

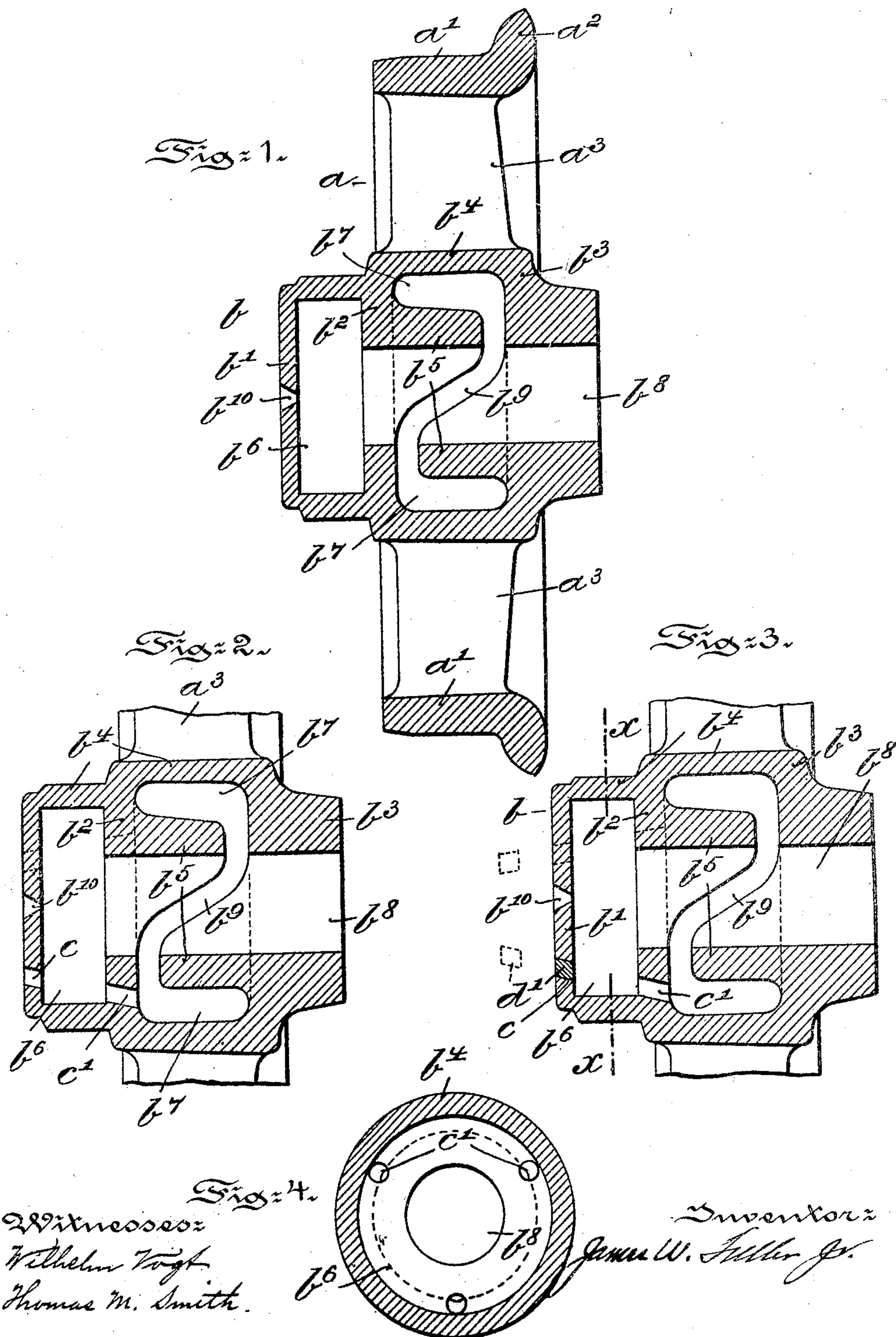
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PATENTED FEB. 20, 1906.

J. W. FULLER, JR.

MODE OF PRODUCING SELF LUBRICATING CAR WHEELS.

APPLICATION FILED SEPT. 16, 1905.





# UNITED STATES PATENT OFFICE.

JAMES W. FULLER, JR., OF CATASAUQUA, PENNSYLVANIA.

## MODE OF PRODUCING SELF-LUBRICATING CAR-WHEELS.

No. 813,146.

Specification of Letters Patent.

Patented Feb. 20, 1906.

Application filed September 16, 1905. Serial No. 278,823.

*To all whom it may concern:*

Be it known that I, JAMES W. FULLER, Jr., a citizen of the United States, residing at Catasauqua, in the county of Lehigh and State of Pennsylvania, have invented certain new and useful Improvements in the Mode of Producing Self-Lubricating Car-Wheels, of which the following is a specification.

My invention has relation to a mode of forming self-lubricating car-wheels; and in such connection it relates more particularly to the mode of casting a chambered integral hub portion and of establishing a connection between certain separated chambers thereof.

The principal objects of my invention are, first, to form a self-lubricating car-wheel with an integral (*i. e.*, an undivided) hub portion having chambers cast therein to receive a lubricant and an axle; second, to connect certain of said chambers with each other by forming openings in certain of the walls thereof after the wheels has been cast, so as to permit of the flow of a lubricant from a certain chamber to another certain chamber thereof, which conducts the same to a chamber adapted to receive an axle, and, third, to close the openings formed in one of the walls to render a certain chamber adaptable for the reception of a lubricant and to permit the same by the openings formed in another wall to pass from the receiving-chamber into a distributing-chamber, which conducts the lubricant to an axle terminating in a third chamber formed in the hub.

The nature and scope of my invention will be more fully understood from the following description, taken in connection with the accompanying drawings, forming part hereof, in which—

Figure 1 is a vertical sectional view of a self-lubricating car-wheel, illustrating the chambered hub portion after the casting of the wheel embodying the features of my invention. Fig. 2 is a detail view illustrating in section the formation of openings formed in contiguous vertical walls of the hub portion to connect certain of the chambers thereof with each other. Fig. 3 is a similar view illustrating the manner of closing the opening formed in one of the contiguous vertical walls of the hub portion, and Fig. 4 is a cross-sectional view taken on the line *xx* of Fig. 3.

Referring to the drawing, *a* is a car-wheel the rim *a'*, flange *a''*, as well as the spokes *a'''*, of which are of the usual well-known construction. The hub portion, however, form-

ing the subject-matter of my present invention consists of a hollow integral body *b*, composed of three vertical walls *b'*, *b''*, and *b'''* and two annular walls *b<sup>4</sup>* and *b<sup>5</sup>*. These walls form three chambers *b<sup>6</sup>*, *b<sup>7</sup>*, and *b<sup>8</sup>*, of which the chamber *b<sup>8</sup>* is connected with the annular chamber *b<sup>7</sup>* by means of a curved slot *b<sup>9</sup>*, cast through the annular partition-wall *b<sup>5</sup>*. The inner annular chamber *b<sup>8</sup>* serves to receive a car-axle, (not shown,) which by filling this chamber closes the communication of the chamber *b<sup>8</sup>* with the chamber *b<sup>6</sup>*, otherwise established between the same, as shown in Fig. 1. The chamber *b<sup>6</sup>*, which by means of an opening *b<sup>10</sup>*, cast into the vertical wall *b'*, communicates with the exterior of the hub *b*, is adapted to receive a lubricant, such as oil, which is introduced into the same through the opening *b<sup>10</sup>*. When the central chamber *b<sup>8</sup>*, however, is filled by an axle, (not shown,) the oil in the receiving-chamber *b<sup>6</sup>* is prevented from entering the outer annular chamber *b<sup>7</sup>* and from thence through the slot *b<sup>9</sup>* into the inner annular chamber *b<sup>8</sup>*, rendering a hub so formed inoperative. In order to permit of the flow of the oil from the receiving-chamber *b<sup>6</sup>* into the annular distributing-chamber *b<sup>7</sup>*, the outer vertical wall *b'* and inner vertical wall *b''*, forming a partition-wall between the chambers *b<sup>6</sup>* and *b<sup>7</sup>*, are pierced by a drill or other suitable tool, and preferably three openings *c* and *c'* in the walls *b'* and *b''* are formed, of which the openings *c'* in the partition-wall *b''* are preferably arranged adjacent to the periphery of the interior walls of the chamber *b<sup>6</sup>*, as shown in Fig. 2. These openings *c'* are preferably inclined, so as to permit of the exit of all the lubricant introduced into the chamber *b<sup>6</sup>* into the distributing-chamber *b<sup>7</sup>*, which is of larger diameter than the chamber *b<sup>6</sup>*. In order to permit of the filling of the receiving-chamber *b<sup>6</sup>* up to the central opening *b<sup>10</sup>*, the openings *c* in the outer wall *b'* are closed by plugs *d* in the manner shown in Fig. 3. These plugs *d* by tightly fitting the openings *c* render the partition-wall *b''* liquid-proof, and thus permit of the filling of the receiving-chamber *b<sup>6</sup>* close to the opening *b<sup>10</sup>*.

Having thus described the nature and objects of my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The mode of forming a self-lubricating car-wheel which consists in first forming a wheel having a hollow hub portion composed of vertical and horizontal walls integral with



each other and dividing the hub into two annular communicating chambers and a single chamber arranged at a right angle thereto, then forming openings in one of the outer and  
5 in the intermediate of said vertical walls of the hub so as to connect said single chamber with the outer of said annular chambers, then closing the openings formed in one of the outer  
10 walls so as to render the same liquid-proof up to a central opening cast therein, to permit of the filling of the single chamber with a lubricant up to the central opening, and of the  
15 flow of the lubricant from the single chamber into the outer annular chamber and from thence into the inner annular chamber of the hub when the wheel occupies an operative or vertical position.

2. The mode of forming a self-lubricating car-wheel, which consists in first casting a  
20 wheel having a hollow hub portion, composed of three vertical and two horizontal walls, dividing the hub into two annular chambers connected with each other by an annular opening formed in one of said horizontal  
25 walls separating said chambers from each other, and into a single chamber arranged at

a right angle thereto and communicating with one end of the inner annular chamber, and with the exterior of the hub by an opening formed in one of the vertical walls and  
30 centrally to said inner annular chamber, then drilling holes through said outer perforated vertical wall and through the intermediate of said vertical walls so as to connect said  
35 outer annular chamber with said single chamber, then plugging the holes formed in the outer perforated vertical wall to close the openings drilled therein, to form a chamber capable of receiving a lubricant up to said  
40 central opening and to permit the same to flow into said outer annular chamber and from thence by said annular opening into said inner annular chamber or an axle placed  
45 therein when the wheel occupies a vertical or operative position.

In testimony whereof I have hereunto set my signature in the presence of two subscribing witnesses.

JAMES W. FULLER, JR.

Witnesses:

A. J. SNYDER,  
H. C. KECK.