

(No Model.)

J. T. BRIDGES.
CAR WHEEL.

No. 466,988.

Patented Jan. 12, 1892.

Fig. I.

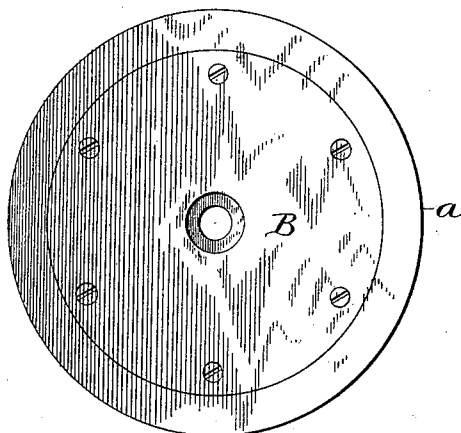


Fig. II.

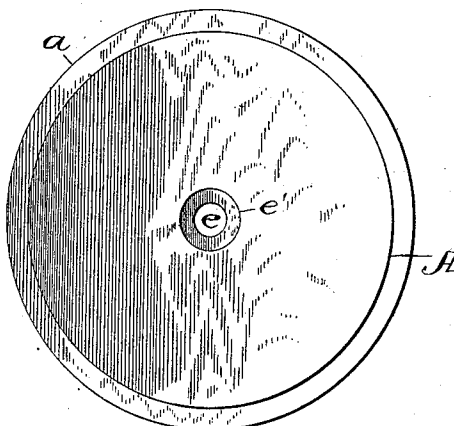


Fig. III.

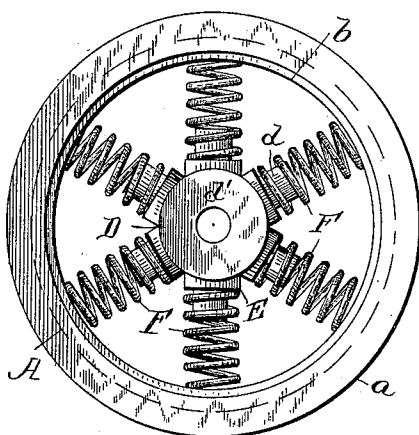


Fig. IV.

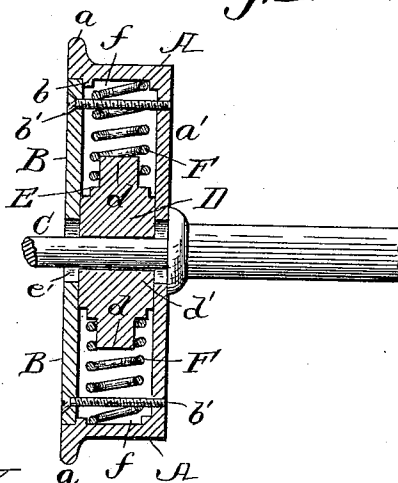
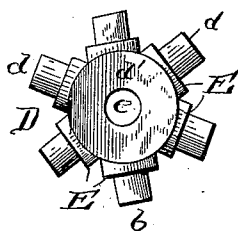


Fig. V.



Witnesses:

J. M. Giv.
William O. Belt.

Inventor:

James T. Bridges,
By his Attorneys,
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UNITED STATES PATENT OFFICE.

JAMES T. BRIDGES, OF HAGERSTOWN, MARYLAND.

CAR-WHEEL.

SPECIFICATION forming part of Letters Patent No. 466,988, dated January 12, 1892.

Application filed September 14, 1891. Serial No. 405,603. (No model.)

To all whom it may concern:

Be it known that I, JAMES T. BRIDGES, a citizen of the United States, residing at Hagerstown, in the county of Washington and State of Maryland, have invented certain new and useful Improvements in Car-Wheels; and I do hereby 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.

My invention relates to improvements in car-wheels; and it has for its object to provide the wheels with means for insuring an easier carriage or movement of the car-axle and body and to relieve the parts in a great measure of the usual jarring and jolting when the train is in motion.

With these and other ends in view my invention consists of a wheel having the usual tread and the flat inner side and a chamber within the tread which is closed by a removable face-plate rigidly secured in an annular seat formed on the inner side of the tread at the outer edge thereof. Within this chamber is arranged a spider frame or casting which forms a bearing for the axle, and the spider fits snugly between the integral side and the removable face-plate of the wheel, said spider being provided with an opening to receive the axle, on which the spider is shrunk. Openings are also provided in the inner side and removable plate, and they are of greater diameter than the opening in the casting to permit of yielding movement of the spider-frame on the axle. The radial arms of the spider-frame are of sufficient length to receive the inner ends of coiled springs and to permit the requisite play of the casting which forms the bearing for the axle. To retain the springs in proper position, they are preferably fitted in recesses on the inner side of the tread on the wheel, and their inner ends bear against shoulders on the radial arms of the spider-frame.

My invention further consists of certain details of construction and arrangement of parts, as will more fully appear hereinafter.

In the accompanying drawings, Figure I is an elevation of the inner side of the wheel. Fig. II is a similar view of the outer side. Fig. III is an elevation of the wheel with the plate on the inner side thereof removed to show the

interior arrangement. Fig. IV is a sectional view taken on the line *xx* of Fig. II, and Fig. V is a detail view of the casting which forms the bearing.

Like letters of reference denote corresponding parts in all the figures of the drawings.

The wheel is provided with the usual tread A and the flange *a*. On the inner side is a flat plate *a'*, which extends in a vertical direction at right angles to the tread of the wheel and forms the inner side of the wheel. A chamber B is formed within the wheel, the tread being formed comparatively thin, and a removable plate C is arranged to fit snugly against a shoulder *b* formed on the inner side of the tread, just out of line of the flange *a*, to close the chamber. This plate is flush with the edges of the wheel and forms a continuation of the flange, and it is secured rigidly in place against the shoulder *b* by bolts *b'*, which extend across the wheel and are screwed into the inner side *a'*, or they may pass entirely through said inner side and be secured by nuts, as desired. The sides of the wheel are parallel to each other, and are preferably arranged to lie flush with the edges of the tread and flange to present the contour and shape of an ordinary wheel and make it more durable and capable of sustaining heavy loads.

Within the chamber B is placed a spider-frame D, which forms a bearing for the journal of the axle. This spider-frame is constructed with a series of radial arms *d*, which extend in various directions from the enlarged hub *d'*. These arms are each provided, preferably, with shoulders E at or near their point of juncture to the hub, and a journal-bearing *e* is made in the center of the hub to receive the journal of the axle. Openings *e' e'* are also provided in the removable plate C and the inner side *a'*, and these openings are of greater diameter than the opening in the casting to permit the axle and the casting to have a limited movement. The axle-journal *c* is arranged to fit snugly within the opening *e* in the casting, and as the openings *e' e'* are of greater diameter than the axle the latter may have a limited movement within the wheel while in motion, which will relieve the car from the customary jarring.

On the projecting ends of the radial arms

d the springs F are fitted, and they bear against the shoulders E thereon. These springs are preferably made of coiled steel; but it is obvious that other forms of springs may be used with equally good results, and the tread may be made thicker or thinner to vary the size of the springs, as desired. The springs extend across the wheel to the inner side of the tread, and the outer ends may be seated or fitted in recesses f, formed in the tread, as shown in Fig. IV. This construction or arrangement of parts retains the casting and springs in their proper relative positions and permits the casting or bearing to have the desired movement within the wheel, it being arranged to fit snugly between the two sides of the wheel and slide easily in this position. A bolt b' is provided for each spring, and it passes through the outer end thereof and serves to hold the spring in place and at the same time bolt the wheel together.

The construction and operation of my improved wheel may be readily understood from the foregoing description taken in connection with the drawings. In railway-cars and other heavy vehicles the jarring and jolting usual in fast traveling are often very destructive to the articles transported, and are very disagreeable to passengers; but a car provided with wheels as herein described will be relieved of this constant jar and jolt, as the springs intermediate of the tread of the wheel and axle serve to prevent any undue motion being communicated in this direction to the car.

While this wheel is designed specially as a car-wheel to be made entirely of metal, I may also adapt it for many other vehicles by slight changes in the form and construction, as for traction-engines, which require heavy wheels. The number of radial arms on the yielding spider-frame may be increased or diminished, as proves more desirable.

Although I prefer to construct my improved

wheel substantially as herein shown and described, still I am aware that changes in the form and proportion of parts and details of construction can be made without departing from the spirit or sacrificing the advantages of my invention, and I therefore reserve the right to make such changes as fall within the scope of my invention.

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

1. A wheel having the tread, a chamber formed within the same, the removable plate, and the spring-supported spider forming a bearing for the journal and arranged in said chamber, substantially as and for the purpose set forth.

2. A wheel having the straight inner side and the removable plate forming the outer side and arranged relatively to each other to form a chamber within the wheel, the spider-frame having the radial arms within said chamber, and the springs on said arms, substantially as and for the purpose set forth.

3. A wheel having the chamber formed therein, the spider-frame arranged within said chamber and having a series of radial arms, and the springs fitted on said arms and having their other ends seated in recesses in the wheel, substantially as described.

4. A wheel having the straight inner side and the removable plate forming a chamber within the same, the spring-supported spider within said chamber and having the journal-bearing, and the openings in the inner side and removable plate, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

JAMES T. BRIDGES.

Witnesses:

HENRY E. COOPER,
WILLIAM O. BELT.