

W. E. BUDD.
VEHICLE TIRE.

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1,063,008.

Patented May 27, 1913.

Fig. 1.

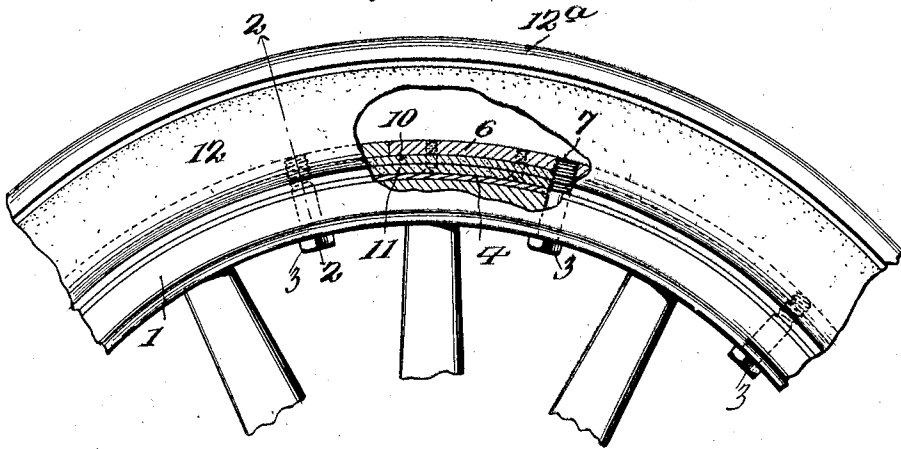


Fig. 2.

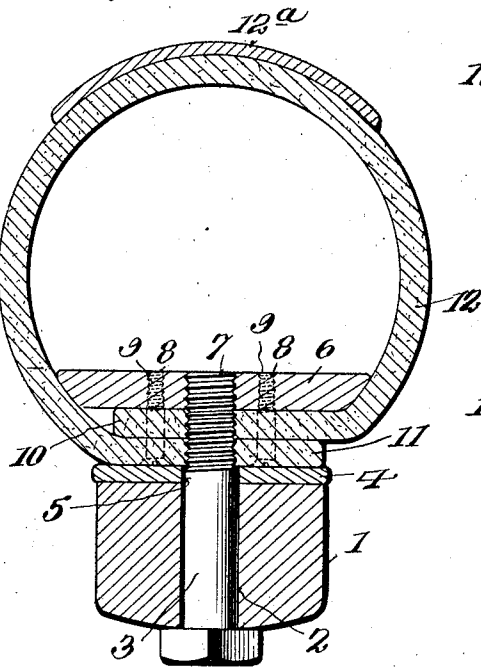


Fig. 3.

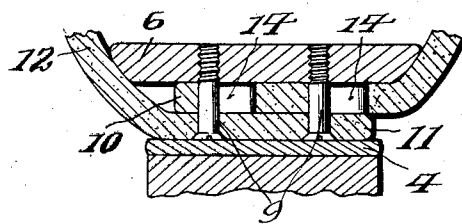
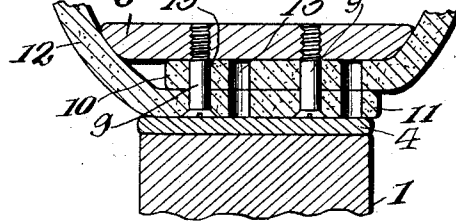


Fig. 4.



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VEHICLE-TIRE.

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To all whom it may concern:

Be it known that I, WILLIAM E. BUDD, a citizen of the United States, residing at Elizabeth, in the county of Union and State of New Jersey, have invented certain new and useful Improvements in Vehicle-Tires, of which the following is a specification, reference being had therein to the accompanying drawing.

10 This invention relates to vehicle tires.

The object of the invention is to provide a resilient tire which, besides presenting features of simplicity of construction with consequent cheapness of manufacture, includes a novel arrangement of fastening instrumentalities which are adapted not only effectually to secure the tire in position on the wheel-felly, but, also, permit its attachment thereto and removal therefrom with great expedition and without the employment of various kinds of tools.

In one aspect, the invention includes a tire-fastening structure comprising a felly-band suitably mounted on the wheel-felly in any desirable way, a clamping-band adapted to encompass the felly-band, the clamping-band being provided with a plurality of rows of threaded holes into which a plurality of bolts or the like are threaded. By this arrangement, portions of the tire-shoe are adapted to be firmly clamped between the felly-band and the clamping-band and in an overlapped position, whereby at least one set of bolts may penetrate through the two overlapped portions of the shoe and into the clamping-band, another set of bolts penetrating through the felly and its band and through the two overlapped portions of the shoe into the clamping-band. By this arrangement, the overlapped portions of the shoe are secured to the clamping-band and, then, the entire shoe-structure is secured to the felly.

In another aspect of my invention, the same comprises a felly provided with a felly-band, an encircling clamping-band provided with a plurality of sets of threaded holes, one set being formed at the medial line of the band, while each of two other sets are formed between the medial line and the edges of the band and preferably out of transverse alinement with the medially-disposed holes. The shoe which is to be secured to the wheel is so formed as to present overlapping portions of considerable dimen-

sional area so that the three sets of bolts adapted to be threaded directly into the clamping band will penetrate both of the overlapped portions, two of the sets of bolts penetrating these portions and being threaded into the clamping-band and abutting, at their outer ends, against the felly-band when the shoe is secured on the wheel.

In still another aspect of the invention, it comprises a felly provided with a felly-band, an encircling band of a width greater than that of the felly-band and provided with three rows of threaded holes equidistantly spaced, a shoe provided with band-engaging portions of relatively large dimensional area and adapted to occupy an overlapping position between the clamping and felly-bands, a series of central band-securing bolts penetrating the felly-band and the two overlapped portions of the shoe and threaded into the clamping-band, and two sets of bolts secured to the clamping-band independently of the felly-band and penetrating the two overlapped portions of the shoe.

I am aware that it has heretofore been proposed to provide tire-fastening instrumentalities which include a felly-band and a clamping-band and means for drawing the clamping-band toward the felly-band whereby portions of the shoe are clamped between the two bands; but I believe it to be new with me to provide a clamping-band formed with a plurality of sets of threaded openings into which a plurality of sets of bolts are threaded and which bolts are adapted to be manipulated from outside the tire whenever necessary. In the known constructions, nuts and the like are provided and these either occupy a position outside of the felly or within the tire. Obviously, this is an undesirable arrangement. In my construction, all of the bolts are threaded into the clamping-band; one set thereof being independent of the felly-band but having the function of securing the shoe-portions to the clamping-band; the other set of bolts having the function of drawing the clamping-band and the bolt-secured shoe-portions into clamped engagement with the felly-band.

My invention also resides in the novel construction and arrangement of parts as will be made clear in the following specification and claims.

In the accompanying drawings I have

illustrated a preferred embodiment and some modifications of my invention, it being understood that the same are possible of further modification without departing from the spirit of the invention.

In these drawings: Figure 1 is a fragmentary view in elevation, with a portion broken away to show the interior construction, of a wheel with my improved tire attached thereto; Fig. 2 is a view in vertical cross-section on the line 2—2, Fig. 1; Fig. 3 is a fragmentary sectional view illustrating a modification of the structure; and Fig. 4 is a similar view of another modification.

In the drawings, the numeral 1 designates a felly which may be of any preferred form and material. In this instance, it is shown as made of wood; but, obviously, it may be of metal and of any other desired construction. The felly is provided with a plurality of medially-alined openings 2, preferably equidistantly-spaced and adapted to receive bolts 3, as will presently be explained. On the outer surface of the felly is mounted a felly-band 4 which may be of any preferred construction and be mounted on the felly in any desired manner. The felly band is likewise provided with equidistantly-spaced holes 5 to register with the holes 2 in the felly. Encompassing the felly and felly-band is a clamping-band 6 which, preferably and as shown, is of a width greater than that of the felly-band and provided with rounded edges, as shown. This band may be an annular member, or formed in sections. It is provided with a plurality of medially-alined, equidistantly-spaced threaded holes 7 and with other equidistantly-spaced holes 8, which are in longitudinal alinement with one another but preferably out of transverse alinement with the holes 7. The holes 8 are, like the holes 7, threaded and adapted to receive the threaded ends of the shoe-securing bolts 9, 9. Adapted to occupy an overlapped position between the clamping-band 6 and the felly-band 4 are extended portions 10 and 11 of a shoe or casing 12. These portions 10 and 11 are secured to the clamping-band 6 by means of the bolts 9. To this end, the portions are punctured where it is desired to project therethrough the bolts 9 when securing the parts together. It is to be understood that these portions may be provided with permanently formed openings or holes 13, as shown in Fig. 4, or with slots 14, as shown in Fig. 3.

A feature of my invention is to form the portions 10 and 11 of considerable dimensional area in order that relative adjustment between these portions may be effected when it is desired, if ever necessary, to change the size of the casing 12. While my structure is adapted for an inner rubber tube, as for air, I may prefer to employ a

suitable filling-substance of proper resilient characteristics and house the same within the casing 12. The filler may be in the nature of a permanently formed core. Some of these cores are now on the market and are generally of a particular size. It may be desirable to fit the casing 12 to the core; and to this end I arrange for the relative adjustment, aforementioned, between the overlapped portions 10 and 11, so that the casing may be enlarged or reduced to conform to the size of the core. If the holes 13 or the slots 14 are not previously provided, it is only necessary where a change is essential to puncture the portions 10 and 11 at the proper points to receive the bolts 9 in a new place.

In assembling the structure, the portions 10 and 11 are brought around over the clamping-plate 6 and secured thereto by the bolts 9. The holes 7 may be formed in the portions 10 and 11 when the casing is first made; or these may be formed therein at the time that the structure is being assembled. I may elect to market my structure, as an article of manufacture, in such form as would embrace the casing 12, the band 6, and the overlapped portions 10 and 11 secured to the band by the bolts 9.

In assembling the parts, just mentioned, I may, of course, provide suitable instrumentalities at the factory for holding the parts while assemblage is being made: For instance, before the screws 9 are put into position, such instrumentalities as circular, grooved clamps could be employed for the purpose of fitting the casing 12 to the core which is to be incased.

The tire-structure, including the casing 12 and the clamping-band 6 to which are secured the overlapped portions 10 and 11 having been assembled, as described, it is now a simple matter to attach this tire-structure to the felly. To this end, the structure having been placed in position on the felly, the bolts 3 are inserted through the openings 2 and screwed into the threaded opening 7 in the clamping-band 6. Obviously, any predetermined degree of clamping-pressure may be effected by means of these bolts 3 so that the band 6 with the interposed shoe-portions 10 and 11 can be rigidly secured to the felly-band 4. The heads of the bolts 9 will, as clearly shown in Fig. 2, abut against the exposed surface of the felly-band 4 which, thus, subserves, as one of its functions, that of holding the bolts against displacement. As the threaded portions of the bolts 3 extend through the fabric of the overlapped sections 10 and 11, as also shown in Fig. 2, this fabric tends to effect a binding action upon the bolts 3 and, thus, to hold the same against displacement which might ensue as a result of vibration. The rounded edges of the clamp 6 not only

hold the casing 12 in proper symmetrical form, but their form is such as not to cut the inner surface of the casing.

From the foregoing, it will be obvious that I have, in this invention, presented a structure of extreme simplicity and one which includes comparatively few parts, but which parts subserve their designed function of promoting a rigid securement of the tire-structure to the felly.

The advantage of threading the bolts 3 and 9 into the clamping-plate 6 is that easy manipulation of the same and especially of the bolts 3 is permitted. In constructions which I have observed, where nuts are arranged on the inner or outer ends of bolts, it is impracticable to secure the parts because, where the nuts are on the inside of the shoe they are inaccessible; and where they are on the outside, the bolts themselves will turn when an attempt is made to screw the nuts thereonto.

By the arrangement of the overlapped portions 10 and 11, as will be clear on an inspection of Fig. 2, each screw 9 extends through two portions and operates to hold the same securely. In known constructions, it has usually been necessary to provide separate screws for each section. In my structure, one screw holds two portions of the shoe. By having two sets of these screws, both sides of both portions of the shoe are securely held, so that one screw performs the office for which two screws have heretofore been used. Therefore, each side of the shoe or casing is held securely clamped and by a screw, wherefore I am able to secure the proper results by the employment of half the number of screws that would, under a different arrangement, be necessary.

By my construction, and particularly as a result of the employment of separate sets of shoe-securing bolts adapted to penetrate through and hold both of the overlapped portions, whenever a relative adjustment of said overlapped portions is effected,—each portion being equally adjusted—the tread portion 12^a of the shoe 12 is always maintained in proper position; that is to say, it is not shifted sidewise whenever such adjustment is effected. In known structures, if such an adjustment were attempted, the tread portion of the shoe would be thrown to one side of the medial line.

What I claim is:

1. A tire structure including a felly-band; an encircling clamping-band provided with a plurality of series of threaded holes, one series arranged along a medial line of the band and other series between said line and the edges of the band; a series of headed elements threaded into certain of said holes; a tire-member formed with portions adapted to overlap each other and be secured to said clamping-band by two of the series of

said headed elements; and a series of headed elements distinct from said first-mentioned headed elements and extending through the felly-band and through the overlapping portions and threaded into said clamping-band to hold the tire-member thereto.

2. A tire-structure including an incasing-shoe having two portions adapted to overlap each other; a clamping-band disposed within said incasing-shoe; a plurality of series of bolts extending through said overlapped portions and threaded into said clamping-band and serving to secure said portions to said band, and a series of bolts also threaded into said clamping-band intermediate of said first-mentioned series of bolts and adapted to secure the incasing-shoe to a wheel-felly.

3. A tire-structure including an incasing-shoe having two overlapping portions; a clamping-band superposed upon the inner shoe-portion; two sets of spaced bolts threaded into said clamping-band, each set extending through both of the overlapping portions; and a series of centrally-disposed bolts threaded into said clamping-band intermediate of the first-mentioned series of bolts and penetrating both of the overlapping shoe-portions and adapted to secure the incasing-shoe to a felly.

4. A tire-structure including an incasing-shoe provided with two engaging portions adapted to occupy one or another of a plurality of positions relatively to each other; a clamping-band housed within said shoe and superposed upon the inner shoe-portion; two sets of spaced shoe-securing bolts threaded into said clamping-band, and each set extending through both of the overlapping portions of the shoe and each set being arranged in parallelism with the other set, and both sets adapted to secure the shoe-portions in overlapped relation to said clamping-band; an annular member adapted to engage the outer shoe-portion and against which said bolts abut at one end; and a series of medially-arranged bolts extending through said annular member and threaded through said overlapped portions and into said clamping-band, whereby said incasing-shoe is secured to said annular member.

5. A tire-structure including an incasing-shoe having two portions adapted to overlap each other and to be adjusted relatively in a transverse direction; a clamping-band housed within the shoe and superposed upon the inner shoe-portion; two sets of shoe-securing bolts threaded into said clamping-band and adapted to secure thereto the overlapped portions of the shoe in one or another of their adjusted positions; an annular member encircling said incasing-shoe; and a series of bolts extending through said annular member and threaded into said clamp-

ing-band and occupying a spaced position relatively to said shoe-securing bolts.

6. A tire-structure including an incasing-shoe having two portions adapted to overlap each other and being relatively adjustable equidistantly whereby the relative position of the tread-portion of the shoe remains unchanged; a clamping-band housed within the shoe and superposed upon the inner shoe-portion; a series of bolts penetrating both shoe-portions and threaded into the clamping-band and adapted to secure said shoe-portions to the band in any of a

plurality of adjusted positions; an annular member engaging the outer shoe-portion; 15 and a series of medially-arranged bolts extending through said annular member and penetrating both shoe-portions and threaded into the clamping-band.

In testimony whereof I affix my signature in presence of two witnesses. 20

WILLIAM E. BUDD.

Witnesses:

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."