

H. C. KENNEDY.  
 SPRING WHEEL.  
 APPLICATION FILED JULY 29, 1910.

995,467.

Patented June 20, 1911.

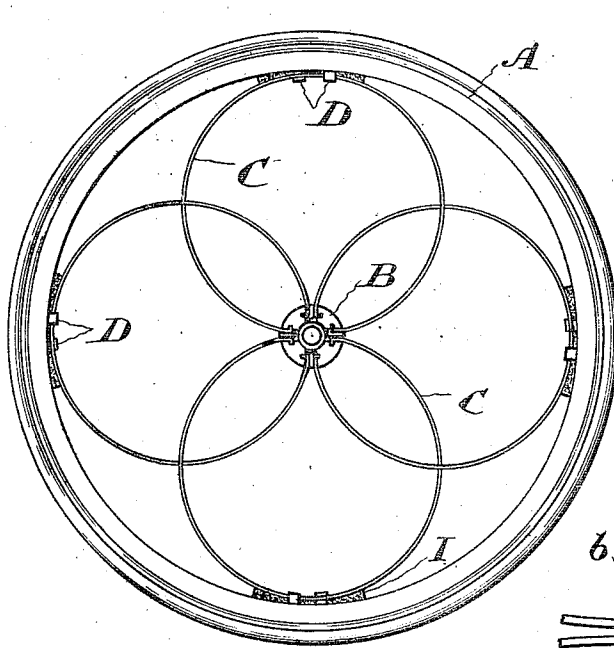


Fig. 1

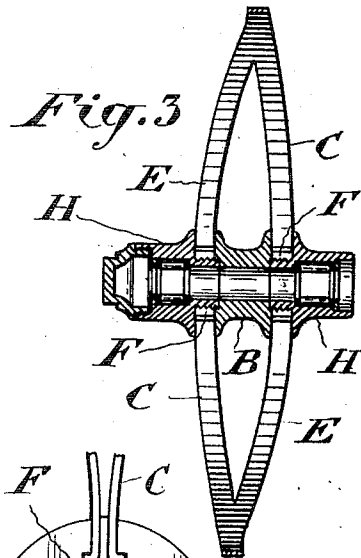


Fig. 3

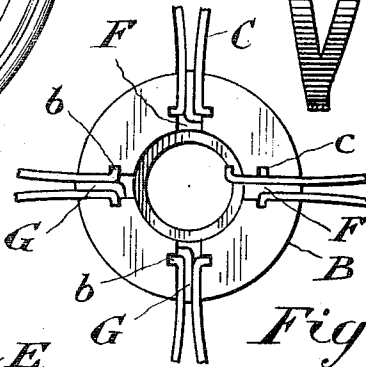


Fig. 4

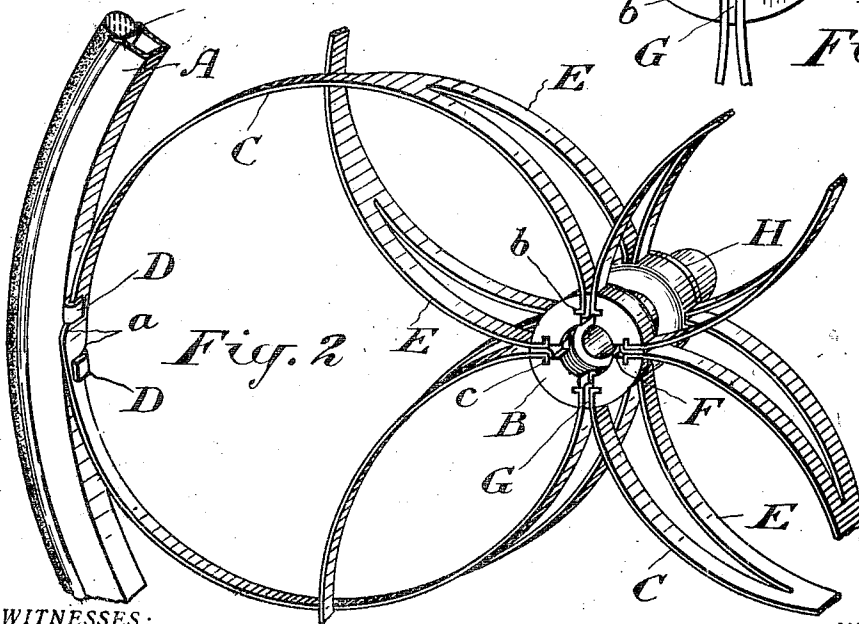


Fig. 2

WITNESSES:

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# UNITED STATES PATENT OFFICE.

HARVEY C. KENNEDY, OF TORONTO, ONTARIO, CANADA.

## SPRING-WHEEL.

995,467.

Specification of Letters Patent. Patented June 20, 1911.

Application filed July 29, 1910. Serial No. 574,545.

*To all whom it may concern:*

Be it known that I, HARVEY C. KENNEDY, of the city of Toronto, in the Province of Ontario, Canada, have invented certain new and useful Improvements in Spring-Wheels, of which the following is a specification.

This invention relates to wheels in which the hub and felly are connected by springs and my object is to strengthen, simplify and improve said springs and their method of connection to the hub and felly.

I accomplish my object by the constructions hereinafter specifically described and then definitely claimed.

Figure 1 is a side elevation of a wheel constructed in accordance with my invention. Fig. 2 is a perspective detail of parts thereof. Fig. 3 is a longitudinal section of the hub, and showing also parts of two springs. Fig. 4 is a front elevation of the hub showing particularly the method of securing the inner ends of the springs to the hub.

In the drawings like letters of reference indicate corresponding parts in the different figures.

A is the felly of the wheel, B the hub and C a series of hoop springs. Each spring intermediate its ends is connected to the felly in the following manner:—Two catches D are connected to the inner periphery of the felly of the wheel at opposite sides thereof and are circumferentially spaced, as shown particularly in Figs. 1 and 2. These catches are hook-shaped as shown, so that the spring may be engaged with them by placing it between them transversely of the felly and then turning the spring until it comes into substantially the same plane as the felly. The catches will then engage the spring, as shown. To prevent a circumferential movement of the spring relative to the felly, I form the shoulders *a* on the spring which engage the catches D, as shown. Each spring starts from one end of the hub and ends at the other end of the hub. This arrangement gives the spring a diagonal position which permits of them crossing one another, as shown, without destroying the symmetry of the wheel. As it is desirable, however, that each spring should be connected to each end of the hub, I provide each end of each spring with a branch E. The double ends of each spring thus formed are provided with the lips *b*. Each end of the hub is provided with the radial slots F. The opposite sides of these slots are pro-

vided with the grooves *c* into which the lips *b* are adapted to fit, as shown particularly in Fig. 4. These lips are held in engagement with the grooves by means of the wedges G which are driven in between the ends of the springs, as shown, securely locking them in place. Each wedge is preferably lipped, as shown, to prevent its outward displacement. When the end caps H of the hub are screwed into place the removal of these wedges is impossible.

From this description it will be seen that the springs are connected to the hub, and felly entirely without the use of bolts, screws or rivets. Consequently the springs are not in any way weakened at any point and any one spring can be easily and quickly removed at any time and replaced in case of breakage. The ends of the spring are disengaged from the hub by driving out the wedges and slipping the ends out as indicated at the right hand side of Fig. 4. The springs being forked at their inner ends, the wheel possesses lateral stiffness and at the same time possesses the necessary resiliency in a vertical direction.

The springs of course may be stiffened or strengthened in any way where they are connected to the felly, as for example, by means of rubber cushions I, such as shown in Fig. 1, or in any other way.

What I claim as my invention is:—

1. In a wheel, the combination of a hub; a felly; a plurality of hoop springs each connected at its ends to opposite ends of the hub and intermediate its ends to the felly and each crossing two adjacent springs; and a branch formed at each end of the spring branching at a point at the hub side of said crossings and connected to the opposite end of the hub to that to which the spring end is connected.

2. In a wheel the combination of a hub; a felly; a plurality of hoop springs each connected at its ends to opposite ends of the hub; and a connection between each spring and the felly comprising two circumferentially displaced catches one located at each side of the felly and beneath which the edges of the spring may engage; and means preventing circumferential displacement of the spring relative to the felly when the former is in engagement with the catches.

3. In a wheel the combination of a hub; a felly; a plurality of hoop springs each connected at its ends to opposite ends of the

hub; and a connection between each spring and the felly comprising two circumferentially displaced catches one located at each side of the felly and beneath which the edges of the spring may engage and shoulders formed on the spring adapted to engage the catches to prevent circumferential displacement of the spring relative to the felly when the former is in engagement with the catches.

4. In a wheel the combination of a felly; a plurality of hoop springs each connected intermediate its ends to the felly and having its ends lipped; a hub having radial slots formed in its ends equal in number to the springs, the slots being grooved to receive the lips on the ends of the springs; and removable wedges normally retaining the spring ends in the slots with their lips in

engagement with the grooves, each wedge being lipped to engage under a spring end.

5. In a wheel the combination of a felly; a plurality of hoop springs each connected intermediate its ends to the felly and provided with branched ends each having a lip formed thereon; a hub having radial slots formed in its ends equal in number to the springs, each slot being grooved to receive the lips on one part of the branched end of each of two adjacent springs; and removable wedges normally retaining the spring ends in the slots with their lips in engagement with the grooves.

Toronto, this 26th day of July 1910.

HARVEY C. KENNEDY.

Signed in the presence of—

J. EDW. MAYBEE,

E. P. HALL.