E. PECKHAM.

DUST GUARD.

APPLICATION FILED MAR. 23, 1908.

905,356.

Patented Dec. 1, 1908.

3 SHEETS—SHEET 1.

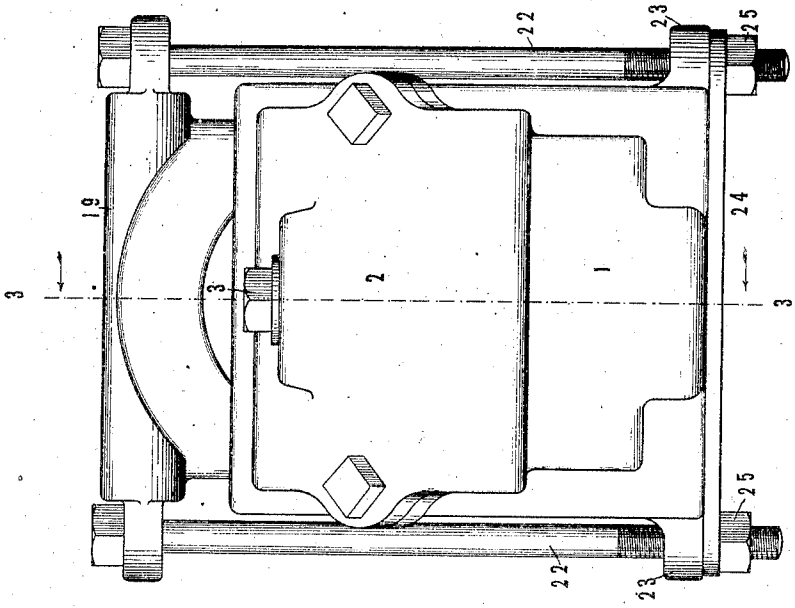


FIG. 2.

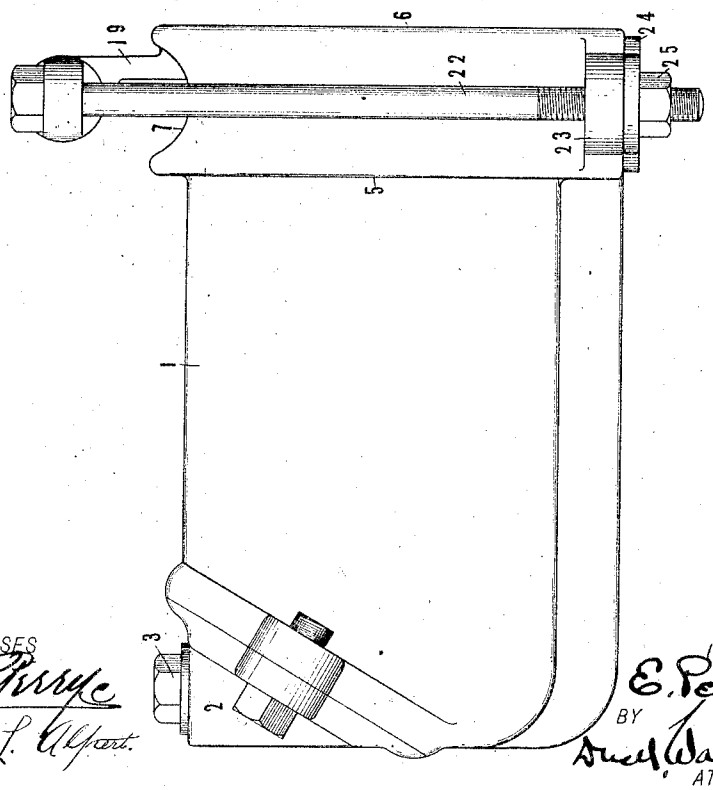


FIG. 1.

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3 SHEETS—SHEET 2

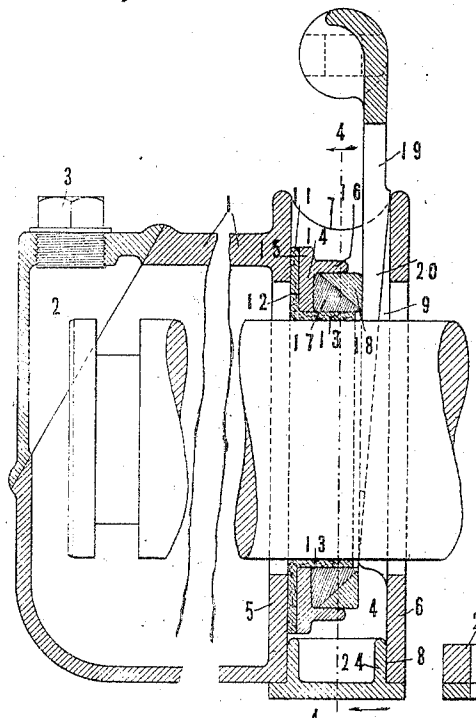


Fig. 3.

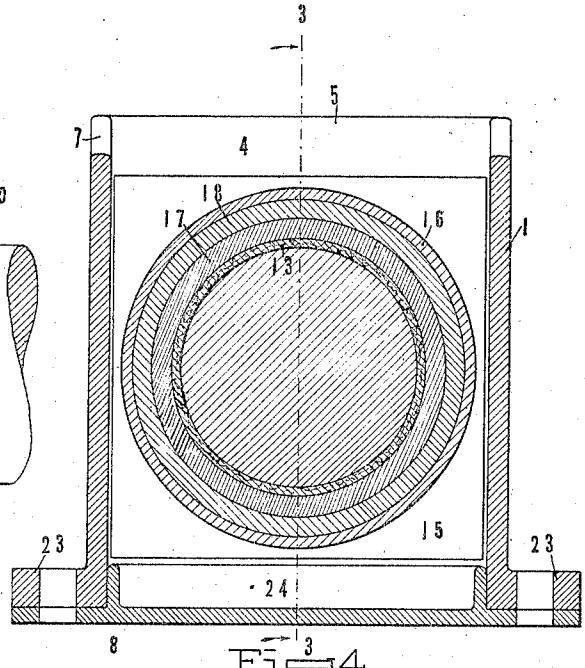


Fig. 4.

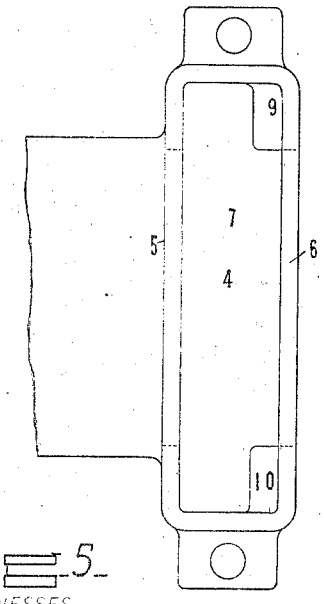


Fig. 5.

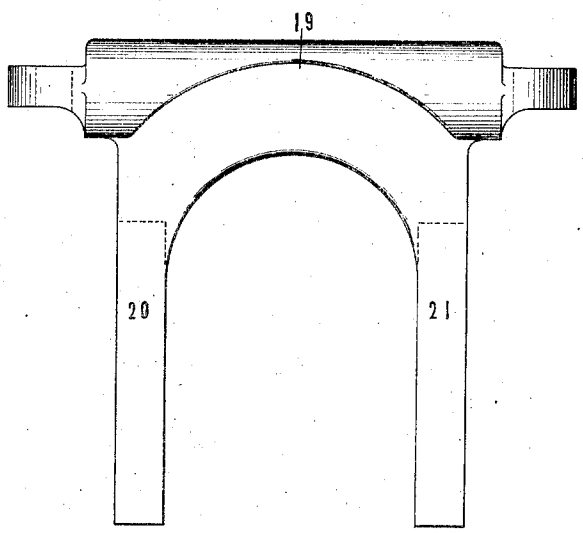


Fig. 6.

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3 SHEETS—SHEET 3.

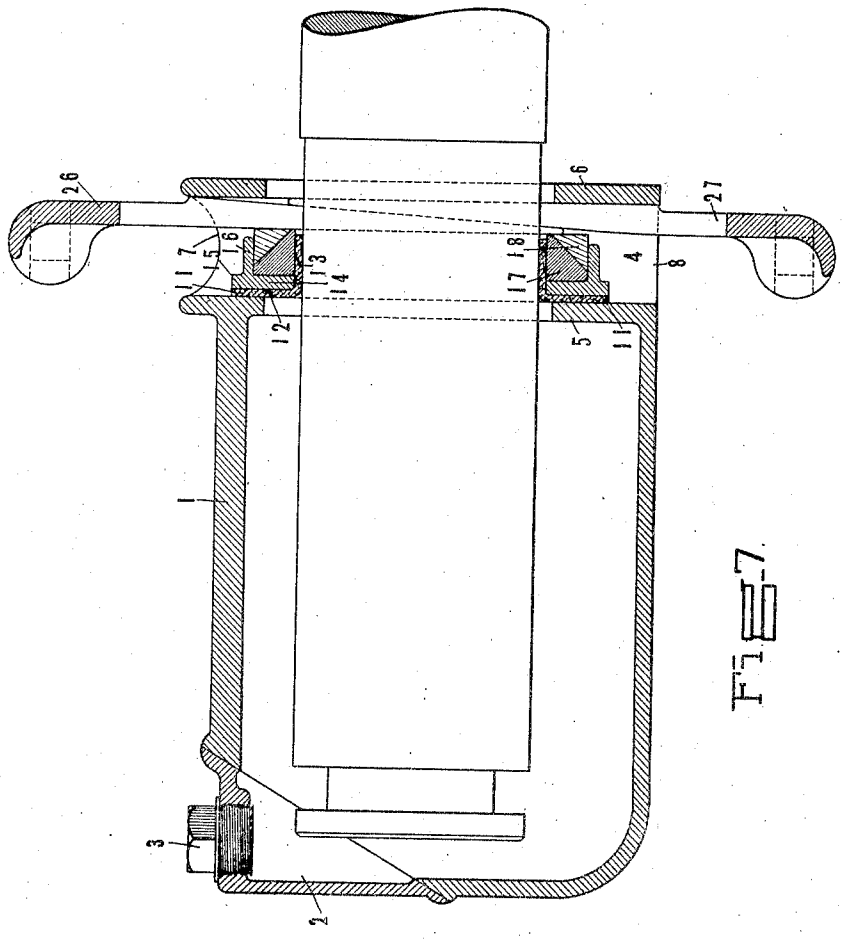


FIG. 7.

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UNITED STATES PATENT OFFICE.

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DUST-GUARD.

No. 905,356. Specification of Letters Patent. Patented Dec. 1, 1908.

Application filed March 23, 1908. Serial No. 422,707.

To all whom it may concern:

Be it known that I, EDGAR PECKHAM, a citizen of the United States, residing at Westminster, London, S. W., in the county of Middlesex, England, have invented certain new and useful Improvements in Dust-Guards, of which the following is a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and use the same.

The present invention relates to bearings, and more particularly to journal boxes for the axles of railway and tramway cars and similar vehicles.

One of the objects of the invention is to provide improved means whereby a journal box may be kept hermetically closed for a considerable period of time, thereby preventing an escape of oil or other lubricant therefrom and preventing the entrance of dust or grit into the interior of the box.

Another object hereof is to provide a packing for the axle of a journal box of the above character, which may be readily positioned upon the axle and conveniently adjusted thereon by means extending exteriorly of the box and capable of manipulation from a position exterior thereto.

Other objects will be in part obvious and in part pointed out hereinafter.

The invention accordingly consists in the features of construction, combinations of elements and arrangement of parts which will be exemplified in the construction hereinafter set forth, and the scope of the application of which will be indicated in the following claims.

In the accompanying drawings, wherein are illustrated two of various possible embodiments of my invention, Figure 1 is a side elevation of the journal box; Fig. 2 is an end elevation thereof; Fig. 3 is a longitudinal sectional view taken on lines 3—3 of Figs. 2 and 4. Fig. 4 is a transverse sectional view taken on line 4—4 of Fig. 3. Fig. 5 is a top plan view of a portion of the journal box; Fig. 6 is a view in elevation of a wedging member employed to adjust the packing within the journal box; Fig. 7 is a longitudinal sectional view showing a slightly different embodiment of the invention.

Similar reference characters refer to similar parts throughout the several figures of the drawings.

Referring now to the drawings, and particularly to Figs. 1 to 6 inclusive, 1 represents the casing of the journal box which may be provided in its upper forward portion with a removable cover 2, adapted to be bolted thereto as shown, said cover being provided in its upper portion with a screw threaded opening normally closed by a screw plug 3. Through this opening the oil or other lubricant may be inserted into the box.

Formed at the rear portion of casing 1 is a chamber 4, said chamber being in the present instance constituted by an inner apertured wall 5, which separates the chamber from the journal box proper and an outer apertured wall 6. The axle extends through the apertures of walls 5 and 6 into the journal box as shown. In the present embodiment of my invention the walls of chamber 4 are formed integral with the walls of casing 1, such construction being preferable to having the chamber constituted by independent parts and bolted to the casing of the journal box, by reason of the fact that it is an advantage to dispense with bolts wherever possible, particularly if the journal boxes are to be employed on vehicles intended to be run at high speeds.

The top and bottom portions of chamber 4 are provided with openings 7 and 8, as clearly shown in Figs. 3 and 5 of the drawings, in order to permit of free access into the interior of the chamber, such construction enabling the inner wall 5 to be conveniently machine finished. The outer wall 6 of chamber 4 at its sides, is provided with beveled or inclined surfaces 9 and 10, as shown in Figs. 3 and 5, for a purpose which will be apparent hereinafter.

The chamber 4, which for convenience may be termed a "packing chamber", is, as shown, rectangular in shape and is adapted to receive packing for the axle.

11 indicates a packing member formed of flexible fibrous material preferably leather, said packing member being provided with a rectangular or squared base portion 12 and adapted to seat against the inner wall of the packing chamber and having an annular flange portion 13 which extends outwardly at substantially a right angle from the base portion 12, and is adapted to lie in contact with the axle.

Positioned about packing member 11 is a

metallic member 14 preferably formed of metal having a squared base portion 15 which seats against the correspondingly shaped base portion 12 of the packing member and with a projecting annular flange 16 which extends outwardly in a direction substantially parallel with the axis of the axle. Inasmuch as base portion 15 of member 14 is squared and takes against the side walls of chamber 4, as shown in Fig. 4, it is thereby prevented from rotating with the axle. Member 14 constitutes a stuffing box for the axle. and is adapted to receive beneath flange 16 a pair of packing rings 17 and 18 respectively, said packing rings being interposed between the flange and the annular portion 13 of the packing member. Packing ring 17 is preferably formed of a fibrous material, and is beveled as shown; and the other packing ring, indicated at 18, is preferably beveled in an opposite direction and preferably formed of metal. These packing rings lie with their beveled faces in contact, as shown in Fig. 3 of the drawings, the construction being such that pressure exerted in a direction toward the inner wall of the packing chamber will cause said rings to force the annular portion 13 of the packing member toward the axle, and will cause the base portion of the member 14 or stuffing box to press the squared portion 12 of the packing member against the inner wall 5 of the packing chamber.

Means are provided for pressing the beveled packing rings together and whereby the packing member is held firmly in contact with the inner wall of the packing chamber. This means, in the present instance, is constituted by a member 19 which is provided with a pair of depending wedge shaped legs 20 and 21 which straddle the axle and work upon the inclined or beveled portions 9 and 10 of the outer wall of the packing chamber. Member 19 is provided with lateral end extensions or horns adapted to receive adjusting bolts 22, said bolts extending downwardly through apertured ears 23 formed exteriorly of the packing chamber. In the present instance, a dust guard or cap 24 is provided for closing the lower opening of the packing chamber, said guard being apertured as shown to receive the adjusting bolts 22 and forming a seat for nuts 25 threaded upon the ends of said bolts. It will be understood that by turning of the nuts 25 upon their respective bolts the wedge shaped legs of member 19 may be drawn along the inclined portions of the outer wall of the packing chamber, said operation causing the beveled packing rings to coöperate with the metallic member 14 to compress the squared and annular portions of the packing member against the inner wall of the packing chamber and the axle respectively.

In Fig. 7 of the drawings, I have shown a slightly different embodiment of my invention in that the beveled portions of the outer wall of the packing chamber are omitted, and two coöperating wedge members 26 and 27 are shown, said wedge members being inserted through the top and bottom apertures of the packing chamber and having their outer ends connected by adjusting bolts in the manner shown in Figs. 1 and 3 of the drawings. These wedge members may be adjusted toward or from each other by manipulating the nuts of the adjusting bolts, as will be readily understood.

It will accordingly be seen that I have provided a construction well adapted to attain, among others, all the ends and objects above enumerated in a simple and efficient manner. As will be obvious, the outer faces of the inner wall of the packing chamber may be conveniently machined to receive the base portion of the packing member through the openings in the top and bottom portions of said chamber. These openings also permit of an easy access to the interior of the chamber. The packing member may be held against the inner wall of the packing chamber as well as against the axle with any desired degree of pressure, and effectively held thereagainst by means of the wedge members interposed between the packing rings and the outer wall of the packing chamber. The amount of pressure exerted by the packing member against said parts may be conveniently adjusted, as desired, from a position exterior to the journal box. A further advantage inherent in the present construction resides in the fact that the stuffing box, as well as the packing member, are squared to engage the vertically disposed walls of the packing chamber, and are thereby effectively prevented from rotating with the axle no matter with what degree of pressure the packing member is held in contact with the axle or with the inner wall of the stuffing box.

As many changes could be made in the above construction and many apparently widely different embodiments of this invention could be made without departing from the scope thereof, it is intended that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

Having described my invention, what I claim as new and desire to secure by Letters Patent, is:—

1. In a bearing of the class described, the combination with the axle, of an axle box having a rectangular packing chamber at its rear end, a flexible packing member having a squared portion adapted to lie in contact with the inner wall of the packing chamber and an annular portion adapted to lie in contact with the axle, a pair of co-

acting beveled rings adapted to force said packing member against said parts and means adapted to wedge said rings into operative position.

2. In a bearing of the class described, the combination with the axle, of an axle box having a rectangular packing chamber, a flexible packing member having a squared portion adapted to seat against the inner wall of the packing chamber and an annular portion adapted to lie in contact with the axle, a metallic stuffing box constructed to form a seat for the squared portion of the packing member, means comprising a pair of co-acting beveled rings located in said stuffing box and wedging means for forcing the same into contact with said packing member, whereby the same is held in close contact with the inner wall of said chamber, said beveled rings also coöperating with said stuffing box to hold the annular portion of said packing member in contact with the axle.

3. In a bearing of the class described, the combination with the axle, of an axle box having a packing chamber at its rear end, a flexible packing member seating against the inner wall of said chamber and against the axle, a metallic member surrounding said packing member, and one or more beveled members located within said metallic member adapted to force the same against said packing member and hold the latter in contact with the inner wall of said chamber and also against said axle.

4. In a bearing of the class described, the combination with the axle, of an axle box having a packing chamber at its rear end, a flexible packing member seating against the inner wall of said chamber, and having a flanged portion surrounding the axle, a metallic ring positioned about the flanged portion of said packing member, a pair of coöperating beveled members located within said ring, and wedging means coöperating with said beveled members to cause said ring to press said packing member against the inner surface of the packing chamber, said beveled members coöperating to force the flanged portion of the packing member against the axle.

5. In a bearing of the class described, the combination with the axle, of an axle box having a packing chamber, a fibrous packing member adjacent the inner wall of the chamber and the axle, a metallic stuffing box adjacent said packing member, packing rings located within said stuffing box, and means interposed between the outer wall of the packing chamber and said packing rings adapted to compress the packing member and hold the same firmly against the inner wall of the packing chamber and the axle.

6. In a bearing of the class described, the combination with the axle, of an axle box having a packing chamber at its rear end, a flanged annular, fibrous packing member arranged adjacent the inner wall of the chamber and the axle, a metallic stuffing box positioned about said packing member, a plurality of beveled packing rings located in said stuffing box, and wedging means interposed between the outer wall of the packing chamber and said packing rings for compressing the packing member against the inner wall of the packing chamber and the axle.

7. In a bearing of the class described, the combination with the axle, of an axle box provided with a packing chamber at its rear end, a flexible, flanged annular packing member arranged adjacent the inner wall of the packing chamber and the axle, a metallic member surrounding said packing member and having a base portion which forms a seat for the portion of the packing member which lies adjacent the inner wall of the packing chamber, and having an annular, flanged portion which lies substantially parallel with the axis of the axle, packing rings located between said flange and the portion of the packing member lying adjacent the axle, and compression means coöperating with said packing rings for forcing the base portion of said metallic member against the packing member, whereby the latter may be held in close contact with the inner wall of said chamber, said compression means also coöperating with said packing rings for holding said packing member in close contact with the axle.

8. In a bearing of the class described, the combination with the axle, of an axle box provided with a rectangular shaped packing chamber, a flexible, flanged annular packing member arranged adjacent the inner wall of the packing chamber and the axle, a metallic member surrounding the packing member, and having a base portion which forms a seat for that portion of the packing member arranged adjacent the inner wall of the packing chamber, said metallic member also having an outwardly projecting flange, a plurality of packing rings arranged between said flange and that portion of the packing member arranged adjacent the axle, and a wedge coöperating with the outer wall of the packing chamber and with said packing rings and annular member to hold said packing member in close contact with the inner wall of the packing chamber and the axle.

9. In a bearing of the class described, the combination with the axle, of an axle box having a rectangular packing chamber at its rear end, a flexible, fibrous packing member having a squared portion arranged adjacent the inner wall of the packing chamber, and an annular portion arranged adjacent the axle, a metallic ring positioned about the

annular portion of said packing member, and having a base which forms a seat for the squared portion of the packing member, said metallic member also having an outwardly extending annular flange, a plurality of packing rings interposed between said flange and the annular portion of the packing member, a wedge interposed between said packing rings and the rear wall of said chamber, and means for adjusting said wedge and holding the same in any adjusted position.

10. In a bearing of the class described, the combination with the axle, of an axle box having a rectangular packing chamber at its rear end, said packing chamber having an opening in its upper portion, the inner and outer walls of said chamber having openings for receiving the axle, a packing member, having a squared portion formed to seat against the inner wall of the packing chamber, and having an angularly disposed portion surrounding the axle, a metallic member positioned about said packing member and having a base portion which seats against the squared portion thereof, and having a flange which extends outwardly, substantially parallel with the axis of the axle, a plurality of beveled packing rings interposed between said flange and the portion of the packing member adjacent the axle, a member having a pair of depending wedges which extend downwardly through the opening in the upper portion of the packing chamber, and which straddle the axle, said wedges being interposed between the outer wall of the packing chamber and said packing rings, and means for connecting said member with the axle box and for adjusting the same with respect to said packing rings.

11. In a bearing of the class described, the combination with the axle, of an axle box having a rectangular packing chamber at its rear end, said packing chamber having an opening in its upper portion, the inner and outer walls of said chamber having openings for receiving the axle, a packing member having a squared portion formed to seat against the inner wall of the packing chamber and having an angularly disposed portion surrounding the axle, a metallic member positioned about said packing member having a base portion which seats against the squared portion thereof and having a flange which extends outwardly substantially parallel with the axis of the axle, a plurality of beveled packing rings interposed between said flange and the portion of the packing member adjacent the axle, a member having a pair of depending wedges which extend through one of the openings of the packing chamber and which straddle the axle, said wedges being interposed between the outer wall of the packing chamber and said packing rings, and a plurality of bolts for connecting said member with the axle box adapted for adjusting said member with respect to said packing rings and holding the same in fixed position after adjustment.

In testimony whereof I affix my signature, in the presence of two witnesses.

EDGAR PECKHAM.

Witnesses:

D. EDWARD DAVIES,

WALTER FRANCIS JOHNSON.