United States Patent

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[54] **ARTIFICIAL TREE CONSTRUCTION**
6 Claims, 3 Drawing Figs.

[52] **U.S. Cl.** **161/14,** 52/626, 161/24, 161/27
[51] **Int. Cl.** **A47g 33/06**
[50] **Field of Search** 161/12–13, 22, 24, 27, 14; 248/27.8; 52/626

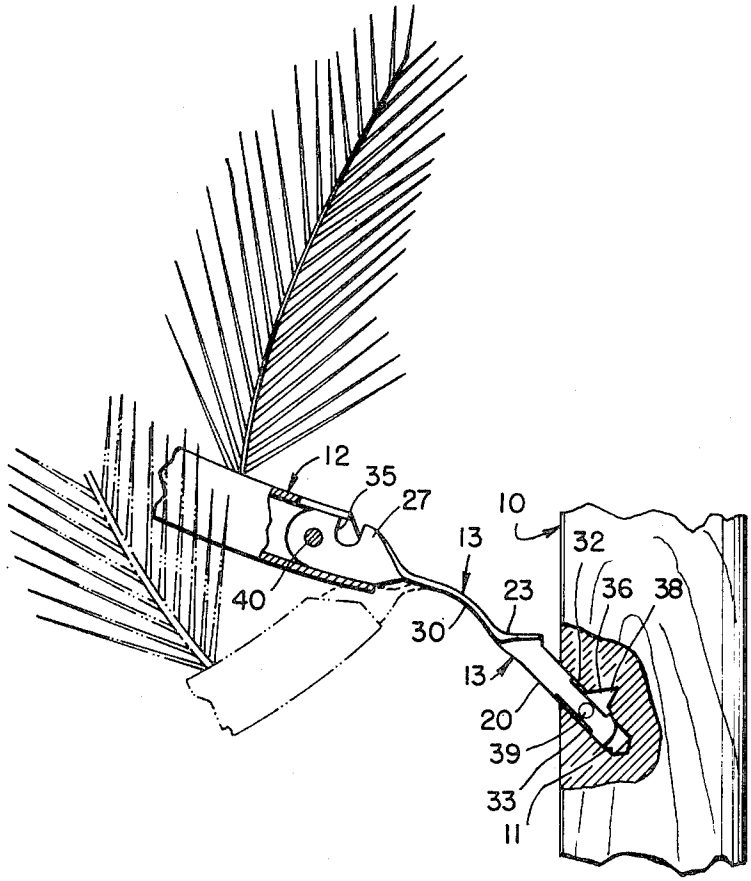
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ABSTRACT: An artificial tree wherein a trunk is provided with holes and branches are provided with connectors for insertion in the holes, the connectors being automatically resistant to withdrawal from the holes. Additional features include pivotal mounting of the branches for collapsibility of the tree in its assembled condition, and flexural deformability of the connectors for adjusting the display positions of the branches.



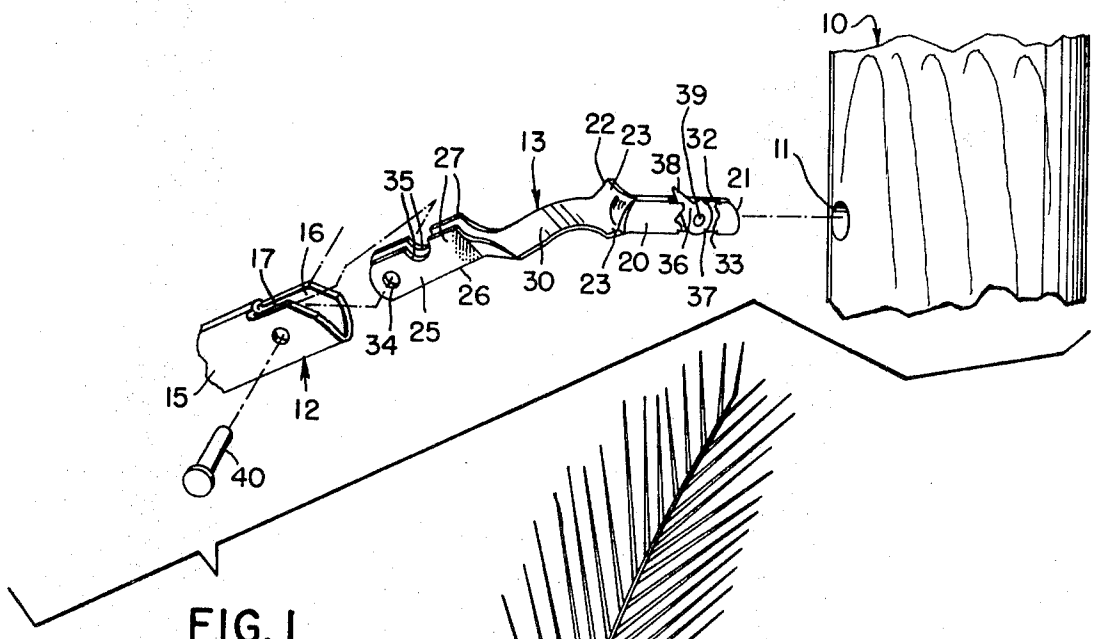


FIG. 1

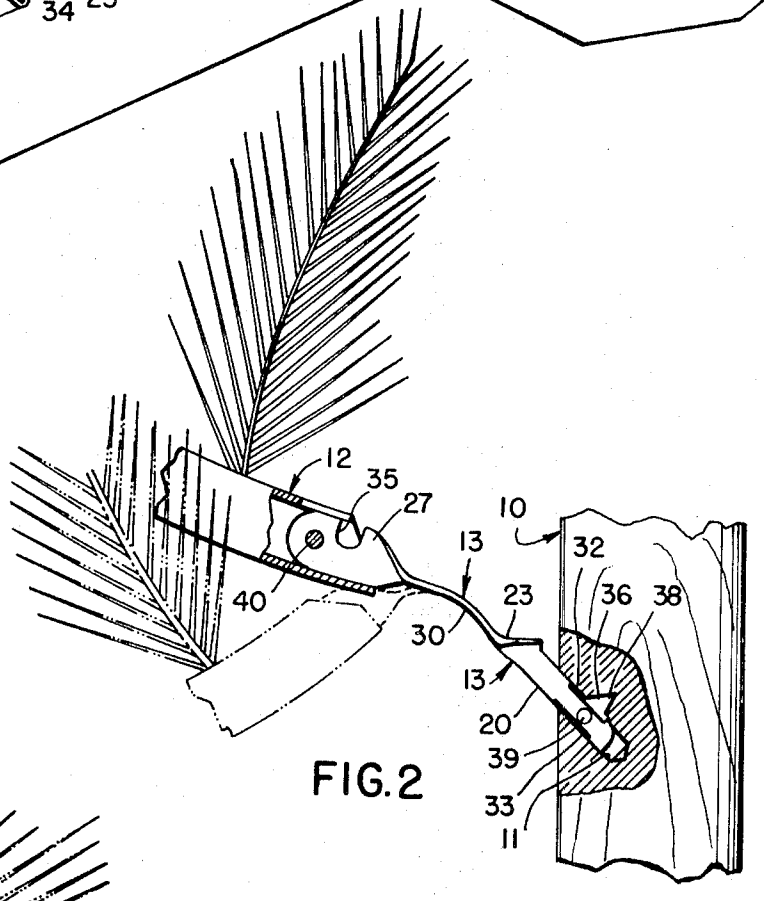


FIG. 2

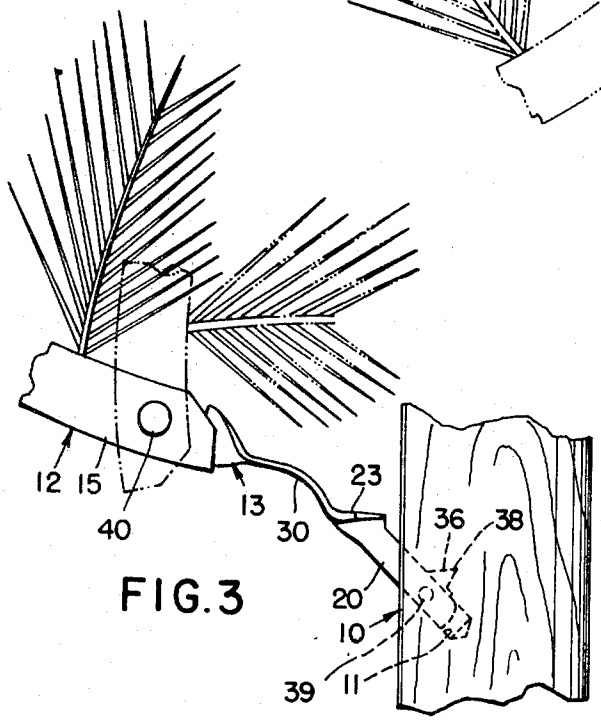


FIG. 3

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ARTIFICIAL TREE CONSTRUCTION

CROSS-REFERENCES TO RELATED APPLICATIONS

This application is related to our copending patent applications Ser. No. 552,748 filed May 25, 1966, now U. S. Pat. No. 3,459,624 and Ser. No. 610,918 filed Jan. 23, 1967 now U.S. Pat. No. 3,463,696.

BACKGROUND OF THE INVENTION

As is well known to those versed in the art of artificial trees, particularly Christmas trees, serious problems have existed in affording the consumer the desired convenience in setting up or erecting a tree, together with the required stauchness and durability of the tree when in use, as well as ease and speed in preparing the tree for extending storage in a minimum of space.

SUMMARY OF THE INVENTION

Accordingly, it is an important object of the present invention to provide unique and highly advantageous improvements in artificial tree constructions which greatly simplify initial setting up or erection of the tree by the user, with a minimum of skill and instructions, while retaining the desired knocked down condition for economy of space and freight during distribution.

It is another object of the present invention to provide an artificial tree construction of the type described wherein the setting up or erection procedure produces a staunch and sturdy tree substantially incapable of inadvertent or accidental disassembly.

It is another object of the present invention to provide an artificial tree construction of the type described which is highly versatile in appearance and use, being capable of simple adjustment by the average person to assume an infinite variety of contours and configurations.

It is still another object of the present invention to provide an artificial tree construction having the advantageous characteristics mentioned in the preceding paragraphs, which may be quickly and easily collapsed to a storage position occupying a minimum of space, all without disassembly of component parts, and subsequently re-erected by an equally simple and rapid procedure.

Other objects of the present invention will become apparent upon reading the following specification and referring to the accompanying drawings, which form a material part of this disclosure.

The invention accordingly consists in the features of construction, combinations of elements, and arrangements of parts, which will be exemplified in the construction hereinafter described, and of which the scope will be indicated by the appended claims.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a partial perspective view, partly exploded and partly broken away, illustrating unique structural features of the instant artificial tree construction.

FIG. 2 is a partial elevational view, partly broken away, illustrating the assembled condition, and showing a mode of adjustment in phantom position.

FIG. 3 is a side elevational view similar to FIG. 2, but illustrating a collapsed or storage position in dot-and-dash outline.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring now more particularly to the drawings, an artificial tree trunk is there generally designated 10, and may comprise a post, rod or standard, say of wood or other suitable material, formed with a plurality of recesses or holes 11, say by drilling, or other suitable means. The holes 11 may be formed at longitudinally and circumferentially spaced locations along the post or trunk 11, preferably being blind holes, as illustrated, and extending transversely of the trunk, obliquely upwardly and outwardly to an open upper end.

A plurality of branches, as generally shown at 12, are provided in association with each trunk 10, which branches may be of the type disclosed in our above recited prior, copending patent applications. Associated with each branch 12 is a connector, generally designated 13, which is attached to an adjacent end of a respective branch 12, and in turn connected to the trunk 10, as by insertion into a respective trunk opening or hole 11.

Each branch 12 may be of generally tubular formation, including a hollow tubular body 15 having one end portion open, as at 16, adjacent to the trunk 10. The upper region of the inner end of each branch body 15 is cutaway, so as to define an upwardly opening end notch 17.

The connector 13 may be an elongate member fabricated, say by stamping of stiff, bendable or deformable sheet metal, or otherwise formed of any suitable material. One end region 20 of the connector 13 may be formed into a generally tubular configuration, being of generally constant cross section from its free end 21 inwardly to an enlarged region 22, which may be defined by laterally outstanding wings 23.

The opposite end region 25 of the connector 13, may be stiffened by suitable means, such as a longitudinally extending bend 26 defining a pair of generally parallel, facing wall portions 27. That is, the parallel wall portions extend longitudinally of the connector 13 inwardly, and merge into an intermediate connector portion 30. The intermediate connection portion 30 is integral with the end connector portions 20 and 25, and is generally flat or planar in its transverse direction. The planar dimension of intermediate connector portion 30 extends transversely of the parallel wall portions 27.

The connector end portion 20 is provided with a pair of diametrically opposed longitudinally extending, closed end cutouts or slots, as at 32 and 33. In the illustrated embodiment, the slot 32 is uppermost, being formed at the seam or juncture of the rolled tubular end portion 20, while the slot 33 is formed in a lower region of the end portion 20.

The opposite or distal end portion 25 of the connector 13 may be formed with a pivot receiving hole 34 passing through both of the walls 27 in alignment with each other. The upper edges of the walls 27 may be notched or cut out, as at 35, all for purposes appearing presently.

Located within the tubular end portion 20 of the connector 13 is a separate member 36, which may be generally flat and formed with a lower relatively large portion 37 and an upper portion 38 tapering to a point. The lower larger portion 37 of member 36 may be received in lower slot 33, while the upper pointed portion 38 projects through the upper slot 32. A pivot member or pin 39 may extend transversely through the connector end region 20, and through the relatively large lower portion 37 of member 36, thereby pivotally mounting the member 36 for swinging movement relative to the connector end portion 20. As best seen in FIG. 1, the point of the member 36 extends oblique to the connector, projecting externally therefrom through the slot 32 and extends generally in the direction away from connector end 21. In this position, the movement of member 36 is limited against rotation in the counterclockwise direction, as seen in FIG. 1, by engagement with an end of the slot 32. From the position shown in FIG. 1, the pointed or barb member 36 is swingable clockwise to a position shown in FIG. 2 with the pointed end projecting transversely outwardly a substantial distance from the end portion 20.

In assembly, the connector end portion 25 is engaged in the end opening 16 of a branch 12, and a pivot or pin 40 is passed transversely through the end region of branch 12 and engaged through the openings 34 of walls 27. That is, the pivot pin 40 extends generally horizontally through the branch 12, beneath the end notch 17, and pivotally attaches the connector 13 to the branch. By this construction, the branch 12 is swingably attached to the connector 13, as for swinging movement between the solid and phantom positions shown in FIG. 3. In the latter, phantom position, the connector end region 25 is received in the branch end notch 17, the connector notches 35 permitting of greater swinging movement.

The subassembly of branch **12** and connector **13**, as described hereinbefore, may be quickly and easily assembled with the post or trunk **10**. It is only necessary to insert the connector end portion **20** into a selected trunk hole **11**, preferably oriented with the pointed member **36** having its pointed portion **38** uppermost. The pointed portion **38**, as by its oblique extension away from the entering connector end **21** defines a bar, and rides relatively easily into the receiving hole **11**. However, upon slight withdrawal of the branch **12** and connector **13** away from the trunk **10**, the barb member **36** pierces its pointed region **38** into the material of the trunk, swinging relative to the connector **13** to its outstanding position of FIGS. **2** and **3**. In the latter position, the barb member **36** substantially positively retains the connector **13** with its end portion **20** inserted in the receiving hole **11**.

As seen in FIG. **2**, the branch **12** is restrained against downward swinging movement by abutting engagement of the lower region of the branch tube **15** with the underside **26** of the connector end portion **25**. However, a substantial degree of adjustment is afforded to the branch **12** by manipulation of the latter to effect deformation in bending of the generally transversely flat intermediate connector portion **30**. Witness the phantom position of the branch shown in FIG. **2**, wherein the branch has been adjusted from an outwardly inclining relation to an outwardly declining relation by flexure of the intermediate connector portion **30**. While the flexural stiffness of the connector portion **30** is preferably adequate to maintain the branch **12** in any desired position, together with any ornaments carried thereby, and sufficient to resist inadvertent forces applied thereto, the intermediate connector portion **30** may be readily flexed and deformed by manual movement of the branch **12**, the latter providing a very substantial lever arm.

When a tree of the instant construction is to be stored, disassembly is not required in order to obtain storage in a relatively small space. Rather, it is only necessary to swing the branches **12** upwardly about their attachment pivots **40** to lie closely along the trunk **10**. This storage condition is shown in dot-and-dash outline in FIG. **3**. Of course, the tree construction of the instant invention may be preassembled and shipped in the collapsed, phantom condition of FIG. **3**, if desired.

Upon repeated use of the instant tree construction it then is necessary only to swing the branches **12** downwardly to their limiting positions of movement, as shown in solid lines in FIG. **2**, and the tree is ready for use.

From the foregoing, it is seen that the present invention provides an artificial tree construction which eliminates the need for disassembly to permit of storage in an economical space, affords a high degree of versatility in contour and configuration, provides a durable, staunch and reliable structure for long usage, and otherwise fully accomplishes its intended objects.

Although the present invention has been described in some detail by way of illustration and example for purposes of clarity of understanding, it is understood that certain changes and modifications may be made within the spirit of the invention.

What is claimed is:

1. An artificial tree construction comprising a trunk having outwardly opening transverse holes, a plurality of connectors each having one end insertable in one of said holes, the other end of each connector extending exteriorly of said trunk, a barb on said one end of each connector for entry in said trunk and retaining engagement therein, a branch extending from said other end of each connector, and attachment means attaching each branch to its associated connector.

2. An artificial tree construction according to claim **1**, said barb comprising a separate pointed member pivotally connected to said connector for swinging movement between a retracted insertion position with its point extending exteriorly of and slightly oblique to said connector away from said one connector end and an extended retaining position with its point projecting transversely outward from said connector.

3. An artificial tree construction according to claim **2**, said one connector end being tubular and having a longitudinal slot, and said pointed barb member being pivotally connected interiorly of said tabular one connector end with its point extending through and beyond said slot.

4. An artificial tree construction according to claim **1**, said attachment means comprising a pivotal attachment between the other end of each connector and the adjacent end of the associated branch, for swinging movement of each branch between a display position outstanding from said trunk and a storage position extending along said trunk.

5. An artificial tree construction according to claim **4**, said branches each being tubular and having one end in receiving relation with said other end of the adjacent connector, said pivotal attachment extending transversely through each branch and the received other end of the associated connector, and said branches each being cutaway on its upper side to define a notch receiving said other connector end when the branch is in its storage position, the lower region of each branch being engageable with the associated connector to limit downward swinging of the branch to its display position.

6. An artificial tree construction according to claim **5**, said connectors each having a generally flat intermediate portion of stiff bendable material, for flexure thereof to adjust the display position of the associated branch.