the production stage, as well as decorative grass allowed to curl at the production stage and re-flattened following production. Such decorative grass is then stored, shipped and displayed in the flattened form with the decorative grass being released to curl or crimp at or near the point of use. The curl or crimp could be retained in the flattened form by putting the decorative grass or the sheet or web of material from which the decorative grass is produced in a bag or other package of sufficient rigidity to prevent the material from curling or crimping. Optionally, the sheet or web of material or the decorative grass formed therefrom may be wound onto a roll. In a further alternative, the individual segments or strands of decorative grass may remain attached to an attachment area or header and the attachment area or header may be formed of another piece of material or to a dissimilar material such as cardboard, and the decorative grass may be retained in the flattened form by holding the attachment area or header with staples, adhesive, clips or other materials. For example, strands of decorative grass which have already been stretched so as to enable their curling when tension is released may be wrapped around a flat piece of plastic or cardboard so as to keep them in the flattened condition during storage and shipping. Such decorative grass may be released and allowed to curl or crimp at the point of sale or point of use by cutting or tearing the strands or segments of decorative grass from the attachment area or header or by simply freeing the attachment area or header from the rigid package and allowing the grass to curl or crimp while remaining attached at one or more attachment areas or headers. The attachment areas or headers provide an additional advantage in that they keep the strands or segments of decorative grass together in a neat bundle which provides for a decorative appearance but which also provide a cushioning effect so as to prevent damage to contents of baskets or boxes or other packages while avoiding the problem of having to clean up spilled strands of decorative grass.

[0047] The present invention also relates to an assembly and method for producing curled decorative grass at or near the point of use and/or sale of the curled decorative grass. To provide a curled or crimped decorative grass at or near a point of use or sale, at least one sheet or web of material is provided at or near the point of sale, the at least one sheet or web of material capable of having a curled imparted thereto. A curl or crimp is formed in the at least one sheet or web of material at or near the point of sale or use to form a distortion therein. The distorted sheet or web of material is then cut into strands of decorative grass at or near the point of sale or use of the decorative grass.

[0048] Another method of providing a decorative grass at or near the point of use or sale is to provide at least one curled sheet or web of material at or near a point of sale or use. Pressure is maintained on the at least one curled sheet or web of material so that the curled sheet or web of material is maintained in a substantially flat configuration. While maintained in the substantially flat configuration the curled sheet or web of material is cut into strands of decorative grass at or near the point of sale or use. If desired, the curled sheet or web of material can maintained in a non-flattened condition at or near the point of sale in which case the curled sheet or web of material is cut into strands at or near the point of use or sale while in the non-flattened condition.

[0049] As previously stated, the present invention also relates to an assembly for producing curled decorative grass at or near a point of use or sale. The assembly includes an enclosure containing a plurality of sheets or web of material capable of having a curl imparted thereto. The enclosure is provided with an opening for permitting removal of at least one sheet at a time or at least a portion of the web of material from the enclosure. The enclosure is positioned at or near a point of sale or use of the curl of decorative grass. A curling tool capable of imparting a curl to the sheet or at least a portion of the web of material is also provided such that when at least one of the sheets or at least a portion of the web of material is withdrawn from the enclosure and brought into contact with the curling tool, a curled sheet of material or curled web of material is produced at or near the point of sale or use of decorative grass. Thereafter, the curled sheets or the curled web of material are cut to provide decorative grass at or near the point of sale or use of the decorative grass with a cutting tool.

[0050] If desired, the sheets of material can be provided with a plurality of segments which are connected to a header. The sheets of material, once curled, can then be separated, if desired, by cutting the segments off the header. Further, it should be noted that the sheets of material and/or web of material can already have a curl imparted thereto, and if the sheets of material are provided with a plurality of side by side segments, such side by side segments may be connected to a header which can be removed at or near the point of sale or use of the decorative grass.

Description of FIGS. 1-3

[0051] Referring now to the Drawings, shown in **FIG. 1** is a sheet or web of laminated material **10** from which decorative grass can be produced in accordance with the present invention, the sheet or web of laminated material **10** having a distortion set therein. The distortion is illustrated as being a curl; however, it should be understood that the distortion may also be at least one crimp, as will be described in more detail hereinafter. The sheet or web of laminated material **10** is formed of a first sheet or web of material **12** and a second sheet or web of material **14**. The sheet or web of laminated material **10** has an upper surface **16**, a lower surface **18**, a length **20** and a width **22**.

[0052] Any sheet or web of material capable of being laminated to another sheet or web of material and capable of having a curl or crimp imparted thereto can be employed as the sheets or webs of material **12** and **14**. However, desirable results can be achieved wherein the sheets or webs of material **12** and **14** are constructed from materials selected

from the group consisting of paper, creped paper, polymeric film, wax paper, paper having a shape sustaining agent or laquer applied to at least a portion of one surface thereof, foil, metallized film, cloth, burlap and any combination or lamination thereof. The sheets or webs of material **12** and **14** may be provided with any thickness, as long as the sheets or webs of material **12** and **14** can function in accordance with the present invention. Desirably, each of the sheets or webs of material **12** and **14** are provided with a thickness in a range of from about 0.1 mil to about 30 mil.

[**0053**] At least one of the sheets or webs of material **12** and **14** may be provided with a printed pattern and/or an embossed pattern disposed on at least a portion of one surface thereof, and the embossed pattern may be either in register or out of register with the printed pattern, or a portion of the embossed pattern may be in register with the printed pattern and a portion of the embossed pattern may be out of register with the printed pattern. The sheets or webs of material **12** and **14** may also vary in color.

[**0054**] As shown in **FIGS. 2 and 3**, the first sheet or web of material **12** of the sheet or web of laminated material **10** is provided with an upper surface **24**, a lower surface **26**, a length **28** and a width **30**. The second sheet or web of material **14** of the sheet or web of laminated material **10** is provided with an upper surface **32**, a lower surface **34**, a length **36** and a width **38**. The first sheet or web of material **12** is provided with a dimension which is less than the associated dimension of the second sheet or web of material **14**; that is, the width **30** of the first sheet or web of material **12** may be less than the width **38** of the second sheet or web of material **14**, or the length **28** of the first sheet or web of material **12** may be less than the length **36** of the second sheet or web of material **14**. The first sheet or web of material **12** is thus stretched in one dimension to provide such dimension with the same size as the associated dimension of the second sheet or web of material **14**, and then the two sheets or webs of material **12** and **14** are laminated together. For example, as shown in **FIG. 2**, the length **28** of the first sheet or web of material **12** is less than the length **36** of the second sheet or web of material **14**, and as shown in **FIG. 3**, the first sheet or web of material **12** is stretched lengthwise so that the length **28** thereof is substantially the same as the length **36** of the second sheet or web of material **14**. Following stretching of the first sheet or web of material **12**, the two sheets or webs of material **12** and **14** are laminated together to form the sheet or web of laminated material **10**, substantially as shown in **FIG. 1**. Following lamination, the length **28** of the first sheet or web of material **12** contracts back to its original size, thereby causing a curl to be formed in the length **20** of the sheet or web of laminated material **10**, as shown in **FIG. 1**. Decorative grass formed from the sheet or web of laminated material **10** shown in **FIG. 1** will possess a torsion spring type curl if the sheet or web of laminated material **10** is cut in the direction of stretch, while the decorative grass will possess a helical spring curl if the sheet or web of laminated material **10** is cut at an angle to the direction of stretch. Such methods of providing a preset curl in a laminated material are disclosed in U.S. Pat. No. 5,891,286, entitled "METHODS OF FORMING CURLED OR CRIMPED DECORATIVE ELEMENTS HAVING AN OPTICAL EFFECT", issued to Weder on Apr. 6, 1999, the Specification of which is hereby expressly incorporated herein by reference.

[**0055**] However, prior to allowing the sheet or web of laminated material **10** to assume a curled configuration, the substantially flat sheet or web of laminated material **10** may be disposed in a bag or package of sufficient rigidity and size to retain the sheet or web of laminated material **10** in a substantially flat configuration, thus preventing the sheet or web of laminated material **10** from curling. In addition, the sheet or web of laminated material **10** may be provided in the form of a roll of material, and the process of winding the sheet or web of material **10** onto the roll will provide sufficient pressure and rigidity to maintain the sheet or web of laminated material **10** in a substantially flat configuration until a portion of the sheet or web of laminated material **10** is unwound from the roll, thereby allowing such portion to assume the distorted configuration, i.e., a curled configuration. The process of cutting or shredding the sheet or web of laminated material **10** to provide strands of decorative grass will be discussed in detail herein after with regards to **FIGS. 11-21B**. In addition, the individual strands of decorative grass formed from the sheet or web of laminated material **10** may be held together at attachment points, as will be discussed in greater detail herein below, thereby providing easier manipulation of the strands of decorative grass, such as for placing between two pieces of cardboard or winding onto a roll.

Description of FIGS. **4-6**

[**0056**] Shown in **FIG. 4** is a sheet or web of laminated material **50** from which decorative grass may be produced in accordance with the present invention. The sheet or web of laminated material **50** is similar to the sheet or web of laminated material **10** described in detail herein above, except the sheet or web of laminated material **50** is produced in a substantially flat configuration and does not have a preset distortion therein. The sheet or web of laminated material **50** may be curled or crimped by any method known in the art before or after cutting or shredding the sheet or web of laminated material to produce strands of decorative grass, as will be described in detail hereinafter.

[**0057**] The sheet or web of laminated material **50** has an upper surface **52**, a lower surface **54**, a length **56** and a width **58**. The sheet or web of laminated material **50** is formed of a first sheet or web of material **60** and a second sheet or web of material **62**. The sheets or webs of material **60** and **62** may be constructed of the same materials and in a similar manner as the sheets or webs of material **12** and **14**.

[**0058**] Following lamination of the first sheet or web of material **60** to the second sheet or web of material **62** to form the sheet or web of laminated material **50**, the sheet or web of laminated material **50** may be curled to provide a curled sheet or web of laminated material **50***a*, as shown in **FIG. 5**, or crimped to provide a crimped sheet or web of laminated material **50***b*, as shown in **FIG. 6**. Methods and apparatus for providing a sheet of material with a curl or a crimp are described in detail in U.S. Pat. No. 5,891,286, which has previously been incorporated herein by reference. However, the present invention is not limited to the use of such methods and apparatus, and any method know in the art for providing a curl or crimp to a sheet or web of material may be utilized in accordance with the present invention.

[**0059**] Following production of the curled sheet or web of laminated material **50***a* or the crimped sheet or web of

laminated material **50***b*, such sheet or web of laminated material **50***a* or **50***b* may be cut or shredded as described hereinafter with reference to **FIGS. 11-21B** to form strands of decorative grass which are curled or crimped. However, the strands of decorative grass may be retained in a substantially flat configuration during shipping and storage and may not assume the curled or crimped configuration until at the point of sale or point of use. The sheet or web of laminated material **50** may be provided with a curl or crimp therein as described above, and the curled sheet or web of laminated material **50***a* or the crimped sheet or web of laminated material **50***b* may be maintained in the substantially flat configuration by placing such sheet or web of laminated material **50***a* or **50***b* in a rigid, strained configuration, such as by applying pressure thereto by placing such sheet or web of laminated material **50***a* or **50***b* between two pieces of cardboard or winding such sheet or web of laminated material **50***a* or **50***b* onto a roll. Following shredding to form strands of decorative grass (as described herein below), the strands of decorative grass may be held in a rigid, strained configuration in a similar fashion as described above with reference to the sheet or web of laminated material **10** having a preset distortion therein of **FIG. 1** to maintain the decorative grass in a substantially flat configuration until curling or crimping is desired, such as at the point of sale or point of use. That is, the strands of decorative grass formed from the curled sheet or web of laminated material **50***a* **(FIG. 5)** or the crimped sheet or web of laminated material **50***b* **(FIG. 6)** may be held in a substantially flat configuration by placing the strands of decorative grass between two pieces of cardboard or by winding the strands of decorative grass on a roll. When desired to provide curling or crimping to the strands of decorative grass, the strands of decorative grass are removed from between the two pieces of cardboard or upon unwinding of the strands of decorative grass, thereby releasing the tension and pressure placed on the strands of decorative grass and providing a curled or crimped configuration thereto. Individual strands of decorative grass formed from the curled or crimped sheets or webs of laminated material **50***a* or **50***b* may be held together at attachment points, as will be discussed in detail herein below, thereby providing easier manipulation of the strands of decorative grass, such as by placing same between two pieces or cardboard of winding onto a roll.

[0060] While the sheet or web of laminated material **50** used in the methods described herein before with reference to **FIGS. 4-6** is laminated, it is to be understood that the invention is not limited to the use of a laminated material in such a method. That is, a sheet or web of unlamented material i.e. a single sheet or web of material, may be utilized in a similar manner as described hereinbefore with reference to **FIGS. 4-6** whereby the sheet or web of unlaminated material is curled or crimped and then cut or shredded to provide strands of decorative grass, and the sheet or web of unlaminated material or the strands of decorative grass formed therefrom are maintained in a substantially flat configuration until same are curled and/or crimped. The sheet or web of unlaminated material may be provided with a substantially flat configuration following curling and/or crimping and prior to cutting or shredding to form decorative grass, or the sheet or web of unlaminated material may maintain the curled and/or crimped configuration, and following cutting or shredding thereof to form strands of decorative grass, pressure may be applied to temporarily provide a substantially flat configuration to the strands of decorative grass which is maintained until curling and/or crimping is desired, such as at the point of sale or point of use.

[0061] In addition, the invention also includes a sheet or web of unlamented material formed of two or more sheets or webs of material which are unconnected. In this manner, the decorative grass is a mixture or two or more materials which are comingled and have the same crimped and/or curled configuration.

Description of FIGS. **7-10**

[0062] Shown in **FIG. 7** is a sheet or web of laminated material **70** from which decorative grass can be produced in accordance with the present invention. The sheet or web of laminated material **70** has an upper surface **72**, a lower surface **74**, a length **76** and a width **78**.

[0063] The sheet or web of laminated material **70** includes a first sheet or web of material **80** and a second sheet or web of material **82**. The second sheet or web of material **82** is provided with a substantially flat configuration. The second sheet or web of material **82** may be constructed of any material capable of having another sheet or web of material laminated thereto and capable of functioning as described herein. For example, the second sheet or web of material **82** may be constructed from paper, creped paper, polymeric film, wax paper, paper having a shape sustaining agent or laquer applied to at least a portion of one surface thereof, foil, metallized film, cloth, burlap and any combination or lamination thereof.

[0064] The first sheet or web of material **80** is constructed of a material which is provided with a substantially flat configuration, but which contracts or shrinks when exposed to a sufficient level of heat, while the second sheet or web of material **82** does not react by shrinking when exposed to the same temperature or sufficient level of heat as the first sheet or web of material **80**. That is, the first sheet or web of material **80** shrinks at a lower temperature than the second sheet or web of material **82**, or the first and second sheets or webs of material **80** and **82** both shrink in response to heat but at differential rates in the same temperature range. In this manner, the sheet or web of laminated material **70** may be shredded or cut to produce decorative grass wherein the individual strands of decorative grass are provided with a substantially linear, flat configuration. The strands of decorative grass may be packaged, stored, shipped and displayed in such a substantially linear, flat configuration, allowing the consumer to curl the decorative grass at the point of sale or use by heating the strands of decorative grass, such as by exposure of the decorative grass to a hair dryer or an oven, or by placing same between two sheets of cardboard in a microwave oven (so as to absorb the microwave energy). In this manner, the substantially flat, individual strands of decorative grass are more easily separated by the consumer than strands of decorative grass having curled or crimped configurations which are intertwined in a cohesive mass. In addition, such method allows for easy removal of a portion of the stands of decorative grass and easy storage of the remaining portion of the decorative grass for future use. However, it is to be understood that the present invention is not limited to curling the decorative grass at the point of sale

or the point of use, and decorative grass formed as described above may be curled at the point of production, if desired.

[0065] Optionally, the sheet or web of laminated material **70** may be curled by exposure to heat prior to cutting or shredding the sheet or web of laminated material **70** to form decorative grass. Shown in **FIG. 8** is the sheet or web of laminated material **70** which has been exposed to heat, and therefore a curl has been formed along the length **76** thereof. Following curling of the sheet or web of laminated material **70**, the curled sheet or web of laminated material **70** and/or the strands of decorative grass formed therefrom may be retained in a constrained condition as described in detail hereinabove which provides a substantially flat configuration thereto until such constraints are removed, thereby allowing the sheet or web of laminated material **70** or the strands of decorative grass formed therefrom to assume the relaxed, curled configuration.

[0066] In addition, while it is described and illustrated herein that the sheet or web of laminated material **70**, and therefore the strands of decorative grass formed therefrom, is provided with a curl along the length **76** thereof, it is to be understood that the sheet or web of laminated material **70**, as well as the strands of decorative grass formed therefrom, may be provided with a curl along the width **78** thereof, or the curl may be disposed diagonally and span both the length **76** and width **78** thereof.

[0067] Such strands of decorative grass may also be attached to an attachment point, as described in detail herein below. By providing an attachment point of the same material or dissimilar material to the individual strands of decorative grass, the strands of decorative grass can be manipulated in an easier manner, by holding the individual strands of decorative grass in the same direction and in substantially the same configuration and by preventing unwanted intertwining and comingling of the individual strands of decorative grass.

[0068] Other methods of providing the second sheet or web of material with a substantially flat configuration which can be activated to form a curled or crimped configuration may be utilized. Shown in **FIG. 9** is a sheet or web of laminated material **90** from which decorative grass can be produced in accordance with the present invention. The sheet or web of laminated material **90** has an upper surface **92**, a lower surface **94**, a length **96** and a width **98**.

[0069] The sheet or web of laminated material **90** includes a first sheet or web of material **100** and a second sheet or web of material **102**. The first sheet or web of material **100** has an upper surface **104** and a lower surface **106** and is provided with a substantially flat configuration. The second sheet or web of material **102** has an upper surface **108** and a lower surface **110** and is also provided with a substantially flat configuration. At least a portion of the upper surface **108** of the second sheet or web of material **102** is laminated to the lower surface **106** of the first sheet or web of material **100**.

[0070] The second sheet or web of material **102** may be constructed of any material capable of having another sheet or web of material laminated thereto and capable of functioning as described herein. For example, the second sheet or web of material **102** may be constructed from paper, creped paper, polymeric film, wax paper, paper having a shape sustaining agent or laquer applied to at least a portion of one surface thereof, foil, metallized film, cloth, burlap and any combination or lamination thereof.

[0071] The first sheet or web of material **100** contains a hygroscopic agent **112** which is activated by exposure to moisture, wherein the hygroscopic agent **112** expands upon exposure to moisture and thereby imparts a curl to the first sheet or web of material **100** and thus to the sheet or web of laminated material **90** formed therefrom and/or to the strands of decorative grass cut from the sheet or web of laminated material **90**. The hygroscopic agent **112** may be incorporated in the first sheet or web of material **100** upon formation of the first sheet or web of material **100**, or the hygroscopic agent **112** may be applied to at least a portion of one of the upper and lower surfaces **104** and **106** of the first sheet or web of material **100**. For example, as shown in **FIG. 9**, the hygroscopic agent **112** is incorporated in a lacquer, such as an acrylic lacquer **114**, which is applied to at least a portion of the upper surface **104** of the first sheet or web of material **100**.

[0072] The term "hygroscopic agent" as used herein will be understood to refer to any material which can be applied to or incorporated in a sheet or web of material or a lacquer applied to the sheet or web of material and which expands or swells upon exposure to moisture. Many types of hygroscopic agents are known to those of ordinary skill in the art and could be utilized in the manner described herein. In particular, gelatin and pectin have been utilized as hygroscopic agents in the manner described herein; however, the invention is not limited to the use of such compounds as hygroscopic agents.

[0073] The sheet or web of laminated material **90** may be shredded or cut to produce decorative grass wherein the individual strands of decorative grass are provided with a substantially linear, flat configuration. The strands of decorative grass may be packaged, stored, shipped and displayed in such a substantially linear, flat configuration, allowing the consumer to curl the decorative grass at the point of sale and/or use by exposing the strands of decorative grass to moisture. In this manner, the substantially flat, individual strands of decorative grass are more easily separated by the consumer than strands of decorative grass having curled or crimped configurations which are intertwined in a cohesive mass. In addition, such method allows for easy removal of a portion of the stands of decorative grass and easy storage of the remaining portion of the decorative grass for future use. However, it is to be understood that the present invention is not limited to curling the decorative grass at the point of sale or the point of use, and decorative grass formed as described above may be curled at the point of production, if desired.

[0074] Optionally, the sheet or web of laminated material **90** may be curled by exposure to moisture prior to cutting or shredding to form decorative grass. Shown in **FIG. 10** is the sheet or web of laminated material **90** which has been exposed to moisture, and therefore a curl has been formed along the length **96** thereof. Following curling of the sheet or web of laminated material **90**, the curled sheet or web of laminated material **90** and/or the strands of decorative grass formed therefrom may be retained in a constrained manner as described in detail hereinabove which provides a substantially flat configuration thereto until such constraints are

removed, thereby allowing the sheet or web of laminated material **90** or the strands of decorative grass formed therefrom to assume the relaxed, curled configuration.

[**0075**] In addition, while it is described and illustrated herein that the sheet or web of laminated material **90**, and therefore the strands of decorative grass formed therefrom, is provided with a curl along the length **96** thereof, it is to be understood that the sheet or web of laminated material **90**, as well as the strands of decorative grass formed therefrom, may be provided with a curl along the width **98** thereof, or the curl may be disposed diagonally and span both the length **96** and width **98** thereof.

[**0076**] Such strands of decorative grass may also be attached to an attachment point, as described in detail herein below. By providing an attachment point of the same material or dissimilar material to the individual strands of decorative grass, the strands of decorative grass can be manipulated in an easier manner, by holding the individual strands of decorative grass in the same manner and in substantially the same configuration and by preventing unwanted intertwining and comingling of the individual strands of decorative grass.

[**0077**] It is to be understood that the present invention is not limited to the use of laminated materials when heat shrinkable and hygroscopic materials are utilized as activatable curling agents. For example, the decorative grass may be formed of an unlaminated sheet or web of material having a lacquer containing a hygroscopic agent disposed on at least a portion of one surface thereof. In a further alternative, a sheet or web of heat shrinkable material may be formed by extruding with a multiple extruder into the same die or into different dies two resins that contract at a different rate when heated or exposed to moisture. In yet another alternative, a sheet or web of heat shrinkable material may be formed by extruding through a multiple screw extruder or through multiple extruders by placing resin into the same die or into multiple dies different melt temperature webs and pulling the material away from the die after one of the webs has partially or completely solidified, thereby imparting stress or stretch in one of the webs which is a lesser amount of stretch than in the other web. Optionally, the before described method may be utilized with the stretch occurring after both webs have solidified. Any of the above described methods may be utilized wherein one web is mated to the other web within the flow of resin occurring at an angle to the first web, thereby imparting a differential contraction level at an angle to the machine direction, thereby facilitating production of helically curled strands of decorative grass. In addition, any of the above described methods may be utilized together and alternated so as to cause varying curls in the same strand or different strands of decorative grass cut from the same web.

[**0078**] Another method of causing a sheet or web of material from which decorative grass is produced to curl involves coextruding a shrinkable material with a non-shrinkable material and heating them subsequently. Such method may be used in conjunction with prestretching the film at or after the time of extrusion. Indeed, any of the methods described herein which include the use of heat shrinkable materials may also be combined with the method of prestretching the sheet or web of material from which the decorative grass is produced.

[**0079**] In addition, it is also to be understood that the present invention is not limited to the use of heat shrinkable and hygroscopic materials as activatable curling agents which allow the decorative grass to be curled upon activation. The present invention also envisions other activatable curling agents, such as the use of chemicals which will curl the decorative grass upon treatment with solvents or other chemicals, as well as other methods of incorporating activatable curling agents which are known to those of ordinary skill in the art.

[**0080**] Another method of curling the decorative grass at the point of sale or the point of use involves simply stretching the strands of decorative grass to impart a curled configuration thereto.

[**0081**] While methods of providing decorative grass with a curled configuration have been described herein, all of the above described methods can be used to provide decorative grass with configurations other than curls. For example, rather than applying differentially expanding or contracting materials in an overall or uniform manner, such materials may be applied in a manner which allows the contracting or expanding material to be applied at only certain points, or such materials may be applied at differential thicknesses at different points, or, in the case of the hygroscopic materials, such materials may be applied with barriers to moisture absorption at certain points. Application of such materials in the above described methods results in differential folding of the strands of decorative grass, and rather than having a curl of roughly smooth and uniform dimensions, a crimped material or a combination of crimped and curled material could be achieved.

[**0082**] Additionally in lieu of applying the above-noted expanding or contracting materials to a sheet or web of material in the form of strips, such materials could be applied in any shape, such as a circle, so that when contraction occurs, a three dimensional configuration would be formed which could serve decorative and/or cushioning and/or insulating purposes.

[**0083**] In a further alternative, the strands of decorative grass need not be curled solely in a concentric or torsion spring manner or in a helical or bed spring-type manner, resulting from differential contraction or expansion across the length of the strands, but such strands could also be curled or curved due to differential contraction or expansion across the width of the strand.

Description of FIGS. **11-12**B

[**0084**] Several methods of shredding a sheet or web of material to produce decorative grass or other decorative elements are known in the art and may be utilized to produce the decorative grass of the present invention from the sheets or webs of material described herein. For example, U.S. Pat. No. 5,891,286, which has previously been incorporated herein by reference, discloses methods and apparatus for producing decorative grass and decorative elements such as glitter, and such methods may be utilized to cut the sheets or webs of material described herein to produce the decorative grass of the present invention. In addition, any of the methods known in the art may be utilized to shred the sheet or web of material parallel to a stretch, curl or crimp disposed therein, or perpendicular to the stretch, curl or crimp, or at an angle to the stretch, curl or crimp.

[**0085**] Optionally, shown in **FIGS. 11 and 11**A is a system **150** for producing decorative grass in accordance with the

present invention. The system **150** is a rotary knife-type shredder assembly and includes a first set of blades **152** and a second set of blades **154**. The first set of blades **152** are disposed on a first mandrel **156** and the second set of blades **154** are disposed on a second mandrel **158**. Each individual blade of the first set of blades **152** has a first side **153** and a second side **155**, while each individual blade of the second set of blades **154** has a first side **157** and a second side **159**.

[**0086**] When the first mandrel **156** is rotated in a direction **160** while the second mandrel **158** is rotated in a direction **162**, as illustrated in **FIG. 11**, the first and second set of blades **152** and **154** overlap such that the second side **155** of each individual blade of the first set of blades **152** is in contact with the first side **157** of an individual blade of the second set of blades **154** (**FIG. 11A**), and a sheet or web of material, such as one of the sheets or webs of laminated material **10**, **50**, **70** or **90** described herein above (the sheet or web of material **10** shown in **FIG. 11** for illustration purposes only), is passed in between the first and second set of blades **152** and **154**, thereby resulting in shredding of the sheet or web of material to form individual strands of decorative grass **164**. The individual blades of the first and second set of blades **152** and **154** are positioned at a certain distance away from one another, and a gap **166** formed by this distance determines the width of the individual strands of decorative grass **164**.

[**0087**] The system **150** can be employed to cut sheets of material so as to produce strands of decorative grass **164** having a predetermined length based on the length of the sheet of material, or the system **150** can be employed to cut rolls of material to form a shredded roll of material, in which case the individual strands of decorative grass **164** having a desired predetermined length would have to be cut from the shredded roll of material subsequent to the shredding process. Such a method of shredding a web or roll of material and subsequently cutting the shredded roll of material into individual strands of decorative grass has been disclosed in U.S. Ser. No. 09/586,901, which has previously been expressly incorporated herein by reference. Other methods of shredding a web or roll of material and subsequently cutting the shredded web or roll of material into individual strands of decorative grass are known in the art and may be utilized in accordance with the present invention.

[**0088**] Shown in **FIGS. 12 and 12**A is a system **150** for producing decorative grass **150***a*. The system **150***a* is similar to the system **150** described herein above, except that the system **150***a* has been adapted so as to leave uncut areas in the sheet or web of material passed through the system **150***a* which serve as a attached point for the strands of decorative grass. The system **150***a* includes a first set of blades **152***a* disposed on a first mandrel **156***a* and a second set of blades **154***a* disposed on a second mandrel **158***a*. When the first mandrel **156***a* is rotated in a direction **160***a* and the second mandrel **158***a* is rotated in a direction **162***a*, the blades of the first and second set of blades **152***a* and **154***a* overlap and touch with side pressure, and a gap **166***a* between individual blades of the first and second set of blades **152***a* and **154***a* (**FIG. 12A**) determine the width of individual strands of decorative grass **164***a* formed from a sheet or web of material (the sheet or web of material **10** illustrated in **FIG. 12** for illustration purposes only) passed between the first and second set of blades **152***a* and **154***a* of the system for producing decorative grass **150***a*. In addition, the first mandrel **156***a* moves up and down at an angle, as indicated by an arrow **168** in **FIG. 12A**, thereby allowing the first set of blades **152***a* to engage and disengage the second set of blades **154***a*. When the first set of blades **152***a* disengage the second set of blades **154***a*, an attachment area or header **170** (**FIG. 12B**) is formed in which the individual strands of decorative grass **164***a* are connected. Shown in **FIG. 12B** is a group of individual strands of decorative grass **164***a* produced from the system **150***a*, wherein the individual strands of decorative grass **164***a* are connected to each other via the attachment area or header **170**. The length of the sheet or web of material which passes through the system **150***a* while the first mandrel **156***a* is raised and the first and second set of blades **152***a* and **154***a* are disengaged determines the length of the attachment area or header **170** to which the strands of decorative grass **164***a* are attached.

Description of FIGS. **13-19**

[**0089**] Shown in **FIG. 13** is another system **180** for producing decorative grass **180** in accordance with the present invention. The system **180** is a rotary knife-type shredder which has a first set of blades **182** and a second set of blades **184**. As shown in **FIG. 13A**, each individual blade of the first set of blades **182** has a first side **186** and a second side **188**; and each individual blade of the second set of blades **184** has a first side **190** and a second side **192**. The first set of blades **182** are disposed on a first mandrel **194** while the second set of blades **184** are disposed on a second mandrel **196**. When the first mandrel **194** is rotated in a direction **198** and the second mandrel **196** is rotated in a direction **200**, as illustrated in **FIG. 13**, the first and second set of blades **182** and **184** overlap, substantially as shown in **FIG. 13A**, such that the first side **186** of an individual blade of the first set of blades **182** touches the second side **192** of an individual blade of the second set of blades **182**, while the second side **188** of an individual blade of the first set of blades **182** touches the first side **190** of an individual blade of the second set of blades **184**.

[**0090**] A sheet or web of material, such as one of the sheets or webs of laminated material **10**, **50**, **70** or **90** described herein above (the sheet or web of laminated material **10** shown in **FIG. 13** for illustration purposes only) may be passed between the overlapping region of the first and second set of blades **182** and **184**, resulting in shredding of the sheet or web of laminated material **10** to form individual strands of decorative grass **202**.

[**0091**] The individual blades of the first set of blades **182** are provided with a width **204**, and the individual blades of the second set of blades **184** are provided with a width **206**, and the widths **204** and **206** are substantially the same. The widths **204** and **206** determine the width of the individual strands of decorative grass **202**.

[**0092**] The system **180** can cut sheets of material so as to produce strands of decorative grass **202** having a predetermined length based on the length of the sheet of material, or the system **180** can cut rolls of material to form a shredded roll of material, in which case the individual strands of decorative grass **202** having a desired predetermined length would have to be cut from the shredded roll of material subsequent to the shredding process. Such a method of shredding a web or roll of material and subsequently cutting into individual strands of decorative grass has been dis-

closed in U.S. Ser. No. 09/586,901, which has previously been expressly incorporated herein by reference. Other methods of shredding a web or roll of material and subsequently cutting into individual strands of decorative grass are known in the art and may be utilized in accordance with the present invention.

[0093] Shown in **FIGS. 14 and 14A** is a system **180***a* for producing decorative grass in accordance with the present invention. The system **180***a* is similar to the system **180** described herein above, except that the system **180***a* has been adapted so as to leave uncut areas in the sheet or web of material passed there through which serve as attachment area or a header for the strands of decorative grass. The system **180***a* includes a first set of blades **182***a* disposed on a first mandrel **194***a* and a second set of blades **184***a* disposed on a second mandrel **196***a*. As shown in **FIG. 14A**, each individual blade of the first set of blades **182***a* has a first side **186***a* and a second side **188***a*; and each individual blade of the second set of blades **184***a* has a first side **190***a* and a second side **192***a*. When the first mandrel **194***a* is rotated in a direction **198***a* and the second mandrel **196***a* is rotated in a direction **200***a*, as illustrated in **FIG. 14**, the first and second set of blades **182***a* and **184***a* overlap, substantially as shown in **FIG. 14***a*. Thus, the first side **186***a* of an individual blade of the first set of blades **182***a* touches the second side **192***a* of an individual blade of the second set of blades **184***a*, while the second side **188***a* of an individual blade of the first set of blades **182***a* touches the first side **190***a* of an individual blade of the second set of blades **184***a*.

[0094] A sheet or web of material, such as the sheet or web of laminated material **10** shown in **FIG. 14** for illustration purposes only, may be passed between the overlapping region of the first and second set of blades **182***a* and **184***a*, resulting in shredding of the sheet or web of laminated material **10** to form individual strands of decorative grass **202***a*.

[0095] The individual blades of the first set of blades **182***a* are provided with a width **204***a*, and the individual blades of the second set of blades **184***a* are provided with a width **206***a*, and the widths **204***a* and **206***a* are substantially the same. The widths **204***a* and **206***a* determine the width of the individual strands of decorative grass **202***a*.

[0096] In the system **180***a*, the first set of blades **182***a* is provided with a radius notch **208**. Upon rotation of the first mandrel **194***a* in the direction **198***a* and the second mandrel **196***a* in the direction **200***a*, the region of the first set of blades **182***a* containing the radius notch **208** does not contact a sheet or web of material (such as the sheet or web of laminated material **10** shown in **FIG. 14**), and therefore the sheet or web of material which passes through the system **180***a* between the second set of blades **184***a* and the radius notch **208** of the first set of blades **182***a* is not cut but rather is left intact to form an attachment area or header **210** to which the individual strands of decorative grass **202***a* previously cut from the sheet or web of material are connected. Shown in **FIG. 14***b* is a group of individual strands of decorative grass **202***a* produced from the system **180***a* in which the individual strands of decorative grass **202***a* are connected to each other via the attachment area or header **210**.

[0097] Shown in **FIGS. 15-19** are various stages of the system **180***a* for producing decorative grass. Shown in **FIG. 14** is the initial contact between the radius notch **208** of the first set of blades **182***a* and the second set of blades **184***a*. In **FIG. 15**, a first portion of the radius notch **208** of the first set of blades **182***a* is in contact with the second set of blades **184***a* such that the sheet or web of material **10** passed therebetween is not being split but rather is forming a lower portion of the attachment area or header **210**. In **FIG. 16**, all of the radius notch **208** of the first set of blades **182***a* is in contact with the second set of blades **184***a* such that the sheet or web of material **10** passed therebetween is forming the attachment area or header **210**. In **FIG. 17**, a portion of the radius notch **208** of the first set of blades **182***a* is still in contact with the second set of blades **184***a* and forming an upper portion of the attachment area or header **210**, while another portion of the first set of blades **182***a* is contacting the second set of blades **184***a* such that the sheet or web of material **10** passed between this connection is cut to release the strands of decorative grass **202***a* having the attachment area or header **210** connected thereto, and the portion of the sheet or web of material **10** is then again being shredded to form another section of individual strands of decorative grass **202***a*. As shown in **FIGS. 18 and 19**, the radius notch **208** of the first set of blades **182***a* moves beyond the second set of blades **184***a* such that the connection between the first and second set of blades **182***a* and **184***a* is blade-to-blade, as shown in **FIG. 14***a*. It is important to note in **FIGS. 15-19** that the first set of blades **182***a* never totally disengages the second set of blades **184***a*.

Description of FIGS. **20-20A**

[0098] Shown in **FIG. 20** is a system **220** for producing decorative grass in accordance with the present invention. The system **220** is a score cutting-style arrangement shredding process. The system **220** includes a set of blades **222** disposed on a blade mandrel **224**, and a hardened mandrel **226**, which is made of a substantially shape sustaining material. The set of blades **222** disposed on the blade mandrel **224** are in downward physical contact with the hardened mandrel **226**. A sheet or web of material, such as the sheet or web of laminated material **10** shown in **FIG. 20** for purposes of illustration only, is passed between the blade mandrel **224** and the hardened mandrel **226**, and when the blade mandrel **224** is rotated in a direction **228** and the hardened mandrel **226** is rotated in a direction **230**, the sheet or web of material comes into contact with the set of blades **222** and is shredded to form individual strands of decorative grass **232**. The individual blades of the set of blades **222** are disposed at a distance **234** from each other, and the distance **234** determines the width of the individual strands of decorative grass **232**.

[0099] The system **220** can produce individual strands of decorative grass **232** from sheets of material wherein the strands of decorative grass **232** have a predetermined length based on the length of the sheet of material, or the system **220** can cut rolls of material to form a shredded roll of material, in which case the individual strands of decorative grass **232** having a desired predetermined length would have to be cut from the shredded roll of material subsequent to the shredding process. Such a method of shredding a web or roll of material and subsequently cutting into individual strands of decorative grass has been disclosed in U.S. Ser. No. 09/586,901, which has previously been incorporated by reference herein. Other methods of shredding a web or roll of material and subsequently cutting into individual strands of decorative grass are known in the art and may be utilized in accordance with the present invention.

Description of FIGS. **21-21**B

[**0100**] Shown in **FIGS. 21 and 21**A is a system **220***a* for producing decorative grass in accordance with the present invention. The system **220***a* is similar to the system **220** described herein above, except that the system **220***a* has been adapted so as to leave uncut areas in the sheet or web of material passed there through which serves as an attachment area for the strands of decorative grass. The system **220***a* includes a set of blades **222***a* disposed on a blade mandrel **224***a*, and a hardened mandrel **226***a*, which is made of a substantially shape sustaining material. The set of blades **222***a* disposed on the blade mandrel **224***a* are in downward physical contact with the hardened mandrel **226***a*. A sheet or web of material, such as the sheet or web of laminated material **10** shown in **FIG. 21** for purposes of illustration only, is passed between the blade mandrel **224***a* and the hardened mandrel **226***a*, and when the blade mandrel **224***a* is rotated in a direction **228***a* and the hardened mandrel **226***a* is rotated in a direction **230***a*, the sheet or web of material **10** comes into contact with the set of blades **222***a* and is shredded to form individual strands of decorative grass **232***a*. The individual blades of the set of blades **222***a* are disposed at a distance **234***a* from each other, and the distance **234***a* determines the width of the individual strands of decorative grass **232***a*.

[**0101**] In addition, the blade mandrel **224***a* moves up and down off of the hardened mandrel **226***a* by use of an air cylinder or cam in the directions indicated by an arrow **236 (FIG. 21A)**, thereby raising the set of blades **222***a* out of contact with the hardened mandrel **226***a* and thus the sheet or web of material **10** passed between the blade mandrel **224***a* and the hardened mandrel **226***a*. When the blade mandrel **224***a* is moved in an upward direction as indicated by the arrow **236** such that the set of blades **222***a* disengage the hardened mandrel **226***a*, an attachment area or header **238 (FIG. 21B)** is formed in which the individual strands of decorative grass **232***a* are connected. Shown in **FIG. 21B** is a group of individual strands of decorative grass **232***a* produced from the system **220***a* wherein the individual strands of decorative grass **232***a* are connected to each other via the attachment area or header **238**. The length of the sheet or web of material which passes through the system for producing decorative grass **220***a* while the blade mandrel **224***a* is raised in the direction indicated by the arrow **236**, so as to disengage the set of blades **222***a* from the hardened mandrel **226***a* determines the length of the attachment area or header **238** to which the strands of decorative grass **232***a* are attached.

Description of FIGS. **22** and **23**

[**0102**] Shown in **FIG. 22** are two sheets of curlable segments of decorative grass **250**. The two sheets of curlable segments of decorative grass **250** are substantially normally disposed relative to one another; and each sheet of curlable segment of decorative grass **250** has a plurality of individual segments **252** connected to an attachment area or header **254**. The sheets of curlable decorative grass **250** can be fabricated of any of the materials herein before described so that a curl can be imparted to the sheets of curlable decorative grass **250** at or near the point of sale or use of one or more sheets of curlable decorative grass **250**. Any method for imparting a curl to the segments **250** of the curlable sheets of curlable decorative grass **250** herein before described can be employed and the particular method chosen will be determined by the end user. However, it should be understood that the method for imparting a curl to the segments **250** is not limited to the methods described herein, but include any method and/or apparatus known within the art. For example, the methods and apparatus for providing a curl to the segment **250** or to any sheet and/or web of material hereinbefore or hereinafter described include the methods and apparatus disclosed in U.S. Pat. No. 6,436,324 B1, entitled "Method for Making Curled Decorative Grass", issued to Weder et al on Aug. 20, 2002, the entire contents of which is hereby expressly incorporated herein by reference.

[**0103**] While only two sheets of curlable decorative grass **250** have been shown, it should be understood that additional sheets of curlable decorative grass **250** can be employed to form a start of sheets of curlable decorative grass, and that eahc of the sheets and curlable decorative grass **250** has been shown as a single sheet or layer, laminates can also be employed as the sheet of curlable decorative grass **250**.

[**0104**] Shown in **FIG. 23** are two sheets of decorative grass **260** wherein a destortion, such as a curl, has been imparted to each of the sheets of the decorative grass **260**. It should be noted that while the destortion has been shown as a curl, the destortion may be a crimp and/or a crimp and a curl as herein before described. The two sheets of decorative grass **260** are substantially normally disposed relative to one another; and each sheet of decorative grass **260** has a plurality of segments **262** connected to an attachment area or header **264**. The sheets of decorative grass **260** can be fabricated of any of the materials herein before described; and as previously stated, the distortion can be formed utilizing any method herein before described or known and can include curls having various configurations, crimps and combination of curls and crimps, included but not limited to the methods and apparatus disclosed in U.S. Pat. No. 6,436, 324 B1 which has been previously incorporated herein by reference. The segments **262** of each of the sheets of decorative grass **260** are desirably retained in a substantially flattened condition prior to use at or near the point of sale. To ensure that the segments **262** of each of the sheets of decorative grass **260** are maintained in a substantially flat condition prior to use and/or sale, the sheets of decorative grass **260** may be disposed in a bag or package of sufficient rigidity which is sized to retain the sheets of decorative grass in a substantially flat configuration, thus preventing the segments **262** of the sheets of decorative grass **260** from curling or being distorted prior to use and/or sale.

Description of FIG. **24**

[**0105**] Referring now to **FIG. 24** shown therein is a cutaway perspective view of a package **270** containing a plurality of sheets **271** which have been at least partially cut to provide side by side strips **272** which can be curled to form curled decorative grass. The package **270** includes an enclosure or box **273** having an opening **274** near one end **275** thereof and a curling tool **276** disposed within or aligned with the opening **274** such that upon pulling one of the sheets **271** from the package **270** and drawing the sheet **271** over the curling tool **276**, a curl is imparted to the strips **272** of the sheets **271** at or near the point of use or sale of one or more of the sheets **271**. While the package **270** is shown as being a substantially rectangular shaped enclosure **273** sized and configured to contain a plurality of sheets **271**, it should be understood that the package **270** can be provided with any suitable configuration as long as it is capable of containing the sheets, such as the sheets **271**.

[0106] The sheets **271**, in addition to the plurality of side by side strips **272** includes an attachment area or header **278** to which the strips **272** are connected. It should be noted that while the enclosure **270** has been shown as containing a plurality of sheets **271**, individual strips which can be curled by pulling over the curling tool **276** to impart the desired curl thereto can be stored within the enclosure **273**, and the package **270** may include a roll of material (not shown) formed of a plurality of side by side strips. When using a roll of material, a predetermined amount of a material is unrolled and passed over the curling tool **276**. The curled strips of material are then severed from the roll of material by any conventional cutting element, such as sizzors, a cutting edge and the like.

[0107] The material from which the sheets are fabricated can be any of the materials herein before described, including laminates thereof. Similarly, the curling tool can be any curling tool well known in the art and can be a single bar curling tool, a multiple bar curling tool and the like. The configuration of the curling tool, as well as the number of curling tools employed will vary depending upon the particular configuration of curl imparted to the sheet of material and the and/or strips.

[0108] While the curling tool **276** has been shown as being incorporated into the package **270 (FIG. 24)**, it should be understood that the curling tool **276** assembly can be located separate of the package **270**, in which case the curling tool will desirably be positioned near the point of sale and/or use of the decorative grass.

[0109] Several prior art methods and apparatus can be employed for providing a curl or a crimp to the sheet or strand of decorative grass. An example of such a method and apparatus is disclosed in U.S. Pat. No. 5,891,286, and U.S. Pat. No. 6,436,324, each of which has previously been incorporated herein by reference. However, is to be understood that the method and apparatus for imparting a curl to sheet of decorative grass is not limited to the use of such methods and apparatus, and any method known in the art for providing a curl and/or crimp to a sheet or strand of material may be utilized in accordance with the present invention for imparting a curl and/or crimp to a sheet or strand of material removed from a package.

[0110] It is to be understood that any method of forming the decorative grass of the present invention, such as the systems for producing decorative grass described herein as well as any method known in the art, could be performed in line with an extrusion operation using razor blades or any other cutting method, shredding in wider strips and stretching these strips to form narrower and thinner strips.

[0111] As stated above, the sheet or web of material from which the decorative grass is produced may be provided in a substantially flat configuration and cut or shredded to produce strands of decorative grass having a substantially flat configuration, or the sheet or web of material from which the decorative grass is produced may be curled prior to cutting. The sheet or web of material may be placed under stress, causing the sheet or web of material to temporarily assume a substantially flat configuration, and upon shredding, the strands of decorative grass formed therefrom may be retained in the substantially flat configuration until curling or crimping is desired, or the strands of decorative grass cut from the sheet or web of material may be allowed to curl or crimp upon shredding from the sheet or web of material. In a third option, the sheet or web of material may be curled and cut or shredded in such a curled or crimped configuration. The strands of decorative grass formed therefrom may then be exposed to sufficient pressure to cause the strands of decorative grass to assume a substantially flat configuration until crimping or curling is desired, at which time the strands of decorative grass are released from such pressure and allowed to relax and curl or crimp. Any of the above described embodiments may also be employed with strands of decorative grass attached at an attachment area or header.

[0112] Changes may be made in the construction and the operation of the various components, elements and assemblies described herein or in the steps or the sequence of steps of the methods described herein without departing from the spirit and scope of the invention as defined in the following claims.

What is claimed is:

1. A method of providing a curled or crimped decorative grass at a point of use or a point of sale, the method comprising:

providing at least one sheet or web of material at a point of sale or use, the at least one sheet or web of material capable of having a curl or a crimp imparted thereto;

forming a curl or crimp in the at least one sheet or web of material at the point of sale or use to form a distortion in the at least one sheet or web of material; and

cutting the sheet or web of material having the distortion formed therein into strands of decorative grass at the point of sale or use of the decorative grass.

2. A method of providing a curled decorative grass at a point of use or a point of sale, the method comprising:

providing at least one curled sheet or web of material at a point of sale or use;

maintaining pressure on the at least one curled sheet or web of material to maintain the curled sheet or web of material in a substantially flat configuration; and

cutting the curled sheet or web of material into strands of decorative grass at the point of sale or use of the decorative grass while the curled sheet or web of material is maintained in the substantially flat configuration.

3. A method of providing a curled decorative grass at a point of use or a point of sale, the method comprising:

providing at least one curled sheet or web of material at a point of sale or use; and

cutting the curled sheet or web of material into strands of decorative grass at the point of sale or use of the decorative grass.

4. A method of providing a curled decorative grass at a point of use or a point of sale, the method comprising:

providing at least one sheet or web of material at a point of sale or use, the at least one sheet of web of material having a preset distortion therein; and

cutting the curled sheet or web of material having the preset distortion therein into strands to provide deco-

rative grass at the point of sale or use of the decorative grass wherein at least a portion of the strands have the preset distortion.

5. The method of claim 4 wherein the preset distortion is selected from the group consisting of curls, crimps and combinations thereof.

6. The method of claim 4 wherein, in the step of providing at least one sheet or web of material at a point of sale or use, the at least one sheet of material comprises a header having a plurality a strips of material connected thereto and wherein the preset distortion is at least one curl imparted to at least the plurality of strips of material and wherein in the step of cutting the curled sheet or web of material having the preset distortion, the header is removed from the plurality of strips of material to provide curled segments of decorative grass at the point of sale or use of the decorative grass.

7. The method of claim 4 wherein, in the step of providing at least one sheet or web of material at a point of sale or use, the at least one sheet or web of material is a laminated material having a preset curl formed therein.

8. The method of claim 4 wherein, in the step of providing at least one sheet or web of material at a point of sale or use, the at least one sheet or web of material is a laminated material having a preset curl formed therein, and wherein the laminated material is prepared by the steps of:

providing a first sheet or web of material;

providing a second sheet or web of material, one of the first and second sheets or webs of material having a size less than the other sheet of material;

stretching the sheet or web of material having a size less than the other sheet or web of material to provide a stretched sheet or web of material; and

laminating the stretched sheet or web of material to the other sheet or web of material to form the laminated material having a preset curl formed therein.

9. A method for providing curled decorative grass at a point of sale or use of the curled decorative grass, the method comprising:

providing a plurality of sheets or a web of material capable of having a curl imparted thereto at a point of sale or use of the curled decorative grass;

providing curling tool capable of imparting a curl to the sheets or web of material when the sheets or web of material is brought into contact with the curling tool;

contacting the sheets or web of material with the curling tool so as to impart a curl to the sheets or webs of material and provide curled sheets or a curled web of material at the point of sale or use; and

cutting the curled sheets or web of material to provide curled decorative grass at the point of sale or use of the curled decorative grass.

10. The method for providing curled decorative grass at a point of sale or use of the curled decorative grass of claim 9 wherein, in the step of cutting the curled sheets or web of material to provide curled decorative grass at the point of sale or use of the curled decorative grass, strands of curled decorative grass are held together via a header.

11. An assembly for producing curled decorative grass at a point of use or sale, the assembly comprising:

an enclosure containing a plurality of sheets or web of material capable of having a curl imparted thereto, the enclosure having an opening therein for permitting removal of at least one sheet at a time or at least a portion of the web of material from the enclosure, the enclosure being located at or near a point of sale or point of use of curled decorative grass; and

a curling tool for imparting a curl to the sheets or at least a portion of the web of material to provide curled sheets of a curled web material when at least one of the sheets or at least a portion of the web of material are withdrawn from the enclosure and brought into contact with curling tool at or near the point of sale or use of decorative grass; and

a cutting tool for cutting the curled sheets or the curled web material to provide curled decorative grass at or near the point of sale or use of the curled decorative grass.

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