A. E. SMITH.

Carriage-Axle.

No. 6,694.

Reissued Oct. 11, 1875.

Fig. 1.

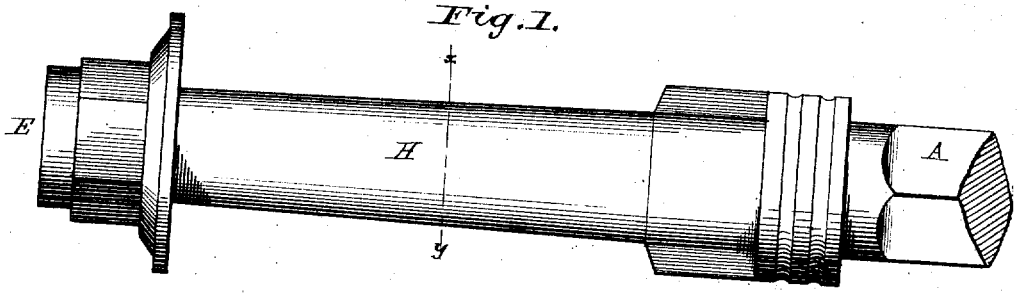

Fig. 2.

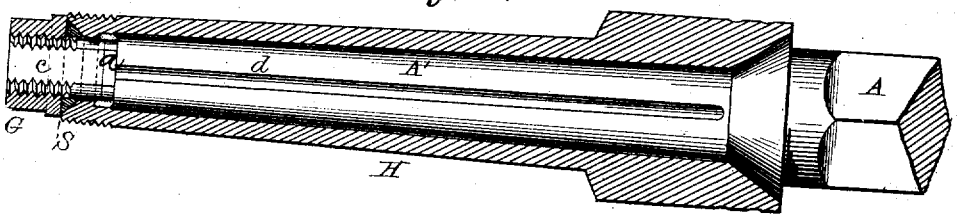

Fig. 3.

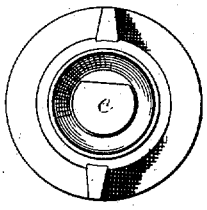

Fig. 4.

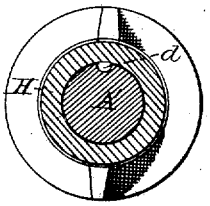

Fig. 5.

Attest:

Jos. S. Coombs

A. H. Norris

Inventor.

Alfred E. Smith

By James L. Norris.

Atty

UNITED STATES PATENT OFFICE.

ALFRED E. SMITH, OF BRONXVILLE, NEW YORK, ASSIGNOR TO FRANK D. SLOAT, OF MIDDLETOWN, CONNECTICUT.

IMPROVEMENT IN CARRIAGE-AXLES.

Specification forming part of Letters Patent No. 98,436, dated December 28, 1869; reissue No. 3,991, dated May 24, 1870; reissue No. **6,694**, dated October 11, 1875; application filed July 8, 1875.

DIVISION A.

To all whom it may concern:

Be it known that I, ALFRED E. SMITH, of Bronxville, in the county of Westchester, State of New York, have invented certain new and useful Improvements in Carriage-Axles, of which the following is a specification, reference being had to the accompanying drawings, in which—

Figure 1 is a view of my improved axle complete Fig. 2 is a vertical longitudinal section of the same with the cap-nut removed. Fig. 3 is an end view with the cap-nut removed. Fig. 4 is a transverse section of the spindle and axle-box. Fig. 5 is a perspective view of the follower.

This invention relates to certain improvements in carriage-axles; and consists in combining a conical washer with the axle-spindle and the axle-box, the said parts being so constructed and arranged as to form a recess between them, for admitting of compensating for wear and for lubricating purposes.

In the drawings, A represents the axle; A′, the spindle or journal, formed with a groove or channel, *d*, extending from the shoulder, more or less, the full length of the axle-spindle A′. The outer end of this spindle, upon which the nut G is screwed, is flattened upon one side to a shape corresponding with the bore of the conical follower, whether D or any other shape. This form of the nib of the spindle may be seen at *c*, Fig. 3, and is given for the purpose of holding the conical follower firmly, and preventing its revolution on the spindle. Upon this segmentally-shaped spindle end is placed a follower, S, formed of steel, iron, or other material, conical in form, its angular face being presented to the spindle, and having a bore or orifice, which corresponds in form with the segmental or other shape given to the tip of the axle.

The axle-box is of the usual construction, with the exception that it is formed with a beveled cavity at its front end to receive the abutting inclined surface of the conical washer S, and a recess, *a*, between the bevel-point of the follower and the front shoulder of the axle-spindle A′. Into this recess *a* the lubricating substance is conveyed by the channel or groove *d*, formed either in the spindle or the axle-box. The object of this groove is to furnish means for a thorough lubrication of the spindle A′ and the concave portion on the front of the axle-box H, which bears on the beveled periphery of the conical follower S.

G represents the nut fitted to the threads formed on the nib of the spindle A′, serving the purpose of retaining the axle-box H upon the spindle, and of drawing the conical follower closely against the end of the beveled end of the axle-box, causing the wheel to run steady and true.

Upon the outer end of the axle box or skein H is formed a screw-thread, upon which is screwed a capped nut, E, designed to cover the axle-nut G, and at the same time prevent the wheel-hub from slipping off of the axle-box should the latter become loose in the hub. It also prevents sand or other foreign substances from entering the follower and spindle.

Having described my invention, what I claim is—

1. The combination, with the conical follower, of the axle-spindle and the skein or box, the several parts being so united as to form a recess, *a*, between them, substantially as described.

2. The axle-spindle, with or without the groove *d*, having the threaded nib *c*, conical follower S, recess *a*, and nut G, substantially as described.

In testimony that I claim the foregoing I have hereunto set my hand this 17th day of February, A. D. 1875.

ALFRED E. SMITH.

Witnesses:

CHARLES L. BARRITT,

THOS. W. TELL.

2