J. E. FISHER & T. M. ANDREWS.

SPRING WHEEL.

APPLICATION FILED AUG. 19, 1912.

1,069,686.

Patented Aug. 12, 1913.

2 SHEETS—SHEET 1.

Fig. 1.

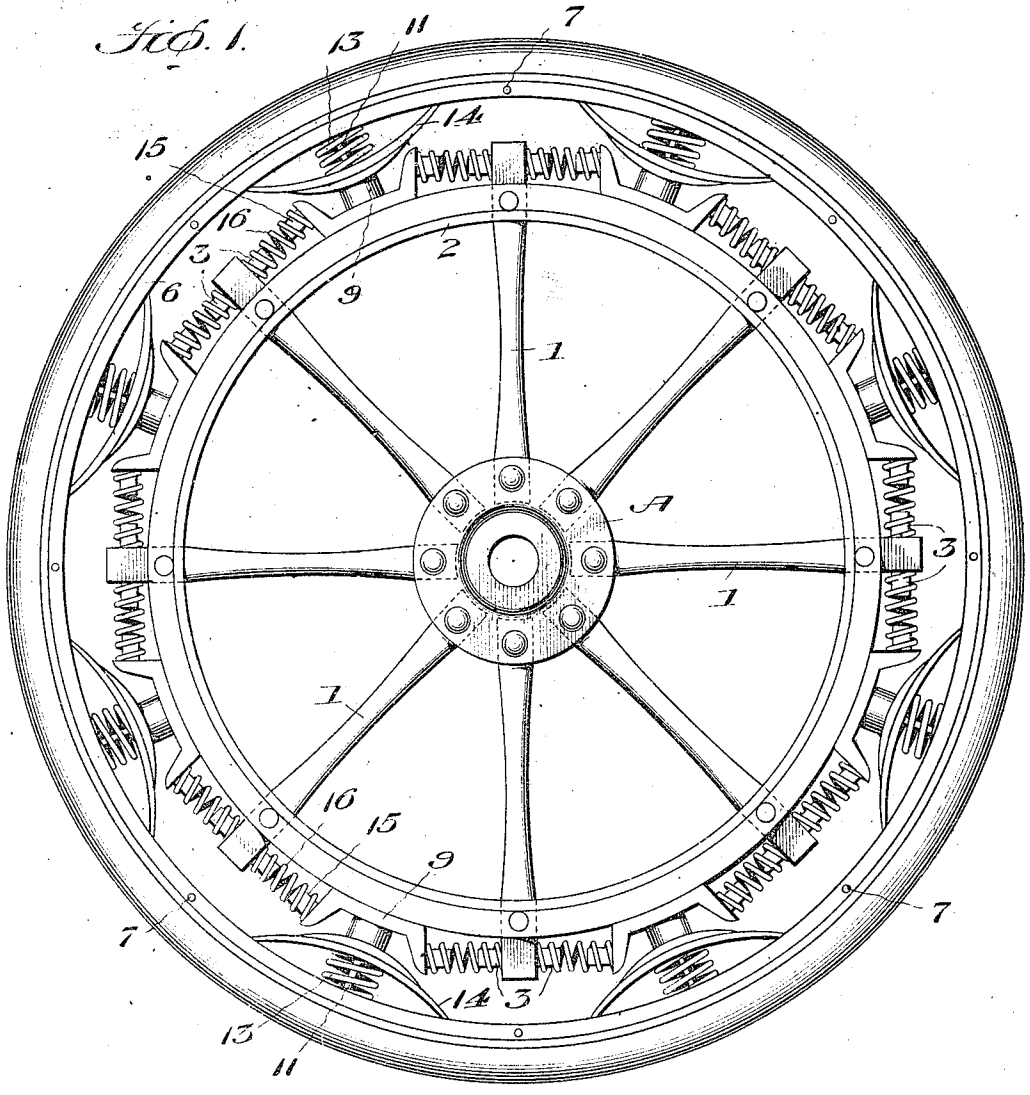
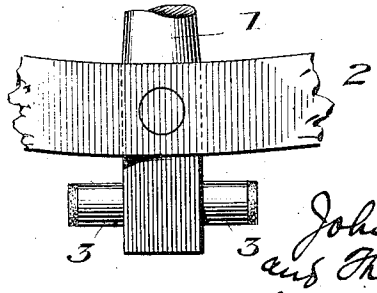



Fig. 5.




Witnesses

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2 SHEETS—SHEET 2.

Fig. 2.

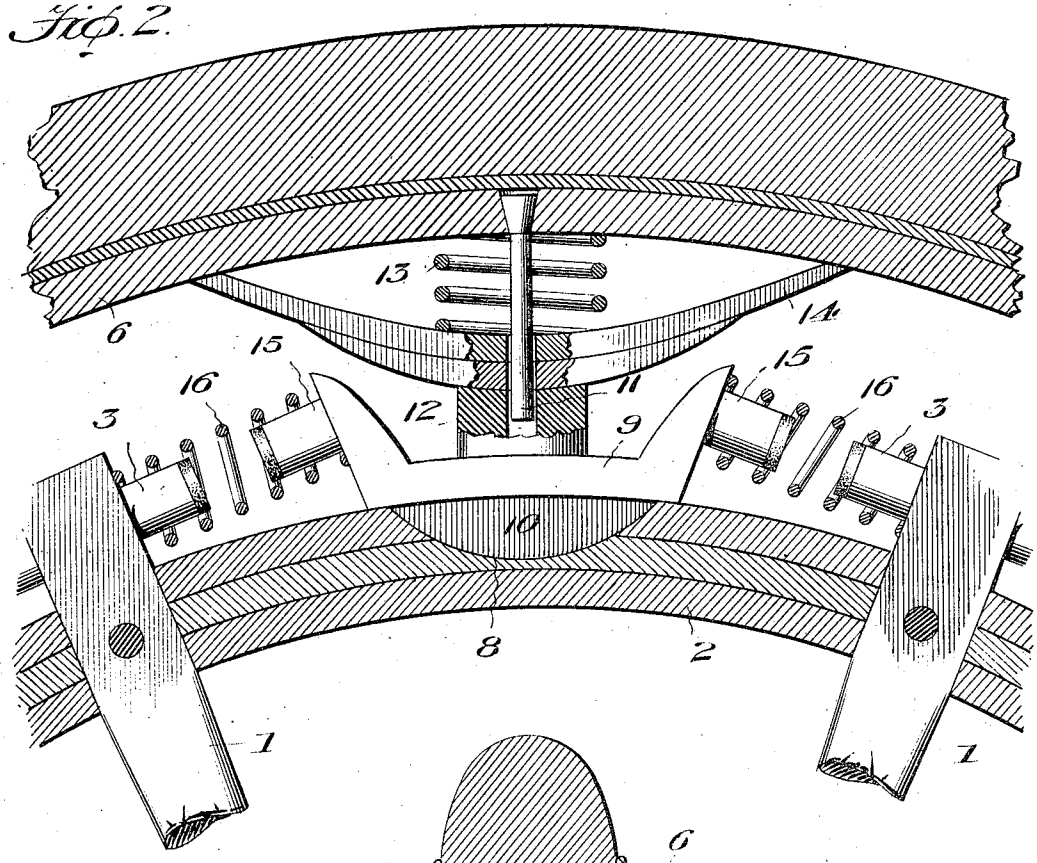



Fig. 3.

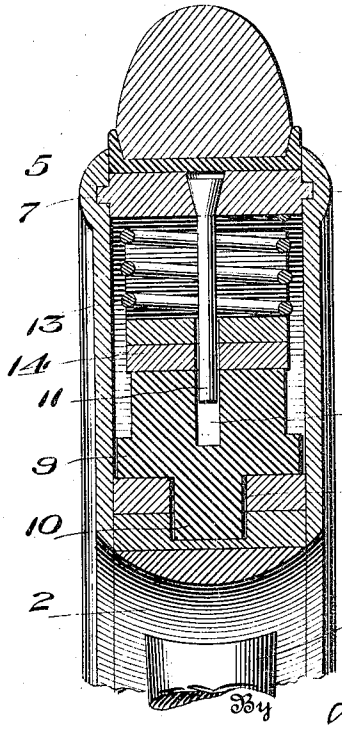
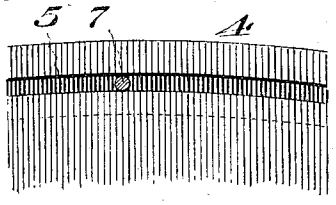



Fig. 4.

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# UNITED STATES PATENT OFFICE.

JOHN E. FISHER AND THOMAS M. ANDREWS, OF NASHVILLE, TENNESSEE.

## SPRING-WHEEL.

1,069,686. Specification of Letters Patent. Patented Aug. 12, 1913.

Application filed August 19, 1912. Serial No. 715,947.

*To all whom it may concern:*

Be it known that we, JOHN E. FISHER and THOMAS M. ANDREWS, citizens of the United States, residing at Nashville, in the county of Davidson and State of Tennessee, have invented certain new and useful Improvements in Spring-Wheels, of which the following is a specification.

Our invention relates to an improvement in spring wheels for vehicles.

The invention consists in certain novel features of construction and combinations of parts which will be hereinafter fully described and pointed out in the claims.

In the accompanying drawings, Figure 1 is a view in side elevation with one of the side plates or sides of the casing removed to disclose the interior construction; Fig. 2 is an enlarged transverse sectional view; Fig. 3 is an enlarged vertical sectional view; and Figs. 4 and 5 are details.

A, represents the hub of a wheel, having spokes 1, 1, mounted therein, and carried by the spokes is a felly 2. The spokes project through and extend above the felly and are provided with buffers 3, 3, on each side thereof. A casing 4, open at the upper end, is provided with grooves 5 along the inner surface of each side for the reception of the rim 6, which is received in the casing, and is provided with lugs 7 which are received in the grooves 5 of the casing, the sides of the casing extending along the sides of the felly 2. Formed on the upper surface of the felly 2 and intermediate of the ends of the spokes 1 are concave grooves or recesses 8. Shoes 9 are mounted on the felly, and the lower portion of each shoe is provided with a projection 10 having a curved lower surface which is received in the grooves 8, to permit of the shoe having a rocking action upon the felly and preventing the shoe from having any lateral movement. Pins 11, 11, are connected to the lower surface of the rim 6, and adapted to extend into recesses 12 formed in the upper surface of the shoes 9. Each pin 11 has a spiral spring 13 surrounding it, and located below each spring and upon each shoe 9 is a semi-elliptical spring 14, the upper edges of which engage the lower or inner surface of the rim 6. Buffers 15 are formed at each end of the shoes 9, and received between each end of the shoes and each side of the spokes and encircling the buffers 3 and 15 of the spokes and shoes respectively, is a coil spring 16. The pins 11 extend through the coil springs 13, the flat or semi-elliptical springs 14, and into the recesses in the shoes 9, allowing the springs to move freely upon the pins, and the shoes to move longitudinally of the felly. The tongue or projection 10 of the shoes causes the shoes to move in one direction—that is, they are capable of a rocking action, but are prevented from any lateral movement in the grooves 8 of the felly. The movement of the shoes on the felly is guided by the tongues 10 until the tension of the coil o tongues 10 until the tension of the coil springs 13 and semi-elliptical springs 14 is great enough to move the load, or until the buffers 3 and 15 of the spokes and shoes respectively come together, causing the wheel to become rigid from pressure in one direction, which causes the wheel to turn, after which the springs begin to equalize their pressure, thus making the wheel resilient, because the coil springs 13 and the flat or elliptical springs 14 tend to hold the felly away from the inner periphery of the rim 6. These elements form the means for carrying the entire load placed upon the axle, and when the wheel is in motion the springs and buffers continually fall back or adjust the felly to such a position as to create a condition of continuous fall and recovery while the wheel is moving.

Having fully described our invention, what we claim as new and desire to secure by Letters Patent, is:—

1. In a spring wheel, the combination with a hub and felly, spokes connected to the hub and felly and projecting beyond the felly, of a rim, shoes movably mounted upon the felly and capable of an oscillating movement thereon, flexible means connecting the shoes to the rim for supporting the rim, and resilient means interposed between the shoes and ends of spokes for limiting the movement of the shoes.

2. In a spring wheel, the combination with a felly and a rim, the felly having grooves formed therein at intervals, shoes mounted on the felly having tongues which are adapted to be received in the grooves for holding the shoes against lateral movement, but allowing the shoes to have an oscillatory movement upon the felly, springs interposed

between the shoes and rim for supporting the rim, and means connecting the shoes to the rim for holding the shoes in place.

3. In a spring wheel, the combination with a hub and felly, spokes connected to the hub and felly and projecting beyond the felly, of a rim, shoes movably mounted upon the felly, springs interposed between the shoes and rim and loosely mounted upon the shoes, means connecting the shoes and rim together and fastening the springs to the shoes, and resilient means located between the projecting ends of the spokes and shoes for limiting the movement of the shoes.

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

JOHN E. FISHER.
THOMAS M. ANDREWS.

Witnesses:
JOHN O'HARE,
J. C. T. MCCALL.