July 10, 1923. 1,461,690

E. M. TORKELSON ET AL

DISK WHEEL

Filed Nov. 20, 1922 2 Sheets-Sheet 1

Fig. 1.

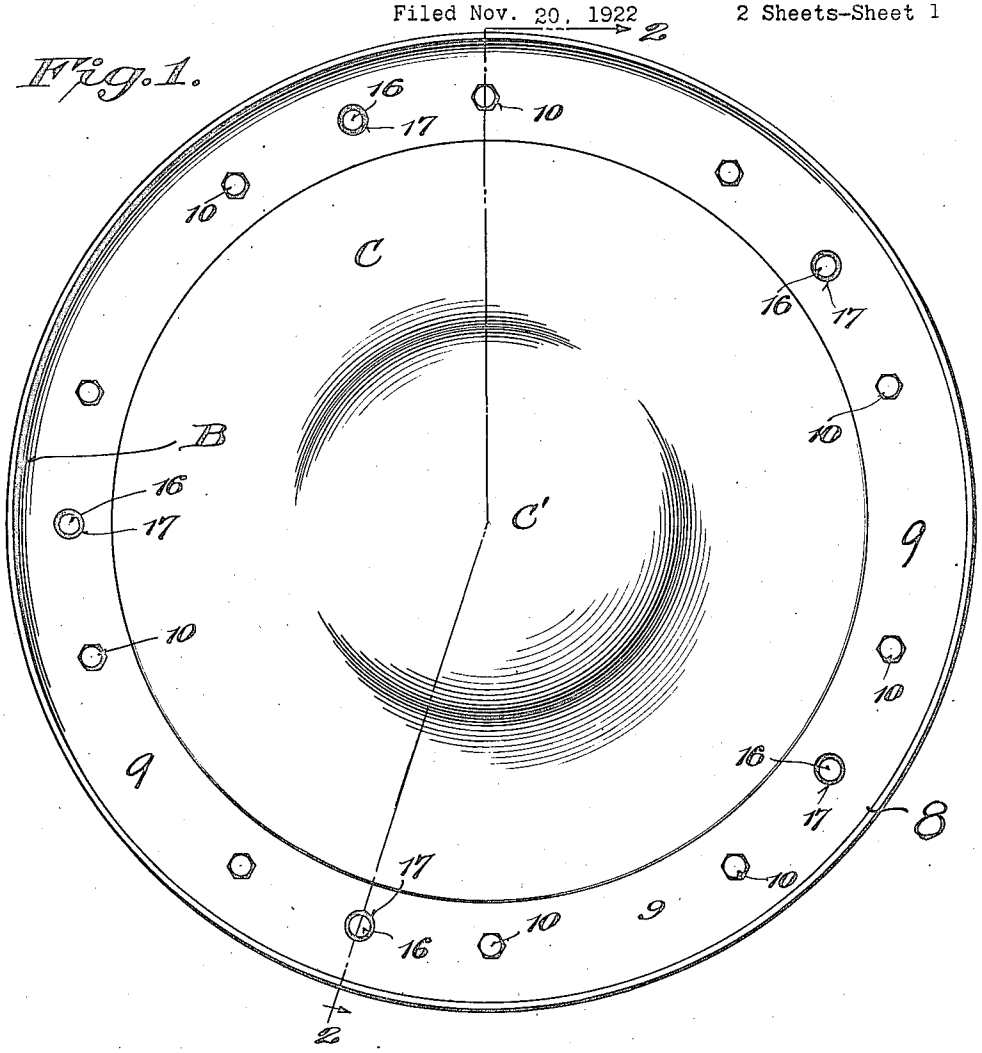

Fig. 3.

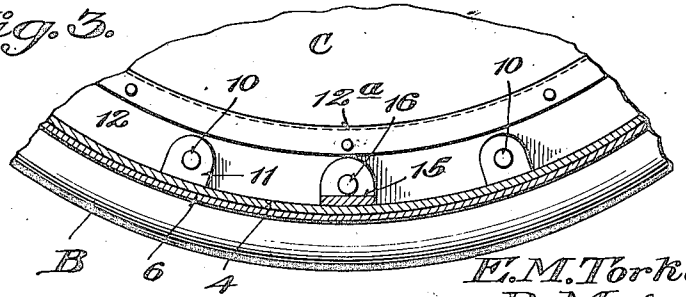

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Fig. 2.

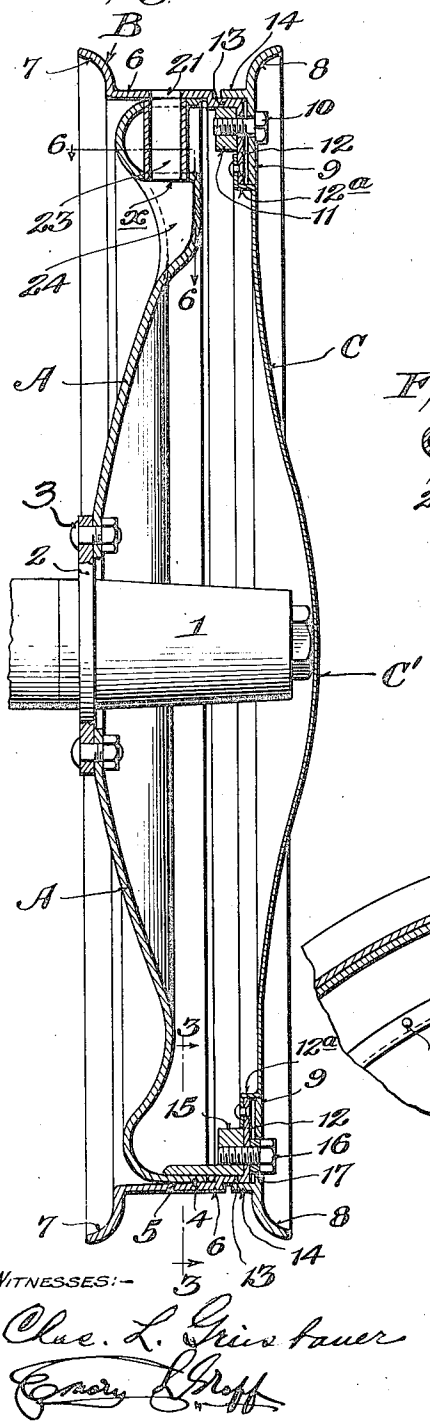


Fig. 4.

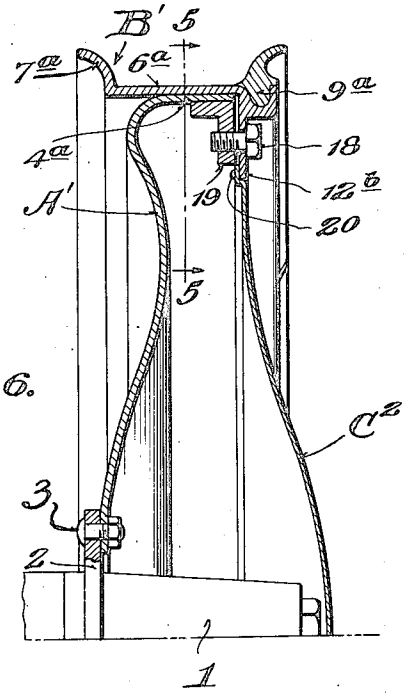
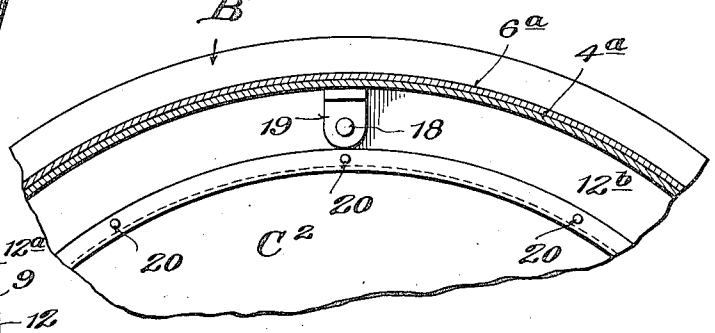


Fig. 6.

Fig. 5.



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UNITED STATES PATENT OFFICE.

EILET M. TORKELSON AND BASIL MEIGS, OF WASHINGTON, DISTRICT OF COLUMBIA.

DISK WHEEL.

Application filed November 20, 1922. Serial No. 602,123.

To all whom it may concern:

Be it known that we, EILET M. TORKELSON and BASIL MEIGS, citizens of the United States, residing at Washington, District of Columbia, have invented certain new and useful Improvements in Disk Wheels, of which the following is a specification.

This invention relates to vehicle wheels, and more particularly to a novel improvement in disk wheels for automobiles.

A primary object of the invention is to provide a simple and practical construction, wherein the hub and axle nut are concealed, thereby providing a full stream line effect to the wheel and materially enhancing its attractive and ornamental features without sacrificing any of its advantages as to strength, durability, and as a matter of fact also facilitating the tire changing operation when necessary or desired.

Another object of the invention is to provide a novel demountable rim construction which carries the cover disk that constitutes the outer face of the wheel and thereby conceals the hub and axle part of the vehicle.

A further object of the invention is to provide novel means for insuring the proper placing of the valve stem in position when placing or removing the tire on the wheel.

With the above and other objects in view which will more readily appear as the nature of the invention is better understood, the same consists in the novel construction, combination and arrangement of parts, hereinafter more fully described, illustrated and claimed.

A preferred and practical embodiment of the invention is shown in the accompanying drawings, in which:—

Figure 1 is a side elevation of our improved wheel.

Figure 2 is a vertical sectional view taken on the line 2—2 of Figure 1.

Figure 3 is a detail sectional view taken on the line 3—3 of Figure 2.

Figure 4 is a detail sectional view illustrating a modified form of the invention.

Figure 5 is a detail sectional view taken on the line 5—5 of Figure 4.

Figure 6 is a detail sectional view taken on the line 6—6 of Figure 2.

Similar reference characters designate corresponding parts throughout the several figures of the drawings.

As previously indicated, one of the distinctive features of the invention is to make a disk wheel having a full stream line effect, that is, a wheel in which the hub and axle-cap is entirely concealed so that the outer face of the disk presents a smooth uninterrupted and unbroken appearance, thereby contributing materially to the ornamental and attractive features of the wheel.

It will of course be understood that the foregoing general object may be carried out in various ways, but the primary features involve the provision of a main disk A, a tire carrying rim B and an outer streamline cover C. That is to say, the invention has primarily in view a main disk A which assumes the greater part of the wheel load and also carries the hub of the wheel, together with the outer cover disk C which is preferably made a part of the wheel by attachment to the rim B, or its equivalent.

In the general organization shown in the accompanying drawing 1 designates a hub having a flange 2 adapted to carry therewith a main or primary load sustaining disk A the same being attached thereto by the bolts 3 or by any equivalent fastening means known and available in the art. This main disk A is preferably of dished or bowed formation at its central part and terminates in a felly flange 4 which is preferably slightly inclined as indicated at 5 to provide an inclined seat for the main section 6 of the rim unit B.

The said main rim section 6 is preferably provided at one edge with the integral flange 7 for engaging one of the tire beads and the opposite side thereof is constituted by the flange 8 of the removable tire locking ring 9 which is held to the main section 6 by suitable bolts 10 having the nuts 11 thereon for engaging with the inner face of the depending retaining flange portion 12 of the main section 6. As shown in Figure 2 the said depending retaining flange 12 is provided with a recessed shoulder 13 for receiving the cuff portion 14 of the tire locking ring 9 thereby to provide an accurate fit between the tire locking ring and the rim, and also to provide a true seat for the tire.

As will be observed from the lower half of Figure 2, and also from Figure 3 of the drawings, the felly flange 4 has secured thereto at suitable intervals the holding lugs 15 which are adapted to receive the fastening bolts 16 that clamp or hold the retaining ring 12 of the rim section 6 to the main disk

A. Thus, the combined rim unit B and cover disk C are securely locked to the main disk A by means of the fastening bolts 16 which are insertable through the clearance opening 17 provided in the locking ring 9. The fastening bolts 16 therefore only serve to clamp the combined rim unit and cover to the main disk while the bolts 10 serve to hold and clamp the tire locking ring 9 to the main rim 6.

In connection with the retaining ring 12 of the main rim 6 it will be observed that this ring carries the cover disk C having the depressed flange portion 12^a that provides a seat for the tire locking ring 9, and is also provided with an enlarged or bowed central portion C′ which covers and overlies the hub 1 and axle part within the hub.

The provision of separate sets of bolts 10 and 17 for respectively holding the two sections of the rim B together and locking the entire rim to the main disk A has the advantage of permitting the rim B to be removed from and replaced on the main disk as a unit, without manipulating the bolts 10 when a tire change is required. In other words the combined rim and cover structure which carries the tire can be removed as a unit by simply manipulating the bolts 17.

It will therefore be apparent that the primary features of the present invention heretofore outlined contemplate the main disk A having the felly flange 4 for receiving thereon the combined rim and cover structure B and C, the cover portion C being carried with the rim B, and the latter in turn consisting of separable sections 6 and 8 which permit of the placing and removal of a tire therefrom.

As further showing the range of modification of the invention reference may be had to Figs. 4 and 5 of the drawings wherein all of the essential features and characteristics of the invention are conserved but the means of locking the tire on the rim is different from that disclosed in Figs. 1 and 2.

Upon inspection of Fig. 4 it will be observed that the main disk A′ having the felly flange 4^a is adapted to receive the combined rim and cover unit B′—C^2 in such a manner that the rim B′ may be locked directly to the main disk A′ by a single series of bolts 18 which are adapted to engage with the lugs 19 carried by the felly-flange 4^a.

In the modified arrangement shown in Figs. 4 and 5 therefore it will be seen that the rim B′ consists of the main rim section 6^a having the integral flange 7^a and a split locking ring 9^a adapted to fit in a seat on the rim for the purpose of holding the tire in place. The depending retaining flange 12^b of the said main rim section 6^a carries the convexed cover disk C^2 as indicated at 20, and, as previously explained, the ring 12^b is locked to the felly-flange by means of the bolts 18 and lugs 19. This arrangement eliminates the series of bolts corresponding to the bolts 10 in Fig. 1, but the essential feature of the combined rim and cover disk is conserved.

Another distinctive feature of the invention is shown in Figs. 2 and 6 of the drawings wherein one of the sections of the rim B is provided with an opening 21 for the valve stem of the tire, the said opening 21 communicating with a guide sleeve 23 which is preferably of elliptical cross-section as shown in Fig. 6 and serves to guide the valve stem through the felly-flange 4 and into the valve access depression 24 in the load sustaining disk A thereby to prevent any possibility of the valve stem being caught by the edges of the openings in the felly-flange or the wall 24 of the disk as the rim is placed on the wheel. By reason of the elliptical shape of the guide the insertion of the valve stem is facilitated since the valve stem is usually held at an angle to the plane of the rim opening when the tire is applied. It will also be observed that the disk at the mouth of the stem guide sleeve 23 is made flat as indicated at *x* to facilitate the placing thereon of the usual clamping nut carried by the valve stem but also having the effect of sealing or closing the mouth of the sleeve to prevent the accumulation of dirt therein.

It will be observed from Figures 2 and 4 of the drawings that the inner disk member is preferably reversely curved toward its periphery thereby producing a spring effect for said inner disk member, while the outer disk member which is independent of the hub is connected with a part of the rim. This provides a construction which will yield to and absorb excessive shocks, thus avoiding fracture or breakage which would be likely to occur in a more rigid structure from such causes.

From the foregoing it is believed that the novel features and advantages of the invention will be readily apparent to those skilled in the art, and it will of course be understood that changes in the form, proportion and minor details of construction may be resorted to without departing from the spirit of the invention or scope of the appended claims.

We claim:—

1. A disk wheel including a hub, a rim, a pair of coextensive disk members one of which is connected to the hub and the other of which is free of said hub, and means for connecting the peripheral portions of said disks.

2. A disk wheel including a hub, a rim, an inner disk member fastened to the hub, an outer disk member, one set of fastenings for holding together the rim and the two disk members, a demountable tire holding element arranged at the periphery of the

outer disk member, and independent fastenings for said tire holding element.

3. A disk wheel construction including a hub, a main disk connected with the hub, a rim structure adapted to engage with the periphery of the main disk, and a cover disk carried by said rim structure.

4. A disk wheel construction including a hub, a main disk connected with the hub, a rim structure adapted to engage with the periphery of the main disk, and a cover disk carried by said rim structure, said cover disk having a central outwardly bowed portion for accommodating the end of the hub and concealing the same there-beneath.

5. A disk wheel construction including a hub, a main disk connected with the hub, a rim structure adapted to engage with the periphery of the main disk, and a cover disk carried by said rim structure, said cover disk having a central outwardly bowed portion for accommodating the end of the hub and concealing the same there-beneath, and means at the periphery of said cover disk for securing the same to a part of the rim structure.

6. A disk wheel construction including a hub, a main disk carried by the hub, a demountable rim adapted to engage with said main disk, and a cover disk carried by said demountable rim and covering and concealing the said hub.

7. A disk wheel construction including a hub, a main disk carried by the hub, a demountable rim adapted to engage with said main disk, said demountable rim having a retaining flange, means for connecting said retaining flange to the main disk, and a cover disk carried by said retaining flange and having its central portion bowed outwardly at its center to accommodate and conceal said hub.

8. A disk wheel construction including a hub, a main disk carried by the hub and having a felly flange, a demountable rim adapted to fit on said felly flange and having a retaining flange extending toward the axis of the wheel, a cover disk carried by said retaining flange and having a central outwardly bowed portion for accommodating and concealing the hub of the wheel.

9. A disk wheel construction including a hub, a main disk having a felly flange, a sectional rim construction including a main section adapted to fit on said felly flange and having a retaining flange extending inwardly toward the axis of the wheel, a cover disk carried by said retaining flange, a tire locking member detachably secured to said retaining flange, anchoring lugs carried by the felly flange of the main disk, and fastenings for connecting the retaining flange of the main section of the rim to the said lugs.

10. A disk wheel construction including a main disk having a felly flange, and a valve access depression therein, said felly flange and valve access depression being connected by a tubular guide member.

11. A disk wheel construction including a main disk having a felly flange provided with an opening, a depressed valve access portion intersecting the axis of said opening in the felly flange, and also having an opening registering therewith, and a tube of elliptical cross-section connecting the opening in the felly flange and the opening in said depression.

12. A disk wheel construction including a main disk, a cover disk having an unbroken stream line surface from the axes to the periphery thereof, and means for connecting the periphery of the cover disk to a rim portion of the wheel.

In testimony whereof we hereunto affix our signatures in the presence of two witnesses.

EILET M. TORKELSON.
BASIL MEIGS.

Witnesses:
JAMES H. MARR,
EMORY L. GROFF.