

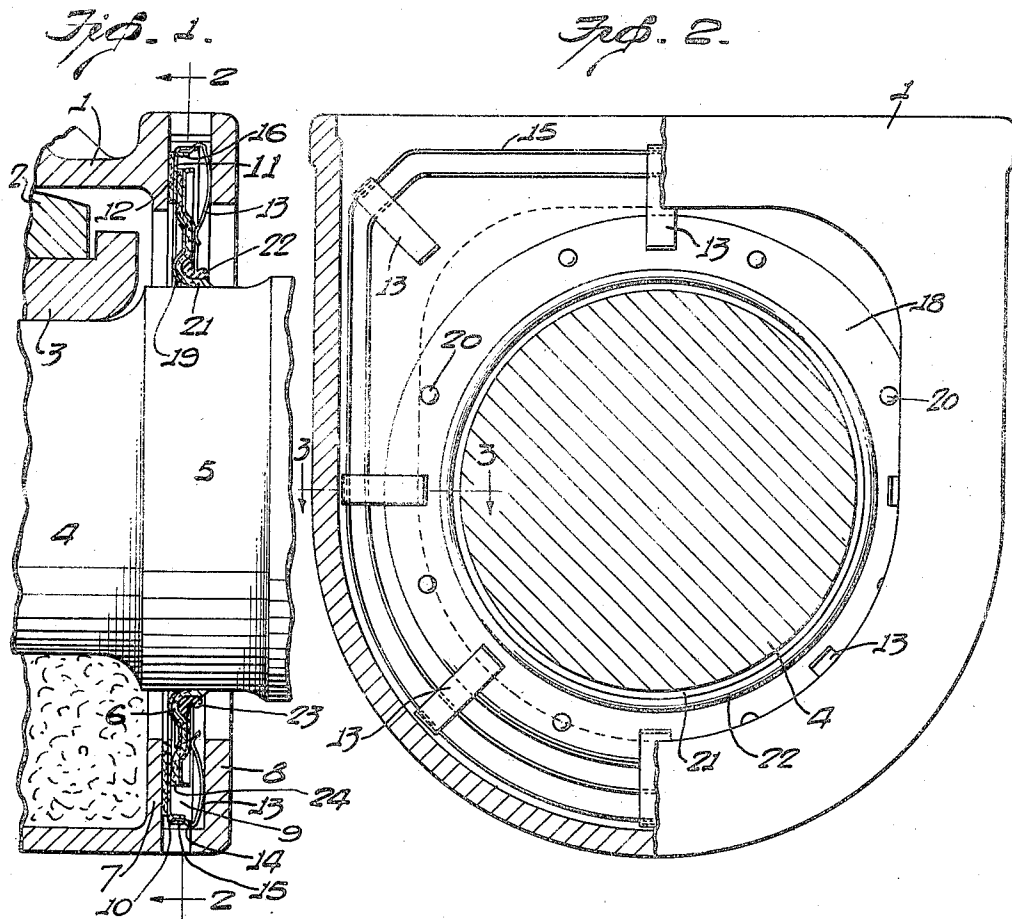
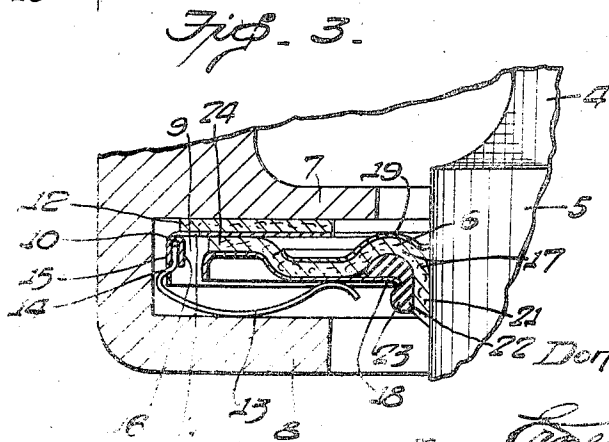
April 19, 1938.

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2,114,662

DUST GUARD FOR JOURNAL BOXES

Filed Oct. 2, 1935



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UNITED STATES PATENT OFFICE

2,114,662

DUST GUARD FOR JOURNAL BOXES

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Application October 2, 1935, Serial No. 43,257

9 Claims. (Cl. 286—6)

This invention relates to railway vehicle journal boxes and more particularly to a two-piece floating dustguard and oil seal adapted to fit in a dustguard well of such a box.

The principal object of my invention, generally considered, is to provide improved sealing means for eliminating, to as great an extent as possible, loss of oil from the box, and at the same time prevent entrance of dust and dirt.

Another object of my invention is the provision of a dustguard and oil seal comprising a pressure plate which is substantially immovable with respect to the journal box by being pressed against the inner or front wall of the dustguard well by means of curved plate springs, preferably fixed to a peripheral flange portion thereof, and a separately formed dustguard proper preferably comprising a face plate and a backing plate between which is secured a leather seal and an associated preferably oil-proof rubber dustguard and oil seal backing ring, said dustguard proper being pressed against said pressure plate by means of the same springs that urge the pressure plate against the front wall of the dustguard well.

A further object of my invention is the provision of a two-piece dustguard comprising a normally stationary member resiliently held against the dustguard well front wall by springs, and a complementary member movable with the associated journal and held against the stationary member by the same springs.

Other objects and advantages of the invention relating to the particular arrangement and construction of the various parts will become apparent as the description proceeds.

Referring to the drawing illustrating my invention, the scope whereof is defined by the appended claims:

Fig. 1 is a fragmentary longitudinal sectional view of a journal box showing a fragmentary portion of an axle in place therein, one embodiment of my dustguard and oil seal being shown in section.

Fig. 2 is a partial rear elevational view of the journal box shown in Fig. 1 and a partial transverse sectional view on the line 2—2 of Fig. 1, looking in the direction of the arrows, the enclosed dustguard and oil seal being partially shown in elevation.

Fig. 3 is a fragmentary horizontal sectional view on the line 3—3 of Fig. 2, looking in the direction of the arrows.

Referring to the drawing in detail, like parts being designated by like reference characters, there is shown a portion of a railway vehicle

journal box 1 which may be of conventional construction, and only the inner or dustguard well portion of which is illustrated. Said journal box may receive a conventional form of wedge 2 and brass 3 forming a bearing for the journal 4, only a portion of which is illustrated, said journal 4 being preferably of conventional construction and having a collar (not shown) on its outer end, the inner portion of said journal expanding to an axle portion of enlarged diameter forming a dustguard seat 5, which portion carries my combined dustguard and oil seal, generally designated by the reference character 6.

The journal box 1, as is customary, has a double rear wall comprising an inner or front web or flange portion 7 and an outer or rear web or flange portion 8 forming a dustguard well 9 therebetween, said well receiving the dustguard 6, which, in the present embodiment, is formed in two parts and constructed as follows:

The normally stationary part 10 or pressure plate comprises a preferably steel plate 11, with a facing of packing material 12 which may be leather, felt, or something equally suitable. Said pressure plate 10 has the packing material 12 thereon forced into tight engagement with the flange or inner wall 7 of the dustguard well by means of a plurality of curved plate springs 13, the outer ends of which are bent, as shown most clearly in Figs. 1 and 3, inserted through slots 14 in a peripheral flange portion 15 of the plate 11, and clamped against the inner face of said flange portion by means of lugs or tabs 16 partially punched from the main portion of said plate and bent outwardly against the inner faces of said spring ends. The springs 13 are so formed that their intermediate portions tightly engage the inner face of the outer wall 8 of the dustguard well, and their inner end portions, which are preferably curved as indicated to avoid sharp-edged engagement, act on the dustguard proper 17 for urging it into engagement with the pressure plate 10. There is thus normally no wear of the intermediate portions of the springs 13 on the rear wall 8 of the dustguard well.

The dustguard proper 17, or part shifting laterally with the axle, in the present embodiment, comprises a face plate 18 and a backing plate 19, desirably formed of steel, between which are secured, as by means of rivets 20, a preferably leather packing member or diaphragm 21 for the purpose of forming an oil seal with the dustguard seat 5 of the axle. In addition to the diaphragm 21, a backing ring 22, preferably formed of oil-proof rubber, is secured between the inner

edge of the backing plate 18 and the outer surface of that sharpened or tapered portion of the diaphragm 21 where it is turned outwardly at right angles to engage the dustguard seat portion 5 of the axle. The backing ring 22 is desirably formed with a bead portion 23, preferably having an inner diameter corresponding, when free, with that of the dustguard seat portion 5, so that when the leather diaphragm portion 21 is between it and said seat portion 5 it is urged into tight engagement with said seat portion, making an oil-tight seal therewith.

The outer or peripheral portion of the leather diaphragm 21 engages the adjacent face of the pressure plate 10, as indicated at 24, and is held tightly thereagainst by the curved inner portions of the springs 13, urging the plate 18 away from the rear wall 8 defining the dustguard well. The associated face plate 18 and backing plate 19 are embossed so that the leather packing 21 therebetween takes the form illustrated in Figs. 1 and 3, that is, the outer portion is bent toward the pressure plate and the inner portion is curved around the backing ring 22 so that the inner edge portion is directed toward the central portion of the axle.

In assembling the dustguard proper with the journal 4 it is desirable to use some device to facilitate the assembly by expanding the inner portion of the leather packing or diaphragm 21 so that it will pass over the collar (not shown) at the end of the journal as well as pass on to the dustguard seat portion 5. For this purpose the collapsible device, such as designated by the reference character 25 and described and claimed in my copending application Serial No. 14,354, filed April 2, 1935, may be employed. It may also be desirable to close the top of the dustguard well by means of a cap (not shown), and for this purpose a cap, such as designated by the reference character 32 in the same copending application, may be used.

From the foregoing disclosure, it will be seen that I have devised a novel form of combined dustguard and oil seal comprising two main parts, that is, a normally stationary pressure plate with curved springs attached to a peripheral portion thereof, and with their middle portions pressing against the rear wall of the dustguard well, for urging the pressure plate into engagement with the front wall defining the dustguard well, and dustguard proper, movable with the associated journal, between said springs and plate and urged tightly against said plate by the same springs which urge the plate against the front wall which defines the dustguard well, said dustguard proper preferably comprising a rubber backed leather diaphragm which hugs the dustguard seat portion of the axle tightly to provide an oil seal therewith.

Packing is provided on the pressure plate to make an oil seal with the front wall of the dustguard well, and the outer portion of the leather dustguard diaphragm, being in tight engagement with the adjacent face of the pressure plate, forms an oil seal therewith and is slidable therealong with corresponding movement of the associated axle. By virtue of employing an oil-proof packing ring with the leather diaphragm, said diaphragm is always urged tightly into engagement with the dustguard seat portion of the axle. It will, therefore, be apparent that I have not only provided against the entrance of dust and undesirable material into the associated journal box, but I have also insured that practically

no oil can escape between my improved device and the associated journal box.

Although a preferred embodiment of my invention has been illustrated, it will be understood that modifications may be made within the spirit and scope of the appended claims.

I claim:

1. In combination with a journal box having a pair of webs forming the front and rear walls of a dustguard well, a two-piece dustguard comprising a normally stationary member held against the front wall of said well by curved plate springs secured to peripheral portions thereof, and with intermediate portions engaging the rear wall of said well, and a complementary member laterally shiftable with the associated axle and engaged by the inner ends of said springs for holding it against the stationary member.

2. A two-piece dustguard comprising a normally stationary member with springs secured to peripheral portions thereof, and a complementary member adapted to encircle and shift laterally with an associated axle and held against said stationary member by said springs.

3. A two-piece dustguard comprising a member with curved plate springs secured to peripheral portions thereof, and a complementary member adapted to encircle and shift laterally with an associated axle and engaged by the inner ends of said springs for holding it tightly against said stationary member.

4. A two-piece dustguard comprising a metal plate with a flanged peripheral portion, said flanged portion being slotted, curved plate springs with their outer end portions passing through said slots, tabs partially punched from the body of said plate and bent over the outer end portions of said springs for holding them against the inner surface of the flanged portion, the other end portions of said springs extending inwardly toward the center of the plate, and a complementary member adapted to shift laterally with an associated axle and engaged by said inner end portions of the springs for holding it against the plate member.

5. A dustguard for railway vehicle journal boxes comprising a normally stationary member, springs for holding said member against the front wall of an associated dustguard well, and a complementary member shiftable laterally with an associated axle and held against said stationary member by said springs, said complementary member comprising a metal plate apertured to receive the dustguard seat portion of said axle, a flexible sheet of packing secured thereto and provided with a flange defining an axle-receiving aperture, and a solid resilient ring fitting over said flange portion of the sheet of packing for holding it in tight engagement with said axle.

6. A dustguard for railway vehicle journal boxes comprising a normally stationary member adapted to be held against the front wall of a dustguard well by curved plate springs secured to peripheral portions thereof, said springs having intermediate portions adapted to engage the rear wall of said well and inner end portions normally engaging a complementary member adapted to shift laterally with an associated axle, said complementary member comprising a plate apertured to receive the dustguard seat portion of said axle, a sheet of leather secured thereto and having an aperture defined by a flange adapted to lie in contact with said seat portion, and a molded rubber ring encircling said flange

for maintaining the desired contact thereof with said seat portion.

5 7. A dustguard comprising a normally stationary member with packing on the front face thereof, a complementary member associated therewith and comprising a metal plate apertured to receive the dustguard seat portion of an associated axle, said complementary member having an outer edge portion flanged and an inner edge
10 portion curved slightly in a rearward direction, a rubber ring molded to correspond with said curved inner edge portion and engaging the front surface thereof, said ring having a beaded portion extending beyond the rear surface of said plate, a
15 leather diaphragm engaging the front surface of said plate and rubber ring and having a flange extended around said ring and along the inner surface thereof, and a metal ring engaging the front surface of the diaphragm and secured to
20 said plate, said metal ring having a concave surface engaging the diaphragm to hold it in nesting engagement with said rubber ring, the outer peripheral portion of said stationary member being flanged, curved plate springs secured to said
25 flanged portion and with inner end portions engaging said complementary member, intermediate portions of said springs being adapted to engage the rear wall of said dustguard well for exerting pressure on said stationary and complementary
30 members.

8. A dustguard comprising a normally stationary metal plate with packing on the front face thereof, a complementary member associated therewith and comprising a metal plate apertured
35 to receive a dustguard seat portion of an asso-

ciated axle, a rubber ring with a portion engaging the front face of said complementary member plate, and an annular portion extending through said aperture and bordering the edge thereof, a
5 leather diaphragm engaging the front surface of said plate and rubber ring, having a flange extending around said ring and along the inner surface thereof, the outer peripheral portion of said diaphragm engaging the rear surface of the
10 plate of the normally stationary member to seal the joint therebetween, a metal ring engaging the front surface of the diaphragm, means securing said ring to said complementary member plate, said ring having a rear surface curved to
15 conform with the diaphragm for holding it in nesting engagement with said rubber ring, and curved plate springs with outer end portions secured to the peripheral portion of said stationary member plate, intermediate portions of said
20 springs being adapted to engage the rear wall of an associated dustguard well so that the end portions respectively exert pressure on said stationary and complementary members, while allowing sliding movement of the complementary
25 member with respect to said stationary member.

9. In combination with a journal box having a pair of webs spaced to define a dustguard well, a dustguard comprising a stationary member and a complementary member laterally shiftable with the associated axle interposed between said webs,
30 and a spring engaging one of the webs and both members for urging said dustguard against the other web.

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