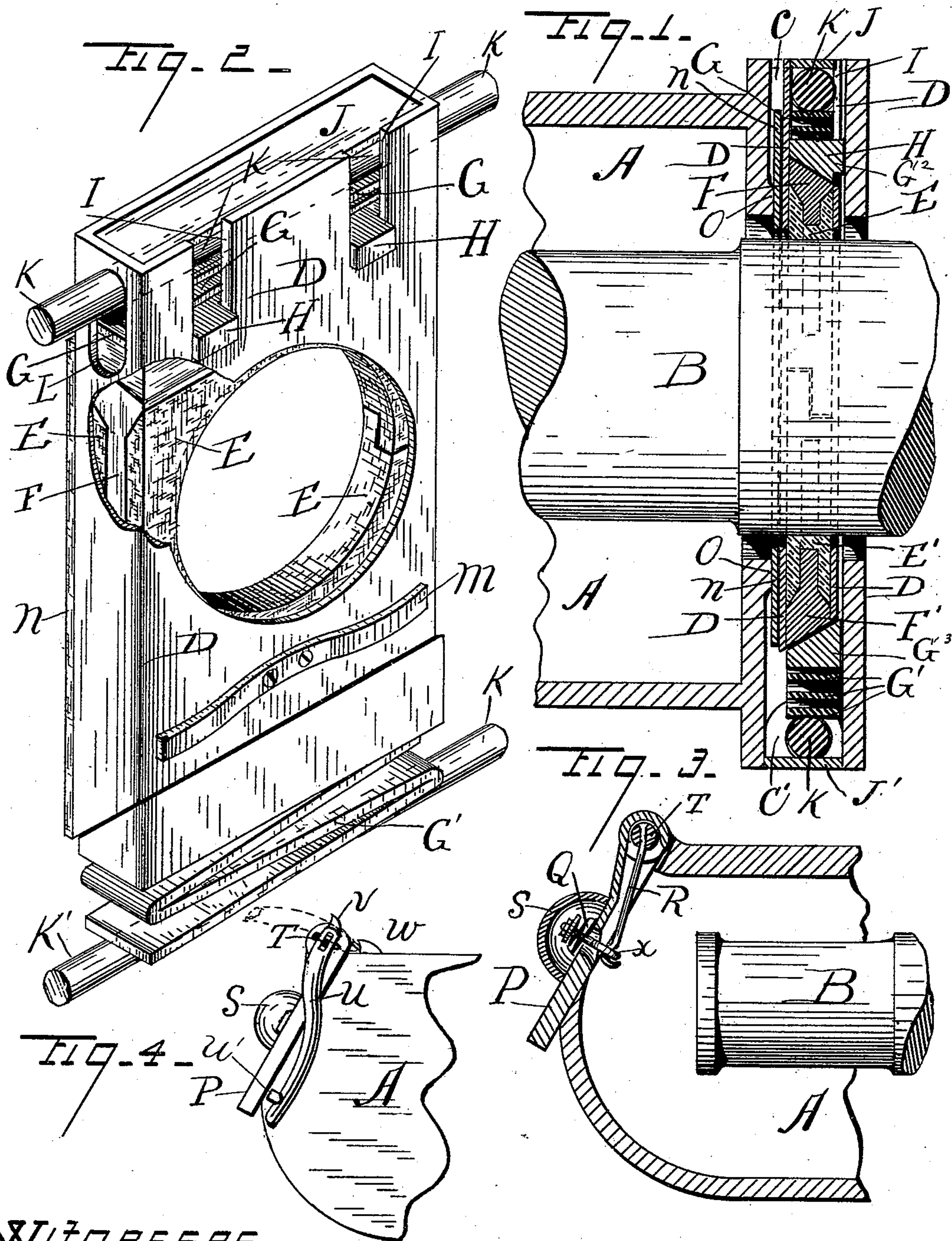


(No Model.)

J. PETITHOMME.
DUST GUARD FOR CAR AXLE BOXES.

No. 464,107.

Patented Dec. 1, 1891.



WITNESSES

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DUST-GUARD FOR CAR-AXLE BOXES.

SPECIFICATION forming part of Letters Patent No. 464,107, dated December 1, 1891.

Application filed May 9, 1888. Serial No. 273,351. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH PETITHOMME, a citizen of the United States, residing at Oakland, in the county of Alameda and State of California, have invented a new and useful Car-Axle Box, of which the following is a specification.

My invention relates to improvements in journal-boxes used in connection with railway-car axles; and the object of my improvement is to provide an oil-tight and dust-proof car-axle box which shall require little or no attention after it is once put up and may be overhauled with ease and dispatch, as becomes a railroad appliance.

Referring to the accompanying drawings, which form part of this specification, Figure 1 is a broken sectional elevation of a car-axle box, showing an improved inclosure or recess for the dust-guard; Fig. 2, an enlarged perspective view of my improved dust-guard, the casing being partly broken to show the inside parts; Fig. 3, a sectional elevation of the fore part of the box, showing my improved box-lid; and Fig. 4, a broken side elevation of the same.

The same parts are indicated by the same letters of reference in the four views.

A represents the body of a journal-box; B, a railway-car axle journaled therein, and C a dust-guard inclosure or recess, which extends down below the bottom of the box and has an opening at the lower end at C' besides the usual aperture at the top. This inclosure is made deeper than the box to afford room for springs sufficiently elastic to secure the constant adjustment and full wear of the dust-guard. As to the bottom opening, it is provided in order to give ready access to the lower end of the dust-guard whenever it is desirable to replace the wearing parts by new ones.

D is the dust-guard casing, which consists of an open-ended box made of sheet-iron or other suitable material, and is placed in the rear inclosure of the box A, both having central apertures through which the axle-journal is passed. Into this casing are inserted packing-pieces E E', composed of any pliable substance fit for padding or stuffing. These are cut away in a semicircle and lap-jointed, so as to form a close-fitting and adjustable

washer around the axle. Both E and E' are slitted or grooved and engaged by similarly-curved metal plates F F', which give them more body and are gradually adapted to make a smooth and even joint with the axle as the packing-pieces wear away. Thus is formed a washer or dust-guard composed partly of metal and partly of a soft substance. The advantage gained by this combination of a hard material, like metal, with packing easily yielding to pressure is that a washer or dust-guard of this make is more effective and durable than one made of either substance alone. Indeed, the packing used singly wears out too fast, while the metal alone cannot at first make a true joint if used in the rough state; but by combining the two materials I secure at once the advantages derivable from the pliancy and oil-absorbing power of the one and from the stiffness and solidity of the other. The plates F F' are wedge-shaped, as shown, and thereby adapted to act as spreaders or expanders for the packing-pieces and the sides of the casing. F', the lower plate, may be either loose or rigidly secured to the casing, as preferred.

The lapping-pieces and spreaders embedded therein are made to closely embrace the collar or shoulder of the car-axle journal through the medium of springs G G', one of which is located in the upper end of the casing D and the other in the lower part of the inclosure C. These springs are made of flat steel bars bent in a Z or double-Z form, and therefore highly compressible and relaxable, occupying little space when first applied, but stretching afterward in such a way as to force the upper and lower halves of the washer to their bearings until almost completely worn out. The dust-guard is thus used up to its fullest capacity, and, as a rule, has not to be renewed before other repairs are needed—such, for instance, as the refitting of the journal-bearings. Bars G² G³ are interposed between the springs and the spreaders to double their range of pressure, as will now be explained. It is no less important that the dust-guard should make a close joint with the main side of the box than with the axle, in order to have a journal-box really oil-tight and dust-proof. This result is easily obtained by beveling the outer ends of the spreaders F F' and

the adjoining sides of the spring-actuated bars G^2 G^3 . The springs are thereby enabled to exercise a side pressure as well as a direct one, and consequently carry the washer toward the inner wall of the recess C while pressing it also in the direction of the axle. Side pressure is further secured by providing the upper bar G^2 with buttons H H, projecting out of the casing D at the rear, and applying a spring M to the lower part of the dust-guard on the same side. The ends of this back spring and the buttons find a bearing upon the outer wall of the dust-guard inclosure, and they therefore help to press the dust-guard forward. Slots I I are cut out for the buttons H in the back of the casing to allow the bar G^2 and spring G freedom of action in the adjustment of the upper half-washer, as also during the occasional upward movements of the car-axle.

Covers J J' may be used to shield the dust-guard and its inclosure, if desired. The same could be utilized as bearings for the springs G G' ; but I prefer for this purpose the use of cross-bolts or split pins K K', the upper one of which is passed through slots L L, cut in the sides of the casing, and the lower one fitted in the bottom part of the dust-guard inclosure.

To insure a still better joint of the dust-guard with the side of the box, I line its face with packing N and have it bear against a joint-strip O on the inner wall of the dust-guard recess. This joint-strip runs all around the central opening provided for the axle and readily works itself into the face-packing, thereby affording another stop to the entrance of dust and the escape of oil.

P represents the box-lid, which is hinged to the outer end of the box, so that it will hang down and keep closed under ordinary circumstances. This, however, is not sufficient to render the box dust-proof at that point, as, owing to the jolting of the car when in motion, the lid will vibrate unless firmly secured in place. I therefore provide it with a locking mechanism, which is made and applied as follows: A volute spring Q is seated upon the face of P and put under the control of an eyebolt X, passing through the center of the lid. A hook R, set in a suitable slit in the upper part of the cover and rigidly secured to the hinge-bolt T, is then made to engage the eye of the bolt X, so that the spring will be held in tension and allow the opening of the lid only upon the turning of the hinge-bolt. The latter is rendered immovable by means of a lock-lever U, pivotally connected with it and engaged by a catch U' on the edge of the box. Thus the lid is as tightly shut as the ordinary bolted covers and yet affords ready access to the box, since no hammer or wrench is needed to unlock it, a simple move of the lever being sufficient for this purpose. A cap S is placed over the spring Q to protect it and prevent dust from entering the box through the hole made for the eyebolt.

As it is desirable to have the lid keep open

without holding it when oiling or renovating the waste in the box, I provide the upper end of the lock-lever with an extension or catch V, adapted to engage a corresponding catch W on the top of the box. The lid being lifted up, the lever may be swung sidewise on its pivot and the catches V and W readily hooked together, thereby acting upon the hinge-bolt and connections and keeping the lid open as long as desired.

Without confining myself to the particular forms and precise details of construction herein shown and described, what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. In a car-axle box, a washer or dust-guard composed of lap-jointed packing-pieces, metal plates therein, and a casing for the same, substantially as set forth.

2. In a car-axle box, a washer or dust-guard composed of lap-jointed packing-pieces, spring-actuated metal plates therein, and a casing for the same, substantially as set forth.

3. In a car-axle box, the combination of a washer or dust-guard, wedge-shaped spreaders therein, and a casing for the same, substantially as set forth.

4. In a car-axle box, the combination of a washer or dust-guard, a casing therefor, wedge-shaped spreaders in said washer or dust-guard, and springs acting upon said spreaders, substantially as set forth.

5. In a car-axle box, the combination of lap-jointed packing-pieces, wedge-shaped spreaders engaging slits in said packing-pieces, and a casing for the same, substantially as set forth.

6. In a car-axle box, the combination of lap-jointed packing-pieces, a casing therefor, wedge-shaped spreaders engaging slits in said packing-pieces, and springs acting upon said spreaders, substantially as set forth.

7. In a car-axle box, the combination of a dust-guard, outwardly-beveled plates therein, and springs adapted to act upon the beveled ends of said plates, substantially as set forth.

8. In a car-axle box, the combination of a dust-guard, outwardly-beveled plates therein, and spring-actuated beveled bars bearing against said plates, substantially as set forth.

9. In a car-axle box, the combination of a dust-guard inclosure, a joint-strip on one side thereof, and a dust-guard bearing against said joint-strip, substantially as set forth.

10. In a car-axle box, the combination of a dust-guard inclosure, a joint-strip on one side thereof, a dust-guard, and a face packing interposed between said joint-strip and said dust-guard, substantially as set forth.

11. In a car-axle box, the combination of a dust-guard inclosure, a joint-strip on one side thereof, a dust-guard, and a spring adapted to press said dust-guard against said joint-strip, substantially as set forth.

12. In a car-axle box, the combination of a dust-guard, a packing applied to one side

thereof, a joint-strip bearing against said packing, and a spring acting upon the opposite side of said dust-guard, substantially as set forth.

5 13. In a car-axle box, the combination of a dust-guard, a joint-strip bearing thereon, outwardly-beveled plates in said dust-guard, and spring-actuated beveled bars bearing against said plates, substantially as set forth.

10 14. In a car-axle box, the combination of a dust-guard, an outwardly-beveled plate therein, a spring-actuated beveled bar bearing against said plate, and buttons or projections adapted to exercise a side pressure on said
15 bar, substantially as set forth.

15 15. In a car-axle box, the combination of a dust-guard inclosure, a joint-strip on the inner wall thereof, a dust-guard bearing on said joint-strip, an outwardly-beveled plate in
20 said dust-guard, a spring-actuated beveled bar pressing upon said plate, and buttons or projections on said bar bearing against the outer wall of said inclosure, substantially as set forth.

25 16. In a car-axle box, the combination of a dust-guard inclosure, a washer composed of lap-jointed pieces therein, a casing for said washer, wedge-shaped spreaders engaging
30 slits in said lapping pieces, springs acting upon said spreaders and the washer, a packing applied to one side of said casing, a spring applied to the opposite side of the same, and a joint-strip on the inner wall of said inclosure bearing against said packing, the outer
35 wall of the inclosure serving as a bearing for the ends of said last-named spring, substantially as set forth.

40 17. In a car-axle box, the combination of a dust-guard, beveled plates therein, correspondingly-beveled bars bearing against said

plates, springs acting upon said bars, and cross-bolts or split pins serving as bearings for said springs, substantially as set forth.

18. In a car-axle box, the combination of a dust-guard inclosure, a dust-guard therein, 45 beveled plates in said dust-guard, correspondingly-beveled bars bearing against said plates, springs adapted to act upon said bars, and covers over said springs, substantially as set forth. 50

19. In a car-axle box, the combination of a hinged lid, a volute spring seated upon the face thereof, an eyebolt passing through said lid and adapted to compress said spring, a hinge-bolt, a hook connecting both said bolts, 55 a lock-lever pivoted to said hinge-bolt, and a catch for the free end of said lever, substantially as set forth.

20. In a car-axle box, the combination of a hinged lid, a volute spring seated upon the 60 face thereof, an eyebolt passing through said lid and controlling said spring, a hinge-bolt, a hook connecting both said bolts, a lock-lever pivoted to said hinge-bolt, an extension or catch on the upper end of said lever, and a 65 corresponding catch on the top of the box adapted to engage said extension or catch, substantially as set forth.

21. In a car-axle box, the combination of a hinged lid, a lock-lever controlling the same, 70 and a catch adapted to be engaged by a side movement of said lever and thereby keep said lid open, substantially as set forth.

In witness whereof I have hereunto set my hand.

JOSEPH PETITHOMME.

Witnesses:

A. E. W. PRENVEILLE,
C. M. VERRILL.