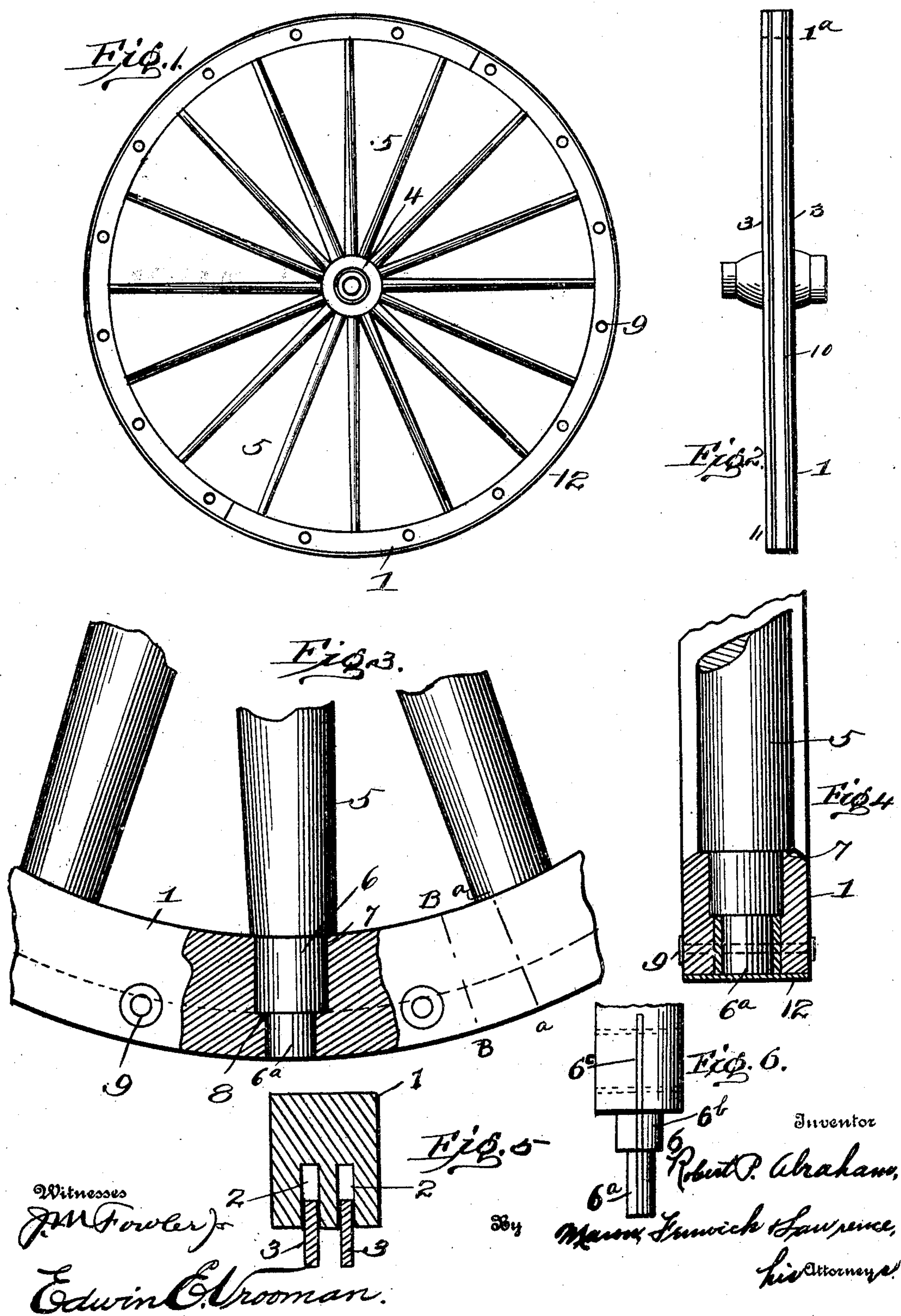


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PATENTED JULY 4, 1905.

R. P. ABRAHAM.
WHEEL.

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UNITED STATES PATENT OFFICE.

ROBERT P. ABRAHAM, OF LAGRANGE, GEORGIA.

WHEEL.

SPECIFICATION forming part of Letters Patent No. 794,136, dated July 4, 1905.

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To all whom it may concern:

Be it known that I, ROBERT P. ABRAHAM, a citizen of the United States, residing at Lagrange, in the county of Troup and State of Georgia, have invented certain new and useful Improvements in Wheels; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in wheels, and particularly to the felly thereof.

The object of the invention is to improve the construction of vehicle-wheels, pulleys, and the like.

Another object of the invention is to improve the construction of the spokes and felly of a vehicle-wheel which is preferably not provided with a tire.

A still further object of the invention is to improve the construction of a rim which employs a plurality of sections and metallic means countersunk in said sections for retaining the same in a positive assembled position in addition to providing a reinforced wearing-surface on the periphery of said rim.

A still further object of the invention is to improve the construction of a cylindrical sectional wooden casing or rim which is provided with metallic means countersunk therein for positively securing said sections in their normal assembled position in addition to providing peripheral reinforcing means for said casing or rim.

With these and other objects in view the invention consists in certain other novel constructions, combinations, and arrangements of parts, as will be hereinafter fully described, illustrated in the accompanying drawings, and more particularly pointed out in the claims hereto appended.

In the drawings, Figure 1 is a view in side elevation of the preferred construction of a wheel in accordance with the present invention. Fig. 2 is an end view, in side elevation, of the wheel depicted in Fig. 1. Fig. 3 is a fragmentary view of a wheel in side elevation, partly shown in section. Fig. 4 is a fragmentary sectional view of a wheel, taken on lines *a a*, Fig. 3. Fig. 5 is a transverse

sectional view of the felly, taken on lines B B, Fig. 3. Fig. 6 is a fragmentary view, in side elevation, of a double-tenon spoke.

In carrying out the present invention I contemplate the improvement of the construction, primarily, of vehicle-wheels; but the same principle is applicable in constructing the rim of pulleys or fastening of the staves or sections of barrels, kegs, and the like in a positive assembled position.

In the accompanying drawings I have preferably illustrated the preferred form of my invention embodied in the construction of a vehicle-wheel, although the principle of construction of the felly may be employed in other devices.

Referring to the drawings by numerals, 1 designates the felly or casing, which is cylindrical in construction. The felly or casing is provided with a plurality of peripheral grooves 2, which are preferably formed upon the casing 1 in parallel position and within which are adapted to be countersunk semicircular metallic bands 3. The bands 3 are provided for the purpose of reinforcing the wearing-surface of the casing or felly 1 in addition to providing assembling means for positively retaining the sections of said casing in a positive assembled position. An additional advantage of the construction employing the countersunk semicircular bands 3 is that when this construction is embodied in a wheel it will be impossible for the felly to become depressed between the outer ends of two of the spokes of said wheel. It will be obvious that a plurality of semicircular bands 3 will be employed in the construction of the rim or felly 1, and the positioning of said bands 3 within the peripheral grooves 2 will be described hereinafter.

The general construction of the wheel is similar to that known to the patented art, in which there is employed a hub portion 4, to which is secured by any means spokes 5. The outer ends of spokes 5 are provided with a double tenon 6, upon which is formed a pair of shoulders 7 and 8. The tenon end of each of said spokes is adapted to be positioned in a mortise formed in the member 1, said mortise being of different diameters throughout its

length and provided with a plurality of shoulders which are adapted to be engaged by similar members 7 and 8, formed upon each of the spokes 5. The outer tenon 6^a is of the same length as the depth of the peripheral grooves or ways 2, as clearly depicted in Fig. 4. The metallic bands 3 are adapted to engage upon their inner ends when assembled with the wheel the shoulder 8, formed upon the double tenon of each spoke 5. The inner shoulder 7 of the spoke will be engaged by the inner surface of the felly when the same is in an assembled position with the spokes.

It will be obvious upon referring to Fig. 4 that a pair of metallic bands 3 engage diametrically opposite points of the shouldered portion 8 of spoke 5, and thereby providing a wearing-surface for the felly of the wheel in addition to the shouldered portion 7. By this construction there is provided in the wheels of vehicles, pulleys, or the like a double resistance portion upon which the strain of the felly or rim is adapted to be exerted in lieu of the single shouldered surface in the construction of a wheel in accordance with that known in the patented art.

When the felly 1 has been assembled with the spokes 5 and the metallic band 3 compressed within the ways or grooves 2, if it is preferred, there may be employed a plurality of rivets or bolts 9 for positively securing the metallic bands 3 and the felly in an assembled position. Said securing means 9 is adapted to be positioned within suitable registering apertures formed in the felly and the metallic countersunk members 3. The number of transverse securing members 9 employed in the construction of a wheel in accordance with the present invention is entirely optional with the constructor.

The cylindrical member 1 is preferably constructed of a pair of semicircular grooved members, which are secured in an assembled position by means of the semicircular metallic members 3 being compressed into and countersunk entirely therein. The metallic bands 3 extend across the meeting edges 1^a of sectional member 1, said metallic members 3 breaking joints at different points upon the periphery of the cylindrical member 1, as is illustrated in Fig. 2 at 10 and 11. By this construction the meeting edges of the sections employed in constructing member 1 are positively retained in a fixed assembled position, and owing to the fact of the semicircular members, which are mounted in each of the grooves or ways 2, being positioned so as to permit of their edges engaging at different points relative to the parallel semicircular members in the other groove or way 2 a durable and efficient assembling means is insured for the sections of the felly or casing 1.

If it is desired, a tire 12 may be positioned upon the periphery of the wheel, as is depicted

in Figs. 1 and 4. The position of tire 2 upon the wheel will provide a wearing-surface therefor, although it is not necessary in the construction of a wheel or the like in accordance with the present invention.

It will be apparent from the foregoing description that the diameter and width of cylindrical member 1 may be increased, according to the necessary requirements, without departing from the spirit and scope of the present invention, although the cylindrical casing 1 may not be incorporated in the specific construction of a wheel, as the principle may be employed in the construction of a barrel, cask, or the like.

Referring to Fig. 6, it will be apparent that a slot 6^c is formed in the spoke, said slot extending the entire length of the double-tenon portion thereof and into the body portion of said spoke. Within slot 6^c of each of the spokes there is positioned a metallic reinforcing-strip, which is of the same diameter as spoke-body 5, and the tenons 6^b and 6^a. The purpose of inserting this metallic strip is that it provides a metallic shoulder, against which the shouldered portion of the mortise is adapted to engage.

From the foregoing description it will be apparent that certain alterations, modifications, and changes may be made in the construction of devices in accordance with the present invention, and I therefore reserve the right to make such deviations as shall fairly fall within the scope and spirit of the present invention.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A wheel, comprising a hub, spokes secured thereto, each of said spokes provided with a double tenon, a felly mounted upon said spokes, said felly having mortises of varying diameters, and removable members countersunk in said felly and engaging the tenons of said spokes at diametrically opposite points.

2. In a device of the character described, the combination with a hub, of a plurality of spokes carried thereby, each of said spokes provided with a double tenon formed upon their outer end, a felly mounted upon said spokes comprising a body portion having a plurality of mortises provided with a plurality of shoulders adapted to be engaged by the tenon portion of said spokes, said felly having a peripheral groove of the same depth as the outer tenon of said spokes, and metallic means countersunk in said groove and normally engaging one of the shouldered portions of each of said spokes.

3. In a device of the character described, the combination with a hub, of spokes secured thereto, each of said spokes provided with a double tenon formed upon its outer end, a sectional felly having a plurality of mortises

mounted upon said spokes, each mortise portion provided with a plurality of shoulders, said felly having a plurality of peripheral grooves formed thereon of the same depth of one of the tenons of the spokes, metallic semi-circular bands countersunk in said grooves and normally engaging a shouldered portion of said doubled tenon of each spoke.

4. In a device of the character described, the combination with a hub, of spokes secured thereto, each of said spokes provided with a plurality of tenons, a sectional felly provided with mortises of varying diameters mounted upon said spokes, said felly having peripheral grooves formed thereon the same depth as one of said tenons of the spokes, a plurality of semicircular bands countersunk in said peripheral grooves and engaging the outer end of one of said tenons, a plurality of transverse securing means passed through said felly and said bands, and a tire mounted upon said felly.

5. A wheel, comprising a hub, spokes secured thereto, each of said spokes provided with a double tenon, a felly mounted upon said spokes, said felly provided with a mortise of varying diameter, metallic means countersunk in said felly and engaging one of said tenons at opposite points, and means for securing said metallic means in a positive assembled position with said felly.

6. In a device of the character described, the combination with a hub, of spokes secured thereto, each of said spokes provided with a tenon having a shoulder, a felly having grooves and mortises positioned upon said spokes, said shouldered tenons of the spokes engaging the mortises of the felly, and reinforcing means positioned within the grooves of the felly and engaging the shouldered portion of the tenons of the spokes.

7. A wheel, comprising a hub, spokes provided with tenoned ends secured to said hub, a felly having mortises positioned upon said spokes, the tenon portion of said spokes engaging the mortises of the felly, removable segmental members positioned upon said felly and engaging the spokes, and transverse means for positively retaining the removable mem-

bers in their fixed assembled position with the other parts of the wheel.

8. In combination with a hub, spokes secured thereto, said spokes provided with tenons, a grooved felly mounted upon said spokes, and metallic means countersunk in said felly and engaging the tenons of the spokes at diametrically opposite points and intermediate the lengths of the tenons.

9. In combination with a hub, spokes provided with tenons secured to said hub, a felly having peripheral grooves positioned upon said spokes, and metallic means positioned within the grooves of said felly and engaging the body portion of said tenons at opposite points.

10. In combination with a hub, spokes provided with tenons secured to said hub, a felly having peripheral grooves positioned upon said spokes, and metallic means positioned within the grooves of said felly and upon opposite sides of the tenons of the spokes.

11. The combination with a hub, spokes provided with tenons secured to said hub, a felly having parallel grooves positioned upon said tenons, said tenons positioned within said felly between said grooves, and metallic means positioned within the parallel grooves of the felly.

12. The combination with a hub, spokes provided with tenons secured to said hub, a felly having parallel peripheral grooves positioned upon said spokes, the tenons of said spokes positioned between said grooves, and removable strips countersunk in each of said peripheral grooves.

13. A wheel comprising a hub, spokes secured thereto, each of said spokes provided with a tenon having a reduced end, a grooved felly mounted upon the spokes, and removable bands in the grooves and engaging the tenons at diametrically opposite points.

In testimony whereof I hereunto affix my signature in presence of two witnesses.

ROBERT P. ABRAHAM

Witnesses:

HOPE HUDSON,

A. H. DUNSON.