Dec. 31, 1929. J. H. HUNT 1,741,716

METHOD OF SECURING WHEEL DISKS TO RIMS

Filed Sept. 30, 1926

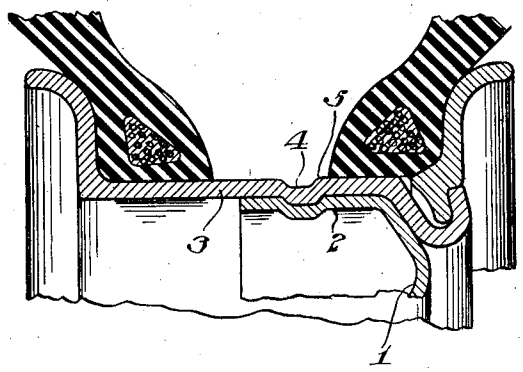

FIG-1

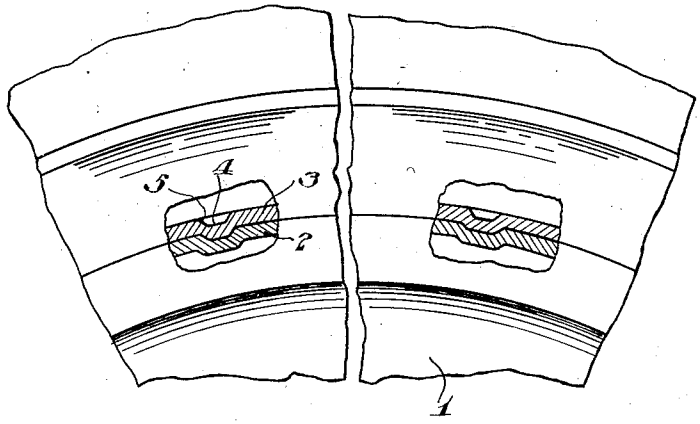

FIG-2

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UNITED STATES PATENT OFFICE

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METHOD OF SECURING WHEEL DISKS TO RIMS

Application filed September 30, 1926. Serial No. 138,718.

This invention relates to vehicle wheels and is directed more particularly to the manner of connecting the rim or felloe to a wheel disk.

It is the common practice in disk wheel construction to flange the outer circumferential portion of the disk laterally to form an annular seat for the felloe, or in some instances for the rim, where the felloe is eliminated and the rim is attached directly to the disk. The flange and felloe or rim are then united in any suitable manner as by welding, riveting, or even in some instances by embossing the metal of the disk flange and felloe or rim outwardly, thereby to interlock the two together. The last mentioned form of connection is highly desirable as it eliminates rivets and welding operations which increase the cost of production, but at the same time it is open to a number of objections, among which may be stated, that as heretofore conceived, the relatively thinner metal of the disk flange is embossed into the thicker metal of the felloe or rim, which is undesirable as the thinner metal is stretched excessively by the greater force required to deform the thicker metal. If embossed outwardly, the disk flange is formed with a plurality of cup shaped depressions that tend to hold water and hence invite rust at these points. Another objection to this form of interlock is that a series of projections are formed on the outer surface of the felloe or rim which in the case of the felloe interfere with the rim seating thereon, or in the case of the rim, tend to cause excessive wear on the tire flap and inner tube.

The primary object of the present invention is to provide a form of interlock between the felloe or rim and the disk flange wherein a relatively smooth outer surface is provided that will not interfere with the rim seating thereon in the case of a felloe, or which will not cause excessive wear in the tire flap or inner tube in the case of the rim being secured directly to the disk flange.

Another object is to provide an interlock which shall be devoid of all recesses in the disk flange which are open to the objection above mentioned.

A further object is to provide an interlock which shall greatly facilitate the manufacture of wheels by permitting the male dies, which are cumbersome and which carry the actuating mechanism, to be arranged outside of the periphery of the rim or felloe where ample room is available therefor.

A still further object is to provide a form of interlock wherein the male punch deforms the heavier or thicker metal of the felloe or rim and the lighter or thinner metal of the disk flange follows such deformation thereby relieving the thinner metal of the work of deforming the thicker metal.

With these and other objects in view, the invention may be stated to consist in providing an interlock between the disk flange and felloe or rim by embossing the metal thereof radially inwardly, all of which will be fully described hereinafter and pointed out in the appended claim.

In the drawing accompanying and forming a part of this application:—

Figure 1 is a fragmentary sectional view through a disk wheel constructed in accordance with my invention; and

Figure 2 is a fragmentary side elevation thereof with parts broken away to more clearly show the interlock between the disk flange and rim.

In the drawing, 1 denotes a wheel disk having a laterally extending flange 2 which forms a seat for a rim 3 of any suitable construction. The rim and disk flange are preferably press fitted together to insure a tight fit and in order to secure the rim in place, I emboss the metal thereof inwardly at a plurality of points and indicated at 4. These indentures may be accomplished by suitable punches and dies, the punches being disposed on the exterior of the rim and the dies on the interior of the disk flange. With this arrangement, the punches and operating mechanism therefor are afforded ample room and may be of considerable size to insure durability. The relatively thicker metal of the rim is forced radially inwardly by the punches which in turn force the thinner metal of the disk flange radially inwardly therewith. The metal of the rim is thus interlocked with the metal of the disk

flange and the rim is securely locked in position.

I preferably form the punches in such manner as to provide rounded edges at 5 so that chafing of the tire flap or inner tube will not occur at these points. The depressions formed on the exterior surface of the rim are relatively shallow, being less than the thickness of the metal of the rim, and are of relatively small diameter, hence the danger of wear on the tire flap or inner tube will be relatively small.

It will be understood of course that while I have shown and described a rim attached directly to the disk flange by my improved interlock, the same method of fastening could be used equally well for securing a felloe to the disk flange.

What I claim is:—

A wheel structure comprising a disk having its outer annular portion flanged laterally to form a substantially cylindrical seat, and a tire rim snugly fitted to said seat, the metal of said rim and seat being embossed inwardly at a plurality of points to form an interlock therebetween, the said seat being relatively wide as compared with its embossed portions, and the embossed portions being separated from the edge of the seat by a relatively wide margin.

In testimony whereof he hereunto affixes his signature.

J. HAROLD HUNT.