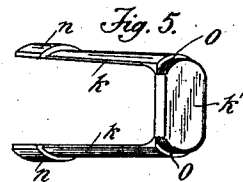
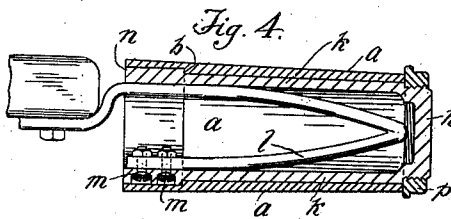
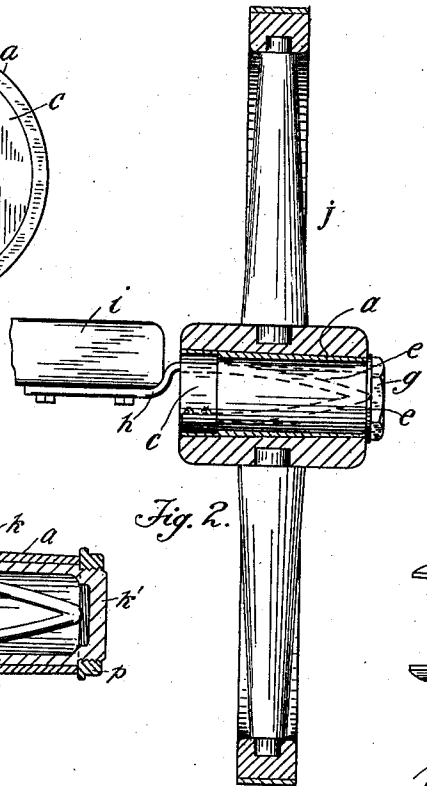
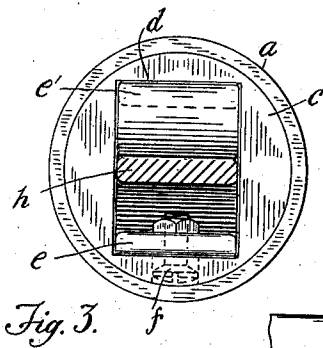
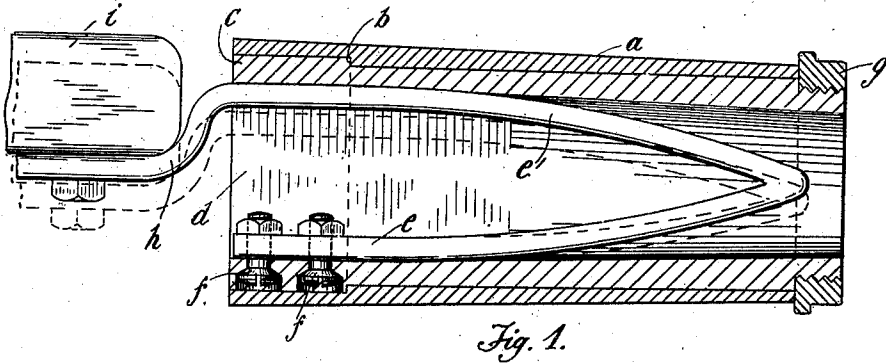


J. E. SIMMONS.  
 SPRING AXLE BEARING FOR VEHICLES.  
 APPLICATION FILED JULY 21, 1910.

985,072.

Patented Feb. 21, 1911.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

JOHN E. SIMMONS, OF PORTLAND, OREGON.

## SPRING AXLE-BEARING FOR VEHICLES.

985,072.

Specification of Letters Patent.

Patented Feb. 21, 1911.

Application filed July 21, 1910. Serial No. 573,146.

To all whom it may concern:

Be it known that I, JOHN E. SIMMONS, a citizen of the United States, and a resident of Portland, in the county of Multnomah, State of Oregon, have invented a new and useful Improvement in Spring Axle-Bearings for Vehicles, of which the following is a specification.

My present invention relates to vehicle axle-bearings of the type which I heretofore invented and set forth in my application for Letters Patent of the United States filed February 26, 1910, under Serial Number 546,235.

The object of my present invention is to further perfect and simplify axle-bearings of said type; also to render the same more efficient in general, cheaper to manufacture, and easier to repair by replacing parts worn in service.

The particular features of my invention will be more readily understood from the details thereof hereinafter fully set forth.

In the drawings constituting a part of this specification: Figure 1 shows an axle-end and a half section of the hollow journal in which the devices yieldingly suspending such axle-end are contained; Fig. 2 is a cross-section of a wheel mounted, as in practice, on the hollow-journal in which the axle suspending devices of the type shown in Fig. 1 are contained. It is to be noted that in this view the hollow-journal is shown in half section, while an exterior view of the thimble *c* is shown; Fig. 3 is an end-view of the hollow journal shown in Fig. 1, also showing a section of the spring fastened to and suspending the axle end; the section being taken through the bent end of the spring which is fastened to the axle end, the latter, however, being omitted; Fig. 4 is a view like Fig. 1, except that in this case the construction shown is of such character that the member inserted in the hollow journal, and to which insert the spring is fastened, is a forging instead of a casting, as shown in Fig. 1; these details being more fully explained below; and Fig. 5 is a perspective end-view of the type of insert, for the hollow journal, shown in the preceding figure.

Referring in the first instance to Fig. 1: *a* is a hollow-journal provided with a shoulder *b*, and adapted to receive a thimble or insert *c*. The latter is circular in its outer contour, and is provided at the interior with a chamber *d*, which may be of rectangular

cross-section, on the bottom of which chamber is fastened the lower member of a flat spring *e*, by means of bolts *f*, *f*. The heads of the bolts are sunk into the bottom of the thimble *c*, as illustrated in Fig. 1, so as not to interfere with the insertion of the thimble *c*. The spring is formed like one end of an elliptic spring. The outer extremity of the thimble *c* is provided with a thread, on which is secured a ring-nut *g*, by which the thimble *c* is held in place. The upper member *e'* of the spring *e* is made with a downwardly bent portion *h*, so as to be able to secure thereon the corresponding end of the axle *i*. This construction is required to bring the top of such axle end approximately on a level with the top of the hollow-journal, as illustrated in Fig. 1. The action of the spring *e*, in supporting the end of the axle *i*, is illustrated in dotted outline in Fig. 1. The hollow-journal, *a*, is inserted in the eye of the wheel *j*, as illustrated in Fig. 2; the parts described being duplicated at both axle ends. It will be noted that the journal, *a*, is tapered outwardly, and thus when inserted in the eye of the wheel, the ring-nut *g*, affixed on the thimble *c*, will hold the wheel in place.

In the construction shown in Figs. 4 and 5, the only difference from that above described is this: Instead of using a cast thimble like *c*, I make use of a U-shaped insert *k*, of which a perspective end-view is shown in Fig. 5. The spring *l* is substantially a duplicate of the spring *e*, and the lower member of the spring *l* is fastened to the bottom member of the insert *k* by means of bolts *m*, *m*. The insert *k* is provided with annular protuberances *n* to abut against the shoulder *b* of a hollow-journal like *a*, and the cross-piece *k'* of the U-shaped insert *k* is provided with a threaded shoulder *o*, on which to affix a nut *p*. In other respects the construction and operation of the parts is substantially the same as above described with respect to Fig. 1.

I claim:

1. In a vehicle axle bearing, the combination with an axle, of a hollow journal; an insert in said hollow journal; means for holding said insert in place; a half elliptic spring contained in said insert, the bottom member of the spring fastened to the bottom piece of the insert; said spring having a projecting inner end to which the axle end is fastened; means for holding the hub of a

wheel in place on the hollow journal; and the parts being duplicated at both ends of the axle.

2. In a vehicle axle bearing, the combination with an axle, of a hollow journal; an insert in said hollow journal; means for holding said insert in place; a half elliptic spring contained in said insert, the bottom member of the spring fastened to the bottom piece of the insert; said spring having a downwardly bent projecting inner end to which the axle end is fastened; means for holding the hub of a wheel in place on the hollow journal; and the parts being duplicated at both ends of the axle.

3. In a vehicle axle bearing, the combination with an axle, of a hollow journal provided with an exterior taper; a circumferential shoulder on the interior at the inner end of the hollow journal; an insert in said hollow journal; the insert being provided with a shoulder adapted to abut with said shoulder on the interior of the hollow journal; a half elliptic spring contained in said insert, the bottom member of the spring fastened to the bottom piece of the insert; said spring having a downwardly bent projecting inner end to which the axle end is fastened; the insert provided with a threaded projection at its outer end extending below the outer end of the hollow journal, a nut affixed on such outer end of the insert for holding the latter and incidentally the wheel mounted on the hollow journal in place; and the parts being duplicated at both ends of the axle.

4. In a vehicle axle bearing, the combination with an axle, of a hollow journal, a U-shaped insert in said hollow journal; means for holding said insert in place; a half elliptic spring contained in said insert, the bottom member of the spring fastened to the

bottom piece of the insert; said spring having a projecting inner end to which the axle end is fastened; means for holding the hub of a wheel in place on the hollow journal; and the parts being duplicated at both ends of the axle.

5. In a vehicle axle bearing, the combination with an axle, of a hollow journal provided with an exterior taper; a circumferential shoulder on the interior at the inner end of the hollow journal; a U-shaped insert in said hollow journal; the insert being provided with a shoulder adapted to abut with said shoulder on the interior of the hollow journal; a half elliptic spring contained in said insert, the bottom member of the spring fastened to the bottom piece of the insert; said spring having a downwardly bent projecting inner end to which the axle end is fastened; the insert provided with a threaded projection at its outer end extending below the outer end of the hollow journal, a nut affixed on such outer end of the insert for holding the latter and incidentally the wheel mounted on the hollow journal in place; and the parts being duplicated at both ends of the axle.

6. In a vehicle axle bearing, the combination with an axle, of a hollow journal; an insert in said hollow journal; means for holding said insert in place; a half elliptic spring contained in said insert, the bottom member of the spring fastened to the bottom piece of the insert; said spring having a downwardly bent projecting inner end adapted to be fastened to an axle end; and means for holding the hub of a wheel in place on the hollow journal.

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