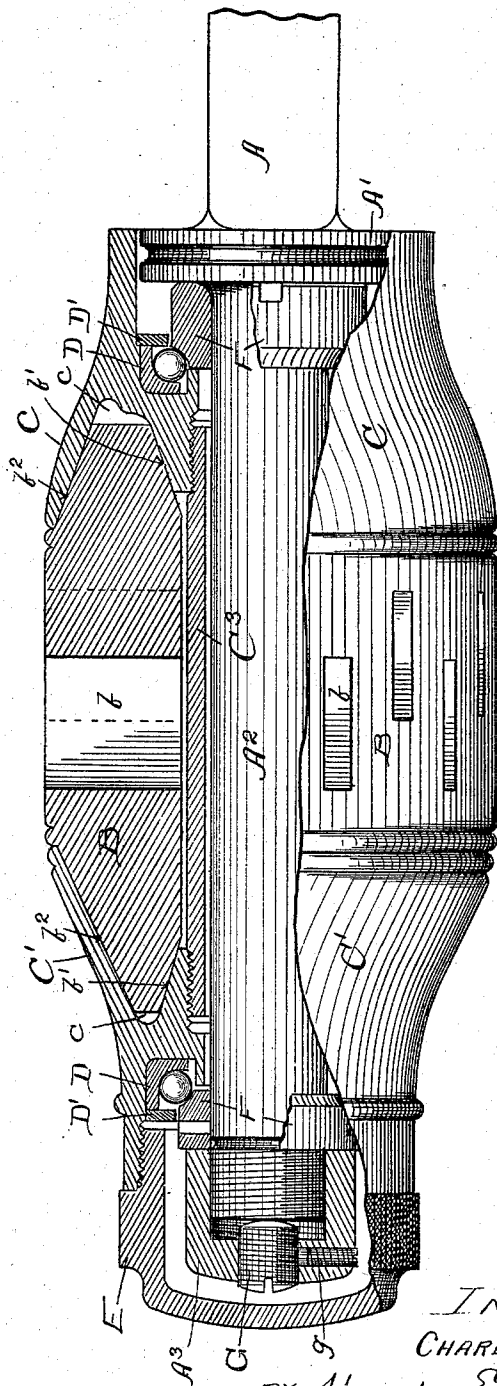


(No Model.)

C. E. ROBERTS.
VEHICLE WHEEL AND BEARING.

No. 580,468.

Patented Apr. 13, 1897.



WITNESSES:

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UNITED STATES PATENT OFFICE.

CHARLES E. ROBERTS, OF OAK PARK, ILLINOIS.

VEHICLE WHEEL AND BEARING.

SPECIFICATION forming part of Letters Patent No. 580,468, dated April 13, 1897.

Application filed January 27, 1896. Serial No. 577,055. (No model.)

To all whom it may concern:

Be it known that I, CHARLES E. ROBERTS, a citizen of the United States, residing in Oak Park, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Vehicle Wheels and Bearings, of which the following is a specification.

This invention relates to an improved construction of ball-bearing wheel hubs and axles for vehicles, designed to obviate some of the objections to prevailing constructions.

The nature of the improvement will fully appear from the description given below and is pointed out in the claims.

The accompanying drawing shows a side elevation, partly in section, of my improved hub and axle.

In said drawing, A represents the axle, only one end being shown. It is provided with the usual enlargement or shoulder A' at the inner end of its spindle A² and with a retaining-nut A³ at its outer end.

The wheel-hub is made with a central ring of wood B, fitted with sockets b for the reception of the spokes. This ring is partially encircled by and is clamped firmly between two metal cones C and C'. The edges of the wood ring are tapered both inside and outside, as shown at b' b², and the proximate faces of the cones are provided with annular recesses c, made tapering to correspond to the edges of the wood ring and so as to admit the latter. The two cones are held together by a sleeve C³, passing through the wood ring and upon which they are threaded, as shown, and they may be forced to tightly clamp the wood, as will be easily understood, by simply turning either of them in the direction which moves it toward the other cone. Cones of this construction when tightened against the wood ring not only hold it firmly in both endwise directions, but also encircle it both inside and out, so that should a split occur in it the spokes would still be rigidly held. The cones are adapted to receive the ball-races D and washers D', and the outer cone is also adapted to receive the cap E, which covers the end of the axle. The ball-cones F are positioned upon the spindle A² in positions opposed to those of the races D, the inner one resting against the shoulder A' and the outer one being held in place by the retaining-nut A³.

Said nut A³ serves not only as a retaining device, but also as a means of adjusting the ball races and cones relative to each other, which it does by forcing inward the outer cone F, and, through the balls running on said cone, exerts an endwise pressure upon the hub, and this endwise pressure causes a narrowing of the ballways at both ends of the hub. In order that the nut may be prevented from tightening the bearings unduly and in order to render it uniform in its adjusting action at all times, so that if taken off it will when put back effect the same adjustment as before it was removed, I provide said nut with a regulating-screw G, adapted to bear against the end of the axle-spindle and act as a stop to limit the extent to which the nut can be forced against the ball-cone F, and this regulating-screw may be held immovable by a set-screw g. By this means, when the adjustment is once effected properly, the user is saved all trouble in assembling the parts after they have been separated for cleaning or repairs. In cases where the nut A³ is threaded to the right, the screw G is preferably threaded to the left, and vice versa. Said screw is very accessible from the outside of the nut, so that it can be adjusted and readjusted very easily, is not likely to lose its position when the nut is removed, and, being supported wholly by the nut, there is no weakening of the axle.

I claim—

1. In a vehicle-wheel, a hub consisting of a spoke-holding wood ring, metal cones setting over the ends of the ring, means for drawing the cones together and causing a radial clamping action upon the ring, and ball-bearings for said wheel having one of the parts of each ball-race arranged in said clamping-cones, substantially as specified.

2. In a vehicle-wheel a hub consisting of a spoke-holding wood ring, having its edges tapered, metal cones one at each side of the ring, each cone being adapted to receive the tapered edge of the ring, and a sleeve encircling the axle and having a threaded engagement with both cones and acting to draw them together with a clamping action upon the ring, substantially as specified.

3. In a vehicle-wheel a hub consisting of a spoke-holding wood ring having its edges

tapered both inside and out, metal cones at each side of the ring having annular side recesses tapered to correspond with the edges of the ring, and means for drawing the cones
5 toward each other and upon the ring, whereby both inward and outward pressure as well as endwise pressure is caused upon the wood, substantially as specified.

4. The combination with the wheel having
10 a hub consisting of a spoke-holding wood ring, metal cones at each side of the ring, and means for drawing the cones together upon the wood, of the axle, and ball-bearings having their races arranged in said clamping-
15 cones, and their ball-cones secured upon the axle by means independent of the cones, substantially as specified.

5. The combination with the axle and hub of a ball-bearing cup D and cone F, the former secured to the hub, and the latter mounted
20 upon the axle, a retaining-nut A⁸ threaded upon the axle and acting to adjust said cone, and a regulating-screw G, secured in said nut and bearing against the end of the axle, substantially as specified.

6. The combination with the axle and hub, of the ball-bearings and the retaining-nut A⁸ having regulating-screw G and set-screw g,
25 substantially as specified.

CHARLES E. ROBERTS.

Witnesses:

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