Nov. 17, 1964 J. I. ADLER, JR 3,157,558

ARTIFICIAL FOLIAGE DISPLAY STRUCTURE

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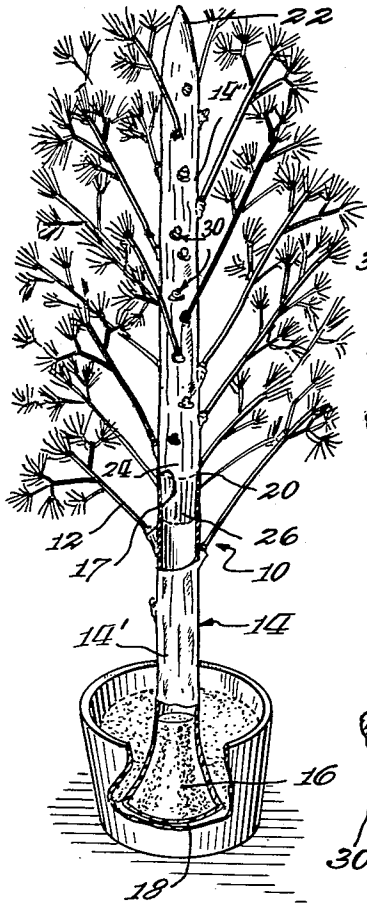


Fig. 1

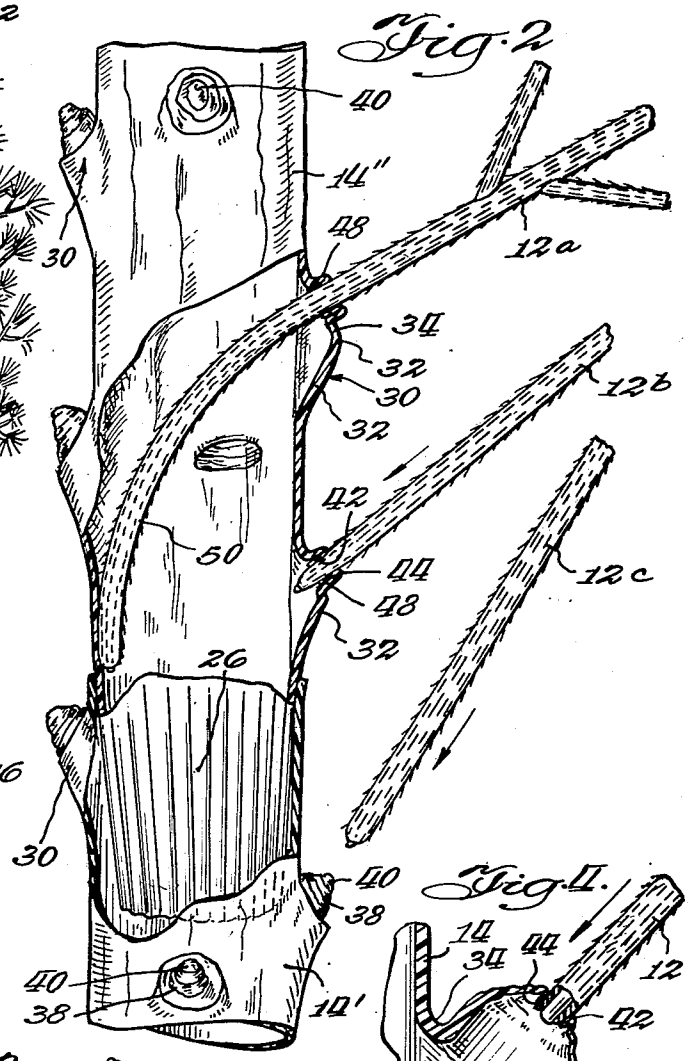


Fig. 2

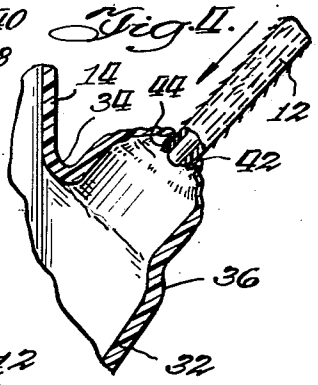


Fig. 4

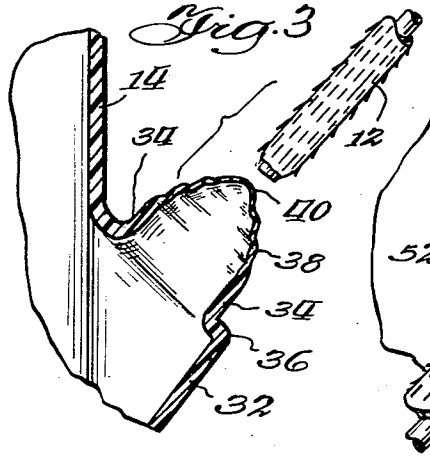


Fig. 3

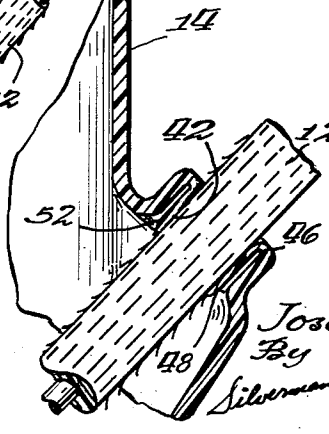


Fig. 5

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ARTIFICIAL FOLIAGE DISPLAY STRUCTURE

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This invention relates generally to artificial foliage display structures and more particularly, concerns the provision of a novel supporting element for branches of artificial foliage whereby to form a display which is more natural in appearance than for heretofore available foilage displays.

Generally, displays of artificial foliage which are intended to simulate the appearance of naturally occurring bushes, miniature trees, and the like, consist of a plurality of branch members carrying foliage thereon which are secured at spaced locations along the length of a vertical standard or trunk member. The branches are securely fastened to the trunk member in such a manner that they are directed angularly outward therefrom. The trunk with the branches so affixed was inserted into a container or pot filled with a material such as sand, gravel, plaster or the like, to anchor the trunk therein.

Heretofore, appearances and distribution of branches on the trunk so as to reasonably simulate their naturally occurring counterparts have been difficult and costly to achieve. The foliage itself was not the problem since, leaves, branches, berries and the like have been formed by molding or otherwise shaping plastic, rubber, papermache and the like to configurations and surface textures similar to the naturally occurring element. The serious problems were encountered with respect to the supporting element for the branches—namely—the trunk member. Primary among such problems has been the difficulty in so mounting the branch members to the trunk whereby to realize end products whose appearance simulates that of the naturally occurring foliage.

The art has been limited to a relatively few types of trunk members and means for attaching the branches thereto. Common among such structures involve the use of solid wooden or metal members of generally cylindrical configuration. Branch receiving means comprising cone-shaped sleeves have been attached to these members by either taping same thereto, by adhesives, or, in the case of metal members by welding the sleeves to the same. Each of the sleeves was closed at one end thereof and provided with a mouth facing upwardly thereby forming an entrance into an angled passageway capable of receiving the end of the branch member therein. Prominent among the disadvantages of such structures has been the great amount of hand labor required to assemble same to the trunk member. Moreover, because all sleeves are exposed to view, all must be utilized. Thus, there is no opportunity for the arranger to use the trunk element to form a foilage display utilizing any selected number of branch members since all of the sleeves had to be filled. In addition, the use of tape for securing the sleeves to the trunk member resulted in a smooth, relatively uniform exterior surface on the trunk which markedly reduced the similarity between the resulting display and the natural element.

A second widely accepted method of assembling an artificial foliage display involves the use of a natural tree trunk to which is affixed a plurality of artificial branches by stapling or like exterior fastening means. In this instance, the staples, being visible, detract from the finished appearance of the display. In addition, there is the laborious and expensive manual assembly operation involved which greatly increased the cost of the finished article.

It has been known to provide hollow tubular elements

as supporting structures for artificial foliage which are widely used in the commercial display field. One of these elements comprises an elongate tubular member intermittently bent along the length thereof and having chuck means for removably securing the branch member therein, said chuck means comprising a socket or opening in the tubular member formed by removing or slicing a segment from the circumferential wall of said tubular member at the bends therein. This structure is not suitable for accomplishing the objects of the herein invention because of the structural limitations thereof. First, the said structure is not intended to accommodate a large number of branches so as to form a natural looking bush or tree, for instance, the number of branches accommodated being limited to the number of possible bends in the standard. Secondly, the support member serving as the trunk thereof was smooth and regular in surface configuration. Further, the chuck means could not readily be arranged in a pattern simulative of the natural growth pattern of the plants reproduced, and each chuck means provided had to be filled with a branch. Further, the trunk had to be mounted on a specially constructed pedestal or holder member capable of supporting the tubular member in an upright position.

Another form of the hollow tubular support member heretofore utilized comprises a trunk element molded of rubber and having a surface configuration intended to simulate a natural tree trunk. Because of the characteristics of rubber materials, the walls of the trunk element are of substantial and uniform thickness along the length thereof. In many instances, solid rubber molded members are used. The means for securing the branch members to the trunk element are provided by holes drilled therein at selected locations thereon. Such drilling operations are time-consuming and require accurate spotting which contributes to many rejections for lack of skill or experience of the worker during the course of manufacture. Not only is the molding of elongate lengths of rubber expensive, but production rates thereof are likewise low, so as to substantially increase the cost of manufacture.

Another substantial disadvantage of heretofore available supporting elements for artificial foliage arises from the lack of vertical stability thereof when completely fitted out with branch members in display array unless suitably anchored because the display tends to be top heavy and generally has required the use of specially designed base supporting members.

Accordingly, the principal object of the invention is the provision of an artificial foliage display structure having a trunk element which substantially eliminates the heretofore described disadvantages, as well as others.

Another object of the invention is the provision of an artificial foliage display structure having a hollow, molded trunk member, the outer surface thereof being simulative of the texture and contour of a natural tree trunk, said trunk member having novel means integrally formed thereon for removably securing a plurality of foliage bearing branch members thereto.

Another object of the invention is to provide a trunk member as described in which said means comprise hollow formations each having an upper end closed by a web which is adapted to be punctured and collapsed to form a passageway defined by an extensible stretchable collar which is adapted to grasp the surface of the branch member inserted therethrough into the interior of said trunk member until the branch member has a portion bearing against an inner wall of the hollow trunk member.

Another object of the invention is the provision of a trunk member of the character described which comprises, at least a pair of substantially cylindrical, hollow elements each closed at one end thereof, one element having an

outwardly flared portion at its closed end serving as a base, the other, having an open opposite end slightly tapered and serving as the main branch supporting standard, said elements adapted to be telescopically coupled together to form the trunk member.

An additional object of the invention is to provide a hollow molded trunk element having a plurality of thin wall, dome-like formations each closed at the outer end thereof and adapted to be punctured by a branch, said formations being angularly disposed relative to the vertical axis of the trunk element and spaced around and along the circumference thereof.

Other objects of the invention relate to the adaptability of the trunk member to be produced by blow-molding techniques, simulation of a wide and differing variety of naturally occurring foliage displays, economy of manufacture and ease of assembly into the desired foliage displays, substantial reductions in shipping and storage costs because of the collapsibility thereof, as well as others.

A detailed description of a preferred embodiment of the invention follows with reference to the illustration thereof in the accompanying drawing. It is to be understood that variations in the size, proportion, arrangement of parts, material and method of formation may occur to the skilled artisan without departing from the scope or sacrificing any of the advantages of the invention.

In the drawing, where the same reference characters are employed to identify the same or equivalent parts throughout the several figures thereof:

FIG. 1 is a perspective view of an artifical potted plant formed from the supporting member embodying the invention and illustrated with a plurality of branches or sprigs of foliage assembled thereto.

FIG. 2 is an enlarged, fragmentary, side elevational view of a pair of supporting members telescopically assembled together, portions thereof being broken away to show details.

FIG. 3 is a sectional view taken through a portion of the supporting member illustrated in FIG. 2 and illustrating the initial stage in the assembly of a branch member to the supporting member of the invention.

FIGS. 4 and 5 are sectional views similar to FIG. 3 which illustrate progressive stages in the assembly of the branch member to the support member.

Referring to the drawing, there is illustrated in FIG. 1 an embodiment of the invention in the form of an artificial potted plant, same being designated generally by reference numeral 10. The artificial plant 10 is formed of a plurality of branch members 12 secured to a vertically arranged trunk member 14 constructed according to the invention. The trunk 14 comprises at least a pair of hollow, elongate elements 14' and 14''. Element 14' has an enlarged portion 16 at the lower end thereof which is flared outwardly to provide a substantially flat base 18. The upper end 17 of element 14 is open with the lip 20 thereof slightly flared outwardly. The second element 14'' is longer than element 14' and has a closed upper end 22 and is open at its opposite end 24. Depending from said end 24 and integral therewith is a downwardly depending convergently tapered cylindrical formation or extension 26. Said formation or extension 26 is telescopically engageable within the upper end 17 of element 14', thereby forming the upright trunk 14. Element 14' is adapted to be filled with a ballast material, such as, sand, plaster, gravel, shot and the like so as to contribute added vertical stability to the overall display.

The trunk 14 is provided with a plurality of outwardly and upwardly protruding sleeve formations 30 integral therewith, said sleeve formations 30 providing the novel securing means of the invention. These sleeve formations 30 are disposed obliquely at selected areas around the circumference and along the entire length of trunk member 14 and preferably, in greater number upon element 14'' than upon element 14'. Each of the sleeve formations 30 is defined by an upwardly-extending arcuate wall 32 having the configuration of a segment of a cylinder and having the same or substantially the same thickness as the cylindrical wall of the trunk 14. A connecting top wall 34 is provided to join the upper lip 36 of wall 32 to the trunk 14. The top wall 34 is provided with an outwardly extending, dome-like web or diaphragm 38, said diaphragm 38 being of gradually reduced thickness toward the apex 40 thereof and is thinnest thereat. The diaphragm 38 is adapted to be punctured and collapsed when a rigid instrument is forcefully pressed against the apex 40 thereof. The initial opening 42 formed as a result of the puncture of diaphragm 38 is surrounded by an annular lip 44 which is smooth and unbroken. This lip formation 44 is intended to bear resiliently against the puncturing agent as it is inserted into the sleeve formation. The initial puncture may be made by utilization of any suitable pointed instrument, whereupon, the branch member 12 may then be forced through the opening 42 past the lip 44. Where a sufficiently rigid branch member is used, it may even serve as the puncturing instrument or tool.

As the opening 42 is enlarged due to the passage of the branch 12 thereinto, the lip 44 is stretched to form a collar 48. This occurs because the lip 44 clings resiliently to the branch surface and maintains a secure grip thereupon. As the branch 12 is urged further past the the opening 42, the collar 48 is lengthened appreciably. In that stage of assembly, the lip 44 then is deformed to constitute an annular shoulder 46 and a collar 48. The collar 48 actually consists of the remaining diaphragm turned back upon itself.

Referring to FIG. 2, there is illustrated a number of branch members, each in different stages of assembly to form the display 10. The uppermost branch member 12*a* is shown in final, assembled position, fully inserted into the interior of the trunk 14 and having a portion 50 of the stem thereof bearing against the interior surface of the hollow trunk 14 opposite the opening 42. The collar 48 is shown frictionally engaged around portion 50 of the branch adjacent thereto and holding same tightly in position. The weight of the foliage upon the branch 12*a* causes the lower portion 50 of the branch to bear upwardly against the inner wall of the trunk 14 thereby bracing and holding the branch 12*a* in desired position. The angle at which the branch 12*a* extends outwardly relative to the trunk 14 is generally determined by the extent of penetration permitted said branch 12*a*. It is noteworthy that the penetration of the branch after puncture of the diaphragm of web 38 causes the formation of the collar 48 which may be used to securely grasp and hold the branch in place even without the bracing action of portion 50 of the branch against the interior surface of the trunk. However where the foliage placed upon said branch is thicker and heavier, the branch must be inserted so as to engage the portion 50 against the interior wall of the trunk, as described to prevent the branch from flopping around or falling from the trunk.

Branch member 12*b* is illustrated in an intermediate stage of assembly. Here, the branch 12*b* has been inserted a short distance into the interior of the dome-like formation 32 and lip 44 formed surrounding opening 42. In this instance, the branch 12*b* is the puncturing instrument. There is shown the initial formation of collar 48 from the lip 42 as the branch 12*b* is inserted deeper.

Branch member 12*c* is illustrated just prior to forcibly urging the end thereof against the web or diaphragm 38 at the apex 40 thereof. The arrow illustrates the direction of thrust given the branch members 12 to secure them to the trunk member 14.

In FIG. 3, the branch member 12*c* is shown only slightly spaced from the apex 40 of diaphragm 38 at a stage immediately prior to puncture of the diaphragm 38. FIG. 4 illustrates the position of the branch immediately upon puncture of the diaphragm 38. FIG. 5 illustrates formation of the lip 44 into the collar 48 during the con-

tinued entry of the branch 12 into the interior of the trunk 14. It should be noted that the collar 48 will be lengthened with attendant widening of the opening 42 until the outer portion 52 of the collar 48 is tightly engaged with the interior of the sleeve formation 30. Thus it can be seen that the web, once punctured, will hold any thickness of branch, up to the maximum diameter of the opening 42. Since the size of any selected opening 42 depends upon the thickness of the branch urged therepast, once the diaphragm is punctured, any thickness of branch may be used provided it is the same or thicker than the original branch. Even branches of lesser diameter stem portions may be secured to the trunk 14 because of the bracing action of a portion thereof in the interior of the trunk.

Moreover, it is evident that all the sleeve formations 30 need not be used. Note that said sleeves normally are closed until punctured. Hence, those sleeve formations 38 which are not needed to form the finished display, remain unpunctured and fail to detract from the natural appearance of the trunk. The dome-like formations 38 thereof appear to be buds or remaining segents of fallen branches such as often are to be seen in nature.

The collars 48 so tightly grip the branches 12 that the same are quite unlikely to easily fall from their position or succumb to easy removal without the exertion of force. However, once the removal is affected, the branch may be reinserted without any substantial loss in frictional gripping power.

The invention also contemplates the formation of a third trunk element (not illustrated) which could have both ends open and of substantially like diameter. The tapered formation similar to formation 26 is placed at one end of the third element and the other end thereof is similar in configuration to that end of the element 14' having lip 20. Thus the third element is adapted to be inserted between members 14' and 14'' to form a taller trunk 14.

The invention also contemplates the provision of means such as an insert to permit use of a forked trunk element whereby to even more closely simulate the natural V or Y bends of trees and the like.

It can be seen that the invention is well adapted to a modular construction and can be knocked-down for shipment and/or storage, and then assembled to provide the attractive and natural simulating artificial foliage display desired. Noteworthy is the fact the branches extend angularly outward from the trunk and can be given pleasing and natural draped appearances by bending and arranging the branches after they are secured to the trunk. This is especially desirable for making artificial bushes, ferns and leafy trees whose branches have slight arching or bowing along the lengths thereof.

The molded trunk member 14 is formed preferably by the extrusion or the injection processes of molding characteristically described as blow-molding technique. The said structures may be formed of almost any available thermoplastic material, including polyethylene. polypropylene, polycarbonates, nylon, vinyls and the like, but preferably is formed of high-density polyethylene. The blow-molding technique is preferable because it is a fast, easy technique for forming hollow articles in a single piece, in a single continuous cycle, and still is conservative of material. The fact that the structure according to the invention is well adapted to be formed by the blow molding technique is a distinct advantage of the invention and contributes greatly to its economy.

It is believed that the invention has been described in sufficient detail whereby to permit the skilled artisan to understand and practice same. The invention has been pointed out distinctly in the appended claims in language intended to be broadly and liberally construed.

I claim:

1. An artificial foliage display structure comprising a plurality of branch members each bearing characteristic foliage thereon and a hollow molded trunk member having means for securing said branch members in angular relation thereto along the length thereof, said means comprising a plurality of individual, normally imperforate, hollow dome-shaped formations on the circumference of said trunk member and integral therewith, spaced along the length thereof, and protruding outwardly therefrom, each formation having a puncturable diaphragm at the outer end thereof, said diaphragm being of gradually decreasing thickness in a direction toward said outer end thereof whereby to collapse, upon puncture and to comprise an inwardly depending collar frictionally to receive a branch member therethrough to hold same.

2. The display structure as claimed in claim 1 in which said trunk member comprises a pair of substantially cylindrical hollow members telescopically engaged to form a vertically upright structure, one of said members having an enlarged bottom end for containing ballasting material to stabilize the assembled structure in said vertical disposition.

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