

W. W. CRANE.  
Wheels for Vehicles.

No. 147,482.

Patented Feb. 17, 1874.

Fig. 1.

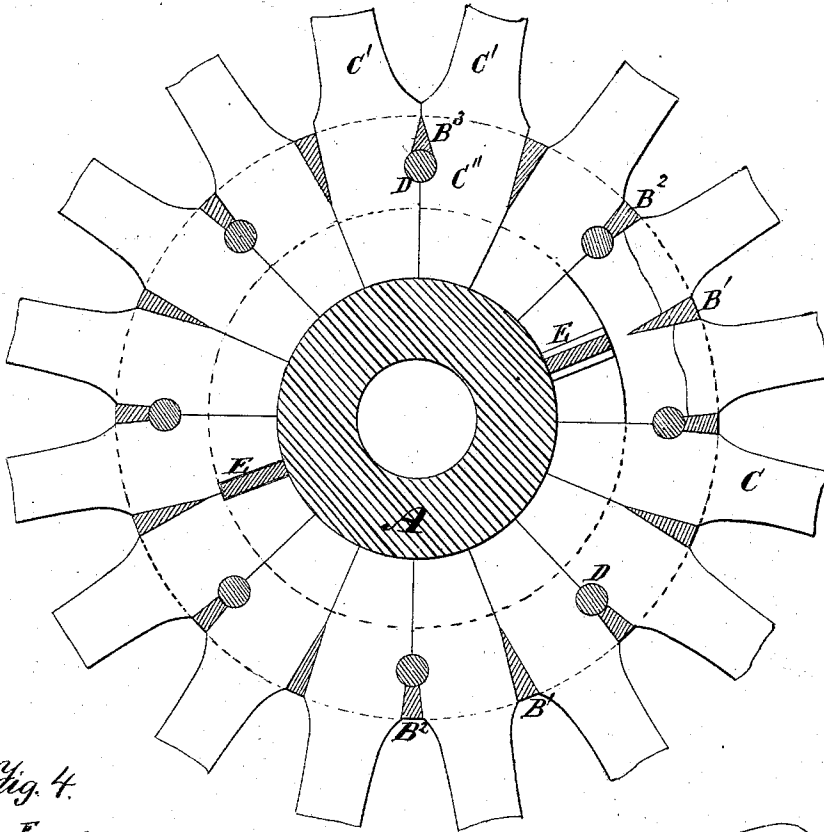


Fig. 4.

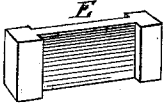


Fig. 2.

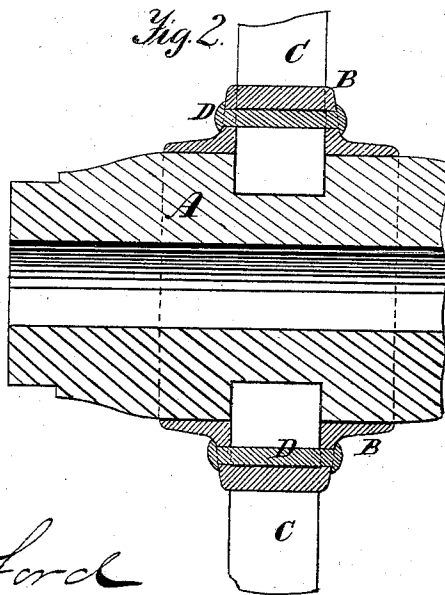
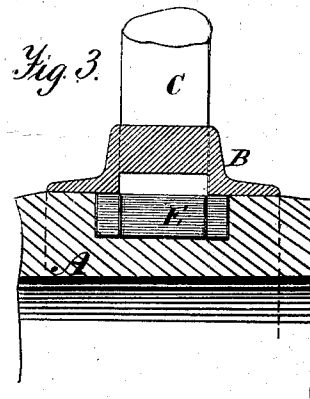


Fig. 3.



Witnesses.  
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# UNITED STATES PATENT OFFICE.

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## IMPROVEMENT IN WHEELS FOR VEHICLES.

Specification forming part of Letters Patent No. 147,482, dated February 17, 1874; application filed May 26, 1873.

*To all whom it may concern:*

Be it known that I, WILLIAM W. CRANE, of Tippecanoe City, in the county of Miami and State of Ohio, have invented a new and useful Improvement in Wheels for Carriages and Wagons; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawing, making a part of this specification, in which—

Figure 1 is a transverse section through the hub. Fig. 2 is a longitudinal section through the hub, showing the manner of introducing the rivets. Fig. 3 is a longitudinal section, showing the keys for securing the spokes and socketed ring. Fig. 4 is a perspective view of one of the keys.

The same letters are employed in all the figures in the designation of identical parts.

This invention relates to that class of cases in which a socketed metallic ring is used in connection with a recessed wooden hub; and the improvement consists in the use of rivets passed through the flanges of the metallic ring, and through holes bored at the junction of the faces of the spokes, immediately below short alternate partitions or bars, so that the rivets shall serve to confine the spokes.

In the annexed drawings, A is a wooden hub, constructed with an annular recess around the middle of the hub where they are ordinarily mortised to receive the tenons cut on the ends of the spokes. B is a cast-iron ring, driven onto the hub, and constructed with sockets formed by the bars B<sup>1</sup>, which are wedge-shaped, alternated with bars B<sup>2</sup>, which are in the form of truncated wedges. These sockets are immediately opposite to the annular recess in the wooden hub. The spokes C are formed at their inner ends also like truncated wedges of a uniform inclination on the line of radiuses of the wheel. The ends of the spokes, when they are driven home, bear against the base of the annular recess and the faces against each other within the bars B<sup>1</sup> B<sup>2</sup>, thus forming a solid ring of wood within the bars of the metallic ring, the edges of the spokes bearing against the faces of the annular recess. When all the spokes are driven home, holes are bored immediately within the ends of the truncated bars B<sup>2</sup> at the junction of the spokes, and so as to form a recess in

two adjoining spokes, through which rivets D are driven, passing through both flanges of the metallic ring, and through the recesses formed between the spokes, so that each rivet securely fastens two spokes in place, so that neither can be withdrawn while the rivet remains in place.

To prevent the spokes and ring turning on the hub, keys E are used, shaped as shown distinctly in Fig. 4. Recesses are cut in the wood on each side of the annular recess, and directly opposite to one another, into which the heads of the keys are slid, the spokes passing on each side of the thin connecting portion of the key.

The heads may also, if preferred, be received into recesses cast in the rings B. The engagement of the heads into the grooves in the hub makes it impossible for the ring and spokes to turn except with the hub.

I have shown at B<sup>3</sup> in Fig. 1, a bar which is beveled to an edge at the periphery of the ring, in connection with which the shoulders on the ends of the spokes C' C' are so extended that, when the spokes are inserted, the shoulders shall touch outside of the bars, and thus the bars will be entirely concealed.

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

1. In combination with a hub constructed with an annular recess, a metallic ring constructed with sockets, through which the ends of the spokes pass into the annular recess, and a series of rivets passing through the flanges and spokes, substantially as set forth.

2. The metallic ring B, the sockets in which are formed by alternate long and short bars B<sup>1</sup> B<sup>2</sup>, in combination with the hubs, spokes, and rivets, substantially as set forth.

3. In combination with the recessed hub and shouldered spokes C' C', the socketed metallic ring, the bars B<sup>3</sup> of which are beveled to an edge at the periphery, 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.

WILLIAM W. CRANE.

Witnesses:

SIME A. LINDSLY,  
E. T. SHIELDS.