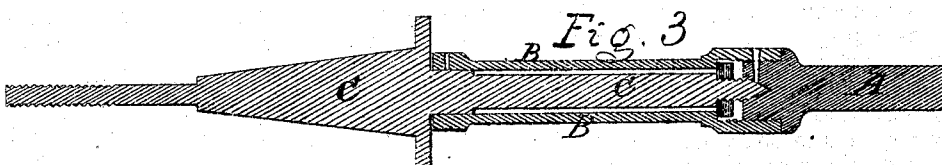
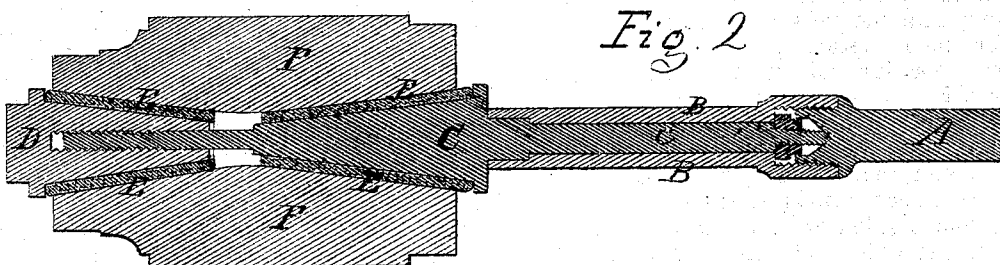
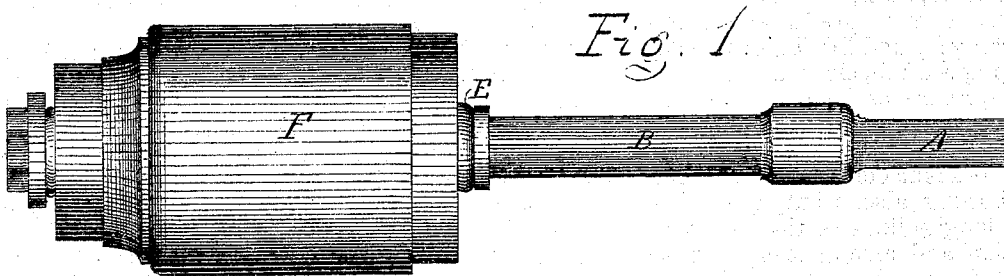


L. D. Cook.
Imp^t in Wagon-Hub & Axle.

No. 122,363.

Patented Jan. 2, 1872.



Attest
Edw. J. Kils
A. Ruppert.

L. D. Cook
Inventor
D. P. Holloway & Co

UNITED STATES PATENT OFFICE.

LYMAN D. COOK, OF WEST LIBERTY, OHIO.

IMPROVEMENT IN CARRIAGE-HUBS AND AXLES.

Specification forming part of Letters Patent No. 122,363, dated January 2, 1872; antedated December 27, 1871.

To all whom it may concern:

Be it known that I, LYMAN D. COOK, of West Liberty, in the county of Logan and State of Ohio, have invented a certain Improvement in Carriages; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the annexed drawing making a part of this specification, in which—

Figure 1 is an elevation of my improved axle, and showing, also, a hub upon its end. Fig. 2 is a longitudinal section, showing the construction and arrangement of the axle, box, hub of the wheel, and the method of attaching the wheel to the axle.

Corresponding letters refer to corresponding parts in both figures.

In constructing wheels and axles for wagons and carriages in the usual way they have been subjected to serious objections, in consequence of the fact that in setting the pipe or other box in the wheel a large aperture has to be formed in the center of the hub, which necessitates the cutting away of a considerable portion of the spokes, or of the tenons formed upon them, and at the same time makes it necessary that the ends of the hub should be split for the reception of wedges for holding the box in position and truing the wheel, which necessarily weakens, to some extent, the hub, and permits more or less water to find its way into the apertures, and thus cause the hub to decay sooner than it otherwise would. Another and a very serious objection is that the hub becomes filled with grease, and in the event of the axle becoming heated it penetrates the wood and runs down upon the spokes, which in fine carriages is a great annoyance as well as injury. Another objection is that when it becomes necessary to oil or grease the axle the wheel has to be removed, and this causes delay and trouble, especially when the vehicle happens to be loaded. This invention is intended to obviate the objections above referred to, as well as to cheapen the wheel by providing a means whereby wheels can be set upon the axles and "trued" up in a much less space of time than is now required; and to this end it consists in the construction of the hub and axle of a carriage, and in the combination and arrangement of certain of their

parts, as will be more fully explained herein-after.

In carrying out my improvements I provide an axle, A, of suitable size and length, according to the vehicle to which it is to be applied. Upon the outer ends of this axle there are formed collars, and outside of these collars a screw-thread, as shown in Fig. 2, for the reception of the pipe or box in which the spindle of the wheel turns. The screw-threaded portions or their outer ends have formed in them a chamber or recess for the end of the spindle to rotate in, which recess may have its inner surface of the conical form shown in the drawing, or it may be flat, and the end of the spindle may be made to correspond, the object being to keep this end of the spindle central with the axle, and to prevent its endwise movement. Upon the threaded portion of the axle there is screwed a pipe or box, B, its inner ends being provided with a female thread for that purpose. The length of this pipe or box is such as to give the required amount of bearing-surface to the spindle which rotates within it, it varying in length and diameter with the kind of service it is to perform. Near that end of the pipe or box B which is nearest to the wheel there may be formed an enlarged aperture, as shown, for the purpose of admitting an enlarged portion of the spindle; or it may, if preferred, be made tapering for the same purpose. In place of this pipe boxes may be used in which the spindle may be made to rotate, such boxes being secured to the axle, which in such case would be extended further toward the wheels for the purpose of receiving and supporting such boxes. The spindle C, which passes through the box or pipe and through or nearly through the hub, has its inner end provided with a thread for the reception of a nut, as shown in Fig. 2, for the purpose of preventing it from being withdrawn from the pipe, while that portion thereof which enters the hub has an enlarged conical portion for the inside of such hub, and a reduced threaded portion, upon which a cone or conical nut, D, screws to hold the parts firmly within the hubs and prevent it from rotating thereon. Surrounding the conical portions of the spindle C and nut D there is a conical rubber or other elastic tube, E, which is made to fit snugly

upon these parts, while their outer surfaces fit conical recesses formed in the hub. The office of these tubes is to give elasticity to the wheel and prevent the sudden jars which it is subjected to by coming in contact with obstructions from being communicated to the axle and the other parts of the carriage. This arrangement will, it is believed, add very much to the endurance of the wheels and axles of carriages, as well as save the occupants much annoyance caused by the sudden jars to which they are now subjected.

The hub F is made of wood or of metal, it having a small hole bored through its center, only large enough to admit of the passage of the reduced portion of the spindle, after which the two ends are reamed out to fit the conical washers or tubes E, which may, if preferred, be made of wood, or they may be dispensed with, and the spindle and nut be made to fit the cavity in the hub. I prefer, however, to use the tubes for the reasons and for the purpose above stated. It will be seen that by this method of constructing hubs I am enabled to do away with the necessity of cutting away the central portion thereof, which is so necessary for supporting the tenons of the spokes.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. An axle for wagons and carriages constructed with its ends adapted to receive and hold the pipes or boxes in which the spindle rotates, substantially as and for the purpose set forth.

2. The pipe or box B, constructed substantially as described, and arranged to form an extension or portion of the axle of a carriage, substantially as and for the purpose set forth.

3. The spindle C, adapted to enter the hub of the wheel and the pipe or box, and rotate in said box, substantially in the manner and for the purpose set forth.

4. The combination of the spindle C, nut D, conical tubes or washers E E, and hub F, substantially as and for the purpose set forth.

5. The combination of the axle A, pipe or box B, and spindle C, substantially as and for the purpose set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

L. D. COOK.

Witnesses:

D. P. HOLLOWAY,
A. RUPPERT.

(31)