No. 840,881. PATENTED JAN. 8, 1907.

W. M., W. N. & D. T. TARTER.

WHEEL.

APPLICATION FILED APR. 5, 1906.

FIG. 1.

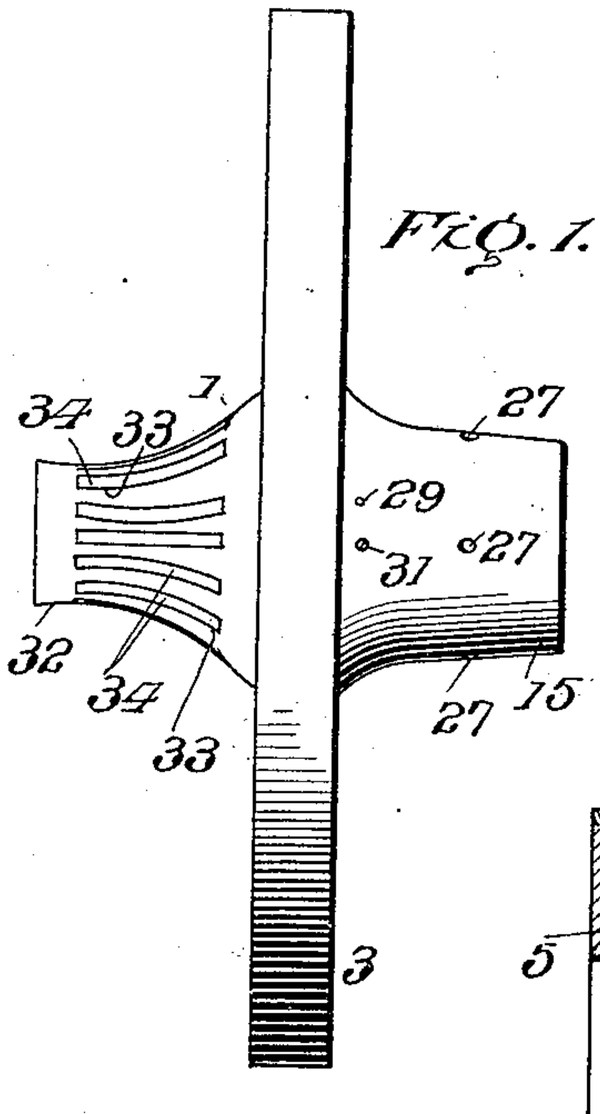



FIG. 2.

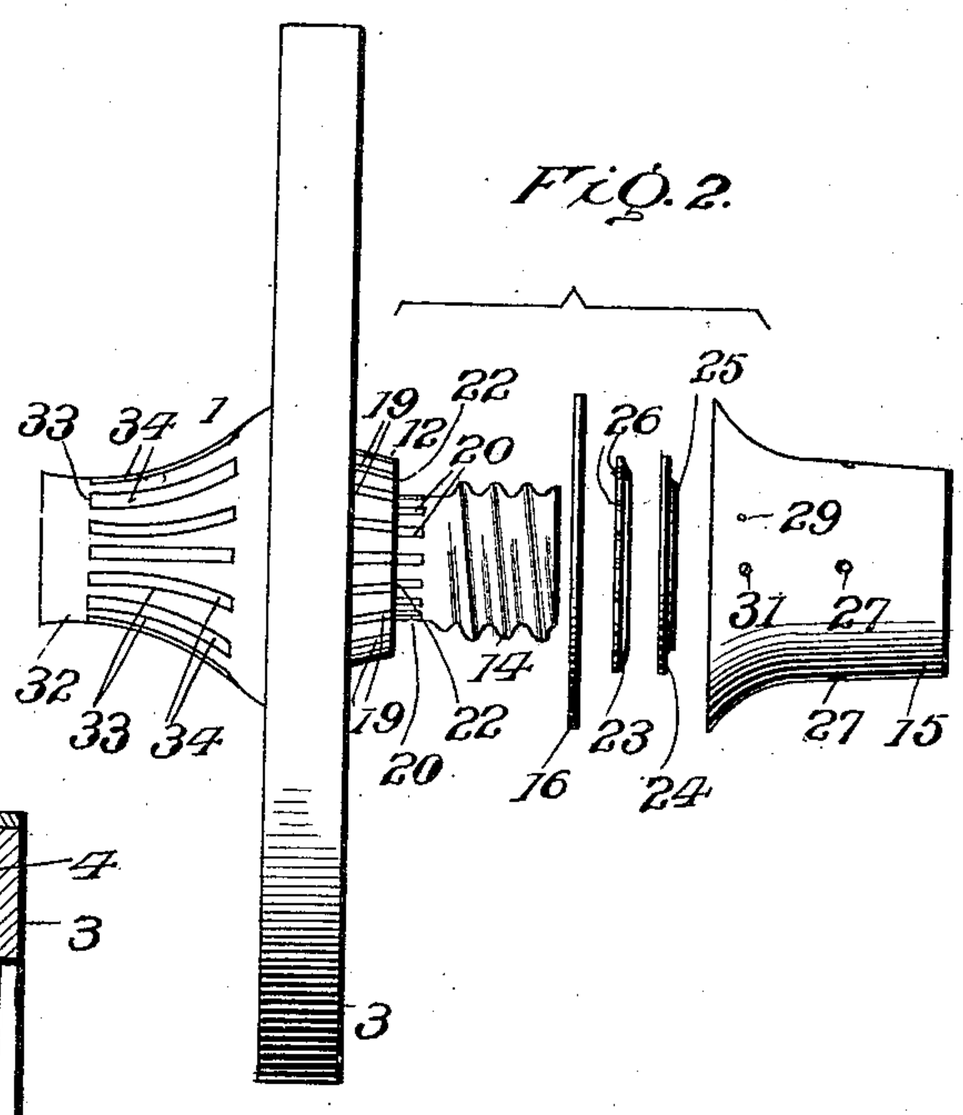



FIG. 3.

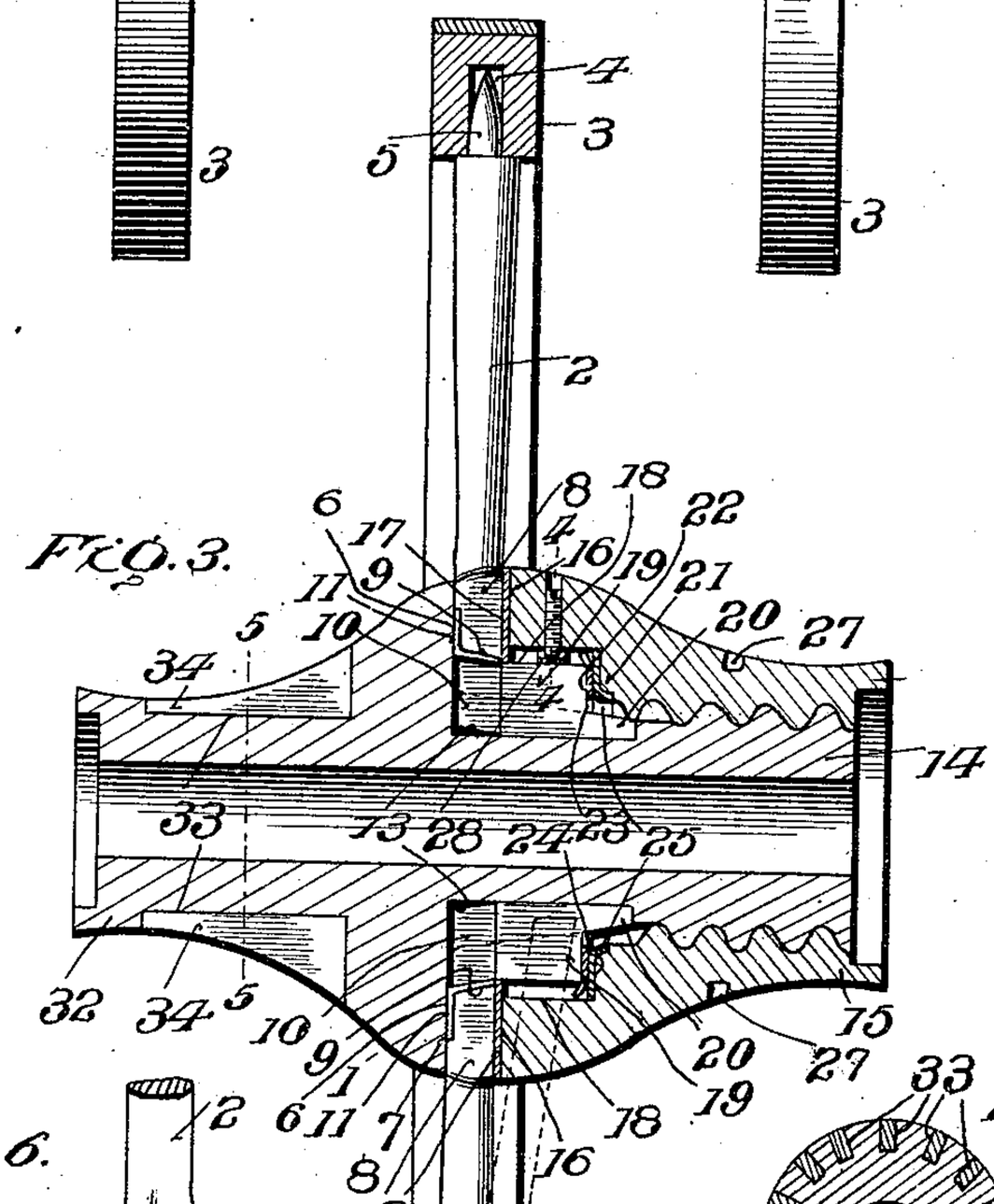



FIG. 4.

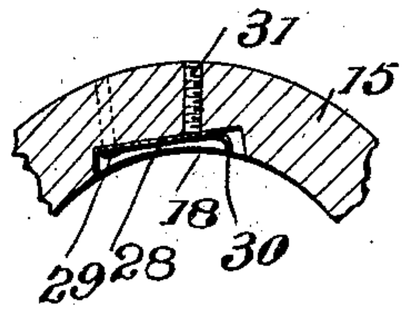



FIG. 6.

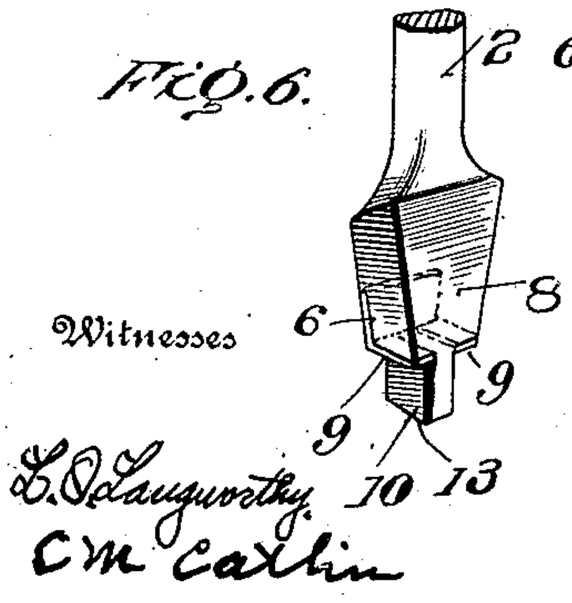
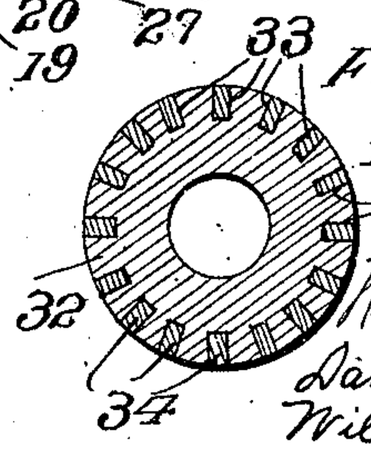



FIG. 5.

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# UNITED STATES PATENT OFFICE.

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## WHEEL.

No. 840,881. Specification of Letters Patent. Patented Jan. 8, 1907.

Application filed April 5, 1906. Serial No. 310,071.

*To all whom it may concern:*

Be it known that we, WILLIAM MARION TARTER, residing at Rocky Hill Station, in the county of Edmonson, WILLIAM NEWTON TARTER, residing at Smiths Grove, in the county of Warren, and DANIEL TALBERT TARTER, residing at Becks Store, in the county of Cumberland, State of Kentucky, citizens of the United States, have invented certain new and useful Improvements in Wheels, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention is an improved wheel for vehicles of all kinds; and it consists in the novel construction, combination, and arrangement of parts hereinafter described and claimed.

One object of the invention is to provide a simple and practical device of this character in which the spokes are removably mounted, so that one or more when broken or damaged may be taken out and replaced by new ones without taking the wheel apart, and in which the spokes may be quickly adjusted and tightened.

Another object of the invention is to improve the construction of devices of this character, and thereby render the same stronger, more durable, and less expensive.

The above and other objects, which will appear as the nature of the invention is better understood, are accomplished by the construction illustrated in the accompanying drawings, in which—

Figure 1 is an elevation of the improved wheel. Fig. 2 is a similar view showing its parts separated. Fig. 3 is a sectional view through the wheel. Figs. 4 and 5 are detail sectional views taken, respectively, on the planes indicated by the lines 4 4 and 5 5 in Fig. 3. Fig. 6 is a detail perspective view of the inner end of one of the spokes.

Referring to the drawings by numerals, 1 denotes the hub, 2 the spokes, and 3 the rim or felly, of the improved wheel, which may be designed for use on wagons, carriages, buggies, or vehicles of any other description. The rim 3 has formed in its inner face at suitable intervals radially-disposed cylindrical sockets 4 to receive the tapered reduced portions or tenons 5 upon the outer ends of the spokes 2, which latter are preferably formed of wood. The hub 1 is preferably made of metal and has a cylindrical bore to receive the usual metal bushing. Adjacent to the center of the hub is an enlarged portion or head 7, against the flat inner face of which are clamped the enlarged wedge-shaped inner ends 8 of the spokes. These enlargements or heads 8 have their inner ends beveled, as shown at 9, and reduced to form tenons 10, which are seated in longitudinally-extending radially-arranged grooves 11, formed in a longitudinally-tapered or cone-shaped portion 12 of the hub. Upon the beveled ends 9 of the enlargements or heads 8 are secured metal wear-plates 6, which protect the shoulders on said ends when the spokes are forced into their places in the hub of the wheel. The tenons 10 have their ends beveled, as at 13, for a purpose presently explained. Said portion 12 is disposed between the flat inner face of the enlargement 7 and the inner end 14 of the hub, which end is formed with large or coarse external screw-threads to receive similar internal threads in a clamping-nut 15. This nut 15, which covers the entire inner portion of the hub, has one of its ends 16 bearing upon a large circular washer 17, which engages the inner faces of the heads or enlargements 8 of the spokes. Said end 16 of the nut is formed with a concentric recess or cavity 18 to fit over a plurality of radially-arranged wedge-blocks 19, which are slidably mounted in the grooves and may be constructed of either wood or metal. These blocks have their inner ends bearing against the spoke-tenons 10, and their outer ends 20 are reduced, as is also the adjacent portion of the hub, between the screw-threads 14 and the cone-shaped portion 12. Between the annular shoulder 21, formed in the nut by the cavity 18, and the shoulders 22, formed by reducing the outer ends of said wedges or blocks 19, are placed two washers 23 and 24, the latter of which engages the shoulder 21 and has an inturned annular flange 25 around its opening and the former of which engages the shoulders 22 and has its outer edge or periphery notched to provide angularly-bent tongues 26, as shown in Fig. 3.

In order to facilitate the application and removal of the nut 15 to and from the hub, its outer face is formed with radially-arranged sockets 27 to receive studs upon a wrench, and in order to lock the nut in its secured po-

sition (shown in Figs. 1 and 3) I provide at its inner end 16 a lock device. This lock device, which is clearly shown in Fig. 4, consists of a flat spring-plate 28, secured at one of its ends, as at 29, in a recess in the nut and having its other end bent inwardly to form a spur or dog 30. The latter springs normally into said recess, so that the nut may be turned on or off of the hub, and it is forced inwardly into the cone-shaped portion 12 of the hub or one of the blocks 19 by a screw 31, which extends through a threaded opening in the nut and has its inner end impinging against the spring, as shown. If desired, the outer end 32 of the hub may be made of solid metal; but when a lighter construction is desired said end is formed with a plurality of radially-arranged longitudinally-extending grooves or cavities 33, which may be filled with wood or other light material 34.

The construction, operation, and advantages of the invention will be readily understood from the foregoing description, taken in connection with the accompanying drawings. It will be seen that when the nut and the three washers are removed from the inner end of the hub, as shown in Fig. 2, the wedges or blocks 19 may be readily removed from their grooves 11, and the spokes may then be removed by swinging their inner ends to the dotted-line position shown in Fig. 3. They must also be held in this position in inserting their tapered outer ends in the sockets in the wheel-rim. It will be noted that the beveled portions at their inner ends permit them to be thus inserted and removed. When it is desired to tighten the spokes of the wheel, it is only necessary to screw up the nut upon the threads 14 of the hub.

Changes in the form, proportion, and minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention as defined by the appended claims.

Having thus described our said invention, what we claim as new, and desire to secure by Letters Patent of the United States, is—

1. A wheel comprising a rim having sockets, spokes having their outer ends seated in said sockets and their inner ends formed with enlargements having beveled ends and beveled tenons projecting from said ends, a hub having a longitudinally-grooved, cone-shaped portion, a flat head at one end of said portion and screw-threads at its other end, the tenons on said spokes being adapted to enter the grooves in said portion and the enlargements of said spokes being adapted to bear against said head, wedge-blocks slidable in said grooves, and a nut upon the threads of said hub, substantially as described.

2. A wheel comprising a rim having sockets, spokes having their outer ends seated in said sockets and their inner ends formed with enlargements having beveled ends and beveled tenons projecting from said ends, a hub having a longitudinally-grooved, cone-shaped portion, a flat head at one end of said portion and screw-threads at its other end, the tenons on said spokes being adapted to enter the grooves in said portion and the enlargements of said spokes being adapted to bear against said head, wedge-blocks slidable in said grooves, a nut upon the threads of said hub and having a cavity in one of its ends to receive said blocks, washers interposed between said nut and said blocks and spokes, and means for locking said nut upon the hub, substantially as described.

3. A wheel comprising a rim having sockets, spokes having their outer ends seated in said sockets and their inner ends formed with enlargements having beveled ends and beveled tenons projecting from said ends, a hub having a longitudinally-grooved, cone-shaped portion, a flat head at one end of said portion and screw-threads at its other end, the tenons on said spokes being adapted to enter the grooves in said portion and the enlargements of said spokes being adapted to bear against said head, wedge-blocks slidable in said grooves, a nut upon the threads of said hub and having a cavity in one of its ends to receive said blocks, washers interposed between said nut and said blocks and spokes, a locking-spring secured in a recess in said nut and having a bent end to engage said hub, and a screw in said nut to impinge against said spring, substantially as described and for the purpose set forth.

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

WILLIAM MARION TARTER.
WILLIAM NEWTON TARTER.
DANIEL TALBERT TARTER.

Witnesses:
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