

(No Model.)

G. W. MARBLE.
WOODEN RIM BICYCLE WHEEL.

No. 547,732.

Patented Oct. 8, 1895.

Fig. 1

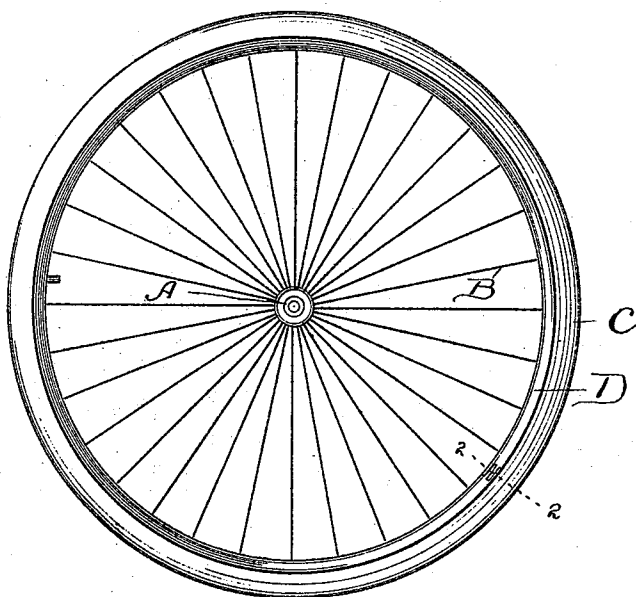


Fig. 2

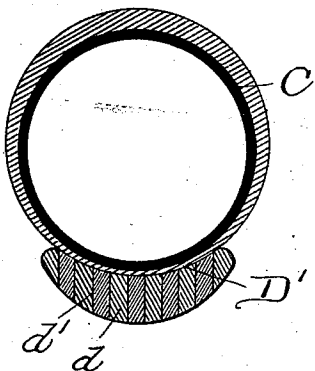
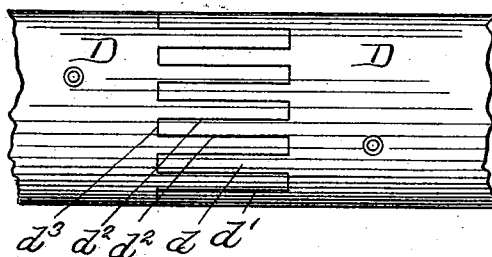


Fig. 3



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UNITED STATES PATENT OFFICE.

GEORGE W. MARBLE, OF PLYMOUTH, INDIANA, ASSIGNOR TO THE INDIANA NOVELTY MANUFACTURING COMPANY, OF SAME PLACE.

WOODEN-RIM BICYCLE-WHEEL.

SPECIFICATION forming part of Letters Patent No. 547,732, dated October 8, 1895.

Application filed December 22, 1893. Serial No. 494,417. (No model.) Patented in England April 9, 1894, No. 7,062.

To all whom it may concern:

Be it known that I, GEORGE W. MARBLE, a citizen of the United States, residing in Plymouth, in the county of Marshall and State of Indiana, have invented a new and useful Improvement in Wooden-Rim Bicycle-Wheels, (for which I have obtained British patent, dated April 9, 1894, No. 7,062,) of which the following is a specification.

My invention relates to improvements in bicycle-wheels, and to that particular class of bicycle-wheels having wooden rims. Heretofore wooden rims for bicycle-wheels have usually been made from a continuous or single strip of wood curved into the proper circular form and having its meeting ends skived off at an angle and overlapped, forming an ordinary lap-joint, secured together by glue and sometimes by wrapping with thread or fabric, or else the wooden rims have been built up of a number of thin strips glued one upon another. Owing to the necessary curved cross-section of the rim to form the annular channel to receive the tire serious objections have been found in practice to the composite or built-up rim composed of a series of thin strips, and as the bicycle-wheel is of the tension-spoke character, so that its strength and stiffness depends upon the rigidity of the continuous or circular arch formed by the rim of the wheel, it is obvious that where the wooden rim is made of a single solid strip of wood with its meeting ends skived off and lapped together the whole strain or tension of the wheel must necessarily come upon this lap-joint and tend to loosen the same and destroy the wheel or cause the two skived and lapped parts to slip toward each other.

The object of my invention is to provide a wooden-rim bicycle-wheel wherein the rim may be made of a single solid strip of wood, and which will be of a strong and efficient as well as simple and cheap construction, and wherein the joint at the meeting ends of the solid strip will not tend to weaken or diminish the natural strength of the circular arch, and wherein, also, the tension and strain of the wheel upon the arch will not tend to loosen or weaken the joint forward between the two or more meeting ends of the strip.

To this end my invention consists in a bicycle-wheel having a wooden rim composed of one or more solid strips of wood, and preferably a single solid strip, and having its or their meeting ends joined together by a series of interlocking tongues and grooves extending longitudinally of the strip or strips. The meeting ends of the strip thus abut squarely together end to end, so that the arch of the rim is in fact as strong at the joint as elsewhere, and the strain or tension of the wheel upon the arch also of course simply tends to compress the meeting and abutting ends more firmly together, so that the strain or tension has no tendency whatever to weaken or loosen the joint. The interlocking or interfitting tongues and grooves are preferably formed with parallel sides, though this of course is not an absolute essential. The abutting ends of the interlocking tongues and grooves are also preferably square, but this likewise is not necessary. The interlocking tongues and grooves are likewise preferably formed of the same length, although the construction may be varied in this regard, if desired. The joint as a whole or the series of interlocking tongues and grooves are also preferably arranged to extend in a band transversely or at right angles across the rim, but it will be obvious to those skilled in the art that the series of interlocking tongues and grooves might be arranged to extend otherwise than square across the rim—as, for example, diagonally. It will thus be seen that the tongued and grooved meeting ends of the rim abut one against the other, so that the full natural strength of the circular arch is preserved at the joint and so that the strain or tension of the wheel upon the circular arch has no tendency to weaken or loosen the joint. By means of these interlocking tongues and grooves extending longitudinally or in the direction of the rim at the meeting ends of the strip I have discovered that an exceedingly firm, strong, and durable wooden rim may be formed, having no tendency to work loose or become weakened at the joints when under strain or in use, and wherein, also, the joint formed in the rim is perfectly water-tight, so that no moisture can work in or through the rim at the joint, and wherein the form of the

joint in no way tends to weaken or diminish the natural strength of the arch, and wherein, too, the compressing strain or tension upon the arch has no tendency to weaken or loosen the joint.

5 In the accompanying drawings, which form a part of this specification, and in which similar letters of reference indicate like parts throughout all the views, Figure 1 is a side elevation of a bicycle-wheel embodying my invention. Fig. 2 is an enlarged cross-section taken on line 2 2 of Fig. 1, and Fig. 3 is an enlarged detail view showing in plan the joint formed at the meeting ends of the wooden rim.

15 In the drawings, A represents the hub of a bicycle-wheel; B, its tension-spokes; C, its elastic tire, and D its wooden rim. The rim D is preferably made of a single solid continuous strip of wood curved into proper circular shape and furnished with the annular channel or groove D', constituting the seat for the pneumatic or other elastic tire C. This wooden rim is furnished at its meeting ends with a series of interfitting or interlocking

25 tongues and grooves $d d'$, extending longitudinally or in the direction of the rim. The opposite sides $d^2 d'^2$ of each of the tongues d and of the grooves d' are preferably parallel to each other and to the plane of the wheel, though the construction may be varied in this regard. The ends d^3 of each of the tongues d and of the grooves d' are preferably square or at right angles to the direction of the rim, as they thus have a better abutment the

35 one against the other, and produce no tendency to spread apart or split the rim, though the construction may be varied in this regard. The series of interlocking tongues and grooves $d d' d' d'$ are arranged, preferably, to extend transversely or at right angles across the rim, although the construction may be varied in this regard. The preferable construction is also to make all the tongues and their corresponding grooves of the same length, although the construction in this respect may likewise be varied. The interfitting tongues and grooves $d d'$, when properly interlocked or fitted together under pressure, are secured together by glue or other suitable cement,

50 thus forming a firm, strong, and water-tight joint.

Another advantage secured by my improved form of wooden rim and construction

of joint is that the joint may be so short as to avoid the necessity of making any of the spoke-holes or other holes through it. Heretofore the length of the joint has been necessarily such that one or more spoke-holes must be formed through it, and, as is well known to those skilled in the art, wherever there is a hole made through the joint the tendency is for moisture to work in and in time loosen or injure the glued or cemented joint.

I claim—

1. In a bicycle wheel, the combination with a pneumatic or elastic tire and suspension spokes, of a wood rim consisting of a solid strip of wood bent to circular form, channeled on its outer periphery to receive said tire, and having its meeting ends each provided with a series or multiplicity of long narrow interfitting tongues and grooves, glued together, extending longitudinally of the rim and in the plane of the wheel, the ends of the tongues on one end of the rim strip fitting or abutting against the end or bottom of the corresponding grooves on the other end of the rim strip, whereby said rim is furnished with means for performing the triple functions of resisting collapse or compression due to the tension of said suspension-spokes, of acting tensilely to bind or hold the parts of the wheel together, and of resisting breakage, flexure or displacement, as required in its combination with said pneumatic tire and suspension-spokes, substantially as specified.

2. In a bicycle wheel, the combination with an elastic tire and suspension spokes of a wood rim serving to resist collapse or compression, tensile strains, and also breaking or flexure strains, and consisting of a solid strip of wood, channeled on its outer periphery to receive said tire, and having its meeting ends furnished with a series or multiplicity of interfitting tongues glued together, the glued side surfaces of said interfitting tongues affording an extended glue surface lying substantially in the plane of the wheel and longitudinally of the rim so as to resist tensile and breakage or flexure strains, substantially as specified.

GEORGE W. MARBLE.

Witnesses:

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