No. 882,533. PATENTED MAR. 17, 1908.

J. M. & R. F. PHILLIPS.

RUNNING GEAR FOR MINE CARS.

APPLICATION FILED NOV. 30, 1907.

Fig. 1.

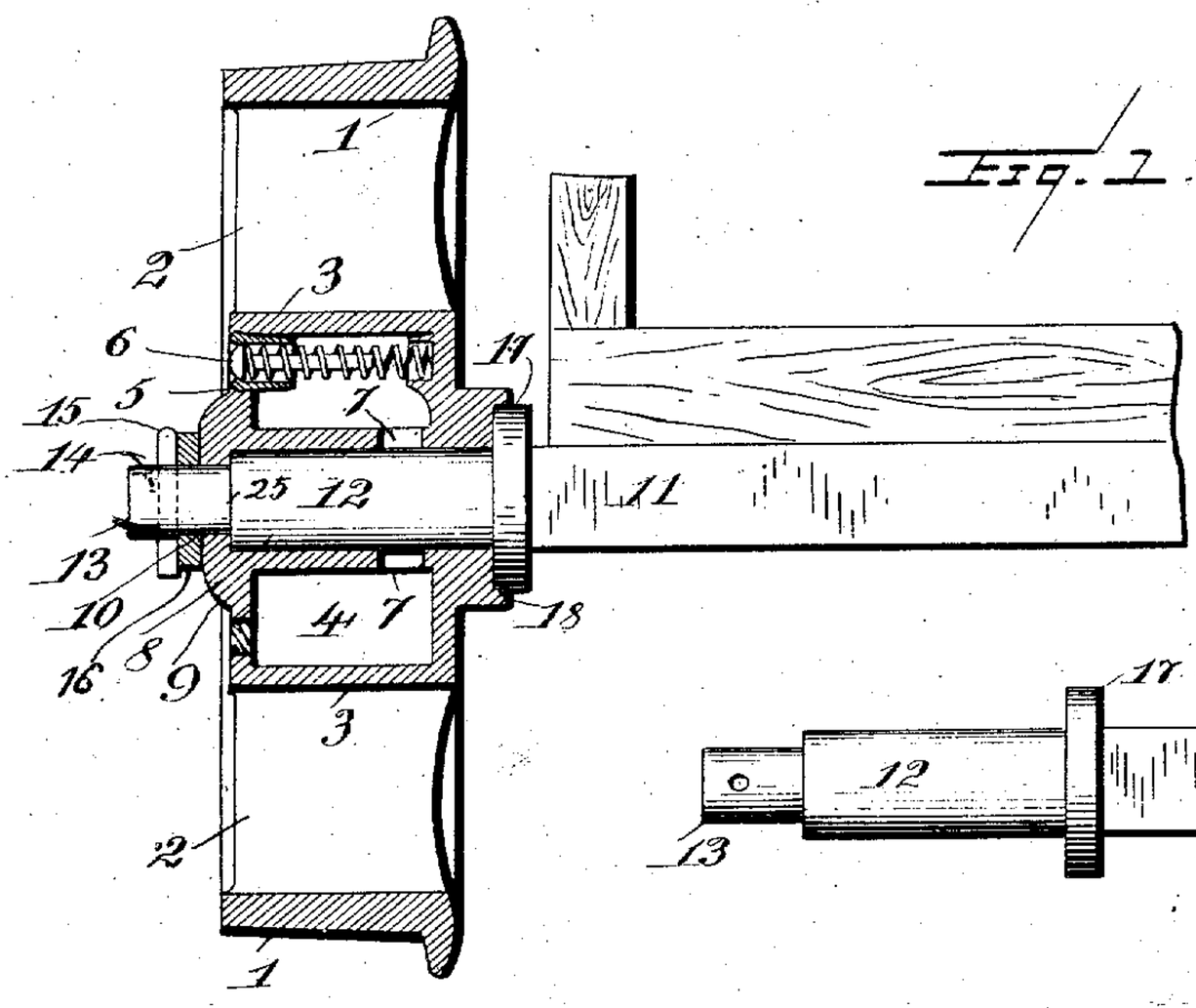

Fig. 2.

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UNITED STATES PATENT OFFICE.

JOHN M. PHILLIPS AND ROBERT F. PHILLIPS, OF CARRICK, PENNSYLVANIA.

RUNNING-GEAR FOR MINE-CARS.

No. 882,533. Specification of Letters Patent. Patented March 17, 1908.

Application filed November 30, 1907. Serial No. 404,560.

To all whom it may concern:

Be it known that we, JOHN M. PHILLIPS and ROBERT F. PHILLIPS, citizens of the United States, residing at Carrick, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Running-Gear for Mine-Cars, of which the following is a specification.

This invention has relation to running gears for mine cars and relates in particular to the wheels and axles of running gears in which the wheel is confined in position on the axle by means of a linch pin.

It has been found in practice that the bore of a mine car wheel rotating on a stationary axle wears out sooner at the back of the wheel, that is, at that side of the wheel which is next to the car, than at the opposite side of the wheel. In order to obviate this uneven wear it is necessary to supply lubricating oil more freely to the rear end of the bore than to the front end of the same, and this has been accomplished by closing the front end of the bore, as by a cap made integral with the wheel or an attached cap so that, as there is no escape for oil at the front of the wheel, all the waste oil escaping from the oil cavity of the wheel will flow between the inner end of the bore and the axle, thereby keeping this portion of the bore liberally lubricated.

The cap wheels above referred to, while they have some good features, the principal one of which has been indicated above, are objected to by some operators for the reason that the linch pin which confines the wheel on the axle is concealed from view, being usually arranged within the cap or at the back of the wheel, and is liable to become worn out or broken without attracting attention and to cause a serious wreck. For this reason the wheel in general use at coal mines is one with a straight bore having an axle of uniform diameter extending through the bore and a linch pin on the outer side of the wheel and while the oil may escape at the front of the wheel, this form is preferred to the cap wheel, as the linch pin is plainly in sight and can be readily replaced if worn or broken.

Our invention has for its object the provision of a wheel and axle which will possess all the advantages of both the cap wheel and its axle and the ordinary wheel with the bore and axle of uniform diameter, and the linch pin on the outside of the wheel, and will also possess other advantageous features, while free from the objectionable features of both these types of wheels, and in carrying our invention into effect we provide a wheel having a cap with a central opening of somewhat less diameter than the bore of the wheel and an axle having its outer end reduced in diameter to form a stub-axle to fit the central opening in the cap, the reduced portion of the axle being of sufficient length to protrude through the opening in the cap and beyond the outer face of the cap and pierced for the reception of a suitable linch pin or similar device to confine the wheel on the axle.

In the accompanying drawings: Figure 1 is a vertical transverse sectional view of a wheel and axle constructed according to our invention and as applied to an axle without an axle box. Fig. 2 is a top plan view of the axle shown in Fig. 1.

The wheel shown in the drawing and embodying our improved construction is of the type known as a self-oiling wheel and is a single piece of cast metal comprising the rim 1 the spokes 2 and the hub 3, the latter being formed with an oil chamber 4, having an oil inlet 5 controlled by a spring pressed valve 6. An opening 7 extends from the oil chamber 4 to the central bore or eye 8 of the hub and serves to permit passage of the oil from the chamber 4 to the bore or eye. The hub 3 is formed with an integral cap 9 on its outer side and this cap is formed with a centrally located hole 10 for the reception of the end of the axle as will be presently described. The axle, designated 11 is formed with a cylindrical portion 12 that fits snugly in the bore or eye 8 of the hub and the end 13 of the axle is reduced in diameter to such size that it will fit the hole in the center of cap 9. The end 13 of the axle is pierced at 14 to receive a linch pin 15 which serves to confine the wheel on the axle and a washer 16 is fitted on the end 13 of the axle between the linch pin and the end of the hub. The axle 11 carries a collar 17 which fits in a socket 18 in the rear of the hub of the wheel and this form of axle is directly attached to the car without the aid of an axle box. The reduced end of the axle which passes through the cap on the front of the wheel joins the cylindrical portion 12 by a shoulder 25 that bears against the inner surface of the cap and this shoulder, with the collar 17, divides the end thrust and wear so that the wheel and axle will run a long time without wearing enough to decrease the gage of the car.

We claim:

1. In running gear for mine cars, a wheel having a hub with an oil cavity and an axle bore with a cap integral with the hub having a central opening of less diameter than said axle bore, in combination with an axle having a cylindrical spindle fitting the bore of the hub, and having a stub-axle fitting the opening in the cap, the shoulder back of said stub-axle abutting against the inner face of the cap.

2. In running gear for mine cars, a wheel having a chambered lubricating hub with an axle bore communicating with the lubricating chamber, the outer end of said bore extending through the hub and being of diminished diameter, in combination with an axle having a portion fitting the enlarged bore of the hub and a stub-axle portion fitting the contracted portion of the bore, said stub-axle portion being pierced diametrically and a linch pin passed through the pierced hole.

3. In running gear for mine cars, a wheel having an axle bore reduced in diameter at its outer end and having a cylindrical socket in the inner face of the hub, in combination with an axle having a collar fitting said socket, a cylindrical portion fitting the bore of the hub, a stub-axle fitting the reduced portion of the bore, a washer fitting the outer end of the stub-axle, and a linch pin passing through the stub-axle outside said washer.

In testimony whereof we have affixed our signatures, in presence of two witnesses.

JOHN M. PHILLIPS.
ROBERT F. PHILLIPS.

Witnesses:
WATSON P. PHILLIPS,
D. ORWELL BECK.

DISCLAIMER.

882,533.—*John M. Phillips* and *Robert F. Phillips*, Carrick, Pa. RUNNING GEAR FOR MINE CARS. Patent dated March 17, 1908. Disclaimer filed May 15, 1922, by the assignee, *The Phillips Mine & Mill Supply Company*.

Hereby disclaims from claim 2—

"Any running gear for mine cars having a wheel which does not have an axle cap, an enlarged bearing-forming bore extending through the hub and terminating at the cap, a bore of diminished diameter extending through the cap only, the shoulder between the two bores forming a thrust bearing, a second thrust bearing at the inner end of the hub, and an oil chamber in the hub terminating short of the outer end of the enlarged bearing-forming bore."

[*Official Gazette May 30, 1922.*]

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"Thereby limiting claim 2 to a running gear for mine cars comprising a wheel which has an axle cap, an enlarged bearing-forming bore extending through the hub and terminating at the cap, a bore of diminished diameter extending through the cap only, the shoulder between the two bores forming a thrust-bearing, a second thrust-bearing at the inner end of the hub, and an oil chamber in the hub terminating short of the outer end of the enlarged bearing-forming bore."

[*Official Gazette July 11, 1922.*]

We claim:

1. In running gear for mine cars, a wheel having a hub with an oil cavity and an axle bore with a cap integral with the hub having a central opening of less diameter than said axle bore, in combination with an axle having a cylindrical spindle fitting the bore of the hub, and having a stub-axle fitting the opening in the cap, the shoulder back of said stub-axle abutting against the inner face of the cap.

2. In running gear for mine cars, a wheel having a chambered lubricating hub with an axle bore communicating with the lubricating chamber, the outer end of said bore extending through the hub and being of diminished diameter, in combination with an axle having a portion fitting the enlarged bore of the hub and a stub-axle portion fitting the contracted portion of the bore, said stub-axle portion being pierced diametrically and a linch pin passed through the pierced hole.

3. In running gear for mine cars, a wheel having an axle bore reduced in diameter at its outer end and having a cylindrical socket in the inner face of the hub, in combination with an axle having a collar fitting said socket, a cylindrical portion fitting the bore of the hub, a stub-axle fitting the reduced portion of the bore, a washer fitting the outer end of the stub-axle, and a linch pin passing through the stub-axle outside said washer.

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"Thereby limiting claim 2 to a running gear for mine cars comprising a wheel which has an axle cap, an enlarged bearing-forming bore extending through the hub and terminating at the cap, a bore of diminished diameter extending through the cap only, the shoulder between the two bores forming a thrust-bearing, a second thrust-bearing at the inner end of the hub, and an oil chamber in the hub terminating short of the outer end of the enlarged bearing-forming bore."

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"Thereby limiting claim 2 to a running gear for mine cars comprising a wheel which has an axle cap, an enlarged bearing-forming bore extending through the hub and terminating at the cap, a bore of diminished diameter extending through the cap only, the shoulder between the two bores forming a thrust-bearing, a second thrust-bearing at the inner end of the hub, and an oil chamber in the hub terminating short of the outer end of the enlarged bearing-forming bore."

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