(No Model.)

J. A. LACROIX.

CAR WHEEL.

No. 436,897. Patented Sept. 23, 1890.

Fig. 1.

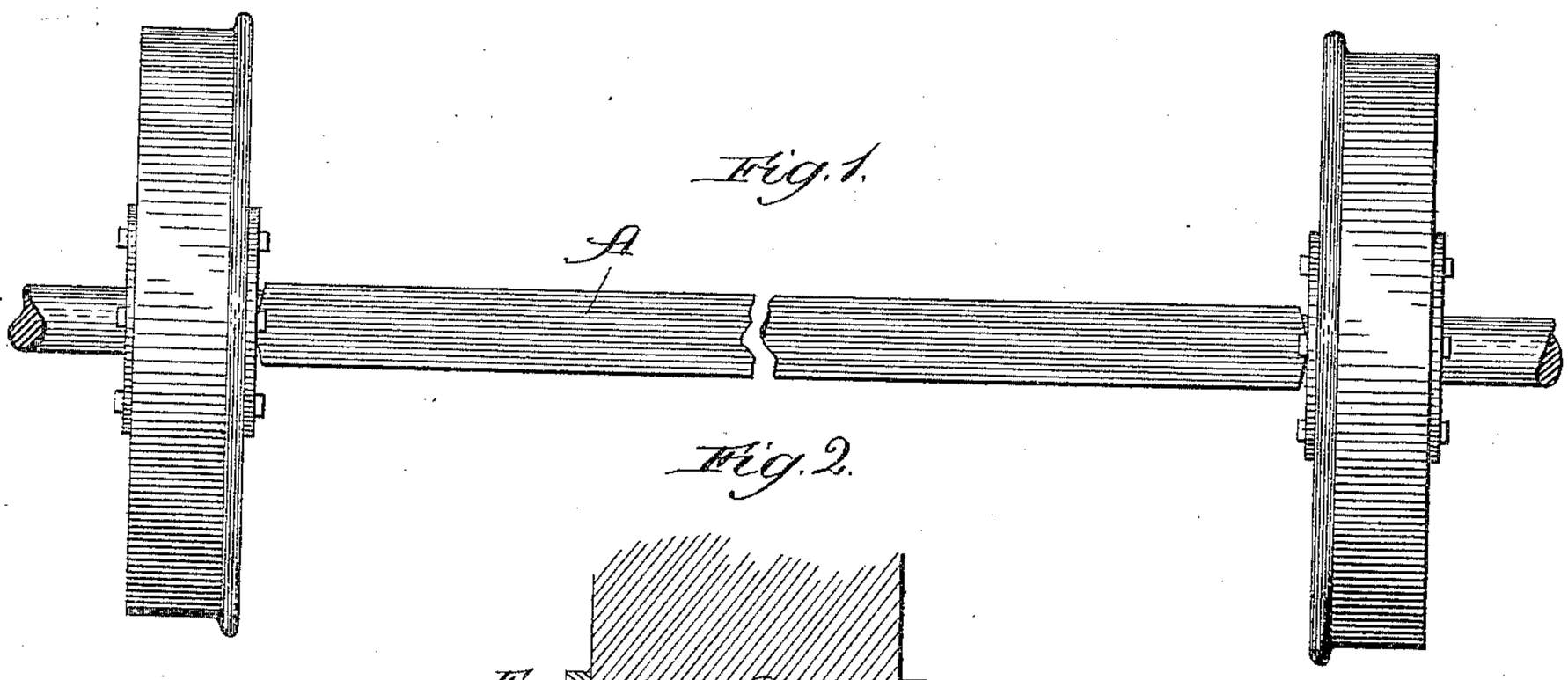


Fig. 2.

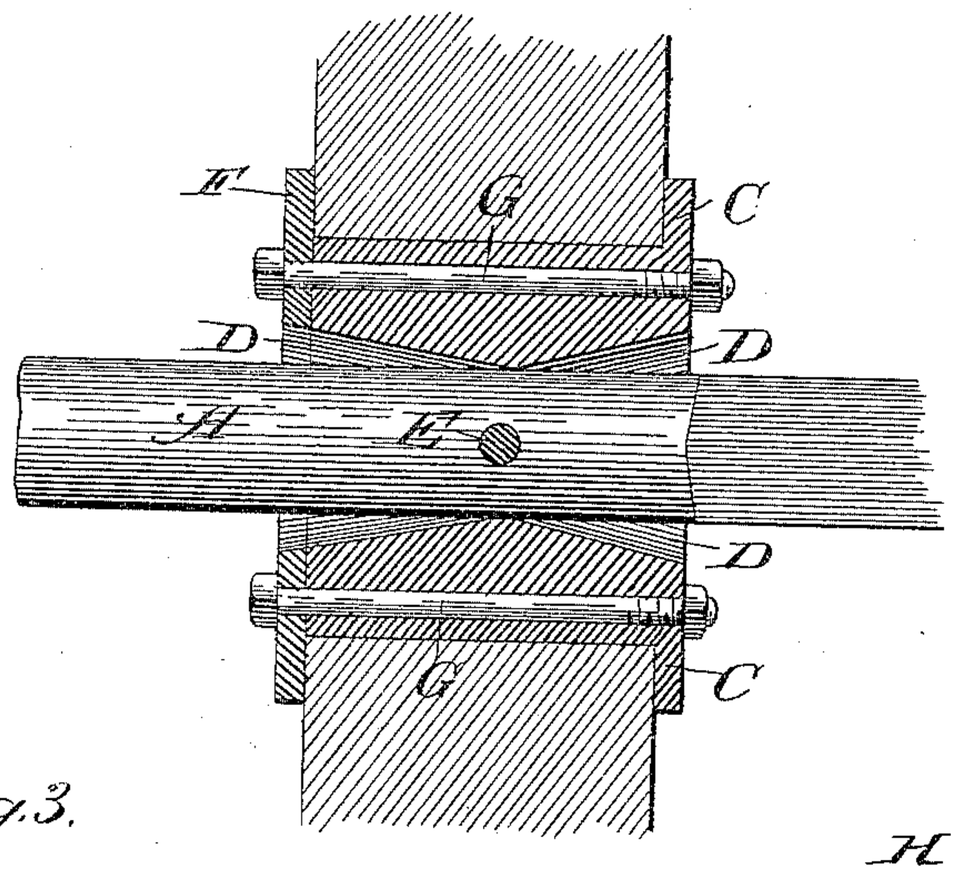
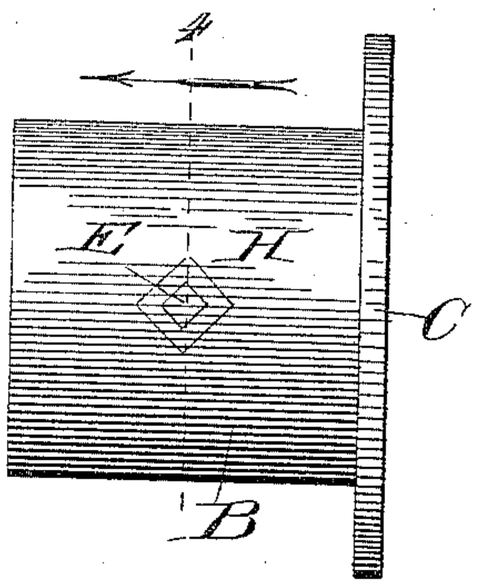


Fig. 3.



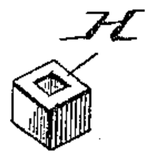
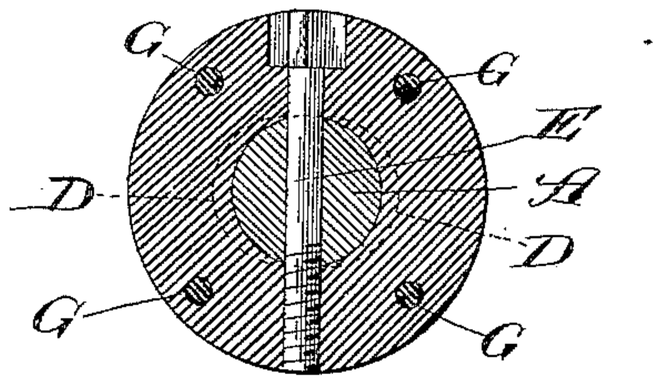


Fig. 4.



Witnesses:
Chas. E. Gaylord.
Clifford & White.

Inventor:
John A. La Croix,
By Banning & Banning & Payson,
Att'ys.

UNITED STATES PATENT OFFICE.

JOHN A. LACROIX, OF CHICAGO, ILLINOIS.

CAR-WHEEL.

SPECIFICATION forming part of Letters Patent No. 436,897, dated September 23, 1890.

Application filed April 22, 1890. Serial No. 348,980. (No model.)

To all whom it may concern:

Be it known that I, JOHN A. LACROIX, a citizen of the United States, residing at Chicago, Illinois, have invented certain new and useful Improvements in Car-Wheels, of which the following is a specification.

The object of my invention is to make a car-wheel and axle that will enable the wheel to readily and perfectly conform to the curves of the track and which will prevent derailing from such curves or the grinding and friction between the wheel and the rails; and my invention consists in the features and details of construction hereinafter described and claimed.

In the drawings, Figure 1 is an elevation of a pair of wheels connected together by the axle; Fig. 2, a horizontal section taken through one of the wheels, showing the connection of the axle thereto. Fig. 3 is an elevation of the journal-box; and Fig. 4, a section of such box, taken through the line 4 of Fig. 3, looking in the direction of the arrow.

In making my improved car-wheel and axle, I make an axle A, which is preferably rectangular in cross-section, but which is preferably but not necessarily provided with cylindrical ends where it rests in the journal-boxes. It is intended that the axle shall not rotate with the wheels, but remain constantly in the position in which it is placed when the parts are put together.

I make journal-boxes B, provided with a hole through their center for the introduction of the ends of the axle. These journal-boxes are preferably cast, although they may be made in any convenient manner. When casting them, I provide them at one side with flanges C, which may be cast integral with the rest of the box. The hole D through the center of the journal is enlarged or beveled from the center toward each end in a horizontal direction, so that it is wider at its edges than the diameter of the axle. By this I mean that the hole through the journal-box is longer at the edges of the box than it is deep, giving it an oblong or slotted form horizontally at the edges of the box. The journal-box is provided with a vertical hole through its center, and the ends of the axle are also provided with a vertical hole, so that when the axle is in place in the journal-box the vertical hole of the box and the vertical hole of the axle will correspond or coincide, and a pin or bolt E is passed through the holes. I prefer to provide this pin or bolt with a square or angular end and with screw-threads at its other end and to provide the hole through the journal-box with screw-threads at the lower side and with a square or angular countersunk space at the top. The pin is inserted in the hole and screwed into place, which will bring its rectangular upper end into the square or angular countersunk space in the journal. When it has been screwed in sufficiently, a square or angular block H, fitting over the rectangular head of the bolt, is inserted in the countersunk space in the journal. This will prevent the bolt from unscrewing or working in the one direction or the other, so as not to interfere with the rotation of the wheel on the journal, as hereinafter described. This will cause the journal-box and the axle to always remain in the same relative position with reference to each other. It will prevent the one from turning or rotating without the other and prevent the axle from being moved longitudinally in the one direction or the other in the journal-box. It will, however, allow the journal-box to play or move on the axle, so that the inner side of the journal-box may be moved back as the outer side is moved forward, or vice versa. This will enable the axle to assume different angular positions with reference to the journal-box, so as to extend out therefrom at right angles or at an angle forward or back of a right angle.

The operation will be readily understood by an inspection of Fig. 2, which, as above said, is a plan view of a horizontal section of the wheel, showing the position and relation of the parts. The wheel is made with a hole through its center of a proper size to receive the journal-box, which, as shown in Figs. 3 and 4, is cylindrical in external form. The journal-box is also provided with holes passing through from side to side to receive bolts. These holes may be of any desired number, and may be located or arranged in any desired position so long as they pass through the journal-box from side to side. The journal-box is inserted in the hole in the wheel until the flange C abuts against the side of the wheel. Another flange F is then slipped

over the end of the axle and brought against the opposite side of the wheel from the flange C. It is also provided with holes corresponding to the holes made through the journal-box, as above described, and bolts G are inserted through the holes, so as to bind the flanges C and F securely together. This operates to attach or connect the journal-box with the wheel. As before said, the exterior of the journal-box is made cylindrical in form, and a cylindrical hole is made in the wheel corresponding in size, so that the one may properly fit the other. As the journal-box is prevented from rotating with the axle, the wheel must rotate on it, and to enable this to be done the journal-box and the hole in the wheel are made cylindrical. When the parts are united together, as above described, and the axle and wheels arranged in trucks and cars mounted on them and put into operation, the wheel will rotate on the journals and move straight forward, causing the axle and the journals to stand at right angles to each other. The instant, however, that a curve in the track is approached the outer wheel as it touches the curve will swing or oscillate on the pivot E and instantly and automatically change the angle between the journal and the axle, so as to conform to the curve in the track. Whatever the degree of curve may be, the play permitted between the journal and the axle will enable the wheel to conform to it. As soon, however, as the curve is passed and the wheels are running on straight track the normal position between the journal and axle will be instantly and automatically assumed, so that they will again be at right angles to each other. In this way perfect conformity to the curve of the track will at all times be secured, all friction or grinding between the inner wheel and the rail will be avoided and prevented, and pressure on the outer rail, tending to break its fastening and cause a derailing of the train, will be prevented.

What I regard as new, and desire to secure by Letters Patent, is—

The combination of car-wheels adapted to rotate on railroad-rails and provided with flanges adapted to engage the rails and to bear against the side thereof, railroad-rails adapted to receive such wheels and to engage the flanges thereof, a non-rotatable journal in each of the wheels provided with a hole wider in its horizontal plane at its edges than the diameter of the axle and inclining toward the axle from the outside to the center, such journal being provided with flanges and held together by tie-rods G, a non-rotatable axle of uniform size through the hole of the journal, and a vertical pivot connecting the axle and the journal together and extending entirely through the journal, the angle between the wheels and the axle being automatically shiftable or changeable by the flanges of the wheels bearing against the rails, substantially as described.

JOHN A. LACROIX.

Witnesses:
THOMAS A. BANNING,
F. H. COOPER.