

Dec. 14, 1926.

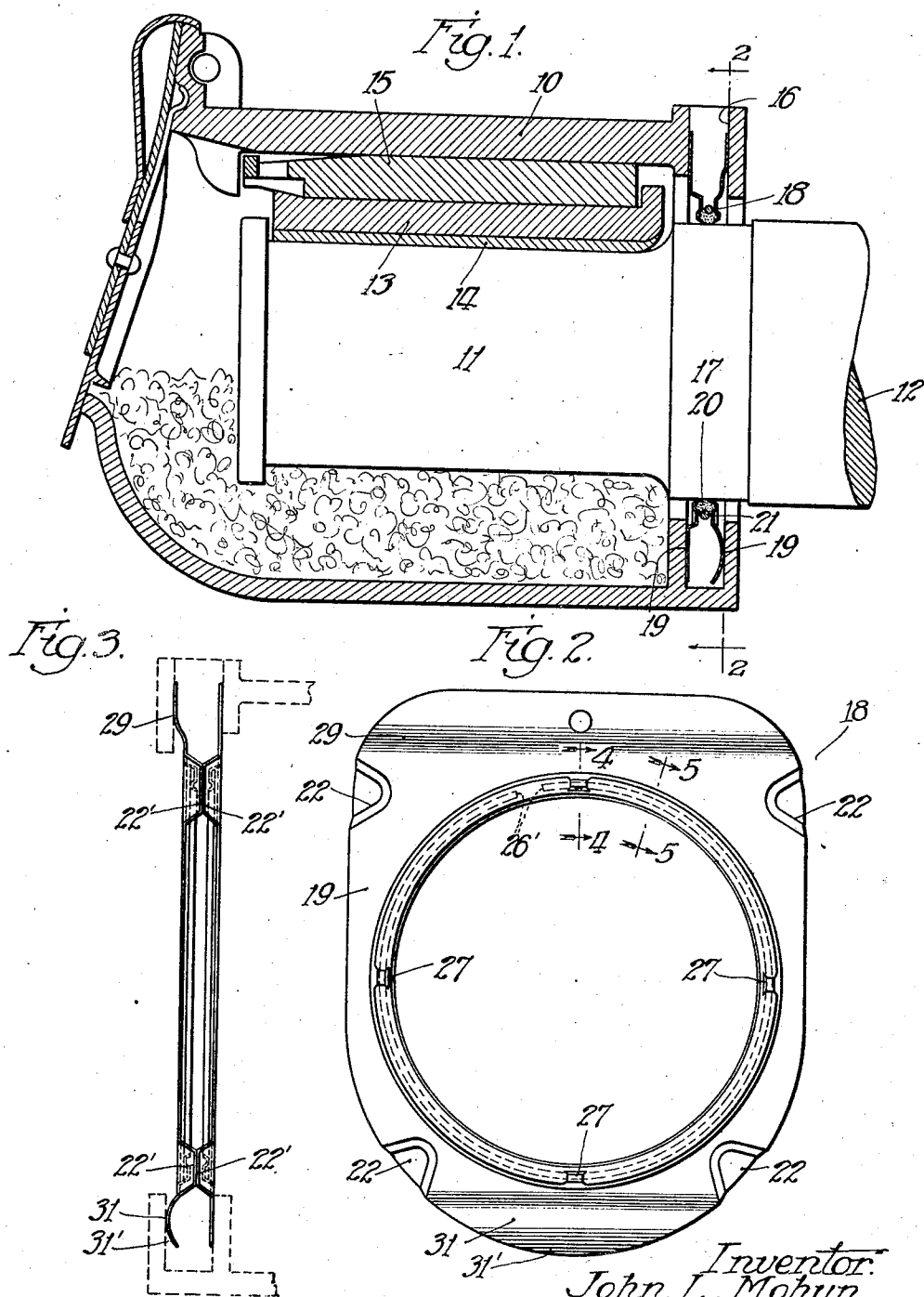
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1,610,464

DUST GUARD FOR THE JOURNAL BOXES OF RAILWAY CARS

Filed July 21, 1924

2 Sheets-Sheet 1



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Fig. 4.

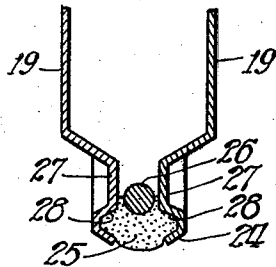


Fig. 5.

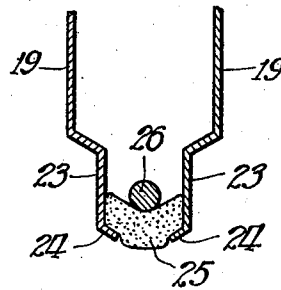


Fig. 6.

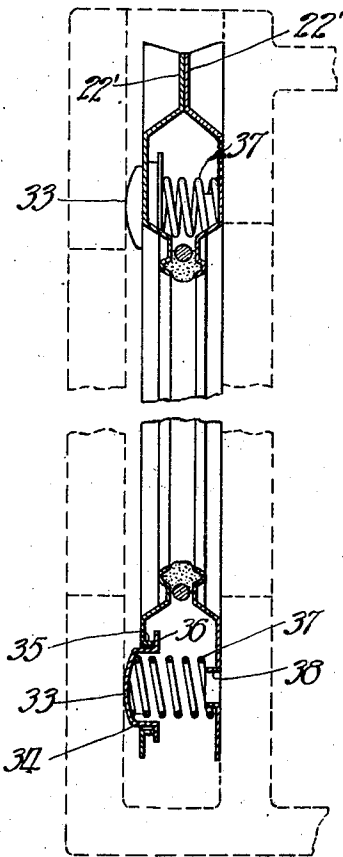
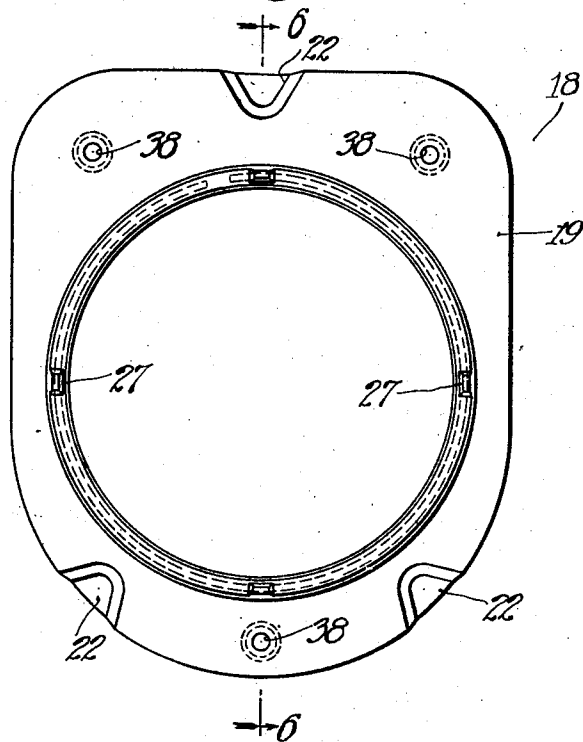


Fig. 7.



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DUST GUARD FOR THE JOURNAL BOXES OF RAILWAY CARS.

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My invention relates to improvements in dust guards for the journal boxes of railway cars.

One of the objects of the present invention is to provide a metallic dust guard comprising two sheet metal plates stamped out to size and joined together, preferably by spot welding, with a predetermined space intervening for receiving the packing ring and the packing ring spring.

A further object is to provide an improved arrangement of offsets or depressed areas in the side plates to properly space the same and to permit them to be secured together by spot welding or equivalent fastening means.

A further object is to provide improved means for resiliently thrusting the dust guard unit sideways in its mounting in the dust guard chamber so as to force one of the side plates into firm engagement with the wall of the dust guard chamber.

A still further object is to provide improved guide means for guiding the packing ring spring, and for retaining the packing ring in its inwardly compressed positions.

Further objects, features and advantages of my invention are to be found in the following description and in the accompanying drawings referred to, wherein:

Figure 1 is a longitudinal vertical section through the conventional journal box of a railway car, showing the dust guard of my invention inserted in the dust guard chamber of the journal box;

Figure 2 is a front elevation of the dust guard viewed from the line 2—2 of Figure 1;

Figure 3 is a side elevation of the dust guard;

Figure 4 is a detailed sectional view taken on the plane of the line 4—4 of Figure 2;

Figure 5 is a similar view taken on the plane of the line 5—5 of Figure 2;

Figure 6 is a front elevation of a modified construction; and

Figure 7 is a vertical sectional view through the same.

In Figure 1, I have illustrated the conventional journal box 10 into which the

journal 11 of an axle 12 extends, the journal being provided with the usual bearing 13, lining 14, and wedge 15. At its inner end the journal box has the usual dust guard chamber 16 disposed about the shoulder portion 17 of the axle. Into this chamber 16 is slipped the dust guard 18 of my invention, which comprises essentially a pair of spaced side plates 19—19, an annular journal contacting ring 20, and a spring rod or band 21 for radially compressing the ring 20.

Each side plate 19 is in the general form of an annular sheet having a central aperture only slightly larger than the diameter of the shoulder 17 of the axle and having its upper end extended somewhat as a rectangle with slightly rounded corners. These plates are preferably of a relatively light gauge sheet metal, and at four points about their respective margins these plates have punched depressions 22 which project in from the opposing sides of the two plates to a depth approximately equal to one-half of the desired spacing between these plates. The bottom walls 22' are matched between the two plates, and are then secured together, preferably by spot welding. Each punched depression 22 is flared outwardly to the margin of the plate for facility in engaging the two welding electrodes over the abutting bottom walls 22'.

Adjacent the margins of their central apertures the plates are bent inwardly, so that the cross section along the radius of the guard presents inwardly stepped flanges 23 between which are confined the hereafter-mentioned packing and the circular compression spring. It is desirable for the packing ring to have a cross-sectional width narrower than the width of the dust guard chamber 16, and the two inwardly stepped flanges 23 snugly receive this narrower packing ring. Each of these inwardly stepped flanges is provided with an inwardly sloped annular flange 24 to hold the packing in place, both before and after the dust guard is inserted into the dust guard chamber of the journal box.

Between the stepped flanges 23 and projecting inwardly beyond the sloped flanges

24 is the axle contacting ring 25, preferably of asbestos. While it is not essential that an asbestos ring be used, I consider it advisable because of its slow burning properties. A spring band 26 embraces the ring 25 for the purpose of automatically forcing the ring inwardly radially at all points to preserve a continuous line of contact with the shoulder 17 of the axle about the periphery of the latter. The band 26 is preferably a round rod of spring steel having ends slightly separated, as indicated at 26' in Figure 2, and being so sprung that it tends to compress the packing ring to a smaller diameter.

For guiding and confining the spring centrally, and for preventing outward regression of the ring 25 whereby it could break contact with the axle, I provide a plurality of punched depressions 27 in the stepped flanges 24 at spaced intervals about the flanges. These depressions extend from each side plate into close proximity to the spring, as best shown in Figure 5, and prevent the spring from shifting to one side or the other of the packing ring 25. The packing ring 25 spreads laterally under the inner surfaces 28 of these punched depressions, which obtain an effective hold on the ring when the latter is pushed radially toward the axle by the spring 26. Thus, as the inner surface of the packing ring wears away, the spring 27 will keep the ring 25 pushed into contact with the axle, and as the ring is thus sprung inwardly the several punched depressions will engage the ring at points nearer its periphery to eliminate any tendency of the ring to be pushed back at any point around the guard, and thus maintaining the proper clearance between the side plates 19 and the axle. It will be noted that these punched depressions 27 are of non-perforate character, so that there is no possibility of the ingress of dust and dirt or the egress of oil through these guiding depressions.

For maintaining an oil and dust-tight seal between the dust guard and the wall or walls of the dust guard chamber 16, I provide laterally acting spring means for forcing one of the side plate 19 snugly against the adjacent wall of the aforesaid chamber. In the embodiment illustrated in Figures 2 to 5 inclusive, this spring means comprises a raised spring portion 29 formed along the flat upper edge of one plate, and a similar raised portion 31 extending parallel thereto across the rounded lower edge of this same plate. These raised portions are adapted to have ample resiliency for forcing the opposite wall of the dust guard over into firm contact with the adjacent wall of the dust guard chamber 16.

The dust guard is inserted down through the open top of the dust guard chamber. The guard may be inserted with the spring

portions 29 and 31 bearing against either the front wall or the back wall of the chamber. The preferred manner is with these spring portions bearing against the rear wall so as to press the other plate against the front wall of the chamber. It will be noted that the lip of the lower spring portion 31 is curved inwardly at 31' to facilitate inserting the edge of the guard in the opening 16. The resiliency of the two spring portions 29 and 31 maintains a continual seal between the journal box and the dust guard chamber, and effectively prevents all rattling or play of the guard.

In the embodiment illustrated in Figures 6 and 7, the upper edges of the two side plates have been spot welded together in a co-operating pair of depressions 22 located substantially centrally of the plates for accommodating the two lateral spring plungers 33. A third spring plunger 33 is disposed at the lower edge of the guard substantially centrally thereof. As shown in Figure 7, each spring plunger comprises a sheet metal plunger head stamped out with a spherical end and a cylindrical shank 34 which is guided in a boss 35. The boss 35 is punched inwardly from the marginal portion of one of the plates 19. A collar 36 turned outwardly on the end of the shank portion 34 forms a stop for engaging with the end of the boss 35 to limit the outer movement of the plunger head 33. A compression spring 37 is confined between the under side of this plunger head and a boss 38 punched out in the opposite plate in alignment with the plunger head 33.

The spherical contour of the plunger heads facilitates inserting the dust guard down through the top of the dust guard chamber 16, these plunger heads camming themselves into compressed positions in the act of inserting the dust guard. In assembled position, these spring plungers resiliently press the front side plate 19 against the front wall of the dust guard chamber 16 with a firm pressure for effectively sealing the joint between the dust guard and the chamber wall against the entrance of dust and dirt and the loss of oil from the journal box.

This embodiment may have the same arrangement of stepped and sloped flanges 23 and 24, and the guide depressions 27 for centering the spring 26 and maintaining the packing ring in its inwardly compressed positions.

In each of the preceding embodiments, the packing ring 25 and the compression spring 26 are first assembled between the plates, after which the plates are spot welded together through their contacting areas 22'. This results in a unit assembly, from which there is no possibility of parts becoming lost. In the form shown in Figure 7, the provi-

sion of the stop collars 36 retains the plungers 33 as a part of the unit assembly of the dust guard and prevents any loss of these spring plungers.

5 While I have shown but these specific embodiments of my invention, it is to be understood that certain changes may be made therein without departing from the spirit or scope of my invention.

10 I claim:

1. A journal box dust guard comprising a pair of spaced side plates having aligned central apertures therein, inwardly sloped flanges around the margins of said apertures, 15 a packing ring between said inwardly sloped flanges, spring means for forcing said packing ring inwardly across said flanges, and projections formed in the margins of said plates at corresponding points, the corresponding projections of the two plates en- 20 gaging between the plates and being fixed to each other.

2. A journal box dust guard comprising a pair of side plates having aligned central 25 apertures therein, sloped surfaces around said apertures, compressible packing material between said side plates and engaging said sloped surfaces, a spring embracing said packing and disposed between said side 30 plates, and projections formed in the margins of said plates at corresponding points and being held together between said plates, the space between any two points of attachment between said side plates being less than 35 the diameter of said packing ring and said spring whereby the accidental displacement of said packing ring or said spring is prevented.

3. A journal box dust guard comprising a 40 first side plate, a second side plate, said plates having openings therein through which the axle is inserted, compressible packing material between said plates, a spring embracing said packing between said plates, 45 projections formed in the margins of said plates at corresponding points, the corresponding projections of the two plates engaging between the plates and being held together, and spring flanges projecting from 50 said second plate at substantially opposite sides thereof for engaging one wall of the dust guard chamber and pressing said other plate against the opposite wall of said chamber.

4. A journal box dust guard comprising a pair of side plates adapted to fit in the dust guard chamber of a journal box, said side 55 plates having openings therein through which the axle may be inserted, compressible packing material between said side plates, a spring embracing said packing between said side plates, means rigidly connecting said side plates together, and spring flanges integral with one of said plates projecting later- 60 ally from the top and bottom edges thereof,

said spring flanges engaging one wall of the dust guard chamber for forcing the opposite plate against the other wall of said chamber.

5. A journal box dust guard comprising a pair of side plates adapted to fit in the dust 70 guard chamber of a journal box, said side plates having rounded lower edges and substantially flat upper edges, said plates having openings therein through which the axle may be inserted, inwardly inclined flanges 75 around said openings, compressible packing material between said side plates and engaging said inwardly inclined flanges, a spring embracing said packing and disposed between said side plates, projections formed in 80 the margins of said plates at corresponding points, the corresponding projections of the two plates being held together, a spring flange projecting laterally from one of said side plates along its flat upper edge, and a 85 spring flange projecting laterally from the same side plate across its lower curved edge.

6. A journal box dust guard having a pair of spaced side plates adapted to fit in the 90 dust guard chamber of a journal box, said side plates having openings therein through which the axle may be inserted, inwardly stepped flanges adjacent said openings lying in substantially parallel relation between 95 said side plates, inwardly sloped flanges around said openings extending from said inwardly stepped flanges and converging towards each other as they approach the axle, a compressible packing material be- 100 tween said inwardly stepped flanges, and a spring embracing said packing material and operating to press the same through the space between the inwardly sloped flanges of both side plates.

7. A journal box dust guard having a pair 105 of spaced side plates adapted to fit in the dust guard chamber of a journal box, said side plates having openings therein through which the axle may be inserted, inwardly stepped flanges adjacent said openings, in- 110 wardly converging flanges around said openings, a compressible packing material between said inwardly stepped flanges, and a spring embracing said packing material and operating to press the same through the 115 space between the inwardly converging flanges of both side plates.

8. A journal box dust guard comprising a pair of side plates, said side plates having 120 openings therein through which the axle may be inserted, inwardly stepped flanges adjacent said openings, inwardly sloped flanges leading from said stepped flanges to said openings, a ring of compressible pack- 125 ing material between said stepped flanges, a spring embracing said packing ring and operating to press said packing through the opening between said sloped flanges, and joining portions on said plates held together 130 for joining said plates into a rigid unit.

9. A journal box dust guard having side plates adapted to fit in the dust guard chamber of a journal box, said side plates having openings therein through which the axle may be inserted, inwardly stepped flanges adjacent said openings, inwardly sloped flanges defining said openings, a ring of packing material between said stepped flanges, a compression spring embracing said ring of packing material, and means projecting from said stepped flanges for substantially centering said spring. 10

In witness whereof, I hereunto subscribe my name this 7th day of July, 1924.

JOHN L. MOHUN.