Jan. 17, 1961 R. G. SAUNDERS 2,968,498

DUST GUARD

Filed April 23, 1957

Fig. 1.

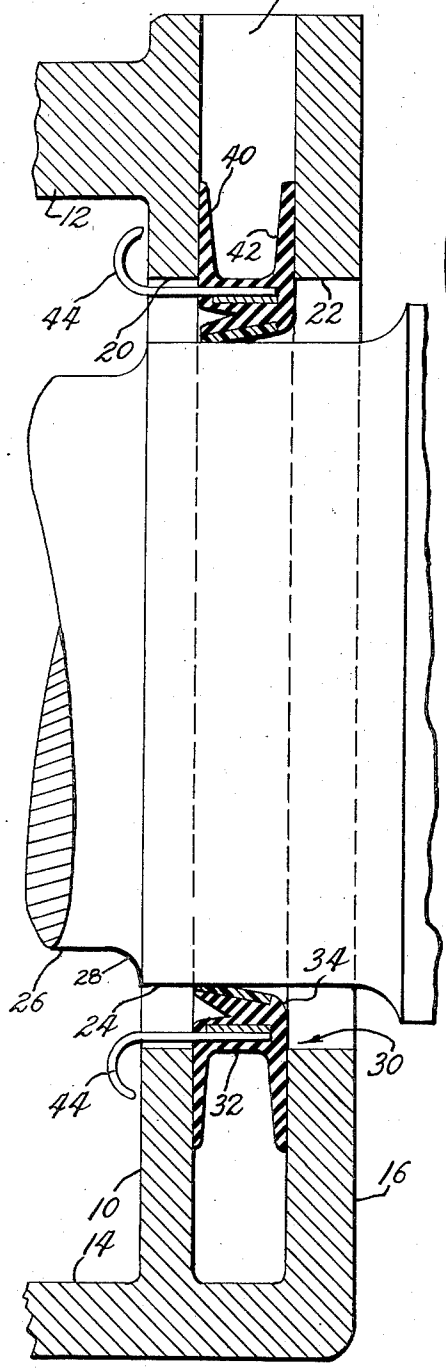


Fig. 2.

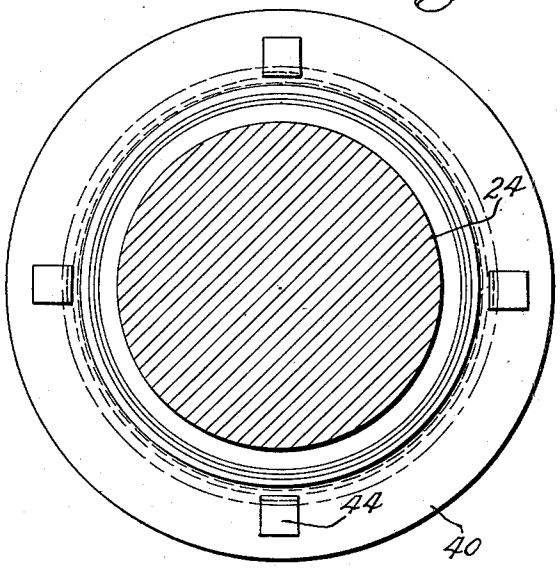
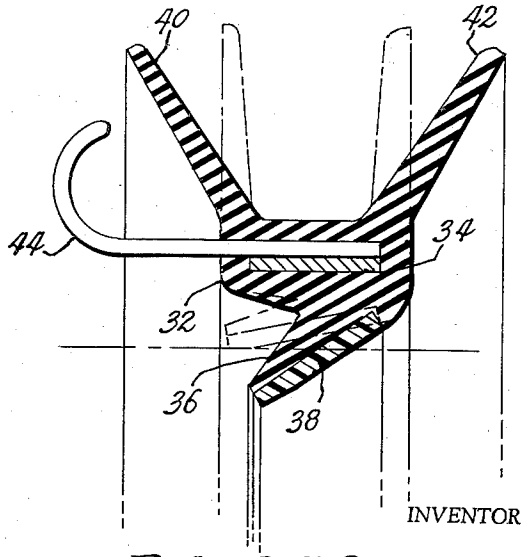


Fig. 3.



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DUST GUARD

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2 Claims. (Cl. 286—6)

The present invention relates to dust guards for railroad journal boxes.

In the conventional railway journal box made according to the standards of the American Association of Railroads, the wheel journal bearing is located within a journal box and suitable lubricant is applied to the journal and bearing within the box. The journal extends through an opening in the rear of the journal box and since the journal is subject to both longitudinal and transverse movement, due to braking and various operational impacts and movements, the opening in the back of the journal box is made somewhat larger than the journal.

The problem of sealing the space between the relatively movable journal and opening has been a major problem in securing and maintaining proper lubrication, free from dust, grit, water and other foreign contaminants.

For many years, workers in the art have sought a suitable dust guard and many expedients have been suggested involving the use of various materials such as wood, leather, rubber and the like. To date, none of those expedients has proven entirely successful. Some of the various prior art dust guards have been more or less successful for a limited period of time, but after a short period of operation under normal conditions, these prior art expedients have broken down and permitted escape of oil from the journal box and the influx of foreign matter into the journal box.

Another disadvantage of prior art dust guards is that all of the available dust guards have required insertion through the top of the dust guard well, which requires removal of the journal box from the car in the case of a bolted box or removal of the entire side frame when the box and side frame are cast as an integral piece.

I have found that an efficient long lasting dust guard can be provided which will effectively seal the space between the journal and the journal opening and which will maintain its sealing characteristic under operating conditions and over a long period of time. I have also found it possible to provide a dust guard which may be inserted in the dust guard slot from within the journal box without removing the journal box from the car.

One of the objects of the present invention is to provide an efficient and long-lasting dust guard seal for railway journal boxes.

Another object is to provide a railway journal box dust guard in which the journal is freely rotated and which is transversely slidable in the dust guard well.

Another object is to provide a railway journal box dust guard which may be inserted into the dust guard well from inside the journal box.

These and other objects and advantages reside in certain novel features of construction, arrangement and combination of parts, as will hereinafter be more fully set forth and pointed out in the appended claims.

Referring to the drawing:

Figure 1 is a fragmentary vertical section of the dust guard well of a standard journal box, showing the dust guard of the present invention in place;

Figure 2 is an elevation of the dust guard in place on a journal; and

Figure 3 is a fragmentary vertical section showing the dust guard of the present invention in its non-operating condition.

Figure 1 shows a fragmentary vertical section of the rear end of a standard railway car journal box built according to the standards specified by the A.A.R. A vertical wall **10** extends between the top **12** and bottom **14** of the journal box substantially closing the rear of the journal box, and spaced from the wall **10** is a second wall **16**. The walls **10** and **16** are spaced to form the dust guard slot or well which is closed at the sides and bottom but open at the top as indicated at **18**. The walls **10** and **12** are provided with central apertures **20** and **22** respectively through which the car axle **24** extends. The reduced journal indicated at **26** extends into the journal box in a conventional manner and the reduced journal is connected to the wheel axle by the conventional fillet **28**. The openings **20** and **22** are substantially coaxial with the wheel axle **24** and are somewhat larger than the wheel axle generally by about ¾ inch in diameter. The structure and dimensions of the dust guard well, openings, wheel axle, journal and fillet, as well as the parts within the journal box are according to A.A.R. standards.

The dust guard of the present invention is indicated generally at **30** and comprises a ring **32** which is concentric with and somewhat larger than the diameter of the wheel axle **24**. The outer periphery of this ring is also somewhat larger than the diameter of openings **20** or **22**.

The ring **32** is formed of resilient, flexible material such as oil resistant rubber, neoprene, duprene, or the like and is preferably reinforced with a flat, circular band **34** of steel or other flexible metal. The diameter of the band **34** is less than the diameter of the openings **20** and **22**.

Referring to Figure 3, the ring **32** is provided with an inwardly projecting extension **36** whose inner face **38** is formed of a flexible, wear-resistant material such a polyurethane, Teflon or nylon. When the dust guard of the present invention is in non-operating condition, that is, when it is outside of the dust guard well or no car axle is in position, the internal diameter of the projection **36** and facing **38** is substantially less than the outside diameter of the car wheel axle **24**. When the car wheel axle **24** is inserted through the central opening of the projection **36** and **38**, the projection and facing move to the dotted line position shown in Figure 3 or the full line position shown in Figure 1. The projection **36** and facing **38** form an oil-tight seal with the car wheel axle **24**. Ordinarily, I have found that when the smallest internal diameter of the projection **36** and facing **38** are ¼ to ½ inch less than the outside diameter of the wheel axle **24** a satisfactory seal is obtained.

In order to seal the dust guard to the walls of the dust-guard well, the ring **32** is provided at its outer periphery with an inner flange **40** and an outer flange **42**. When the dust guard of the present invention is in non-operating condition these flanges **40** and **42** project outwardly away from each other at an angle as shown in Figure 3 but when the dust guard is in position in the dust guard well, the flanges **40** and **42** are forced into the vertical positions shown in dotted lines in Figure 3 and in full lines in Figure 1. In this latter position, the flanges **40** and **42** are in oil tight engagement with the walls **10** and **16** respectively of the dust guard well, so that an oil tight seal is formed.

Ordinarily, dust guards are inserted through the open top **18** of the dust guard well. This requires removal of the car axle **24** from the journal box, insertion of the dust guard through the top **18** of the dust guard well and reinsertion of the car wheel axle through the opening in

the dust guard. This involves a substantial repair job. One of the advantages of the dust guard of the present invention is that it can be inserted through the journal box without the necessity of removing the car wheel axle from the journal box.

In order to insert or remove the dust guard of the present invention, the car is jacked up and the conventional journal brass and wedge are removed from the journal box. The dust guard seal of the present invention is slipped over the collar and journal, and the outer portion of flange **42** is inserted between openings **20** of wall **10** and the car wheel axle **24**. By pressing the dust guard seal of the present invention toward the rear wall **16** of the dust guard well, the flange **42** gradually assumes the vertical position shown in Figure 1 and with a suitable tool, the flexible flange **40** is also pushed through the opening **20** into the dust guard well. This front flange **40** also assumes a vertical position against the front wall **10**, thus forming an oil tight seal against the inner surface of the wall **10**. Thus the two flanges, especially flange **40**, form an oil tight seal against the interior surfaces of the walls **10** and **16**.

To facilitate insertion or removal of the dust guard of the present invention, suitable metal hooks or handles **44** may be welded or otherwise secured to the reinforcing ring **34**. These hooks or handles **44** extend into the journal box where they may be engaged by a suitable tool.

When a car having dust guard seals of the present invention is subjected to impact, breaking, or the like, which causes lateral movement of the journal, such lateral movement will cause first deformation of the projection **36** and surface **38**. Further lateral movement will cause movement of the entire dust guard seal within the dust guard well without destroying the oil seal between the flanges **40** and **42** and the inner surface of the walls **10** and **16** respectively. During the entire movement, oil tight engagement is maintained between the dust guard and axle and between the dust guard and dust guard well thus insuring an oil-tight seal at all times at the rear of the journal box.

The invention may be embodied in other specific forms without departing from the spirit or essential characteristics thereof. The present embodiment is therefore to be considered in all respects as illustrative and not restrictive, the scope of the invention being indicated by the appended claims rather than by the foregoing description, and all changes which come within the meaning and range of equivalency of the claims are therefore intended to be embraced therein.

What is claimed and desired to be secured by United States Letters Patent is:

1. A dust guard seal for railway car journal boxes comprising a circuflar metallic reinforcing band having an inside diameter larger than the diameter of a railway car axle and an outside diameter less than the diameter of the axle openings in a journal box dust guard well, a resilient member of flexible plastic material surrounding said band to form with said band a solid unitary annular body, said resilient member including a single annular projection of reduced cross section extending inwardly away from said band and toward one edge of said body, the extreme inner surface of said projection having a diameter smaller than the diameter of a railway car axle, said member additionally including a pair of spaced annular flanges of reduced cross section projecting outwardly from said member and having an outer diameter larger than the axle openings in a journal box well, said flanges in normal position including portions spaced apart a distance greater than the width of a dust guard well of a railway car journal box, whereby said annular body may be inserted about a journal axle in a dust guard well through an axle opening in the well by means of flexure of said resilient member, said annular metal reinforcing band being imbedded in said resilient member, and handles secured to said reinforcing band and extending outwardly from said body substantially parallel to the axis of said annular body.

2. In combination with a railway car journal box having a dust guard well and a railway car axle extending through said dust guard well into a journal box, a dust guard seal comprising a circular metallic reinforcing band having an inside diameter larger than the diameter of a railway car axle and an outside diameter less than the diameter of the axle openings in said well, a resilient member of flexible elastic material surrounding said band to form with said band a solid unitary annular body, said resilient member including a single annular projection of reduced cross section extending inwardly away from said band and toward one edge of said body, the extreme inner surface of said projection having a diameter smaller than the diameter of said axle and in oil tight frictional engagement therewith, said member additionally including a pair of spaced annular flanges of reduced cross section projecting outwardly from said member and having an outer diameter larger than the axle openings in said well, said flanges engaging the spaced vertical surfaces of the dust guard well in oil tight relation, whereby said annular body may be inserted and removed from said dust guard well through an axle opening without removal of said axle from said journal box by means of flexure of said resilient member, said dust guard seal being provided with a plurality of integral handles which project into the journal box away from a wall thereof substantially parallel to the axle.

References Cited in the file of this patent

UNITED STATES PATENTS

1,889,407	Grisbaum et al.	Nov. 29, 1932
2,152,937	Vigne et al.	Apr. 4, 1939
2,177,441	Pesarese	Oct. 24, 1939
2,668,067	Fitzsimmons	Feb. 2, 1954
2,693,783	Foss	Oct. 26, 1954
2,736,585	Riesing	Feb. 28, 1956
2,758,853	Beck	Aug. 14, 1956
2,789,845	Klinger	Apr. 23, 1957

FOREIGN PATENTS

591,698	Great Britain	Aug. 26, 1947
851,707	Germany	Oct. 6, 1952