



US 20200054160A1

(19) **United States**

(12) **Patent Application Publication**
PULEO

(10) **Pub. No.: US 2020/0054160 A1**

(43) **Pub. Date: Feb. 20, 2020**

(54) **SELF-SHAPING ARTIFICIAL CHRISTMAS TREE WITH MOLDED POLYMER BRANCHES AND LEAF TIPS WITH MEMORY WIRE STEMS**

Publication Classification

(51) **Int. Cl.**
A47G 33/06 (2006.01)
(52) **U.S. Cl.**
CPC *A47G 33/06* (2013.01)

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(57) **ABSTRACT**

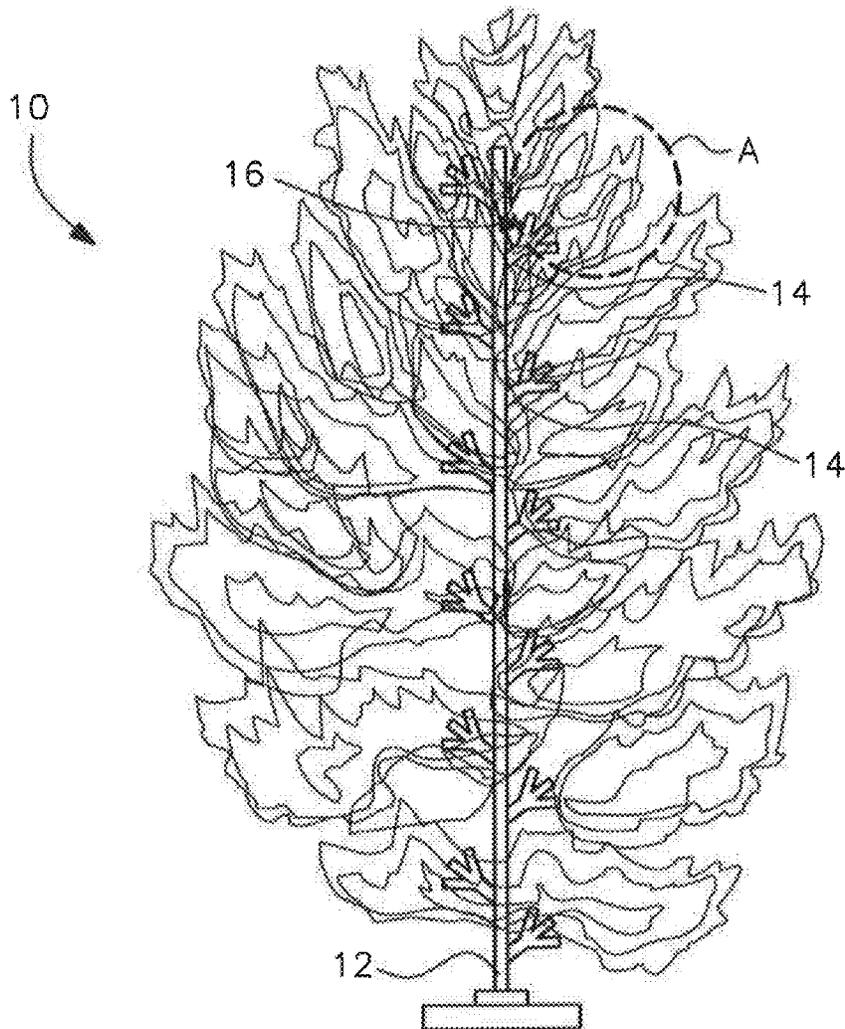
An artificial Christmas tree having an improved branch assembly is provided. The branch assembly includes molded stem sockets each having at least one opening configured to receive and secure the stem of a leaf tip. The branch stem socket openings may be configured for single leaf tips or for multi-tip leaf stems having multiple tips joined to a single stem that has a molded insert base configured to fit within the opening of a complementary stem socket so the multi-tip leaf stem can be inserted in only one direction. In addition, the leaf tips are made with memory wire that allows the branches to be compressed when placed in a carton for storage while holding in memory, and then replicating, the desired angle of the leaf tips as secured within the stem sockets when the tree is removed from the carton for set up.

(21) Appl. No.: **16/398,894**

(22) Filed: **Apr. 30, 2019**

Related U.S. Application Data

(63) Continuation of application No. 15/787,081, filed on Oct. 18, 2017, now abandoned.



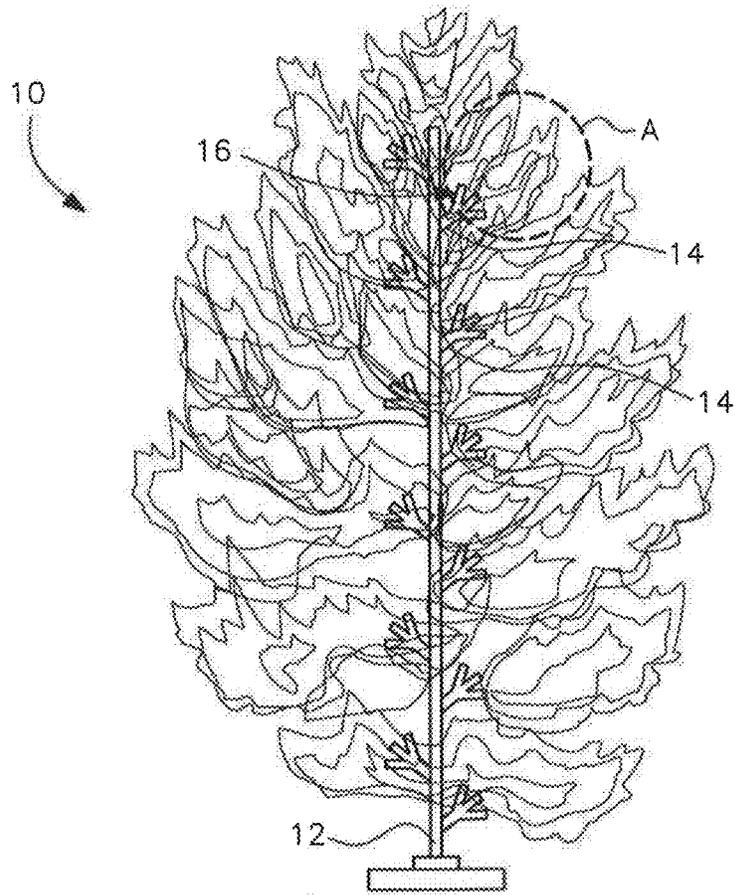


FIG. 1

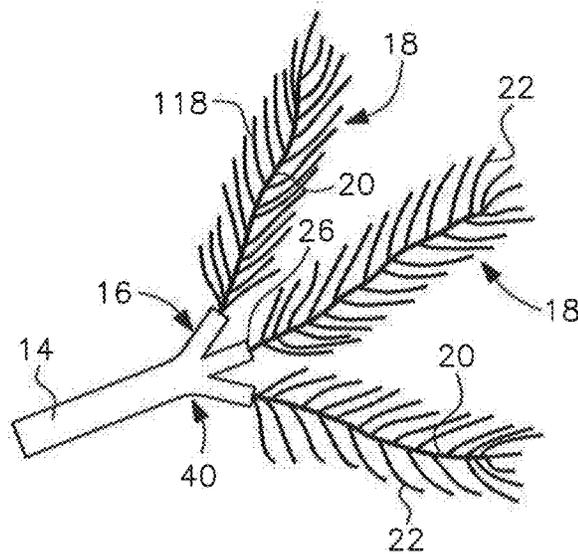


FIG. 1A

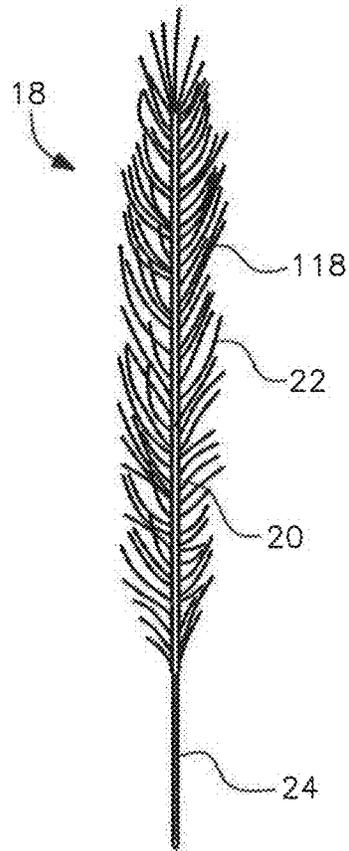


FIG. 1B

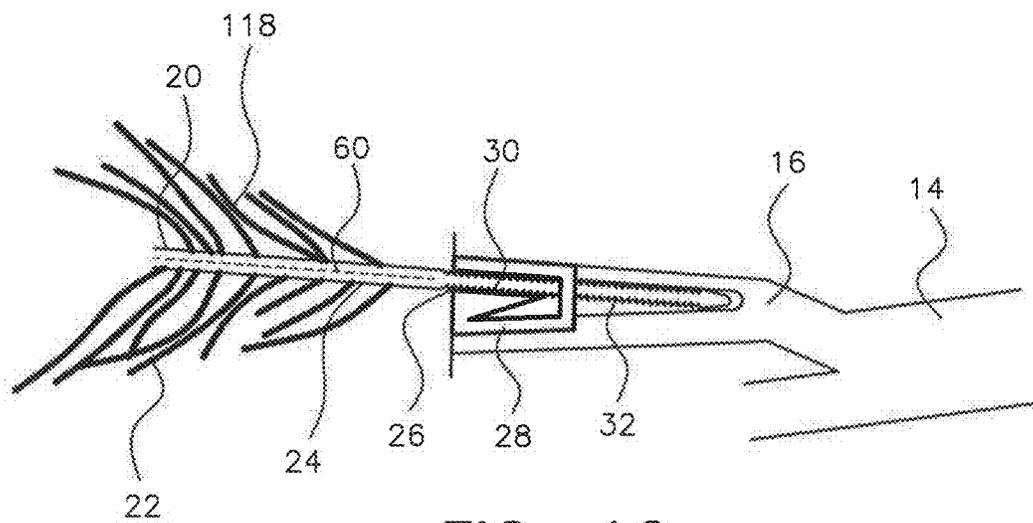


FIG. 1C

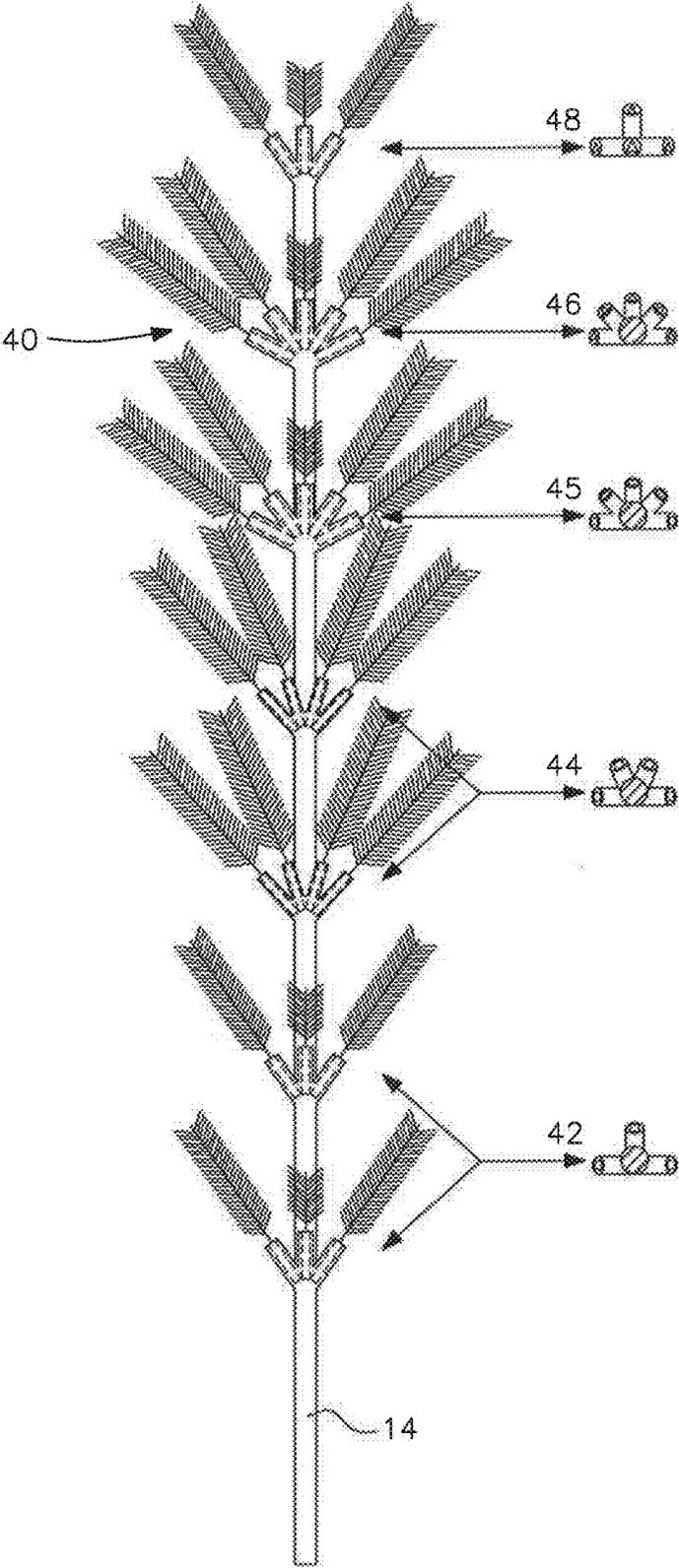


FIG. 2

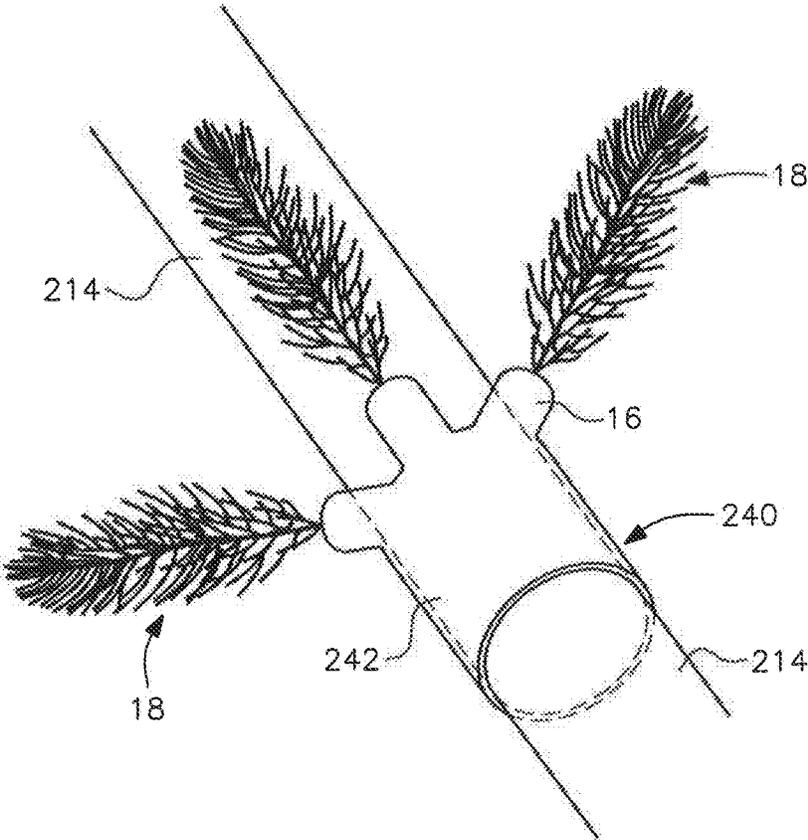


FIG. 2A

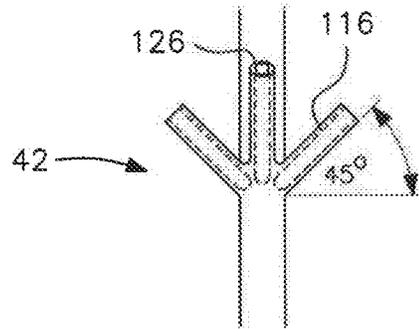


FIG. 3A

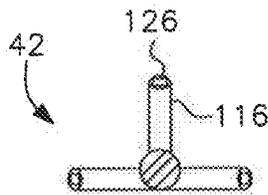


FIG. 3B

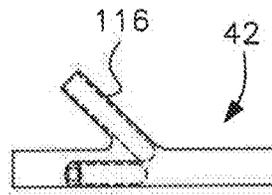


FIG. 3C

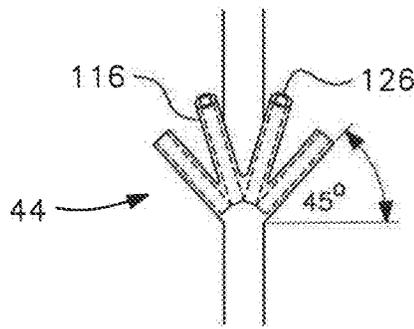


FIG. 4A

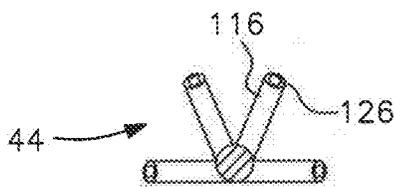


FIG. 4B

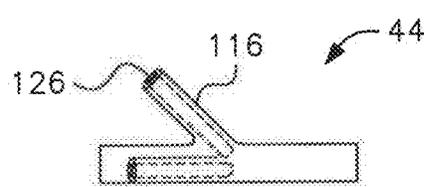


FIG. 4C

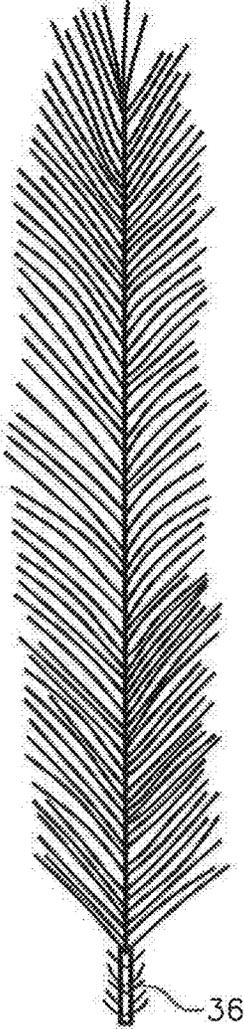


FIG. 5

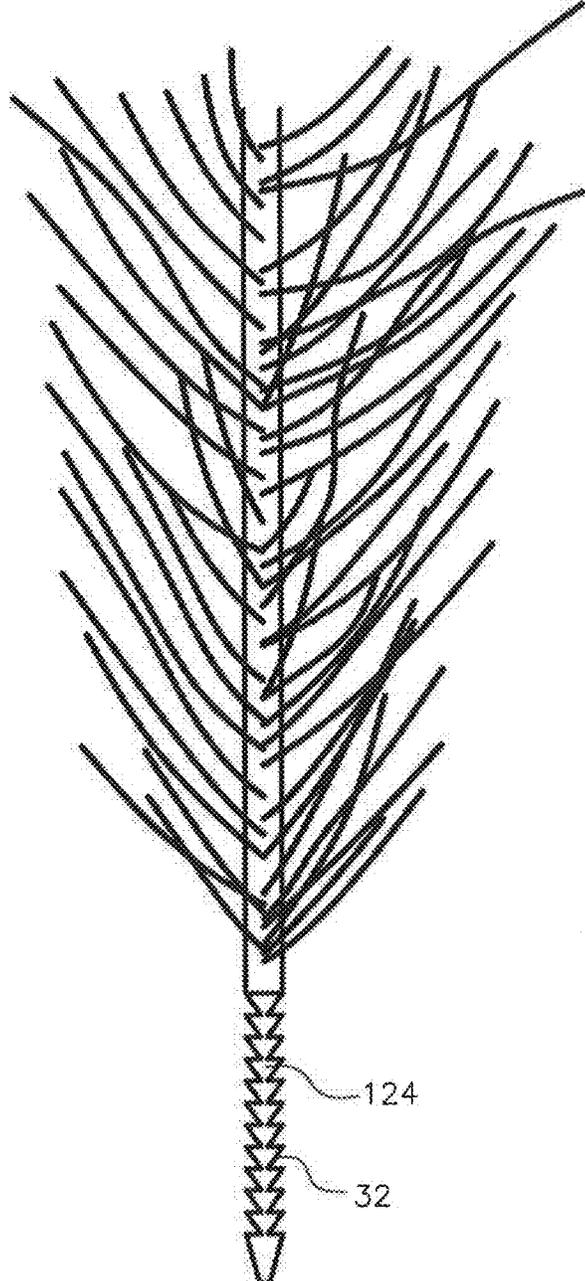


FIG. 6

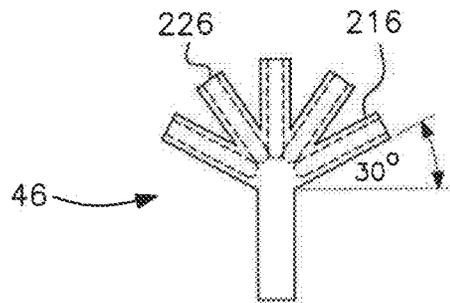


FIG. 7A

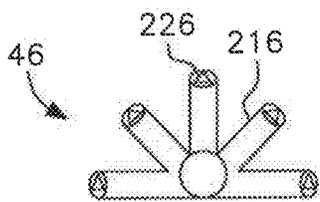


FIG. 7B

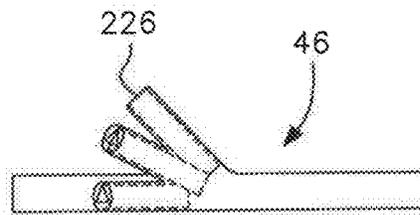


FIG. 7C

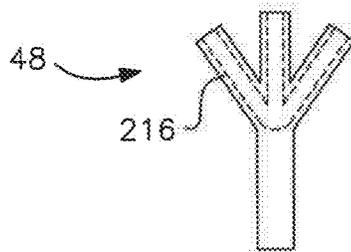


FIG. 8A

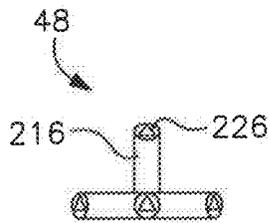


FIG. 8B

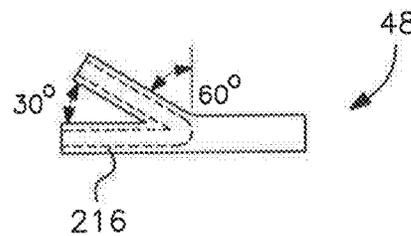


FIG. 8C

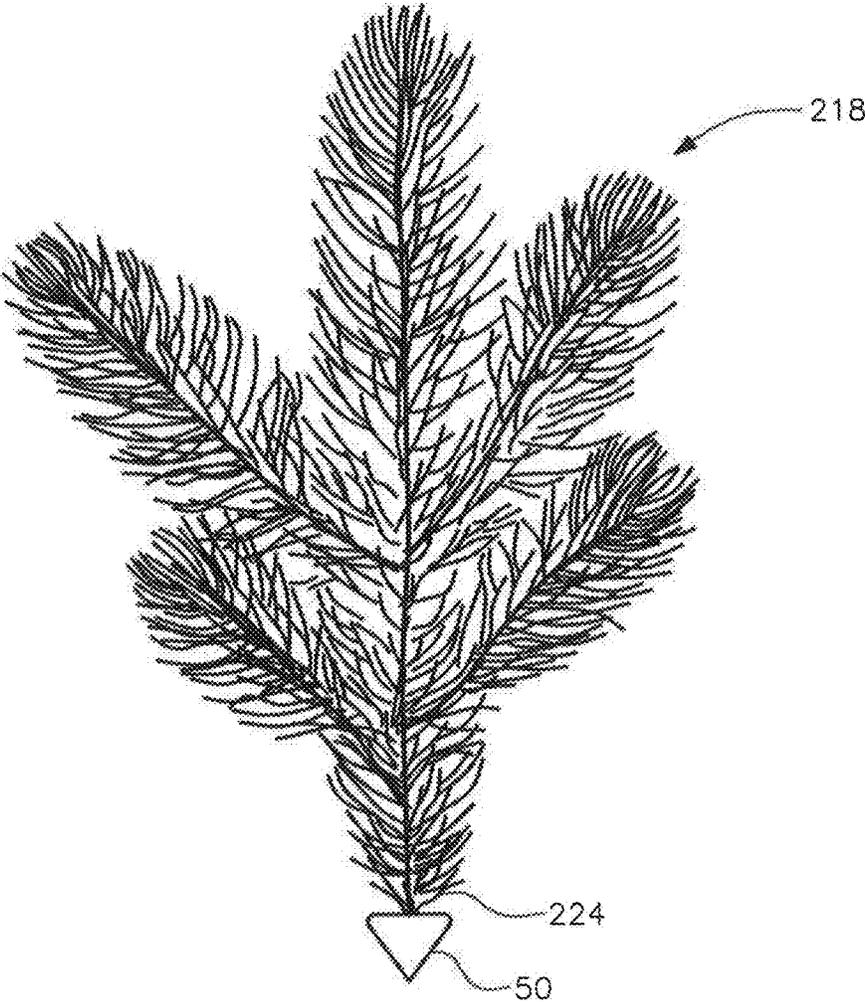


FIG. 9

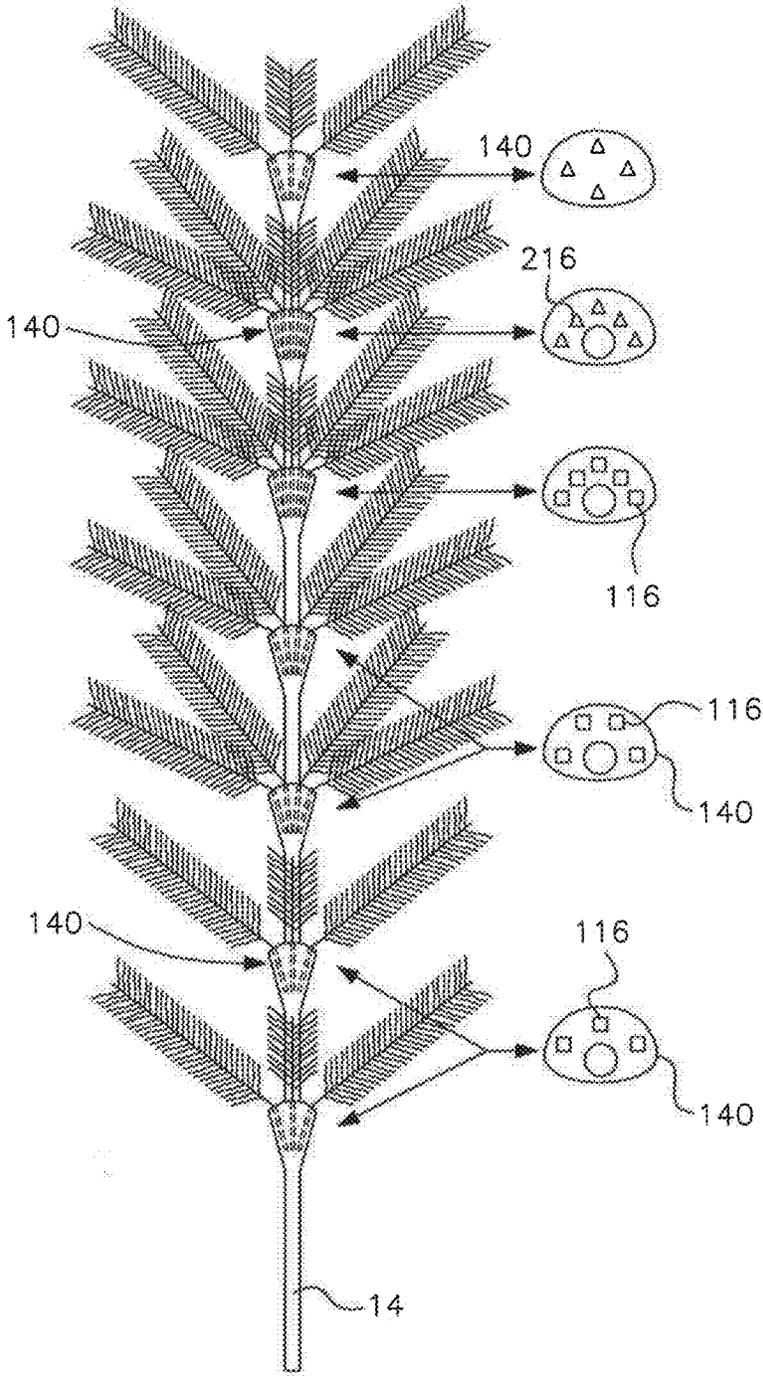


FIG. 10

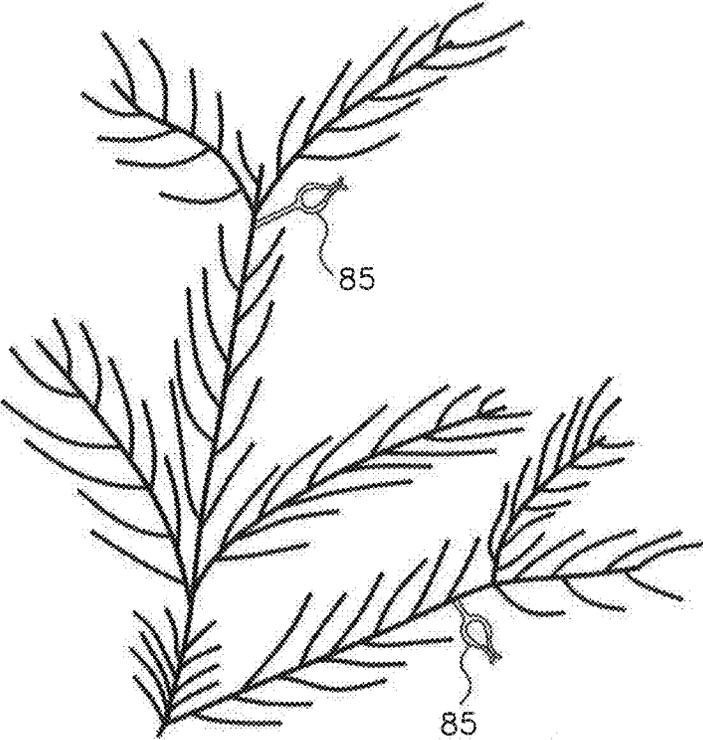


FIG. 11

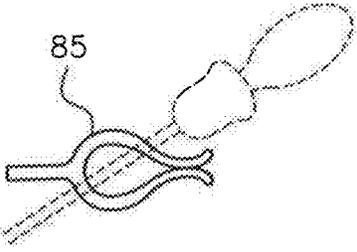


FIG. 11A

**SELF-SHAPING ARTIFICIAL CHRISTMAS
TREE WITH MOLDED POLYMER
BRANCHES AND LEAF TIPS WITH
MEMORY WIRE STEMS**

[0001] This application is a continuation of U.S. application Ser. No. 15/787,081, filed Oct. 18, 2017.

BACKGROUND OF THE INVENTION

Field of the Invention

[0002] The present invention relates to an artificial Christmas tree and, more particularly, to an artificial tree having an improved molded polymer branch assembly with branch stem sockets into which leaf tips having memory wire are inserted at selected angles to produce a fully shaped tree.

Description of the Related Art

[0003] Artificial Christmas trees are very popular as they do not pose a fire hazard or shed needles, offer a “green” alternative to the annual harvest of natural timber, and can be stored and then reused in following years. However, upon initial purchase and/or following a season of storage, many artificial trees may be misshapen from having been compressed in a carton or during manufacturing.

[0004] As conventionally constructed, artificial trees have a vertical center pole or trunk to which support elements or branches are attached at selected angles, typically upward or horizontal. To create a realistic tree, bushy evergreen type leaves or tips are secured to the branches by a tree stem. Each tree stem is formed by bunching a number of evergreen tips or leaf tips into a clump which is then wrapped together at a base end. The wrapped base end or tree stem is then connected to a metal rod that acts as a supporting branch. Alternatively, in some instances, the tree branches with the leaves attached may be shipped loose in the carton, i.e., the tree may be disassembled in the carton to reduce the carton size and save freight cost. With this type of construction, the consumer must attach the branches to the tree pole, thus requiring additional assembly by the consumer.

[0005] In either case, the connection of the wrapped base end or tree stem, as well as the clumping manner of construction used to make the stems, often results in poorly angled tree stems which create a tree having misdirected leaf tips that is not pleasing in appearance. The consumer is then left with trying to bend or otherwise manipulate the tree stems and/or leaf tips to improve the shape of the tree, often without the desired degree of success.

[0006] Accordingly, a need exists for an artificial Christmas tree with branches having an improved stem and leaf tip construction for reliably reproducing the desired shape of the tree when removed from storage year after year.

SUMMARY OF THE INVENTION

[0007] In view of the foregoing, the present invention is directed to an artificial Christmas tree having an improved molded branch assembly with molded stem sockets having openings into which the stems of respective leaf tips are inserted at fixed angles to produce a well shaped tree. The sockets may include grip connectors to exert a clamping force on the leaf tip stems. Alternatively or additionally, the stems of the leaf tips may be secured within the sockets at the selected fixed angle with an adhesive. The evergreen leaf tips are preferably formed on a memory wire so that after the

tree has been compressed in a carton, such as for retail and storage, the leaf tips are held within the molded branch stem sockets at the designed selected angles when removed from the carton. Thus, the selected angles of the branch stem sockets, together with the memory wires in the leaf tips, ensure that the leaf tips will reliably and repeatedly open to the desired angle when the tree is removed from the carton and set up.

[0008] Accordingly, it is an object of the present invention to provide an artificial Christmas tree having branches with stem sockets molded from a polymer such as PVC, each molded stem socket having an opening configured to receive and secure the stem of a leaf tip at a designed selected angle and without the leaf tip falling out.

[0009] Another object of the present invention is to provide an artificial Christmas tree in accordance with the preceding object in which a plurality of the molded branch stem sockets are formed in a node configured to secure a respective plurality of leaf tips in near proximity to one another on the branch.

[0010] A further object of the present invention is to provide an artificial Christmas tree in accordance with the preceding objects in which each leaf tip is made with a memory wire that retains the desired angle of the leaf tip when inserted within its corresponding stem socket.

[0011] Yet another object of the present invention is to provide an artificial Christmas tree in accordance with the preceding objects in which a plurality of the branch stem sockets are positioned in spaced relationship along the branch so that multiple leaf tips are secured to the branch at various distances from the center pole or trunk of the tree to create a bushy or filled appearance around the trunk.

[0012] Still another object of the present invention is to provide an artificial Christmas tree in accordance with the preceding objects in which the branch stem sockets are arranged in nodes and the number of stem sockets in each node varies as between stem socket nodes nearest the trunk or center pole and the stem socket nodes farthest therefrom when the branch is connected to the center pole to produce a fuller and more natural looking tree.

[0013] A further object of the present invention is to provide an artificial Christmas tree in accordance with the preceding objects in which the leaf tips include multi-tip leaf stems, each multi-tip leaf stem having multiple leaf tips joined to a single stem, the single stem including a molded insert base that fits within a branch stem socket having a correspondingly shaped opening to ensure that the multi-tip leaf stem can only be inserted into the molded stem socket in one selected orientation, for example, inserted with the multiple tips directed upwardly, downwardly or horizontally, as desired.

[0014] Yet a further object of the present invention is to provide an artificial Christmas tree in accordance with the preceding objects in which any given branch may be molded to include both integrally molded stem sockets for single leaf tips and integrally molded stem sockets having openings shaped to receive multi-tip leaf stems.

[0015] A still further object of the present invention is to provide an artificial Christmas tree in accordance with the preceding objects in which the branches are hingedly connected to the trunk to allow the branches to fold toward the trunk when the tree is to be stored in a carton, the hinged connections opening to the correct branch angle and the memory wire in the leaf tips restoring the proper angle to the

leaf tips when the tree is removed from a storage carton to produce a well-formed tree right from the carton.

[0016] Yet a still further object of the present invention is to provide an artificial Christmas tree in accordance with the preceding objects in which the branch stem sockets include a grip connector therein that exerts a clamping force around the stem to secure the stem within the socket.

[0017] Another object of the present invention is to provide an improved branch structure for an artificial tree, the branch being molded, preferably onto a metal rod or the like, and having a plurality of molded stem sockets, preferably molded integrally with the branch, each molded stem socket having an opening configured to receive and secure the stem of an artificial leaf tip at a selected angle, with each leaf tip preferably made with memory wire that retains the selected angle of the tips when inserted and secured within the stem sockets.

[0018] Still another object of the present invention is to provide an improved molded branch structure in accordance with the preceding object in which a plurality of molded stem sockets having a respective plurality of openings are formed in a node, the node being configured to receive a respective plurality of artificial leaf tips in near proximity to one another on the branch.

[0019] A further object of the present invention is to provide an improved branch structure in accordance with the preceding two objects in which the artificial leaf tips include multi-tip leaf stems, each multi-tip leaf stem having multiple tips joined to a single stem, the single stem including a molded insert base that fits within a stem socket having a correspondingly shaped opening to ensure that the multi-tip leaf stem can only be inserted into the stem socket in a single orientation.

[0020] Another object of the present invention is to provide an improved branch structure in accordance with the preceding three objects in which the nodes are molded integrally with the branch.

[0021] Still another object of the present invention is to provide an improved branch structure in accordance with the three objects before the preceding object in which the nodes are molded as separate elements that are sleeved onto and secured to a metal rod or molded branch.

[0022] A further object of the present invention is to provide an improved branch structure in accordance with the preceding objects in which each stem socket includes a grip connector for exerting a clamping force to secure the leaf tip stems within the sockets.

[0023] A still further object of the present invention is to provide an improved branch structure in accordance with the preceding objects in which the leaf tip stems are secured within the sockets using an adhesive.

[0024] Yet another object of the present invention is to provide an artificial tree having branches in accordance with the preceding objects that can be easily manufactured, readily assembled while being fairly compact when folded for storage, and that is durable and economical in use.

[0025] These together with other objects and advantages which will become subsequently apparent reside in the details of construction and operation as more fully herein-after described and claimed, reference being had to the accompanying drawings forming a part hereof, wherein like numerals refer to like parts throughout.

BRIEF DESCRIPTION OF THE DRAWINGS

[0026] FIG. 1 is a side view of an artificial Christmas tree in accordance with the present invention with a portion in a cut-away view to show a molded upper branch connected with the center pole.

[0027] FIG. 1A is an enlarged isolated view of the molded branch with stem sockets and leaf tips shown in Detail A of FIG. 1.

[0028] FIG. 1B is an isolated plan view of a single leaf tip like those shown in FIG. 1A.

[0029] FIG. 1C is a side view of one of the molded branch stem sockets and leaf tips shown in FIG. 1A, the stem socket including a grip connector, illustrated in partial cut-away to show the selected angle of the socket and the grip connector in the socket.

[0030] FIG. 2 is a plan view of a single molded branch of the tree shown in FIG. 1 including molded nodes having stem sockets for single leaf tips and molded nodes having stem sockets for multi-tip leaf stems.

[0031] FIG. 2A is a perspective view of a molded node formed as a separate element that is sleeved onto a branch in accordance with another configuration of the present invention.

[0032] FIG. 3A is a plan view of one of the branch stem socket nodes having three single-leaf-tip stem sockets shown in

[0033] FIG. 2.

[0034] FIG. 3B is a top view of the stem socket node shown in FIG. 3A.

[0035] FIG. 3C is a side view of the stem socket node shown in FIG. 3A.

[0036] FIG. 4A is a plan view of one of the branch stem socket nodes having four single-leaf-tip stem sockets shown in FIG. 2.

[0037] FIG. 4B is a top view of the stem socket node shown in FIG. 4A.

[0038] FIG. 4C is a side view of the stem socket node shown in FIG. 4A.

[0039] FIG. 5 is a plan view of a single leaf tip having a ridged or bristled stem configuration made of molded PVC with twisted memory wire for use with the branch stem socket nodes shown in FIGS. 3A-4C and particularly when the stems are secured within the sockets using an adhesive material.

[0040] FIG. 6 is a plan view of another single leaf tip having a ridged or toothed stem configuration for use with the stem socket nodes shown in FIGS. 3A-4C and particularly when the sockets of such nodes are configured to include grip connectors.

[0041] FIG. 7A is a plan view of the stem socket node having five multi-tip leaf stem sockets shown in FIG. 2.

[0042] FIG. 7B is a top view of the stem socket node shown in FIG. 7A.

[0043] FIG. 7C is a side view of the stem socket node shown in FIG. 7A.

[0044] FIG. 8A is a plan view of the stem socket node having four multi-tip leaf stem sockets shown in FIG. 2.

[0045] FIG. 8B is a top view of the stem socket node shown in FIG. 8A.

[0046] FIG. 8C is a side view of the stem socket node shown in FIG. 8A.

[0047] FIG. 9 is a plan view of a multi-tip leaf stem having a molded insert base configured to be inserted into the multi-tip leaf stem sockets shown in FIGS. 7A-8C.

[0048] FIG. 10 is a plan view of a single branch having a plurality of stem socket nodes formed in a fan configuration according to another embodiment of the present invention.

[0049] FIG. 11 is a plan view of a multi-tip leaf stem provided with molded light connectors in accordance with the present invention.

[0050] FIG. 11A is an isolated view of one light connector like those shown in FIG. 11.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0051] In describing the preferred embodiments of the present invention, specific terminology will be resorted to for the sake of clarity. It is to be understood that each specific term includes all technical equivalents which operate in a similar manner to accomplish a similar purpose.

[0052] While artificial Christmas trees are referred to specifically herein, it will be understood that the branch structure disclosed herein is equally applicable to any type of artificial tree or plant that has branches.

[0053] As shown in FIG. 1, the present invention is directed to an artificial tree, such as an artificial Christmas tree and the like, generally designated by reference numeral 10. The tree includes a center pole 12 and a plurality of molded branches 14 that are hingedly connected to the center pole 12. Each molded branch 14 has at least one molded branch stem socket generally designated by reference numeral 16. As understood by those skilled in the art, branches 14 can be molded PVC or PVC molded onto a metal rod or the like.

[0054] Secured to the stem sockets 16 are a plurality of tree leaf (or evergreen) tips generally designated by reference numeral 18. Tree leaf tips 18 may include single leaf tips 118 (see FIGS. 1A, 1B, 5 and 6) and multi-tip leaf stems 218 (see FIG. 9) as will be discussed further hereinafter.

[0055] As shown in FIGS. 1A and 1B, each single leaf tip 118 includes a midrib 20 from which extend a plurality of needles 22. At the base of the midrib 20 is a stem 24 that is inserted within an opening 26 in the branch stem socket 16 as best seen in FIGS. 1B and 1C. In the embodiment shown in FIG. 1C, the interior of the opening 26 in the stem socket 16 includes a grip connector 28 to exert a clamping force against the stem to retain the stem within the socket 16. The grip connector 28 may have ratcheting teeth 30 or ridges to engage with toothed protrusions 32 formed on the outer surface of the stem 24, 124 (see the leaf tip made of PE shown in FIG. 6). Alternatively, the stems may be configured for a friction fit, a snap fit or other grip connector or gripping element suitable for securing the leaf tip in a designed orientation and preventing the leaf tip from falling out of the connector.

[0056] The branch stem sockets may also be made without grip connectors, with the stems being secured in the sockets using an adhesive, or with a combination of grip connectors and/or gluing being used to secure the stems. The leaf tip shown in FIG. 5, for example, is made of PVC with twisted memory wire in the stem 36. With this molded PVC configuration, the socket does not require a grip connector as the leaf tip stem 36 is secured within the socket opening using glue or other adhesive that adheres to and/or surrounds the stem 36 inside the socket opening to secure the leaf tip.

[0057] As shown in FIG. 9, a plurality of leaf tips may be joined to a single stem 224 to form a multi-tip leaf stem 218. Multi-tip leaf stems 218 provide a fuller branch configura-

tion as multiple leaf tips can be grouped in close proximity to one another while extending out further from the branch to achieve a realistic and pleasing “full” appearance. Multi-tip leaf stems also provide a larger number of support structures for ornaments, tinsel and the like, which is desirable in artificial Christmas trees.

[0058] While a branch 14 could be made with only one molded stem socket, the preferred branches shown herein have a plurality of branch stem sockets 16 clustered in nodes generally designated by reference numeral 40. The nodes 40 are spaced along the branch, with different nodes having the same or a different number of stem sockets as shown. Any of the nodes 40 may include stem sockets configured to secure either single-leaf tips 118 or multi-tip leaf stems 218, and may be made with or without grip connectors 28. However, as shown in FIG. 2, the branch 14 includes two three-way single-leaf-tip nodes 42, two four-way single-leaf-tip nodes 44, one five-way single-leaf-tip node 45, one five-way multi-tip leaf node 46 and one four-way multi-tip leaf node 48. As understood by those of ordinary skill in the art, the branch stem sockets 16 of any node 40 or along the branch 14 can be oriented at virtually any prescribed angle to cause the leaf tips or bundle to extend in the desired direction.

[0059] The nodes 40 may be molded integrally with the branch or may be formed as separate elements that are affixed to the branch. When formed as separate elements, the nodes 240 are preferably molded to include a cylindrical sleeve base part 242 through which the branch 214 extends as shown in FIG. 2A. The sleeved nodes 240 are then fastened to the branch 214 in desired locations along the length of the branch by gluing, tacking, stapling and the like. The sleeved nodes 240 may also be wrapped onto the stem with nylon or other material. The branches and nodes are preferably molded with a polymer such as PVC although other moldable materials could be used provided they comply with applicable manufacturing and consumer protection codes, such as fire codes and the like.

[0060] As shown in FIGS. 3A-3C and 4A-4C, the single-leaf-tip nodes 42, 44 illustrated in FIG. 2 have single-leaf-tip stem sockets 116 for single leaf tips 118. The openings 126 in the single-leaf-tip stem sockets 116 may be round, square or other symmetrical configuration that does not necessitate a particular orientation of the single-leaf tip when inserted within the opening.

[0061] By contrast, the multi-tip leaf nodes 46, 48 illustrated in FIG. 2, and shown in various views in FIGS. 7A-7C and 8A-8C, have multi-tip leaf stem sockets 216 that are made to receive the stems 224 of multi-tip leaf stems 218 like that shown in FIG. 9. To best accommodate the size and weight of multi-tip leaf stems 218, the stem 224 of the multi-tip leaf stem 218 has a molded insert base 50 having a shape that is complementary in shape with the opening 226 in the multi-tip leaf stem socket 216 of the multi-tip leaf nodes 46, 48 (see FIG. 9). As shown, the shape of the base 50 may be triangular, with two longer sides to assure proper location, or any other shape that will ensure that the stem 224 can only be inserted in one direction. This ensures that the multi-tip leaf stem is properly oriented on the branch, typically with most of the leaf tips that make up the bundle extending upwardly, or in the desired direction, so that the multi-tip leaf stem best contributes to the overall realism and aesthetic appearance of the final tree as assembled. Other shapes for the molded insert base 50 and corresponding

opening **226** that dictate a single mounting direction could also be used as would be understood by persons of ordinary skill in the art.

[0062] The branch stem sockets **16**, **116**, **216** are molded at desired angles with respect to the branch with “desired angles” being those angles at which the insertion of tree leaf tips **18** will produce an overall tree shape that is realistic and pleasing in appearance. Therefore, the “desired angles” may be virtually any angle but are generally dependent on the location of the particular stem socket on the branch and the position or vertical height at which the branch is mounted on the center pole. Preferred angles for the stem sockets on three-way single-leaf-tip nodes **42** and four-way single-leaf-tip nodes **44**, relative to a plane perpendicular to the longitudinal axis of the branch, are between about 30° and about 60°, and preferably about 45°, as shown in FIGS. **3A** and **4A**. Preferred angles for the stem sockets on five-way single-leaf-tip nodes **45** and five-way multi-tip leaf nodes **46**, again relative to a plane perpendicular to the longitudinal axis of the branch, are between about 10° and about 50°, and preferably about 30° as shown in FIG. **7A**. Preferred angles for the stem sockets on the four-way multi-tip leaf node **48** used at the apex of the tree are between about 45° and about 75°, and preferably about 60°, as shown in FIG. **8C**. However, while the foregoing angles are preferred, the branch stem sockets may be made at any angle to meet the desired tree design.

[0063] In the embodiment shown, the leaf tree tips **18** are made as needles **22** to resemble the leaves of a pine tree. However, artificial trees having leaves or other shapes could also be made to include the molded branch and stem socket structure of the present invention.

[0064] To further enhance the shape of the tree and the ease with which the tree may be re-assembled after a season of storage, the midrib **20** of the leaf tips preferably has a memory wire **60** (see FIG. **1C**). The tips in multi-tip leaf stems **218** are also preferably provided with memory wire **60**. The memory wire allows the leaf tips to be bent into desired shapes which will then be retained and replicated when the tree is set up after being stored in a box or carton. While the memory wire may be limited to the midrib **20** of the leaf tips, preferably the memory wire extends into the stem and thus extends into the sockets when the leaf tips are secured to the branch.

[0065] While the branch stem sockets have been shown herein as being grouped in nodes, the person of skill would understand that the branch may be molded to have a plurality of single stem sockets extending therefrom, each spaced from the others along the branch and extending from the same or different sides of the branch as desirable to obtain a full or bushy leaf distribution. In such embodiment, the molded stem sockets would preferably be integrally molded with the branch for the most realistic appearance and to best accommodate the regular or irregular spacing and placement of the sockets along the branch.

[0066] FIG. **10** illustrates an alternate configuration of a branch **114** in accordance with the present invention. In this configuration, the stem sockets are molded into fan-shaped nodes **140**, with each node having a plurality of either single-leaf-tip stem sockets **116** or multi-tip leaf stem sockets **216**.

[0067] The molded branches in accordance with the present invention may further be molded to include light set connectors or clips **85**, preferably on the side of the branches

or multi-tip leaf stems as shown in FIG. **11**, to attach a string of lights to the tree. As shown by the dotted lines in FIG. **11A**, the wire of the light set is run through the connector **85** with the husk and bulb of the light set remaining outside the clip. Light set connectors **85** can also be molded into the tips provided the material from which the tips are made is suitable, such as PE tips. Adding the light set connectors on the branch and/or the tips/bundles eliminates the need for the extra wire otherwise needed to wrap the wire around the branch/tips and also prevents the tips from being crushed from the winding and twisting of the light sets. As a result, both material and labor costs are reduced.

[0068] The artificial tree with molded branch and stem socket construction as disclosed herein allows consumers to remove the tree from the carton and, by assembling a limited number of sections together, enjoy a tree that opens itself to provide a perfectly shaped Christmas tree straight from the carton in a way not available or obtainable with existing designs.

[0069] The foregoing descriptions and drawings should be considered as illustrative only of the principles of the invention. The invention may be configured in a variety of shapes and sizes and is not limited by the dimensions of the preferred embodiment. Numerous applications of the present invention will readily occur to those skilled in the art. Therefore, it is not desired to limit the invention to the specific examples disclosed or the exact construction and operation shown and described. Rather, all suitable modifications and equivalents may be resorted to, falling within the scope of the invention.

1-20. (canceled)

21. An artificial tree comprising:

- a center pole;
- a plurality of molded polymer branches secured to the center pole, each branch having at least one branch stem socket that is molded at a desired angle;
- a plurality of tree leaf tips that include single-leaf tips and multi-tip leaf stems, said plurality of tree leaf tips being secured to the plurality of branches by the molded branch stem sockets, each of said plurality of tree leaf tips projecting from its respective stem socket at the desired angle, each multi-tip leaf stem having a plurality of tree leaf tips joined to a single stem; and
- each tree leaf tip having a midrib with needles extending therefrom and a stem that is inserted within an opening in the respective branch stem socket, the midrib having a memory wire to shape the tree leaf tip and retain said shape following storage of the tree and upon set up for use.

22. The artificial tree as set forth in claim **21**, wherein at least some of the openings in the branch stem sockets include a grip connector for securing the stem.

23. The artificial tree as set forth in claim **22**, wherein each of the stems has a ridged surface and the grip connector is configured to clamp onto said ridged surface to secure the stem in a respective socket opening.

24. The artificial tree as set forth in claim **21**, wherein the multi-tip leaf stems each include a molded insert base having a shape that is complementary in shape with the opening in the branch stem socket so that the multi-tip leaf stem can only be inserted in one direction.

25. The artificial tree as set forth in claim **24**, wherein the molded insert base is triangular with two sides being longer than the third side.

26. The artificial tree as set forth in claim **24**, wherein the molded branch includes a plurality of sockets molded in a clustered group to form a node, said branch including a plurality of nodes that are spaced from one another along a length of said branch.

27. The artificial tree as set forth in claim **26**, wherein the branch is molded of PVC or PE and the nodes are molded integral with the branch.

28. The artificial tree as set forth in claim **27**, further comprising light set connectors molded on the branch to attach a string of lights to the tree.

29. The artificial tree as set forth in claim **27**, wherein the plurality of nodes includes nodes having sockets molded to receive the single-leaf tips and nodes having sockets molded to receive the multi-tip leaf stems.

30. The artificial tree as set forth in claim **27**, wherein the plurality of nodes include nodes having three single leaf tip sockets per node, said three single leaf tip sockets being molded at an angle of between about 30° and about 60° relative to a plane perpendicular to a longitudinal axis of the branch.

31. The artificial tree as set forth in claim **27**, wherein the plurality of nodes include nodes having five single leaf tip sockets per node, said five single leaf tip sockets being molded at an angle of between about 10° and about 50° relative to a plane perpendicular to a longitudinal axis of the branch.

32. The artificial tree as set forth in claim **27**, wherein the plurality of nodes include nodes having four multi-tip leaf stem sockets per node, said four multi-tip leaf stem sockets being molded at an angle of between about 45° and about 75° relative to a plane perpendicular to a longitudinal axis of the branch.

33. The artificial tree as set forth in claim **26**, wherein the branch is molded of PVC or PE and the nodes are molded as separate elements, each node having a sleeve base part through which the branch extends when the node is connected to the branch.

34. A molded polymer branch for an artificial tree, the molded branch comprising at least one branch stem socket that is molded at a desired angle and a tree leaf tip having

a stem secured within the molded branch stem socket, the leaf tip projecting from said stem socket at the desired angle and having a memory wire to shape the leaf tip and retain said shape following storage.

35. The molded polymer branch as set forth in claim **34**, wherein the branch includes a plurality of branch stem sockets and a plurality of tree leaf tips, the plurality of branch stem sockets being formed in both spaced relationship along the branch and in clusters forming nodes, each branch stem socket being molded at a desired angle and having a tree leaf tip secured therein, each leaf tip projecting from its respective stem socket at the respective desired angle.

36. The molded polymer branch as set forth in claim **35**, wherein the plurality of tree leaf tips includes single-leaf tips and multi-tip leaf stems, each multi-tip leaf stem having a plurality of tree leaf tips joined to a single stem, the multi-tip leaf stem including a molded insert base having a shape that is complementary in shape with an opening in the branch stem socket so that the multi-tip leaf stem can only be inserted in one direction.

37. The molded polymer branch as set forth in claim **36**, wherein the nodes include nodes having sockets molded to receive the single-leaf tips and nodes having sockets molded to receive the multi-tip leaf stems.

38. The molded polymer branch as set forth in claim **36**, wherein the branch is molded of PVC or PE and the nodes include nodes having three single leaf tip sockets per node, nodes having five single leaf tip sockets per node, and nodes having four multi-tip leaf stem sockets per node, said three single leaf tip sockets being molded at an angle of between about 30° and about 60°, said five single leaf tip sockets being molded at an angle of between about 10° and about 50°, and said four multi-tip leaf stem sockets being molded at an angle of between about 45° and about 75°, said angles being relative to a plane perpendicular to a longitudinal axis of the branch.

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