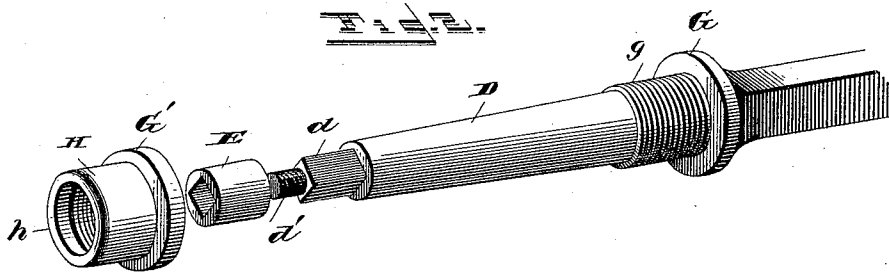
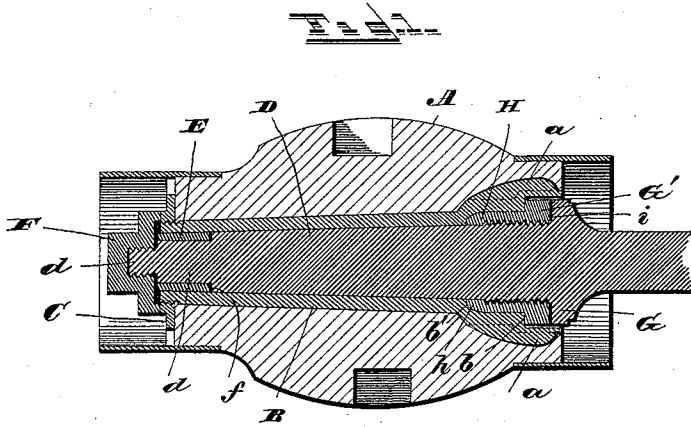


(No Model.)

F. P. GORDON.  
AXLE BOX AND SPINDLE.

No. 402,819.

Patented May 7, 1889.



*Frank P. Gordon.*

WITNESSES  
*L. S. Elliott.*  
*W. Johnson*

INVENTOR  
by *[Signature]*  
Attorney

# UNITED STATES PATENT OFFICE.

FRANK P. GORDON, OF ROBINSONVILLE, PENNSYLVANIA.

## AXLE BOX AND SPINDLE.

SPECIFICATION forming part of Letters Patent No. 402,819, dated May 7, 1889.

Application filed January 17, 1889. Serial No. 296,621. (No model.)

*To all whom it may concern:*

Be it known that I, FRANK P. GORDON, a citizen of the United States of America, residing at Robinsonville, in the county of Bedford and State of Pennsylvania, have invented certain new and useful Improvements in Axle Boxes and Spindles; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

My invention relates to certain new and useful improvements in axle boxes and spindles.

The object of my invention is to provide means whereby the wear upon the spindle can be taken up, so that it may be made to fit, when worn, snugly in the axle-box.

With the above end in view my invention consists in providing an axle-spindle at its front or outer end with a reduced portion, over which is placed a collar, and at the opposite end with an adjusting-nut, which is secured by screw-threads to the spindle, so that it may be moved thereon, such a spindle being combined with a suitable box, over the outer end of which is secured a nut for securing the axle-box to the hub.

My invention also consists in the construction and combination of the parts to be hereinafter fully set forth.

In the accompanying drawings, Figure 1 is a longitudinal section of an axle box and spindle constructed in accordance with my invention. Fig. 2 is a perspective view of the parts which make up the spindle detached.

In the accompanying drawings, A refers to the hub of a wheel, to which the axle-box is secured and held in position by the flanges *a a*. At the front portion this axle-box B is externally screw-threaded and provided with a flat nut, C, which adjacent to the central opening is slightly enlarged, so as to present a larger threaded portion. This nut C has notches in its periphery for turning the same to tighten the axle-box in the hub, when desired.

The axle-box is provided with shoulders *b*

and *b'*, against which the collars formed on or attached to the spindle abut.

The spindle is provided with the usual tapered portion, D, in which is formed oil-grooves, and the outer end of this spindle has either attached thereto or, preferably, formed therewith an outwardly-projecting angular portion, *d*, which is preferably rectangular in cross-section, the outer end thereof being further reduced by screw-threads *d'*. Over this rectangular portion *d* of the spindle is placed a conical collar, E, having a corresponding central opening, and when placed in position it forms practically a continuation of the spindle proper. Between the spindle and conical collar E may be placed one or more washers, *f*, which can be removed as the box or spindle wears, so that the wear may be taken up.

Over the screw-threaded portion *d'* of the spindle is placed a nut, F, which retains the conical collar E in place, and also secures the spindle in the box. This nut F has a circular flange of sufficient size to overlap, but not contact with, the outer end of the box, so that the bearing of said nut will come against the surface of the nut C.

At the butt of the spindle is formed the usual shoulder, G, adjacent to which, upon the spindle, are formed screw-threads *g*, said screw-threads being adapted to receive a collar, H, which is internally screw-threaded, this collar having formed thereon a shoulder, G', the opposite end, when placed upon the spindle, forming a shoulder, *h*, which will bear against the interior shoulder, *b'*, formed with the box. Between the shoulders G and G' are placed one or more washers, *i*, which can be removed as the wear of the parts require, or additional washers inserted when it is desired to reduce the length of the spindle.

By means of the collars E and H the wear of the box or spindle can be readily and easily taken up, so that the parts will fit properly within each other.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination, substantially as described, of the outwardly-tapered axle-box provided at its inner end with a shouldered recess and on its outer end with a thread and

nut, the spindle tapered to fit the box and provided on its inner end with an adjustable shouldered collar and on its outer end with an adjustable collar tapered to correspond  
5 with the taper of the spindle and with a threaded stud, and a nut fitting the threaded stud of the spindle and provided on its inner face with a circular intumed flange bearing  
10 against the nut of the axle-box, but of greater internal diameter than the external diameter of the outer threaded end of said box.

2. In combination with a hub, A, an axle-box, B, having shoulders *b* and *b'*, said box  
15 being externally screw-threaded at its outer end, and a nut for securing said box within

the hub, the spindle made up with a tapered portion, D, the outer end thereof being reduced for the reception of a conical collar, E, and threaded so that the securing-nut can be  
20 attached thereto, a collar, II, having shoulders G' and *h*, formed thereon and secured to the spindle by internal screw-threads, the parts being organized substantially as shown, and for the purpose set forth.

In testimony whereof I affix my signature in  
25 presence of two witnesses.

FRANK P. GORDON.

Witnesses:

PETER BARNDOLLAR,  
L. W. GORDON.