

R. C. JARVIS.
 SPRING WHEEL.

APPLICATION FILED DEC. 12, 1907.

1,000,008.

Patented Aug. 8, 1911.

Fig. 1.

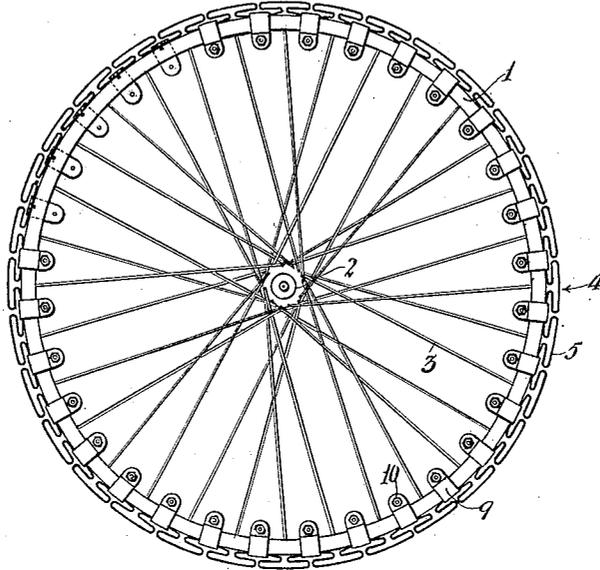
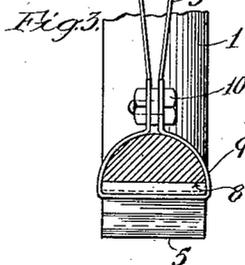
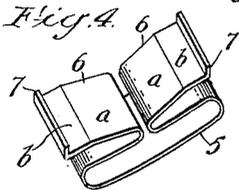
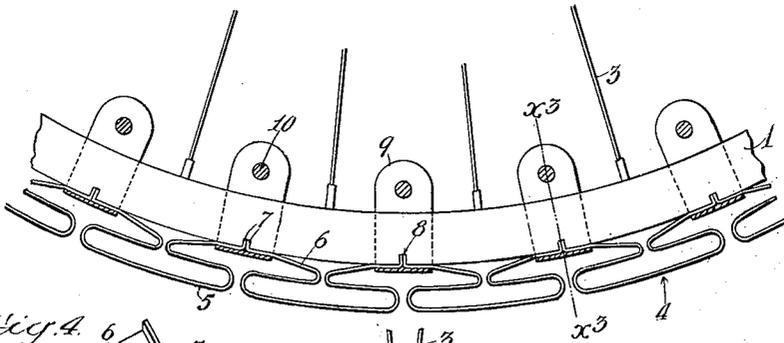


Fig. 2.



Witnesses:-
 Louis W. Aratz,
 Frank L. Graham.

Inventor,
 Robert C. Jarvis.
 by *Thomas Faustfaerch*
 his attys

UNITED STATES PATENT OFFICE.

ROBERT C. JARVIS, OF LOS ANGELES, CALIFORNIA.

SPRING-WHEEL.

1,000,008.

Specification of Letters Patent. Patented Aug. 8, 1911.

Application filed December 12, 1907. Serial No. 406,239.

To all whom it may concern:

Be it known that I, ROBERT C. JARVIS, a citizen of the United States, residing at Los Angeles, in the county of Los Angeles and State of California, have invented a new and useful Spring-Wheel, of which the following is a specification.

This invention relates to spring wheels and the object of the invention is to arrange a series of springs around the felly which springs bear directly on the ground in place of a tire and prevent shocks or jolts to the wheel as the springs will yield in rotation as they arrive at the bottom of the wheel and bear the weight, and will also yield in passing over obstacles so that the wheel is relieved of shock.

The springs constituting my spring wheel are especially designed for contacting with the roadway over which the vehicle is propelled, and the springs are so adapted and arranged that while forming the tread of the wheel they will dislodge mud or dirt which may be picked up by them when the wheel revolves.

The accompanying drawings illustrate the invention and referring thereto, Figure 1 is a side elevation of a wheel constructed in accordance with my invention. Fig. 2 is an enlarged side elevation of a portion of the outer part of the wheel. Fig. 3 is a section on line x^x-x^x Fig. 2. Fig. 4 is a perspective view of a spring.

The numeral 1 designates the felly which supports the hub 2 by spokes 3 of any preferred construction. Arranged on the felly 1 are springs 4, each of which comprises a substantially flat loop 5 which has its exterior curved concentric with the felly and its interior formed from the two folded in ends, which approach each other at the middle of the spring but without touching. The ends are then bent outwardly away from each other and away from the loop to form leaves 6. Each leaf comprises a flat portion b that is adapted to rest upon and be secured to the felly, and a curved portion a that joins the flat portion b to the doubled in portion, whereby the resiliency of the spring is increased by permitting the loop 5 to be moved bodily toward the felly as well as being compressed. The end of each leaf, or of the flat portion b , is provided with a lip or flange 7, which projects at substantially right angles away from said flat portion and, when in position upon the

wheel, abuts or lies flatwise against the corresponding flange of the adjacent spring in a notch 8 formed transversely in the periphery of the felly and thereby positively prevents the spring from moving circumferentially on the felly.

When the revolution of the wheel brings any one of the springs forming the tread, into contact with the ground, the movement thereof is toward the next spring following, thereby closing the space between the two springs. This action affords a practically continuous flat surface which prevents the sinking of the tread into the mud or dirt. When the spring is carried away from contact with the roadway by the revolution of the wheel the springs spread apart in the manner shown in the drawings and any mud or dirt which may have been pressed between the springs is released to fall free from the wheel.

In order to retain the springs on the felly stirrup shaped clips 9 are employed, each clip passing over the flat parts b of two springs and around the felly, the ends of the clip being fastened together by a bolt 10.

There is sufficient space between the ends of the loops so that as they are pressed toward the felly and support the maximum weight, the length of each side portion of each spring between the junction of the loop 5 and the leaf 6, and the outer bend of the loop, being substantially equal to the distance from said junction to the midpoints (at 8) between the springs, the ends of the loops will just meet when the springs are flattened. The spring action is afforded by the curved loops 5 and the leaf parts a .

It will be noted that the springs themselves also serve as the tire for they come in direct contact with the road.

Should one or more springs break or require removal it is a very simple matter to loosen the clips which retain the spring thus allowing the flanges to be slipped out of the notches, the spring removed and a new one substituted, without disturbing any of the other springs.

My wheel is thus provided with a resilient flat tread composed of spring segments practically continuous on its face when in contact with the ground. By providing the leaves of the springs with the lips or flanges 7 at their ends, seating the lips in the notch 8 in the felly or rim of the wheel and confining the springs therein by means of clips

or other means, I provide a construction which can not creep or crawl away from its proper place on the periphery of the wheel and will not allow the wheel to skid sidewise
5 on slippery ground.

What I claim is:—

1. In combination, a wheel, the felly of which is provided with transverse notches, a plurality of springs around the felly, each
10 spring comprising a flat strip of resilient material doubled upon itself near its center to form a substantially flat loop, the exterior of said loop being curved concentric with the felly and the interior formed from said
15 doubled portions, the inner ends of which approach each other at the center of the loop, the portions of said strip beyond said ends being bent outwardly away from each other and away from said loop to form
20 leaves, each leaf comprising a flat portion that rests upon the felly and a bent portion which joins the flat portion to said inner end of the loop, the free end of the flat portion being bent at right angles thereto and
25 resting in one of said notches against the correspondingly bent end of the adjacent spring, and a clamp around the felly at each notch and around the flat portions of two adjacent springs, the outer faces of said
30 loops forming the tread of the wheel and the ends of the adjacent loops being adapted to approach each other when the spring is compressed.

2. In a spring tread wheel, a felly provided with transverse notches at equal distances around its periphery, flat springs doubled near their centers to form substantially flat loops with leaves extending therefrom and having flat portions adapted to
40 rest upon the felly, lips extending downwardly from such flat portions to engage with the transverse notches in the felly and

fastening means for holding the lips in engagement with the notches, and the length
45 of the spring from the junction of the leaf at each side to the outer bend of the loop at that side being substantially equal to the length of the leaf from said junction to the said notches at the mid-point between the
50 springs, so that when the springs are flattened against the felly by pressure on the ground their outer portions will substantially meet to form a substantially continuous tread for the wheel.

3. In a spring tread wheel, the combination with a felly, of a circular series of flat
55 springs, each spring being doubled near its center to form a substantially flat loop the exterior of which is curved and the interior is formed from said double portions, the
60 inner ends of which extend substantially parallel with the tread portion and approach each other at the center of the loop, the portions of said spring beyond said ends being bent outwardly away from each other
65 and away from said loop to form leaves, and means for attaching the end portions of the leaves of adjacent springs to the felly, the length of the spring between the junction of the leaf and the outer bend of the
70 loop at each side being substantially equal to the length of the leaf from the junction to the mid-point between the springs at the place of attachment to the felly, so that
75 when the springs are compressed they will substantially meet to form a substantially continuous tread.

In testimony whereof, I have hereunto set my hand at Los Angeles, California, this 5th day of December 1907.

ROBERT C. JARVIS.

In presence of—

GEORGE T. HACKLEY,
FRANK L. A. GRAHAM.