Oct. 31, 1933. A. G. HOWARD 1,933,495

ARTIFICIAL TREE

Filed July 11, 1932

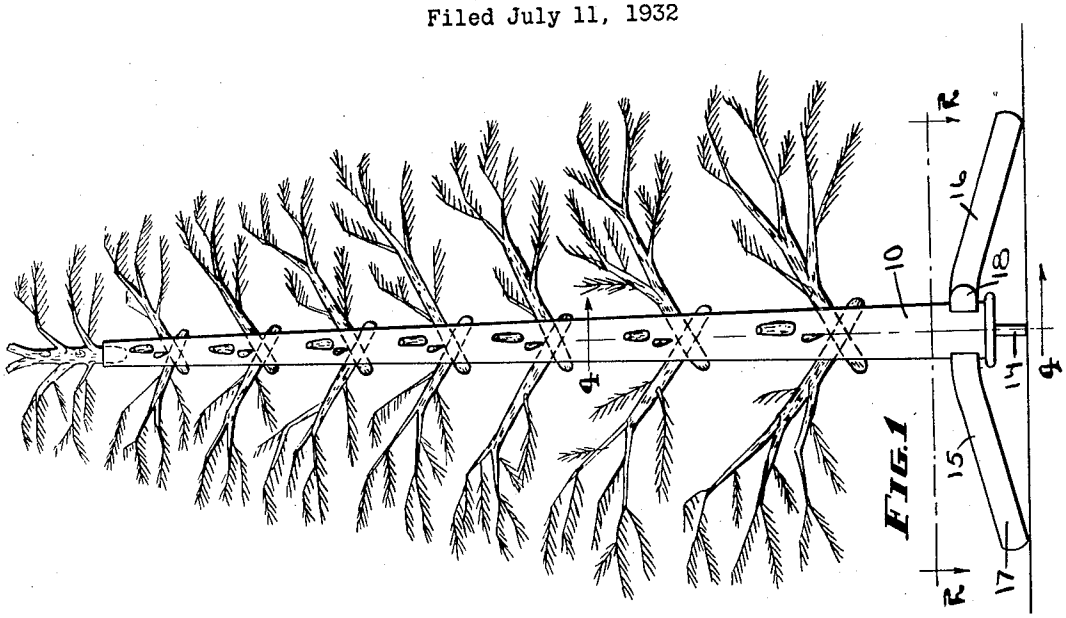


FIG. 1

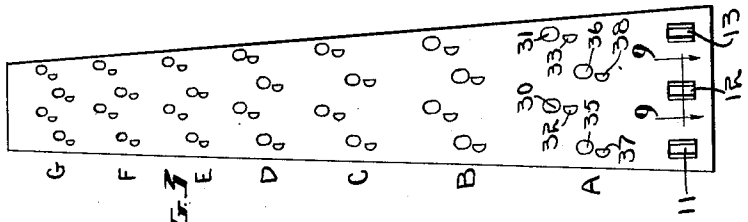


FIG. 3

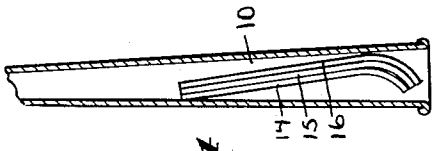


FIG. 4

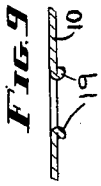


FIG. 9

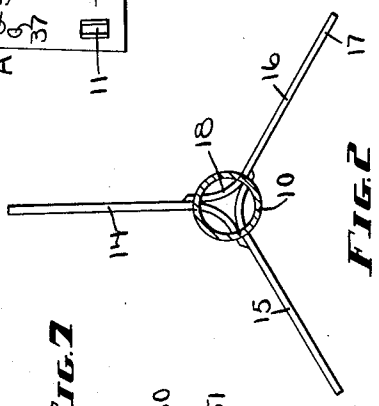


FIG. 2

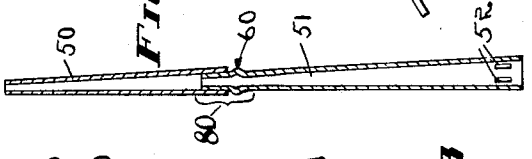


FIG. 7

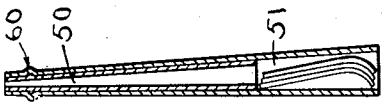


FIG. 8

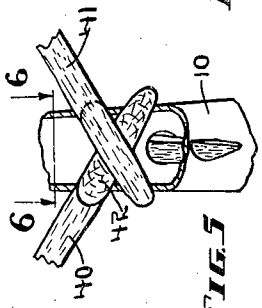


FIG. 5

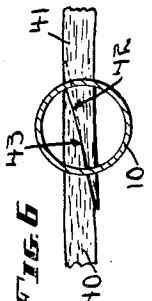


FIG. 6

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ARTIFICIAL TREE

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Application July 11, 1932. Serial No. 621,845

11 Claims. (Cl. 41—15)

This invention relates to improvements in artificial trees and it is the general object of the invention to provide a simple and durable trunk and support therefor arranged to hold boughs or branches securely to the trunk.

It is a further object of my invention to provide the trunk with a durable form of support, made preferably of sheet metal legs one end of each of which is curved to pass through the trunk and have holding engagement with the other of the legs. I have found that three legs operate satisfactorily and when pushed firmly in position not only support the trunk but brace each other.

It is a still further object of my invention to form the said legs so that the aforesaid curved ends will be properly proportioned to fit into the larger end of the conical trunk, all of the metallic parts of the tree being thus easily assembled for shipment.

If desired more than one section of the trunk can be used in which case the upper sections telescope on the lower section, the lower section being sufficiently large to house the upper sections as well as the legs.

In imitation trees it is desirable that the separate boughs which are applied to the trunk be held tightly in position and it is a further object of my invention to provide a trunk so arranged that the boughs can have mutually engaging flattened surfaces held against each other by the trunk, each branch thereby preventing turning of an engaging bough should it be slightly unbalanced with respect to its selected position. This result may be accomplished by slabbing the ends of the boughs, with the butt end of each of the latter made in the form of a wedge, and then passing two ends of a pair of boughs through the trunk with the slabbed edges held against each other. In this way each member of a pair of branches braces the other member. I do not wish to be limited to the wedge form shown herein, however, since it will be within the spirit of my invention if the two boughs of a pair engage each other so as mutually to prevent turning. Certain of the holes in the trunk into which the branches project may be non-circular, if desired, although I have found in practice that this is not a necessary feature.

With these and other objects in view which will appear as the description proceeds, my invention resides in the combination and arrangement of parts hereinafter described and set forth in the claims.

In the accompanying drawing, wherein a convenient embodiment of my invention is set forth,

Fig. 1 is a front elevation of a tree made according to the preferred form of my present invention,

Fig. 2 is a detail horizontal section on line 2—2 of Fig. 1,

Fig. 3 is a development of the sheet metal trunk shown in Fig. 1, showing the same before it is rolled into conical form,

Fig. 4 is a central longitudinal section of the trunk along line 4—4, Fig. 1, showing the manner of assembling the legs,

Fig. 5 is a detail elevation, partly in section, of the trunk showing the manner in which the members of a pair of boughs interact with each other to prevent angular movement,

Fig. 6 is a detail horizontal section on line 6—6 of Fig. 5,

Fig. 7 is a view similar to Fig. 4 but showing two sections telescoped together to form the modified form of trunk,

Fig. 8 shows the manner of assembling the two telescoping sections, together with the legs, and

Fig. 9 is a detail horizontal section on line 9—9 of Fig. 2 showing the manner of forming the leg slots in the base of the trunk.

Referring to Figs. 1 to 6, I have shown the preferred form of a trunk 10 formed preferably of a single piece of sheet metal the development of which is set forth in Fig. 3. The trunk is preferably conical in form with the upper end smaller than the lower and the larger butt end is provided with three vertical slots 11, 12 and 13 which preferably are approximately 120° apart. These slots are at the same vertical level and are arranged to receive the legs 14, 15 and 16. Each leg has an outer substantially straight end 17 and an inner curved end 18. The slots 11, 12 and 13 are substantially twice the width of the thickness of the legs and preferably equal in height to the width of the legs. The slots may be formed as suggested in Fig. 9 during the punching operation, part of the metal being rolled back, as at 19, to form smooth rounded edges for the legs. This construction avoids tearing of the trunk and strengthens this portion of the trunk.

As shown in Fig. 2, the curved end of each leg passes through one of the slots and then curves around and projects through an adjacent slot, engaging the curved ends of the other two legs. When the three legs are positioned as shown in Fig. 2 it is possible, by forcing them into position, to wedge the curved ends against each other so that they are effectively and firmly held in as-

sembled position. The curved ends project slightly through the trunk so that when taking the tree apart a slight blow on the curved ends will suffice to loosen the legs.

In providing for the boughs I preferably form the trunk with several series of perforations, these series being designated herein at A, B, C, D, E, F and G. The holes of the upper series are somewhat smaller than those of the lower because of the fact that in the building of a tree shorter boughs will naturally be used near the top, while the larger boughs with thicker butts will be used at the bottom. While I have chosen to describe the perforations as being arranged in series, a condition which aids in the building of a symmetrical tree, yet the perforations need not necessarily be arranged exactly as shown in Fig. 3.

Each series may be made of four pairs of perforations and I will set forth the manner in which the holes of one series are made and how they hold their respective boughs. As seen in Fig. 3, the series A is provided with two upper pairs of perforations and also with two lower pairs. The upper pair comprises elongated openings 30 and 31, and these openings are above non-circular openings, 32 and 33, respectively. The openings 30 and 31 are preferably of greater height than breadth, and in like manner, the holes 32 and 33 are preferably formed with a straight vertical side, but all of the perforations may be circular if desired. The elongated form prevents tearing of the boughs when assembling the tree. The lower half of the series A comprises similar elongated openings 35 and 36 and semi-elliptical, or the like, openings 37 and 38.

It will be seen that the series comprise four pairs, each pair having an upper and a lower perforation. For certain aspects of my invention it may be considered that the pairs 30 and 32 together with 31 and 33 form a sub-series which provide for holding two boughs. It is to be understood that when four pairs are used in a series the boughs will extend substantially around the trunk and be spaced approximately 90°, but the manner of holding the boughs together can be understood from a consideration of a sub-series such as already named.

The pairs 30–32 and 31–33 are preferably spaced approximately 180°, while the other pair consisting of 35–37 and 36–38, being also spaced apart 180° from each other, lie midway between the pairs of the first sub-series.

After the plate has been bent to conical form as suggested in Figs. 1 and 2 the circular hole 30 will lie substantially opposite the semi-circular hole 33 and in like manner the hole 31 will be diametrically opposite the semi-circular hole 33. Two boughs 40 and 41 are then selected and their ends slabbed, as at 42 and 43, respectively, the plane or cut surfaces being placed so that they will be vertical when the bough is in the position desired. The two wedge shaped ends of the boughs are then inserted, as suggested in Fig. 5, through the upper circular openings of a sub-series, and the lower or small ends of the wedges are projected downwardly to pass through the diametrically opposite semi-circular opening of the same sub-series. The semi-circular openings assist somewhat in preventing angular movement of the boughs, but the engagement of the flat surfaces is relied upon chiefly to prevent turning of the boughs. If the wedge butts of the boughs are forced into the trunk tightly the ends will be bowed somewhat and placed under a bending strain such as will hold the branches tightly in place.

The vertical distance between the holes of any pair may be chosen to give the desired upward inclination of the branches, and this distance may be less with the upper series, G and F for instance, than with the lower series A and B. In this way the diminishing diameter will not cause a difference in angular relation of the branches such as would be the case if the distance between the perforations of the pairs remained constant throughout the length of the trunk. In this connection, however, I do not wish to be limited to the arrangement of the holes of a pair so far as the angle of the branches is concerned.

As shown in Fig. 4 the legs have been taken apart and inserted in the larger end of the trunk for purposes of shipping.

In the modified form of the invention, as shown in Figs. 7 and 8, I may use two trunk sections, the upper section telescoping onto the lower and being small enough to fit within the larger bottom section. As shown in Fig. 7 I have set forth upper and lower sections 50 and 51, respectively, the lower section being provided with slots 52 for the legs and a bead 60 to position the upper section. The latter is so formed that its largest exterior diameter is less than the largest interior diameter of the lower section, but is still sufficiently large to receive the legs for shipping purposes as shown in Fig. 8. As seen in Fig. 7 the upper trunk section is shorter than the lower section so that it may fit into the latter and provide room for the legs, as shown in Fig. 8.

The length of the splice 80, Fig. 7, is preferably less than the distance between adjacent series of perforations to avoid interruption of the correct spacing of the limbs or boughs. The latter will be distributed and assembled on the upper section as well as the lower to imitate a tree in a manner similar to the preferred form. The upper trunk section can be turned on the lower section to cause symmetry of limb placement, or it can be turned to set the upper boughs between those of the lower section to give a varied appearance.

From the foregoing it will be seen that the legs of the tree trunk are so formed that they wedge each other into position and yet are so related to the trunk that they can be quickly disassembled. Furthermore, the trunk is so proportioned with respect to the curved ends of the legs that the latter may be nested within the trunk for purposes of shipping. It will also be seen that I have provided a simple and durable form of artificial tree having a hollow sheet metal trunk formed preferably as a shell and arranged with opposite pairs of holes, the upper member of each pair being large enough to receive the full diameter of a bough, and the lower member of each pair receiving the reduced end of the branch and being so placed as to force the slabbed or wedged ends of the boughs together. The flat surfaces of the boughs brace each other to prevent angular turning with respect to the trunk so that any ornaments or the like which are added to the tree can be held in place without danger of falling. The pairs of each group relating to an interconnecting pair of branches are preferably diametrically opposite each other so as to balance the tree, and the lower member of each pair may, if desired, be formed to receive the reduced or wedge shaped end of the branches, although this latter feature is not essential.

Having thus described my invention it will be

seen that changes and modifications may be made therein by those skilled in the art without departing from the spirit and scope of the invention and I do not wish to be limited to the details herein disclosed, but what I claim is:

1. In an artificial tree, a pair of branches each having a flat surface, and means to hold the flat surfaces in engagement with each other to prevent angular movement of the branches.

2. In an artificial tree, a trunk, a pair of branches, each branch having a flat surface and means on the trunk to hold the flat surface of the branches against each other to prevent turning of the branches.

3. In an artificial tree, a trunk, and a pair of branches the butt ends of which are wedge shaped, each end having a substantially flat surface, said ends extending through the trunk with the flat surfaces in engagement with each other to prevent angular movement of the branches.

4. In an artificial tree, a hollow metallic trunk having diametrically opposite pairs of perforations, one perforation of one pair being above a perforation of the other pair, and a pair of branches each extending through an upper perforation down through the trunk and into the diametrically opposite perforation, and interengaging surfaces on the branches to prevent turning of the latter on their axes.

5. In an artificial tree, a trunk having diametrically opposite pairs of perforations, each pair having an upper and a lower perforation, and a pair of branches each having a wedge shaped end with a substantially flat surface, each branch extending through the upper perforation of one pair and the lower perforation of the opposite pair, the branches being held so that the flat surfaces are in engagement with each other to prevent angular movement of the branches.

6. In an artificial tree, a hollow trunk having diametrically opposite pairs of perforations, each pair comprising an upper and a lower perforation, and a pair of branches for the perforations, each branch passing through an upper perforation, and across the trunk into the opposite lower perforation, said perforations located to cause the branches to engage and brace each other.

7. In an artificial tree, a hollow metallic trunk, said trunk having equally spaced slots around the periphery thereof at substantially the same level, and a plurality of supporting legs, one for each slot, each leg having a curved end extending through two adjacent slots and having holding engagement with two other legs.

8. In an artificial tree, a hollow metallic trunk, said trunk having a series of substantially equally spaced openings around the periphery thereof, and a plurality of supporting legs each having a curved end which extends through one of the openings, through a portion of the interior of the trunk, and out of another opening, each opening having portions of two legs therein so that each leg engages two other legs and is frictionally held in position thereby.

9. In an artificial tree, a hollow metallic trunk, said trunk having equally spaced slots around the periphery thereof at substantially the same level, and a plurality of supporting legs, one for each slot, each leg having a curved end extending through two adjacent slots and having holding engagement with two other legs, the amount of curvature of the legs being such that the whole of the legs can be nested within the trunk.

10. In an artificial tree, a hollow metallic trunk, said trunk having a series of substantially equally spaced openings around the periphery thereof, and a plurality of supporting legs each having a curved end which extends through one of the openings, through a portion of the interior of the trunk, and out of another opening, each opening having portions of two legs therein so that each leg engages two other legs and is frictionally held in position thereby, said legs being proportioned so they can be nested within the trunk.

11. In an artificial tree, a hollow metallic upper trunk section, said trunk section having a series of substantially equally spaced openings around the periphery thereof, and a plurality of supporting legs each having a curved end which extends through one of the openings, through a portion of the interior of the trunk section, and out of another opening, each opening having portions of two legs therein so that each leg engages two other legs and is held frictionally in position thereby, and a second upper trunk section supported by the first trunk section, said legs and said upper trunk section being so proportioned that they can be nested within the lower trunk section.

ARTHUR G. HOWARD.