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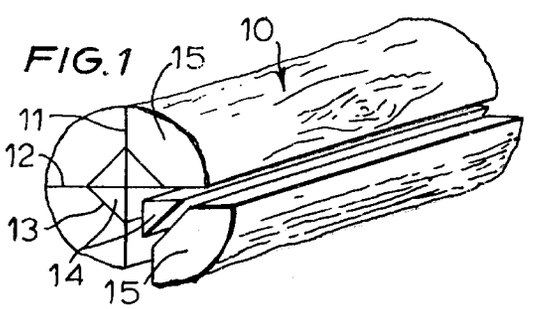
(54) Timber pole division.

(57) A method of dividing a timber pole 10 to produce a plurality of wooden strips, suitable for use as cladding, fencing or the manufacture of products. The pole is divided by a number of radial cuts 11,12 into a plurality of sector-shaped pieces, and then each sector-shaped piece is divided by a further cut 13 so as to produce a triangular-shaped strip 14 and a truncated-sector-shaped strip 15. The further cut 13 is disposed so that the triangular-shaped strip 14 is of isosceles cross-sectional form and the ratio of the equal sides of that strip 14 to the radial sides of the truncated-sector-shaped strips 15 may be up to about 3 :1.



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This invention relates to methods of dividing timber poles to produce a multiplicity of usable wooden strips, and also to wooden strips whenever produced by such methods. The invention further relates to cladding or fencing whenever made from such wooden strips.

The term "timber pole" is used herein to refer to a length of timber having a substantially circular cross-sectional shape. This term is intended to include within its scope a naturally tapering rustic pole, a peeled (that is, having its bark removed) naturally tapering pole, a surface-smoothed (that is, having its bark removed and also having a certain amount of further smoothing operations performed thereon) tapering pole or a machine-rounded pole (that is, a pole of cylindrical, or substantially constant, cross-sectional shape).

There is an increasing tendency to use timber in a more "natural" form, for example for the manufacture of garden furniture, fencing and even for certain types of cladding. Apart from requiring fewer machining operations and being aesthetically attractive, it is possible to use timber poles of diameters as small as, say, 3 inches (about 75mm) which could not ordinarily be machined economically, to yield sawn square-edge lengths of wood. Thus, the use of such timber poles is economically advantageous and moreover minimises waste.

Small diameter poles may be employed for example in the manufacture of garden furniture or as supporting posts for fences or the like, with essentially no machining operations. If however an area is to be covered, as in the case of fencing or cladding, it is conventional to split - and usually by a sawing operation - a pole diametrically along its length, whereby each half-pole may be nailed or otherwise affixed to a number of supporting posts, with the flat faces of the half-poles contacting the posts. However, even though cladding or fencing may be formed in this way which is both economic and visually attractive, nevertheless it does not make particularly good use of the volume of timber in a pole: each half-pole covers a width equal to the diameter of the pole and yet projects from the supporting post by a distance equal, at its greatest, to the radius of the pole. Moreover, the thickness of such fencing or cladding at the adjoining edges of the half-poles reduces to nil, and there are invariably regions where there are gaps between the half-poles, because of the irregular nature of natural, unprocessed timber.

It is a principal object of the present invention to provide a method of dividing a timber pole of the kind referred to hereinbefore, to produce a multiplicity of useful wooden strips, which method is relatively easy to operate and yet which results in a larger number of useful wooden strips than would be obtained just by splitting the poles in half, and which strips can be used in the manufacture of garden furniture, cladding, fencing or the like.

According to a first aspect of the present invention, there is provided a method of dividing a timber pole of the kind defined herein so as to produce a multiplicity of usable wooden strips, which method comprises:

- effecting a plurality of first cuts along the length of the pole, each first cut being effected substantially along a cross-sectional radius of the pole and being arcuately spaced from the neighbouring first cuts whereby there is produced a plurality of pieces each generally of a sector-shape in cross-section; and
- cutting each of said generally sector-shaped pieces of wood into two by effecting a further cut along the length of each said piece which further cut divides each said piece into a generally triangular-shaped (in cross-section) strip and a further strip of a truncated-sector shape (in cross-section) and having one side face thereof defined by a portion of the outer curved surface of the original pole.

It will be appreciated that with the method of the present invention, a timber pole may be divided typically into eight strips, firstly by cutting the pole into four sector-shaped pieces each having approximately 90° included angle, and then cutting each sector-shaped piece into two separate strips, one of which is of generally triangular cross-sectional shape (being the inner part of the sector-shaped piece) and the other of which is generally of a "truncated-sector" shape, being the outer part of the original sector-shaped piece. Each truncated-sector-shaped strip is bound by the outer curved surface of the original pole, the outer parts of the two radial cuts separating that sector-shaped piece from the pole, and the further cut which separates the triangular-shaped strip from the truncated-sector-shaped strip. Though technically it would be possible to divide a pole into three sector-shaped pieces, so resulting in six finished strips, it is in fact preferred for the minimum number of sector-shaped pieces to be four, or some other higher, but even, number of pieces. For example, it is preferred for the method to be performed in such a way that one of four, six or eight sector-shaped pieces are produced, resulting respectively in eight, twelve or sixteen finished wooden strips.

By cutting the pole into an even number of sector-shaped pieces, it will be appreciated that each first cut may be a diametral cut performed, for example, by a band saw, a circular saw or the like. Thus, to produce four sector-shaped pieces, two diametral cuts would be made, at right angles to one another. This may be achieved with a suitable machinery arranged to effect both cuts substantially simultaneously as the pole is advanced through the machinery. Alternatively, the pole could be passed more than once through a suitable sawing machine, each pass producing an-

other cut in the timber.

The method may be performed in such a way that the resultant triangular strips are all of substantially the same cross-sectional shape and dimensions. However, by varying the position from the apex (effective centre of curvature) of the sector-shaped piece at which the further cut is performed, or even the angle at which the further cut is performed with respect to the radial first cuts, the resultant inner triangular-shaped pieces may have different cross-sectional shapes and areas. If these strips are then used for fencing or cladding, they will give rise to a somewhat non-uniform and variable appearance.

According to a second aspect of the present invention, there is provided a method of dividing a timber pole of the kind defined herein so as to produce a multiplicity of usable wooden strips, which method comprises:

- effecting a first pair of cuts along the length of the pole, the two cuts being parallel to each other and spaced one to each side of a diameter of the pole so as to produce a centre cant and two side slabs;
- effecting a second pair of cuts on each side slab substantially at right angles to the respective first cut which produced the side slab, so as thereby to produce from the two side slabs two generally rectangular (in cross-section) strips and four generally sector-shaped (in cross-section) pieces;
- cutting each of said four generally sector-shaped pieces into two by effecting a further cut along the length of each said piece which further cut divides each said piece into a generally triangular-shaped (in cross-section) strip and a further strip of a truncated-sector-shape (in cross-section) and having one side face thereof defined by a portion of the outer curved surface of the original pole.

It will be appreciated that in the method of this second aspect of the present invention, a timber pole typically of a larger diameter may be employed so as to yield four generally sector-shaped pieces as well as three generally rectangular strips of wood, which latter strips may of course be further divided by subsequent machining operations, should this be required. Each of the four sector-shaped pieces is generally similar to that obtained by the first-described method of this invention when used to produce four sector-shaped pieces by dividing the pole with two diametral cuts substantially at right angles, except that the actual radius of curvature of the curved surface of each resultant sector-shaped piece is greater than the apparent radius. Then, those four sector-shaped pieces may be sub-divided by means of further cuts, so as to produce four generally triangular-shaped pieces and four truncated-sector-shaped pieces.

This invention extends to wooden strips whenever produced from a timber pole of the kind referred to herein, by a method according to the invention as described above.

The invention further extends to cladding or fencing comprising a plurality of generally parallel, spaced-apart support rails supporting wooden strips whenever produced from a timber pole of the kind referred to herein, by a method of this invention as described above. The wooden strips may be affixed for example by nailing or screwing to the support rails, with the triangular-shaped strips being disposed alternately with the truncated-sector-shaped strips. Advantageously, when producing such cladding or fencing, each strip is affixed to the support rails so as to be substantially in contact with its next adjacent strips, for at least a part of the length thereof. As the triangular-shaped strips interfit with the truncated-sector-shaped strips, so-called "close cladding" may easily be achieved.

The triangular-shaped strips may be secured to the support rails first, at an appropriate spacing so that the group therebetween at the rails is slightly less than the width of the further cut on the truncated-sector-shaped pieces. Then, each truncated-sector-shaped piece will not fit tighter to the rails, but will instead be supported by the triangular-shaped pieces. In this way, tight-cladding may still be achieved, notwithstanding an irregular shape in the original timber pole, or shrinkage.

When producing cladding or fencing, it is preferred for the strips to be disposed substantially vertically, rather than horizontally. In this way, any rain driving against the fencing or cladding is more likely to run down the generally vertically disposed strips, rather than to run through the fencing or cladding, and appear on the other side. Alternatively, interesting visual effects may be achieved by having the strips lying some other angle to the horizontal or vertical.

By way of illustration only, certain specific examples of methods of this invention will now be described in detail with reference to the accompanying drawings in which:-

Figure 1 is a perspective view on the end portion of a natural tapering timber pole, showing where cuts are made in order to achieve eight finished strips;

Figures 2 and 3 are views similar to that of Figure 1, but showing where cuts are made in order to achieve twelve and sixteen strips, respectively;

Figure 4 is a partial view of a fencing panel assembled from timber strips produced by a method of this invention; and

Figure 5 is a view similar to that of Figure 1, but of a larger diameter pole and showing how the pole may be divided to produce three generally rectangular strips together with four generally triangular strips and four truncated-sector-shaped

strips, in accordance with an example of a method of this invention.

Referring initially to Figure 1, there is shown a substantially round, naturally tapering timber pole 10, which may typically be about 2m long. The pole is initially divided into four sector-shaped pieces by way of two diametral cuts 11 and 12, substantially at right angles to each other. Such cuts are conveniently effected with a single sawing machine having two circular saw or band saw blades with their axes at right angles and disposed one behind the other. As the pole is passed through the sawing machine, the pole will be divided into the four sector-shaped pieces, in one pass.

Each of the resultant sector-shaped pieces is then divided by a further cut 13 into two separate strips 14 and 15, the first (14) being of generally triangular-shape and the second (15) being of a truncated-sector-shape. The precise position of the further cut 13 may be selected having regard to the intended use of the resultant strips, and may be positioned such that each radial face of the sector-shaped piece is bisected - that is to say, the length of each side face of each triangular-shaped strip 14 is one half of the radius of the original pole. If the resultant strips are to be used for close-cladding or fencing, the further cut may be made at such a position that the length of the sides of the triangular strips is greater than the length of the sides of the truncated-sector-shaped strips - perhaps by as much as 3:1 - in order to allow for the natural taper of the poles. Irrespective of where the further cut is made each strip 14 is of a right-angle triangular-shape, in cross-section, with two sides of equal length.

Figures 2 and 3 show similar timber pole dividing methods, where the pole is divided into twelve strips (Figure 2) or sixteen strips (Figure 3). In each case, the pole is initially divided into a number of substantially similar sector-shaped pieces by means of diametral cuts (three or four, in the cases of Figures 2 and 3, respectively), each of which resultant sector-shaped pieces is then sub-divided to yield a triangular-shaped strip and a truncated-sector-shaped strip. Again, the precise position of the cut resulting in the sub division of each sector-shaped piece may be selected having regard to the intended use of the strips.

Figure 4 shows how strips produced by the pole division methods described above may be employed, to form a fence panel. A number of posts 20 (only one of which is shown in Figure 4) are driven into the ground at spaced intervals, each of which posts may comprise a truncated-sector-shaped strip. Then, triangular-shaped strips 21 and truncated sector-shaped strips 22 are affixed alternately to the spaced posts 20, typically by nailing, so as to form a substantially continuous close-clad surface. Of course, having regard to the nature of natural timber poles, the strips are likely to be somewhat irregular along their length and so only partial contact may be achieved. Nevertheless, on account of the shapes of the pieces and their inter-fitting, from any given viewing position the fence or cladding is likely to present a substantially continuous face. It will be appreciated that in order to accommodate the natural taper of the poles used to make the strips, the triangular-shaped strips cut from the pole should have a side-length considerably greater than the side-length of the truncated-sector-shaped strips, at the larger diameter end of the pole. Then, the triangular-shaped strips will still have a sufficient side-length, even at the smaller diameter end of the pole, to achieve adequate close-cladding.

In Figure 4, the spacing of the triangular-shaped strips 21 is shown as being such that the truncated-sector-shaped strips 22 may directly bear on the posts 20. Though this arrangement may give close cladding, in view of the irregular nature of natural timber poles, there still may be gaps between the strips, at certain places. To reduce the likelihood of there being such gaps, the triangular-shaped strips 21 may first be secured to the posts 20, with a spacing at the posts of less than the width of the face of the truncated- sector-shaped strips produced by the further cut 13. Then, on securing the truncated-sector-shaped strips to the posts, those strips 22 will bear on the triangular-shaped strips 21 rather than on the posts, for at least most of the length of the strips. Subsequently, should any shrinkage of the strips occur, the cladding may be tightened by further nailing, to draw the truncated-sector-shaped strips closer to the posts 20.

Referring now to Figure 5, there is shown a timber pole division method intended for use with a pole of a significantly larger diameter - and typically at least 150mm diameter. Initially, the pole is divided into seven pieces by a technique known as "double-slabbing", in which a pair of spaced-apart parallel cuts 25 and 26 are made along the length of the pole to divide it into three pieces, being a centre cant 29 and two side slabs. The side slabs are then further divided so as to make three pieces from each side slab, by effecting two further parallel cuts 27 and 28 spaced apart by the same distance as with the first pair of cuts, but at right angles thereto. This results in two further strips 30 each of which is of generally rectangular cross-sectional shape but having an arcuate outer surface 31. Further cuts, shown by broken lines 32, may be made on each of those three strips 29 and 30, so as to produce truly rectangular strips, if required.

This "double-slabbing" method results in four generally sector-shaped pieces 33, which are normally regarded as waste. However, these four pieces 33 may be treated by the method of this invention, so as to yield eight strips, four of which are of generally triangular-shape and the other four of which are generally of truncated-sector-shape, though of course the

radius of curvature of the outer surface 34 of those further pieces is significantly greater than the length of the side of the generally sector-shaped piece 33, before sub-division. Nevertheless, the resultant triangular-shaped strips 35 and the truncated-sector-shaped strips 36 may be used in the manufacture of cladding, fencing, garden furniture or the like, in the same manner as has been described above.

Claims

1. A method of dividing a timer pole (10) of the kind defined herein so as to produce a multiplicity of usable wooden strips, which method comprises:
   - effecting a plurality of first cuts (11,12) along the length of the pole (10), each first cut being effected substantially along a cross-sectional radius of the pole and being arcuately spaced from the neighbouring first cuts whereby there is produced a plurality of pieces each generally of a sector-shape (in cross-section); and
   - cutting each of said generally sector-shaped pieces into two by effecting a further cut (13) along the length of each said piece which further cut divides each said piece into a generally triangular-shaped (in cross-section) strip (14) and a further strip (15) of a truncated-sector shape (in cross-section) and having one side face thereof defined by a portion of the outer curved surface of the original pole.

2. A method as claimed in Claim 1, wherein the pole is divided into one of four, six or eight sector-shaped pieces, resulting respectively in one of eight, twelve or sixteen strips (13 and 14).

3. A method as claimed in Claim 1 or Claim 2, wherein each triangular-shaped strip (13) is of isosceles cross-sectional shape.

4. A method as claimed in any of the preceding Claims, wherein the first cut (11,12) remaining on each triangular-shaped strip (14) has a length of up to three times that of the first cut (11,12) remaining on each truncated-sector-shaped strip (15).

5. A method of dividing a timber pole of the kind defined herein so as to produce a multiplicity of usable wooden strips, which method comprises:
   - effecting a first pair of cuts (25,26) along the length of the pole, the two cuts being parallel to each other and spaced one to each side of a diameter of the pole so as to produce a centre cant (29) and two side slabs;
   - effecting a second pair of cuts (27,28) on each side slab substantially at right angles to the respective first cut (25,26) which produced the side slab, so as thereby to produce from the two side slabs two generally rectangular (in cross-section) strips (30) and four generally sector-shaped (in cross-section) pieces (33);
   - cutting each of said four generally sector-shaped pieces (33) into two by effecting a further cut along the length of each said piece (33) which further cut divides each said piece into a generally triangular-shaped (in cross-section) strip (35) and a further strip (36) of a truncated-sector-shape (in cross-section) and having one side face thereof defined by a portion of the outer curved surface of the original pole.

6. A method as claimed in Claim 5, wherein a further cut (32) is made in each generally rectangular strip (30), so as to produce a truly rectangular strip by removing the curved surface therefrom.

7. Wooden strips whenever produced from a timber pole of the kind defined herein, by a method according to any one of Claims 1 to 6.

8. Cladding or fencing comprising a plurality of generally parallel, spaced-apart support rails (20) supporting wooden strips whenever produced from a timber pole of the kind defined herein, by a method according to any one of Claims 1 to 6.

9. Cladding or fencing as claimed in Claim 8, wherein each strip (21,22) is affixed to the support rails (20) so as to be substantially in contact with its next adjacent strips, for at least a part of the length thereof.

10. Cladding or fencing as claimed in Claim 9, wherein each triangular shaped strip (21) is secured to the support rails (20) with an average spacing therebetween of less than the width of the face of each truncated-sector-shaped strip (22) produced by the further cut (13), whereby the truncated-sector-shaped strips (22) bear on the triangular-shaped strips (21) and are spaced outwardly away from the rails (20).

FIG.1

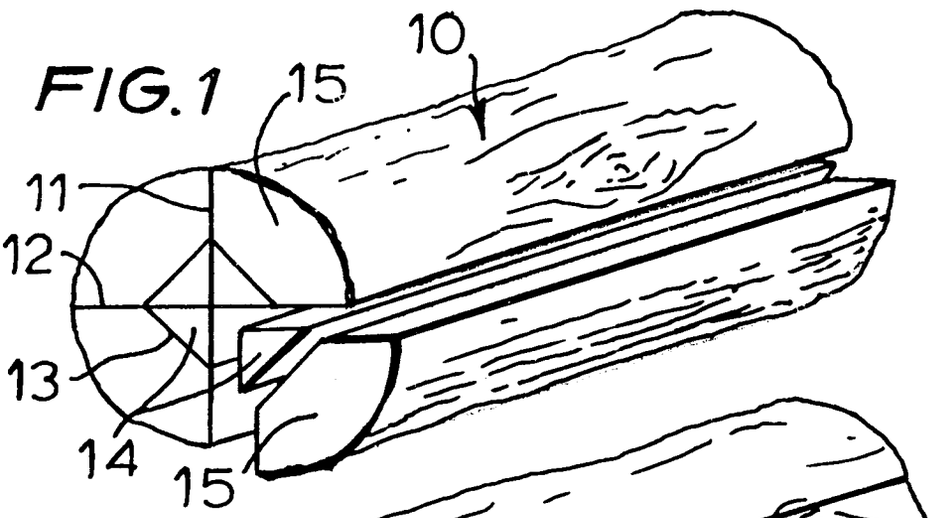


FIG.2

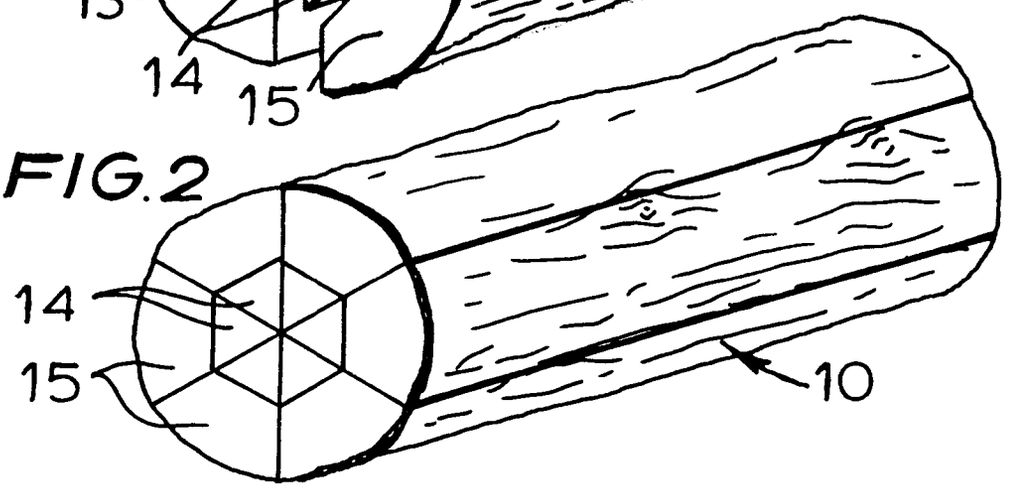
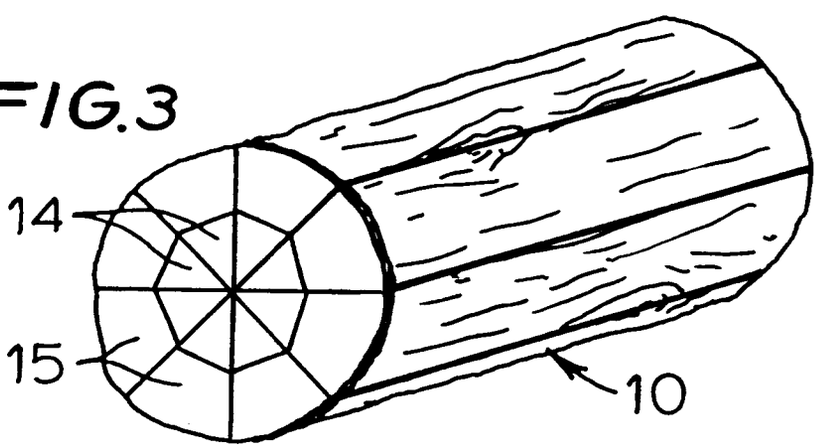


FIG.3



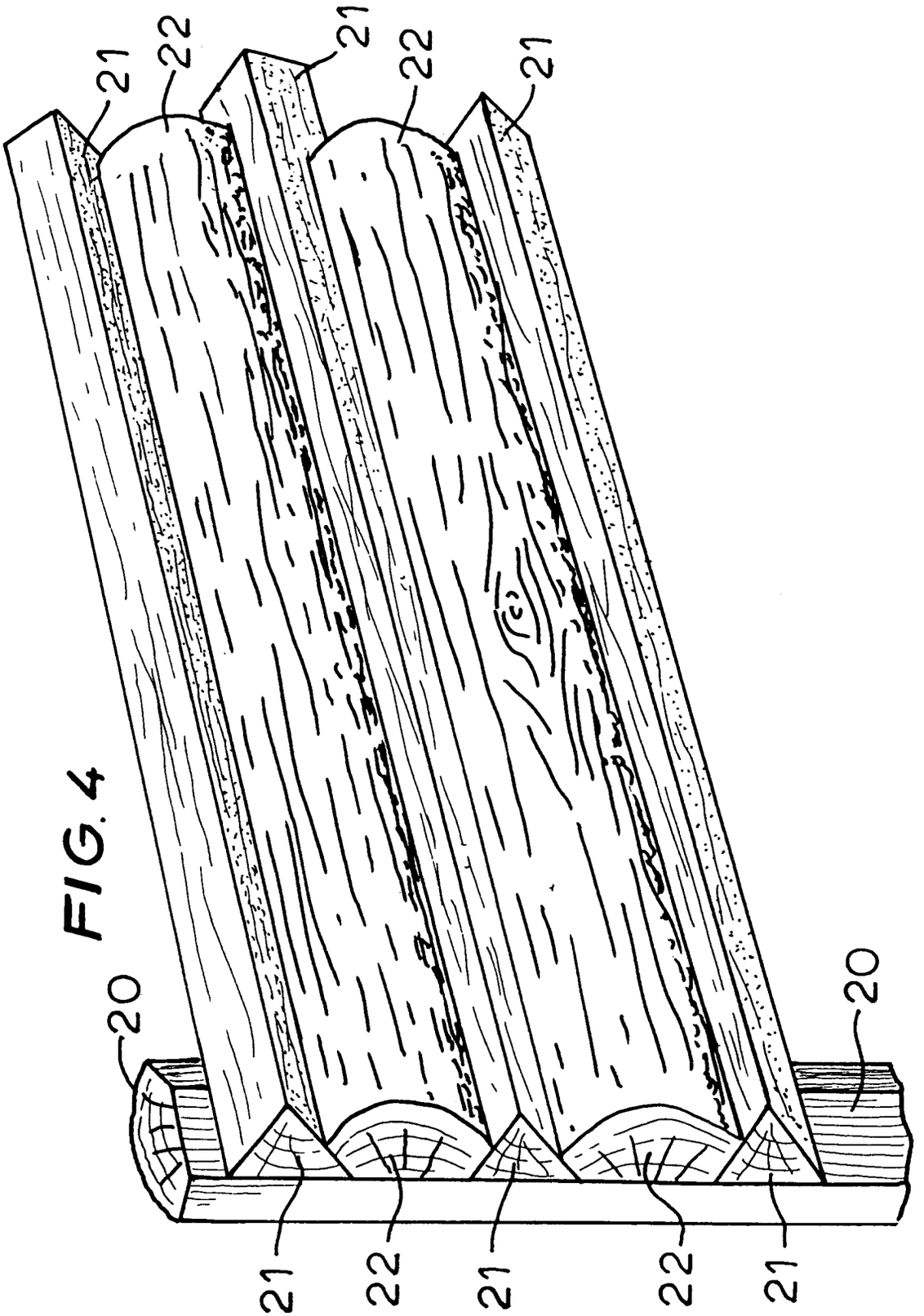


FIG. 4

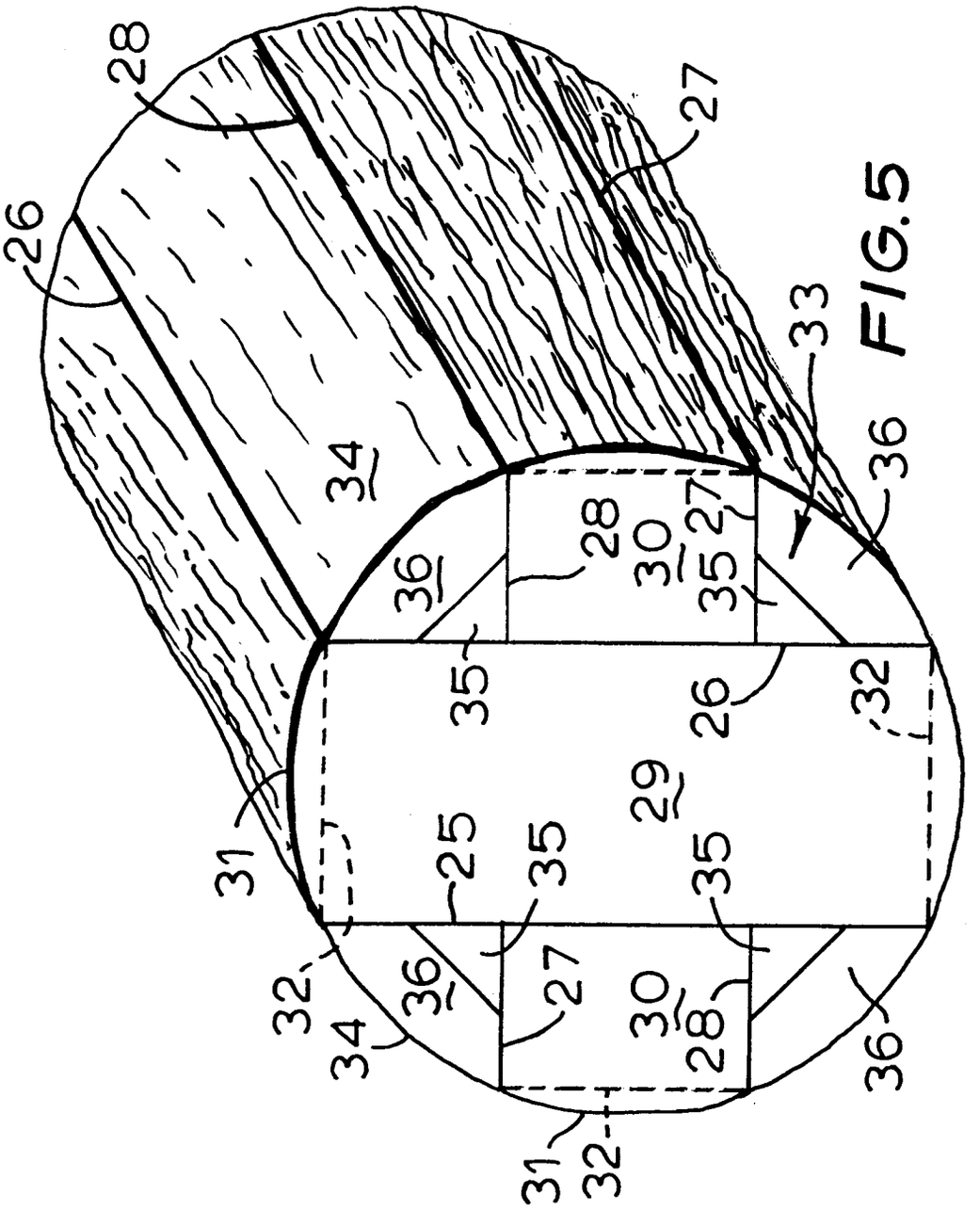

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FIG.5