

(No Model.)

W. G. HOWARD & A. ROLAND.
WAGON HUB.

No. 578,083.

Patented Mar. 2, 1897.

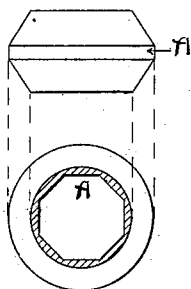
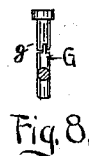
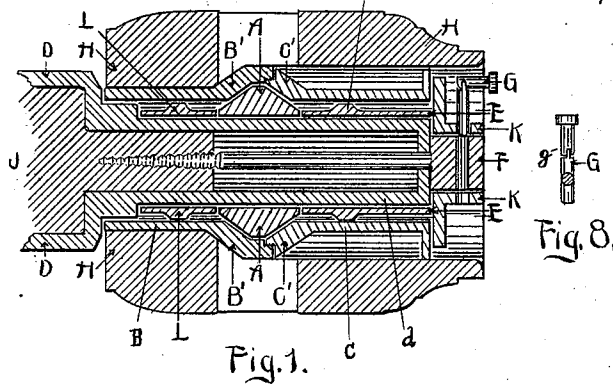


Fig. 4.

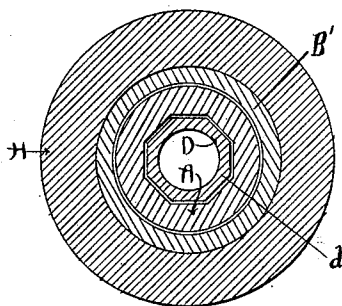


Fig. 2.

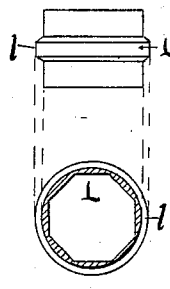


Fig. 6.

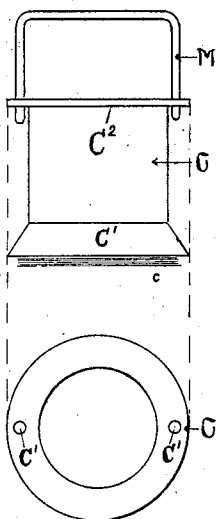


Fig. 5.

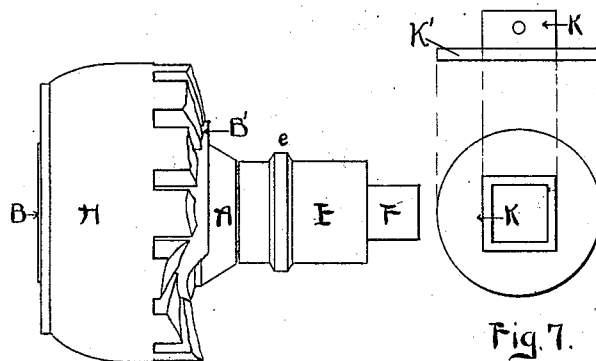


Fig. 3.

Fig. 7.

Witnesses:

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UNITED STATES PATENT OFFICE.

WILLIAM G. HOWARD AND ANTON ROLAND, OF CHAMPAIGN, ILLINOIS.

WAGON-HUB.

SPECIFICATION forming part of Letters Patent No. 578,083, dated March 2, 1897.

Application filed April 3, 1896. Serial No. 586,089. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM G. HOWARD and ANTON ROLAND, of Champaign, in the county of Champaign and State of Illinois, have invented certain new and useful Improvements in Wagon-Hubs; and we do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form part of this specification.

This invention is an improvement in the spindles and hubs of vehicles in which the sleeve of the hub rotates around a conical bearing on the spindle; and the objects of our invention are, first, to concentrate the friction and weight of the load directly in the plane of the spokes of the wheels; second, to provide means for keeping the parts thoroughly lubricated; third, to enable the parts to be lubricated without removing the wheel from the axle, and, finally, to provide simple means for retaining the wheel on the spindle.

The invention therefore consists in the novel construction and combinations of parts hereinafter claimed, and the best form of the device now known to us is illustrated in the accompanying drawings and description as follows:

Referring to said drawings by letters of reference marked thereon, Figure 1 is a longitudinal vertical section through the hub and spindle of wheel and axle. Fig. 2 is a transverse section on the line 2, Fig. 1. Fig. 3 is a side view, partly broken, of the hub, part of the sleeve being removed to show the spindle ready for oiling. Fig. 4 is a plan and elevation of the cone-bearing. Fig. 5 is a side and end view of outer part of hub-sleeve. Fig. 6 is a side view and cross-section of the inner-bearer casting. Fig. 7 is a top and side view of spindle-nut, and Fig. 8 a detail of the nut-fastening pin.

Upon the axle J is a spindle D, secured thereto by means of a long screw F, passed axially therethrough, as shown, or in other suitable manner. The hub-entering portion *d* of the spindle is octagonal in cross-section, and upon it are slipped an inner annular bearer L, an intermediate annular cone-bearing A, and an outer annular bearer E, all of

which fit the spindle *d* so that they cannot rotate thereon.

The bearers L and E are of such length that the cone A is located therebetween on the spindle in such position that it will be directly under or opposite the spoke ends in the hub H. Each bearer L and E has an external cylindrical rib *l e*, respectively, for the purpose hereinafter described.

Within hub H is fitted a sleeve composed of two parts B and C, which are united by a screw-thread joint, as at *c*. The inner end B' part B is conically flared, as shown, to fit on the inner face and top of cone-bearing A, while the inner end C' of part C is also flared to fit against the outer side of cone-bearing A. The bore of hub H is enlarged exterior to the cone A, so that the sleeve can be slipped into the hub and part B secured thereto permanently, if desired, while part C can be taken out and replaced at will, part C having an annular flange C² on its outer end by which it is centered in the hub.

The conical parts B' C' of the hub-sleeve fit closely to the cone-bearing A, while the cylindrical parts of the hub-sleeve fit less closely the ribs *l e*, which are employed to prevent the wheel wobbling on the spindle.

To the outer end of the spindle is attached a securing device of any suitable construction. In order to dispense with the need of monkey-wrenches, we show a cap K, which is mounted on the head of bolt F and detachably secured thereto by a pin G, which pin is made of two parts pivoted together, as at *g*, so that it can be readily inserted in place and be within the rim of the hub, as indicated in Fig. 1. The cap K has a flange K' on its inner end, which abuts against the end of the spindle and retains bearing E and sleeve C thereon, and therethrough retains the hub upon the spindle and all parts in proper relative position.

When it is desired to oil the hub, cap K is removed, sleeve C unscrewed from part B and removed, and the lubricant poured onto bearer E, which can be slipped outward to facilitate this operation. The parts can then be replaced. Sleeve C can be removed and replaced easily by aid of a hand-wrench M, which is merely a rod or bar bent into U

shape and adapted to have its ends put into holes $c' c'$ in flange C^2 of part C, as indicated in Fig. 5, from which the mode of using wrench M will be obvious. The lubricant naturally collects in the lower part of the sleeve and finds its way into the depression below cone A at the point where the greatest friction and strain is sustained.

The cone A sustains the principal weight of the load and thrust of the wheel and also prevents lateral play of the wheel on the spindle.

The advantages of this construction over the ordinary spindle and hub will be apparent, and we do not confine ourselves to the precise construction herein shown and described, as they are capable of modification and variation within the scope of our invention and claims.

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent thereon, is—

1. The combination with the spindle and the removable cone-bearer thereon and means for centering the cone-bearer on the spindle, of the hub having an internal sleeve fitted to and bearing upon the cone-bearer, for the purpose and substantially as described.

2. The combination of the spindle, the removable cone-bearer thereon, the removable annular bearing on opposite sides of the cone-bearer and means for retaining these parts on the spindle; with the sleeve fitted in the hub having an annular conical recess fitting the cone, substantially as described.

3. The combination of the spindle, the removable non-rotatable cone-bearer and removable annular bearers fitted thereon; with the hub, having an internal sleeve provided with an annular conical recess fitting the cone, said sleeve being made in two parts separable at the apex of the annular recess, for the purpose and substantially as described.

4. The combination of the spindle, the removable cone-bearer A, and the removable annular bearers L and E on opposite sides thereof; with the sleeve formed of parts B, C, having flanges $B' C'$ fitted together over the cone-bearer, substantially as described.

5. The combination of the axle, the spindle D, the screw-bolt F, and the cone-bearer A, with the hub, the sleeve therein formed of sections B, C, the cap K, and pin G, all substantially as described.

6. The combination of the spindle, the cone-bearer A, and annular bearers L and E on opposite sides thereof; with the sleeve formed of parts B, C, having flanges $B' C'$ fitted together over the cone-bearer, the spindle-fastening bolt F, the cap K and pin G, all substantially as described.

In testimony that we claim the foregoing as our own we affix our signatures in presence of two witnesses.

WILLIAM G. HOWARD.
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Witnesses:

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