Apr. 17, 1923.

1,451,825

H. J. HEIDER

ROLLER BEARING

Filed Oct. 6, 1921

Fig. 1

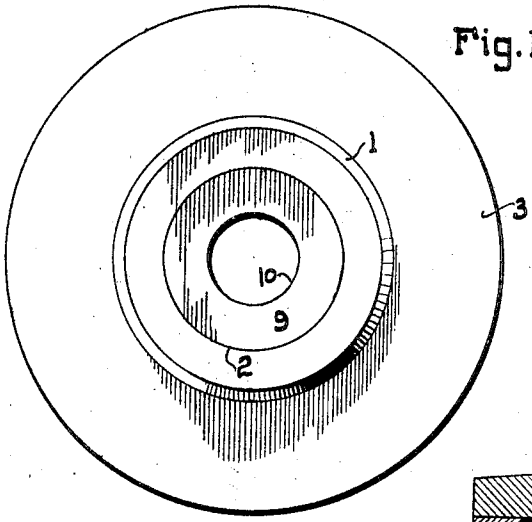


Fig. 2

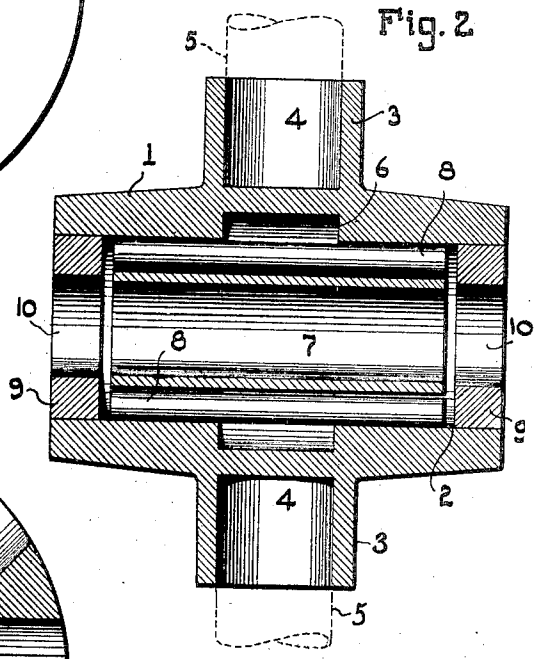
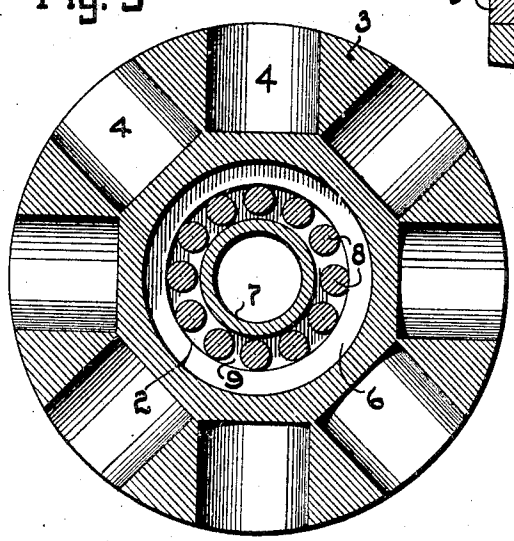


Fig. 3



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WITNESSES

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UNITED STATES PATENT OFFICE.

HENRY J. HEIDER, OF CARROLL, IOWA.

ROLLER BEARING.

Application filed October 6, 1921. Serial No. 505,842.

To all whom it may concern:

Be it known that I, HENRY J. HEIDER, a citizen of the United States, residing at Carroll, in the county of Carroll and State of Iowa, have invented a new and useful Roller Bearing, of which the following is a specification.

This invention relates to roller bearings.

The object is to provide a hub with a self-contained roller-bearing especially adapted for use on small wagons, coasters and other small toy vehicles, which may be removed from the spindle of the vehicle axle together with the spokes and rim of the wheel, the said hub carrying therewith the anti-friction rollers, spindle-engaging sleeve, retaining washers and lubricating means so held in place within the same as to prevent their accidental displacement when the wheel is thus removed.

Another object is to provide a bearing of this class so constructed and assembled as to obviate the necessity for using more or less complicated adjustable means for holding the anti-friction devices in proper position, the construction being designed with the utmost simplicity in view so that the device may be manufactured at a low cost and bring the same within reach for use on vehicles of the above class.

A full and complete understanding of the invention may be obtained from a consideration of the following detailed description, taken in connection with the accompanying drawing forming a part of this specification, it being understood that while the drawing shows a practical form of the invention, the latter is not confined to strict conformity therewith, but may be changed or modified, so long as such changes or modifications mark no material departure from the salient features of the invention, as specifically pointed out in the appended claims.

In the drawing, in which similar reference characters designate corresponding parts throughout the several figures:—

Fig. 1 is a side elevation of the improved roller bearing with the wheel hub removed from the spindle of the axle, the spokes being omitted.

Fig. 2 is a longitudinal sectional view through the hub.

Fig. 3 is a vertical sectional view taken at right angles to Fig. 2.

Referring to the drawing, there is illustrated a hub 1 formed of suitable cast metal, in the usual shape, the said hub having the longitudinal bore 2 extending entirely through the same and of the same diameter throughout the length of the hub. The end portions of the hub, which is preferably circular on its exterior, are preferably somewhat tapered, as shown in Fig. 2, and at the center thereof an annular outstanding flange 3 is integrally formed therewith, the said flange being provided with a series of radially disposed sockets 4, separate from each other, and having their bottom walls spaced from the longitudinal bore 2. These sockets are for the purpose of seating the inner ends of the spokes, illustrated in dotted lines at 5 in Fig. 2 of the drawing, and any desired number of the same may be employed.

An annular channel 6 formed at the center of the hub 1 and communicating with the bore 2, with its outer peripheral wall in spaced relation to the bottoms of the sockets 4, is adapted to receive a quantity of lubricant, such as heavy grease, when the bearing is assembled in a manner to be described, in order to supply lubrication to the several parts.

Located within the bore 2, with its ends in spaced relation to the ends of the hub 1, is a relatively thin sleeve 7, formed preferably of hardened steel, and having its bore of a diameter to snugly fit the spindle of the vehicle (not shown). Surrounding said sleeve is a series of anti-friction rollers 8 free to rotate about their own axes between the outer peripheral face of the sleeve and the inner wall of the bore 2, the said rollers being substantially the same length as the sleeve and extending therewith across the lubricant containing channel 6, so that the latter may constantly supply said lubricant, so long as it lasts, to the rollers.

In order to retain the sleeve 7 together with the rollers 8 within the hub, when the latter with the vehicle wheel is removed from the spindle of the vehicle axle, a relatively heavy washer 9 is employed at each end of the hub 1, said washers being of an external diameter to snugly fit the ends of the bore, and to be forcefully driven or pressed thereinto, and to be retained in their positions solely by frictional engagement, the inner faces of the said washers being in slightly spaced relation with the ends of the

sleeve 7 and the rollers 8 (about 1-16 of an inch), so that the latter may freely rotate in the interior of the hub without interference.

The washers are provided with central bores 10 of greater diameter than the bore of the sleeve 7, though less than the external diameter of the latter, so that when the hub and wheel is removed from the axle spindle, the said sleeve may not fall from its position within the hub, while the same supports the rollers 8 around the exterior of the same and they, in turn, are prevented from dropping from the hub.

When the wheel is placed upon the spindle, the sleeve snugly fits the same and is thereby held from revolving, while the rollers 8 freely revolve about their own axes and the wheel and hub, together with the end washers 9, also revolve together.

From the foregoing, it will be seen that a simple, cheaply manufactured and strong and durable metal wheel hub has been provided, containing anti-friction devices securely held therein independently of the vehicle axle, and having a supply of lubricant carried by the same serving to constantly lubricate the roller bearings, which latter may be provided with spiral grooves throughout their lengths for feeding the said lubricant to their ends in a well known manner.

What is claimed is:—

A roller bearing comprising a hub having a longitudinal bore forming a raceway, a bearing sleeve of smaller diameter than the bore of the hub, and shorter than the length thereof and loosely mounted within the same, a series of rollers substantially coextensive in length with the sleeve and surrounding the same and adapted to bear against the wall of the bore, and annular retaining washers frictionally held in the ends of the bore in spaced relation to the ends of the inner sleeve and the ends of the rollers to retain the latter within the hub when the hub is removed from its axle, each washer having a central bore of greater diameter than the bore of the sleeve, but less than the external diameter of said sleeve whereby displacement of the sleeve from the hub is prevented.

In testimony, that I claim the foregoing as my own, I have hereto affixed my signature.

HENRY J. HEIDER.