308 MACHINE ELEMENTS.
BEARINGS AND GUIDES.
95

No. 819,675. PATENTED MAY 1, 1906.

W. E. SANDERS.

CAR AXLE JOURNAL BOX.

APPLICATION FILED JULY 27, 1905.

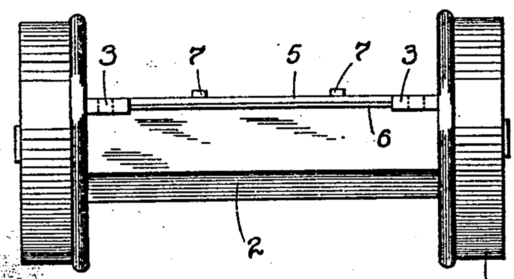


Fig. 1.

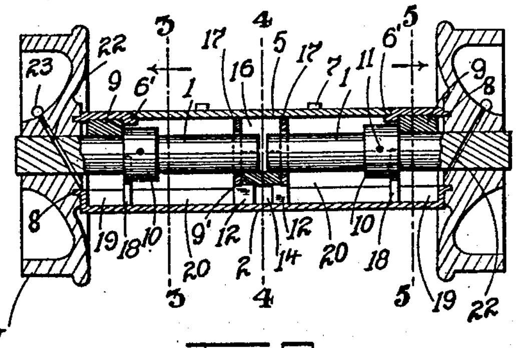


Fig. 2.

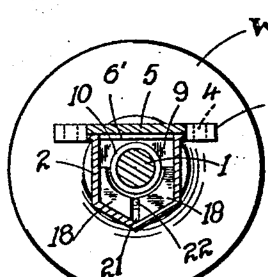


Fig. 3.

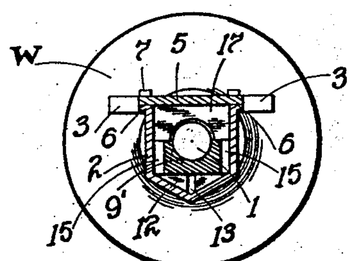
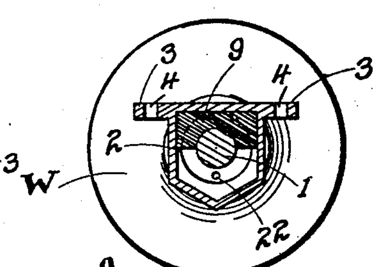


Fig. 4.

Fig. 5.



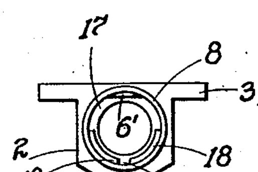


Fig. 7.

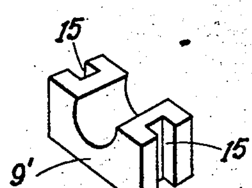


Fig. 8.

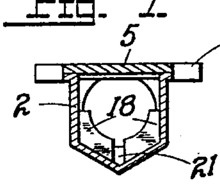


Fig. 9.

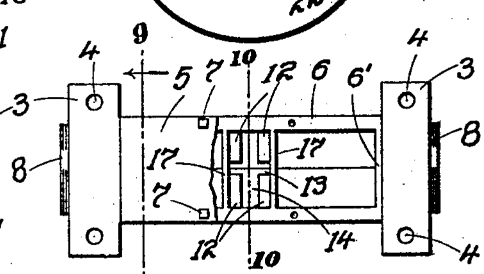


Fig. 6.

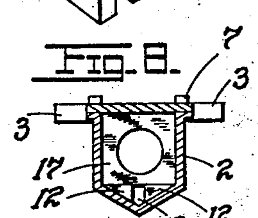


Fig. 10.

Witnesses
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Attorney

UNITED STATES PATENT OFFICE.

WILBUR E. SANDERS, OF HELENA, MONTANA, ASSIGNOR OF ONE-HALF TO TENNEY C. DE SOLLAR, OF DENVER, COLORADO.

CAR-AXLE JOURNAL-BOX.

No. 819,675. Specification of Letters Patent. Patented May 1, 1906.

Application filed July 27, 1905. Serial No. 271,481.

To all whom it may concern:

Be it known that I, WILBUR E. SANDERS, a citizen of the United States, residing at Helena, in the county of Lewis and Clark and State of Montana, have invented certain new and useful Improvements in Car-Axle Journal-Boxes, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

My invention has relation to improvements in car-axle journal-boxes; and it consists in the novel construction and arrangement of details more fully set forth in the specification and pointed out in the claims.

In the drawings, Figure 1 is a side elevation of the journal-box and car-axle assembled. Fig. 2 is a middle vertical longitudinal section of the same, the axle-sections being in elevation. Fig. 3 is a transverse vertical section on line 3 3 of Fig. 2. Fig. 4 is a transverse vertical section on line 4 4 of Fig. 2. Fig. 5 is a transverse vertical section on line 5 5 of Fig. 2. Fig. 6 is a top plan of the journal-box with cover-plate partly removed. Fig. 7 is an end view of the journal-box. Fig. 8 is a perspective of the grooved bearing-block for the middle of the axle. Fig. 9 is a transverse vertical section on line 9 9 of Fig. 6, and Fig. 10 is a transverse vertical section on line 10 10 of Fig. 6.

The object of my invention is to construct a journal-box for car-axles (and specially for sectional axles) which will be thoroughly dust-proof; one providing ready means for the oiling of the axle; one making the necessary provision for the removal of all wearing parts by the replacing of worn bearing-blocks; one which may be readily assembled or taken apart; one which is cheap, durable, and easily manufactured; one requiring a minimum amount of machine-work; one using stock material for the axles; one requiring a minimum weight of metal; one insuring against the separation of the axle-sections; one which will positively prevent the waste of the lubricant; one furnishing easy means for conducting the lubricant to surfaces where desired; one retaining the axes of rotation of the sections of the axle in permanent alinement, and one possessing further and other advantages better apparent from a detailed description of the invention, which is as follows:

Referring to the drawings, W represents the car-wheels, and 1 1 the sections, of the axle attached thereto, as usual. Inclosing the axles is the shell or journal-box 2, the bottom of which is preferably V-shaped in cross-section to allow the oil to drain to its proper receptacles, as subsequently to appear. The top of the journal-box at opposite ends thereof is extended into the form of lateral wings 3 3, which are provided with bolt-holes 4 4, by means of which the journal-box may be attached to the car-truck. The opening between the wings 3 is closed by a cover-plate 5, said opening being left to simplify the casting and construction of the journal-box and to furnish access to the interior of the box when assembling and replacing the parts confined therein. The cover-plate 5 rests with its opposite edges on the longitudinal outwardly-projecting flanges 6 6, formed with the side walls of the box, said flanges furnishing a means of attaching the cover-plate to the journal-box by bolts or cap-screws 7, the ends of the plate being supported on the flanges 6′, formed on the inner edges of the wings 3 and disposed in the plane of the flanges 6. The cover-plate 5 when in position is flush with the wings 3, the flanges 6 6′ being depressed sufficiently below the upper surface of the wings to allow for the thickness of said cover-plate. The opposite ends of the journal-box 2 are provided with the annular or circular flanges 8, which fit corresponding grooves in the wheel-hubs, the connection thus resulting being absolutely dust-proof, so that no dust can find access into the interior of the journal-box when the parts are once assembled.

Confined within suitable pockets or depressions formed in the center portions of the wings 3 behind the flanges 6′ are replaceable bearing-blocks 9, which serve to support the weight of the truck and car upon the axles and which furnish a bearing-surface against which the axles may revolve. The blocks 9 occupy the space between the flanges 6′ and the terminal walls of the journal-box immediately beneath the wings 3 and embrace the axle along the upper half of its peripheral surface, the inner faces of the blocks serving as abutments for the adjacent ends of the retaining-rings 10, which in assembling the device are slipped over the axles 1 and are attached thereto by means of screws

or cap-bolts 11. The rings 10, bearing as they do against the adjacent faces of the bearing-blocks 9, prevent the axle-sections from separating and loosening from their places, as is obvious.

Supporting the inner ends of the axle-sections is an intermediate bearing-block 9′, embracing the axle along the lower half of its peripheral surface, the block being supported on pairs of seats 12 12, separated by a longitudinal space 13 to allow for the passage of oil at the bottom of the journal-box 2, and by a transverse space 14 to accommodate a lubricating chain or wick (not shown) used for the purpose of carrying up the oil from the bottom to the bearing-surfaces. The ends of the bearing-block 9′ are provided with central grooves or recesses 15 to furnish a port or opening by which the oil lying at the bottom of the space or oil-receptacle 14 may be brought up to and applied at the top of the axles for lubricating them either by means of an endless link chain or by a wick which shall draw the oil to suitable felt or cotton-waste packing filled into the box or compartment 16, formed above the axles between the walls or central diaphragms 17. The diaphragms 17 are cast with the journal-box and serve as means both for guiding the bearing-block 9′ into position on its seats 12 12 and preventing displacement thereof when once lowered into position, the said diaphragms being suitably bored to accommodate the ends of the axles 1 and prevent them from being thrown upward from their seats upon the bearing-block.

Formed with the inner walls of the journal-box 2 and disposed substantially in the transverse planes touching the inner edges of the wings 3 are the diaphragms 18, which divide the bottom of the journal-box into contiguous oil receptacles or basins 19 20, respectively, between which communication is established by a port or passage-way 21, which allows the oil to run from the one basin 19 into its contiguous basin 20. The space above each basin 19 is filled with felt or cotton-waste packing which conducts the oil to the wearing-surfaces between the parts 1, 9, and 10. The oil is introduced through a hole 22, bored from without inward, the oil filling the intermediate reservoir 20. The hole may be bored through the center of the axle diagonally, as shown, and closed by a plug 23.

The basal inclined or V-shaped walls of the journal-box form a basin extending the full length of the journal-box for the collection of the lubricating-oil, the diaphragms 17 and 18 forming, respectively, the central compartment 16 and terminal compartments 19 19 for insertion of cotton-waste, felt, or equivalent oil-carrier and forming in addition the intermediate oil-receptacles 20 20, which serve as storage-receptacles for the oil subsequently fed to the waste in the contiguous compartments 16 and 19. The position of the receptacles 20 is such that the oil stored therein cannot overflow or become wasted, being only drawn upon in proportion as the same is needed for oiling the surfaces between the several bearing-blocks and the axle. By removing the cover-plate the interior of the journal-box is made readily accessible and any of the worn parts are easily removed and replaced by new parts.

Having described my invention, what I claim is—

1. In combination with an axle, a journal-box having means for attachment to the car-truck, upper terminal bearing-blocks for the axle located within and adjacent to the ends of the journal-box, a central lower bearing-block for the axle, the body of the last-mentioned block being provided with grooves for the free passage therethrough of the lubricant, supporting-seats for the block, and a bottom basin extending the length of the journal-box for supplying the lubricant, substantially as set forth.

2. In combination with an axle, a journal-box having means for attachment to the car-truck, upper terminal bearing-blocks and a lower intermediate bearing-block for the axle, suitable compartments formed in the journal-box for the housing of the bearing-blocks, and supply-reservoirs communicating with the several compartments for conducting oil thereto, substantially as set forth.

3. In combination with an axle, a journal-box having bottom inclined walls forming a common basin extending the full length of the journal-box, and a series of transverse diaphragms forming contiguous compartments in communication with said basin, substantially as set forth.

4. In combination with an axle, a journal-box having means for attachment to a car-truck, terminal compartments for the housing of suitable bearing-blocks, a central compartment for receiving a bearing-block, supporting-seats at the base of the compartment for said central bearing-block, said seats being spaced both longitudinally and in a lateral direction, and oil-receptacles formed in the bottom of the journal-box on each side of the central compartment and contiguous to the terminal compartments and in communication with the several compartments, substantially as set forth.

5. A journal-box for car-axles comprising a box open on top, a cover-plate therefor, terminal wings exterior to the cover-plate for attachment to a car-truck, diaphragms formed with the journal-box at each end forming terminal compartments and intermediate compartments contiguous thereto, passage-ways being formed in the diaphragms for establishing communication between the compartments, central diaphragms spaced a suitable distance to form a middle compartment, suit-

able passage-ways being formed at the base of the middle compartment to establish communication with the first-mentioned compartments, substantially as set forth.

6. In a journal-box, a central bearing-block compartment, seats at the bottom thereof for the support of the block, transverse diaphragms on opposite sides of the seats defining the limits of said compartment, terminal bearing-block compartments, upper bearing-blocks in said terminal compartments, and reservoirs for supplying oil to the several compartments, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

WILBUR E. SANDERS.

Witnesses:
R. LEE WORD,
CHAS. F. WORD.