E. E. WICKHAM.

SPRING WHEEL.

APPLICATION FILED DEC. 10, 1910.

1,022,648. Patented Apr. 9, 1912.

Fig. 1.

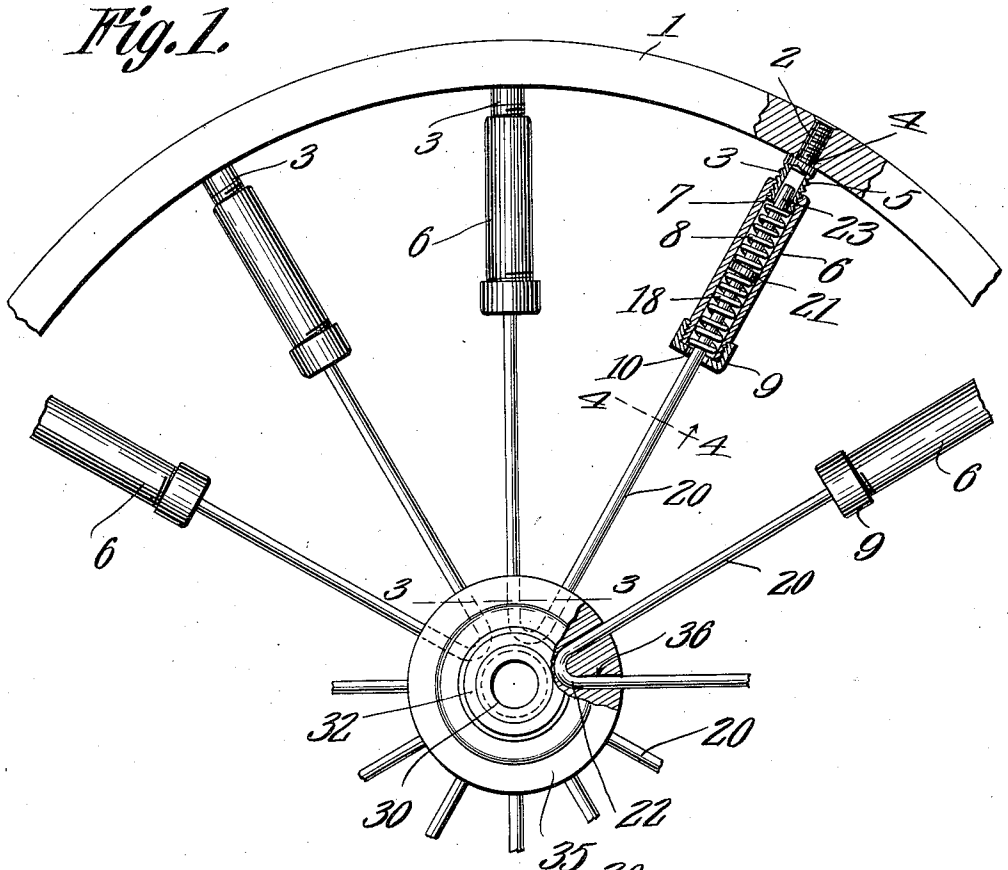

Fig. 2.

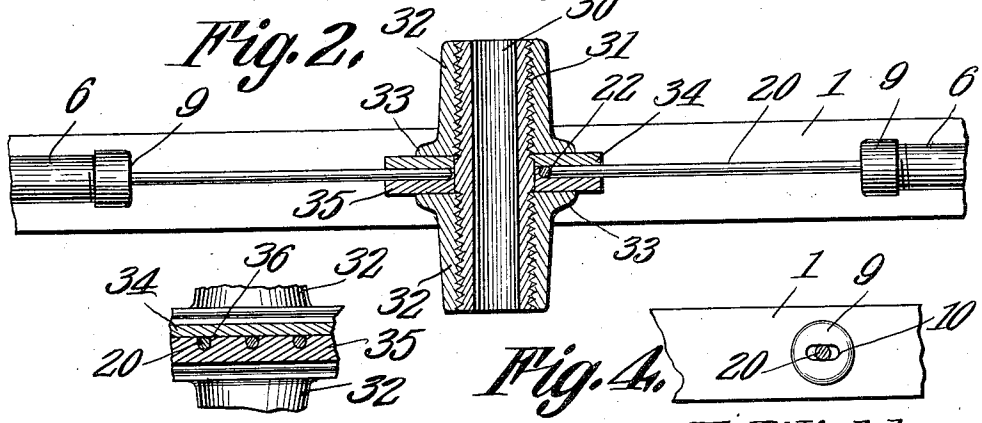

Fig. 3.

Fig. 4.

Witnesses

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UNITED STATES PATENT OFFICE.

ELMER E. WICKHAM, OF WINDSOR, MISSOURI.

SPRING-WHEEL.

1,022,648. Specification of Letters Patent. **Patented Apr. 9, 1912.**

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To all whom it may concern:

Be it known that I, ELMER E. WICKHAM, a citizen of the United States, residing at Windsor, in the county of Henry and State of Missouri, have invented a new and useful Spring-Wheel, of which the following is a specification.

This invention relates to spring wheels, more especially for use on automobiles and the like; and its object is to locate the springs near the rim where there is more room than near the hub, to utilize them in connection with wire spokes of which each wire forms two of the spokes, and to connect the latter at their bends with the hub whereof the parts are made separable.

To this end the invention consists in the details hereinafter described and claimed, and as shown in the drawings wherein—

Figure 1 is an elevation of part of a wheel constructed in accordance with my invention, one of the spring barrels being shown in section and part of the hub broken away. Fig. 2 is a horizontal section through the hub. Fig. 3 is a section on the line 3—3 of Fig. 1. Fig. 4 is a section on the line 4—4 of Fig. 1.

The rim 1 is shown herein as a solid strip of metal although of course it could be channeled and carry a tire as usual on automobiles. Threaded in or otherwise secured to the rim are the shanks 2 of nipples 3 whose shoulders 4 preferably rest within the rim and whose bodies are externally threaded as at 5 to screw into the outer ends of barrels 6 whereby the inner ends 7 of the nipples form shoulders against which bear springs 8 located within the barrels. The inner ends of the latter are closed by caps 9 having oblong holes 10 as best seen in Fig. 4, and through said holes pass the wire spokes 20, each spoke having a collar 21 fast upon it within the barrel at the inner end of the spring 8, and another spring 18 being disposed between said collar and the cap.

The spokes are preferably of stout wire and made in pairs, with a bend 22 between each two spokes 20, which bend is intended for attachment to the hub by means to be set forth below, whereas the straight portion or leg of the spoke extends throughout the length of the barrel and its outer extremity 23 is smaller than and loose within the nipple 3. It follows that when weight is placed upon the hub, two adjacent spokes are drawn downward and the springs 18 in two adjacent barrels are compressed. In other words the whole hub descends within the rim, and the pairs of spokes which then stand horizontal must have a little vertical movement within their barrels. This is permitted by the oblong holes in the caps 9 and by the looseness of the extremities 23 in the nipples 3, the inner ends of the spokes descending and their bodies rocking over the points where the collars 21 rest within the barrels 6.

While the structure of the hub is not absolutely essential, I consider it important that some such hub be employed in this connection as I will now describe. The center of the hub is formed by a tube 30 externally threaded as at 31 and extending throughout the length of the hub, and its bore may revolve upon the axle or be fastened thereto in any manner forming no part of the present invention. Onto each end of this center is screwed a clamping member 32 having a flange 33 at its inner end. Between the two flanges are held two rings, one of which numbered 34 is a flat washer while the other numbered 35 is sufficiently thick to pass between the spokes and is notched as at 36 for their reception. In assembling the spokes with a hub of this type, the clamping members are run partly off the threads 31, the rim and spokes are brought into place, the bends 22 of the latter are passed into the notches 36, the washer 34 is brought up against the open end of the notches, and the members 32 are then screwed up so that their flanges 33 clamp the two rings closely together. With the hub thus constructed it will be obvious that if the wheel should pass over an obstruction so great that the outermost springs 8 do not yield sufficiently, or should they not yield quickly enough, the bend 22 of the lowermost pair of spokes could yield inward toward the central tube 30 to a slight degree. Also it will be obvious that the looseness of the spokes within the notches 36 permits the former to have the slight rocking movement attributed to them when they stand horizontal, as above described.

What I claim is:—

In a spring wheel, the combination with the rim, the hub, and the spokes made of wire; of a spring fastening between the outer end of each spoke and the rim, the

same comprising a nipple engaging the rim and whose bore is larger than the extremity of the spoke so that the latter is loose laterally therein, a barrel carried by the nipple, a collar on the spring fitting slidably within the barrel, a cap on the inner end of the latter having an oblong hole loosely embracing the spoke, and expansive springs within the barrel with their inner ends resting against said collar and their outer ends against said nipple and cap respectively.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

ELMER E. WICKHAM.

Witnesses:
EDGAR S. ROBISON,
JULIUS SCHMUR.