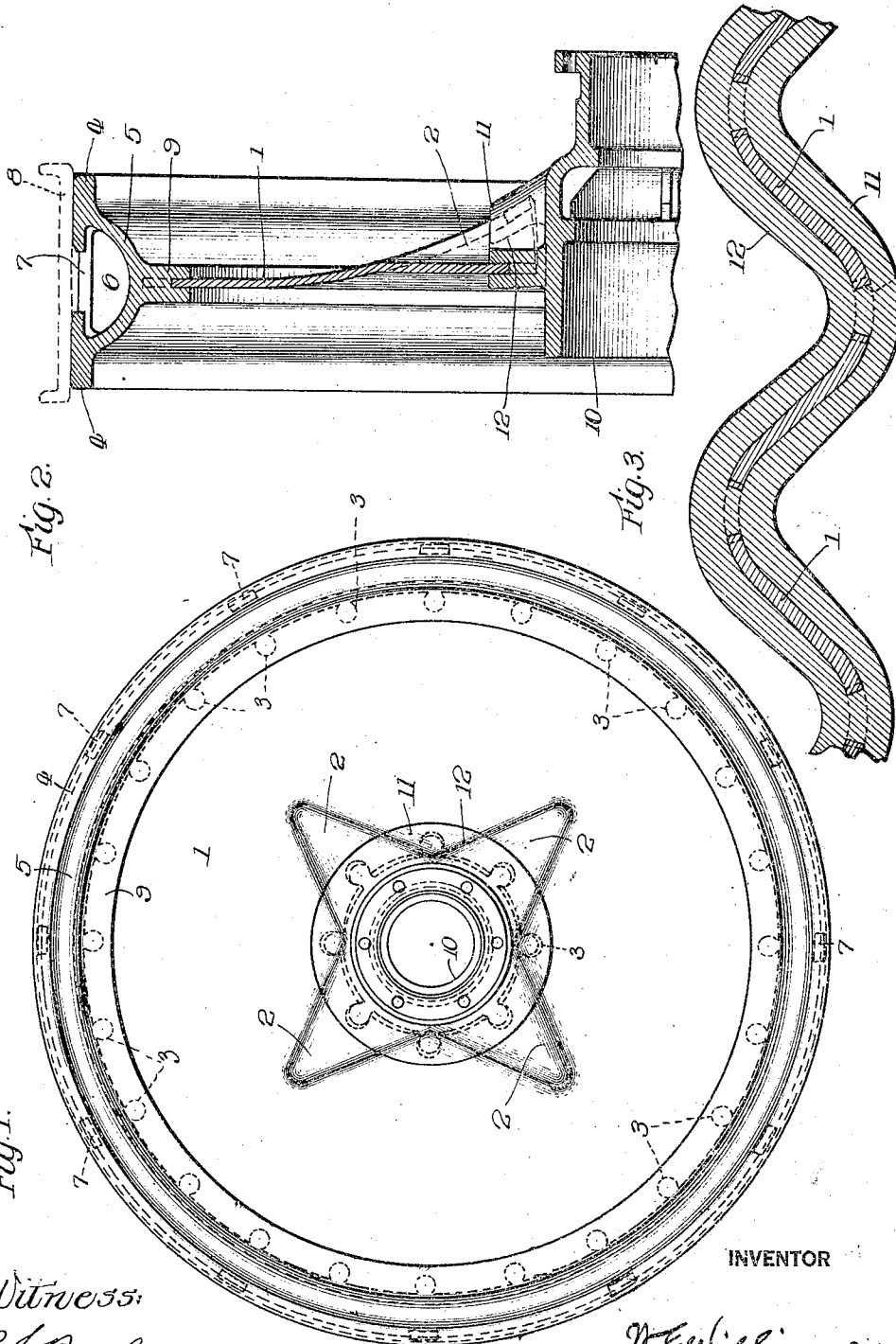


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 PLATE WEB WHEEL.
 APPLICATION FILED DEC. 15, 1919.

1,398,614.

Patented Nov. 29, 1921.



Witness:
R. J. Bernhard

INVENTOR

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1,398,614.

Specification of Letters Patent.

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Application filed December 15, 1919. Serial No. 344,865.

To all whom it may concern:

Be it known that I, WILLIAM ERASTUS WILLIAMS, a citizen of the United States, a resident of Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Plate-Web Wheels, of which the following is a specification.

The object of my invention is to provide a cast hub and a cast rim and rolled web plate wheel, that will have all the advantages and the appearance of a cast plate wheel and yet be cheaper to make than a cast plate wheel.

In making a wheel that has a cast plate web, the large surface area of the plate casting is quite hard to make and the large area allows dirt to flow and settle in the cope side of the casting and thus produce casting faults that increase the foundry losses and increase the cost of the product.

Reference will be had to the accompanying drawing in which Figure 1 is a front elevation of my wheel.

Fig. 2 is a sectional elevation, showing only one-half of the wheel but on a larger scale than Fig. 1.

Fig. 3 is a sectional view on line around the hub aperture of the web on still a larger scale than that of the other figures.

In the drawing 1 indicates the plate web of my wheel, which is provided with short tapering corrugations 2 for stiffening purposes where it joins the hub.

In the marginal regions, both around the outside margin of the plate and around the central-hole, into which the hub is cast, I provide a series of notches or apertures 3 which are produced by punching or drilling, to facilitate securing the cast metal to the rolled metal plate.

The rim is made of cast metal in the form shown, having the edge flanges 4 and the curved stiffening section 5, which incloses the outwardly open channel 6, and this is bridged across at intervals by the cross bars 7 and the tread of the wheel is closed by means of the solid rubber tire base 8, as these wheels are always used with rubber tires.

The section 5 is merged into the flanged section 9 which embraces the outside edge of the plate 1.

The hub of the wheel is shown by 10 and is cast on to the plate 1 in the zone of its corrugations 2 through the medium of the

flanges 11 and 12, which embrace the inner edge of the hub apertures of the plate 1.

In manufacturing my wheel I form the plate disk 1 and put it as an insert, in the mold and then cast on both the hub and the rim.

By reason of the apertures 3 around the rim of the plate 1 the shrinkage of the metal of the rim is localized right where it occurs and shrinkage strains thus do not become serious matters, but are offset by the annealing of the casting after it has been made. The same conditions exist around the hub, with the difference that the shrinkage of the hub serves to draw to a smaller diameter and thus draws or pulls away from the steel plate.

However, the corrugated frame of the plate allows a slight buckle of the plate and at the same time chills the metal of the hub so that it cools sufficiently quickly around the flanges to draw this section of the metal a little larger in the casting before the cooling becomes sufficient to make internal strains cause large cracks, and these strains are equalized in the annealing as before described.

The corrugated form of the plate, where it joins the hub permits a secure union of these parts, even though the metal were to pull away slightly in diameter as, even then the plate, owing to its corrugations, will be bound firmly in its seat in the flanges 11 and 12.

What I claim is:—

1. The combination with a cast hub, of a rolled wheel disk having a plain circumferential zone at some distance from the hub and in the medial plane of the wheel, the inner margin of said zone being braced by integral divergent ribs held in the hub metal, and a rim cast on the peripheral margin of the disk.

2. The combination with a wheel disk having a plain outer zone at some distance from the hub and around its inner limit braced by integral divergent corrugations having their inner ends held in projections on the body of a cast-on hub.

3. In a wheel of the class described a rolled plate wheel disk of approximately uniform thickness having a central opening cut away at intervals along each margin to receive cast-on metal, and having at its hub opening deep corrugations tapered to zero at some distance from that opening,

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whereby the uniformly thin disk has the lateral stiffness of a disk outwardly tapered in radical cross section.

4. The combination with a uniformly thin wheel disk, of a wide cast-on rim having an inwardly extending annular central rib and a central, outwardly open, annular channel extending into the rib, said rib engaging along its inner side the outer margin of the

disk and forming a continuous lateral brace therefor from each side portion of the rim. 10

Signed at Chicago, in the county of Cook and State of Illinois, this thirteenth day of December, 1919.

WILLIAM ERASTUS WILLIAMS.

Witnesses:

B. J. BERNHARD,
J. B. JEFFERSON.