

No. 825,329.

PATENTED JULY 10, 1906.

H. LEMP.
STEERING AXLE.

APPLICATION FILED SEPT. 25, 1905.

Fig. 1.

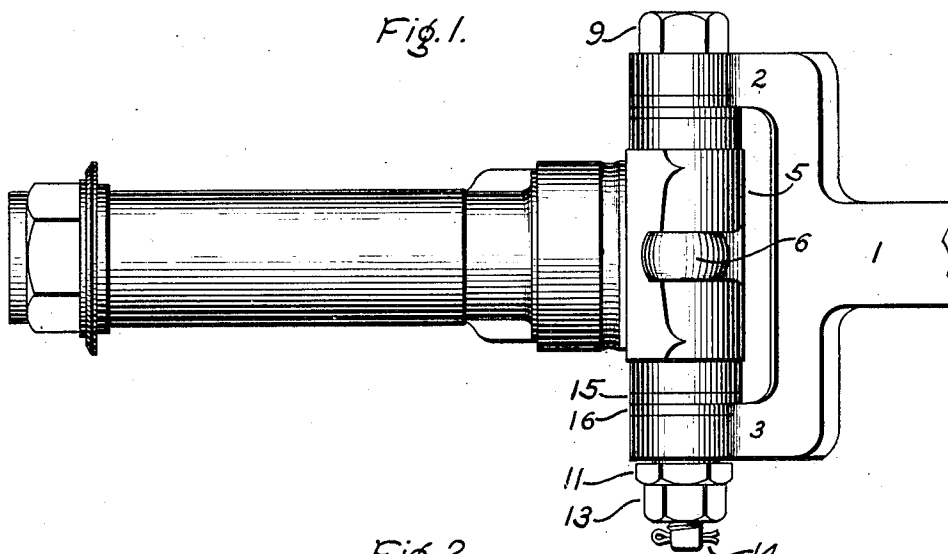


Fig. 2.

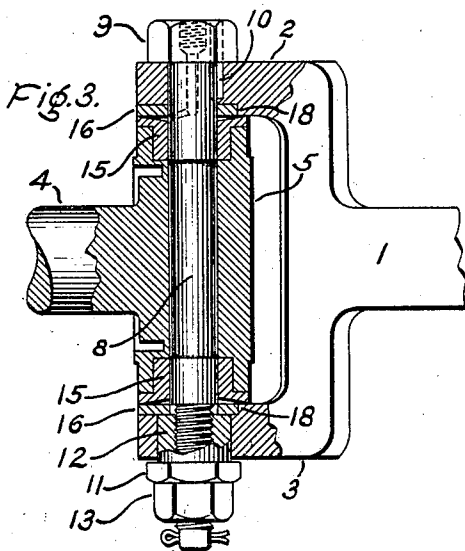
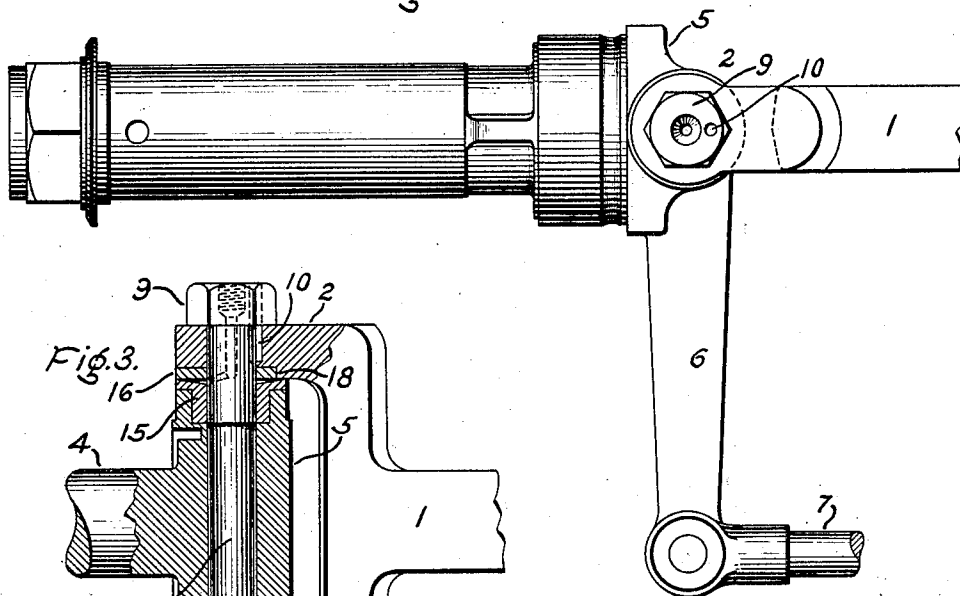
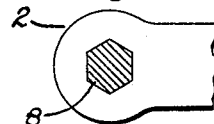


Fig. 4.



Fig. 5.



Witnesses:

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UNITED STATES PATENT OFFICE.

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STEERING-AXLE.

No. 825,329.

Specification of Letters Patent.

Patented July 10, 1906.

Application filed September 25, 1905. Serial No. 279,936.

To all whom it may concern:

Be it known that I, HERMANN LEMP, a citizen of the United States, residing at Lynn, county of Essex, State of Massachusetts, have invented certain new and useful Improvements in Steering-Axles, of which the following is a specification.

This invention relates to automobiles; and its object is to obviate some of the difficulties heretofore experienced with steering-axles of a certain type.

It is well known that the modern automobile has both axles rigidly secured to the frame of the chassis and that the steering-wheels are mounted on short stub-axles projecting from knuckles hinged on upright pivots at the ends of the front axle. The knuckles are usually received between the jaws of a forked or C-shaped forging attached to the axle and having in each jaw a hole for the upright pivot-bolt. It has been proposed to place hardened-steel washers between the ends of the knuckle and the jaws in order to provide a good wearing-surface; but the means proposed for adjusting these washers and locking the bolt have tended to draw the jaws toward each other, and thereby throw the wear-plates out of parallelism, so that one side was subjected to more wear than the other. Moreover, the pivot-bolt was free to turn and had a tendency to unlock the lock-nuts. I have therefore devised the present invention to remedy these troubles.

It consists in the combination, with the jaws, pivot-bolt, and knuckle, of hardened annular wear-plates above and below said knuckle, sliding freely on the bolt, an adjusting-nut on said bolt having a cylindrical hub fitting easily in a bearing in the lower jaw, a lock-nut underneath said adjusting-nut, and a cotter pin to prevent loss of said nuts.

In the accompanying drawings, Figure 1 is a side elevation of my improved steering-axle. Fig. 2 is a top plan view of the same. Fig. 3 is a vertical section through the knuckles. Fig. 4 is a plan view of one of the wear-plates, and Fig. 5 shows a modification.

The end of the front axle is provided with a forging 1, having an upper jaw 2 and a lower jaw 3, in which are holes having a common axis. The stub-axle 4 for the front wheel of the automobile projects from a knuckle 5, which fits between said jaws and has an arm 6 at an angle with the stub-axle,

to which the rod 7 of the steering mechanism is pivoted. The knuckle is pivoted on a bolt 8, which passes down through the holes in the jaws, the shank of said bolt fitting snugly in the hole in the upper jaw. The head 9 of the bolt rests on said upper jaw and is locked against angular movement by a pin 10 passing through it into said jaw. The lower end of the bolt below the knuckle is screw-threaded and meshes with a nut 11, having a smooth cylindrical hub 12, rotatable in a cylindrical bearing in the lower jaw. A lock-nut 13 is placed on the projecting lower portion of the bolt and abuts against the lower end of the nut 11. A cotter-pin 14 in a transverse hole in the bolt prevents these nuts from working off and getting lost.

In the ends of the knuckle are hardened-steel bushings 15, whose ends bear against hardened-steel annular wear-plates 16, placed against the inner surface of the jaws concentric with the bolt and prevented from rotating by a flattened side 17, engaging with a shoulder 18 of said jaw. Both plates have a smooth central aperture easily fitting the shank of the bolt.

When it becomes necessary to set the plates against the knuckles, either on assembling the machine or to take up wear, the adjusting-nut 11, which abuts against the lower wear-plate, is screwed upward on the bolt and then locked by the nut 13. Since the nut 11 does not abut against the lower jaw, the jaws will not be cramped by this adjustment, and the plates will remain parallel. The locking-pin 10 prevents the bolt from turning when the nuts are manipulated and also keeps it from working around and unlocking the two nuts by the jarring of the machine when running. It is evident that other means could be substituted for the pin 10, such as a polygonal shank on the upper portion of the bolt fitting a corresponding hole in the jaw, as shown in Fig. 5.

What I claim as new, and desire to secure by Letters Patent of the United States, is—

1. In a steering-axle, the combination with the jaws, of the knuckle, the pivot-bolt passing through said jaws and knuckle, wear-plates surrounding said bolt at the ends of said knuckle, and an adjusting-nut on said bolt having a smooth cylindrical exterior fitting a bearing in the lower jaw.

2. In a steering-axle, the combination with

the jaws, of the knuckle, the pivot-bolt passing through them, wear-plates surrounding said bolt at the ends of said knuckle, an adjusting-nut on said bolt having a smooth cylindrical hub fitting a bearing in the lower jaw, and a lock-nut below said adjusting-nut.

3. In a steering-axle, the combination with the jaws, of the knuckle, the pivot-bolt passing through said jaws and knuckle, means for locking said bolt from turning, wear-plates between said jaws and knuckles, and an adjusting-nut on said bolt having a smooth cylindrical hub rotatable in a bearing in the lower jaw.

4. In a steering-axle, the combination with the jaws, of the knuckle having bushings in

its ends, a pivot-bolt passing through the jaws and knuckle, a pin locking said bolt from turning, wear-plates between the knuckle and the jaws each having a flat side engaging a shoulder on its jaw, an adjusting-nut having a smooth cylindrical hub rotatable in a bearing in the lower jaw and abutting against the lower wear-plate, and means for locking said adjusting-nut.

In witness whereof I have hereunto set my hand this 22d day of September, 1905.

HERMANN LEMP.

Witnesses:

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