





# UNITED STATES PATENT OFFICE.

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## DUST-GUARD FOR CAR-AXLE BOXES.

SPECIFICATION forming part of Letters Patent No. 749,327, dated January 12, 1904.

Application filed November 30, 1901. Serial No. 84,284. (No model.)

*To all whom it may concern:*

Be it known that we, ELI E. SAGER, JOHN SAGMEISTER, and WALLACE H. DOW, citizens of the United States, residing at Seattle, in the county of King and State of Washington, have invented certain new and useful Improvements in Dust-Guards for Car-Axle Journal-Boxes; and we do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

Our invention relates to improvements in dust-guards for car-axle journal-boxes, and has special reference to a device of this class which is adapted for placement and replacement in the ordinary and well-known journal-box.

Among numerous objects attained by this invention and readily understood from the following specification and accompanying drawings, included as a part thereof, is the production of a simplified dust-guard embodying essential features of efficiency and adaptability which insure the exclusion of dust and retention of oil and render the guard accommodative to car-axle boxes of the usual and well-known form without necessitating any change or modification in their construction, and also embodying essential features of adjustability which render the guard automatic in taking up wear of the axle-packing and in conforming to lateral movements of the axle in the box.

The above-mentioned objects are attained by the constructions, combinations, and arrangements of parts as disclosed by the drawings set forth in this specification and succinctly pointed out in the appended claims.

With reference to the drawings filed herewith and bearing like characters of reference for corresponding parts throughout, Figure 1 indicates an ordinary car-axle journal-box in vertical section, taken longitudinally the car-axle and with a portion broken out and discloses our improved dust-guard in relative section and the end portion of an axle in its usual position. Fig. 2 is a transverse section

of said box on line 2 2 of Fig. 1 looking as the arrows fly and with the axle indicated in transverse section on said line and the dust-guard in position. Fig. 3 is a perspective view of the upper section of the separable carrier of the guard. Fig. 4 is a plan view of the top edge of same. Fig. 5 is a perspective view of the lower section of the separable carrier. Fig. 6 is a plan view of the top edge of same; and Figs. 7 and 8 are side views, respectively, of the top and bottom sections of packing adapted to engage the axle.

In the present instance our invention is embodied with a car-axle box, as 10, of the ordinary form and construction, which is arranged with a suitable vertically-elongated aperture 11 through the back side wall to receive the axle, as 9, a rectangular slot 12 in the top extending with and placed adjacent said back wall and ordinarily employed to introduce packing for the axle, and an opening 14 in the front side wall used for oiling and the like. This box also embodies an interior flange 15, which is placed adjacent to the back wall with one surface parallel to and opposing the inner surface of said wall and arranged with a transverse aperture 12' to receive the axle 9, as in the ordinary construction of axle-boxes of this class, and this interior flange 15 is adapted to form a chamber with the said back wall in which the dust-guard is placed through the mouth or slot 12.

Our improved dust-guard comprehends a removable carrier, as 8, adapted to support packing in a car-axle box in a manner to exclude dust therefrom and prevent the lubricating-oil from wasting through the axle-aperture, as 11, and is conveniently formed in the present instance to enter box 10 through slot 12 and fit in the chamber formed between flange 15 and the back side wall of said box. This carrier is formed with a transversely-disposed axle-aperture and is rendered separable to facilitate replacement of the packing employed about the axle and the detachment of said axle from its box and comprises oppositely-disposed upper and lower sections, as 16 and 17, which are suitably formed to



slidably embrace each other, and thereby simplify the removal of the axle or replacement of the packing and for mutual co-operation in supporting said packing about the axle. As now considered these sections are of substantially identical form and are each conveniently rendered of plate metal brought to substantially U shape, with a suitable pocket, as 18, arranged at the base to receive a piece of packing, which in the present instance comprises a plate 21 of suitable fiber rendered substantially U shape, as viewed in Figs. 7 and 8. In this embodiment of the invention each section of the carrier is formed with the stems, as 19, separated somewhat greater than the diameter of axle 9 and extended in length, so as to normally lie upon and slidably engage the base of the opposing section when the carrier is assembled, and one pocket 18 is formed on each section at the base thereof. These pockets are preferably arranged at opposite sides of the carrier, so as to conveniently cause the packing employed about the axle to normally lie in overlapping position and are formed in the shape of vertically-disposed channels conveniently made by supporting a suitable lip, as 20, over the side surface of the base of a respective section, and said lips are rendered of a width equal to the separation of the stems 19, so as to be embraced by the stems of the opposing section when the carrier is assembled, which are thereby made to conveniently close the side edges of the pockets 18 and render the sections capable of mutual support.

The pockets 18 are rendered of suitable size to receive the packing-plate 21 freely, and said plates are rendered with the concaved edges of suitable form to fit about one-half of the periphery of axle 9 and with the stems of suitable length, so that those of opposing plates will overlap when the dust-guard is assembled and said plates are brought to embrace the axle. These plates are supported in respective pockets 18 by suitable springs, as 23, adapted to yieldingly force the plates to embrace the axle, and thereby compensate for wear of the packing and lateral movements of the axle in the box.

As now considered each spring 23 comprises a piece of resilient wire brought to bow shape and is preferably seated on the bottom of a respective pocket, with the free ends lying in contact with the convex edge of a respective packing-plate, and each spring is suitably held to its seat by forming a slight cavity, as 24, in the bottom surface of the pocket and bending the spring laterally to fit down into same and placing a suitable fixed pin 25 over said spring transversely the pocket.

The plates 21 are rendered somewhat wider than the separation of the stems 19 of the carrier, and said stems are consequently each provided with a longitudinally-disposed rabbet, as 26, along the inner corner to receive the

side edge of the plate carried by the opposing section and of suitable depth to allow lateral play thereof when the guard is assembled.

As now considered, sections 16 and 17 are of suitable size to enter the axle-box 10 through slot 12 and to fit in the chamber between the back wall thereof and flange 15, and the lower section is provided with suitable marginal packing-strips 27, composed of felt or the like and conveniently secured on the outer surface, and the upper section is provided with a like strip 28, placed transversely the base on its outer surface. These sections are conveniently held together and secured in position in the guard-chamber of the axle-box by suitable flat springs, as 29, preferably disposed on the outer surfaces of the stems of section 16 and suitably formed to press against the side of flange 15 and force packing-strips 27 against the back wall of the box, while packing-strip 28 engages the side of slot 12 and springs 23 yieldingly force respective packing-plates to constantly embrace the axle closely.

In constructing the carrier we now prefer to render the lip 20 removable by means of suitable rivets or screws adapted to secure them against the side faces of respective brackets, as 30, which are fixed on one side face of the base of a respective section of the carrier, and thus facilitate the placement and replacement of springs 23.

From the foregoing it will be understood that sections 16 and 17 rest against each other when the carrier is assembled, with the lips 20 disposed at opposite sides, thus conveniently causing the inner side surfaces of the pockets 18 to lie in the same vertical plane and bringing opposing side surfaces of the two packing-plates 21 together for more perfect closure, while they lie independently responsive to the action of their respective springs 23, and are thus made to act automatically in response to lateral movements of the axle or wear of their own fiber.

The placement and replacement of the carrier in the car-axle box will be readily understood, as it simply involves slipping the lower section 16 into place, then the insertion of the axle, and finally the introduction of the upper section 17, and though the use of the ordinary axle-box is an important feature of our invention it is evident that the dust-guard comprehended can be employed in journal-boxes adapted to receive it in any modified form without departing from the spirit of our present invention.

Having thus described our invention, what we claim, and desire to secure by Letters Patent of the United States of America, is—

1. In a device of this character, the combination with a journal-box and axle, of two substantially U-shaped sections slidably fitting one within the other and surrounding the axle, resilient means arranged in each section for yieldingly supporting a packing, a packing



directly carried thereby and held in contact with the axle by one of said means, and springs carried by one of said sections to engage the journal-box and holding the sections therein from lateral displacement.

2. In combination with a car-axle and box, a guard comprising two interlocking carrier-sections each having a pocket for packing, a packing-plate removably mounted in each pocket, a spring arranged in each pocket to engage the packing-plates to force them toward each other, and means carried by one section to prevent the lateral displacement of the two sections.

3. In combination with a car-axle and box, of two slidably-engaged carrier-sections adapted to loosely surround the axle and be mounted in the box, said carrier-sections being provided with pockets in opposite ends and having parallel rabbets upon their inner faces, packing-plates slidably mounted in the pockets and adapted to be guided in their sliding movement by the rabbets, and means mounted in the pockets to keep the packing-plates in contact with the axle.

4. In a device of the nature described, two slidably-engaged substantially U-shaped carrier-sections each having a bracket fixed on one side thereof at the base, a lip secured to each bracket and extending over the side surface of the section, a spring between each lip and base and a substantially U-shaped packing-plate resting on each spring.

5. In a device of the nature indicated, two slidably-engaged substantially U-shaped carrier-sections each having a bracket fixed on one side thereof at the base, a lip secured to each bracket and extending over the side of the section to the inner edges of the stems thereof, there being a rabbet along the inner corner of each stem of the section, a spring seated between each lip and base, and a packing-plate yieldingly supported by each spring.

6. In a device of the nature indicated, two substantially U-shaped carrier-sections each having a bracket fixed on one side thereof at the base with a cavity in the top edge, a lip on each bracket extending over the side of the section to the inner edges of the stems thereof,

a bowed spring in the space between each lip and base having a portion fitting each cavity, a pin fixed transversely of each space, a U-shaped packing-plate of greater width than the space between the stems of each section yieldingly supported on each spring, and packing-strips arranged on the opposite side surface of each section from the lip.

7. The combination with a car-axle box having a guard-chamber, of a removable carrier comprising oppositely-disposed substantially U-shaped plate-sections each having a pocket for packing arranged at one side of the base, substantially U-shaped packing-plates in said pockets with their stems adapted to overlap, a spring carried in each section and arranged to yieldingly support one of the packing-plates for independent movement, packing-strips arranged on the side of each section, and springs carried by one section adapted to engage one wall of the car-axle box to force the sections in contact with the opposite wall of the box.

8. A dust-guard for car-axle boxes, comprising a carrier adapted to be slidably inserted in the guard-chamber of a journal-box, and comprising oppositely-disposed substantially U-shaped plate-sections each having a vertically-disposed pocket arranged on one side at the base with the inner side surface in the same plane with a like surface of the pocket on the opposing section, packing-strips arranged on the side surface opposite the pocket, there being a rabbet along the inner corner of each stem, a spring seated in each pocket, oppositely-disposed substantially U-shaped packing-plates supported on said springs and extending into said rabbets, and springs disposed on the side surface of one of said sections and adapted to hold said sections in slidable contact.

Signed at Seattle, Washington, this 31st day of October, 1901.

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Witnesses:

FRANK E. ADAMS,  
FRANK OLESON.