

(No Model.)

A. PERKINS.
CYCLE WHEEL.

No. 506,858.

Patented Oct. 17, 1893.

Fig. 1.

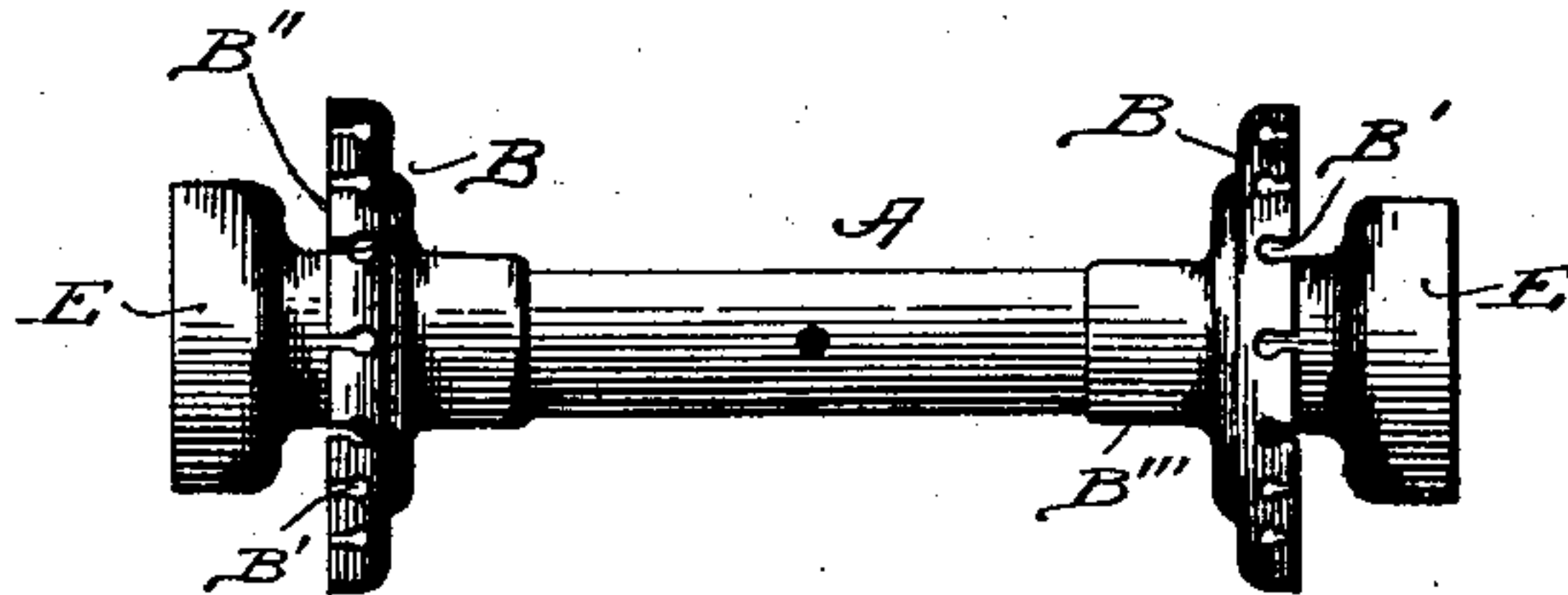


Fig. 2.

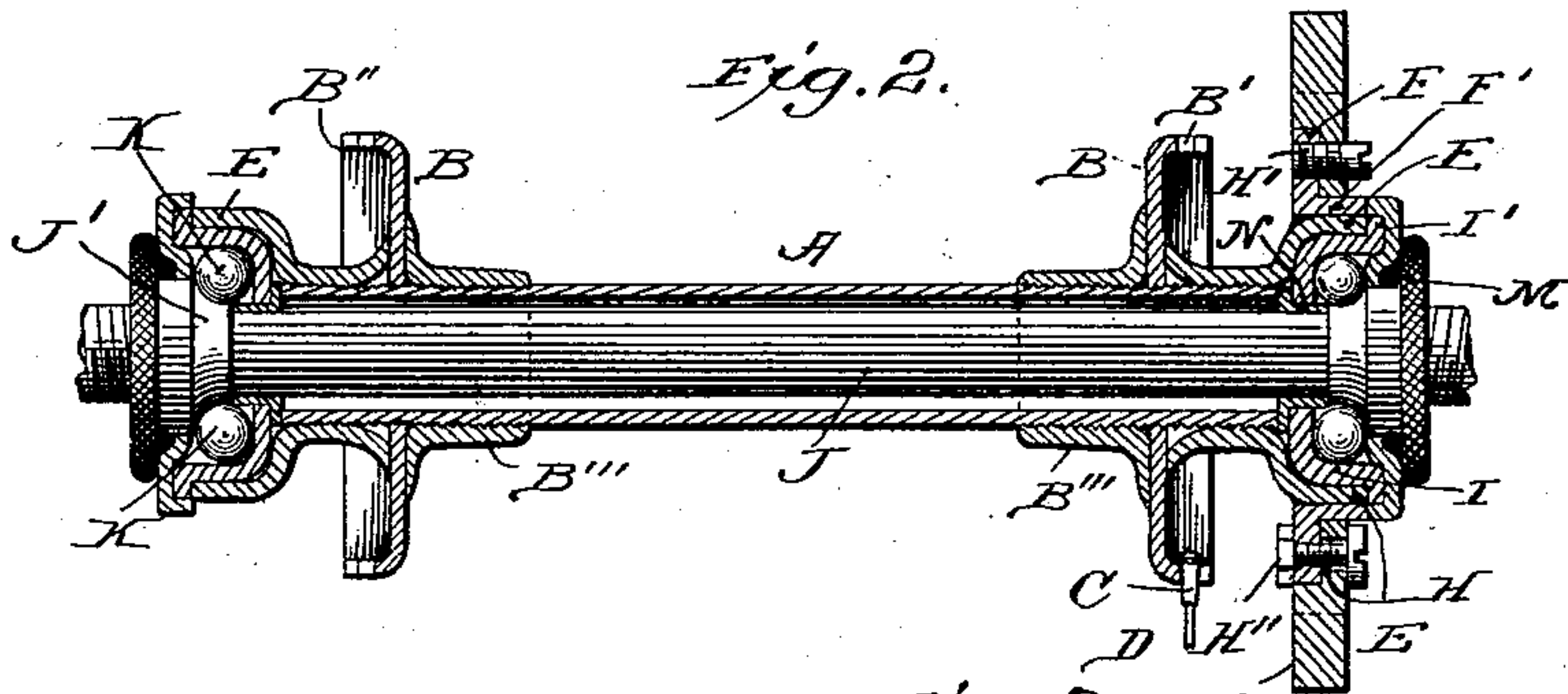


Fig. 3.

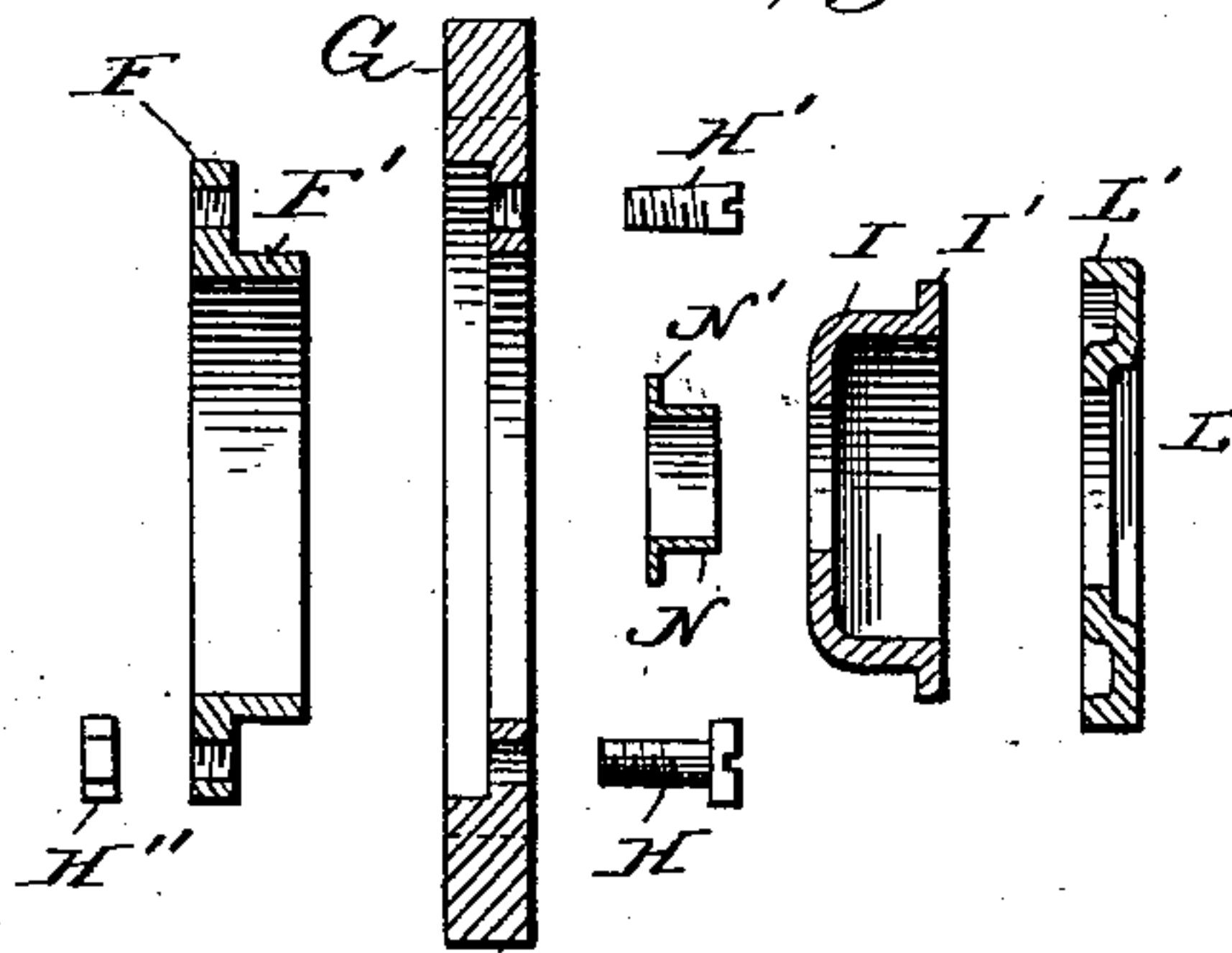
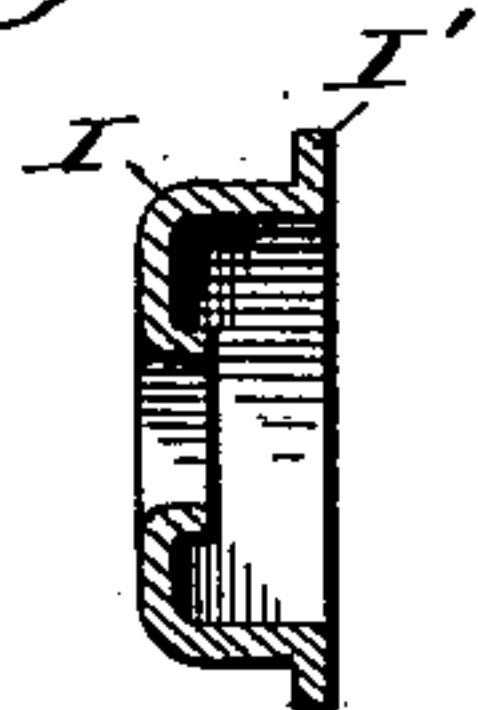


Fig. 4.



witnesses:

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UNITED STATES PATENT OFFICE.

ALBERT PERKINS, OF CHICOPEE, MASSACHUSETTS, ASSIGNOR TO THE
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CYCLE-WHEEL.

SPECIFICATION forming part of Letters Patent No. 506,858, dated October 17, 1893.

Application filed July 8, 1893. Serial No. 479,945. (No model.)

To all whom it may concern:

Be it known that I, ALBERT PERKINS, a citizen of the United States, residing at Chicopee, in the county of Hampden and State of Massachusetts, have invented certain new and useful Improvements in Cycle-Wheels, of which the following is a specification.

The invention relates to the hub and parts adjacent thereto and its object is to secure new advantages with lessened weight and largely decreased cost.

In the drawings,—Figure 1 is a side view of a front wheel hub. Fig. 2 is an axial section of the same hub with parts added to convert it into a driving hub. Fig. 3 shows in like section certain of the parts of Fig. 2 separated so that they may be more clearly seen. Fig. 4 illustrates a slight modification.

In these figures A is a tube having upon its end portions, respectively, a flanged sleeve B''', a plate B provided with an outwardly turned, spoke-receiving flange B'', and an outwardly turned, ball-seat cup E having a central, tubular neck flared out at its inner end to form a brace-like support for one side of the plate B which upon the other side is supported by the flange upon the sleeve B'''. These three pieces are, preferably, internally threaded and screwed upon the tube A and are then rigidly fixed to it and to each other by means that make the whole structure continuously connected metal. A ball seat I is removably secured in each cup E by gently pressing it into place. This has a marginal flange I' that, when the seat is in place, covers the margin of the cup E, and has also around its central opening a flange formed by the projecting end of a thimble N inserted in said opening and held in place by a flange N' that lies between the seat and the end of the tube A. Over the ball seat is placed a cover or dust cap L whose marginal flange fits about the flange I' but is secured thereto only by its frictional hold thereon. The dust cap is centrally perforated for the passage of an axle J and bearing cone J' thereon and has an annular depression about the opening to receive a soft washer M. This depression is produced by bending the metal inward and

the inner face is thus brought so near the end of the thimble N that the balls K cannot pass between them, and hence cannot escape when the axle is withdrawn. If the cone J' be removed, the ball seat, balls, thimble and cap may be removed as a unit, cleaned and replaced, or while removed may, if desired, be separated for repair or substitution of parts and may then be reassembled and restored to position. The flanges B'' of the plates B are provided with open marginal slots B' each at its entrance equal in width to the diameter of a headed spoke D and each at the inner end equal in width to the diameter of a short flanged eyelet C slipped over the spoke. The flange B'' is at some distance from the axial portion of the hub and the eyelet is never of a length greater than this distance, and hence it follows from the construction that when the eyelet is brought as it may be, wholly within the circle of the flange, the body of the spoke slips freely into or out of the slot; but when the spoke is drawn longitudinally outward so that the eyelet passes through the flange, neither the spoke or the eyelet can by any possibility be detached. So far as attaching and detaching are concerned, it is evident that the common butt-ended spoke may be substituted for the construction shown, it being only necessary that the end portion of the spoke should be enlarged in some manner, and that the enlargement should not be for a distance greater than the distance from the axial portion of the hub to the flange. When a driving hub is desired, a sleeve F' having a flange F is slipped upon one of the cups E and rigidly fixed thereto. Over the sleeve is passed an annular sprocket wheel G, preferably recessed upon one face to receive the full thickness of the flange F, to which it is secured by screws H and a friction screw H'. The former work in apertures threaded in the flange only, and project through the latter to receive lock-nuts H''. The latter is conical and works in apertures threaded in both flange and wheel but normally slightly offset with reference to each other. It follows that when this screw is driven inward with some force it wedges itself firmly and at the same time

locks the other screws by causing a slight relative rotation of the wheel and flange. Extended practical tests show that with this construction the very desirable expedient of attaching the sprocket wheel by screws may be used with perfect safety.

Fig. 4 shows the inner margin of the ball seat bent up to form a flange replacing that obtained in the principal form by the use of the thimble N.

The tube A and all the parts integrally connected therewith, the ball seat, the thimble, and the dust cap, are all of rolled or drawn steel.

What I claim is—

1. The combination with a wheel hub, of a flange secured to the same, a sprocket wheel fitting against the side of said flange, and a conical screw passing through both to secure them together.

2. The combination with a hub having a projecting sprocket wheel flange, a sprocket wheel fitting against the side of the flange, screws passing through both to secure them together, and a conical screw working in threaded apertures in both, said apertures being normally slightly offset when the screws first named are in position; whereby the conical screw when forced home may cause relative rotation of the sprocket wheel and flange and thus bind the screws first named.

3. The combination with a ball seat having an axial opening, of a flange projecting, around said opening, into the plane of the ball space, and a centrally open dust cap covering said seat and lying at less than a ball's diameter from said flange.

4. A ball case consisting of a centrally perforated cup a flange projecting into the cup around the perforation, and a centrally open flanged cover fitting upon said cup and lying at less than a ball's diameter from said flange.

5. The combination with a hub having at its end a ball seat cup, of a ball seat removably secured in said cup and having a central opening and a marginal flange covering the edge of the cup, a flanged thimble projecting through the central opening to form a flange within the circle to be occupied by the balls, and a dust cap forming a cover for said space and lying at less than a ball's diameter from said flange.

6. The combination with the central hub tube, of the flanged sleeves, the plates having the outwardly turned flanges provided with the internally widened open slots, and the end cups having flared necks, all united into one whole of continuous metal.

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Witnesses:

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