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PATENTED SEPT. 8, 1908.

A. DAUVERGNE.  
ELASTIC WHEEL.

APPLICATION FILED NOV. 29, 1907.



*Witnesses:*

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# UNITED STATES PATENT OFFICE.

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## ELASTIC WHEEL.

No. 897,831.

Specification of Letters Patent.

Patented Sept. 8, 1908.

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*To all whom it may concern:*

Be it known that I, ANDRÉ DAUVERGNE, a citizen of the French Republic, residing at Lyon, in the French Republic, have invented certain new and useful Improvements in Elastic Wheels, of which the following is a specification.

This invention relates to elastic wheels and consists of a novel construction of independent diametric spokes, surrounding a sleeve adapted to move relatively to the felly into any position in the plane of rotation, said felly being connected to the axle in such a manner as to move same or be moved thereby mechanically.

An embodiment of the invention is shown in the annexed drawing as applied to vehicle wheels in which the elasticity is obtained by springs which react on the spokes.

Figure 1 is a vertical sectional elevation on the line 1—1 of Fig. 2, and Fig. 2 is a vertical section on the line 2—2 of Fig. 1.

A sleeve A, loosely mounted on the axle B in the event of same being driven by means of a chain and pinions C, or driven by the axle direct when the latter acts as driving member carries rigidly fixed thereto radial bars D, which slide in recesses D' formed in the walls of extensions E, E' of the diametric spokes. The latter are formed perpendicularly to said recesses as tubes F, which are caused to successively engage spring pressed tubes G during the running of the wheel. The said tubes G arranged at distances apart corresponding to the spoke tubes F, transmit the load on the hub or axle to a series of conical helical springs H the preferred section of which in practice is rectangular. Said springs are inclosed in the conical outer ends of tubes I, which rigidly connect the central drum or hub J to the felly K. The aforesaid sleeve A carries at each end, a plate L adapted to follow all the positions of the hub in the plane of rotation of the wheel, but guided laterally by bearing against a ring M integral with the central drum J. A cover N is provided to protect the interior from dust.

Only one of the plates L is provided with a flexible connection of suitable material at the frame side of the wheel to permit universal movement of the sleeve without affecting the tightness necessary for lubrication. The spokes are separated from the tubes for the purpose of securing independent movement and to prevent the greater pressure of one spring overcoming the lesser

pressure of a spring diametrically opposite thereto. From the above construction it results, that each shock to which the felly is subjected either due to the road or by different conditions of running, is transmitted to the sleeve A by means of the spokes, after having been absorbed to a very large extent by the springs reacting on the ends of the spokes. In order to produce this result, each spoke must be capable of independent movement without being in any way counteracted by the movements of any or all of the remaining spokes. Thus, assuming a diametrical spoke to be in a position parallel to the road it will be seen that owing to the central enlargement E the guidance of which is perpendicular to the axis of the spoke, the ring J is permitted to move in any direction in the plane of rotation of the wheel even with an inclined displacement, and this movement will in no case be counteracted by the horizontal spoke, which at this moment becomes independent.

Since the wheel consists of an assemblage of rigid mechanical parts, no transverse deflection can take place, and the hub is guided over a large diameter by the plates L in rigid connection with the sleeve, and bearing on the rings M.

What I claim as my invention and desire to secure by Letters Patent of the United States is:—

1. An elastic wheel comprising in combination a rigid felly, a hub independent thereof, and capable of movement relatively thereto in the plane of rotation, a series of diametric spokes having central portions in sliding engagement with said hub, cushioning means interposed between the outer ends of each spoke and the inner surface of the felly, a central drum and rigid connections between the latter and the felly substantially as described.

2. An elastic wheel comprising a rigid felly, a hub independent thereof, and capable of movement relatively thereto in the plane of rotation of the wheel, a series of radial bars rigidly mounted on said hub, a series of diametric spokes having enlarged central portions, provided with apertures adapted to have sliding engagement with said bars, a spring interposed between the outer ends of each spoke and the inner surface of the felly, a central drum and rigid connections inclosing portions of the spokes, between said drum and the felly substantially as described.



3. An elastic wheel comprising a rigid felly,  
a hub independent thereof and capable of  
movement relatively thereto in the plane of  
rotation of the wheel, a series of radial bars  
5 rigidly mounted on said hub, a series of dia-  
metric tubular spokes having enlarged flat-  
tened central portions provided with aper-  
tures adapted to have sliding engagement  
with said bars, a series of helical springs in-  
10 terposed between the outer ends of the spokes  
and the inner surface of the felly, a central  
drum, a series of radially disposed tubes rig-

idly connecting said drum to the felly and in-  
closing the outer ends of the spokes and the  
springs aforesaid, and plates secured to the 15  
felly and adapted to be guided by said cen-  
tral drum substantially as described.

In witness whereof I have signed this speci-  
fication in the presence of two witnesses.

ANDRÉ DAUVERGNE.

Witnesses:

JEAN GERMAIN,  
GUILLAUME PIOCHE.