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CLAMP AND SUPPORT FOR CHRISTMAS TREE BRANCHES

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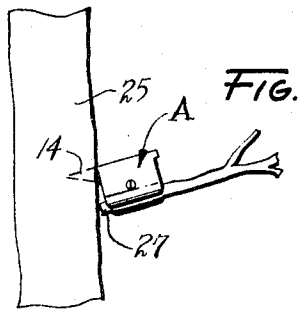


FIG. 2

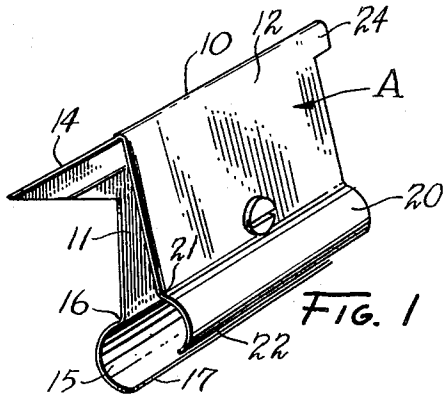


FIG. 1

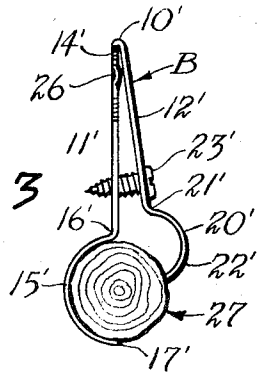


FIG. 3

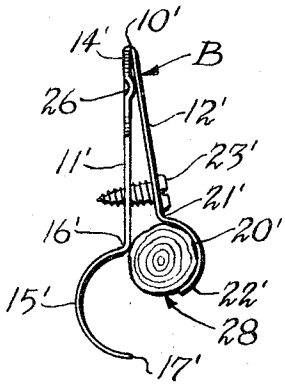


FIG. 4

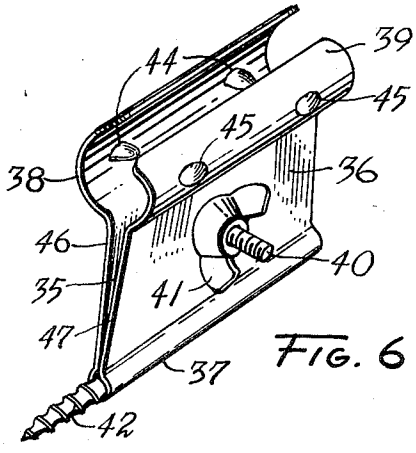


FIG. 6

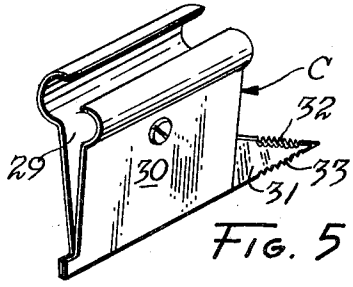


FIG. 5

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CLAMP AND SUPPORT FOR CHRISTMAS TREE BRANCHES

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8 Claims. (Cl. 248—42)

This invention relates to an improvement in a clamp structure for adding branches to Christmas trees. More particularly the improvement concerns a device for conveniently adding branches to Christmas trees which require additional branch decorations and is formed of an integral projection and branch holder with the projection adapted to be driven into a tree trunk and the branch holder serving to selectively receive and support a branch end between cooperable clamp sides of different sizes for branch ends of different sizes.

Various structures have been provided for adding and supporting branches on the trunks of imperfect Christmas trees. Such structures as may be comparable to the present disclosure have been of a simple clamp size and require either the cutting down of a branch to fit the relative single size clamp or whittling the end of a branch down to fit the clamp. Such cutting down lessens the branch size and whittling weakens the branch, particularly if the branch is of any fair size.

Accordingly, it is an object of this improvement in branch supports to provide an arrangement of integral multiple sized branch clamps supported upon a projection insertable into a tree trunk for mounting various size branches thereto with retention of the different size branch ends insertable into the clamp selectively.

Another object of this improvement in branch supports is to provide an integral clamping device having a pair of different size cooperable clamps for selectively engaging and relatively securing the end of a branch in one of the clamps by cooperable engagement with a portion of the other clamp.

A further object of this improvement is in the provision of an integral support having a projecting mounting end in integral relationship with a pair of cooperable different sized clamping sides for selectively engaging and supporting various diameter sizes therein and therebetween.

Additional and further objects and advantages will be apparent from the following description of the accompanying drawings wherein:

Figure 1 is a perspective of the improved clamp and Christmas tree branch holder embodied in this disclosure.

Figure 2 illustrates the structure of Figure 1 in an operative position.

Figure 3 is an end view of the structure shown in Figure 1 in modified form and illustrates the cooperational relationship of a pair of different sized clamping sides holding a branch of relatively large diameter size.

Figure 4 is another end view similar to Figure 3 illustrating the cooperational relationship of the pairs of cooperable clamping sides holding a branch of relatively smaller diameter size.

Figure 5 is a perspective of a modification of the structure shown in Figure 1.

Figure 6 is a perspective view of another modification of the structure.

With reference to the structure shown in Figure 1, the branch holder A is prefabricated from an integral sheet

of metal of about 22 gauge, or thereabout, cut to shape and folded or bent on line 10 to a V-shaped form. The V-shaped form is provided with a relatively long leg or side 11 and a shorter leg or side 12. The side 11 is of greater cross sectional area in over all length to the relatively shorter side 12 and has a pointed projection 14 extending therefrom, adjacent the fold line 10, which serves as a blade or anchor to be driven into a tree trunk to support the branch holder A. The outermost end portion 15 of side 11, is rounded outwardly from shoulder 16 to form a curved body, with the end edge 17 curved inwardly and ending substantially in the plane of shoulder 16. This curved end portion 15 is preferably of cupped or semi-circular shape and extends across the width of side 11 to mount the base end of a branch in the manner as shown in Figure 3 and as hereinafter described with respect to the cooperative relationship of the different sized clamping sides, as indicated.

The relatively shorter leg or side 12 extends from fold line 10 outwardly at a tangential angle from the side 11. The outer end portion 20, of side 12, is rounded outwardly from shoulder 21 to form a curved body with the end edge 22 curved inwardly and ending substantially in the plane of the shoulder 21. The curved end portion 20 is preferably of cupped or semi-circular shape, having a smaller radius than the curvature of end portion 15, and extends across the width of side 12, in substantially axially centered and opposed relationship to shoulder 16. The side 12, as indicated, being shorter than side 11 positions the end 22 and the shoulder 21 in offset relationship to the end 17 and shoulder 16, so that an object mounted in the curved end portion 20 is held therein by shoulder 16 in the same manner as illustrated in Figure 4, hereinafter described.

The portions of the sides 11 and 12 between the fold line 10 and shoulders 16 and 21, respectively, are flat plate sections joined in a tangential relationship. Due to the inherent resiliency of the metal forming the bracket, the angular relationship between the sides 11 and 12 is variable to expand and contract the larger curvature of end 15 relative to the smaller curvature of end 20. A threaded screw 23 turns through threaded apertures (not shown) in the sides 11 and 12 adjacent shoulders 16 and 21, respectively, to pull the relatively curved end portions 15 and 20 together. As more clearly shown and hereinafter described, the curved end portions 15 and 20 are adapted to selectively hold a relatively larger or smaller branch end in the different end curvatures. On the corner edge of the clamp A, opposite the projection 14, there is provided a blunt projection 24 extending as an integral flange relative to sides 11 and 12. The projection 24 is formed by the fold line 10, to serve as a hammering surface for driving projection 14 into a tree trunk 25 and support the clamp in the manner shown, for example, in Figure 2.

In the modification shown in Figures 3 and 4, the clamp B is of lighter material having the fold line 10', sides 11' and 12', end curvatures 15' and 20', relative shoulders 16' and 21', ends 17' and 22', respectively, the same and in the same relationship as the similarly numbered component parts described with reference to Figure 1. The material being lighter in weight in the modification, the pointed projecting blade 14' is provided with a crimp or reinforcing groove 26 to prevent bending of the projection 14' when it is driven into a tree trunk, with the clamp in a depending relationship, as shown in Figure 2, or supported in an upright position (not shown), if desired.

The essential features of the clamp structure, herein described, in providing a mounting for Christmas tree branches, for example, of different sizes in the selected and proper curvatures therefor are illustrated in Figures

3 and 4. Taking Figure 2 in conjunction with Figure 3, the larger curvature of a clamp end, as 15', is shown holding the end of a tree branch 27. For example, the branch end 27 is held in place by turning down screw 23, which draws the sides 11 and 12 closer together and presses end 22' against the outer periphery or bark at the side of the branch end 27.

As shown in Figure 2, the representative clamp A holds branch end 27, in the manner as illustrated in Figure 3. In this arrangement the representative projection 14 is driven into the tree trunk 25 and places the representative clamp in a depending position which braces the butt of the branch end 27 against the tree trunk. In this position a large portion of the weight of the branch is placed against the tree trunk. Otherwise, with the herein described clamp, in a reverse or turned up position (not shown), the representative projection 14 must carry the whole weight of a branch without benefit of the butt end of the branch being braced, in the manner as shown.

Figure 4 illustrates a small branch end or base 28 fitted into the smaller end curvature 20' and cooperative shoulder 16', of end curvature 15', is drawn by screw 23' into abutting relationship against the side of branch end 28. In this arrangement the shorter side 12' provides a selective curvature at the curved end portion 20 for supporting a branch on a tree trunk, in the manner described.

In the modified structure shown in Figure 5, the clamp C is the same cooperative integral structure described for Figures 1 to 4 with respect to the longer side 29 corresponding to side 11 and the shorter side 30 corresponding to side 12. However, in this illustrative structure the integral pointed projection 31 is provided with serrated edges 32 and 33. When the projection 31, relatively corresponding to projection 14, is driven into a tree trunk, the serrated edges 32 and 33 bite into the wood and prevent withdrawal of projection 31 upon the tendency of the weight of any branch to tip and pull out the clamp, however the projection is positioned.

In Figure 6 a slightly different branch holder D is illustrated. The holder D includes a pair of normally diverging clamping plates 35 and 36 which are connected along a tubular edge 37. The plates 35 and 36 include trough shaped offset clamping edges 38 and 39, respectively. The radius of curvature of the edge 38 is greater than that of edge 39 for the purpose previously set forth.

A clamping bolt 40 extends through the clamping plates 35 and 36 intermediate the tubular connecting edge 37 and the clamping edges 38 and 39. A wing nut 41 is provided on the bolt 40 by means of which a branch may be clamped without the use of a screw driver or other tools.

A threaded and pointed shank 42 is anchored in the tubular connecting portion 37. This threaded shank may be driven into the tree trunk, and tends to hold the holder in fixed relation to the trunk. Indentations or inward projections 44 and 45 may be provided in one or both of the trough shaped clamping edges 38 and 39, to engage against the branch and to prevent it from twisting when clamped.

The edges 46 and 47 of the plates 35 and 36 are inclined relative to a plane normal to the axis of the anchoring shank, so that the tubular edge 47 is longer than the clamping edges. This permits the shank 42 to be driven entirely into the tree while the axis of the shank is inclined upwardly. As a result, the holder is supported at a natural angle to the tree trunk when in place.

In accordance with the patent statutes, we have described the principles of construction and operation of our improved clamp and support for Christmas tree branches, and while we have endeavored to set forth the best embodiment thereof, we desire to have it understood that obvious changes may be made within the scope of the following claims without departing from the spirit of our invention.

We claim:

1. A clamp including a pair of resilient plates connected along one edge, the edges of said plates opposite said connected edges being trough-shaped in form with the concave sides of the trough-shaped edges directed inwardly, said trough-shaped edges terminating in parallel inwardly directed extremities, the inwardly directed extremity of one wall being substantially opposite the center of concavity of the trough-shaped edge of the other wall, means connecting said plates for clamping the same together, and a pointed projection projecting laterally with respect to said plates adjacent said connected edges.

2. The structure of claim 1 and in which the trough-shaped edge of said one plate is of substantially smaller radius of curvature than the trough-shaped edge of the other wall.

3. The structure of claim 1 and in which the pointed projection is integral with one of said plates.

4. The structure of claim 1 and in which the connected edges of said plates are curved to provide a generally cylindrical socket, and in which said pointed projection is anchored in said socket.

5. The structure of claim 1 and in which said pointed projection is screw threaded.

6. The structure of claim 1 and in which one of said trough-shaped clamping edges includes inwardly extending projections.

7. The structure of claim 1 and in which the edges of said plates past which said pointed projection extends are angled at an angle less than ninety degrees from said connected edges.

8. A clamp including a pair of resilient plates connected along one edge, the plates diverging apart toward the opposite edge, the said opposite edge of one plate being trough-shaped in form and having a relatively large radius of curvature to fit a branch of relatively large diameter, the said opposite edge of the other plate being trough-shaped in form and having a relatively smaller radius of curvature to accommodate a branch of relatively smaller diameter, the trough-shaped edges bowing outwardly from the planes of their respective plates, the junctures between said trough-shaped edges and the remainder of said plates forming shoulders, the center of curvature of the trough-shaped edge having the smaller radius of curvature being substantially opposite the shoulder of the plate having the trough-shaped edge of large radius of curvature and the inturned outer wall of the trough-shaped edge of smaller radius of curvature being substantially opposite the center of curvature of the trough-shaped edge of larger radius of curvature, means for drawing said plates together, and a pointed projection projecting laterally with respect to said plates adjacent said connected edges.

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