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C. D. FOSS

2,540,662

JOURNAL BOX COVER SEAL

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FIG. 1.

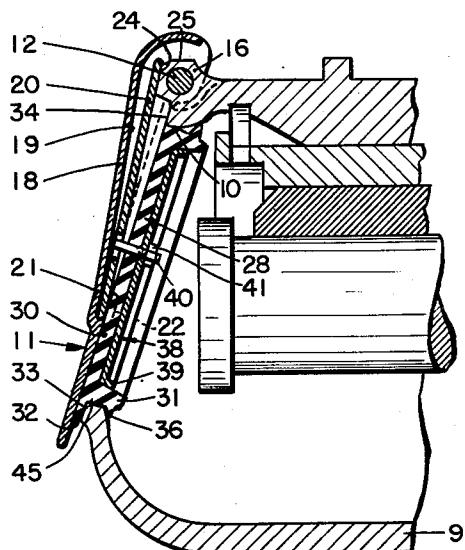


FIG. 3.

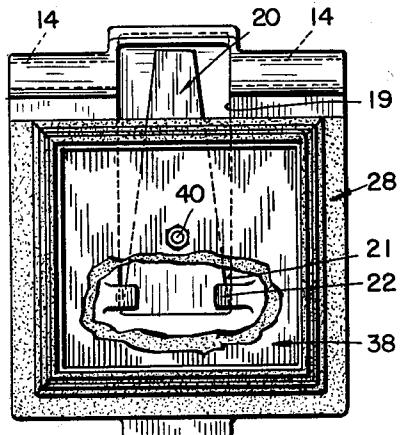


FIG. 2.

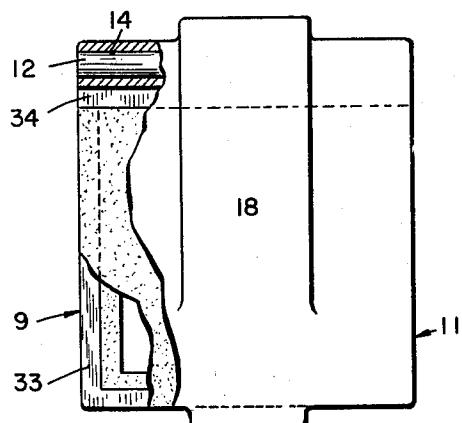


FIG. 4.

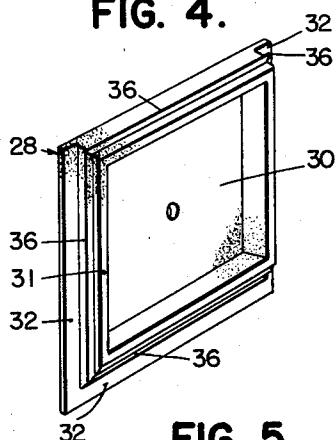
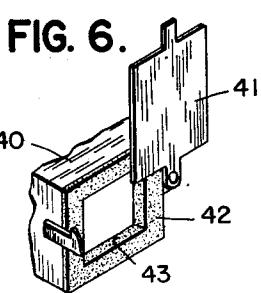
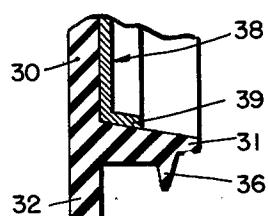


FIG. 5.



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JOURNAL BOX COVER SEAL

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5 Claims. (Cl. 308—47)

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This invention relates generally to railway car journal boxes and particularly to means for sealing the openings of such boxes.

Railway car journal boxes are ordinarily provided with a cover or lid which closes the opening provided for the purpose of gaining access to the interior of the box. While there are many types of covers, the major portion are hingedly mounted on the box and have a spring means for yieldably holding them closed. It has been found with the hingedly mounted cover that the vertical vibrations of the car in motion are so severe that in conjunction with the lateral motion of the car, particularly the abrupt movement of the car from side to side as it reaches the limits of play provided between the car and the axle, forces are set up which tend to open the journal box lids and it very often happens that the combination of vibrations acts in such a manner that the doors are held open even against the action of the spring. As a result, dust, dirt and air enter the box and interfere with proper lubrication of the bearings.

I am aware that attempts have been made to provide a dust seal between the door and the journal box in the region of the edge of the opening, but so far as I know such attempts have failed since the aforementioned forces set up by the vibration of the car in motion tend to open the door and permit entrance of foreign matter. Some rather complicated and expensive devices have been devised for projecting into the opening in the journal box, but these have not proved entirely satisfactory since they usually entail the use of a special door or an elaborate attachment means and are not practical for conversion of the ordinary standard types of covers.

It therefore is a primary object of this invention to provide a novel means for sealing the opening to the journal box and for absorbing the vibrations which are ordinarily communicated to the door so that the door is prevented from being opened by the vibratory forces set up by the motion of the car.

It is also an object to provide a sealing means which effects a triple seal for the opening into the journal box, as will be explained more fully hereinafter.

It is a particular object of the invention to provide a device of the type indicated which can be mounted on standard types of doors already in use and which does not require any special or complicated equipment. It is also an object to provide a device or means which is relatively simple in construction and can be readily manufactured and installed.

These and other objects will be apparent from the drawing and the following description. Referring to the drawing, which is for illustrative purposes only:

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Fig. 1 is a sectional view of the end of a railway car journal showing an embodiment of the invention;

Fig. 2 is an end elevation of the cover for the journal box, partly broken away;

Fig. 3 is an elevational view of the inside of the sealing means attached to the inner side of the cover;

Fig. 4 is a perspective view of the resilient sealing element;

Fig. 5 is an enlarged fragmentary section of the seal; and

Fig. 6 is a perspective view of a modified form of seal shown installed on a box having a door which pivots in its own plane.

More particularly describing the invention, reference numeral 9 generally indicates the body of a railway car journal box which has an opening 10 providing access to the interior thereof. Mounted on the box is a standard form of cover 11 for the opening. It may be pointed out that there are several different types of covers in use today on the railway cars and that the particular form of cover shown is merely used by way of illustration.

This cover is hingedly mounted on the box by means of a pintle 12 which extends through the apertured portions 14, 14 at the upper end of the cover and through a central boss 16 formed on the box. The cover is pressed out at 18 to form an interior recess 19 to provide room for the boss 16 and to accommodate a flat or leaf spring member 20 which is removably mounted in a recess 21 on the inside of the cover, being held in place by means of lugs 22. This spring bears against a face 24 on the boss and in the position shown tends to hold the cover closed. When the cover is opened the spring bears against an upper face 25 on the boss and thus serves to tend to hold the cover open.

In order to provide a seal for the opening in the box and to provide means for preventing the cover from being opened by the forces set up when the car is in motion, a sealing member 28 is provided which is mounted on the inner side of the cover. This seal, in the form of the invention shown in Figs. 1-4, consists of a body member which is made of suitable resilient material, such as a rubber composition which is not

attacked by oil or the like. The body has a flat plate-like main portion 30 from the inner side of which extends a rectangular wall 31. This wall is substantially the same size as the opening in the journal box except that it is made to fit tightly therein, necessitating its being forced into the opening. This construction provides three projecting flange portions 32 on the main portion of the member which are designed to seat against the outer edges 33 of the opening in the journal box.

In order to prevent any tendency of the cover being wedged open by a section of the sealing member in the region between the upper edge 34 and the inside of the cover, the aforementioned flanges 32 are only provided at the two sides and across the bottom of the seal.

The wall 31 of the seal is provided with an external flange 36 which is positioned a sufficient distance inwardly of the main portion of the seal so that it will extend into sealing engagement with the wall of the journal box inwardly of the restricted part of the opening thereinto. Preferably the outer surface of the wall 31 between the flange portion 32 and the flange 36 is substantially at right angles to the plate portion 30 or main body of the seal.

The sealing member may be mounted on the inner surface of the cover in any suitable manner. One such means for doing this has been illustrated and comprises the plate 38 which bears against the inner surface of the main portion of the sealing member and is preferably provided with a peripheral flange portion 39 giving support to the inwardly extending rectangular wall 31. This plate is centrally apertured so that it can be secured to the cover by means of a stud bolt 49 which, depending upon the construction of the cover, may be secured either directly to the cover as by welding or, as in the form shown, secured to the lower end of the leaf spring 20. A nut 41 is mounted on the bolt to secure the parts together.

With the construction shown, as the cover is closed the inwardly extending wall 31 of the seal is forced into the opening in the journal box fitting tightly against the wall surface forming the restricted part of the opening thereof in the region 45. At the same time the flange portions 32 seat against the outer edges 33 of the opening. Also, the peripheral flange 36 on the wall 31 is forced in past the restricted part of the opening and effects a seal inwardly thereof. It can thus be seen that with the construction shown a triple seal is accomplished, namely, a seal is effected in the region of the outer edge of the opening, in the region of the restricted part of the opening, and in the region inwardly of the restricted part of the opening. In this connection it may be pointed out that the inner flange or seal 36 may operate as an oil seal and permit the use of a body of oil as a lubricant in the journal box.

It will also be apparent from the construction described and shown that the sealing member 28, being interposed between the cover 11 and the journal box, absorbs the vibrations which would ordinarily be communicated from the box to the cover and prevents these vibrations from being communicated to the cover. In this connection the cover is prevented from being vibrated vertically in such a manner as would tend to open it in conjunction with the lateral forces of vibration or shock set up in the car. Ordinary gasket-type seals cannot accomplish this. The lateral shock forces are prevented from reaching the cover by means of the peripheral portions 32 of the seal interposed between the outer edges of the journal box and the cover.

It is contemplated that it may be necessary to modify the seal member 28 in order to adapt it to the various types of covers which have different configurations on their inner surface or side. In this connection it may be necessary, as for example if the cover plate has a central projection on its inner side, to provide a recess or cut out portion in the seal and to provide a re-

taining plate for the seal which is shaped in such a manner as to either extend over such projection or is cut out to accommodate it. The different types of construction might necessitate the utilization of one or more bolt means disposed in some part of the cover and plate other than through the center thereof, as shown.

It is also contemplated that the seal member may be used on journal boxes having a cover which is slidably mounted or one which pivots in its own plane, such as that shown in Fig. 6. Referring to that figure, reference numeral 40 generally indicates the journal box which is provided with a pivotally mounted cover 41. The box is shown provided with a seal 42 which differs from the member 28 previously described in that it has peripheral flange portions entirely around the outer edge of the box opening and has an opening 43 to give access to the interior of the journal box without the necessity of removing the seal. This type of seal is merely forced into place in the box and then left there, in the position in which it is shown in Fig. 6.

Although the invention has been shown and described with reference to particular forms thereof and as applied to a particular type of journal box cover, it is contemplated that various changes and modifications can be made without departing from the scope of the invention as set forth in the claims.

I claim:

1. A means for use in providing a seal and absorbing vibrations between a railway car journal box having an opening and a cover for the opening, comprising member of rubber-like material having a flat, uninterrupted plate-like body portion and a relatively thick continuous wall extending from one side thereof, said wall being spaced inwardly of at least three edges of said body portion and extending substantially at right angles to the plane of the body portion, said wall being shaped to substantially correspond in outline to the shape of the opening in said journal box and being so proportioned there-to as to yieldably engage the wall of the box defining the opening within the opening.

2. A means for use in providing a seal and absorbing vibrations between a railway car journal box having an opening and a cover for the opening, comprising a resilient member having a flat substantially rectangular plate-like body portion and a relatively thick continuous wall extending from one side thereof, said wall being spaced inwardly of at least three edges of said body portion and extending substantially at right angles to the plane of the body portion and parallel to the edges of the body portion, and a peripheral flange on said wall spaced from said body portion.

3. A device as defined in claim 2, in which the body portion is apertured inwardly of said wall.

4. A means for use in providing a seal and absorbing vibrations between a railway car journal box having an opening and a cover for the opening, comprising a resilient member having a flat, substantially rectangular, plate-like body portion and a relatively thick continuous wall extending from one side thereof, said wall being spaced inwardly of at least three edges of said body portion and extending substantially at right angles to the plane of the body portion and parallel to the edges of the body portion, and a peripheral flange on said wall spaced from said body portion, and means for attaching said resilient member to a journal box cover, includ-

ing a flat, stiff retaining plate adapted to lie against the body portion of said resilient member within said wall.

5. A device as defined in claim 4, in which the retaining plate is provided with an angularly extending peripheral flange for supporting the inner surface of said wall.

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