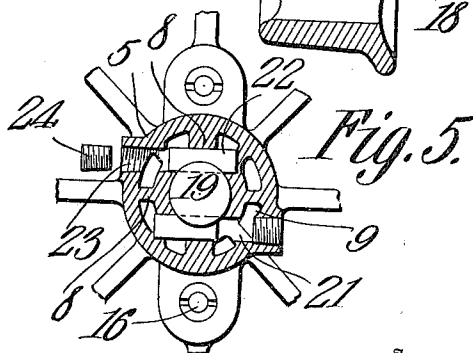
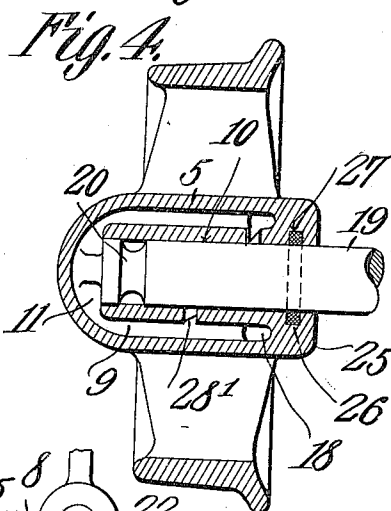
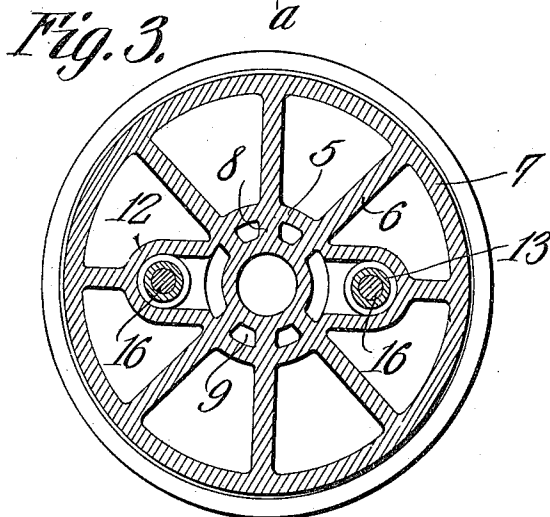
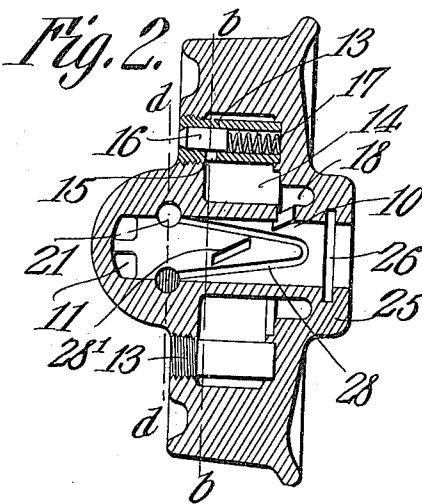
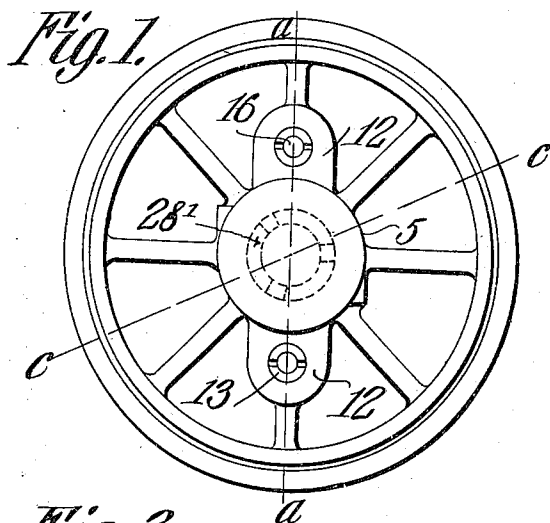


A. S. GUSTAFSON.
CAR WHEEL.
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963,289.

Patented July 5, 1910.



Witnesses

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UNITED STATES PATENT OFFICE.

ANDREW SIGFRID GUSTAFSON, OF CHATTANOOGA, TENNESSEE.

CAR-WHEEL.

963,289.

Specification of Letters Patent.

Patented July 5, 1910.

Original application filed February 15, 1908, Serial No. 416,089. Divided and this application filed August 10, 1908. Serial No. 447,844.

To all whom it may concern:

Be it known that I, ANDREW S. GUSTAFSON, a citizen of the United States, residing at Chattanooga, in the county of Hamilton and State of Tennessee, have invented a new and useful Car-Wheel, of which the following is a specification.

This invention relates to car wheels and is more particularly a division of an application filed by me on February 15, 1908, said application having issued as Patent No. 898,463, dated September 15, 1908.

The object of the invention is to improve and simplify the construction of the wheel and to render the same more efficient in operation by the provision of diverging oil ducts which communicate with the oil receiving reservoir and through which lubricant is automatically fed to the axle.

A further object is to make provision for the perfect lubrication of the parts subjected to friction and wear when the lubricant in the reservoir falls below the line of the journal bore, provision also being made for using the remaining lubricant over and over again.

A still further object of the invention is generally to improve this class of devices so as to increase their utility, durability and efficiency.

Further objects and advantages will appear in the following description, it being understood that various changes in form, proportions and minor details of construction may be resorted to within the scope of the appended claims.

In the accompanying drawings forming a part of this specification: Figure 1 is an elevation of a car wheel constructed in accordance with my invention. Fig. 2 is a vertical sectional view taken on the line *a-a* of Fig. 1. Fig. 3 is a vertical sectional view taken on the line *b-b* of Fig. 2. Fig. 4 is a sectional view taken on the line *c-c* of Fig. 1. Fig. 5 is a detail sectional view taken on the line *d-d* of Fig. 2.

Similar numerals of reference indicate corresponding parts in all of the figures of the drawings.

The improved car wheel forming the subject matter of the present invention comprises a hub 5 having a plurality of spokes 6 radiating therefrom and preferably formed

integral with the rim 7 of the wheel, as shown. The hub 5 is provided with a circumferential row of transverse cores or ribs 8 defining intermediate oil passages 9 which surround the journal bore 10 and communicate with an oil receiving reservoir 11, the latter being disposed at the front end of the wheel and in communication with the bore of the axle box, as shown. The front wall of the reservoir 11 is bowed outwardly and provided with oppositely disposed extensions 12 in which are threaded tubular valve casings 13, the exterior walls of which are preferably tapered and threaded, as shown, for engagement with correspondingly threaded openings in the extensions 12, thereby to assist in preventing the escape of oil or other lubricant. The casings 13 extend transversely across the adjacent oil receiving compartments 14 and are provided with openings or orifices 15 through which oil or other lubricant may be introduced into the compartments 14 when it is desired to refill or replenish the chamber 11.

Slidably mounted in each tubular member 13 is a valve 16 which forms a closure for the adjacent opening 15 and is normally held in closed position by a coiled spring 17 interposed between the valve and the adjacent wall of the chamber 14.

Communicating with the chambers 14 is a circumferential groove 18 which also communicates with the oil passages 9 and through which oil is fed from the chamber 14 to the reservoir 11.

Journalled in the bore 10 is an axle 19 having its free end provided with an annular groove 20 which registers with corresponding seating grooves or recesses 21 formed in the hub of the wheel for the reception of locking devices 22, the latter being loosely mounted in the seating grooves and preferably in the form of hardened steel pins. The seating grooves or recesses 21 intersect the adjacent ribs 8 and are of greater length than the pins 22 so as to permit free sliding movement of the pins within the grooves thereby to reduce friction between the parts. One end of each seating groove opens through the adjacent side wall of the reservoir 11 and is provided with interior threads 23 which engage corresponding threads on suitable plugs 24, which latter

form closures for the seating grooves 21 and also receive the impact of the pins 22 as the latter move back and forth in said grooves. The threaded walls of the seating grooves 5 are preferably inclined or tapered, as are likewise the walls of the plugs 24 in order to insure a tight fit between the parts and thus prevent the escape of the lubricant.

Attention is here called to the fact that the pins 22 by engagement with the walls 10 of the hub 5 serve to lock the axle 19 in position on the hub of the wheel, while at the same time permitting free rotation of one of said members with relation to the other. 15 It will also be noted that the impact of one end of each pin is received by the plug while the impact of the opposite end of the pin is received by the adjacent interior wall of the hub 5.

The rear end of the hub 5 is formed with an extension 25 having an annular recess 26 formed therein which communicates with the bore of the hub and in which is seated a flexible washer 27 preferably formed of felt 25 and which serves to prevent leakage of oil when the wheel is at rest.

The interior walls of the journal bore 10 are formed with diverging oil ducts 28 which communicate with the adjacent seating 30 grooves 21 and extend in the direction of the packing 27 so that as the wheel rotates the oil from the reservoir will be fed through one of the ducts 28 longitudinally of the wheel and thence back through the adjacent duct 35 28 and seating groove 21 to the reservoir thus thoroughly lubricating the axle and its associated parts.

In order to properly distribute the lubricant on the journal bearing, when the oil in 40 the reservoir 11 and passage 9 becomes low, a series of oblique oil ducts or slots 28' are formed in the walls of the journal box 10 and arranged in spiral form, as shown, said slots or ducts forming a source of communication between the passages 9 and the journal bore so that the oil from the reservoir 11 will be fed to the journal and then flow back into the reservoir to be used over again. 45 It will thus be seen that when the wheel rotates, the lubricant is forced against the outer walls of the oil passages 9 from whence it drops by gravity through the slots or ducts 28' onto the journal, the ducts 28' being so arranged as to direct the oil back 50 along the journal into the reservoir, as before stated.

By making the plugs removable the latter may be readily detached from the hub so as to permit the removal of the pins 22 when 60 the same become worn or otherwise injured from constant use, or when it is desired to remove the wheel for any cause.

When the oil in the reservoir 11 needs re-

plenishing a lateral pressure is exerted on the valve 16 which exposes the orifice 15 so 65 that by introducing the spout of an oil can within the tubular member 13, the oil will enter the chamber 14 and thence flow through the annular groove 18 and the several passages 9 to the reservoir 11, a portion 70 of the oil in the reservoir being fed through the seating grooves 21 and ducts 28 to the axle, in the manner before stated.

It will here be noted that the seating grooves 21 intersect the oil passages 9 so 75 that a portion of the oil will enter the grooves and thus thoroughly lubricate the pins and grooved end of the axle so that friction between the parts is reduced to a minimum. 80

From the foregoing description it is thought that the construction and operation of the device will be readily understood by those skilled in the art and further description thereof is deemed unnecessary. 85

Having thus described the invention what is claimed is:

1. The combination with an axle having a circumferential groove, of a wheel including a hub having a bore for the reception of 90 the axle and provided with a reservoir adapted to contain a lubricant, ribs formed in the hub and defining intermediate oil passages surrounding the bore of the hub and communicating with the reservoir, 95 there being transverse pin receiving grooves intersecting the ribs and oil passages and adapted to register with the groove in the axle, locking pins mounted in the grooves, and oil ducts formed in the bore of the hub 100 and communicating with the pin receiving grooves.

2. The combination with an axle having a circumferential groove, of a wheel including a hub having an axle receiving bore and 105 provided with a reservoir adapted to contain a lubricant, there being an annular recess formed in the hub and communicating with the bore of the wheel, spaced ribs surrounding said bore and defining intermediate oil passages communicating with the reservoir, a packing seated in the annular 110 recess, there being pin-receiving grooves intersecting the ribs and oil passages and adapted to register with the groove in the axle, pins in the grooves, and converging oil 115 ducts communicating with the pin receiving grooves and extended to a point adjacent the packing.

3. The combination with an axle having 120 a circumferential groove, of a wheel including a hub having an interior bore and provided with a reservoir adapted to contain a lubricant, spaced ribs formed in the hub and defining oil passages communicating 125 with the reservoir, there being pin receiving

grooves intersecting the ribs and registering
with the groove in the axle, the walls of the
bore being provided with oblique oil ducts
arranged spirally around the axle and form-
5 ing a source of communication between the
reservoir, oil passages and axle, and pins in
the grooves.

In testimony that I claim the foregoing
as my own, I have hereto affixed my signa-
ture in the presence of two witnesses.

ANDREW SIGFRID GUSTAFSON.

Witnesses:

MACK MILES,

M. B. GUSTAFSON.