

No. 714,725.

Patented Dec. 2, 1902.

H. F. MANN.  
PLATE METAL CAR WHEEL.

(Application filed June 21, 1902.)

(No Model.)

FIG. 1.

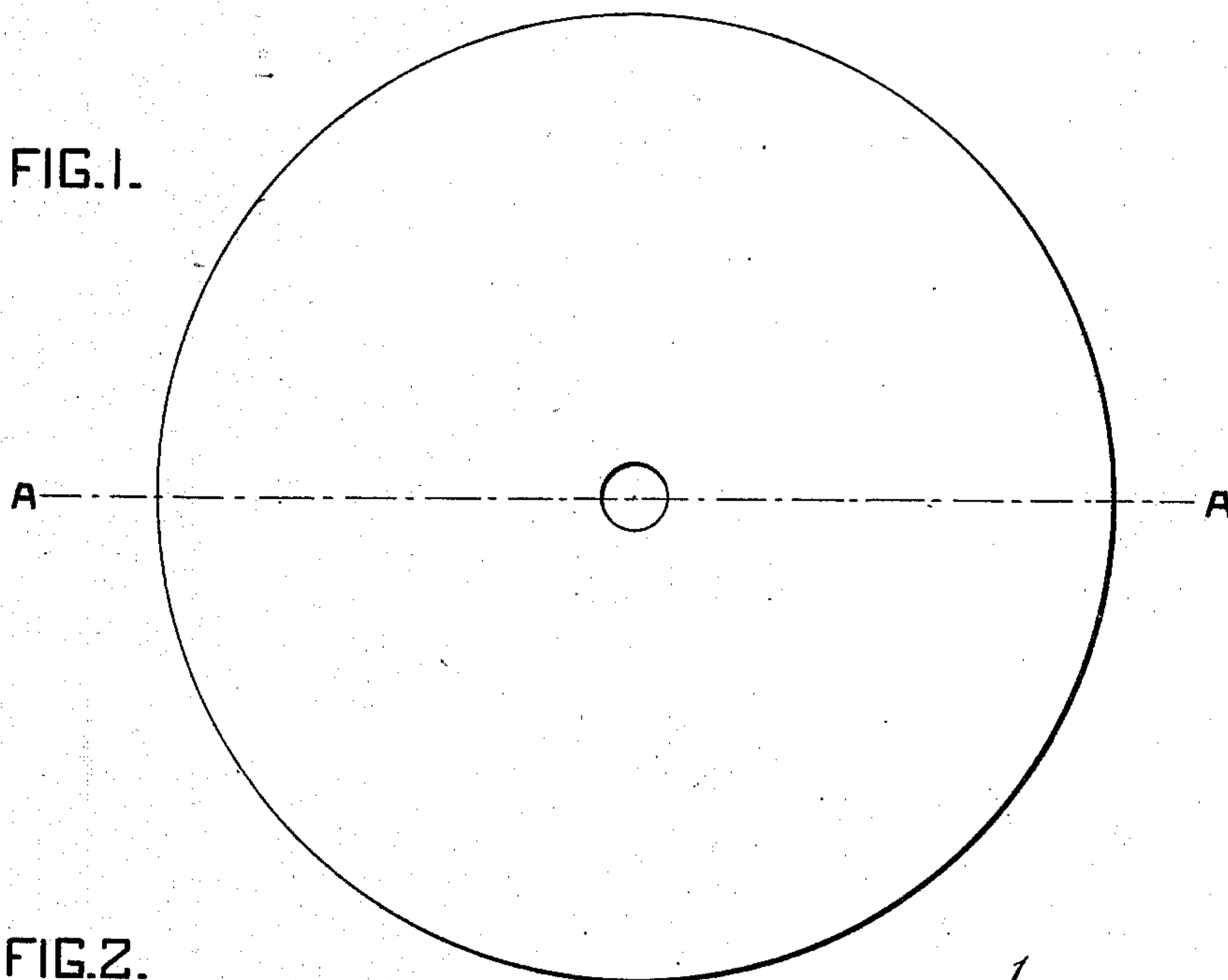


FIG. 2.



FIG. 3.

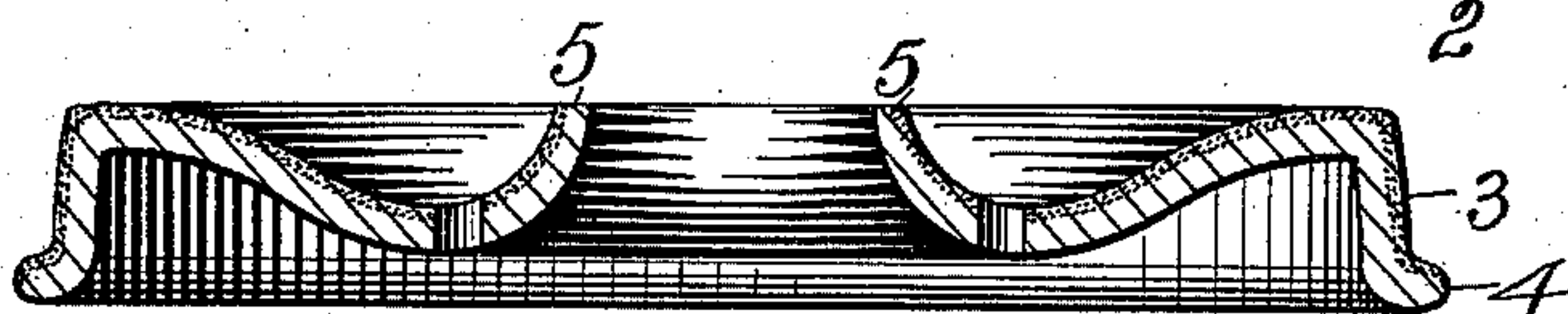


FIG. 4.

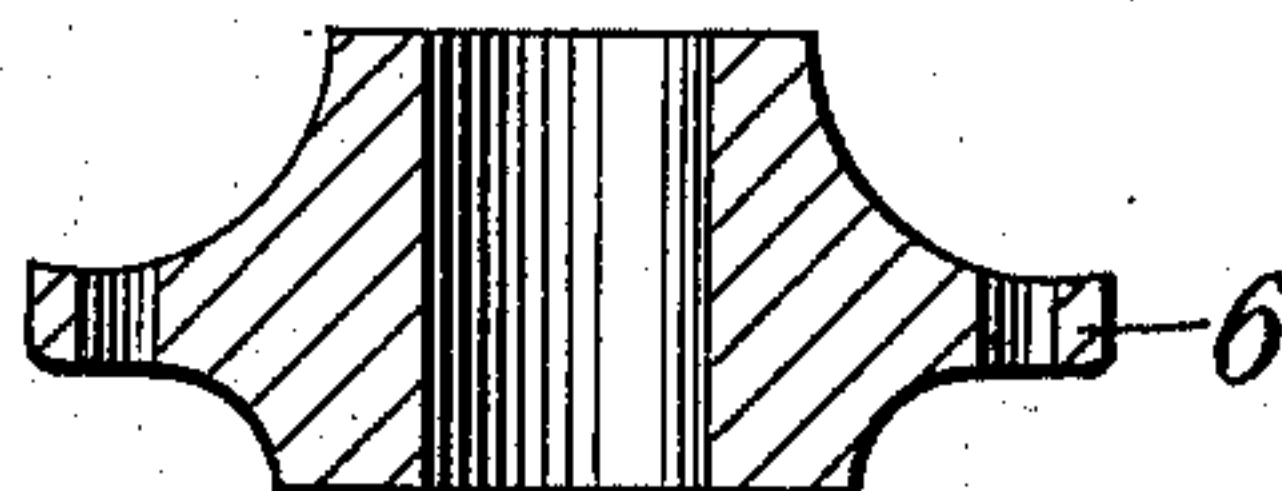
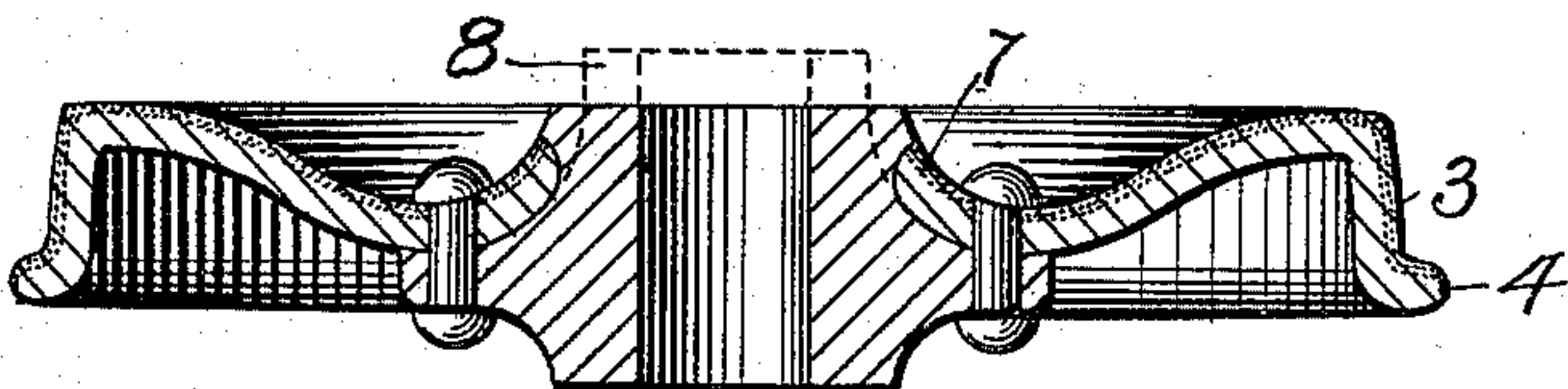


FIG. 5.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

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## PLATE-METAL CAR-WHEEL.

SPECIFICATION forming part of Letters Patent No. 714,725, dated December 2, 1902.

Application filed June 21, 1902. Serial No. 112,718. (No model.)

*To all whom it may concern.*

Be it known that I, HENRY F. MANN, a citizen of the United States, and a resident of Allegheny, in the county of Allegheny and State of Pennsylvania, (whose post-office address is Box No. 716, Pittsburg, Pennsylvania,) have invented certain new and useful Improvements in Plate-Metal Car-Wheels, which improvements are clearly set forth in the following specification and accompanying drawings.

My invention relates to improvements in car-wheels the web, tread, and rail-flange of which are made of a single plate of steel or of a single plate of steel and iron, the hub of the wheel being formed separately of suitable material and securely attached to the center of the web, which will make a car-wheel which will be light and strong and possessing to a high degree the requisite wearing qualities on the tread and rail-flange.

The nature and general scope of my invention will be readily understood by reference to the following specification and accompanying drawings, which will enable those skilled in the art to practice the same.

In order to secure the desired results in the practice of my invention and make a car-wheel which will have the necessary strength and possess the desired degree of hardness on the outer or wearing surface of the tread and rail-flange, I make the web, tread, and flange of a single plate of steel or a single plate of steel and iron. If the plate is made of steel, three-fourths of its thickness, more or less, is to be composed of low-carbon tough and strong steel and one-fourth of its thickness, more or less, of high-carbon hard steel. If the plate is to be made of steel and iron, three-fourths of its thickness, more or less, is to be composed of wrought-iron and one-fourth of its thickness, more or less, of high-carbon hard steel. In either case the different compositions of metal of which the plate is made are to be properly cemented or welded together by any known process.

In the several figures the mixed shading represents the high-carbon hard steel and the plain open shading the low-carbon steel or wrought-iron of which the plate may be composed.

The hub may be made of wrought steel or

iron or of cast metal; but in cases where it is to be secured to the web in whole or in part by welding, as will be hereinafter described, it should be made of suitable weldable metal.

Figure 1 represents a plate of steel or steel and iron to be of suitable diameter and thickness to form the web, tread, and rail-flange of the wheel. Fig. 2 is a sectional view of Fig. 1 at A A. Fig. 3 represents one form of the web, tread, and rail-flange after the plate has been subjected to the operation of suitable dies or other processes to give it the desired form.

In making car-wheels of plates composed of steel or steel and iron, as above described, they should be so formed as to bring the high-carbon hard steel on the outer surfaces of the tread, as at 3, and the rail-flange, as at 4, in order to secure the best and most durable wearing qualities of the plate at those points where it is most needed. The central portion of the web may be curved outwardly, as shown at 5, so as to furnish a strong bearing in which the hub is to be seated and secured. In order to secure additional stiffness to the web, it may be corrugated either radially or circumferentially.

Fig. 4 is a sectional view of a hub and its flange 6, (which is formed integral with the hub,) of the proper size and shape, which is to be inserted in and secured to the center of the web.

Fig. 5 shows a modification of the manner of securing the hub to the web of the wheel, the inner edge being curved outwardly, as shown at 7, the outer end of the hub being shaped and made somewhat longer, as shown in dotted lines at 8, than it is to be when it is finally finished. This lengthened portion of the hub is to be heated to a suitable degree of heat and then passed through the curved opening of the central portion of the web, the flange of the hub resting against the rear face of the web and the face end of the hub upset by suitable means, so as to form an annular flange or shoulder against the edge of the web, as shown. For further security the web and flange of the hub may be riveted together, as shown.

I claim herein as my invention—

A car-wheel the web, tread and rail-flange of which are made of a single plate, three-fourths

of the thickness, more or less, of said plate  
composed of low-carbon steel, or wrought-  
iron, and one-fourth of its thickness, more or  
less, composed of high-carbon hard steel, so  
5 that when the plate is given its proper form, the  
wearing-surfaces of the tread and rail-flange  
of the wheel will be composed of high-carbon  
hard steel, and a hub made of suitable ma-  
terial provided with a flange resting against  
10 the rear face and curved portion of the cen-  
ter of the web, the face end of the hub being

upset so as to form an annular bearing or col-  
lar against the inner edge of the web; the  
flange of hub and the web riveted together  
substantially as shown and described. 15

In testimony whereof I have hereunto set  
my hand and seal in the presence of two sub-  
scribing witnesses.

HENRY F. MANN. [L. S.]

Witnesses:

C. C. LEE,

S. C. DURBIN.