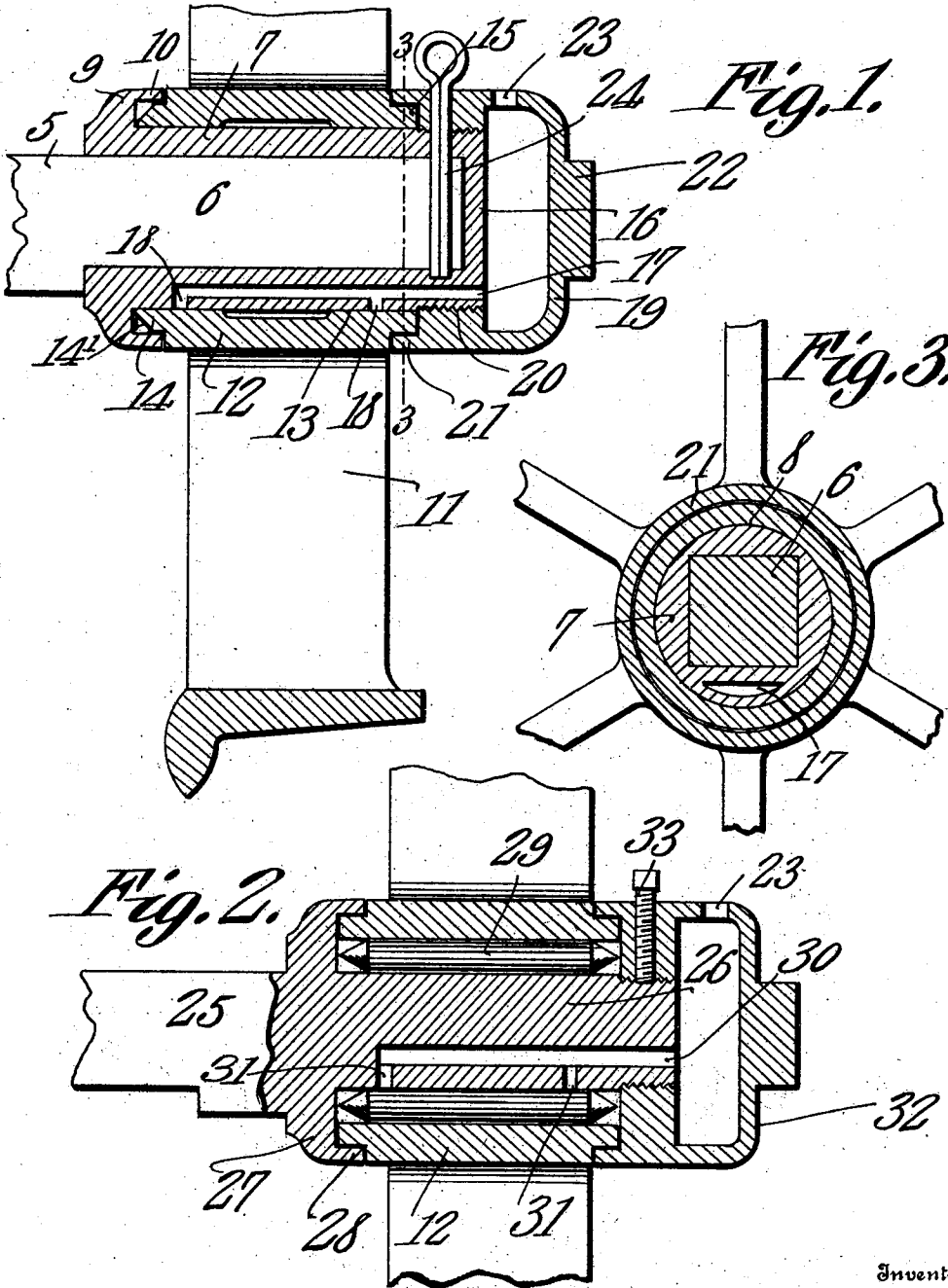


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CAR WHEEL.
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Patented Dec. 20, 1910.



Witnesses

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SAMUEL WILKINSON, OF OSCEOLA MILLS, PENNSYLVANIA.

CAR-WHEEL.

979,051.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, SAMUEL WILKINSON, a citizen of the United States, residing at Osceola Mills, in the county of Clearfield and State of Pennsylvania, have invented a new and useful Car-Wheel, of which the following is a specification.

It is the object of the present invention to provide an improved construction of wheel, and the invention is directed more particularly to such wheels as are provided for use in connection with mine cars and traction engines.

One aim of the invention is to provide a wheel and related parts so constructed that the wheel may be adapted to an axle having either a square or a cylindrical spindle portion and the invention aims further to provide a novel lubricating means for a wheel of this general class.

In connection with the lubricating means employed, the invention aims to provide against the entrance of dust and other foreign matter between the bearing elements of the wheel and axle therefor and further to provide a construction of wheel wherein all parts may be readily and quickly disassembled for the purpose of repair and in which there will be no likelihood of spilling of the lubricant employed nor of leakage from the parts to which it is supplied.

The invention further aims, as far as concerns the lubricating means provided, to so construct such means as to entirely obviate the entrance of sediment between the parts supplied with the lubricant, such sediment being collected in the container for the lubricant by reason of the construction of this portion of the wheel and its arrangement with respect to other parts thereof.

With the above and other objects in view, the invention consists of the construction and arrangement of parts shown in the accompanying drawing in which,

Figure 1 is a vertical sectional view through a mine car wheel constructed in accordance with the present invention, the said section being taken in a plane axially of the wheel and illustrating the device as adapted for employment in connection with a wheel axle having a square spindle. Fig. 2 is a view similar to Fig. 1 but illustrating the invention employed and adapted for employment in connection with an axle having a cylindrical spindle portion, and, Fig. 3 is a vertical sectional view on the line 3—3 of

Fig. 1, and taken in a plane at right angles to the plane of the section of the said Fig. 1.

Before proceeding to a specific description of the invention, it is to be observed at this point that the structure illustrated in Fig. 2 is not a modification of that structure shown in Fig. 1 of the drawings, but that in Fig. 2 the invention is illustrated as adapted for employment in connection with a cylindrical axle spindle, whereas in Fig. 1 it is illustrated adapted for use in connection with a square axle spindle.

In the drawing, and more particularly in Fig. 1 thereof, there is illustrated an axle which is indicated by the numeral 5 and has a square spindle indicated by the numeral 6. For the reason that the invention contemplates the mounting for rotation upon the spindle, of a mine car or similar wheel, a sleeve 7 is fitted upon the square spindle 6, this sleeve having its bore of rectangular form but having its exterior surface indicated in Fig. 3 by the numeral 8, defining a cylinder. This exterior surface 8 is finished as is any ordinary bearing surface. At its inner end, the sleeve 7 is formed with a peripheral flange indicated by the numeral 9 this flange having a portion 10 which is concentric with respect to the exterior surface of the sleeve itself and overhangs the same so to speak.

The wheel which is to be fitted upon the sleeve and thus mounted for rotation upon the axle, is indicated by the reference numeral 11, and its hub is indicated by the numeral 12, it being formed with a cylindrical bore 13 which is of a diameter to fit exactly upon the sleeve 7. At its inner end, this hub is reduced to afford a projecting flange 14, which fits beneath the overhanging flange 10 which is concentric with reference to the exterior surface of the sleeve 7, and this engagement of the flange 14 between the flange 10 and the bearing surface of the said sleeve serves to effectually prevent the entrance of dust and grit between the wall of the bore of the hub of the wheel and the exterior bearing surface of the sleeve 7. In a like manner, the opposite or outer end of the wheel hub 12 is formed with a projecting flange indicated by the numeral 15, and the function of this flange will presently be explained.

The outer end of the sleeve 7 is closed at 16 and in order that oil or any suitable lubricant may be fed between the exterior

bearing surface of the sleeve 7 and the wall of the bore of the hub 12, the said sleeve is formed with an oil conduit or passage 17 which leads longitudinally of the sleeve directly beneath the axle 6 and in a vertical plane with the axis of the wheel and the axle 5 and from this conduit 17, leads a branch conduit 18 which supplies the oil to the bearing surfaces above mentioned. In order that the conduit 17 and its branches may be at all times supplied with the proper amount of lubricant, there is provided a lubricant container, which is in the nature of a cap 19, this cap being threaded as at 20 upon the outer end of the sleeve 7 and having an overhanging concentric flange 21 which confines the flange 15 at the outer edge of the wheel hub 12 and serves the same function as does the flange 10 heretofore described, namely to prevent the entrance of dust and grit and other foreign matter between the bearing surfaces of the sleeve and the wheel hub. The cap 19 is formed with a square head or projection 22 for the engagement of a wrench whereby it may be threaded onto the sleeve 7 and is formed on its upper side with an opening 23 through which the lubricant may be supplied.

It will be observed from an inspection of Fig. 1 of the drawing, and in fact from an inspection of both Figs. 1 and 2 that the outer terminal of the conduit 17 is located in a plane above the bottom of the cavity of the cap 19 so that any sediment in the lubricant contained in the cavity of the cap will gradually fall to the bottom of the cavity and will settle below the said inlet end of the conduit 17, the entrance of sediment between the bearing surfaces being in this manner obviated. In order to hold the lubricant containing cap 19 in place upon the spindle sleeve 7, a cotter pin, indicated by the numeral 24 is engaged through registering openings in the cap 19, the sleeve 7, and the outer end of the axle spindle 6, this cotter pin serving to hold the cap against backward rotation.

In Fig. 2 of the drawing, there is shown, in lieu of the axle 5 having a square spindle, an axle which is indicated by the numeral 25 and which is formed with a cylindrical spindle portion 26. This spindle portion is formed with a circumscribing flange 27 having an overhanging or concentric portion 28 which corresponds to the portion 10 upon the flange 9 upon the sleeve 7 heretofore described and the wheel illustrated in the said Fig. 2 is identical in form and dimensions with the wheel illustrated in Fig. 1, the bore in its hub being however of consider-

ably greater diameter than the diameter of the spindle 26 owing to the omission of the sleeve 7 in this latter application of the invention. In lieu of this sleeve 7, bearing rollers 29 are inserted between the bore of the hub of the wheel and the exterior or bearing surface of the axle spindle 26, and when the invention is applied to an axle of this character, the spindle portion is formed with a conduit 30 which corresponds to the conduit 17 and with branch conduits 31 corresponding to the branches 18, these conduits serving to supply oil to the bearing rollers 29 and the bearing surfaces of the wheel hub and the spindle respectively. The lubricant containing cap in this embodiment of the invention is indicated by the numeral 32 and is identical with the cap 19 except that it is threaded on to the end of the spindle instead of onto the sleeve 7 and is held against rotation through the medium of a set screw 33 which is threaded therethrough and bears against the end of the spindle 26.

From the foregoing description of the invention, it will be readily understood that a standard car wheel may be fitted, by utilizing the principles of the invention, upon axles having either square or round spindles provided that the axles are of a certain standard size. Further, it will be understood that the parts of the structure embodying the invention are made interchangeable so that the result just mentioned may be obtained.

In order to allow any water which may enter between the bearing parts of the wheel to escape freely, the edge of the flange 14 is beveled as indicated by the numeral 14'.

What is claimed is:—

The combination with an axle spindle angular in section, and a sleeve internally angular throughout its length and fitting said spindle and closed at its outer end over the same, externally cylindrical, and having a longitudinal oil duct in its under side opening at its outer end and branches opening radially outward; of an annular flange at the inner end of the sleeve, a cap screwed on its outer end and having a flange and an internal oil chamber communicating with said duct, and a wheel hub journaled around said sleeve and having end flanges projecting under those on the sleeve and cap.

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

SAMUEL WILKINSON.

Witnesses:

W. J. O'BRIEN,
P. GALLAGHER.