May 10, 1966 R. RICHTER 3,250,571

NONFERROUS WHEEL HAVING STEEL INSERTS AND STEEL RIM WELDED THERETO

Filed Feb. 28, 1964

FIG. 1.

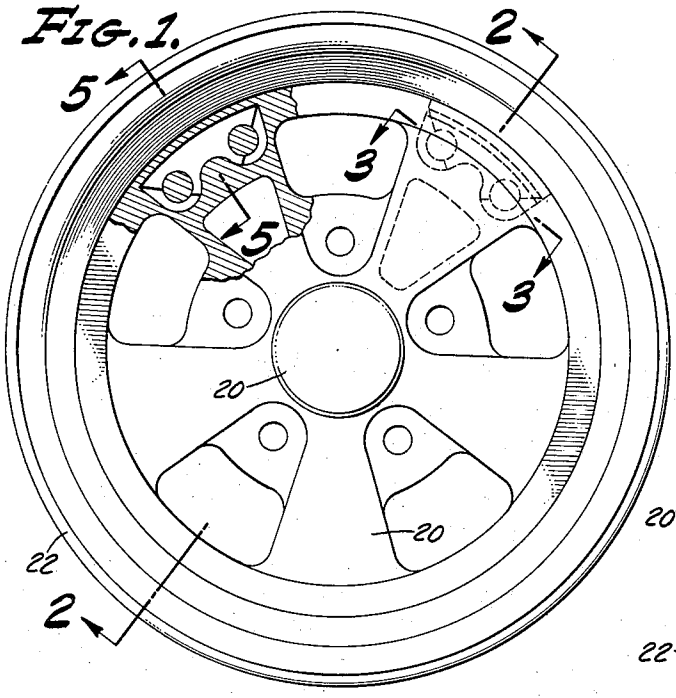


FIG. 2.

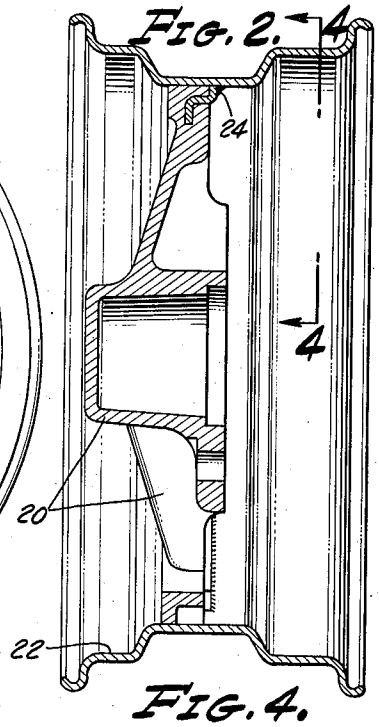


FIG. 3.

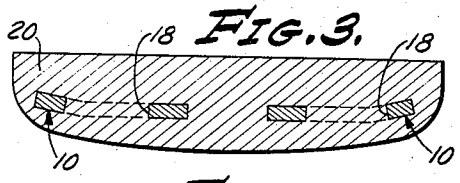


FIG. 4.

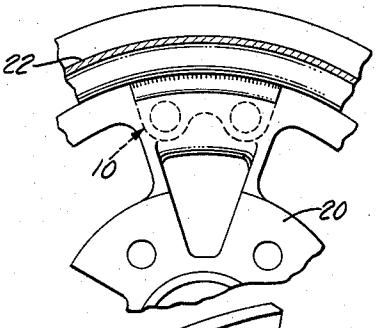


FIG. 5.

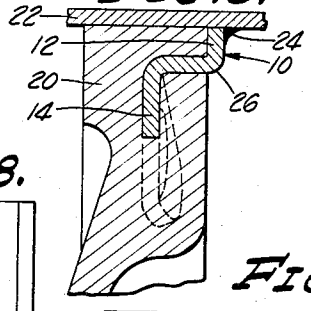


FIG. 6.

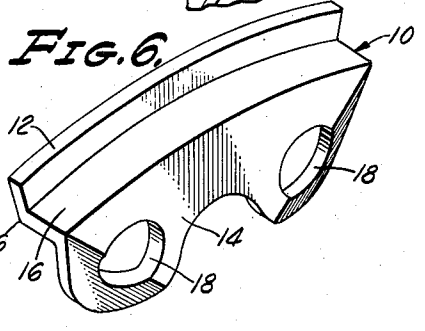


FIG. 8.

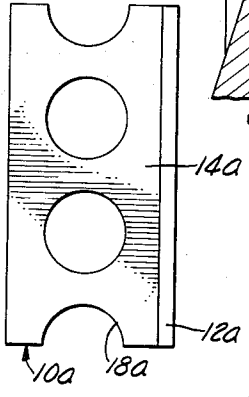
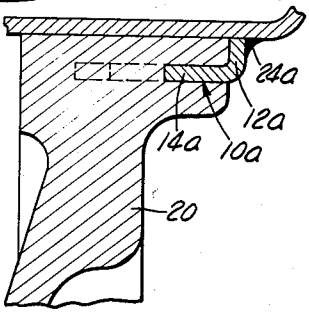


FIG. 7.



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3,250,571

NONFERROUS WHEEL HAVING STEEL INSERTS AND STEEL RIM WELDED THERETO

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5 Claims. (Cl. 301—65)

This invention relates to wheel construction and more particularly, to the design and manufacture of wheels for automotive and associated markets.

Recently a form of wheel has been in demand which comprises a normal steel rim and a cast aluminum center section which is polished or painted to enhance its appearance. Several methods of attaching the aluminum center section to the steel rim have been attempted such as riveting. Due to the relatively flexible characteristics of the steel rim under use and the relative inflexible characteristics of the aluminum casting, the fastening means or rivets tend to become loose. This results in air leaks when using tubeless tires and allows the wheels to squeak and ultimately leads to its destruction.

An object of this invention is to provide a wheel wherein the steel and cast aluminum sections may be joined without loosening of said connection under use.

A further object of this invention is to provide a means for interconnecting the relatively flexible rim to the relatively inflexible center in such a manner as to provide for relative movement between the two.

Other objects and advantages will be apparent from the following description:

In the drawings:

FIGURE 1 is a plan view of the wheel.

FIGURE 2 is a view taken along line 2—2 of FIGURE 1.

FIGURE 3 is a view taken along line 3—3 of FIGURE 1.

FIGURE 4 is a view taken along line 4—4 of FIGURE 2.

FIGURE 5 is a view taken along line 5—5 of FIGURE 1.

FIGURE 6 is a perspective of the connecting member.

FIGURE 7 is a sectional view similar to FIGURE 5 of a modified form.

FIGURE 8 is a plan view of the modified connecting member.

A steel clip or connecting member **10** is formed with a peripheral section **12**, a perforated section **14** and an interconnecting section **16**. The perforated section has one or more holes **18** therethrough.

When the center aluminum section **20** is cast, a clip **10** is positioned at the end of each normal spoke of the wheel. During casting the aluminum fills holes **18** thus firmly anchoring the clips to the cast aluminum center section.

When it is desired to mount the wheel center on the steel rim **22**, which is of a standard construction well known to those skilled in the art, the peripheral section **12** of each clip is welded as at **24** thereto.

It is to be noted that the clip or connecting member **10** is provided with a bend or curved section **26** between the peripheral section **12** and perforated section **14** which is outside the cast aluminum center section **20**. This bend or curved section will, during operation of the car, flex to compensate for the relative movement between the steel rim **22** and the aluminum center **20**.

In FIGURES 7 and 8 a modified form of this invention is shown wherein like parts are given the same numerical designation with the addition of the exponent "*a*." The difference here resides in the formation of the clip **10***a* where the interconnecting section **16** has been eliminated and the configuration of the perforated section **14** altered. In other respects the construction is the same as the previously described embodiment of the invention.

While what hereinbefore has been described as the preferred embodiment of this invention, it is readily apparent that alterations and modifications may be resorted to without departing from the scope of this invention and such alterations and modifications are intended to be included within the scope of the appended claims.

I claim:

1. A vehicle wheel assembly, including: a hub made of nonferrous metal and having a plurality of circumferentially spaced rim mounting portions each having an axially extending circumferentially arcuate outer end surface, said hub having apertured wheel mounting webs for mounting on a vehicle, a steel rim having a circular axially extending inner surface placed over and engaging said end surfaces; steel inserts carried by said mounting portions to afford the welding thereof to said rim, each of said inserts including a body portion embedded in one of said mounting portions and an exposed portion extending radially outwardly along and externally of a side surface of said one of said mounting portions and terminating adjacent the inner surface of said rim, and a bead of weld applied to said exposed portion of said insert and to said rim joining said rim to said hub.

2. A vehicle wheel assembly, including: a hub made of nonferrous metal and having a plurality of circumferentially spaced rim mounting portions each having an axially extending circumferentially arcuate outer end surface, a steel rim having a circular axially extending inner surface placed over and engaging said end surfaces, a steel insert carried by each of said rim mounting portions, each insert having one extremity embedded in its rim mounting portion and its other extremity directly and rigidly secured to said rim, the intermediate portion of each insert being free of direct securement to said hub and rim and comprising a resiliently flexible connection between said hub and rim.

3. A wheel as defined in claim **2** wherein said other extremity of each insert is welded to said rim and wherein said one extremity is provided with at least one hole therethrough interlocking with the material of said hub.

4. A wheel as defined in claim **2** wherein each said intermediate portion is curved.

5. A wheel as defined in claim **2** wherein each said intermediate portion is located externally of its rim mounting portion on one side of said wheel.

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