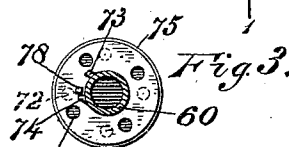
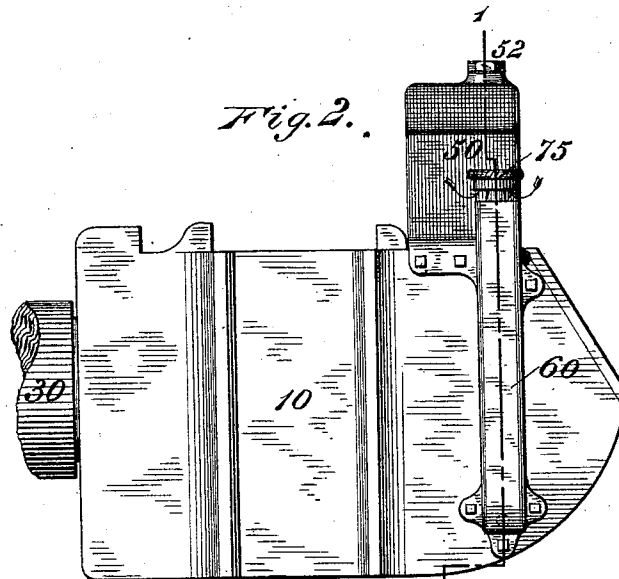
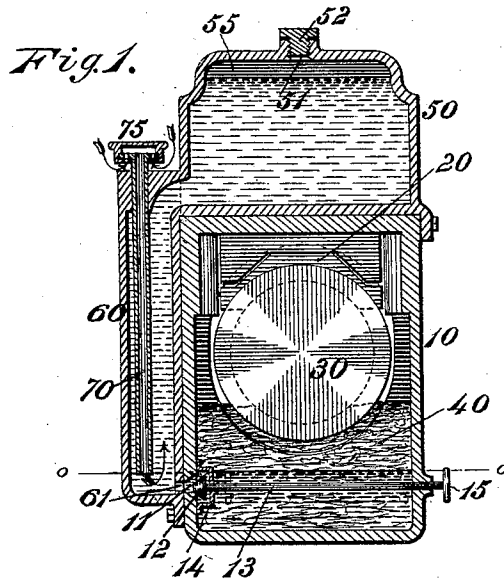


(No Model.)

C. H. WARTH.  
SELF LUBRICATING CAR AXLE BOX.

No. 579,909.

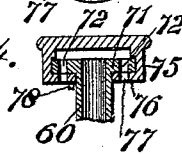
Patented Mar. 30, 1897.



WITNESSES

*Harry King*  
*Wallace Muddock*

*Fig. 4.*



INVENTOR

*C. H. Warth*  
*By F. C. Jones*  
Attorney

# UNITED STATES PATENT OFFICE.

CHARLES H. WARTH, OF MUSCOGEE, INDIAN TERRITORY.

## SELF-LUBRICATING CAR-AXLE BOX.

SPECIFICATION forming part of Letters Patent No. 579,909, dated March 30, 1897.

Application filed September 11, 1896. Serial No. 605,534. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES H. WARTH, a citizen of the United States, residing at Muscogee, Creek Nation, Indian Territory, have invented a new and useful Improvement in Self-Lubricating Car-Axle Boxes, of which the following is a specification.

This invention relates to a car-axle box to which oil is automatically supplied by pneumatic action for continually maintaining a normal level of oil in the box.

Figure 1 of the accompanying drawings represents a transverse section on line 1 1 of Fig. 2 of a car-axle box embodying this invention. Fig. 2 represents a side elevation thereof. Fig. 3 represents a horizontal section of the upper end of the air-tube constituting a part of the lubricating apparatus and of the under side of the valve for controlling the admission of air. Fig. 4 represents a vertical longitudinal section of the upper end of said air-tube and its valve.

The same reference-numbers represent corresponding parts in the different figures.

The journal-box 10 may be of any ordinary or suitable construction, containing in its upper part a journal-bearing 20, against which the journal of the axle 30 revolves, and in its lower part the usual journal-packing 40 in contact with the lower portion of the car-axle journal and oil for saturating said packing.

The packing may be dispensed with and the oil allowed to come in direct contact with the journal. The journal-box is provided with an opening 11 in the lower part of one of its side walls. This opening may be closed by a valve of any suitable construction. A conical valve 12 is shown attached to a stem 13, which rests near its inner end in a bracket 14 and near its outer end in a screw-threaded opening in the opposite side wall of the box, the stem being screw-threaded to fit said opening. The outer end of the stem has a hand-wheel 15.

A reservoir 50 for containing lubricating-oil to be supplied to the axle-box is mounted upon the top of the axle-box near the front end thereof, or otherwise located at any suitable point. This reservoir is provided with an opening 51, which is used for filling the reservoir with oil. This opening is closed airtight by any suitable means, as by a plug 52.

The reservoir is connected with the lower part of the axle-box by any suitable means, the means shown consisting of an extension 60, which may be cast with or connected to the body of the reservoir. This extension or conduit preferably depends from the reservoir along one side of the axle-box, and is provided near its lower end with an opening 61, which registers with the opening 11 in the side wall of the axle-box. The reservoir and its extension, when disposed in contact with the axle-box, may be bolted, screwed, or otherwise attached thereto or cast therewith.

A vent-tube 70 depends into the extension 60 and terminates above the bottom thereof at a point in the same horizontal line at which the oil-level within the car-axle box is desired. The upper end of this vent-tube extends outside the reservoir extension and is provided with any suitable means for opening and closing it to admit or exclude air from the reservoir. The means shown comprise an out-turned flange 71, fixed to the upper end of said tube and provided with perforations 72. A swiveling-cap 75 is adapted to turn on said flange, and is provided with an inturned flange 76, having perforations 77 and a dependent stud 78. The dependent stud 78 is disposed between two lateral studs 73 and 74 on the vent-tube 70. These studs serve as stops and limit the movement of the swiveling-cap. When the stud 78 of the cap is in contact with the stud 73 of the tube, the holes 77 of the flange 76 register with the holes 72 of the flange 71, and the vent-tube is open for the admission of air. When the swiveling-cap 75 is turned, as shown in Fig. 3, so that its stud 78 is in contact with the stud 74 of the tube, the holes of the flanges are out of register and the vent-tube is closed.

The operation is upon the pneumatic or vacuum principle. The axle-box 10 is supplied with oil to a level above the lateral opening 11 therein, as indicated by the line *oo* in Fig. 1. The valve 12 and the vent-tube 70 are then closed. Oil is supplied to the reservoir through the top opening thereof. The oil fills the dependent extension 60 and fills the reservoir 50 to near the top thereof, but the air in the vent-tube 70 prevents the oil from filling said tube. Then the filling-orifice of the reservoir is tightly closed and

the vent-tube opened and the valve 12 opened. A vacuum 55 is formed in the top of the reservoir. The lubricator is then in condition to operate. As the packing 40 in the box 10  
 5 absorbs the oil and the level thereof falls below the bottom of the vent-tube 70 globules of air pass out of the lower end of the vent-tube 70 and rise through the oil in the extension 60 and reservoir 50 to the top of the lat-  
 10 ter, displacing a portion of the oil and permitting the oil to flow through the opening 11 and raise the level of the oil in the box 10 till it reaches the level of the lower end of the vent-tube 70, restoring the equilibrium.

15 The reservoir 50 and its extension 60 may be of any suitable dimensions for containing any required quantity of oil. The extension 60 may be of greater breadth and may itself constitute the reservoir, in which case it will  
 20 in its top have the supply-opening closable air-tight and there will be no extension of the body of the reservoir over the top of the axle-box.

I claim as my invention—

25 1. The combination of a car-axle box, an oil-reservoir for holding a body of oil above the normal level of the oil in said axle-box, said oil-reservoir being connected with said axle-box at a point below said normal level of  
 30 oil in the axle-box, and a vent-tube open at its upper end to the outer atmosphere and terminating at its lower end in said reservoir in substantially the same horizontal plane as said normal level, and serving to discharge at  
 35 its lower end the air passed in downward direction therethrough, whereby said air is permitted to rise through the mass of oil in said reservoir and the oil is permitted to flow therefrom and supply the deficiency in the  
 40 axle-box.

2. The combination of a car-axle box, an

oil-reservoir for holding a body of oil above the normal level of the oil in said axle-box, said oil-reservoir being connected with said axle-box at a point below said normal level of  
 45 oil in the axle-box, and a vent-tube open at its upper end to the atmosphere and terminating at its lower end in said reservoir in substantially the same horizontal plane as said normal level, and serving to discharge at  
 50 its lower end the air passed in downward direction therethrough, whereby said air is permitted to rise through the mass of oil in said reservoir and the oil is permitted to flow therefrom and supply the deficiency in the  
 55 axle-box, and a closing device on said tube outside said reservoir.

3. The combination of a car-axle box, an oil-reservoir, a vent-tube having its upper end exposed to the outer air, said tube extending  
 60 into said reservoir and terminating in a plane substantially on a level with the normal level of the liquid in said box, a valve between said reservoir and axle-box, and means for closing  
 65 said vent-tube.

4. The combination of an axle-box, an oil-reservoir surmounting the top of said box and provided with a dependent extension along one side thereof, a valve between said axle-box and reservoir extension below the normal  
 70 level of oil in said axle-box, a vent-tube open at its upper end to the atmosphere and depending into said extension and terminating at its lower end in substantially the same horizontal plane as said normal level, serving  
 75 to discharge air in downward direction into said reservoir.

CHARLES H. WARTH.

Witnesses:

ROBT. G. OWEN,  
 P. M. FORD.