W. H. WILDRICK.

SPRING WHEEL.

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931,241.

Patented Aug. 17, 1909.

Fig. 3.

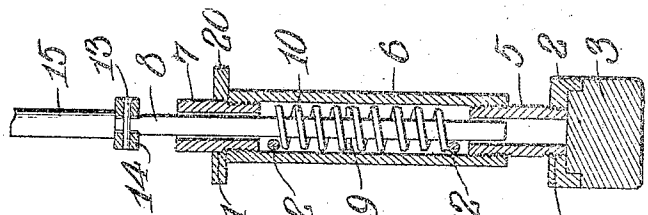


Fig. 2.

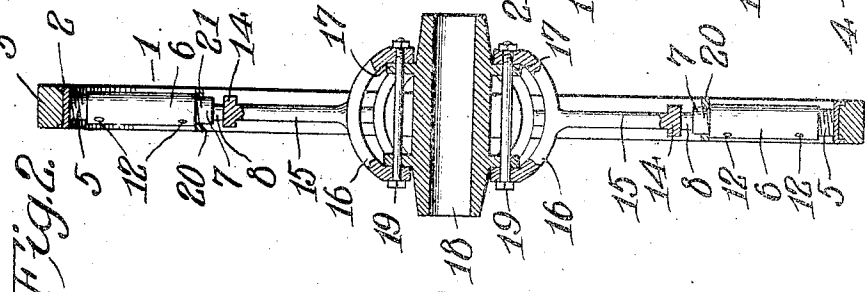
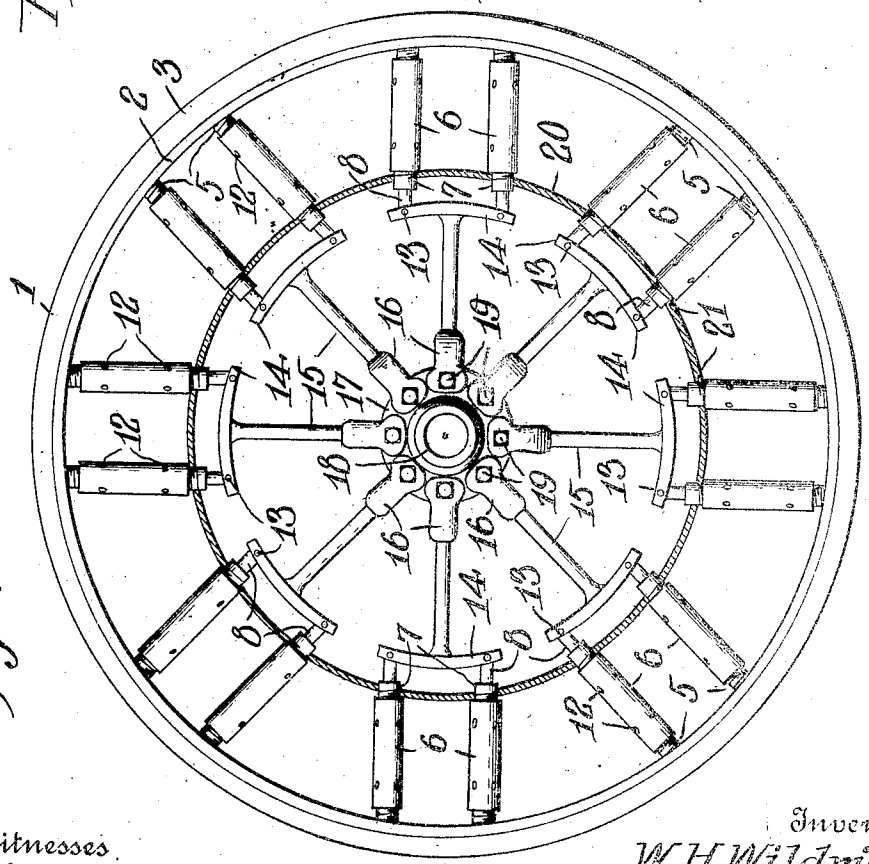


Fig. 1.



Witnesses.

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UNITED STATES PATENT OFFICE.

WARREN H. WILDRICK, OF PHILLIPSBURG, NEW JERSEY.

SPRING-WHEEL.

No. 931,241. Specification of Letters Patent. Patented Aug. 17, 1909.

Application filed October 5, 1908. Serial No. 456,191.

To all whom it may concern:

Be it known that I, WARREN H. WILDRICK, a citizen of the United States, residing at Phillipsburg, in the county of Warren and State of New Jersey, have invented certain new and useful Improvements in Spring-Wheels; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in spring wheels.

The object of the invention is to provide a wheel of this character which will be strong and durable in construction, possessing all the resiliency and advantages of a pneumatic-tired wheel, and eliminating the disadvantages and objections of the latter by the use of a solid form of tire.

With these and other objects in view, the invention consists of certain novel features of construction, combination and arrangement of parts as will be described and particularly pointed out in the appended claims.

In the accompanying drawing, Figure 1 is a side view of a wheel constructed in accordance with the invention; Fig. 2 is a transverse sectional view of the same; and Fig. 3 is an enlarged vertical sectional view through one of the spokes, its hub-attaching yoke and the spring connections between the same and the rim.

Referring more particularly to the drawings, 1 denotes the wheel, which consists of a rim, 2, on which may be arranged any desired form of tire, 3. In the inner side of the rim is formed a series of threaded sockets, 4, said sockets being preferably arranged in pairs, as shown. In the sockets, 4, are screwed short nipples, 5, having threaded outer ends on which are screwed tubular cylinders, 6, in the inner ends of which are screwed bushings, 7.

Slidably mounted in the bushings, 7, and cylinder, 6, are plunger or pressure rods, 8, in which near their outer ends is arranged a transversely disposed pin, 9, the ends of which project beyond the sides of the rod, as shown. Around each of the plunger rods, 8, is a coiled spring, 10, one-half of which is disposed on each side of the pin, 9, the latter serving to hold the spring in operative position on the rod. Arranged in the cylinders, 6, adjacent to their opposite ends are stop pins, 12, said pins being arranged through the cylinders tangentially or to one side of the plunger rods, said pins being adapted to form stops against which the ends of the spring, 10, bear so that each portion of the spring on the opposite sides of the pin, 9, serves as a cushion when the plunger rod is pushed inwardly or drawn outwardly from the cylinders, thus yieldingly securing the plunger rods in place.

The inner ends of the plunger rods, 8, are provided with transversely disposed passages to receive a pivot pin, 13, by means of which said ends of the rods are pivotally connected together in pairs. The opposite ends of the cross heads, 14, have formed therein elongated apertures to receive the apertured inner ends of the plunger rods, thus permitting said rods to be loosely pivoted thereto by means of the pivot pins, 13, hereinbefore described.

The cross heads, 14, are formed on the outer ends of radially-projecting spokes, 15, the inner ends of which are connected to the center of hub-attaching yokes, 16. The yokes, 16, are arranged transversely of the wheel, and at right-angles to the cross heads, 14, and the inner ends of said yokes are secured to radially-projecting flanges, 17, on the hubs, 18, preferably by means of transversely disposed pivot bolts, 19, which are passed through said flanges, and the ends of the yokes, as shown.

The inner ends of the cylinders, 6, are spaced apart or held in proper position and braced by means of an annular bracing hoop or band, 20, said band being provided with apertures, 21, which are arranged in pairs and spaced apart to the proper distance to receive the bushings, 7, in the inner ends of the cylinders, said ends bearing against the outer side of the bracing hoop, as shown.

A wheel constructed as herein shown and described will be yieldable in all directions so that the vehicle supported thereby will be cushioned against jolts or jars caused by the wheels passing over rough surfaces or obstructions.

Any suitable tire may be used in connection with the wheel and the tires may be secured to the rim in any suitable manner.

From the foregoing description, taken in connection with the accompanying drawing, the construction and operation of the invention will be readily understood without requiring a more extended explanation.

Various changes in the form, proportion

and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of the invention as defined in the appended claims.

Having thus described my invention, what I claim as new and desire to secure by Letters-Patent, is:

1. In a wheel of the class described the combination of a hub, a series of spokes, cross heads mounted on the free ends of said spokes and arranged transversely to the hub, yokes on the inner ends of said spokes, means for connecting said yokes with the hub, a plurality of cylinders secured to the inner face of the rim, plunger rods slidably mounted in said cylinders, and cushioning springs arranged on said rods within said cylinders and means for connecting the inner ends of said rods to the opposite ends of said cross heads.

2. In a wheel of the character described, a hub, a series of spokes having on their outer ends segmental cross heads arranged transversely to the hub, and on their inner ends yokes arranged in line with the hub and at right-angles to said cross heads, means to pivotally connect said yokes with the hub, a series of tubular cylinders secured to the inner side of the wheel rim, plunger rods slidably mounted in said cylinders, cushioning springs arranged on said rods and held in position in said cylinders, and means whereby said rods are connected at their inner ends to the opposite ends of said cross heads.

3. In a wheel of the character described, a hub, a rim having formed in its inner side a series of threaded sockets arranged in pairs, pairs of threaded nipples arranged in said sockets, tubular cylinders arranged in pairs and engaged with said nipples, bushings arranged in the inner ends of said cylinders, plunger rods slidably mounted in said bushings, cushioning springs arranged on said plunger rods to operate in said cylinders, an annular bracing hoop engaged with said bushings to hold said cylinders in position, a series of spokes having on their outer ends cross heads, means to loosely connect the opposite ends of said cross heads to the inner ends of said pairs of plunger rods, yokes formed on the inner ends of said spokes at right-angles to said cross heads, a hub, and means to pivotally connect said yokes to said hub.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

WARREN H. WILDRICK.

Witnesses:
L. H. Neighbour,
R. H. Sheppard.