(No Model.)

E. J. BIRTCHERD.

VEHICLE WHEEL.

No. 568,398. Patented Sept. 29, 1896.

Fig. 1.

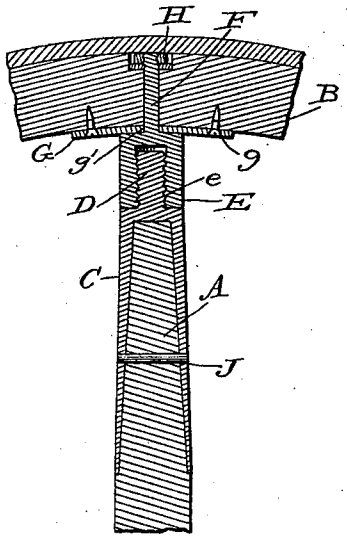


Fig. 2.

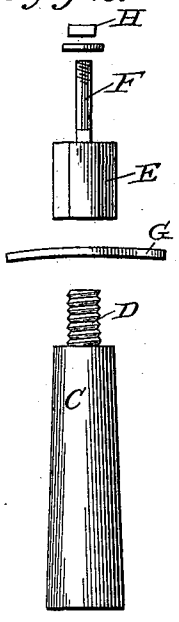


Fig. 3.

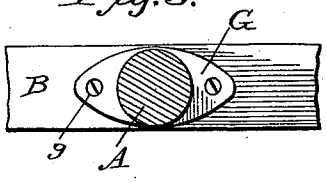
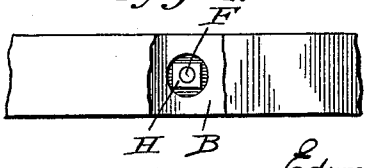


Fig. 4.



Witnesses
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UNITED STATES PATENT OFFICE.

EDWARD J. BIRTCHERD, OF GENOA JUNCTION, WISCONSIN.

VEHICLE-WHEEL.

SPECIFICATION forming part of Letters Patent No. 568,398, dated September 29, 1896.

Application filed July 3, 1896. Serial No. 597,948. (No model.)

To all whom it may concern:

Be it known that I, EDWARD J. BIRTCHERD, a citizen of the United States, residing at Genoa Junction, in the county of Walworth and State of Wisconsin, have invented certain new and useful Improvements in Vehicle-Wheels; 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.

This invention relates to certain new and useful improvements in vehicle-wheels, and more especially to the means employed for securing the spokes to the felly; and it has for its objects, among others, to provide a simple, cheap, and durable device by which the ends of the spokes may be held and by which they may be easily and quickly tightened when they become loose without the necessity of taking the wheel to the blacksmith shop. It also protects the ends of the spokes from wear and from decay by accumulation of moisture at the joint or tenon.

Other objects and advantages of the invention will hereinafter appear, and the novel features thereof will be specifically defined by the appended claims.

The invention in this instance resides in the peculiar combinations and the construction, arrangement, and adaptation of parts, all as more fully hereinafter described, shown in the drawings, and then particularly pointed out in the claims.

The invention is clearly illustrated in the accompanying drawings, which, with the letters of reference marked thereon, form a part of this specification, and in which—

Figure 1 is a section taken lengthwise of the spoke, showing the application of the invention. Fig. 2 is a view of the parts of the improvement separated, but in their relative positions. Fig. 3 is a view looking at the inner face of the rim or felly. Fig. 4 is a view looking at the outer face thereof.

Like letters of reference indicate like parts throughout the several views.

Referring now to the details of the drawings by letter, A designates a spoke, and B the felly or rim.

C is a metallic sleeve tapered, as shown, to conform to the taper of the spoke, the end of which it receives. The outer end of this sleeve is formed with a screw-threaded extension D, which extends the required distance from the end or cap of the said sleeve, as shown.

E is a ferrule that has a central screw-threaded bore *e*, into which the extension D is designed to be engaged. The outer end of this ferrule fits against the inner face of the felly, as shown, or against the wear and protector plate hereinafter referred to when the same is employed. The outer end of the ferrule has extending therefrom the extension F, which is provided with screw-threads at its outer end, and adjacent to the end of the ferrule it is made polygonal in shape, as shown.

G is a plate adapted to fit the curvature of the inner face of the rim or felly, to which it is designed to be secured by bolts or other means passed through the holes *g* in the ends or extensions of said plate. This plate has a central polygonal hole *g'*.

In practice the end of the spoke is inserted in the sleeve or portion C and then the ferrule E screwed on the threaded extension thereof. The bolt or extension F goes through a hole in the rim, and as this hole is very small when compared with the end of the spoke which usually goes through the felly the chances of moisture getting in the mortise are reduced to a minimum. The polygonal portion of the extension F fits the corresponding hole in the plate G and the outer end thereof receives a nut H, and, if desired, a washer may be interposed. The sleeve may be secured to the spoke by a pin or other means passed through a hole J in the sleeve.

Should the spokes become loose, they can be easily tightened by turning up the nut.

Modifications in detail may be resorted to without departing from the spirit of the invention or sacrificing any of its advantages.

It will also be observed that the tire can be tightened as well as the spokes and that it does not deform or disfigure the wheel in any manner, but leaves it as neat in appearance as desired.

What is claimed as new is—

1. The combination of a sleeve having a

threaded extension, a ferrule having a screw-threaded bore to receive the extension and a bolt extending therefrom and adapted to pass through the felly and to receive a nut, as set forth.

2. The combination of a sleeve having a threaded extension, a ferrule having a threaded bore to receive said extension, and a bolt integral with the ferrule, a plate having a hole to receive the bolt, and a nut adapted to be engaged with the outer end of the bolt, as set forth.

3. The combination with the sleeve having a screw-threaded extension, a ferrule having a threaded bore to receive said extension and a bolt with a polygonal portion, a plate having a polygonal hole, and a nut fitted to the outer end of the bolt, substantially as specified.

4. The combination with a spoke and a felly, of a sleeve on the end of the spoke, a ferrule on the sleeve inside the felly, a bolt carried by the ferrule and extended through the felly, a plate on the inner face of the felly, and a nut engaging the bolt on the outer face of the felly, all substantially as shown and described.

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

EDWARD J. BIRTCHERD.

Witnesses:
GEO. BURGETT,
JOHN MOORE.