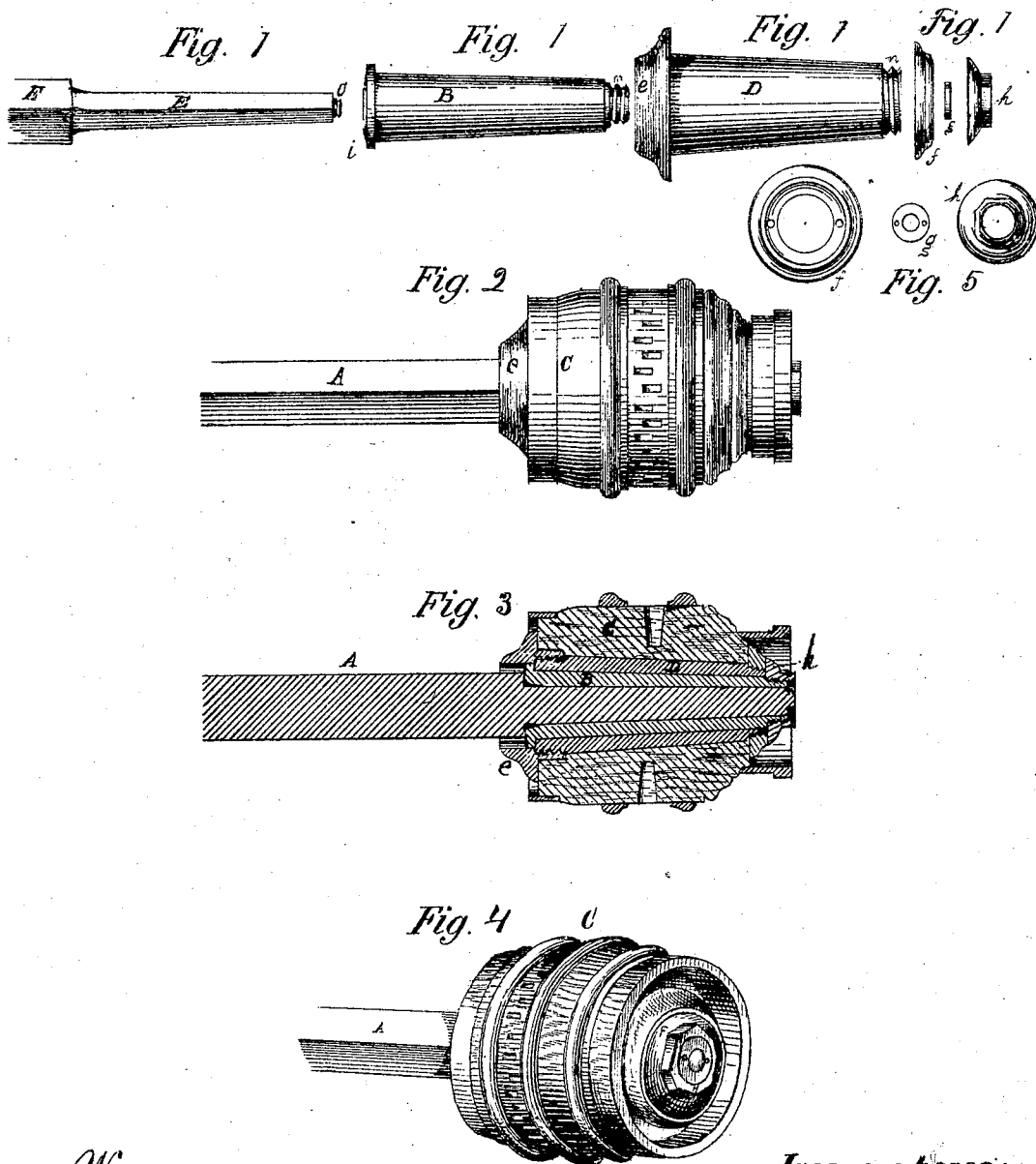


J.W. Beer and A.W. Beer.

Improved Carriage Axle & Boxings.

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PATENTED AUG 8 1871



Witnesses:
Fred. Astor.
Herm. Sauton.

Inventors:
Joseph W. Beer
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 By *D. C. Colby & Son Attys.*

UNITED STATES PATENT OFFICE.

JOSEPH W. BEER AND ABSALOM W. BEER, OF RURAL VALLEY, PA.

IMPROVEMENT IN CARRIAGE-AXLES AND BOXINGS.

Specification forming part of Letters Patent No. 117,730, dated August 8, 1871.

To all whom it may concern:

Be it known that we, JOSEPH W. BEER and ABSALOM W. BEER, of Rural Valley, in the county of Armstrong and State of Pennsylvania, have, as we believe, invented new and useful Improvements in Wagon and Carriage-Axle and Hub-Castings; and we do hereby declare the following to be a full and exact description of the same, reference being had to the drawing that accompanies and forms a part of these specifications.

The nature of our invention consists in certain formation of that part of the axle that lies within the hub, and adapting to this a sleeve which will just fit the interior of the box in the hub, all in manner as hereinafter set forth.

Figure 1 represents the various parts, axle, sleeve, hub-box, and the smaller securing parts, detached from their permanent positions; Fig. 2, all the parts together and the hub in position; Fig. 3, longitudinal bisection of the parts, all in their proper place; Fig. 4, perspective view, presenting the outer end of the hub.

A, axle in the ordinary form; A', that portion of the axle entering the hub; B, a sleeve with longitudinal opening through it, fitted to cover closely A'; C, the wheel-hub; D, pipe-boxing; e, a flange upon the box D, in form as exhibited in Fig. 3; f, a cap-flange fitted to the outer end of box D by screw-thread; g, small screw-cap or head upon the end of axle, at o, to prevent sleeve B from being forced off; h, a cap-nut screwing onto the thread m on the sleeve B, and thus securing the wheel upon the axle; i, an annular collar upon the inner end of sleeve B, and firmly attached thereto.

Having placed sleeve B upon the rectangular spindle A' and secured it there by nut g, and having fitted box D in the wheel-hub and applied the annular cap-nut f to the screw n, thus securing the boxing, the axle may be inserted therein

and the cap-nut h screwed upon thread m, and the whole is complete.

The proportion of these various parts will be comprehended by a careful observance of the probable wear and strain that would be likely to come upon them. The part A' should be as large as the parts will allow just at its junction with the central shaft A. The collar e may be cast or formed of the same piece as the box D, or it may be detachable, as illustrated in Fig. 3 of the drawing. The box D may be kept perfectly tight in the hub by turning up the nut f, if occasion therefor should ever be found.

This device provides for supplying at any time a new sleeve to the axle, or a new box to the wheel-hub, with little or no inconvenience and very small expense. Furthermore, whenever the sleeve B, which, in our device, becomes the journal upon which the wheel turns, becomes worn to any considerable extent upon its under side, it may and should be removed from the spindle A' and turned the other side up. Herein lies an important feature of our invention. The collars e and i form a sure preventive against the working in upon the bearing-surface within the box of dust or dirt of any kind.

What we claim as our invention, and desire to secure by Letters Patent, is—

The axle, made up of ordinary shaft A having square stem A', and the sleeve B having collar i, all constructed as and for the purposes set forth.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

JOSEPH W. BEER.
ABSALOM W. BEER.

Witnesses:

GEO. A. GOURLEY,
I. A. H. FOSTER.