

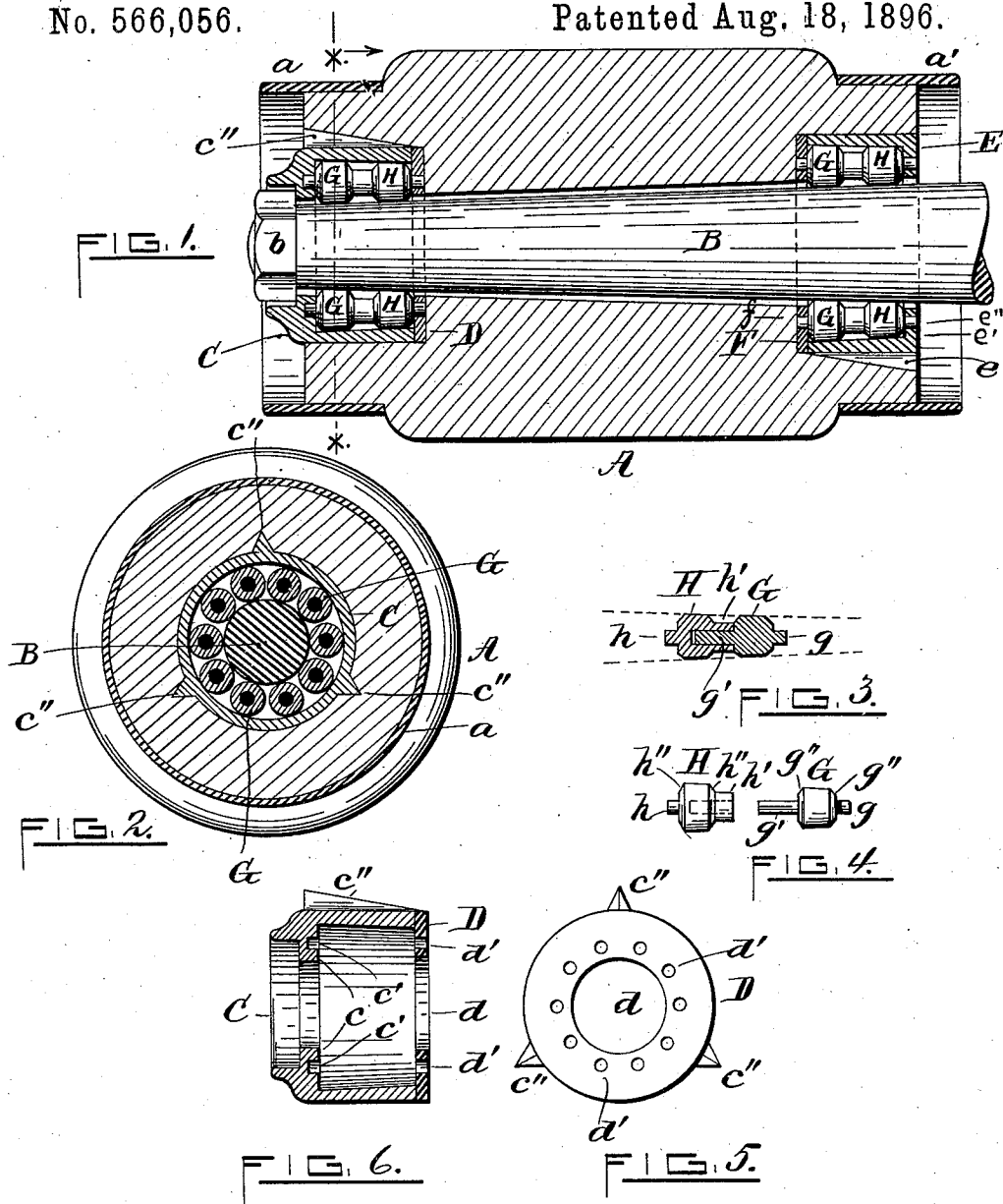
(No Model.)

A. C. BROWNELL.

ROLLER BEARING FOR WHEELS OF VEHICLES.

No. 566,056.

Patented Aug. 18, 1896.



WITNESSES.

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UNITED STATES PATENT OFFICE.

ALEXANDER C. BROWNELL, OF PROVIDENCE, RHODE ISLAND.

ROLLER-BEARING FOR WHEELS OF VEHICLES.

SPECIFICATION forming part of Letters Patent No. 566,056, dated August 18, 1896.

Application filed May 13, 1896. Serial No. 591,385. (No model.)

To all whom it may concern:

Be it known that I, ALEXANDER C. BROWNELL, of the city and county of Providence, in the State of Rhode Island, have invented a certain new and useful Improvement in Roller-Bearings for Wheels of Vehicles; and I declare the following to be a specification thereof, reference being had to the accompanying drawings.

Like letters indicate like parts.

Figure 1 shows my invention partly in elevation and partly in side elevation. Fig. 2 is a sectional view of the same on line $x x$ of Fig. 1. Fig. 3 is a central longitudinal section of a pair of my improved roller-bearings as seen in their cooperative combination. Fig. 4 is a side elevation of said roller-bearings separated from each other. Fig. 5 is a rear elevation of the box or casing. Fig. 6 is a central longitudinal section of the front box or casing.

My invention relates to the class of roller-bearings which are used in the hubs of vehicle-wheels to reduce friction; and it consists of the novel construction and combination of the several elements and parts, as hereinafter particularly specified.

In the drawings, A is the usual hub of a carriage-wheel, made, preferably, of wood and having at its ends the usual bands $a a'$. The hub A is centrally bored for the passage of the axle through it.

B is the usual tapering axle, having the nut b at its end connected therewith by screw-threads.

The hub A is recessed at its ends for the reception of the boxes or casings, as shown in Fig. 1. The box or casing C is tubular and has the annular flange c , on the inner face of which are the round sockets or recesses c' .

On the outside of the box or casing C are lugs c'' , wedge-shaped and tapering from the front to the rear. By means of these lugs c'' the box or casing C is fastened in position in the front recess in the hub A so that it cannot turn therein.

D is a circular back plate, fastened to the box or casing C in any suitable manner and having the central aperture or opening d . It also is provided with a number of round holes d' , arranged in a circle, as shown in Fig. 5.

E is the rear box or casing, having wedge-shaped lugs e on its exterior by which said

box is fastened in place in the rear recess of the hub A. It has an annular flange e' , provided with round holes e'' , as seen in Fig. 1. A cap-plate F is secured to the box E in any suitable manner, and it has round holes f arranged in a circle and a central aperture.

The friction-rollers are in pairs, one roller G having a short arbor g and a long arbor g' integral therewith and centrally arranged. To reduce the bearing-surface, the roller G is beveled, as shown at g'' . The other roller H has a short arbor h and a tubular extension h' , whose bore is of a sufficient diameter and length to receive the arbor g' of the roller G. Said roller H is also beveled, as shown at h'' .

The rollers G are mounted by their long arbors g' in the tubular extensions h' of the rollers H, respectively, as fully illustrated in Fig. 3. The rollers H are rotatably mounted by their short arbors h , respectively, in the holes d of the back plate D, or in the holes e'' of the annular flange e' of the box or casing E. The arbors g of the rollers G are respectively mounted in the sockets or recesses c' of the annular flange c of the box or casing C, or in the holes f of the cap-plate F.

By examining Fig. 3 it will be seen that the bearing surfaces or peripheries of the rollers G H are so shaped and inclined that they are not parallel to the axial line of their arbors, but are at an angle therewith. This angle enables said rollers to lie in proper contact with the tapering surfaces of the axle B, as shown in Fig. 1.

The mounting of the rollers G H (illustrated in Fig. 3) enables them to rotate at different rates of speed and yet to maintain their own relative axial arrangement and alinement with each other, and at the same time their mounting by their respective short arbors in the holes of the cap-plates or annular flanges of the boxes, while permitting their free rotation on their arbors, keeps them separate from each other while rotating, as seen in Fig. 2. If they were not thus mounted, they would roll upon each other and increase the friction, because their mutual contact would tend to rotate them in alternately opposite directions, while their contact with the axle would tend to rotate them all in the same direction. Thus, while they would roll in the direction determined by their frictional bear-

ing on the axle, the opposite tendency of rotation caused by their mutual contact would have to be overcome and thus produce a considerable sliding friction, and wear between the rollers themselves. All these difficulties are avoided by mounting the rollers as above specified.

The tapering axle B, as seen in Fig. 1, passes loosely through the bore of the hub A and the central apertures of the circular plates D F and the central openings of the annular flanges of the boxes C E.

I claim as a novel and useful invention and desire to secure by Letters Patent—

1. The combination of the roller G, having the short arbor *g* and the long arbor *g'*, and the roller H, having the short arbor *h* and the tubular extension *h'*, the latter of which is adapted to receive the arbor *g* of the roller G, substantially as specified.

2. The combination of the tapering roller G, having the short arbor *g* and the long arbor *g'*, and the tapering roller H, having the

short arbor *h* and the tubular extension *h'*, the latter of which is adapted to receive the arbor *g* of the roller G, substantially as described.

3. In combination with an axle B and a hub A thereon, the boxes C, E, fitting in recesses in said hub, each having an annular flange, with suitable bearing sockets or holes therein, and a circular plate with corresponding bearing-holes and also a central aperture and a series of compound rollers G, H, the outer arbors of which are rotatably mounted in said bearing holes or sockets, respectively, each of said rollers G having a long inner arbor *g'* and each of said rollers H having a tubular extension, which latter is adapted to receive the long inner arbor *g'* of the roller G, substantially as shown and for the purpose specified.

ALEXANDER C. BROWNELL.

Witnesses:

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