

[54] **METHOD OF MAKING A HOLLOW
WOODEN BLANK**

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[51] Int. Cl. **B27m 1/00**

[58] Field of Search **144/325, 323, 309, 315, 326,
144/33, 2, 20-24**

[56] **References Cited**

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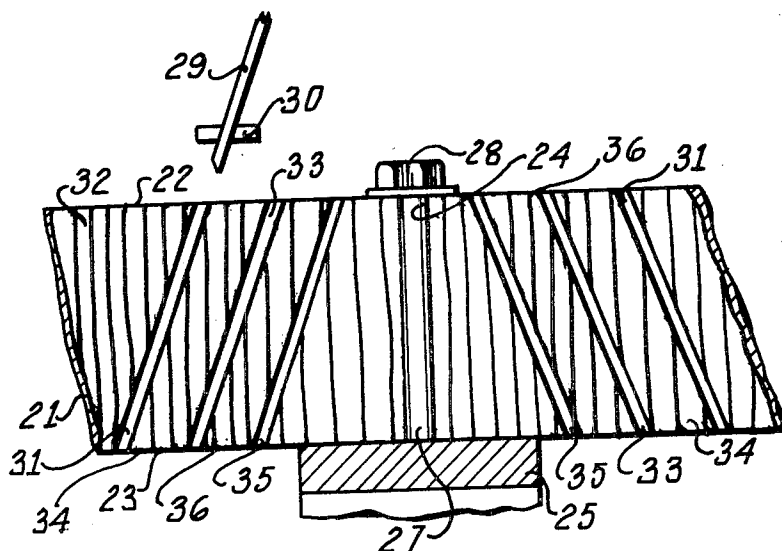
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[57] **ABSTRACT**

The blank is formed by first cutting an unseasoned log along two longitudinally spaced transverse planes to form a disklike slab, then cutting the slab along two concentric annular paths which are concentric to the growth rings of the wood, and thereafter seasoning the blank. One end of the hollow blank interior is usually closed by an end piece secured therein. The end piece is formed from a disk similar to the slab, but the disk is first severed along one of its diameters and seasoned, after which the end piece is cut from it. The blank may be cylindrical or frustoconical. One end of the hollow blank interior may be tapered to define a seat for accommodating a frustoconically shaped end piece.

7 Claims, 12 Drawing Figures



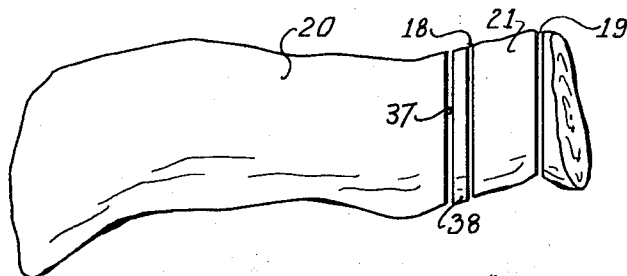


FIG. 1

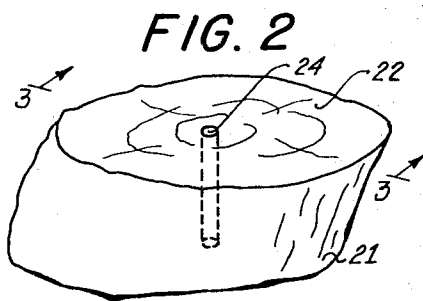


FIG. 2

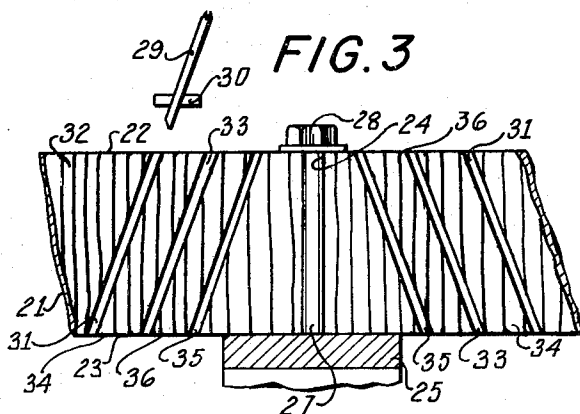


FIG. 3

FIG. 4

FIG. 5

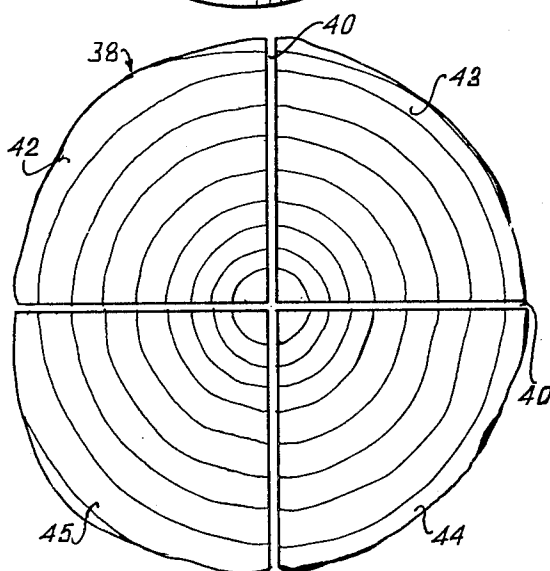
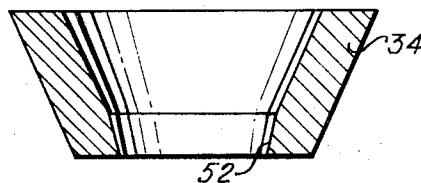
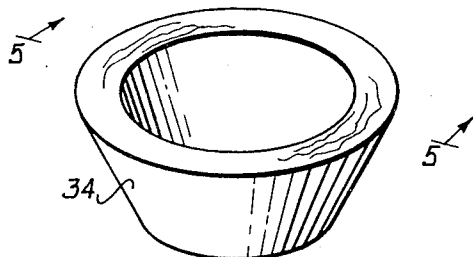


FIG. 6

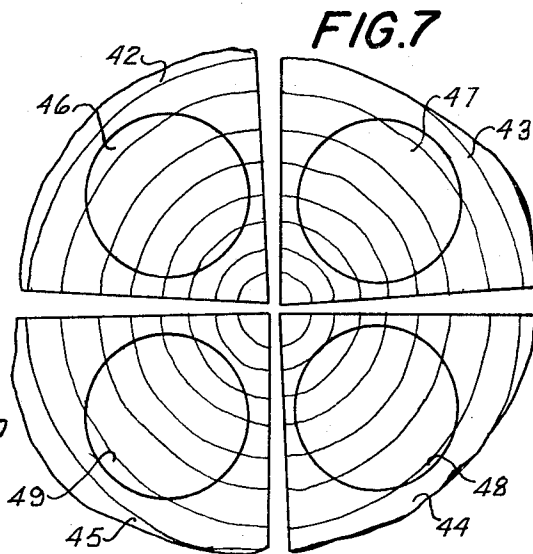


FIG. 7

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FIG. 8

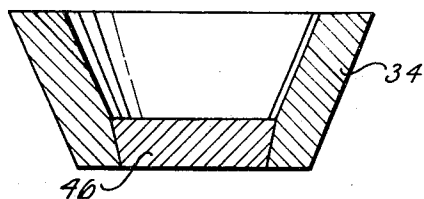


FIG. 9

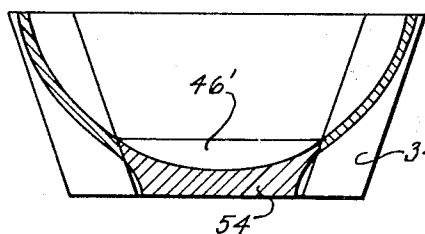


FIG. 10

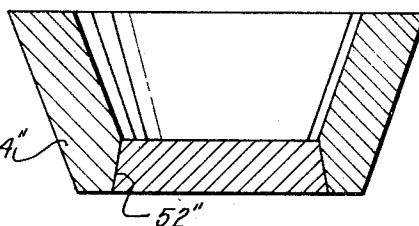


FIG. 12

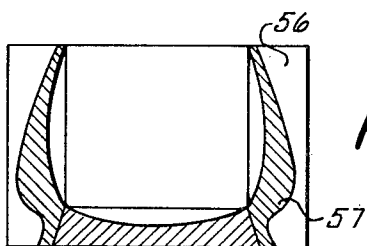


FIG. 11

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METHOD OF MAKING A HOLLOW WOODEN BLANK

This invention relates to blanks for the manufacture of wooden articles, especially wooden articles made on a lathe, and more particularly to blanks for hollow wooden articles such as wooden bowls, humidors, and lamp bases.

Conventionally, such hollow wooden articles are made from blocks of wood formed by sawing a log longitudinally so that the wood grain runs along the length of the block. Alternatively, the wood blocks are built up by gluing together two or more wooden boards in which the grain runs longitudinally. In an case, when an annular cut is made in such a block, to form the hollow article, the cut extends along the wood grain at some points and cuts across the grain at other points. As a result, the grain visible on the finished article is not uniform. Furthermore, seams resulting from different pieces of wood having been glued together are also visible. Thus, the appearance of these articles is ordinarily found wanting by the discerning eye.

An object of the present invention is to provide a blank or piece of wood cut from a log in such a way and such a location relative to the grain and fiber structure of the log that the object made from it will possess greater surface beauty than has heretofore been associated with such articles.

Another object is to cut the blanks or pieces from the log in such a way that the seasoning of the wood may be done quickly and without cracking or checking the wooden blanks in the process.

Another object is to utilize the full diameter and the natural shape of the log economically.

Another object is to utilize logs which are too short or too crooked for economical use in conventional saw mill practice, and to use parts of the trees which are usually discarded as waste, such as the tops which are too small for sawmill logs, as well as the larger branches and the stumps of any of the valuable hard woods.

Another object is to provide a blank from which a bowl or the like may be turned having the grain direction substantially uniform over the entire outer exposed surface of the bowl.

Another object is to provide a blank from which a bowl or other hollow article may be turned which will avoid the warping and distortion usually found in similar articles manufactured from the conventionally cut material.

Additional features and objectives of the invention will be apparent from the following description in which reference is made to the accompanying drawings:

In the drawings:

FIG. 1 shows a log, and the manner in which it may be cut to produce a wooden disk and a disklike slab;

FIG. 2 is a perspective view of a disklike slab;

FIG. 3 is a cross-sectional view, taken as along line 3—3 of FIG. 2, of the slab mounted on a lathe, showing the manner in which blanks are cut from the slab, the section lines being in the direction of the growth rings of the wood;

FIG. 4 is a perspective view of a blank;

FIG. 5 is a cross-sectional view along line 5—5 of FIG. 4;

FIG. 6 is a face view of an unseasoned wooden disk which has been quartered;

FIG. 7 is a face view of the same disk after seasoning, and showing end pieces cut from it;

FIG. 8 is a cross-sectional view through a typical end piece;

FIG. 9 is a view similar to FIG. 5 showing the blank provided with an end piece;

FIGS. 10 and 11 are cross-sectional views showing other embodiments of blanks according to the invention, and the manner in which finished bowls are formed from them; and

FIG. 12 is a cross-sectional view showing another embodiment of a blank according to the invention.

Referring now to the drawings, and particularly FIGS. 1-5, a disklike slab 21 is cut from an unseasoned or "green" log 20 by any well-known means such as a power-driven cutoff saw or handsaw. The cuts 18 and 19 which define the slab 21 are located in substantially parallel planes, and are made generally transverse to the longitudinal direction of the log. However,

the cuts could be arranged at small acute angles to the longitudinal direction of the log, to vary the grain pattern of the blank, or for reasons of convenience or economy. In any case, the plane faces 22 and 23 of the slab 21 are preferably substantially parallel. A hole 24 (FIG. 2) placed in the most advantageous position with regard to the requirements of the next operation is drilled through the slab 21 perpendicular to the faces 22 and 23. The hole will in most cases be arranged to the concentric center of the growth rings of the wood.

The slab 21, while still unseasoned, is fastened to the rotatable face plate 25 (FIG. 3) of a lathe by means of a bolt 27 passing through the hole 24, and a nut 28 which forces the face 23 of the slab 21 into firm contact with the face plate. With the lathe in operation, i.e., rotating slab 21, a parting tool 29 guided by a suitable rest or support 30 is moved forward, i.e., into contact with the slab 21, by the usual compound tool carrier (not shown) of the lathe, or by hand, or by any other suitable means, to make the annular kerf 31. Kerf 31 extends through from face 22 to face 23 of slab 21, and is substantially concentric with the growth rings of the wooden slab. The outer ring 32 so removed from the slab 21 is discarded and a second cut or kerf 33 is made by a suitable shaft and movement of the tool 29. Kerf 33 is concentric with kerf 31, and hence is also substantially concentric with the growth rings of the wood. Completion of kerf 33 results in a hollow frustoconical blank 34, shown in FIG. 4. Blank 34 is removed and a third cut 35, concentric with cuts 31 and 33, may be made resulting in a second blank 36, similar to but smaller than blank 34. As many concentric cuts as permitted by the size of slab 21 may be made, each cut after the first resulting in another hollow blank similar to blank 34. Of course, other means of chucking and cutting the slab 21 will be obvious to those skilled in the art.

Because of the frequency of occurrence of radial cracks in logs which are permitted to dry in solid form, it is highly desirable to cut the slab 21 from green or freshly cut logs in which the undesirable cracks have not yet occurred. The blanks 34 and 36 are also cut while the slab 21 is still in the green or unseasoned state, not only because of the difficulty of seasoning the slab 21 without radial checks or cracks, but because the thinner walls of the blanks 34 and 36 permit much more rapid seasoning than could occur if the slabs 21 were seasoned before the blank cutting operation. Furthermore, green wood cuts more easily than seasoned wood.

Where the finished article is to have a bottom, or other end wall, the blank 34 is provided with an end piece glued to one of its end edges, or within one end of its hollow interior. Toward this end, a disk 38, having a thickness approximately equal to that of the walls of the blank of which it is to form the bottom, is cut from the log, or from another log of the same variety of wood, or from logs of a different variety or color if desired. As indicated in FIG. 1, disk 38 may be formed by cutting log 20 along a cut 37 substantially parallel to cut 18. In any case, the disk 38 is unseasoned when formed. The thinness of the disk 38 permits rapid drying, and the usual radial cracks are prevented from forming by making saw cuts along one or more diameters of disk 38, as shown in FIG. 6. The cuts 40 extend completely through disk 38, thereby severing the latter into halves or quarters, depending upon whether one or two cuts are made. The number of cuts will usually depend upon the diameter of disk 38, the larger the diameter, the greater the number of cuts. In FIG. 6, two diametral cuts are shown, thus forming four segments 42, 43, 44 and 45. As a result of cuts 40, both tangential and diametral shrinkage is permitted to take place freely. The approximate shape of the segments 42, 43, 44 and 45 after seasoning is shown in FIG. 7. The tangential contraction of the wood is indicated by the change in shape of the segments, in particular by the decrease in the size of the central angles. When larger end pieces are required they may be cut from halves of slabs, or they may be built up by gluing suitable cut pieces together in a number of ways which will be obvious to those skilled in the woodworking art.

In order to understand the phenomena of the radial cracking or checking of a log or of a thick transverse slab of a log which is seasoned in that form, it should be pointed out that all varieties of wood shrink upon seasoning, and that tangential or circumferential shrinkage is greater than radial shrinkage, in some varieties twice as great. Therefore, if the seasoning of a thick slab decreases the diameter of any circular element by 5 percent the circumference of the same element decreases by more than 5 percent, the new circumference will not be long enough to enclose a circle of the new diameter and a crack must form which will be propagated toward the geometric center of the slab as drying progresses from the outer surface. In the relatively thin-walled annular blank 34, described above, circumferential shrinkage takes place freely and the circumference may contract to any degree without cracking, because the restrictions of internal supporting wood have been removed.

To provide an end piece having the grain direction the same as that of the annular ring from which the body of the bowl is formed, circular discs 46, 47, 48, and 49 are cut from the seasoned segments 42, 43, 44, and 45, respectively (FIG. 7). A preferred method of supplying a seasoned annular blank 34 with a bottom piece, say piece 46 (FIG. 8) is to turn a seat 52 (FIG. 5), having a surface in the form of a frustum of a cone, at one end of the internal surface of blank 34, and to form an accurately mating surface 50 on the edge of end piece 46. Glue is then applied to the surfaces 50 and 52 and the bottom piece 46 forced firmly into contact with the seat 52 and held in position by any suitable means until the glue has set, resulting in the blank shown in FIG. 9. The annular ring 34 and its permanent end closure 51 constitute a blank from which finished wooden bowls or other hollow articles may be formed. Of course, if the finished wooden article is to have a tubular shape, open at both ends, blank 34 need not be provided with an end piece.

The manner in which a finished bowl may be formed from blanks according to this invention is shown in FIGS. 10 and 11. In FIG. 10, no separate seat has been turned; instead the frustoconical end piece 46' fits into one end of the hollow interior of blank 34' as cut from slab 21. To form the bowl 54, the areas of the blank without crosshatching in FIG. 10 are cut away, as by turning on a lathe.

FIG. 11 shows a cylindrical blank 56 in which the cuts, corresponding to cuts 31 and 33 of FIG. 3, were made parallel to the axis of rotation of a slab similar to slab 21. Again, the bowl 57 is formed by cutting away the areas which bear no crosshatching in FIG. 11.

FIG. 12 shows another alternative blank 34'' identical to

blank 34 except that the walls of seat 52'' diverge downwardly instead of upwardly, as is true of the walls of seat 52.

The invention has been shown and described in preferred form only, and by way of example, and it is understood therefore that many variations may be made in the invention which will be comprised within its spirit.

What is claimed is:

1. A method of forming a wooden blank from which hollow articles may be made, comprising the steps of
 - a. cutting an unseasoned log along two substantially parallel and spaced apart planes, each plane being generally transverse to the longitudinal direction of the log, thereby forming a disklike slab having two faces,
 - b. cutting the unseasoned slab along two annular and spaced apart paths, each path extending from one slab face to the other and being substantially concentric with the growth rings of the wood, thereby defining a hollow annular blank between said paths, and thereafter
 - c. seasoning the blank.
2. A method as defined in claim 1 wherein each of said annular paths diverges from one of the slab faces to the other, whereby the blank has a frustoconical shape.
3. A method as defined in claim 1 wherein each of said annular paths is cylindrical from one of the slab faces to the other, whereby the blank has a cylindrical shape.
4. A method as defined in claim 1 including the step of securing a separate end piece within the hollow interior of the blank at one end of the latter.
5. A method as defined in claim 4 including the step of forming said one end of the blank with a tapered seat for receiving the end piece.
6. A method as defined in claim 4 wherein said end piece is made of wood and is formed by steps comprising
 - a. cutting an unseasoned log along two substantially parallel and spaced apart planes, each plane being generally transverse to the longitudinal direction of the log, thereby forming a disk having two faces,
 - b. severing the disk along a diameter thereof,
 - c. seasoning the disk, and
 - d. cutting a piece of the seasoned disk along an annular path extending from one disk face to the other, the end piece being the material within the cut.
7. A method as defined in claim 6 wherein said annular path of step (d) diverges from one face of the disk to the other, whereby the end piece has a frustoconical shape and is thereby adapted to be received within a tapered seat at one end of said blank.

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