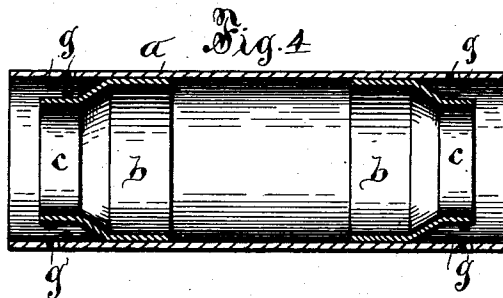
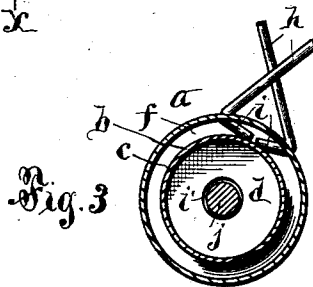
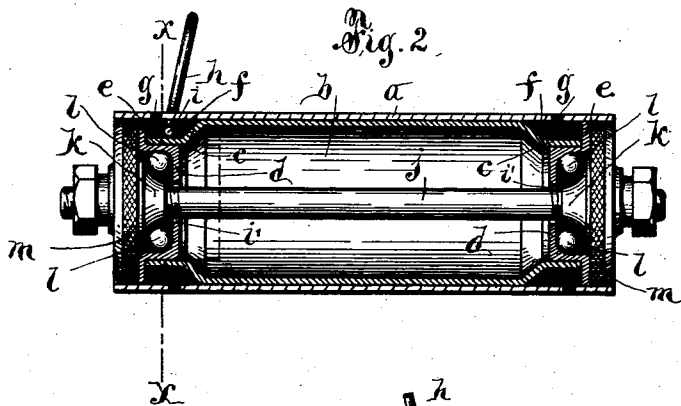
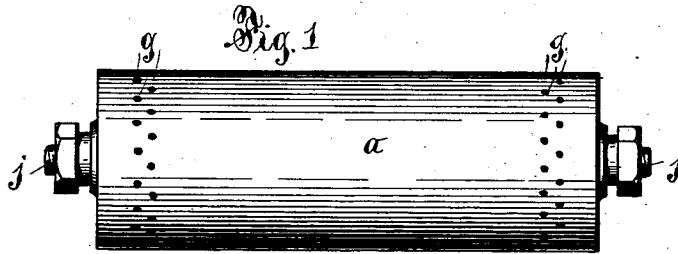


(No Model.)

J. J. LAASS.
WHEEL HUB.

No. 568,912.

Patented Oct. 6, 1896.



WITNESSES:

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UNITED STATES PATENT OFFICE.

JOHN J. LAASS, OF SYRACUSE, NEW YORK.

WHEEL-HUB.

SPECIFICATION forming part of Letters Patent No. 568,912, dated October 6, 1896.

Application filed January 4, 1896. Serial No. 574,338. (No model.)

To all whom it may concern:

Be it known that I, JOHN J. LAASS, of Syracuse, in the county of Onondaga, in the State of New York, have invented new and useful Improvements in Wheel-Hubs, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

This invention relates to the class of wheel-hubs which have their body formed of a metallic tube.

The main object of this invention is to dispense with the usual enlargements of the tube which were for the reception of the ends of the wire spokes. Thereby the appearance of the hub will be greatly improved and said spokes given the usual amount of spread, thereby producing a strong and rigid wheel; and, furthermore, the object is to provide means to securely lock said spokes in their attachment to said hub and in such a manner that the same can be readily attached thereto and detached therefrom and at the same time produce a hub which will be simple in construction and inexpensive in its manufacture; and to that end the invention consists in the novel construction and combination of parts, as hereinafter fully described, and set forth in the claims.

In the annexed drawings, Figure 1 is a side view of a wheel-hub embodying my improvements. Fig. 2 is a longitudinal section of the same. Fig. 3 is a transverse section on line X X in Fig. 2, and Fig. 4 is a longitudinal section showing a modification of the same.

Similar letters of reference indicate corresponding parts.

a represents a metallic tube forming the body of my improved hub and having a uniform diameter throughout its entire length. Within said tube is placed a tightly-fitting bushing *b*, of less length than said tube and having its end portions reduced circumferentially, as shown at *c c*. Within the said ends of the bushing are inserted the ball-bearing cups *d d*, formed with flanges *e e*, by which they bear against the ends of said bushing and are thereby prevented from shifting inward, said flanges fitting tightly to the inner periphery of the tube *a*, thus forming recesses *f f* between said tube and bushing. In the tube *a* and leading to said recesses are

formed circumferential rows of perforations *g g* for the reception of the ends of the wire spokes *h h*, formed with hooks *i i*, by which they draw on said tube within said recesses. Said hooks bear on the outer periphery of the aforesaid circumferentially-reduced end portions of the bushing *b* and are thereby prevented from straightening and thus drawing out of said perforations by the tensional strain exerted on said spokes. The ball-bearing cups *d d* are provided with the usual openings *i' i'* in their centers for the reception of the axle *j*, having thereon the usual journal or bearing cones *k k*, between which cups and cones are interposed the usual antifriction-balls *l l*. Between the flanges on said cups and the cone I prefer to place a washer *m*, of felt or other suitable material, to exclude dust, &c., from the bearings.

The aforesaid tube, bushing, and cups are soldered or otherwise securely fastened together, whereby the dust and water entering the recesses *f f* through the perforations *g g* will be prevented from coming in contact with the bearings.

In some cases I prefer to employ two bushings *b b*, as shown in Fig. 4 of the drawings.

The bushing *b* may be of very thin and cheap metal, as its end portions are well supported by the cups *d d*, inserted therein and bearing on the tube *a* by means of the flanges *e e*. Therefore the weight of the hub and the expense of its manufacture will not be great.

It will be observed that in my improved hub the perforations for the reception of the ends of the spokes may be made very near the ends of the tube *a*, thus giving the spokes a greater spread without the necessity of increasing the length of the hub. It will also be observed that in case a hook of one of the spokes is broken off within the recess *f* it can be readily taken out by simply removing the cup *d*, as said recesses are open to the ends of the hub.

What I claim is—

1. A wheel-hub composed of a main tube provided with perforations in its end portion for the attachment of the spokes, a bushing secured with its body portion to the inner surface of the main tube and terminated with circumferentially-reduced end portions, and ball-bearing cups inserted in the end portion

of the bushing and provided with flanges seated on the ends of the bushing as set forth.

2. A wheel-hub consisting of a tube forming the body of the hub, a bushing secured with its body portion to the inner surface of the tube and terminated with circumferentially-reduced end portions forming recesses between said tube and bushing, circumferential rows of perforations in said tube and leading to said recesses for the reception of the ends of the wire spokes, said recesses being open to the ends of the hub for the purpose set forth.

3. In a bicycle-wheel, the combination of a tube having uniform diameter throughout its length and forming the body of the hub, a bushing secured within said tube and having circumferentially-reduced end portions forming recesses between said bushing and tube, circumferential rows of perforations in said tube leading to said recesses, wire spokes inserted with their ends in said perforations and secured within said recesses, bearing-cups secured in the ends of said bushing and provided with flanges within said tube and

bearing against the ends of said bushing and suitable bearings for said cups as set forth.

4. In a wheel-hub, the combination of a tube of uniform diameter throughout its length and forming the body of the hub, a bushing secured within said tube and to the central or main portion thereof and having its end portions reduced circumferentially forming recesses between said tube and bushing, circumferential rows of perforations in said tube and leading to said recesses, bearing-cups secured within the ends of the bushing, wire spokes formed with hooks on their inner ends and inserted in said perforations and bearing on said reduced end portions and bushing directly over said cups, and suitable antifriction-bearings for said cups as set forth.

In testimony whereof I have hereunto signed my name this 31st day of December, 1895.

JOHN J. LAASS. [L. s.]

Witnesses:

M. A. LEYDEN,
C. E. TOMLINSON.