

A. C. FLETCHER.
Car-Wheels.

No. 145,856.

Patented Dec. 23, 1873.

Fig. 1.

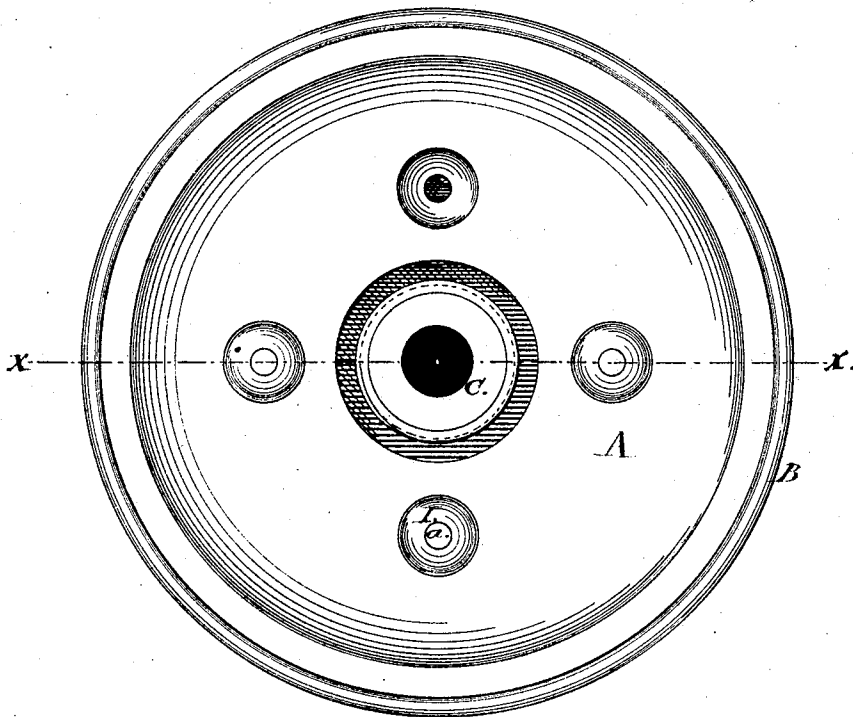


Fig. 2.

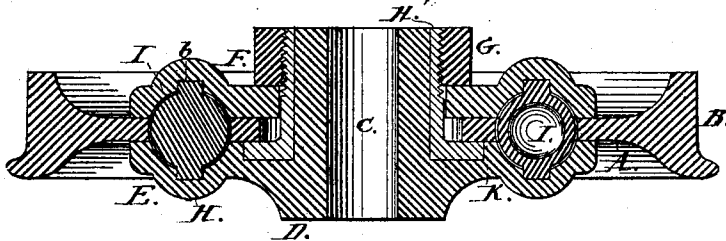


Fig. 3.

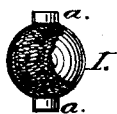


Fig. 4.



Witnesses:

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UNITED STATES PATENT OFFICE.

ADDISON C. FLETCHER, OF NEW YORK, N. Y.

IMPROVEMENT IN CAR-WHEELS.

Specification forming part of Letters Patent No. **145,856**, dated December 23, 1873; application filed December 18, 1873.

To all whom it may concern:

Be it known that I, ADDISON C. FLETCHER, of New York city, in the county of New York and State of New York, have invented certain new and useful Improvements in Car-Wheels, of which the following is a specification:

This invention relates to that class of car-wheels which are composed of a separate web and tread portion and two lateral binding disks or flanges; and it has for its object to improve upon the construction of wheels of this description, for rendering the connection of the component parts more safe and durable, dispensing also with the use of fastening bolts and nuts, which tend to weaken the body of the wheel by passing through openings in the wheel.

The invention consists in applying the web and tread portion of a sectional car-wheel to a hub, which is provided with a screw-threaded extremity for the reception of a clamping nut or collar, which is designed to draw lateral binding-rings or supporting-flanges arranged on the hub against said web portion, for firmly retaining the parts in a proper position in respect to each other, without resorting to transverse bolts or other fastening devices, which are objectionable on account of their liability to break off when the wheel is subjected to jars. The invention further consists in providing a sectional car-wheel with a series of roller or ball cushions, which are located in seats or recesses formed in the adjoining faces of the lateral binding disks or flanges, and in openings in the web portion, the object of which cushions is to confer resiliency upon the wheel by interposing an elastic or rolling medium between the web and the hub, and also between the web and binding-rings, for relieving strains applied in a vertical, lateral, and circumferential direction, thus lessening the effects of shocks. The invention further consists in constructing the elastic roller-cushions of an inner metallic shell or body, of a spheroidal, elliptical, or other form, which is covered with india-rubber, leather, felt, or other suitable material, and provided with pins or gudgeons, which enter corresponding depressions or bosses in the recesses in the binding-flanges receiving said cushions.

In the accompanying drawings, Figure 1 is a

side view of a car wheel with one of the binding-flanges removed. Fig. 2 is a vertical sectional view of a wheel complete. Fig. 3 is a vertical section of a roller, ball, or cushion with a part of its yielding integument broken away. Fig. 4 is a vertical section of a roller, ball, or cushion when made hollow.

The letter A designates the web or body of a car-wheel, which is formed with the tread or rim B, and provided with a central opening, C, which is made larger in diameter than the hub of the wheel, so as not to come in contact with the same, and to surround the axle or hub with an elastic or yielding substance. The hub D is made in one piece, with a lateral flange or disk, E, which bears against one side of the web of the wheel, and on the opposite side of the latter there is located a loose or detachable flange or disk, F. Both flanges are drawn against the web portion, so as to firmly retain the same in position, by means of a nut, G, which is applied to the screw-threaded outer end H of the hub, as shown in Fig. 2. The screw-threads on the hub are formed in any suitable manner, and the nut is provided with a polygonal head, so as to enable it to be turned by an ordinary wrench. The inner or adjoining faces of the supporting or binding flanges or disks are provided with a circular row of recesses or seats, I, which are designed to receive each an elastic roller or ball cushion, J. Said cushions are generally of a spherical or spheroidal shape, but they may be made elliptical or in any other approved form. The web portion of the wheel is formed with a number of openings, K, corresponding in number and position with the seats I in the supporting-flanges, and made large enough to receive the roller-cushions. The recesses in the binding-flanges and the openings in the web of the wheel conform in shape with the contour of the cushions or rollers, so as to completely envelop the same when they are arranged in position. The cushions are composed of an internal hollow shell or solid body of metal, L, which is covered with india-rubber, felt, leather, or with any other suitable elastic material.

When rubber is used, I apply the same to the metallic body by vulcanizing it to the same in molds, or by any other known process of

attaching rubber to metal. The roller-cushions arranged in the seats in the supporting or binding disks, and disposed within the openings in the web portion, will serve to impart the requisite elasticity to the wheel for lessening the effect of shocks or strains, whether applied vertically, laterally, or circumferentially. Another function of the ball or roller cushions is to prevent the circumferential or axial movement of the wheel, for the same will serve to interlock the binding-flanges and web, thus serving, in connection with the nut applied to the end of the hub, to obviate in an effectual manner the independent movement of any of the component parts of the wheel. The cushions, made partly of metal and of an elastic material, possess a sufficient degree of elasticity for accomplishing the results above set forth, and, being thus constructed, they are sufficiently strong and durable to withstand the strain to which the wheel may be subjected.

In order to retain the cushions in their seats, I provide the same with pins or gudgeons *a*, which enter depressions *b* formed in the seats of the base *H*, as shown. This construction is, however, not essential, as the studs may be dispensed with, and, being arranged loosely in position at a desired point, and made separate from the wheel and flanges, they are adapted to turn in their seats when the wheel is subjected to strains or concussions, so as to continually change their bearing-surfaces, thus obviating an unequal grinding, disintegrating, or wearing away of the roller balls or cushions; and, further, owing to the manner in which they are enveloped or seated in place, they are readily removed, should they become worn or crushed, and new ones substituted.

As before stated, the roller-balls are made of metal, and preferably coated with an elastic or yielding integument; but it is evident that I propose and intend to employ roller balls or cushions made of hard wood, pressed paper, *papier-maché*, or other such material, the main object being to secure a strong substantial medium for supporting the flange plates or disks upon the web, and thus make

provision for effectually and uniformly distributing the weight of the axle and the strain of the same throughout the major portion of the web and body of the wheel, instead of having such concentrated at a single point on the wheel, or on the axle or axle-box, and at the same time, by the employment of roller balls or cushions, an eminent and requisite degree of elasticity is secured in the wheel.

The cushions, arranged as shown, will tend to form yielding bearings to lessen the effects of shocks or concussions in whatever direction the same may be applied—viz., laterally, vertically, or circumferentially.

Having thus fully described my invention, what I claim is—

1. In a sectional car-wheel, the combined disk and screw-hub *E D*, in combination with the disk *F*, screw-nut *G*, and web *A*, substantially as and for the purpose specified.

2. A series of ball-cushions, *I*, interposed and seated between the clamping disks or flanges *E F* of a car-wheel, for relieving jars or concussions, substantially as set forth.

3. The disks or flanges *E F*, provided with a series of recesses or seats, *H*, in combination with the web *A*, having a series of openings, *K*, to receive and hold in position ball-cushions *I*, substantially as set forth.

4. The spheroidal-shaped rollers, *I*, provided with a yielding or elastic integument, and combined with recesses or seats *H* and *K*, formed in the flanges *E F* and web *A* of a car-wheel, for imparting elasticity to the wheel, substantially as set forth.

5. The binding-disks *E F*, provided with seats or recesses *H*, having cavities or depressions *b* to receive the gudgeons or projections *a* of the ball-cushions *I*, substantially as set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 18th day of December, 1873.

ADDISON C. FLETCHER.

Witnesses:

JAMES L. NORRIS,
WM. J. PEYTON.