(No Model.)

L. R. FAUGHT.

MINE CAR RUNNING GEAR.

No. 588,326. Patented Aug. 17, 1897.

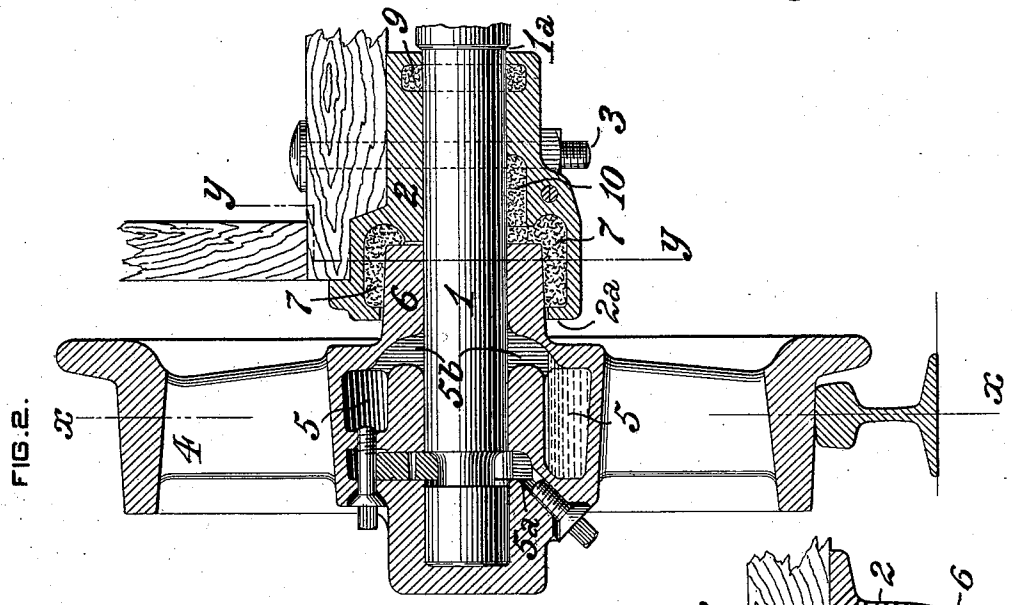


FIG. 2.

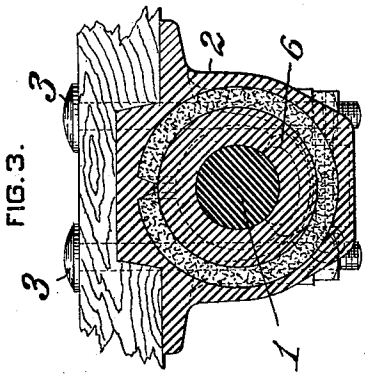


FIG. 3.

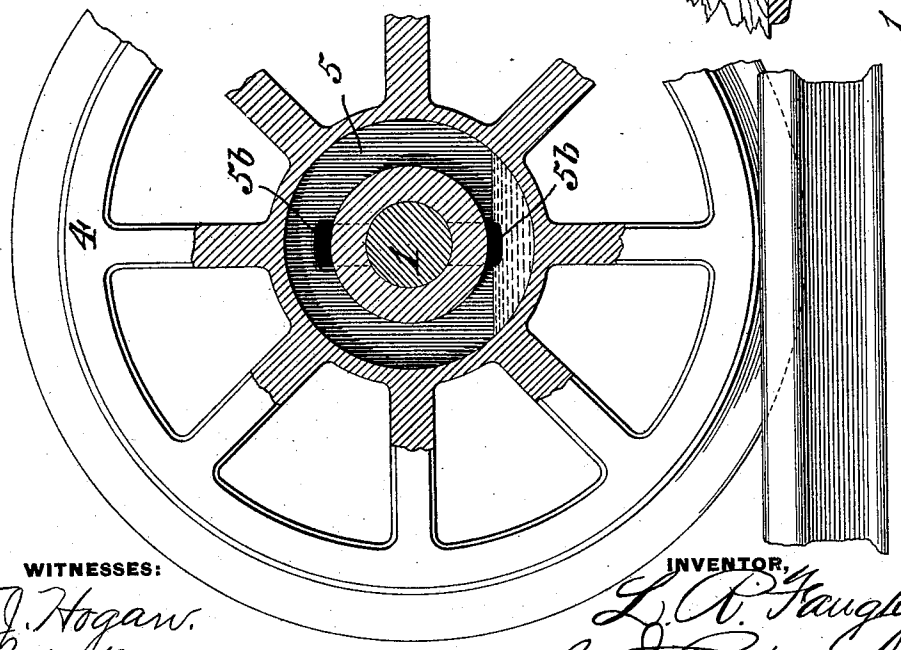


FIG. 1.

WITNESSES:

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LUTHER R. FAUGHT, OF PHILADELPHIA, PENNSYLVANIA.

MINE-CAR RUNNING-GEAR.

SPECIFICATION forming part of Letters Patent No. 588,326, dated August 17, 1897.

Application filed July 1, 1897. Serial No. 643,047. (No model.)

To all whom it may concern.

Be it known that I, LUTHER R. FAUGHT, of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented a certain new and useful Improvement in Mine-Car Running-Gear, of which improvement the following is a specification.

My improvement relates to the class of running-gear for mine-cars and cars for similar purposes known in the art as "self-lubricating," wherein the wheels and axles are free to rotate either independently or together and are provided with means for the storage of lubricating material and the supply thereof from a storage-receptacle to the wheel and axle bearings.

The object of my invention is to provide a simple and inexpensive running-gear for mine-cars and cars for similar purposes wherein by the construction of wheels and accessories a much longer wheel-hub can be used than in ordinary practice, thereby affording greater bearing-surface and consequent reduction of friction where most desired.

A further object of my invention is to so construct the wheels and pedestals or journal-boxes as to provide for maintaining a supply of lubricating material to be supplied to the bearings as required for effective operation, protecting the bearings from the access of dirt, muddy water, or other foreign matter, and allowing the cars to be tipped up on either side, thus causing the axles to assume a vertical position without causing the bearings to become dry or allowing lubricating material to escape.

The improvement claimed is hereinafter fully set forth.

In the accompanying drawings, Figure 1 is a vertical longitudinal section through a mine-car wheel and pedestal embodying my improvement, the pedestals or journal-boxes being in this case located between the wheels; Fig. 2, a vertical section on the line x x of Fig. 1; and Fig. 3, a similar section on the line y y of Fig. 1, looking toward the body of the car.

In the construction of cars for mines and similar purposes it is desirable that they should be so designed that the car-body can be as wide and roomy as possible and at the same time permit of the use of a comparatively narrow track. In the constructions heretofore employed this has been accomplished by the use of wheels with very short hubs located close to the body of the car, but constructions of this character have been found unsatisfactory owing to the incidental crowding of the pedestals or journal-boxes and consequent presentation of comparatively small wearing-surfaces at the points where friction is greatest, thereby adding greatly to the normal wear and tear upon the running-gear and materially shortening its period of usefulness. It is also desirable in mine-cars, &c., that the wheels and axles should be free to rotate independently of each other—that is to say, the wheels should rotate upon the axles and they in turn rotate in journal-boxes located either between or outside of the wheels—in order to facilitate the movement of the cars around short curves without any binding or slipping action of the wheels or axles. Furthermore, it is desirable in the construction of wheels and axles as above described that means should be provided for maintaining a supply of lubricating material sufficient to last for a considerable length of time without replenishing, to be supplied to the wearing-surfaces as required to effect proper lubrication and at any time irrespective of the positions said wearing-surfaces may assume.

In devising my invention I have sought to meet the requirements above set forth, first, by constructing the wheel-hubs and pedestals or journal-boxes in such a manner that they will fit one within the other either when the journal-boxes are located between or outside of the wheels, thereby providing much greater bearing-surface than is practicable in prior constructions and at the same time admitting of the use of a wide car-body; second, by making the wheel-hubs of a hollow construction, so as to provide an additional reservoir for lubricating material adjacent to the pedestal or journal-box and at the opposite end of the bearing-surfaces, thereby greatly adding to the reservoir capacity and permitting the flow of lubricating material along the whole length of the bearing-surfaces irrespective of the angle which they may assume, and at the same time preventing the lubricating material from

escaping and being wasted, as is usual in common practice; third, by constructing the wheel-hubs and pedestals or journal-boxes as above described I am enabled to protect the bearing-surfaces and lubricating material from the detrimental effects of dirt, muddy water, &c.

In the practice of my invention as exemplified in the drawings I provide axles 1, which are journaled near their ends in journal-boxes 2, secured to the bottom of the car-body by bolts 3. Upon the ends of the axles 1 are journaled the wheels 4, which are provided with hollow hubs 5 and are held in place in any suitable manner. The means for connecting the wheels and axles illustrated in Fig. 2, which consists of a circumferential groove near the end of the axle and a key-block fitting therein, is that which is set forth in Letters Patent No. 321,590, granted and issued to me July 7, 1885, and is preferred as being best adapted to the form of hollow wheel-hub, although any other suitable means may be employed without departure from my invention.

The hollow-hub wheels 5 are provided with solid inner end projections 6 of somewhat smaller diameter, which enter and are inclosed by the adjacent ends of the journal-boxes 2, the outer end portions of the boxes being of a diameter sufficiently larger than the end projections 6 of the hubs 5 to provide annular chambers 7, surrounding said end projections, which chambers are closed at their outer ends by lips or flanges 2^a and are adapted to be filled with felt or other fibrous material, thus forming a guard against the ingress of dirt, &c., between the bearing-surfaces of the axles 1 and the end projections 6 of the wheel-hubs. The journal-boxes 2, which completely surround the axle 1, extend inwardly sufficiently far to provide a long bearing-surface therefor and abut at the inner ends of the annular chambers 7 against the adjacent faces of the end projections 6 of the hubs, thus preventing longitudinal movement of the axles while at the same time allowing them to rotate freely in the journal-boxes. Comparatively small annular recesses 9 are formed near the rear ends of the journal-boxes 2, and are filled with felt or other fibrous material to act as a guard against the ingress of dirt to that end of the axle-bearings. Longitudinal recesses 10, which are also filled with felt or other fibrous material, are formed in the lower sides of the journal-boxes 2 below and adjacent to the axles 1 and connect at their outer ends with the annular chambers 7, thereby increasing the capacity of said annular chambers and serving to receive and hold any overflow of lubricating material from the hollow wheel-hubs.

Lubricating material is introduced into the hollow wheel-hubs 5, which serve as reservoirs to contain a supply sufficient for a substantial period of operation of the car, through the medium of oil-passages 5^a, closed by screw-caps or any other suitable means formed in the front or outer ends of the hubs, thence along a short portion of the wheel-bearings to openings 5^b, leading from said bearings to the hollow or reservoir portions of the hubs. During the passage of the lubricating material, as above described, a sufficient quantity will be drawn by capillary attraction to the front ends of the wheel-bearings to keep them constantly lubricated. Any lubricating material which may overflow from the hollow wheel-hubs or reservoirs 5 from any cause—as, for instance, when the wheels are caused to revolve—will be drawn by capillary attraction along the axles 1 into the longitudinal recesses 10, annular chambers 7, and small annular recesses 9, thereby lubricating the wheel and axle bearings throughout their entire length and impregnating the felt or other fibrous material contained in said chambers and recesses to such an extent as to cause it to expand to the utmost limit of the cavities which it occupies, thus closing up all openings which might otherwise exist and presenting a wheel and axle bearing both self-lubricating and proof against the ingress of dirt, muddy water, &c.

While I have shown and described my improvement as applied to a cylindrical rotatable axle, it will readily be seen that a fixed axle of square or other section may be employed without essential variation of structure or departure from the spirit of my invention, the only change necessary being to make the bore of that portion of the axle-box 2 which incloses the axle and, as above described, forms a bearing therefor of square instead of circular section. The axle in such case would of course be fixed relatively to the car and the wheels be rotatable upon the outer end journals of the axle, which would remain cylindrical, as shown. It will also be obvious that the packing of felt in the annular chambers 7 and longitudinal recess 10 can be dispensed with and the device still be capable of doing good work.

I claim as my invention and desire to secure by Letters Patent—

1. The combination, substantially as set forth, of a car-wheel, an axle on which said wheel is journaled to rotate, an axle-box inclosing the axle adjacent to the wheel-hub, the wheel-hub and axle-box having their adjacent end portions fitting one within the other, an oil-reservoir in the wheel-hub, an annular chamber in the axle-box for the reception of fibrous packing, said chamber inclosing the adjacent portion of the wheel-hub and being closed by a lip or flange at its outer end, and an annular chamber for the reception of fibrous packing, adjacent to the opposite end of the axle-box.

2. The combination, substantially as set forth, of a car-wheel, an axle on which said wheel is journaled to rotate, an axle-box inclosing the axle adjacent to the wheel-hub, the wheel-hub and axle-box having their ad-

jacent end portions fitting one within the other, an oil-reservoir in the wheel-hub, an annular chamber in the axle-box for the reception of fibrous packing, said chamber inclosing the adjacent portion of the wheel-hub and being closed by a lip or flange at its outer end, and a longitudinal packing-recess communicating with said chamber and open to the axle.

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