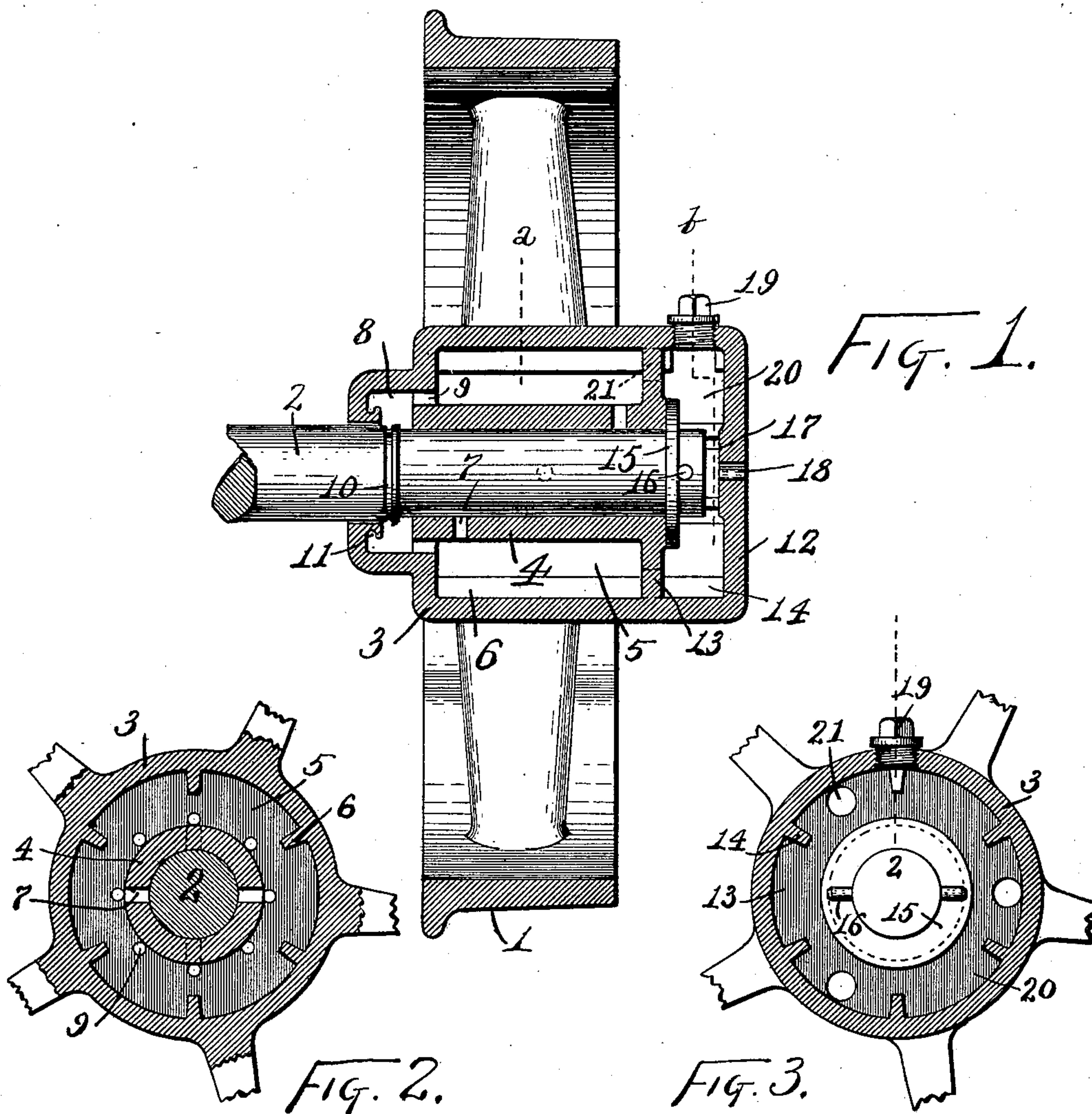


(No Model.)

J. H. McEWEN.
CAR WHEEL.

No. 605,896.

Patented June 21, 1898.



Witnesses:
E. R. Shipley.
M. S. Belden.

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UNITED STATES PATENT OFFICE.

JAMES H. McEWEN, OF DU BOIS, PENNSYLVANIA.

CAR-WHEEL.

SPECIFICATION forming part of Letters Patent No. 605,896, dated June 21, 1898.

Application filed September 7, 1897. Serial No. 650,712. (No model.)

To all whom it may concern:

Be it known that I, JAMES H. McEWEN, of Du Bois, Clearfield county, Pennsylvania, have invented certain new and useful Improvements in Car-Wheels, of which the following is a specification.

This invention pertains to improvements in that class of car-wheels in which a wheel is loose upon its axle; and the improvements will be readily understood from the following description, taken in connection with the accompanying drawings, in which—

Figure 1 is a vertical diametrical section of a car-wheel exemplifying my invention; Fig. 2, a vertical section of the hub thereof in the plane of line *a* of Fig. 1, and Fig. 3 a similar section in the plane of line *b* of Fig. 1.

In the drawings, 1 indicates the tread of the wheel; 2, the axle; 3, the outer shell of the hub; 4, the inner bored portion of the hub, the same fitting freely upon the journal of the axle; 5, an annular chamber surrounding hub 4 within shell 3 and bounded at its ends by walls or flanges uniting hub 4 with shell 3, the arms or web of the wheel joining shell 3; 6, ribs projecting inwardly from shell 3; 7, apertures through hub 4 and leading from chamber 5 to the journal of the axle; 8, a chamber formed upon an inner extension of the hub, this chamber surrounding the axle just at the inner side of the hub, the rearward wall of this chamber encircling the axle loosely; 9, apertures leading from chamber 5 into chamber 8; 10, a collar and groove formed upon the axle within chamber 8; 11, an annular lip upon the inner surface of the rear wall of chamber 8 around the axle; 12, the outer end wall of shell 3, the same forming an integral end closure for the shell and being disposed a distance outwardly from the end of hub 4; 13, a wall at the outer end of chamber 5, joining hub 4 and shell 3 at the end of hub 4, a chamber 20 thus being formed within the shell between walls 12 and 13; 14, ribs extending inwardly from the peripheral wall of the chamber 20, formed between walls 12 and 13; 15, a separable collar upon the journal of the axle, the inner face of this collar lying against the outer end of hub 4, the axle projecting outwardly through this collar toward the wall 12; 16, a pin driven through a transverse hole in the end of the axle where the

axle projects outwardly beyond collar 15; 17, the central portion of the inner surface of wall 12, the same being adapted to make contact with the outer end of the axle; 18, an oil-hole in the center of wall 12; 19, a removable plug in shell 3 between walls 12 and 13; 20, the chamber formed within shell 3 between walls 12 and 13 and containing collar 15 and pin 16, and 21 apertures through wall 13 and placing chambers 5 and 20 in communication.

The wheel turns freely upon the axle where the journal of the axle is engaged by hub 4 and is restrained from moving outwardly off of the axle by means of collar 15 and pin 16, and is restrained from moving unduly inwardly by surface 17 coming in contact with the end of the axle. One thrust-bearing is therefore formed by collar 15 engaging the end of hub 4, while the opposite thrust-bearing is formed by the end of the axle engaging surface 17. Oil introduced through hole 18 enters chamber 20 and lubricates the thrust-bearings, ribs 14 causing oil to be lifted and then dumped upon the thrust-bearings. Oil in chamber 20 finds its way through apertures 21 into chamber 5, where ribs 6 again lift the oil and dump it upon hub 4, where it finds its way through aperture 7 to the journal, thus lubricating the main bearing of the wheel. Oil moving inwardly along the bearing becomes caught in chamber 8 and returns to chamber 5 through apertures 9, groove and collar 10 and lip 11 having a tendency to intercept the oil which might otherwise tend to pass inwardly along the axle away from the hub of the wheel.

By removing plug 19 and turning the axle to bring pin 16 in line with the plug-hole the pin may be driven down, and then the axle may be turned half-way and the pin be withdrawn through the plug-hole, thus permitting the axle to be withdrawn, leaving collar 15 in chamber 20. The parts are to be assembled by a reversal of the described operation. It is to be noticed that collar 15 cannot be removed from chamber 20, nor could it be inserted therein after the wheel is cast where the construction is such as is illustrated—that is to say, with wall 12 cast integrally with the hub and shell. In practice the collar 15 is set within the core employed in forming chamber 20, and when the core-sand is re-

moved the collar is found properly in the chamber.

I claim as my invention—

5 1. In a car-wheel a hub, an axle entering the bore of the hub and projecting beyond the outer end thereof, a chamber integral with the hub and surrounding the projecting end of the axle but not the hub, a removable collar on the axle within said chamber, a pin
10 passing through the axle and retaining the collar in place, and a plug closing an opening in the peripheral wall of the chamber, said opening being of less diameter than the axle, substantially as described.

15 2. In a car-wheel, the combination, substantially as set forth, of a hub, a shell forming a chamber surrounding said hub and forming a chamber at the outer end of said hub and forming a chamber at the inner end
20 of said hub, all said chambers and the bore of the hub being in communication through apertures for the passage of oil, the inner wall of the inner chamber having an outwardly-projecting lip within said inner cham-

ber, an axle projecting through said inner 25 chamber and through the bore of said hub and into said outer chamber, a removable collar on said axle within said outer chamber and bearing against the outer end of said hub, and a pin through said axle at the outer face 30 of said collar.

3. In a car-wheel, the combination, substantially as set forth, of an axle having at its end a journal and having a collar and groove at the inner end of the journal, a hub free to 35 revolve on said journal and having a surrounding shell forming an oil-chamber around the hub, said hub and shell having formed at their inner ends an oil-chamber in communication with said surrounding chamber, the end 40 wall of said end chamber freely encircling the body of the axle inwardly beyond said collar and groove and having an annular outwardly-projecting lip upon its inner surface.

JAMES H. McEWEN.

Witnesses:

H. C. HYATT,
M. F. REES.