This invention relates to dust guards and in particular to lubricated dust guards adapted to fit in the dust guard pocket of a railroad car journal box and seal the opening between the hub seat of the car axle and the journal box as well as seal the joint between the rear wall of the said dust guard pocket and the dust guard.

The rear of the journal box of a railroad car is generally provided with a dust guard pocket into which a dust guard is placed to prevent dust, sand, cinders, grit, and the like from entering the journal box at its rear opening through which the car axle projects. There have been many types of dust guards in use, none of which are inexpensive yet easy to apply and which provide continuous and satisfactory service over long periods of time due to their inability to resist wear and overheating caused from being secured too tightly around car axles and because of distortion resulting from the constant pounding of the railroad car over rail joints, flat spots on car wheels and the like.

The main object of this invention is to provide a simple inexpensive oil carrying dust guard for a railroad car journal boxes adapted to resiliently grip the hub seat of the car axle and automatically compensate for wear between the said dust guard and car axle.

Another object of this invention is to provide an oil carrying dust guard for railroad car journal boxes adapted to resiliently grip the hub seat of the car axle and lubricate the contact surface therebetween with lubricant constantly supplied from the journal box.

Another object of this invention is to provide a lubricated dust guard for railroad car journal boxes having means for resiliently gripping the hub seat of the car axle including means secured to yet independent of said resilient gripping means for limiting the flexing of the said resilient gripping means and preventing undue distortion thereof resulting from the constant pounding of the car over rail joints, flat spots on car wheels and the like.

Still another object of this invention is to provide in combination with a railroad car journal box having a dust guard pocket, a suitable gasket facing on the inside of the rear wall of the said dust guard pocket, and a lubricated dust guard adapted to be constantly urged in slideable sealed contact with said gasket facing having means for resiliently gripping the car axle and means for limiting the flexing of the said resilient means.

Other objects of the invention will become apparent by reference to the following detailed description taken in connection with the accompanying drawing, in which:

Fig. 1 is a fragmentary sectional view of a railroad car journal box and car axle showing a dust guard embodying the invention positioned in the dust guard pocket thereof and around the hub seat of the car axle.

Fig. 2 is a sectional view taken on the line 2—2 of Fig. 1 showing the dust guard in elevation before the car axle is positioned therethrough.

Fig. 3 is an enlarged fragmentary detailed elevational view showing the preferred construction of the dust guard disclosed in Figs. 1 and 2, portions thereof being broken away to better illustrate the invention.

Fig. 4 is an enlarged fragmentary detailed sectional view showing the dust guard disclosed in Fig. 1 positioned in the dust guard pocket of a journal box and flexed against a car axle.

Fig. 5 is an enlarged fragmentary detailed sectional view showing a modified form of the invention positioned in the dust guard pocket of a journal box and flexed against a car axle, the partition wall of the said dust guard pocket having an aperture therethrough substantially at the low point thereof for admitting lubricant from the main portion of the journal box into the said dust guard pocket.

Fig. 6 is an enlarged sectional view disclosing a preferred type of fabric best used for each layer of the contact pad of the embodiment of the invention shown in Figs. 1, 2, 3 and 4.

Fig. 7 is an enlarged sectional view disclosing a preferred type of fabric best used for each layer of the contact pad of the embodiment of the invention shown in Fig. 5.

Fig. 8 is an enlarged detailed view indicating the preferred use of shouldered means for securing the dust guard in assembled relationship with the outer portions thereof maintained in the desired spaced relation to each other.

Referring now to the drawing wherein like numerals refer to like and corresponding parts throughout the several views, the embodiment of the invention shown in Figs. 1 to 4 inclusive comprises in general a dust guard 10 positioned in the dust guard pocket 11 of the journal box 12 into which the car axle 13 having a hub seat 14 is journaled by means of the bearing 15 secured in the top of the said journal box 12 by a suitable wedge 16.

The rear wall of the said dust guard pocket 11 is preferably lined with a suitable smooth gasket 17 to provide an even surface against which the dust guard 10 is constantly urged by means of 55.
suitable springs 18 thereon. The said gasket 17 may be of any suitable material such as cork, hard felt or the like shellacked, cemented or otherwise secured to the rear wall of the said dust guard pocket. The said gasket 17 may be composed of a layer of felt against the rear wall of the dust guard pocket to compensate for irregularities in the cast surface thereof, a sheet metal central portion, and a layer of cork 10 or other suitable surface against which the dust guard 10 may slide when urged thereagainst by the said springs 18.

The top of the dust guard pocket 11 may be sealed by any suitable means such as the wood wedge 19 as indicated in Figs. 1 and 2. The dust guard 10 comprises, in general, an outer and inner aperture plate 20 and 21 respectively and two or more, preferably three, lubricated contact pads 22, 23 and 24 disposed therebetween, the said inner plate 21 having resilient means such as the serrated arcuate springs 25 secured thereto which resiliently urge the contact pads 22, 23 and 24 in contact with the car axle as best indicated in Figs. 2 and 4. Suitable leaf springs 18 secured to the said dust guard pocket as best shown in Figs. 1 and 2 rest against the front wall of the said dust guard pocket 11 to constantly urge the said dust guard 10 against the gasket 17.

The outer and inner plates 20 and 21 respectively may be of such material as Masonite, babbit, soft steel or any substantially rigid wear resisting material. The outer plate 20 has an aperture therethrough slightly larger than the diameter of the hub seat 14 of the car axle 13 while the inner plate 21 has an aperture therethrough considerably larger than the diameter of the hub seat 14 of the car axle 13 to permit the contact pads 22, 23 and 24 and the serrated springs 25 to flex inwardly therethrough as best shown in Figs. 1 and 4. The contact pads 22, 23 and 24 are preferably co-extensive with the dust guard 10 and are provided with an aperture therethrough smaller than the diameter of the hub seat 14 of the car axle 13 and are radially cut at suitable circumferential intervals adjacent to the said aperture therethrough in staggered relation to each other as indicated in Figs. 2 and 3. This permits the said contact pads 22, 23 and 24 to form themselves to the hub seat 14 of the car axle 13 without tearing or undue distortion and provides a perfect dust seal therearound.

The inner plate 21 is provided with four serrated arcuate springs 25 having the serrated portion thereof extending radially toward the hub seat 14 of the car axle 13 as best shown in Figs. 2, 3 and 4. The ends 26 of the said serrated springs 25 are curved outward to permit the said spring 25 to slide over the surface of the contact pad 24 when flexing therewith without fouling the same. The said springs 25 are secured to the inner plate 21 by such suitable means as the rivets 27.

The component parts of the said dust guard 10 as hereinbefore described, namely the outer plate 20, the contact pads 22, 23 and 24, the inner plate 21 carrying the serrated springs 25 are preferably secured together in a unit by such means as the shouldered rivets 22, the leaf springs 18 having aveled outer ends 30 being secured to the inner face of the said dust guard 10 by shouldered rivets 280. The shouldered rivets 28 and 280 being used to maintain the outer plate 20 and the inner plate 21 in the desired spaced relation to each other.

The contact pads 22, 23 and 24 may be of hard felt, but each pad may be used with a composite material as disclosed in Fig. 6. The said composite material preferably comprises a layer of hard felt 31 and a layer of cotton wicking 32 secured together in any suitable manner. The felt 31, in each instance, is placed toward the hub 14 of the car axle 13; viz., in an inner face of the said dust guard pocket 11 and the low point of the partition wall 110 of the said dust guard pocket 11 is provided with an aperture 33 therethrough at a low point thereof for admission of the said composite material of the journal box into the said dust guard pocket. The contact pad 240 may be of the composite material shown in Fig. 6 or may preferably be of a specially woven fabric as indicated in Fig. 7 in which the warp 34 is of cotton wicking and the woof 35 is of hard wool. Such a fabric would both feed oil from the bottom of the dust guard pocket 11 to the hub seat 14 of the car axle 13 and be able to resist the frictional wear of the said hub seat 14 thereagainst. The fabric shown in Fig. 6 or the fabric shown in Fig. 7 may be interchangeably substituted for the hard felt contact pads 22, 23 and 24 as desired, however, it is preferable to use the type of fabric shown in Fig. 7 for the contact pads 22, 23 and 24 in the embodiment of the invention shown in Fig. 5.

The dust guards embodying the invention are first soaked in a suitable lubricant before being inserted into the dust guard pocket 11 of a journal box 12. The box 12 is then positioned over the car axle 13 and the contact pads 22, 23 and 24 flex in respect to the said car axle 13 and its hub seat 14 as best illustrated in Figs. 1 and 4. The serrated springs 25 flex with the said contact pads 22, 23 and 24, but, due to their spring action, they constantly urge the said contact pads 22, 23 and 24 into sealed relationship around the hub seat 14 of the car axle 15. The leaf springs 18 on the inner face of the dust guard 55 constantly urge the said dust guard in slidable sealed relationship against the gasket 17 secured on the inside of the rear wall of the dust guard pocket 11 as hereinbefore described.

In order to prevent undue flexing of the serrated springs 25, the outer plate 20 of the said dust guard is apertured to fit over the hub seat 14 of the car axle 13 with a slight clearance therearound which causes the entire dust guard to move with the car axle 13. The pressure of the serrated springs 25 against the contact pads 22, 23 and 24 causes the said contact pads to bear with substantial equal pressure on and around the hub seat 14 of the car axle 13 which causes the outer plate 20 to maintain itself spaced around the said hub seat 14.

Thus, the outer plate 20 of the dust guards embodying this invention relieves the contact pads 22, 23 and 24 and the serrated springs 25 from extreme flexing and yet the portion of the said 76
outer plate 28 peripherally adjacent to the hub seat 14 of the car axle 13 is brought in spaced relation to the said hub seat 14 by the said serrated springs 25 immediately after the said outer plate relieves said springs from undue flexing caused by road shocks resulting from the pounding of the railroad car over rail joints, flat spots on car wheels and the like.

The embodiment of the invention shown in Fig. 5 functions precisely the same as the embodiment of the invention shown in Figs. 1 to 4 inclusive except the contact pad 260 is extended into the bottom of the dust guard pocket 14 and receives additional lubricant constantly from the main portion of the journal box 12 via the aperture 33 through the low point of the partition wall 110. The types of contact pads 22, 23, 24 and 240 shown in Figs. 6 and 7 are preferable to the ordinary felt contact pads inasmuch as the lubricant retaining qualities and capillary ability thereof are extremely valuable to the invention in increasing the usable life thereof.

Although but two specific embodiments of the invention have been disclosed and described herein, it will be understood that various changes including the size, shape, arrangement and details of the various parts thereof may be made without departing from the spirit of the invention, and it is not intended to limit the scope of the invention other than by the terms of the appended claims.

I claim:

1. A lubricated dust guard for sealing the opening between a car axle and its journal box comprising a pair of apertured plates, a plurality of oil carrying contact pads each having an aperture therethrough smaller than the diameter of the said car axle secured between said plates, the said contact pads being radially cut at circumferential intervals adjacent to said aperture therethrough in staggered relationship to each other to admit of flexing around said axle, and radially disposed serrated spring means adapted to constantly urge said contact pads in sealed relationship around said axle.

2. In combination with a journal box having a dust guard pocket at the rear thereof and a car axle journaled therethrough, a lubricated dust guard comprising a pair of apertured plates one of which being so apertured as to limit the movement of the said dust guard radially in respect to the car axle, a plurality of oil carrying contact pads each having an aperture therethrough smaller than the diameter of the said car axle secured between said plates, the said contact pads being slit at circumferential intervals in staggered relationship with respect to each other adjacent to said aperture therethrough whereby to admit of axial flexing with respect to said axle, spring means adapted to constantly urge said contact pads in sealed relationship around said axle, a gasket lining on the inside of the rear wall of said dust guard pocket, and means on said dust guard for constantly urging the same against the said gasket.

HARRY H. GRECE.