April 2, 1946. W. H. SALE 2,397,753

JOURNAL BOX AND DUST GUARD

Filed May 29, 1944

Fig. 1.

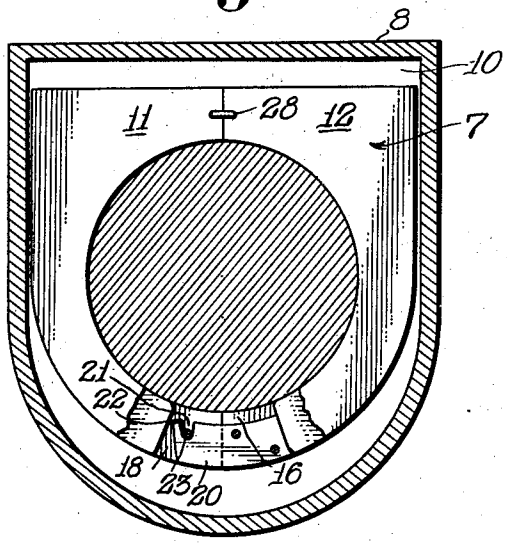
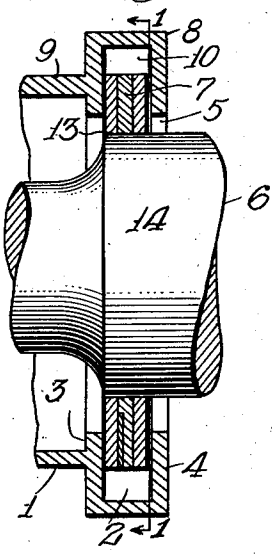


Fig. 2.



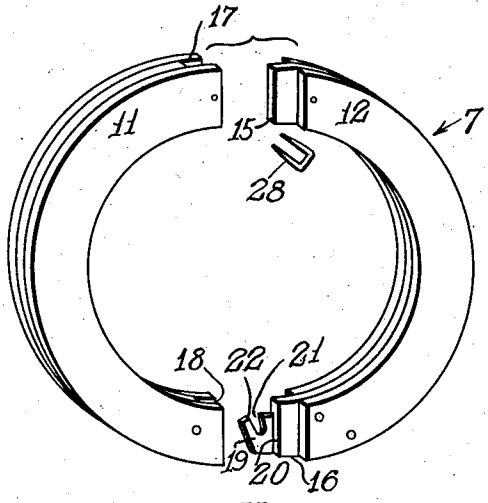
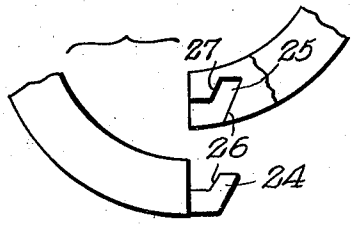


Fig. 3.

Fig. 4.



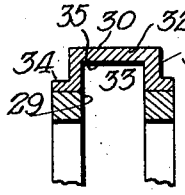


Fig. 5.

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JOURNAL BOX AND DUST GUARD

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Application May 29, 1944, Serial No. 537,927

2 Claims. (Cl. 286—6)

The invention relates to a journal box and dust guard.

The primary object of the present invention is to provide a journal box and dust guard adapted to close or seal the dust guard chamber or well securely against the escape of oil from the journal box and against the entrance of dust, grit, and other foreign matter into the dust guard chamber or well and thence into the journal box, and capable of effectually preventing the journal of a car axle from running hot and effectually preventing the troubles, inconvenience, and accidents resulting frequently from such condition.

A further object of the invention is to provide a journal box for car axles having a dust guard chamber in the form of a continuous recess extending entirely around the interior of the journal box and completely closed at the top, bottom, and sides, and having the walls thereof formed integral or substantially integral with the journal box, thereby obviating the necessity of plugging or otherwise closing an open slot at the top of the dust guard chamber or well and the employment of means for retaining the plug or other closing means in place.

Another object of the invention is to enable the improvements of the present invention to be applied to journal boxes of the standard type without necessitating any alteration in the construction thereof other than the closing of the dust guard chamber or well at the top so that the present improvements may be applied to new journal boxes and also to journal boxes of the standard type in present use without the necessity of discarding any of the latter.

Another object of the invention is to provide a sectional dust guard adapted to be introduced into the improved journal box and into the dust guard chamber or well at the back thereof and readily assembled interiorly of the journal box with the sections of the dust guard in proper operative position with relation to each other and to the journal box.

Another object of the invention is to provide a dust guard divided vertically into two sections readily slidable on each other in assembling them interiorly of the journal box and introducing them in proper operative position in the dust guard chamber and having inwardly extending upper and lower portions disposed transversely of the journal box and arranged in abutting relation when the sections are assembled and having the upper abutting portions arranged to be supported upon the shoulder portion of the car axle at the inner end of the journal.

Furthermore, it is an object of the invention to provide the sections of the vertically divided dust guard with overlapping portions or joints and with means for interlocking and detachably securing the sections together that will not interfere with the sliding movement of one section on the other necessary to assemble the sections interiorly of the journal box and introduce them in their assembled relation into the dust guard chamber.

It is also an object of the invention to provide means for interlocking the sections which in assembling the sections operate to draw the same together, so that the sections may be maintained tightly in abutment and in proper position with relation to each other.

Another object of the invention is to provide a sectional dust guard of this character which may be readily introduced into and used within journal boxes of the standard type having the usual open slot at the top, so that the improved dust guard may be kept in stock for use with both the improved journal box and the journal box of the standard type having the open slot at the top of the dust guard chamber.

With these and other objects in view, the invention consists in the novel construction, arrangement, and combination of parts hereinafter fully described, illustrated in the accompanying drawing, and pointed out in the claims hereto appended, it being understood that various changes in the form, proportion, and minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

In the drawing:

Figure 1 is an elevation partly in section showing the dust guard in its normal position in the dust guard chamber, the section being taken on the line 1—1 of Figure 2 looking in the direction of the arrows, and the bottom of the dust guard being broken away to show one form of interlocking means for holding the sections of the dust guard together.

Figure 2 is a central, vertical, sectional view taken through Figure 1 and showing a portion of the car axle.

Figure 3 is an exploded view of the dust guard.

Figure 4 is a detail view illustrating another form of interlocking means for securing the sections of the dust guard together.

Figure 5 is a detail sectional view of a portion of the dust guard chamber of the journal box and the metal cap for closing the same.

In the accompanying drawing, in which are

illustrated the preferred embodiments of the invention, 1 designates a journal box of the standard type provided with a dust guard chamber or well 2 in the form of a recess extending entirely around the journal box and completely closed at the top, bottom, and sides, and having the inner and outer walls 3 and 4 thereof formed integral with the journal box and having the usual central circular opening 5 for the reception of a car axle 6.

The dust guard chamber, which receives a dust guard 7, has its top portion 8 extending above the top 9 of the journal box and providing an additional space 10 at the top of the dust guard chamber in excess of the space usually provided in journal boxes of the standard type for a dust guard. The additional space provided by the extension of the dust guard facilitates the introduction of the dust guard into the dust guard chamber and the assembling of the parts of the dust guard interiorly of the journal box.

The dust guard, which may be of laminated or other formation, is constructed of strong, sturdy material such as fibre but any other suitable material may be employed and the sections 11 and 12, formed by dividing the dust guard vertically, centrally thereof, may be of laminated or solid construction.

The dust guard, which is provided with the usual circular opening 13 to receive the shoulder portion 14 of the car axle 6, is provided at the top and bottom with lapped joints, preferably of tongue and groove formation, but any other suitable form of lap joint may of course be employed. In the drawing, the tongues 15 and 16 are shown extending from the top and bottom of the section 12 to fit in complementary grooves 17 and 18 of the section 11.

The sections 11 and 12, when assembled, are arranged in abutment and the upwardly and inwardly extending portions of the sections rest upon and are supported by the shoulder portion 14 of the car axle which fits snugly within the central opening of the dust guard in the usual manner.

The sections of the dust guard are adapted to be introduced into the journal box at the back thereof and they are slidable on each other in introducing them into the dust guard chamber and in the assembling of the sections in operative position within the dust guard chamber, and the extended top portion of the dust guard chamber facilitates this introduction and assembling of the sections of the dust guard.

The tongue and groove lap joints at the top and bottom of the sections of the dust guard permit relative vertical or longitudinal sliding movement of the sections on each other and facilitate the assembling of the sections within the journal box and the proper positioning of the sections with relation to each other within the dust guard chamber.

The tongues and grooves of the sections may of course be reversed and the sections are detachably interlocked at their lower ends by means of a relatively thin metal plate 19 riveted or otherwise secured between the laminations of the section 12 and adapted to extend into a kerf 20 of the section 11 and provided with an inclined slot 21 presenting an inclined surface 22 at the outer wall of the slot 21 to engage a fastening device 23 carried by the section 11 of the dust guard and extending across the kerf 20 and consisting of a pin, rivet, or other suitable fastening device.

In assembling the sections of the dust guard, the tongue 16 is introduced into the groove 18 and the metal plate 19 into the kerf 20, and the lower end of the section 12 is moved upwardly with relation to the lower end of the section 11 to carry the inclined wall or surface 22 into engagement with the fastening device 23, whereby such relative slidable movement of the sections will operate through the inclined wall 22 and the fastening device 23 to draw the sections into tight abutment.

Instead of forming the inclined wall or surface 22 by means of a separate metal plate, the tongue at the bottom of one of the sections of a vertically divided dust guard may be provided with a tapered extension 24 adapted to fit into a tapered recess 25 of the other section of the dust guard and presenting an inclined surface 26 to a complementary inclined surface 27 formed by the inner wall of the recess 25.

The inclined surfaces operate to draw the sections of the dust guard together in the same manner as the inclined surface 22 and the cooperating fastening device 23 heretofore described.

The tapered projection 24 and recess 25 may be provided at each end of the sections of the dust guard, as will be readily understood.

When the sections 11 and 12 are assembled and drawn together, their upper ends may be secured tightly in abutting engagement by means of a substantially U-shaped fastening device in the form of a staple 28 which is adapted to bridge the joint and have its legs or side portions driven into the abutting portions at the top of the dust guard. Any other suitable fastening means may be employed and the staple may be readily withdrawn when it is desired to separate the sections 11 and 12 and remove the dust guard and if desired any suitable form of latching means may be provided for detachably securing the upper and lower ends of the sections in abutting relation.

Also, if desired, a bowed spring may be provided at one or both sides of the dust guard intermediate of the top and bottom thereof for engaging the opposite walls of the journal box for maintaining the ends of the sections in tight abutment without the necessity of providing interlocking and fastening means at the top and bottom of the sections.

When it is desired to apply the improvements of the present invention to standard type journal boxes in use without discarding the same and substituting therefor new journal boxes having the top wall of the dust guard chamber formed integral with the journal box, the slot 29 at the top of the dust guard chamber may be closed by means of a metal cap 30 extending entirely across the dust guard chamber from one side to the other thereof and consisting of spaced sides 31, a top connecting portion 32, and end walls 33. The side and end walls are provided with horizontal flanges 34 forming a marginal attaching portion extending entirely around the metal cap and adapted to be welded or otherwise secured to the top of the journal box around the dust guard chamber so that when the metal cap is applied to the journal box it will be practically integral therewith and will completely close and seal the dust guard chamber at the top thereof. The cap is provided with an interior recess 35 which forms an extension similar to the additional space formed by the integral extension 8 of the dust guard chamber heretofore described.

The sectional dust guard, which is adapted to prevent the escape of oil from the journal box and to exclude therefrom dust, grit, and other

foreign matter, is applicable to journal boxes having the top of the dust guard chamber open or consisting of an open slot and this will enable the dust guard to be kept in stock and to be applied to any standard type journal box.

What is claimed is:

1. For use in a unitary car axle journal box consisting of a substantially single integral structure and having a rear axle receiving opening, a dust guard divided vertically into two sections of a size to be introduced separately into the journal box at the back thereof and adapted to be inserted into the dust guard chamber through said rear opening and assembled within the recess in operative position with relation to each other, said sections being continuous from the top to the bottom of the dust guard and having abutting top and bottom portions, the top portions of the sections being arranged to be supported by the journal of a car axle, and means for detachably interlocking the sections at one end with each other, one of the sections having an inclined surface and the other section having means cooperating with said inclined surface and arranged to be engaged by the same for drawing the sections into abutting relation as they are assembled.

2. For use in a unitary car axle journal box consisting of a substantially single integral structure and having a rear axle receiving opening, a dust guard divided vertically into two sections of a size to be introduced separately into the journal box at the back thereof and adapted to be inserted into the dust guard chamber through said rear opening and assembled within the recess in operative position with relation to each other, said sections being continuous from the top to the bottom of the dust guard and having abutting top and bottom portions, the top portions of the sections being arranged to be supported by the journal of a car axle, and means for detachably interlocking the sections at one end with each other, one of the sections being provided with a plate overlapping the other section and having an inclined slot and a fastening device carried by said other section and arranged to be engaged by an inclined wall of said slot whereby the sections are drawn together in assembling the same.

WILLIAM H. SALE.