

Sept. 4, 1928.

1,683,329

R. H. CHILTON

STEERING WHEEL

Filed Dec. 31, 1923

2 Sheets-Sheet 1

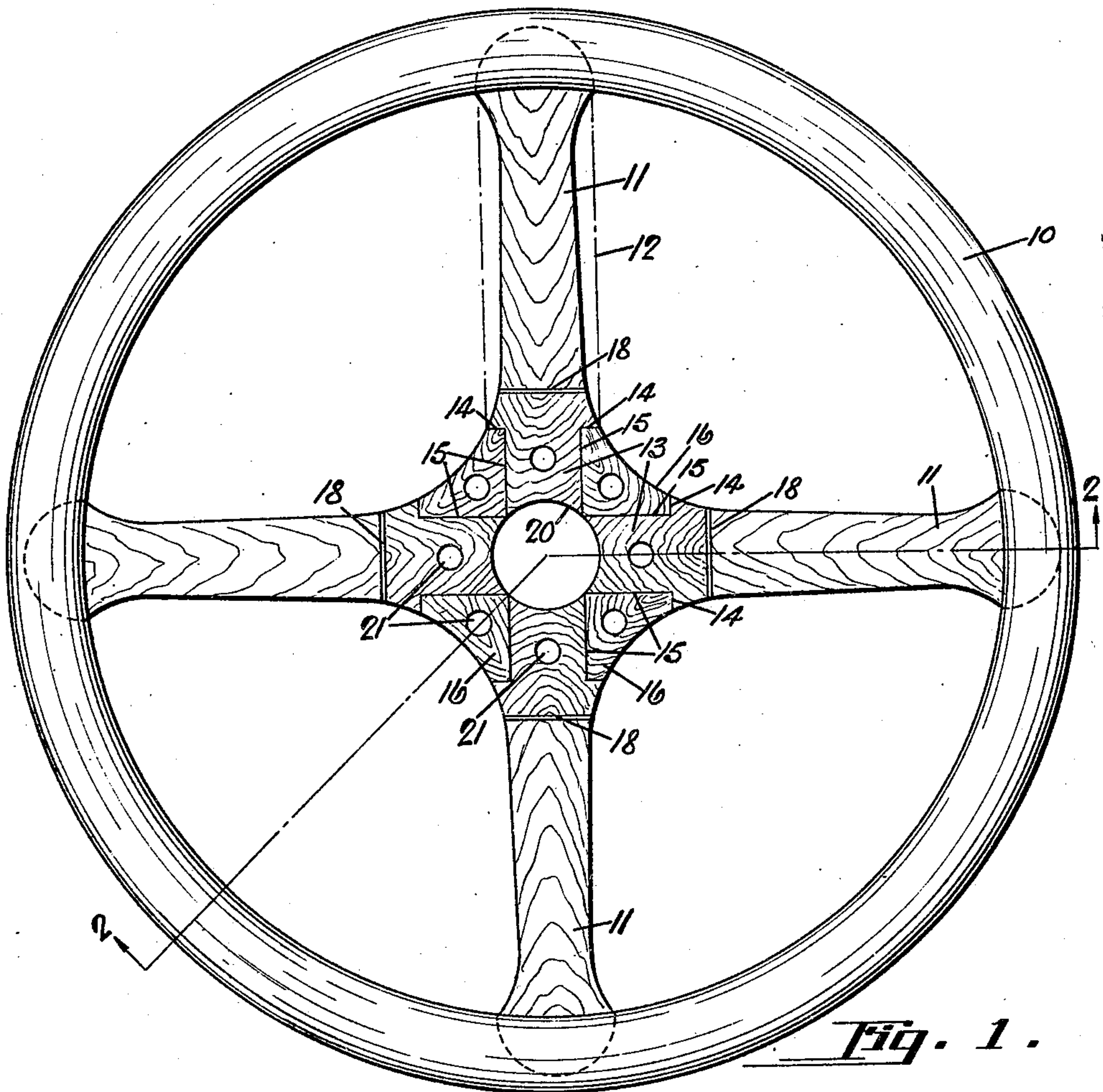


Fig. 1.

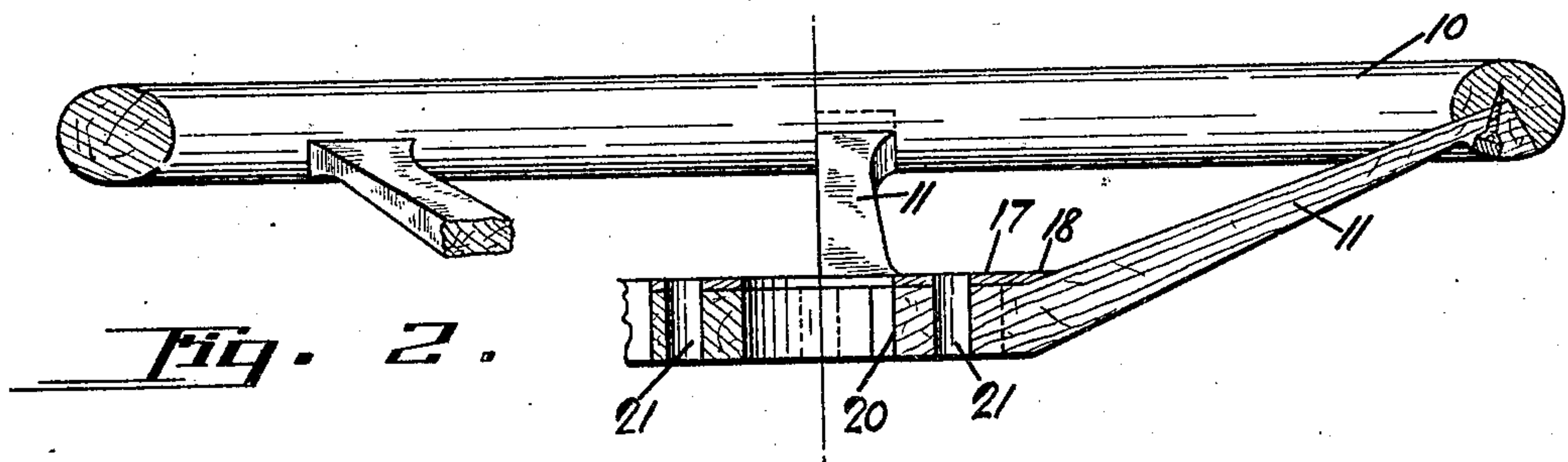


Fig. 2.

Inventor.

Ralph H. Chilton

Spencer, Sewall, & Hardman

his Attorneys.

Sept. 4, 1928.

1,683,329

R. H. CHILTON

STEERING WHEEL

Filed Dec. 31, 1923

2 Sheets-Sheet 2

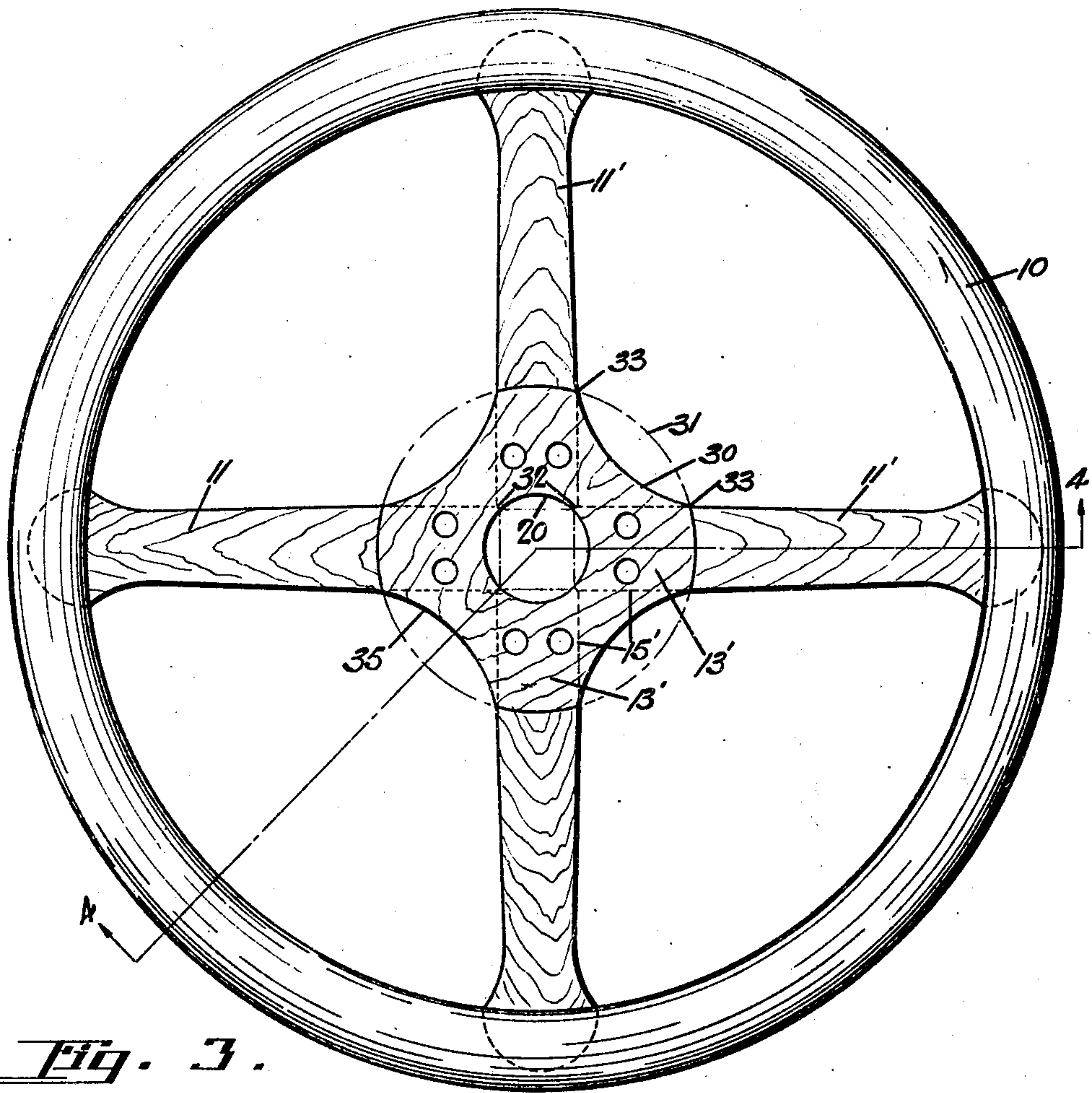


Fig. 3.

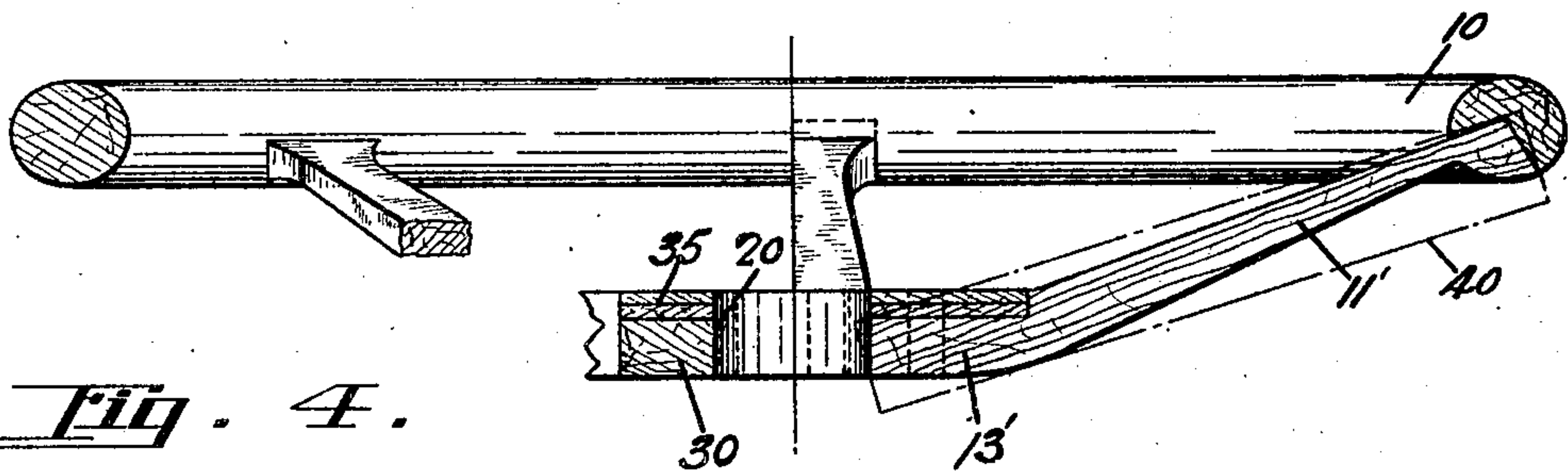


Fig. 4.

Inventor.

REV. BRIDG.
Ralph H. Chilton

Spencer, Sewall, & Hardman
his Attorneys.

Patented Sept. 4, 1928.

1,683,329

UNITED STATES PATENT OFFICE.

RALPH H. CHILTON, OF DAYTON, OHIO, ASSIGNOR TO THE INLAND MANUFACTURING COMPANY, OF DAYTON, OHIO, A CORPORATION OF DELAWARE.

STEERING WHEEL.

Application filed December 31, 1923. Serial No. 683,536.

This invention relates to handwheels especially such as those ordinarily employed as steering wheels on automotive vehicles.

An object of this invention is to provide a handwheel which is economical to manufacture and one which is at the same time strong and of good appearance.

Another object is to provide an improved construction and method for holding the separate parts of the wood hub construction tightly together while the glued surfaces are drying.

Further objects and advantages of the present invention will be apparent from the following description, reference being had to the accompanying drawings, wherein a preferred form of embodiment of the present invention is clearly shown.

In the drawings:

Fig. 1 is a plan view of a steering wheel built according to this invention but with the top wood plate removed to more clearly show the central construction.

Fig. 2 is a section along line 2—2 of Fig. 1 but shows the top wood plate in position.

Fig. 3 is a plan view of a modified construction.

Fig. 4 is a section along line 4—4 of Fig. 3.

In the drawings, like or similar reference characters refer to like or similar parts throughout the several views.

Numerical 10 designates the rim of the steering wheel which may be made in any suitable manner now well known in the art. It is thought that a clear description of the construction of the wood spider can best be given by a description of the method of construction. The separate wood spokes 11 are formed from pieces of wood stock of the width shown by the dot and dash line 12 in Fig. 1. The inner end portions 13 are reduced in width abruptly at the shoulders 14. The side surfaces 15 of the inner ends 13 are preferably parallel to the center line of the spoke, but if desired the inner ends 13 may be tapered toward the center. The separate corner blocks 16 are formed to accurately fit the space between the inner ends 13 of two adjacent spokes and of the same thickness as the inner ends of said spokes. A wood top plate 17 is cut out to fit over the entire central portion of the spider and has its edges beveled off to make a feather edge joint 18 with the upper surface of the dished spokes 11.

In assembling the spider, all the contacting surfaces of the separate spokes 11, the blocks 16, and the cover plate 17 have glue applied thereto and the spokes 11 and corner blocks 16 are loosely assembled in position. Inward radial pressure is then applied by any suitable means upon the outer ends of all the spokes 11. It will be clear from Fig. 1 that this radial pressure will be transmitted from the spokes to the blocks 16 at the shoulders 14 and hence the blocks 16 will be pressed up against all the side surfaces 15 by the pressure at the outer ends of the spokes 11. Of course the inner ends of the spokes 11 must be cut short enough to permit this radial pressure to be taken at the shoulders 14 instead of at the inner ends of the spokes. This radial pressure is sustained until the glue has dried sufficiently to retain the tightly glued joints between the various contacting surfaces. Preferably the top cover 17 is pressed down upon the central portion and held under pressure until the glue dries at the same time the glue is drying between the spokes and blocks 16. However, if desired, for any reason, the top plate 17 may be glued in place after the spokes and blocks 16 have been rigidly secured together to form an integral structure in the manner described.

The central bore 20 is cut after the top plate 17 is rigidly secured in place. The feather edge joints 18 between the top plate 17 and the upper surfaces of the spokes makes a tighter more invisible joint and the small thickness of plate 17 minimizes the tendency of any later shrinkage of the wood to cause the joints 18 to open up slightly. A flanged metal hub (not shown) is adapted to be secured to the wood hub portion by attaching bolts extending through the holes 21. Preferably these holes 21 extend through the center of each spoke 11 and each block 16 whereby all these parts are more securely held together.

In the modification shown in Figs. 3 and 4 the wood spokes 11' abut one another along the radial surfaces 32 and their inner ends 13' are not reduced laterally but extend substantially straight in, as clearly shown by the dotted lines 15' in Fig. 3. The inner ends of the spokes are cut away at the top surface as clearly shown in section in Fig. 4. The corner blocks 30 abut the side surfaces 15' of two adjacent spokes and are of the same thickness as the inner ends 13'. The corner blocks and

spokes are rigidly glued together along the surfaces 15', and the top plate 35 glued to the top surfaces of the inner ends 13' and the blocks 30, thus providing a flat grain to which the blocks and spokes will firmly adhere. The plate 35 is preferably laminated with the grains of the different layers crossed to give strength. In constructing this spider the blocks 30 are first cut out with blunt corners at the points 33 to prevent breaking or splitting off of said corners. The top plate 35 is also first cut out to excessive dimensions as shown by the dot and dash line 31. The spokes 11', the blocks 30, and the top plate 35 have glue applied to their contacting surfaces after which said parts are held clamped tightly together in their proper positions until the glue dries. The outer form of the plate 35 and blocks 30 are then cut down to the desired shape to give a well appearing central hub portion. The corners 33 of the blocks 30, now being firmly glued in place, can be cut down to a sharp edge without danger of splitting or breaking off. Since the top plate 35 of this modification is of considerable thickness the thickness of wood stock required from which to cut the spokes 11' is considerably reduced, as shown by the dot and dash lines 40 in Fig. 4. The grain of the wood in the spokes is substantially parallel to the center line of the piece of wood stock 40 and hence there will be no loss of stock whatever due to cutting the spokes to have the desired direction of grain.

While the form of embodiment of the invention as herein disclosed, constitutes a preferred form, it is to be understood that other forms might be adopted, all coming within the scope of the claims which follow.

What is claimed is as follows:

1. A steering wheel having a wood spider including, a plurality of wood spokes whose inner ends extend inwardly to a central bore, a plurality of separate wood blocks lying alternately between the inner ends of said spokes and rigidly secured thereto; and a wood cover plate covering the joints between said inner ends and said blocks and rigidly secured to the top surfaces of said inner ends and said blocks by adhesive means to form a rigid hub portion, said cover plate having a feather edge joint with the upper surface of said spokes.

2. The method of constructing a wood spider including: forming wood spider spokes having shouldered reduced inner end portions, forming corresponding corner blocks to fit between adjacent shoulders on said spoke ends, applying glue to the inner ends of said spokes and corner blocks and assembling them together loosely, and then ap-

plying radial pressure upon the outer ends of all of said spokes simultaneously to firmly press together the contacting glued surfaces of said spokes and blocks until the glue dries.

3. The method of constructing a wood spider including: forming wood spokes having inwardly facing shoulders at each side thereof near the inner ends of said spokes, forming separate wood blocks to fit within the spaces between the shoulders on the adjacent spokes, applying glue to the contacting surfaces between said spokes and blocks and assembling said parts loosely, and then applying inward radial pressure upon all of said spokes simultaneously to firmly press together all the contacting surfaces of said spokes and blocks until the glue dries.

4. The method of assembling together separate wood spokes and separate wood blocks to form a wood spider including: applying glue to the contacting surfaces of said spokes and blocks and loosely assembling said spokes and blocks in position, and then applying inward radial pressure upon said spokes to firmly press together the contacting surfaces of said spokes and blocks until the glue dries.

5. A steering wheel having a continuous rim adapted to be grasped by the hand of the operator and a wood spider, said spider comprising: a plurality of separate wood spokes having inner ends extending inwardly to a central bore, said inner ends being reduced in lateral dimension but having a vertical dimension not less than that of that portion of the spoke extending from the hub to the rim, a plurality of separate wood blocks lying alternately between said inner ends and rigidly secured thereto, and a wood top cover plate covering the joints between said inner ends and said blocks and retained by adhesive means to form a rigid hub portion.

6. A steering wheel having a continuous rim adapted to be grasped by the hand of the operator and a wood spider, said spider comprising: a plurality of separate wood spokes having inner ends extending inwardly to a central bore, said inner ends having a vertical dimension as great as that of the portion of the spoke extending from the hub to the rim whereby the cantilever strength of said spokes is increased, a plurality of separate wood blocks lying alternately between said inner ends and rigidly secured thereto, and a central wood cover plate covering the upper surfaces of said blocks and inner ends and fixed in place by adhesive means to form a rigid structure.

In testimony whereof I hereto affix my signature.

RALPH H. CHILTON.