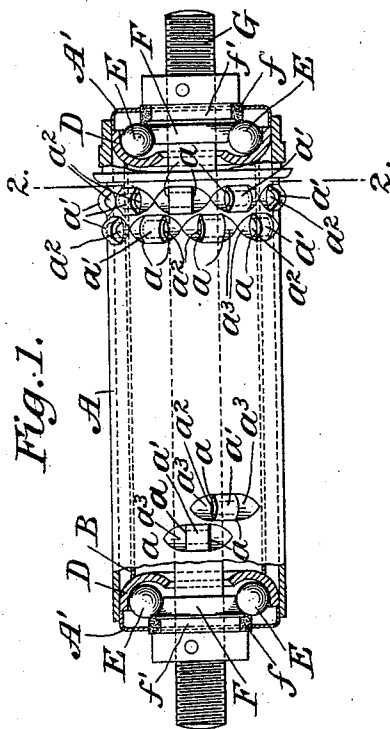
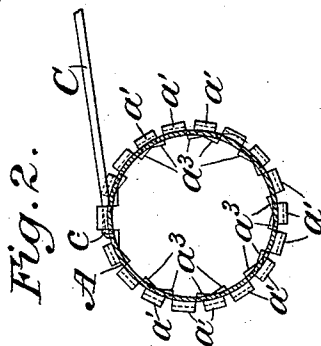


(No Model.)

J. S. COPELAND.
WHEEL FOR VEHICLES.

No. 574,712.

Patented Jan. 5, 1897.



Attest:
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UNITED STATES PATENT OFFICE.

JAMES S. COPELAND, OF HARTFORD, CONNECTICUT, ASSIGNOR TO THE POPE MANUFACTURING COMPANY, OF SAME PLACE AND PORTLAND, MAINE.

WHEEL FOR VEHICLES.

SPECIFICATION forming part of Letters Patent No. 574,712, dated January 5, 1897.

Application filed June 12, 1896. Serial No. 595,261. (No model.)

To all whom it may concern:

Be it known that I, JAMES S. COPELAND, a citizen of the United States, residing in the city and county of Hartford, in the State of Connecticut, have invented certain new and useful Improvements in Wheels for Vehicles, &c., of which the following is a specification, reference being had to the accompanying drawings, forming a part hereof.

This invention relates to the construction of the hubs of wheels having wire spokes, such as are commonly employed for light vehicles, and has for its object to provide improved means for the attachment of the spokes to the hub and, incidentally thereto, for the exclusion of dust from the bearings.

In accordance with my invention the eye for the engagement of each spoke is formed directly in the barrel of the hub in such a manner as to make the connection very strong, while making the weight of the entire construction less than usual and also reducing the cost of construction.

In the accompanying drawings, Figure 1 is a view, partly in elevation and partly in section, illustrating one embodiment of my invention. Fig. 2 is a transverse section of the barrel of the hub on the plane indicated by the line 2 2 of Fig. 1, one of the spokes being represented as in engagement therewith.

The barrel A of the hub is substantially cylindrical and of uniform diameter from end to end and is adapted to receive or to inclose the usual ball-bearings, comprising the cases D D, the balls E E, and the cones F F, which are adjustable upon the screw-threaded ends of the axle G.

The barrel is adapted to have connected to it the ends of the wire spokes, one of which is shown at C in Fig. 2, there being, as usual, one set of spokes connected to the barrel at one end and another set of spokes at the other end. It is with the means for connecting the spokes to the barrel that my invention is chiefly concerned. For this purpose the barrel is slitted longitudinally, that is to say, in a direction parallel with the axis of the barrel, at suitable intervals near its ends, as at *a a*, the slits being preferably arranged in pairs, as clearly

represented, and the pairs of slits being staggered or offset in two or more rows to avoid weakening the hub excessively. The metal between the slits of each pair is expanded and bent outwardly, as at *a'*, to form an eye *a²*, and the metal at each side of the eye *a²* is punched inwardly, as at *a³*, to enable the eye *a²* to be made large enough for its purpose without standing up too much above the surface of the barrel and to avoid excessive expansion of the metal at *a'*. The spoke C is inserted through the eye thus formed, and its head *c* finds a sufficient bearing against the edge of the expanded strip *a'*.

It will be evident that it is not practically possible to secure always a perfectly close fit of each spoke in its eye *a²* and that more or less dust might therefore pass into the interior of the barrel. In order to prevent the possibility of such dust working into the bearing of the wheel and likewise to prevent the escape of oil to the outside of the barrel, I have provided an inner sleeve B, which extends nearly from end to end of the barrel A and at its ends forms seats for the cases D D, which are driven into the ends of the barrel until they rest against the ends of the sleeve B, the sleeve thus determining the positions of the cases and making a tight joint therewith to prevent the passage of dust or of oil.

To further protect the bearing against dust, I have provided at each end of the barrel a cap or hood A', which fits closely within the end of the barrel and encircles the cone F, a ring *f* of felt or other suitable material being interposed between the cap or hood A' and the cone F and being retained in a groove *f'* of the latter.

It will be evident that a plain tube can be prepared for engagement with the spokes at a minimum expenditure of labor and with no increase whatever in weight, there being no separate parts to be formed and fitted and nothing to add to the weight of the tube itself. Furthermore, while the formation of the barrel may afford an entrance for dust to the interior thereof, nevertheless it is completely excluded from the bearings by the inner sleeve and the cases, and the passage of

oil to the exterior of the barrel is likewise prevented thereby.

I claim and desire to secure by Letters Patent—

5 A hub for a wheel having a barrel with longitudinal slits and the strips between the slits expanded outwardly to form eyes, the metal of the barrel on each side of each strip being

punched inwardly to complete the eye, substantially as shown and described. 10

This specification signed and witnessed this 10th day of June, A. D. 1896.

JAMES S. COPELAND.

In presence of—

FELTON PARKER,
P. HANSLING, Jr.