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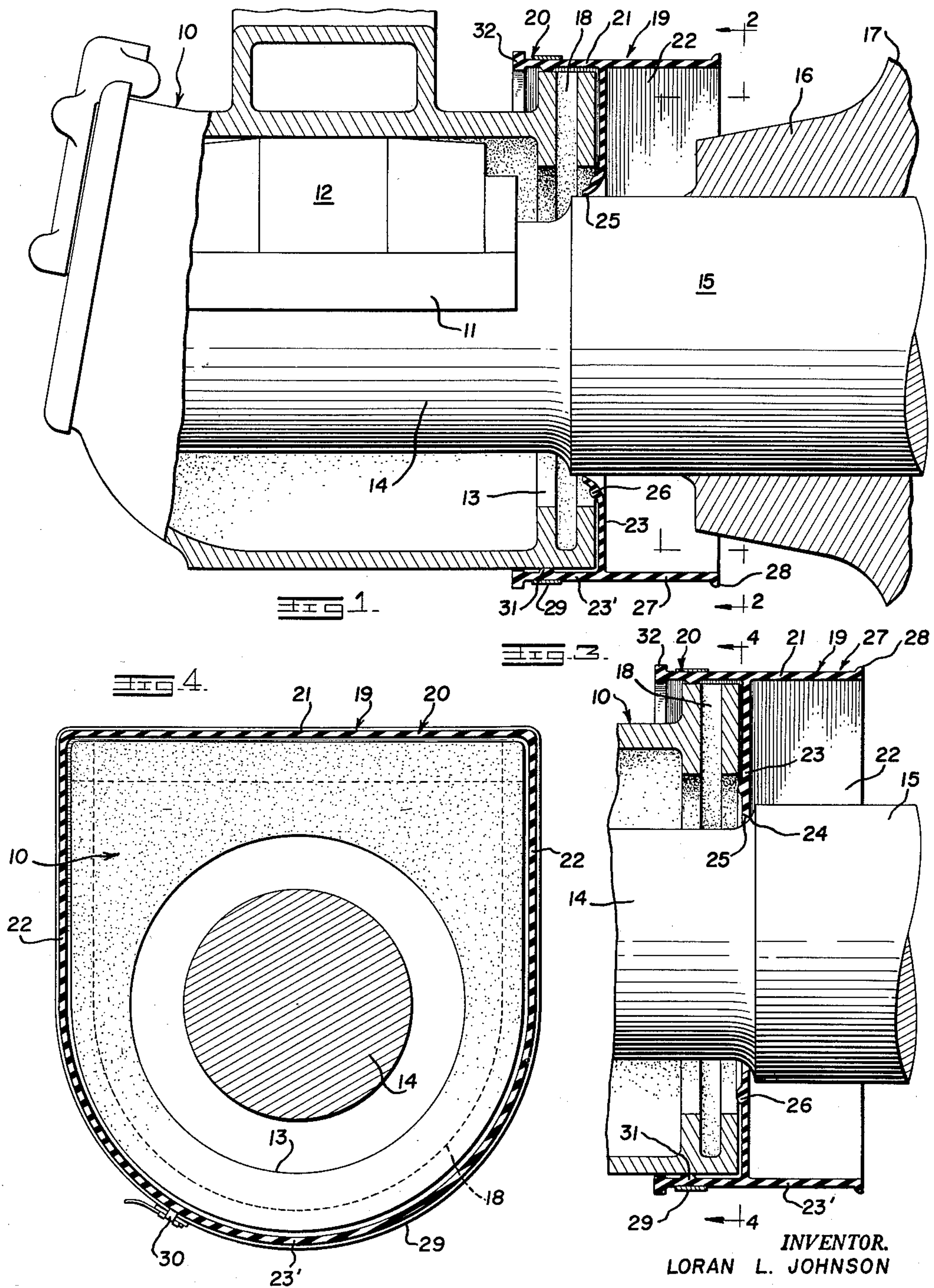
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DUST GUARD AND SEAL FOR RAILROAD CAR JOURNAL BOXES

Filed Sept. 15, 1959

2 Sheets-Sheet 1



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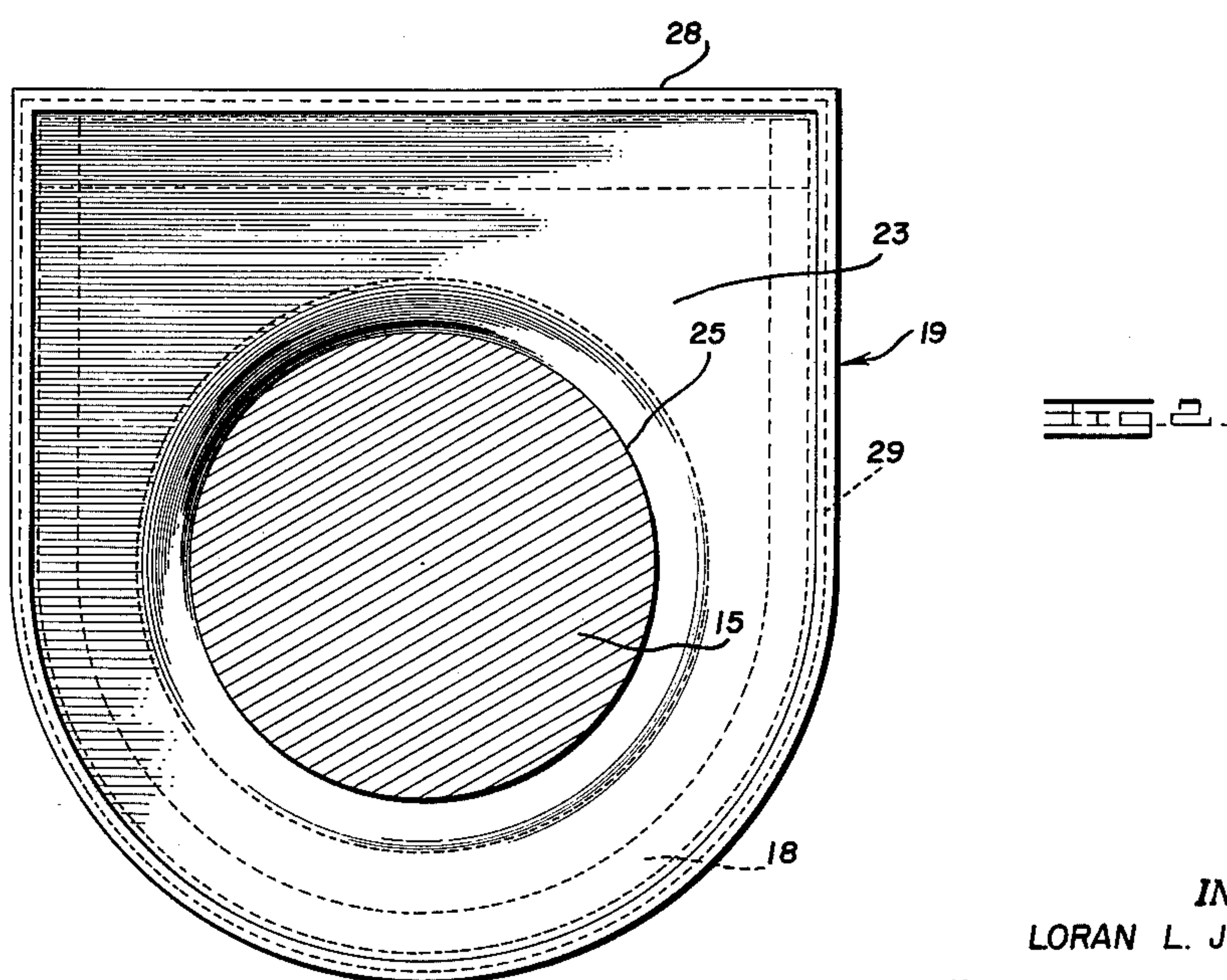
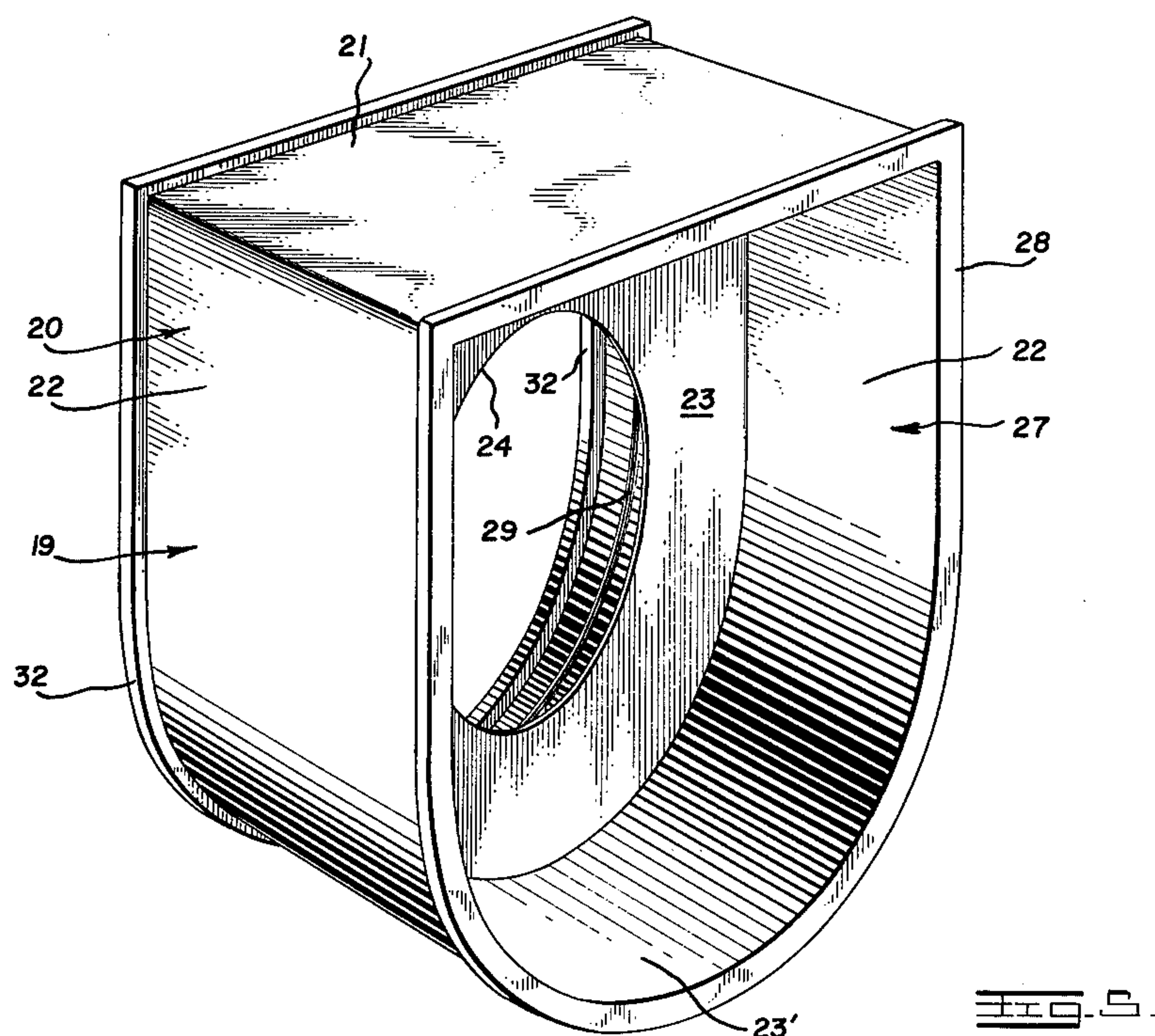
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DUST GUARD AND SEAL FOR RAILROAD CAR JOURNAL BOXES

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2 Sheets-Sheet 2



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## 2,995,389 DUST GUARD AND SEAL FOR RAILROAD CAR JOURNAL BOXES

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7 Claims. (Cl. 286—5)

This invention relates to a combined dust guard and seal for journal boxes of railroad cars.

Numerous dust guards and seals for journal boxes are known in the prior art, and such devices range from the well known simple wooden dust guard to rather complex designs formed entirely of rubber-like material, or rubber-like material with metal components. All such prior art devices are designed to be received within the well known dust guard slot of the conventional railroad car journal box. These prior art devices are all objectionable from certain standpoints. For example, they are all difficult to insert and properly align within the dust guard slot of the journal box, and the unskilled workman frequently assembles the dust guard and seal improperly or backwards within the slot. Additionally, a poor seal with the side walls of the dust guard slot frequently results, because such side walls are rough cast or unmachined surfaces. Additionally, the prior art devices received by the dust guard slot afford no protection to the exposed axle portion adjacent the inner end of the journal box, and this axle portion which should be bright and clean is frequently damaged by flying ballast from the track bed and also rusts readily, due to exposure to the weather.

A primary object of the invention is to overcome the above and other difficulties inherent in the use of dust guards and seals which are used inside of the dust guard cavity or slot of the conventional journal box.

A further object of the invention is to provide a combined dust guard and seal which is applied to the exterior of the inner end portion of the journal box, completely covering and sealing the dust guard slot, sealing the enlarged axle portion adjacent the inner end of the journal, and also protecting this axle portion from the weather, flying rock ballast and other foreign matter.

A further object of the invention is to provide a device of the above-mentioned character, which is highly simplified and unitary in construction, and preferably formed entirely of rubber-like material, free from metal inserts and the like.

Another object is to provide a dust guard and seal of the above-mentioned character which is secured externally to the journal box, and therefore readily accessible for servicing or replacement, without working inside of the journal box.

Still another object of the invention is to provide a device of the above-mentioned character which eliminates entirely the need for the usual sealing plug for the mouth of the dust guard slot.

Other objects and advantages of the invention will become apparent during the course of the following detailed description.

In the accompanying drawings forming a part of this application and in which like numerals are employed to designate like parts throughout the same.

FIGURE 1 is a fragmentary central vertical longitudinal section, parts in elevation, through a railroad car journal box and axle and showing my combined dust guard and seal applied thereto.

FIGURE 2 is a transverse vertical section taken on line 2—2 of FIGURE 1.

FIGURE 3 is a fragmentary sectional view similar to FIGURE 1, but showing the axle seal in a relaxed position prior to receiving the axle.

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FIGURE 4 is a transverse vertical section taken on line 4—4 of FIGURE 3.

FIGURE 5 is a perspective view of the combined dust guard and seal apart from the other components shown in FIGURE 1.

In the drawings, wherein for the purpose of illustration is shown a preferred embodiment of the invention, the numeral 10 designates generally a conventional railroad car journal box, containing the usual brass bearing 11 and bearing wedge 12. The journal box has a large central opening 13 at its inner end to receive the standard journal 14 of the car axle, which axle includes a somewhat enlarged axle portion 15, adjacent the journal 14, and also projecting into the journal box opening 13, as shown. The hub 16 of railroad car wheel 17 is rigidly secured to the axle portion 15 in a conventional manner, and the hub 16 is spaced somewhat from the inner end of the journal box 10, leaving a substantial area of the axle portion 15 normally exposed between the wheel hub and journal box. The journal box 10 includes the usual upwardly open dust guard cavity or slot 18, as shown in FIGURES 1 and 3. All of the elements thus far described are conventional and well known and a further description of these conventional parts is believed to be unnecessary herein.

The dust guard and seal of the present invention, hereinafter called "the dust guard," is of one piece or unitary construction, and preferably formed of molded synthetic rubber or rubber-like material such as neoprene. The material employed for making the dust guard may be varied, however, as found desirable.

The dust guard 19 comprises a forward or outer open sleeve portion 20 which fits snugly over and around the inner end portion of the journal box 10, as shown. The dust guard 19 including outer sleeve portion 20 has a flat top wall 21 and vertical side walls 22 and a lower circularly curved wall 23', all integrally formed, and shaped to the configuration of the inner end of journal box 10. The top wall of sleeve portion 20 spans and completely covers the open top of the dust guard slot 18.

Adjacent the inner end of journal box 10, the dust guard 19 further includes a vertical web 23, integrally joined to the exterior walls of the dust guard and extending inwardly thereof, at right angles thereto. The web 23 has a central opening 24 to snugly receive the axle portion 15, and a beveled sealing lip 25 is provided to form an effective fluid tight seal with the smooth cylindrical axle portion 15. Slightly outwardly of the annular sealing lip 25, the web 23 is preferably provided upon its outer side with an annular thickened portion or bead 26, to increase the tension or gripping action of the sealing lip 25 with the axle portion 15.

Inwardly or rearwardly of the web 23, the dust guard further comprises an integral open sleeve extension 27, of the same configuration as the sleeve extension 20, and likewise formed by the walls 21, 22 and 23'. The inner sleeve extension 27 is provided at its free end with an external integral bead 28 serving to stiffen the sleeve extension 27 and to prevent rain water or the like from draining onto the axle portion 15. As shown in the drawings, the inner sleeve extension 27 receives the axle portion 15 and a part of the hub 16, inwardly of the journal box 10. The sleeve portion 27 is spaced from these elements.

The dust guard 19 is firmly yet detachably secured to the exterior of the journal box 10 by a steel band or strap 29, including conventional end connecting means 30. The steel strap 29 may be of the type commonly employed for binding heavy wooden crates and the like. Conventional tools forming no part of the present invention are readily available for applying and tightening the



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steel band 29 around the dust guard. The outer sleeve portion 20 is provided upon its inner face and adjacent the strap 29 with a continuous bead 31, which is compressed tightly against the surfaces of the journal box 10 to form an effective seal therewith, when the steel band is tightened. At its outer end, the sleeve portion 20 has an integral stiffening flange 32 which also serves as a guide for applying the binding strap 29. The sleeve portions 20 and 27 of the dust guard are entirely open axially, except for the internal wall 23 which carries the sealing lip 25.

With reference to FIGURE 3, the sealing lip 25 is shown in the relaxed or untensioned condition, prior to receiving the axle portion 15 in assembly. The opening 24 is initially somewhat smaller in diameter than the axle portion 15, but the opening 24 stretches when the axle portion 15 is introduced therethrough, as in FIGURE 1, so that the sealing lip 25 will be tensioned and drawn into fluid tight sealing engagement with the axle portion 15.

In FIGURE 1, the axle portion 15 is shown separated from the journal box 10 a maximum amount, as caused by the normal relative movement between the car axle and journal box. During normal operation, the axle portion 15 may be shifted the substantial additional amount into the journal box, but never further therefrom or beyond the position indicated in FIGURE 1. When and if the axle portion 15 is thrust further into the journal box 10, the sealing lip 25 will still continue to seal against the axle portion 15 in any adjusted position of the latter relative to the journal box, as should be obvious.

The sleeve portions 20 and 27 are fixed by the steel band 29 relative to the journal box 10. The sleeve portion 27 effectively shields the exposed area of the axle portion 15, inwardly of the journal box from flying rock ballast, mud, dust and other foreign substances thrown up while the railroad car travels at high speed. The sleeve portion 27 also shields or protects the axle portion 15 from the elements at all times, and water which accumulates upon the outer surfaces of the sleeve portion 27 is blocked from draining onto the axle portion 15 by the external bead 28 which forms a small dam for such water. The arrangement greatly reduces rusting or weathering of the axle portion 15 and prevents the same from becoming pitted or scratched by the action of flying rock ballast and the like. The periphery of the axle portion 15 is therefore maintained relatively smooth and shiny, so that the lip 25 of the dust guard may effectively seal the same in all relative positions of the axle portion 15 and journal box 10.

The web 23 also completely seals the inner end opening 13 of the journal box against the entrance of dust and other foreign matter, and the sealing lip 25 is highly effective for maintaining needed lubricants inside of the journal box 10. The top wall 21 of forward sleeve portion 20 effectively closes and seals the open top of the dust guard slot 18, which is not used when my dust guard 19 is employed.

It should be emphasized here that the use of my dust guard requires no altering or change in design of the conventional journal box 10 or car axle, and the improved dust guard and seal may be readily applied with the absolute minimum of time and labor to all existing conventional equipment.

If preferred, the inner sleeve portion 27 may be formed separately from the remainder of the dust guard 19 and secured thereto in any preferred manner. The sleeve portion 27 may also be omitted entirely if preferred.

The entire device 19 is somewhat flexible or resilient, yet stiff enough to retain its normal shape after application to the journal box 10 in the described manner. The device is entirely free of metal inserts or rigid parts, and the steel band 29 forms the sole means of securely anchoring the dust guard to the journal box. The device is very easy to apply to or remove from the journal box 10 by unskilled hands, and it is virtually impossible for the

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unskilled workman to install the device incorrectly upon the journal box, due to the arrangement of elements shown and described.

It is to be understood that the form of the invention herewith shown and described is to be taken as a preferred example of the same, and that various changes in the shape, size and arrangement of parts may be resorted to, without departing from the spirit of the invention or the scope of the subjoined claims.

Having thus described my invention, I claim:

1. A combined dust guard slot cover, axle seal and axle protector for railroad car journal boxes comprising a unitary open ended rubber-like sleeve snugly surrounding the inner end portion of said journal box and having a top wall entirely covering the open top of the dust guard slot of the journal box, said sleeve extending axially inwardly of said journal box a substantial distance and spaced from and surrounding the car axle inwardly of the journal box to shield the same from the elements, flying rock ballast and the like, an internal radially extending resilient wall integral with said sleeve near the longitudinal center of the latter and adjacent the inner end of the journal box and substantially abutting such inner end and having a central opening snugly receiving the car axle near the inner end of the journal box and having sealing engagement therewith, the journal box having a central inner end opening receiving said car axle, said radially extending wall completely covering said inner end opening of the journal box, and an external clamping device surrounding said sleeve and the inner end portion of the journal box for clamping the sleeve snugly around the same.

2. The invention as defined by claim 1, and wherein said sleeve includes substantially vertical parallel side walls, a substantially semi-circular bottom wall and a substantially flat horizontal top wall, whereby the sleeve conforms to the cross sectional shape of the inner end portion of the journal box.

3. A journal box dust guard and seal formed entirely of rubber-like material and being unitary and comprising an outwardly opening sleeve portion to receive the inner end of a railroad car journal box and having a substantially flat top wall to cover the open top of the dust guard slot in the journal box, an internal wall arranged adjacent to and exteriorly of the inner end of the journal box and having an opening to snugly receive the railroad car axle portion which is adjacent the inner end of the journal box and forming a fluid tight seal therewith, an inwardly opening sleeve portion integrally joined to the first-named sleeve portion and extending inwardly of said journal box and spaced from and surrounding said axle portion inwardly of the journal box to protect the same, and a clamping band snugly surrounding the outwardly opening sleeve portion and journal box to secure the outwardly opening sleeve portion thereto.

4. In combination, a railroad car journal box having a vertical dust guard slot open at its top, said journal box having an inner end opening, an axle portion projecting into said opening of the journal box, a sleeve surrounding the inner end portion of the journal box and covering the open top of the dust guard slot, a transverse wall secured to said sleeve and projecting inwardly thereof adjacent to the inner end of the journal box and having an opening snugly receiving said axle portion and having fluid sealing engagement therewith, said transverse wall serving to cover said opening of the journal box between the periphery of the axle portion and the bore of said opening, and an external clamping band for securing said sleeve upon the journal box snugly.

5. In a railroad car axle assembly, a journal box having an inner end opening and a dust guard slot extending at right angles to said opening and being open at its top, an axle extension smaller than said opening arranged adjacent to said opening of the journal box, a rubber-like sleeve surrounding the inner end portion of the jour-



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nal box and covering the open top of said dust guard slot and having a portion projecting inwardly of and beyond said journal box and spaced from said axle portion and surrounding the same to protect it from the elements and from flying debris, a transverse resilient wall formed integral with said sleeve and extending inwardly thereof radially near and exteriorly of the inner end of the journal box and having a central opening forming a flexible annular sealing lip for fluid tight engagement with the axle portion, and a metal strap surrounding said sleeve adjacent the inner end portion of the journal box and serving to bind the sleeve tightly to the exterior of the journal box.

6. A dust guard and seal for a railroad car journal box, said dust guard and seal being unitary and formed of rubber-like material and comprising an open ended sleeve adapted to be applied over the inner end of the journal box for covering the dust guard slot of the journal box, said sleeve extending inwardly of the inner end of the journal box and forming a shield surrounding the

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car axle to protect the axle from the elements and from flying debris, an internal transverse wall formed upon said sleeve near its longitudinal center and adapted to be arranged near the inner end of the journal box and serving to cover the inner end opening of the journal box and having an opening to receive the portion of the railroad car axle adjacent to the inner end of the journal box to form a fluid tight seal thereagainst, and external band means to secure said sleeve to the inner end portion of the journal box.

7. A dust guard and seal for a railroad car journal box according to claim 6, and an external marginal bead carried by the innermost end of said sleeve to prevent the same from shedding water onto said axle portion.

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