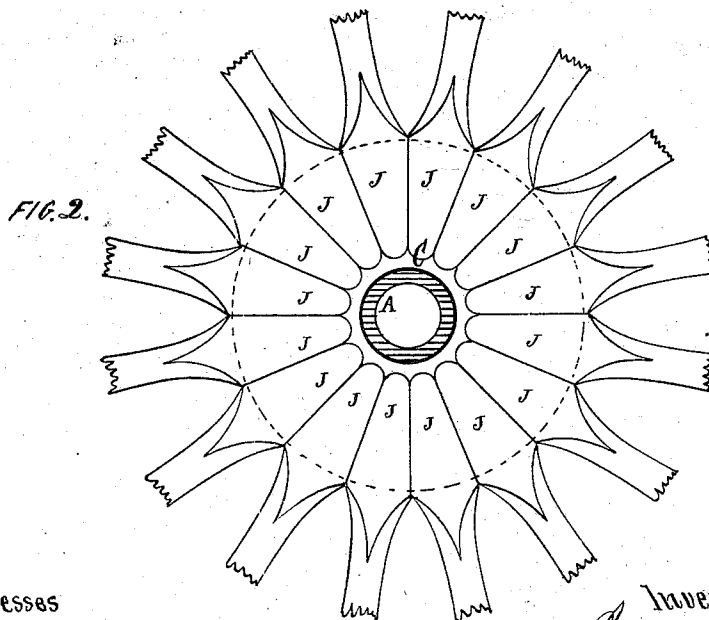
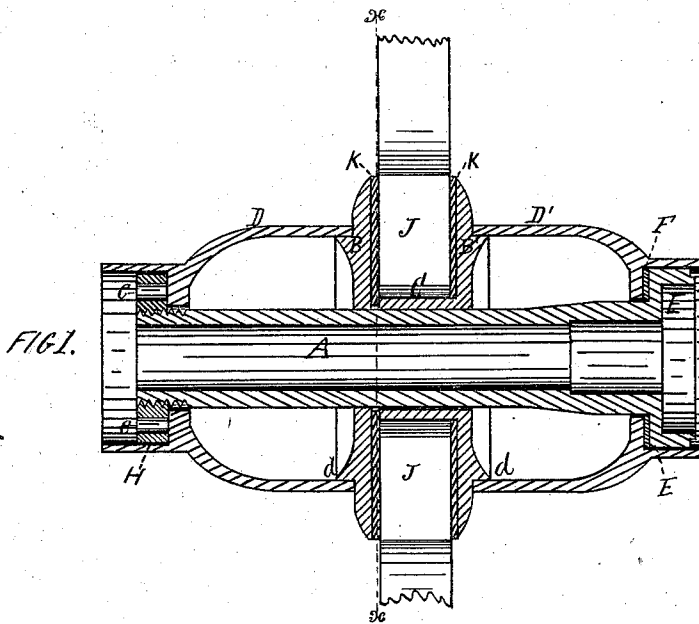


J. B. WITHEY.
Vehicle-Wheels.

No. 149,699.

Patented April 14, 1874.



Witnesses

Wm. H. Sherburne
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UNITED STATES PATENT OFFICE.

JEROME B. WITHEY, OF CHICAGO, ILLINOIS.

IMPROVEMENT IN VEHICLE-WHEELS.

Specification forming part of Letters Patent No. **149,699**, dated April 14, 1874; application filed March 7, 1874.

To all whom it may concern:

Be it known that I, JEROME B. WITHEY, of Chicago, in the county of Cook and State of Illinois, have invented new and useful Improvements in Carriage-Hubs; and I do hereby declare the following to be a full, clear, and exact description thereof, which will enable others skilled in the art to which my invention appertains to make and use the same, reference being had to the accompanying drawing forming part of this specification, in which—

Figure 1 is a central longitudinal section of a carriage-hub embodying my invention; and Fig. 2 is a cross-section of the same, taken on the line *x x*, drawn across Fig. 1.

Similar letters of reference indicate like parts in both figures of the drawing.

My invention relates to that class of carriage-hubs which are constructed of metal, and has for its object to render the same cheap, light, strong, and durable; and to that end it consists, in combination with the box receiving the journal of the axle, and provided with a shoulder and adjusting-nut, of a shell and collar, arranged on opposite sides of the spokes, the approximate faces of the collars being curved, and provided with a fluted disk, adapted to receive the inner end of the spokes, as will be more fully understood by the description and claims. It further consists, in combination with the respective parts, of a flexible facing, as will be more fully understood by the claims.

In the drawing, A represents the box, which consists of a cylindrical tube, adapted to so fit the journal portion of the axle as to freely revolve thereon. B and B' are metal collars, which are each provided at the center with an aperture, through which the box loosely passes. The central portion of the collar B' is provided with a disk, C, which has formed in its periphery longitudinal curvature channels, adapted to receive the inner end of the spokes, as shown in Fig. 2. D D' are metal shells, which are slightly less in diameter than the diameter of the collars B and B'. The ends of these shells next to the collars are so arranged as to fit around the peripheries of the shoulders *d d*, formed on the outer sides of the collars, by which means the ends of the shells are pre-

vented from vertical and lateral displacement. The inner end of the box, next to the shoulder of the axle, is provided with a shoulder, E, which bears against a flexible packing, F, arranged between the said shoulder and the outer end of shell D', and the opposite end of the box is screw-threaded externally, upon which threaded portion is secured a screw-nut, H, so arranged as to bear against the outer end of shell D, as shown in Fig. 1. This nut H is made round, so as to enter the ring on the outer end of the shell, and its thickness is such as to allow the end of the box to project slightly through the same, by which means the nut is prevented from coming in contact with the nut on the end of the axle. To enable this nut to be turned upon the box, I provide two or more apertures, *e e*, formed through the same, which are adapted to receive corresponding projections on the wrench. J is the spokes, which are so shaped as to closely fit, one against the other, and are made round at their inner ends, so as to fit into the channel formed in the periphery of disk C, between the collars B B', as shown in Fig. 2. K K are annular pieces of rubber, or other flexible material, which are fitted around the box between the spokes and face of the collars. This facing acts to prevent the metal from coming in contact with the spokes, and, by its flexibility, allows the metal to contract or expand, preserving, at all times, the requisite lateral rigidity of the spokes, and preventing the fibers of the wood from being worn by frictional contact against the metal. To give the requisite dish to the wheel, I make the face of collar B slightly convexed, and the face of collar B' correspondingly concaved, by which means the spokes are held at the proper angle to give the required dish to the wheel when the collars are compressed against the spokes by the action of the nut on the box.

The object of the flexible packing F, arranged between the shoulder of the box and end of the shell, is to allow the parts to yield sufficient to overcome the effect of the jar on the box produced by the vibration of the axle, and thus prevent the nut from being loosened.

It will be observed that by this arrangement of hub the spokes firmly fit, one against the other, at the center, or between the collars,

by which makes the wheel is much stronger than would be the case if the spokes were cut away to fit into a mortise in the hub. Besides, should a spoke be broken, it can be readily removed, and a new one secured in its place, by simply loosening the nut on the box, and removing the outer shell and collar. A further advantage is derived from this style of hub: for, should the spokes shrink sufficient to become loose, which is often the case, the same can be readily made tight by simply tightening the nut on the box, which can be done without in any way affecting the lateral movement of the hub on the axle.

I am aware that hollow shells have been previously used in metal carriage-hubs.

Having thus described my invention, I claim—

1. In combination with the box A, provided with the shoulder E and nut H, the shells D D', collars B and B', made smooth, and curved on the approximate faces, the collar B' being the fluted disk C, adapted to receive the inner end of the spokes, all as specified.

2. In combination with the collars B B', shells D D', box A, and spokes J, the flexible facings K K, all arranged as described.

3. In combination with box A, having shoulders E, nut A, shells D D', collars B B', and spokes J, the flexible packing F, as specified.

JEROME B. WITHEY.

Witnesses:

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